

**POPULATION MOVEMENTS, ETHNICITY AND RESOURCE MANAGEMENT
IN WEST TIMOR**

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ABSTRACT

Research studies, involving the relevance of changing patterns and processes of population mobility in Indonesia have tended to focus on permanent mobility, rural to urban movements and migration at an interprovincial and international level. In addition, most population movement studies have been carried out in Western Indonesia. The challenge of this study was to examine the characteristics of internal migration at the village level in West Timor, Eastern Indonesia, where intraprovincial movements, of a temporary and permanent nature, including both rural to rural and rural to urban areas, were expected to be important for rural development and policy making. In addition, mixing of ethnic groups had occurred in the coastal villages close to Kupang, the provincial capital. It seemed appropriate to examine the influence of ethnicity on development, since many ethnic groups live in close proximity to each other in rural areas of Indonesia as a result of spontaneous movements and resettlement programmes. The overall aim of the study was to explore the complex relationship between population movements, ethnicity and development processes and sustainable rural activities.

It was found that there was significant intraprovincial movement to the coastal areas which was not recorded in the census. While the level of immigration, together with natural increase, contributed to increased population pressure on resources, the HTI take-over of land for industrial forest plantations was seen as the main factor hindering adaptive responses. Prior to the HTI take-over, hills people were resettled towards the coast by the government. The impact of the HTI take-over affected the six villages differentially and was influenced by land settlement history and the type of farming system. The coastal villages of Pariti and Oeteta were more dependent on irrigated rice farming and were in better position to cope with the loss of land to the HTI while the coastal villages of Poto and Nuataus and the highland villages of Oelbiteno and Nunsanen were more disadvantaged due to their greater loss of dryland farming resources on which their livelihood depended.

The impact and types of responses to this pressure were examined and discussed in relation to factors influencing sustainable development. These showed that the village farming systems were not flexible enough in the short term to adapt to the rapid changes that had occurred. The HTI take-over further exposed the vulnerability of livelihood sustainability of both coastal and highland villages which was already constrained by a number of factors operating at the village and higher levels. These included the isolation of villages, the centralised approach of the government, the insecurity of land tenure and the lack of political and economic empowerment of villagers. In this context the management of natural resources became more difficult with added risk to the environment.

The close association of ethnic groups, along with social and cultural aspects of each ethnic group, were seen as important factors contributing to the relative harmony under which the Timorese, Rotinese and other ethnic groups live in the same community. This contrasts with the ethnic tension that has resulted from sponsored programmes of resettlement in which there were greater religious, social and cultural differences between ethnic groups. The beneficial effects of ethnic groups living together in the coastal villages, and their diversity, provided opportunity for village development and could be supported by government and non-government efforts, particularly through education, skills development and incentives for small scale enterprises.

Local studies of this kind assist in defining the role of government and non-government agencies toward villagers so that they can respond in an appropriate way to a number of pressures that constrain sustainable livelihood opportunities.

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GLOSSARY

AARD	Agency for Agricultural Research and Development
<i>adat</i>	custom or tradition
AIDAB	Australian International Assistance Bureau (now called AusAID)
<i>alang alang</i>	<i>Imperata cylindrica</i> (a coarse grass)
AMDAL	Government of Indonesia's environmental impact assessment program
<i>ampupu</i>	<i>Eucalyptus urophylla</i>
APBD	<i>Anggaran Pendapatan dan Belanja Daerah</i> , Local Development Budget
APBN	<i>Anggaran Pendapatan dan Belanja Nasional</i> , National Development Budget
APPKD	<i>Anggaran Proyek Pembangunan Keperluan Daerah</i> , Budget for Regional Needs Development Projects
<i>Atoni Pah Meto</i>	People of the dryland culture - major ethnic group in <i>kabupaten</i> Kupang, West Timor
AusAID	Australian Agency for International Development
<i>Bahasa Indonesia</i>	The Indonesian national language
<i>Bangda</i>	Directorate General of Regional Development
<i>Bangdes</i>	<i>Badan Pembangunan Desa</i> , Village Development Office
<i>Bapedal</i>	<i>Badan Pengendalian Dampak Lingkungan</i> , Environmental Impact Management Agency
<i>Bappeda</i>	<i>Badan Perencanaan Daerah</i> , Provincial/Regency Level Planning Body
<i>Bappenas</i>	<i>Badan Perencanaan Pembangunan Nasional</i> , National Development Planning Body

BPS	<i>Biro Pusat Statistik</i> , Central Bureau of Statistics
<i>bupati</i>	administrative head of a <i>kabupaten</i> (regency)
<i>camat</i>	administrative head of a <i>kecamatan</i> (sub-regency)
Delsos	a Catholic Church NGO working on local development
<i>Departemen Kehutanan</i>	The Department of Forestry
<i>desa</i>	village
<i>Dinas</i>	Provincial government sector development offices
<i>dusun</i>	community, level of village administration (hamlet)
Eastern Indonesia	The provinces of North, Central, South and South East Sulawesi, West and East Nusa Tenggara, Maluku, East Timor and Irian Jaya (defined geographically as those provinces east of the Wallace line whereas the administrative definition of Eastern Indonesia includes also the provinces of Kalimantan).
ESCAP	Economic and Social Commission for Asia and the Pacific
FAO	Food and Agriculture Organisation
FSR/E	Farming Systems Research/Extension
GBHN	<i>Garis Besar Haluan Negara</i> , Guidelines of Basic State Policies
GDP	Gross Domestic Product
GOI	Government of Indonesia
<i>gotong royong</i>	community self-help
GRDP	Gross Regional Domestic Product
GSO	Grassroots Support Organisation
<i>hak milik</i>	title to land
HTI	<i>Hutan Tanaman Industri</i> , Industrial Forest Plantations

IDT	<i>Inpres Desa Tertinggal</i> , Presidential instruction for assistance to villages in poverty (backward)
<i>ikat</i>	a type of hand-weaving in Eastern Indonesia
ILO	International Labour Office
IMF	International Monetary Fund
<i>Inpres</i>	<i>Instruksi Presiden</i> , Presidential Instruction for Special Grants Program
<i>kabupaten</i>	regency (administrative unit below province)
<i>kanwil</i>	<i>kantor wilayah</i> , provincial office of a central line agency
<i>kecamatan</i>	sub-regency (administrative unit below regency)
<i>kemiri</i>	candlenut (<i>Aleurites moluccana</i>)
<i>kepala desa</i>	village head
KEPAS	<i>Kelompok Penelitian Agro-ekosistem</i> , Agro-ecosystems Research Group
<i>ketua adat</i>	traditional head (expert in local culture)
<i>ladang</i>	unirrigated agricultural field
<i>lamtoro</i>	a leguminous tree (<i>Leucaena leucocephala</i>)
LIPI	<i>Lembaga Ilmu Pengetahuan Indonesia</i> , Indonesian Institute of Sciences
LKMD	<i>Lembaga Ketahanan Masyarakat Desa</i> , Village Development Council
LMD	<i>Lembaga Masyarakat Desa</i> , Village Council
<i>lontar</i>	a local palm tree of NTT (<i>Borassus sandaicus</i>)
LPSM/LSM	<i>Lembaga Pembina Swadaya Masyarakat/Lembaga Swadaya Masyarakat</i> , non-government organisations aimed at fostering self-help abilities at the community level

NGO	non-government organisation
NTB	<i>Nusa Tenggara Barat</i> , West Nusa Tenggara
NTT	<i>Nusa Tenggara Timur</i> , East Nusa Tenggara
NTTIADP	Nusa Tenggara Timur Integrated Agriculture Development Project (Australian aid project)
NTTWMPP	Nusa Tenggara Timur Watershed Management Planning Project
<i>padi</i>	unhusked rice
<i>palawija</i>	non-rice food crops
<i>pancasila</i>	state ideology based on five guiding principles
<i>paron</i>	system involving the fattening of tethered cattle
PMD	<i>Pembangunan Masyarakat Desa</i> , Village Community Development (formerly known as Bangdes)
PKK	<i>Pembinaan Kesejahteraan Keluarga</i> , Family Welfare Movement
PRB	Population Reference Bureau
<i>Puskesmas</i>	<i>Pusat Kesehatan Masyarakat</i> , Community Health Centre
<i>Repelita</i>	<i>Rencana Pembangunan Lima Tahun</i> , Five-year Development Plan
<i>Rupiah (Rp)</i>	Basic unit of Indonesia currency
<i>sawah</i>	wet rice
SFC	State Forest Corporation, <i>Perum Perhutani</i>
SKEPHI	<i>Sekretariat Pelestarian Hutan Indonesia</i> , NGO Network for Forest Conservation in Indonesia
SUPAS	<i>Survai Penduduk Antar Census</i> , Intercensal Population Survey

SUSENAS	<i>Survei Sosial Ekonomi Nasional</i> , National and Social Economic Survey
TTS	<i>Timor Tengah Selatan</i> , South Central Timor (regency)
TTU	<i>Timor Tengah Utara</i> , North Central Timor (regency)
<i>tumpangsari</i>	system of intercropping food crops under plantation trees
UDKP	<i>Unit Daerah Kerja Pembangunan</i> , Regency Unit for Development Activities
UN	United Nations
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
UNFPA	United Nations Population Fund
UNRISD	United Nations Research Institute for Social Development
WALHI	<i>Wahana Lingkungan Hidup Indonesia</i> , Indonesian Environmental Forum
WCED	World Commission on Environment and Development
WRI	World Resources Institute
YAO	<i>Yayasan Alpha Omega</i>
<i>yayasan</i>	foundation
YGM	<i>Yayasan Geo Meno</i> , Geo Meno Foundation
YTN	<i>Yayasan Tana Nua</i> , Tana Nua Foundation

DECLARATION

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no materials previously published or written by another person, except where due reference has been made in the text.

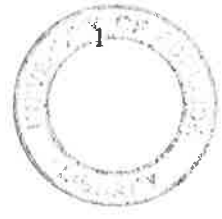
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CHAPTER ONE

INTRODUCTION

1.1 Pressures facing rural communities in developing countries

Increasing levels of population growth and movement in developing countries have been major concerns for governments in their planning and policy making. For rural areas these population changes have often been associated with a deterioration of the environment, continued high levels of poverty, poor access to resources and an impoverished lifestyle - socially, culturally and economically (UNFPA 1991; ESCAP 1992a; World Bank 1994a; UN 1994).

Government and non-government organisations have opportunities to encourage responsible resource management in such contexts. However, efforts made in this direction are often impaired not only by insufficient financial provision but also by a lack of understanding of the ways to facilitate development at the village level. Imposed development, without village involvement, is more likely to have undesirable consequences on the people and their environment than be successful in improving conditions at village level. Government policies, such as decentralisation, may in theory give more power and responsibility to local authorities and village leaders but be harder to implement in practice due to such problems as vested interests, inappropriate power structures, corruption and limited human resource development. There is, however, increasing realisation that government and non-government organisations should operate more effectively as facilitators of village development and that funding, services, expertise and infrastructural support should be in line with the aspirations of villagers and their decision making (Chambers 1983; Korten 1990; Carroll 1992).

On a district or regional level, rural development becomes more complex because of decisions concerning land management. There are many parties involved in the decision making process when operating at this level, invariably with competing interests, and there is greater need for data to make evaluations on land capability and land suitability for rural resource management. Requirements for land tenure reform, infrastructure, provision of marketing outlets, regional centres, extension and other services, as well as appropriate use of technology, add to this complexity. In implementing appropriate land management strategies for regional development in developing countries these kinds of difficulties need to be resolved to prevent unwelcome outcomes such as land degradation, loss of productive land and deterioration of water quality.

Population movement has important social and economic consequences. In Indonesia the government has attempted to direct the pattern of population movement through a range of policies and programmes, to achieve a more effective and balanced match of resources and the spatial distribution of people. Policies such as transmigration, sedentarisation, and a range of urbanisation initiatives have attempted to influence the pattern and scale of migration. However, the linkages between existing patterns of internal migration and regional development are by no means clear or fully understood and their policy implications have not been elaborated (Hugo et al. 1990).

The types of policies which are relevant here include those for population redistribution, promotion of alternative livelihood options, the strengthening of resource management practices and improvement of services. Policies which encompass the above are more likely to be effective if there is a knowledge and understanding of contemporary mobility patterns, their underlying causes and consequences.

As a result of both spontaneous movement and national resettlement programs a large number of ethnic groups coexist in rural areas of Indonesia. Each ethnic group, characterised with respect to social and cultural traditions, type of livelihood and other factors, has an important role in community development (Hettne 1993). An appreciation of these ethnic elements, and of the way in which they integrate and contribute to rural development processes, has potential for encouraging the right type of ethnic environment for rural development. Little research has been carried out in Indonesia to examine the impact of both rural population movements and ethnicity at the local level, particularly with regard to development processes and sustainable agricultural and forestry activities. These studies require detailed information concerning the type of migration movements and their impacts, the characteristics of the ethnic groups involved, their resource management practices and livelihood options, and their contribution to sustainable rural development.

1.2 Aims and objectives

The overall aim of the present study is to explore these complex relationships between population movements, ethnicity and rural resource management in less developed countries by an intensive analysis of an area in West Timor, Indonesia.

More specifically the objectives of the study are as follows:

- To determine the type and extent of population movements in a selected rural area of West Timor and assess their socio-economic, environmental and demographic impacts.
- To assess the way in which different ethnic groups contribute to rural development processes at the local level.
- To establish how local level household options are selected and practised, and resources managed, particularly with respect to sustainable development.
- To determine the role of external agents, such as government and non-government organisations, in promoting livelihood opportunities and strengthening resource management practices.
- To clarify the relationships between population mobility, ethnicity and sustainable rural development, in the light of existing theory. Specifically, an attempt will be made to clarify how factors influencing village development processes can constrain, or provide opportunity for, adaptations to agricultural systems, and can influence village population movements.
- To evaluate the importance of the research findings for policy-making.

1.3 Outline of the thesis

The thesis is divided into eleven chapters. The present chapter provides an introduction to the study by presenting the aims and objectives and justifying the importance of the study. The country setting of Indonesia is described along with a focus on Eastern Indonesia as a region which has, until recently, attracted less attention in terms of its

development problems. The situation of Indonesia is described in relation to other less developed countries together with relevant trends in the Southeast Asian region and globally.

In chapter 2 theoretical approaches to rural development are examined with special emphasis given to the concepts of sustainable development, participation and empowerment. The relevance of these concepts to Indonesia are discussed in chapter 3 along with implications for rural development policies. An evaluation of the resource management processes is made, including internal and external agents of change. Problems facing rural resource management of agricultural and forestry areas in Indonesia are examined with due emphasis placed on the environment and sustainability. Chapter 4 examines the importance of population movements in rural areas and relates these to policy and planning issues in the Indonesian context. The linkages between population movements, resource management and the environment are also explored in this chapter. Chapter 5 then assesses the likely role of ethnic factors in rural development and reviews the concept of 'ethnodevelopment'.

The background setting for the research study in West Timor, in the province of Nusa Tenggara Timur in Eastern Indonesia, is given in Chapter 6. Chapter 7 sets out the methodology by which six villages were selected from the regency of Kupang in West Timor, Indonesia. Four of the villages, Nunsaen, Oelbiteno, Poto and Nuataus, are situated in the sub-regency of Fatuleu; the other two, Pariti and Oeteta, are located in the sub-regency of Sulamu (see Figure 7.1). Nunsaen and Oelbiteno are traditional Timorese villages situated approximately 20 and 30 kilometres, respectively, west of the main east-west highway in mountainous terrain. They are relatively isolated with service roads in poor condition. The other four villages are situated close to the coast with mixtures of mainly Rotinese and Timorese households. Movement of people into this district, from hillier to coastal areas, has been encouraged by the government. Immigration from neighbouring islands and other parts of West Timor to these villages has also occurred.

Chapter 8 describes the type and extent of population movements and assesses their impact in relation to development issues. Differences, inequalities and relations between ethnic groups are explored to determine their influence on rural development processes. Chapter 9 examines the impact of forestry plantations. The responses of the villagers to this type of development are described and the implications for village development are evaluated, including possible co-management of the plantations.

The question of livelihood sustainability is discussed in chapter 10 along with theoretical perspectives for sustainable development. It also examines the role of government and non-government organisations, and evaluates the importance of the study for policy making. Chapter 11 draws together the main findings of the study. They relate to the importance of population movements and ethnicity for resource management and the impact of government forest policy at local level. In addition, an overall evaluation of the study is made with respect to directions for further research.

1.4 The country setting

The following section briefly describes the Indonesian setting so that the study can be placed in a proper context. Some global trends, relevant to the study, are also discussed.

1.4.1 Geography

Indonesia is an archipelago of 13,677 islands in Southeast Asia straddling the equator for nearly 5,100 kilometres, extending from Sumatra in the west to Irian Jaya in the east. While the country is divided administratively into 27 provinces, major regional groupings are frequently employed. The historical division into 'inner' Indonesia (the densely populated, intensively farmed islands of Java, Madura and Bali) and 'outer' Indonesia (the relatively sparsely populated other islands) dates from Dutch times and has largely been replaced by an east-west divide. The geographical region of Eastern Indonesia lying to the east of the biogeographical divide, represented by the Wallace line (Wallace 1962; Chauvel 1997), comprises the provinces of Nusa Tenggara Barat (West Nusa Tenggara), Nusa Tenggara Timur (East Nusa Tenggara), Timor Timur (East Timor), the four provinces of Sulawesi, Maluku and Irian Jaya (Figure 1.1); this definition is used for the study unless stated otherwise. For purposes of administration and development, however, the four Kalimantan provinces are also designated 'Eastern Indonesia', though such a label makes little geographical sense.

Most of Indonesia has a warm, humid climate. Sumatra and Kalimantan have negligible dry seasons and are dominated by the western, moist monsoons. Eastern Indonesia is affected by a dry monsoon from Australia from about June to October, with markedly less rainfall in areas closest to Australia, such as Timor, than in the western parts of the country.

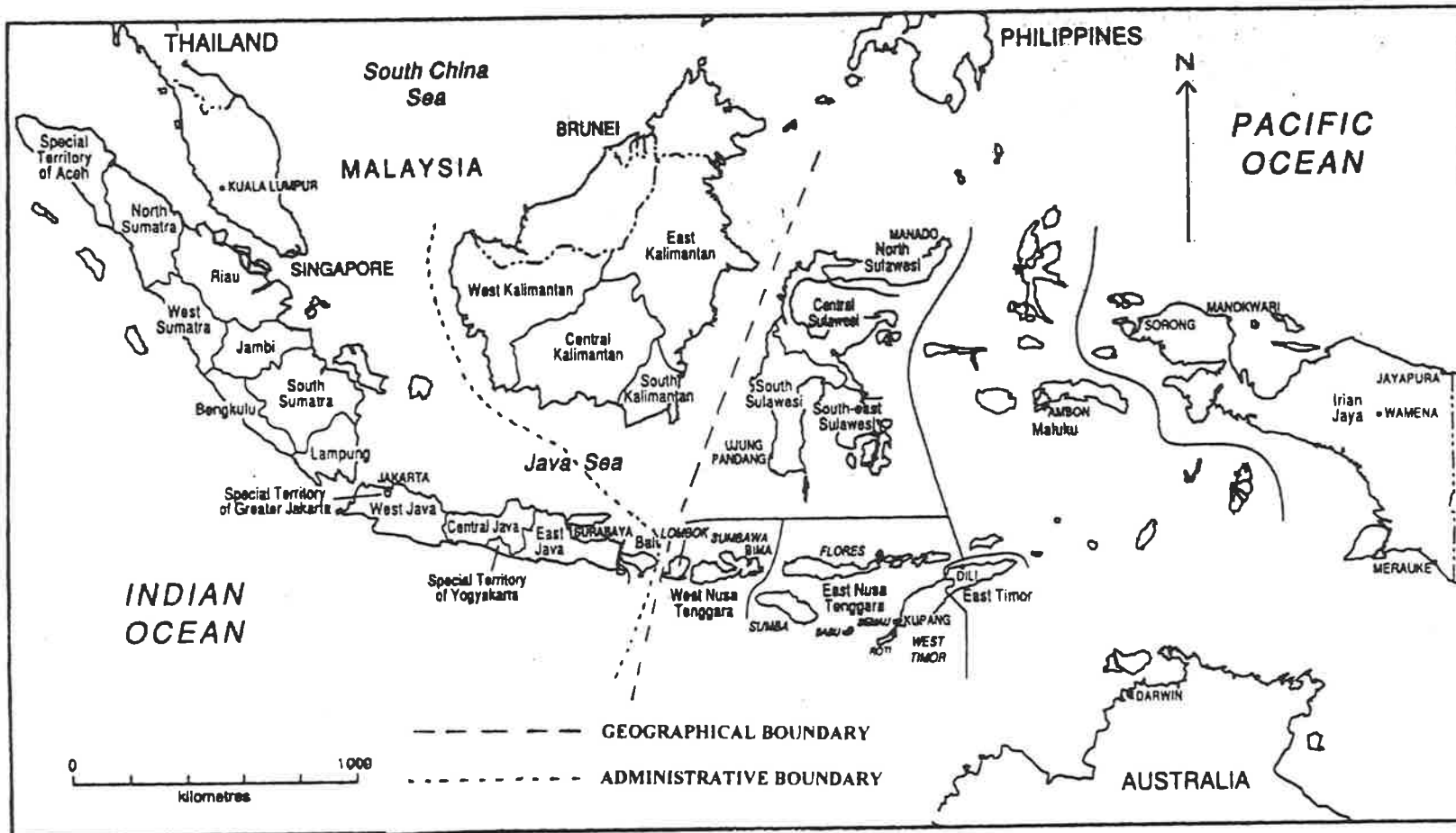


Figure 1.1: Map showing the provinces of Indonesia, the geographical and administrative boundaries between Eastern Indonesia and Western Indonesia, and the neighbouring countries

The archipelago is formed in part from two continental shelves: the Sunda Shelf in the west, being an extension of the Asian mainland and containing Sumatra, Kalimantan and Java; and the Sahul Shelf in the east which links Australia and the island of New Guinea. Two main mountain arcs run parallel to each other of which the inner one is volcanic. This volcanic chain forms the central mountains of Sumatra, Java, Bali, Lombok, Sumbawa, and Flores, passing through Alor and Wetar to the Banda islands in the east. Another non-volcanic chain, formed from raised coral reefs and sedimentary rocks, lies outside the volcanic one, and forms the islands west of Sumatra, as well as Sumba, Savu, Roti, Timor, and Tanimbar further to the east, before arcing north to the islands of Seram and Buru, just west of the Sahul Shelf (Donner 1987: 2). The greater fertility of soils of the eastern two-thirds of Java and nearby Bali, by comparison with nearly all the rest of Indonesia, arises from the neutral-basic character of the volcanic ejecta from which they are derived. The fertile alluvial soils of their inner basins have enabled permanent settlement of large numbers of wet-rice cultivators. Whereas Java and Bali have high population densities and labour-intensive irrigated agriculture, the outer islands are less densely populated with areas dominated by shifting cultivation and dense rainforests (Donner 1987: 9).

In the higher-rainfall and more humid islands of Indonesia, tropical rainforests are found. They occupy both lowland and upland areas, including the swamps. The western islands of Sumatra and Kalimantan are characterised by species of the *Dipterocarpaceae* family. Further east, the tropical rainforests are mixed hardwood types, which include some dipterocarp (Potter 1991). Natural forests cover approximately two-thirds of Indonesia's land area. Longstanding human occupation has removed much of the forest in the more favourable areas, such as in Java, for conversion to agriculture. Currently, deforestation, resulting from exploitative practices and clearing for human settlement in the outer islands, especially Kalimantan, has implications for sustainability of the environment and of local livelihoods. The clearing of land has often given rise to an impoverished soil and to the replacement of the primary forest by secondary bushland and *Imperata* grassland (Donner 1987: 20).

1.4.2 Indonesia's development

The Dutch control of Indonesia, as a colonial power, progressively increased from the early 17th century to the 20th century. Political and economic control combined with territorial expansion under the Dutch gave rise to nationalist movements which led to independence in 1945 under President Sukarno. Sukarno's later rule was marked by corruption, economic problems and conflict with Malaysia. He espoused a communist-

style ideology which eventually alienated his former allies, the military. In 1965 the army took control under General Suharto. Suharto was appointed as president in 1968. He promised a return to democracy and opened up the economy to Western investment. Under Suharto there was a relatively stable period of government up to the present time with, however, increased concentration of wealth in the hands of a few, including the president's family. The present economic crisis led to the first serious challenge to Suharto's power with corruption again being widespread. Suharto was forced to step down in May 1998 with Habibie taking over as president. The country is now in a state of transition with many uncertainties as to its new political make-up after elections which will take place in 1999.

From 1965, one of the major goals of the 'New Order' was a national development based on high economic growth. To achieve this objective, development efforts were formulated in a series of Five-Year Development Plans (*Repelita*), that commenced in 1969. Policies were directed, for example, towards self-sufficiency in rice production, exploitation of natural resources particularly forests, expansion of institutional supports, and improvements in health and educational facilities. The exploitation of Indonesia's natural resources over five *Repelita*, has, however, had undesirable environmental consequences. In recognising these, the Broad Outlines for State Policy (*Garis Garis Besar Haluan Negara* or GBHN) in 1988 and 1993 (Department of Information 1988; 1993) stressed that sound environmental management was vital to ensure sustained development. The specific issues identified in *Repelita V* (1988/89-1993/94) and *Repelita VI* (1994/95-1998/99), relating to natural resources and the environment, included declining land and forest productivity, watershed degradation, urban pollution, coastal and marine degradation, destruction of genetic resources, lack of institutional support for environmental policies, and insufficient community knowledge and participation in environmental protection. Hardjono (1991) has also alluded to the serious environmental consequences of development activities in forestry and agriculture combined with population growth. The pressure on the environment has given a new emphasis for policies relating to management of natural resources and social development. An Environmental Impact Management Agency, BAPEDAL (*Badan Pengendalian Dampak Lingkungan*), was established in 1990 under the Ministry for Environment. The tasks of the agency are to develop and enforce environmental standards; to establish a reference laboratory and data processing centre; and to increase community participation in improving environmental quality (MacAndrews 1994: 89; World Bank 1994b: 181). MacAndrews (1994: 102) described the task of the agency as 'a challenging one, because of its nationwide mandate and the physical size and population of the country'.

1.4.3 Social and economic background

Indonesia is a very diverse country with respect to its culture, economy and demography. The Indonesians comprise some 300 ethnic groups, most of which probably have Austronesian (Malay-Polynesian) ancestry. The Javanese are the dominant ethnic group in terms of numbers and political power; other main groups are: the Acehnese, Bataks and Minangkabaus in Sumatra; the Sundanese in Java; the Madurese in Madura; the Balinese in Bali; the Minahasan and Buginese (Bugis) in Sulawesi; the Dayaks in Kalimantan; and the Irianese in Irian Jaya. The most significant immigrant group who hold a disproportionate share of the country's wealth are the ethnic Chinese. The official language is *Bahasa Indonesia* and is spoken as a second language by most educated people.

Most of the population are Muslims (90 per cent); the form of Islam existing in Java has been influenced by Buddhism and Hinduism. Islam is more traditional in its observances outside Java, for example in Aceh. Non-Muslims (about 10 per cent) comprise Christians, Buddhists, Hindus and Confucianists. The Christian religion predominates on some of the outer islands in Eastern Indonesia, such as Flores, Roti and Timor, and among other discrete groups, such as Dayaks in parts of Kalimantan, Bataks in North Sumatra and the inhabitants of Manado in North Sulawesi. A large number of people still follow traditional belief systems. The ideological basis of Indonesian nationhood is based on the *Pancasila* which embodies five principles: a belief in God, nationalism, humanitarianism, sovereignty of the people and social justice.

Rural societies are strongly influenced by traditional customs (*adat*) which govern aspects relating to daily life, land use and cultural behaviour. Changes in social, economic, political and cultural patterns have occurred as a result of Indonesia's colonial history, the government's promotion of the New Order nation-state, and the mixing of ethnic groups due to population movements (Hill & Mackie 1994).

Since the early years of the New Order, Indonesia has profited from the Green Revolution of high yielding varieties of rice and from oil revenues. Following macroeconomic policies and major microeconomic reforms to encourage economic development, Indonesia was able to sustain an economic growth rate of 6 per cent as well as trebling per-capita income over a thirty-year period (Arndt 1995). The earlier dominant share of agriculture in the economy has now been taken over by industry. Forestry activities and timber processing, especially into plywood, have made a

significant contribution to export and employment. Mineral development and petroleum and gas extraction have also remained important. The rapid growth of the manufacturing sector and the service industries has resulted in shifts in the labour force. These economic changes, combining growth and restructuring of the economy, have resulted in labour-displacement effects in Indonesia, particularly from the agricultural sector. For the 1980-1996 period, agriculture's share of Gross Domestic Product (GDP) declined from 25.0 to 16.3 per cent with a decline also of agriculture's share of the labour force from 55.9 to 44.0 per cent (Bank Indonesia 1997; BPS 1997; Hugo 1997: 95). The above changes reflect the shift away from the agricultural sector towards employment in manufacturing and services.

Improved standards of living have been of key importance for Indonesia's development plans. Economic growth for the period 1971-1996 (7.8% for 1996) has been a major factor in increasing per capita income from US\$70 to US\$730 (GOI/UNICEF 1994: 64; PBR 1995; Bank Indonesia 1997). A comparison of Indonesia with other countries and regions in the world is given in Table 1.1. This shows that Indonesia is relatively poor with a per capita income only two-thirds of that of Southeast Asia as a whole. Nevertheless, for the period of 1970-1993, the number of people living below the poverty line had dropped from 70 million, or 60 per cent of the total population, to 25.9 million, or approximately, 13.7 per cent (GOI/UNICEF 1994: 2).

Table 1.1: Per Capita Income Comparisons of Indonesia with Other Countries and Regions, 1995

	Population (million)	Per capita income US\$
Indonesia	198	730
Comparisons: Southeast Asia	483	1,074
Asia	3,300	1,973
Australia	18	18,250
Thailand	60	2,040
Philippines	68	830
Vietnam	75	170

Source: Population Reference Bureau (PBR) 1995

Steady improvements in life expectancy and declines in infant mortality have occurred, as shown in Table 1.2. Infant mortality rates have fallen from 160 per thousand live births in the early 1950s to 64 per thousand live births in 1995, and the average life

expectancy at birth has increased by 25 years, or 66 per cent during the same period. In addition the adult illiteracy rate has fallen. For example, for 15-24 year-olds, 26 per cent females and 13 per cent males were illiterate in 1970 compared to 18 per cent females and 10 per cent males in 1990 (United Nations 1995).

The Indonesian government has promoted policies and development programmes specifically for women. This has resulted in women having smaller families, a better education and improved access to health facilities (Raharjo 1997). According to Raharjo the labour force participation rates of women have also increased substantially and are expected to reach 50 per cent by the year 2003.

Table 1.2: Life Expectancy and Infant Mortality

	1950-55	1965-69	1995
Indonesia			
Life expectancy (years)	38	46	63
Infant mortality rate (per 1,000 live births)	160	124	64
1995 life expectancy comparisons			
Southeast Asia	41	49	64
Thailand	47	57	70
Philippines	48	56	65
Asia	41	54	65
World	46	56	66

Source: United Nations 1995; Population Reference Bureau 1995

Following the success of the family planning programme introduced in the late 1960s there has been a general decline in the population growth rate although there are significant differences between regions. The decline in growth rates has resulted from a drop of 50% in total fertility rate since the mid-1960s (Appendix A, Table 1).

1.4.4 Population trends, development and the environment

The populations of the different island regions in Indonesia, along with growth rates and population densities are shown in Table 1.3. Provincial population statistics are presented in Appendix A (Tables 2 and 3). They show that Java (including Madura) has

about 60 per cent of Indonesia's population with its population density greatly exceeding that of the other regions. To what extent population densities and other factors, such as poverty, contribute to the degradation of natural resources in Java is debatable. In upland farming areas on Java, the population density has reached a level of 700 to 900 persons per square kilometre. According to Repetto (1986) and Barbier (1990) one third of these upland areas are seriously eroding and large areas of croplands have been degraded to the point that they no longer support subsistence farming; this has threatened the livelihood of some 12 million people.

Table 1.3: Population of Indonesia, 1995

Region	Area (thousand sq. km)	Population (thousands)	Average annual growth rate 1980-90 (%)	Average annual growth rate 1990-95 (%)	Density (person/ sq. km)
Java	135	114,733	1.7	1.3	850
Sumatra	541	40,830	2.7	2.2	75
Kalimantan	551	10,471	3.1	2.7	19
Sulawesi	228	13,732	1.9	1.8	60
Bali	5.5	2,895	1.2	0.8	526
NTT	48	3,577	1.8	1.8	75
NTB	20	3,645	2.2	1.6	182
East Timor	15	839	3.0	2.4	56
Maluku	74	2,086	2.8	2.4	28
Irian Jaya	422	1,942	3.5	3.3	4.6
Indonesia	2,045	194,755	2.0	1.7	95

NTT - Nusa Tenggara Timur; NTB - Nusa Tenggara Barat

Source: Biro Pusat Statistik (BPS) 1996.

From estimates derived from quantifying the soil erosion process, Donner (1987: 124) showed the seriousness of the problem for the upper Solo river watershed, a densely settled area on Java. Donner states that 'population pressure in Java has already reached such a level that there is hardly any chance of implementing the necessary techniques to establish a new equilibrium'. A more positive view is expressed by Nibbering (1997), however, in his study of three upland regions in Java: the South Serayu Mountains in

Central Java, the Gunung Sewu in the Yogyakarta Sultanate, and the South Malang hill range in East Java. He describes improvements in land use induced by population pressure and land degradation, such as terrace construction and terrace improvement. In all three areas there has also been renewed interest in tree-planting. For example, in Gunung Sewu farmers have planted trees, particularly on hillsides, to supply timber, fruits and fodder, and firewood which is sold on urban markets. The tree planting activity is associated with farmers engaging in more non-farm activities and circular migration as well as being involved in increased tree-cropping. In the South Malang hill range farmers planted trees (*Gliricidia sepium*) on fallowed hillsides which provided an important source of fodder for stall-fed livestock. Filius (1997) found that the farmers' willingness to grow trees in the Gunung Kidul upland regency of Central Java depended on many factors, one of which included a response to declining soil productivity as a result of erosion. Overall there are different views on the nature of linkages between population and the environment.

With respect to population movements, the social and economic changes in Indonesia, together with the improvements in transportation, have enabled people to become more mobile. Increased rates and changed patterns of mobility have occurred in the last two decades with respect to international, intraprovincial and non-permanent migration (Hugo 1997). Hugo states that in the second half of the 1990s the mobility of Indonesians will rise with respect to internal (both permanent and non-permanent) and international movements. People will be influenced by the media, structural changes in the economy, improved education levels, technological developments in agricultural production and the changed status of women.

In 1990, about a third of Indonesia's population lived in urban areas, compared to a sixth of the population in 1970 (Jones & Hull 1997). While the level of urbanisation has received much attention as an issue in Indonesia's development, the predominance of the agricultural sector and the availability of agricultural land have influenced the extent of migration from one rural area to another. Up to quite recent times the increase of this type of rural-rural mobility has been observed in Indonesia as well as in other Southeast Asian countries such as the Philippines and Malaysia, making possible the expansion of agriculture and forestry activities. In the longer term, though, opportunities will diminish with the lowering of the person-land ratio (ESCAP 1992b).

The formulation of policies are required to confront some of the changes involving migration, socio-economic development and environmental degradation. They need to take account of the linkages between urban and rural areas as well as the

interrelationship between population dynamics, environmental changes and development processes. Unfortunately, these linkages and relationships are not clearly understood and this situation has led to poor policy formulation or inaction (Hossain 1992). Harrison (1993) emphasises the complexity of the relationships and distinguishes between direct and indirect factors affecting the environment. The direct factors involve population - the number of people, consumption - the amount each person consumes, and technology which determines how much space and resources are used. There are many indirect factors, such as poverty, inequality, property rights and women's rights that interact with each other and influence the environmental outcome.

According to Ghimire (1993), though, little systematic attempt has been made to bring the three dimensions of population, environment and development together and analyse them in particular socio-economic and ecological contexts. An opportunity is available in this study to understand the changes and interaction of relevant variables in a local level context. To assist in such an analysis, the concepts involved in the processes of development are discussed in chapters 2 and 3 and the nature of the relationship between the three dimensions is discussed in chapter 4.

From a global perspective, many developing nations are experiencing a growing gap between their own rich and poor people (Seligson 1993). The trends that have occurred could be explained, in part, by considering the linkages between the local, national and global levels. Camilleri (1997) argues that globalisation is a term which describes a wide range of related economic, political, technological and cultural processes, which form a network of links from local to international levels.

In discussion of the implications of globalisation for resource management issues for Indonesia, Adams (1997) attempts to show that these processes, including government policies, can intensify pressures for the loss of local and democratic control over resources and work processes. Some of the outcomes of these globalisation processes include: the increasing resource exploitation by both domestic and transnational corporations; the increasing vulnerability of indigenous populations as subsistence economies are disrupted; increasing local resistance, drawing on the politics of ethnicity and on discourses of indigenous and environmental sustainability; and the progressive removal of land and natural resources from local ownership and control. Howitt, Connell and Hirsch (1996: 5) describe the processes at the local level, from this wider perspective, as 'neo-colonial continuities', and they result in displacement, dispossession and marginalisation. The influence of these processes, in a global context, needs to be understood for developing countries like Indonesia so that strategic

responses can be made at the local, national and international levels. In general, though, well-informed policies are lacking for dealing with these issues, as well as other issues relating to population growth and its distribution, and to the protection of the environment (UNFPA 1991).

1.5 Introduction to Eastern Indonesia and the study area

The Eastern Indonesian provinces of Nusa Tenggara Timur, Nusa Tenggara Barat, Timor Timur, Maluku and Irian Jaya have been regarded as backward (Jones 1995). These provinces are characterised by poverty, isolation of villagers, particularly in the highland areas, the underdevelopment of transport and communication infrastructure, a drier and more variable climate and limited human resource development. Since 1990, in the case of Nusa Tenggara Timur and Timor Timur particularly, these parts of Eastern Indonesia have received more attention from the central government because of their relative lack of progress and their potential for development.

The nature of neglect and underdevelopment in several provinces of the geographical east of Indonesia, compared to the rest of the country, is indicated by data relating to educational enrolment, health facilities and roads, economic aspects and agriculture (see chapter 6). These show that Eastern Indonesia has a much lower total, and per capita, gross regional domestic product, and a higher contribution of agriculture to gross regional domestic product. The region is also disadvantaged with respect to education enrolment, provision of health services and transport infrastructure (Jones 1995: 1-7).

An analysis of the regional economy and of the human environment (as described in chapter 6, sections 6.5.2 and 6.5.3) gives some indication of the disparities between Eastern Indonesia and the rest of Indonesia. However, as indicated by Jones (1995: 7) our understanding of development issues for Eastern Indonesia is limited because of data shortages. These include data related to agricultural development and land capability assessment, accurate mapping of forest areas, data on intraprovincial migration and health.

In selecting an area for this research study, focus was directed towards West Timor, as part of the province of Nusa Tenggara Timur, and of the region of Eastern Indonesia, because of its proximity and importance to Australia with regard to potential development of this region. In addition, research data was lacking, as already indicated, for population movements at the local level and for details on village

development activities. A fuller description of Eastern Indonesia, along with the provincial and West Timorese setting for the research study, is given in chapter 6.

1.6 Conclusion

The accelerating change of the Indonesian landscape is due in part to the increased population density in rural areas and to the exploitation of its natural resources, especially forests. The human and environmental impact of such changes need to be assessed so that policies for future management and development of resources can be tailored to meet long-term requirements for conservation and for sustaining the livelihoods of local people. To accomplish this it is first necessary to examine the relevance of current concepts for rural development, especially those that emphasise an involvement of local people in determining their destiny.

CHAPTER TWO

PLANNING FOR RURAL DEVELOPMENT

2.1 Introduction

More concern has been given in recent years to the environmental and human dimensions of rural development with concepts such as 'sustainable development' 'empowerment' and 'participation'. What is our understanding of these concepts and how relevant are they today for those involved in rural development, such as policy makers, planners, facilitators and villagers?

The aim of this chapter is to clarify the importance of these concepts from a theoretical viewpoint, in relation to rural development processes and resource management. This will provide a framework in which to study the importance of population movements and ethnicity in resource management.

The chapter will review current theoretical perspectives in regard to an understanding of problems facing policy makers and planners, and their relevance for the adoption of policies and strategies for rural development in developing countries.

2.2 Theoretical approaches to rural development

2.2.1 A brief historical background to current concepts

It is estimated that some 40% of the world's population still live in poverty and semi-starvation and of these as many as 90% in some low-income developing countries are rural people (Gabriel 1991). There are a number of theories which have shed some light on the causes of underdevelopment and it is likely for each situation there is more than one theory which can help account for continuing poverty. To appreciate the significance of concepts such as sustainable development, two of the more prominent historical models of rural development are discussed here:

1. The theory of modernisation, basically incorporated a view that traditional society was stagnant and unchanging. A subsistence life, which avoided risk and self-improvement, involved living in traditional social arrangements where relationships and activities were strongly influenced by spiritual values and beliefs. The task was to somehow break the nexus between the traditional and the modern so that the traditional society 'took off' (Isbister 1991; Gabriel 1991). Rostow (1971) identified five stages for economic growth where traditional society was challenged, resistances were overcome, entrepreneurial innovation led to acceptance of economic growth and new technology, and finally, the fruits of growth were transferred to the whole population. According to the proponents of the modernisation theory there was no conflict between the world's rich and poor, between the capitalist markets of the industrial world and the traditional societies of the Third World. What was needed were improved policies, development aid, new technology and sound planning programmes. It was argued that there was a single path to modernisation based on a commitment to growth and improvement through research and development and driven by incentives for profit and wealth, and a competitive marketplace.

However, policies such as promoting urban industrialisation, with an emphasis on investment in export-oriented industries, have not given rise to 'trickling down' benefits to the rural areas of developing countries; the agricultural sector has remained depressed and widespread poverty has characterised much of the developing world (Rondinelli 1986). Lipton (1977) concluded that 'urban bias' pushed resources away from activities which could have encouraged agricultural growth and benefited the poor. Mellor (1976: 14) argued that a redirection of emphasis towards increasing agricultural productivity, rather than urban industrialisation, was the key to economic growth and the reduction of poverty. A refocusing of aid towards the agricultural sector was required to raise agricultural productivity, with the application of appropriate technology supported by extension services and improvements in infrastructure and marketing.

It has also been recognised that direct methods to increase the productivity of the poor, as advocated by modernists, must be supplemented with efforts to meet their basic

needs, such as better health and education services (Streeten 1979). Ideas about basic needs and mass participation were given substance and became key elements in a development strategy advocated by the ILO (1976). In most developing countries, however, the institutional and political obstacles were too great for implementation of a basic needs strategy and public costs were prohibitive (Lee 1981).

2. By contrast with the modernists, adherents to the neo-colonial dependency theory viewed the rich countries as holding the strings which manipulated the activities of poor countries, and in so doing kept them in a dependent state and incapable of progressing. According to this theory it was the capitalism of rich countries, rather than the traditional way of life of Third World countries which caused them to stagnate. Colonisation of these countries by European powers caused a change in traditional structures towards capitalist domination. The Third World capitalists were themselves regarded as dependent on foreign policies and commercial interests, and not able to help in the transformation of their own countries. The way out required a social revolution to confront the destructive forces of capitalism, whether they came about externally or internally (Isbister 1991).

Within the dependency school there is disagreement on exactly how worldwide equity is created and maintained. Hettne (1990) attempts to minimise theoretical diversity by concentrating on common themes:

The most important obstacles to development were not lack of capital or entrepreneurial skills, but were to be found in the international division of labour....this was analysed in terms of relations between regions, of which two kinds - centre and periphery - assumed particular importance, since a transfer of surplus took place from the latter to the former....development and underdevelopment could be described as two aspects of a single global process. All regions were participating in this process were consequently considered as capitalist, although a distinction was made between central and peripheral capitalism...As soon as the external obstacles had been removed, development as a more or less automatic and endogenous process was taken for granted.

Leys (1977) has criticised the dependency school with respect to concepts like 'centre and periphery' which are nothing but 'polemical inversions of the simplistic pairings of conventional development theory' (traditional-modern, etc.). Bernstein (1979) also criticised the theory, since 'development cannot be conceptualised by its self-centred nature and lack of dependence, nor underdevelopment by its dependence and lack of autonomy'.

Hettne (1990) has pointed out, though, that despite the dependency school having declined in popularity, some positive outcomes were the decline of the modernisation paradigm, the emergence of new development strategies and their catalysing effect on development theory.

Strategies which emerged from the dependency and modernisation schools emphasised development 'from above' or 'top-down', rather than 'from below' or 'bottom-up'. These included the 'employment-oriented strategy' of the International Labour Organisation and the 'redistribution with growth strategy' of the World Bank. The employment-oriented strategy called for a generation of productive employment to offset rising unemployment. The redistribution with growth strategy emphasised identification of target groups of the poor and designing appropriate means for increasing access of these groups to productive assets (Lee 1981).

In an effort to tackle the needs more comprehensively, from the 1970s onwards, programmes termed 'integrated rural development' were oriented towards serving the poor. This strategy usually combined a technological 'package' with the provision of general services such as roads, health care and improved water supplies (ODI 1979). The two central components of integrated rural development were multi-sector planning and local level coordination. Management difficulties, however, were faced in trying to address many problems simultaneously and the administrative capacity was lacking for putting these two components into practice, given that the sectoral structure of rural development administration at central government remained in place. Advocates of the integrated rural development strategy, therefore, have attempted to devise an adequate

system for coordinating the multiple functions which must be performed for effective implementation (Bryant & White 1982).

In 1975, a report on 'development and international cooperation' emphasised that development was much more than economic growth, that it could not be imposed according to a single pattern, and that it must spring from people's own initiatives.

Development is a whole: it is an integral, value loaded, cultural process; it encompasses the natural environment, social relations, education, production, consumption and well-being. The plurality of roads to development answers to the specificity for cultural or natural situations; no universal formula exists. Development is endogenous; it springs from the heart of each society, which relies first from its own strength and resources and defines in sovereignty the vision of its future, cooperating with societies sharing its problems and aspirations (Dag Hammarskjold Institute 1975: 7).

The elements of an alternative development thinking, or 'Another Development', as popularised by the Dag Hammarskjold Foundation are defined as: needs oriented; endogenous; self-reliant; ecologically sound; and based on structural transformation to provide self-management and participation in decision making (Hettne 1990).

2.2.2 A 'just' development

Chambers (1983) describes five interlocking factors which contribute to poverty: isolation; vulnerability and powerlessness; physical weakness; and poverty itself. Chambers focuses on how those most in need fail to benefit from development programs unless they have an opportunity to participate in, and contribute to, the planning process. Clark (1991) adds two others to the list: environmental damage and gender discrimination. Galtung's concept of the need for self-reliance in communities also moved away from the dependency school (Galtung 1986). According to Galtung all people in the exploitative centre-periphery system have something to gain from a system founded on the principle of self-reliance which fosters cultural autonomy of

communities and empowerment of individuals for their fulfilment of basic needs as well as their needs for identity, creativity, self-expression and action.

Clark (1991) details the ingredients of a 'just development'. They comprise: infrastructure which may facilitate development; economic growth which may be vital for financing the improvements of the quality of life; poverty alleviation with emphasis on improvement of health, education, nutrition, family planning and quality of water; equity, including gender equity, with a focus on the poorer and disadvantaged segments of society; sustainable use of natural resources; democracy where there is an effective partnership between the government and its people; and social rights where human rights are guaranteed. Clark views this social development approach as the poor being the controllers of the development process itself and not taking a passive role as beneficiaries. In this way, according to Clark, non-government organisations (NGOs) have a valuable role in 'shaping development theory' through the support of grassroots movements and with a special emphasis on women and the environment, and through the intermediary and advocacy role of NGOs with government and other organisations.

From a similar viewpoint Court (1992) advocates that guiding principles, integrally linked, offer a greater opportunity for flexible and contextual development rather than looking for a blueprint of development, arising from the acceptance of any particular model or models of development. Court proposed that development must grow from within; it must adapt to and restore diversity and rely on sustainable forms of resource use; it must provide the basic necessities of life and secure living conditions for all people and promote equity; it must foster self-reliance, local resource control, empowerment and participation of the underprivileged and marginalised; it must be peaceful and allow for mistakes. According to Court, in a contextual situation, a developing country should be guided by these principles to use its economic, natural and human resources effectively.

From these descriptions of 'another' or 'just' development a new focus has been given to such concepts as 'self-reliance', 'participation' and 'empowerment' for resource management in a sustainable way. The concept of 'sustainable development' is seen as

an integral part of the overall development process as well as an end in itself. It is important to have some understanding of these types of concepts and to examine their relevance for rural development in Indonesia and for this study. Such a 'just' approach also has implications for inequalities between nations.

2.2.3 Sustainable development - a new concept or an old one revised?

With respect to the environment, sustainable development is defined in the Bruntland Report as the kind of development that 'meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED 1987: 8). The Bruntland Report stresses the interdependence between the environment and development and discusses critical objectives for policies that follow from the concept of sustainable development. These include (WCED 1987: 49): reviving growth (heavily criticised by some, eg. Meadows, Meadows & Randers 1992); changing the quality of growth; meeting essential needs for jobs, food, energy, water, sanitation; ensuring a sustainable level of population; conserving and enhancing the resource base; reorienting and managing risk; and merging environment and economics in decision-making. Overall, there were needs for environmental protection, economic growth and maintaining the natural resource base for the future. There have been numerous elaborations on the basic definition given by the WCED, either refining it or adding social and ecological dimensions. For example, Diesendorf (1997: 92) emphasises the following key components: conservation of cultural diversity; conservation of biodiversity and ecological integrity; economic sustainability; conservation of other critical capital; and enhancement of well-being. These components are linked to the basic goal of inter-generational and intra-generational equity. They conclude that a minimum set of principles and goals is proposed for achieving both ecological and economic sustainability together, where each principle or goal can be specified in a 'strong' or 'weak' manner in terms of reducing the threat of serious ecological damage. The strength of these principles and the processes which follow to achieve sustainability are likely to vary, therefore, with different organisations and groups of people.

There is much debate also about what needs have top priority. Some, for example, would argue for the sustainable use of natural resources and others would argue for a concept of sustainable economic growth. Redclift (1992) draws attention to the economic approach taken by Barbier (1989: 185) who refers to sustainable economic development as an optimal level of interaction between three systems - the biological, economic and the social - which is achieved 'through a dynamic and adaptive process of trade-offs' (Barbier 1989: 185). Environmental costs can be taken into account in a benefit-cost analysis. In this way environmental improvements are equivalent to economic improvements. Redclift points out the difficulties of this approach for developing countries (in contrast to developed ones):

In the South, on the other hand, struggles over the environment are usually about basic needs, cultural identity and strategies of survival, rather than about providing a safety valve within an increasingly congested urban space (Redclift 1992: 26).

Conservation issues have, therefore, a much lower priority. Tackling more fundamental equity considerations, such as the existence of a highly unequal landholding, or other factors relating to poverty, according to Redclift, should be the primary objective of sustainable development, before dealing with environmental quality. This is reinforced by Vivian (1992) who describes traditional societies as already having extensive ecological knowledge on which to base their sustainable management practices. The concept of sustainable development, it is argued, has been of fundamental importance for their way of life. Young (1997) describes the central components of a village society, such as kinship relations, as 'the very essence of social identity'; these form an important part of the traditional production systems and of any adaptation to them. Inappropriate adaptations of traditional production have, therefore, undesirable cultural consequences. Young suggests that because of the complexities and contradictions, sustainable development should be regarded as a process (rather than as a rigidly defined model), to be explored at the local level rather than at regional or national levels. An understanding at the local level then assists in linking sustainability and policy making to regional and national levels; this approach will be used in this study.

On the wider scale the interrelationships of population dynamics, environmental changes and development processes also need to be understood. The Bruntland Commission viewed population growth and poverty as 'a major cause and effect of environmental problems' (WCED 1987). While these are problems confined more to developing countries a range of issues involves developed countries as well, such as the environmental impact of economic development and its consumption patterns. The debt burden of the developing countries and the imbalance of international trade also contribute to non-sustainable use of resources as well as diminishing the amount of funding for health care, family planning and environmental protection. Arising from these kinds of issues are problems of global warming and climatic change, depletion of the ozone layer, degradation of aquatic resources and loss of biodiversity. These have been discussed at the international level for example, at UNCED 1992 (United Nations 1993b), and illustrate the nature of these problems and their complexity, and the need to understand the linkages at different levels for global and livelihood sustainability.

2.2.3.1 Livelihood sustainability

To emphasise the capacity of people to integrate a range of important variables at the household level Chambers and Conway (1992: 7-8) have defined sustainable livelihoods as follows:

A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living; a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term.

In this context, Sage (1996) describes rural people as 'agents that are engaged in the generation and application of knowledge within specific cultural, economic, socio-political and agro-ecological contexts which are themselves the products of local and non-local processes'. These processes give rise to diverse and complex livelihood

strategies being adopted by rural people. To be involved in these processes, as an external agent, such as a research scientist or extension agent, requires a process of interactive learning and participatory inquiry, as elaborated in the 'farmer-first' approach (Chambers 1983; Chambers, Pacey & Thrupp 1989; Chambers 1993). This contrasts with the traditional, 'top-down', 'transfer of technology' approach.

To illustrate the kinds of problems, arising from local and non-local sources, that can adversely affect farmers in Indonesia, Sage (1996) describes the constraints and responses of transmigrants in North Lampung, Sumatra, in the search for improved livelihood prospects. Some problems were related to production, such as the occurrence of pests and diseases; others were more of a structural nature, such as low and unstable farm gate prices. These types of constraints have implications for the types of crops grown, food security of the household, the purchasing ability for inputs such as fertilisers and the necessity for off-farm employment. On a wider scale 'deforestation has reached such critical dimensions that this region is now plagued by high erosion rates and frequent floods' (Soemarwoto 1991: 222). As a consequence livelihood sustainability is at risk. Sage (1996) advocates building sustainability into livelihoods to reduce the vulnerability of rural households to stresses and shocks. Enhancing the capabilities of such transmigrants is vitally important so they can become more versatile and resourceful in adaptation. This can be achieved with an interactive 'farmer-first' approach which could involve such activities as on-farm experimentation, provision of credit for small business opportunities and facilitating community initiatives for health care, education and alternative employment opportunities.

For a farmer-first approach there are implications then for both government and non-government organisations with respect to the type of technology adopted by rural communities in Indonesia. NGOs operating at the grassroots level (Barlow & Beeh 1995) have a key role to play which can complement new community-oriented approaches by the government, such as the *Inpres Desa Tertinggal* (IDT) government program which started in 1994 and targets less-developed villages in Indonesia (Mubyarto 1994). To what extent these new approaches follow the farmer-first principles, and how successful they are, warrants further study.

2.2.4 The human and political dimensions of sustainable development

As a result of exploitation of natural resources sustainable practices are often sacrificed for those of survival. An alternative approach, therefore, is to examine the political and human dimensions of the concept of sustainability and ascertain the potential for breaking the nexus. Is there a way back? Or is there a way forward?

The concept of achieving sustainability as previously defined by the United Nations' World Commission on Environment and Development (WCED) has major political ramifications:

The pursuit of sustainable development requires a political system that secures effective participation in decision-making....This is best secured by decentralising the management of resources upon which local communities depend, and giving these communities an effective say over the use of these resources. It will also require promoting citizens' initiatives, empowering peoples' organisations, and strengthening local democracy (WCED, cited in Durning 1989: 54).

With respect to a sustainable development policy WCED advocates that the traditional rights of indigenous peoples be recognised and that they should be given a decisive voice in formulating policies in their areas. However, the reality is that most forest communities, as well as those involved in shifting agriculture with access to forest areas, lack land security and have a politically marginal status. They are, therefore, in a difficult situation in regard to having a participatory approach in formulating policies for sustainable development (Colchester 1989). For Indonesia the lack of land security is evident since recognition of *adat* (customary) law by the Indonesian government extends only to areas under permanent cultivation or occupancy (Moniaga 1992). A study of Indonesian law, for example, as applied to Irian Jaya concluded that:

Current agrarian law does not adequately recognise '*adat*' rights in land....thus frustrating environmentally sound, sustainable land management practices. This

is not only unsound policy, it contravenes the goals of the Basic Law on the Environment, as well as the command of the Basic Agrarian Law that land should be utilised in a sustainable way for the optimal use of the people (Barber & Churchill 1987: 10).

Colchester (1995) emphasises the lack of political will and the *laissez-faire* attitude of governments in tackling the human and environmental problems associated with planned and unplanned colonisation of forested areas and with resettlement of farmers from traditional land, now designated as sites for plantation forestry. Myers (1989: 2) also highlights some of the major problems facing the small-scale farmer and the need for structural change:

There is a strong reason to believe that the present deforestation rate will continue to accelerate for the foreseeable future unless vigorous measures are taken with due urgency to tackle the main causes of deforestation, viz. the commercial logger, the cattle rancher and the small-scale farmer. The third appears to account for much more deforestation than the other two combined, while being far less 'blameworthy'. In his main manifestation as the shifted (displaced) cultivator, the small-scale farmer is subject to a host of forces - population pressures, pervasive poverty, maldistribution of traditional farmlands, inequitable land tenure systems, inadequate attention to subsistence agriculture, adverse trade and aid patterns, and international debt - that he is little able to comprehend, let alone control. Thus he reflects a failure of development strategies overall, and his problem can be confronted only by a major restructuring of policies on the part of the governments and international agencies involved.

The Washington-based World Resources Institute focuses on the need for land reform policies by governments to tackle these problems (WRI 1992). According to Colchester (1995: 12) the indigenous systems of land ownership and land management were undermined firstly by colonial intervention and secondly by the 'new elites of independent countries'. Most of the strategies, though, that are proposed by

governments and other agencies relate more to improvements in resource management, adoption of appropriate technology, economic growth and human capital rather than political measures (Lohmann 1995; Parnwell & Bryant 1996). Parnwell and Bryant state that neither the quest for sustainable development nor the process of environmental change itself can be understood without reference to political processes. To emphasise this they describe two types of conflict which have emerged with governments introducing policies that are supposed to be in keeping with sustainable development. The first concerns measures, such as the introduction of new logging practices, to lessen the environmental impact. However, these 'new' state-sponsored activities are still seen to be inherently in conflict with sustainable development. Parnwell and Bryant (1996: 11) describe this approach:

There is a strong degree of two-handedness in state activities: on the one hand facilitating or even encouraging the continued rapacious exploitation of the resource base, whilst on the other seeking to create a virtuous external image by engaging in various forms of ecological 'window dressing' or 'facadism'.

The second type of conflict which is described concerns the fostering of 'new' activities such as ecotourism and plantation forestry that are valued as promoting a sustainable type of development. Such activities have also met with strong resistance, being condemned as ecologically destructive and against local villager interests. The implications of Parnwell and Bryant's statement can be appreciated in regard to forest management in Indonesia. Indonesia's Forest Department did control some 74% of the national territory, putting it in conflict with some 30-40 million people who live in, or directly benefit from, the forests (Poffenberger 1990: 15-17). Poffenberger describes these conflicts as essentially insoluble political ones between local people and government which have further 'limited the ability of both the state and the community to effectively control forest use, and have contributed to exploitation and mismanagement'. Even if communities are given a say over the use of their resources is it possible for them to manage their resources under changed social, economic and environmental circumstances?

Lohmann (1996) describes areas in which plantation projects in Indonesia have resulted in the disintegration of local livelihoods and relationships with the land. In North Sumatra, for example, road construction and plantations have caused the displacement of thousands of native Batak people in the Lake Toba area through taking over of traditional lands and degrading the environment which sustains them. Applied to plantation management in this study (see chapter 9) it seems unlikely that full participatory cooperation for effective management could occur given the loss of traditional land rights and the alien nature of the plantation environment. In any case the political strategy of the Indonesian government is not to deal with landlessness as a major cause of deforestation but rather to pursue a range of programmes involving social or community forestry, reforestation and forest protection. By contrast NGOs in Indonesia are trying to formulate popular demands to lobby the government and international opinion for community forestry to come under the control of existing traditional institutions as the key to forest conservation (SKEPHI & Kidell-Monroe 1995: 262). Peluso (1990: 50) states that 'new international and internal pressures to develop a more "social" approach to forest administration by involving local people in management decisions and allocation of benefits could constrain the State Forest Corporation's ability to maximise state revenues'. The State Forest Corporation (SFC) has made some token response to these pressures by adopting new social forestry programmes in which villagers' rights are expanded to have greater access to forestry lands for the planting of horticultural and other crops. Peluso concludes, though, from her study of state forest management in Java that a much more comprehensive understanding is required with respect to the social and environmental effects of plantation forestry:

We need to understand the social processes generated by particular productive or extractive activities: relations of power, relations of production, and changing local landscapes on the peripheries of production. Plantation forestry is being extended through the tropics based on its assumed sustainability and potential for profitable connection with national wood-conversion industries. More careful research, combining macro and micro views of the social and

environmental effects of plantation forestry is likely to disprove the universality of these assumptions (Peluso 1990: 52).

Colchester (1995) also advocates change from below where grassroots action can lead to political change and facilitate the right environment for re-establishing rural communities with land and food security as well as conserving valuable ecosystems. In this way the concept of sustainability incorporates social and political issues as well as those pertaining to costs, production and the environment. The ways in which mobilisation at the grassroots level can be encouraged within and across communities, and with the support of non-government agencies, need to be explored more fully. While these sorts of changes advocated by Colchester appear to be difficult to institute, especially with respect to land security, Peluso, Poffenberger and Seymour (1990) are more positive about effecting a slow change in the reorientation of management systems through well-established state agencies. From a case study of forest management on Java involving diagnostic research, pilot projects and expansion they conclude that the development of organisational capacity and attitudinal change are feasible; these changes are gradual and require long-term internal and external support. Cooper and Palmer (1992: 185) also emphasise a change in values and attitudes as being crucial for sustainable development:

If sustainable development is to be achieved, then the necessary fundamental changes in and modifications of agriculture, energy, forestry and other physical and industrial systems cannot stand alone. Alongside these changes must be a corresponding shift in attitudes and values - in the social, economic, political and moral aspects of human life. Development for a sustainable future must be as much about shifting values as it is about shifting practices.

What is at stake, according to Howitt, Connell and Hirsch (1996), is not just the relationship between indigenous peoples and resource and environmental management but also the changing relationship between the state and corporate sectors and local communities. They caution against naive localism and simplistic faith in indigenous wisdom as these provide no secure foundations for securing outcomes that are

sustainable or just - poverty, greed and ignorance are as powerful at local levels and within indigenous communities as elsewhere.

Political ecology attempts to provide a framework for understanding the interaction between political and environmental forces and is defined by Blaikie and Brookfield (1987: 17):

The phrase 'political ecology' combines the concerns of ecology and a broadly defined political economy. Together this encompasses the constantly shifting dialectic between society and land-based resources, and also within classes and groups within society itself.

Bryant (1992) develops a framework for understanding the emerging research agenda which comprises three areas of enquiry: the contextual sources for environmental change, for example, the influence of state policies; conflict over access, which is concerned with the constraints and opportunities facing local community groups in struggles to protect the environmental base of their livelihood; and the political ramifications of environmental change, which examines the ways that environmental change influences socio-economic inequalities and political processes. Bryant suggests that 'Third-World political ecology represents an attempt to develop an integrated understanding of how environmental and political forces interact to mediate social and environmental change'. Bryant advocates a more systematic definition of the research agenda combining environmental changes and political processes with other aspects, such as the role of culture, to be integrated with contextual and location-specific factors. Bryant (1997) discusses the usefulness of different ways in which to understand the Third World's 'politicised environment', such as the role of unequal power relations and the impact of perceptions and discourses on the nature of environmental problems (including the importance of indigenous knowledge). These avenues of research are helpful in our understanding of how the human-environment interaction may be linked to environmental degradation but need to be explored further at the local level. In this study, as a result of state policies concerning the designation of *adat* land for plantation

together with the resettlement of villagers there is an opportunity to explore some of these interactions.

2.2.5 Empowerment and participation for sustainable development

The political and social dimensions of sustainable development previously mentioned can be further explored through an understanding of the popular concepts of 'empowerment' and 'participation'.

Empowerment refers to a complex process centred around people's efforts to increase their participation in the development process - that is, their control over physical and social resources (Vivian 1992: 74). Vivian describes poverty in rural areas as a symptom of one of the primary causes of environmental decline in the Third World today at the local level - the disempowerment of these communities:

This growing inability of communities to participate in resource management decisions has an important impact on the potential for sustainable development. Disempowerment in the course of development can take many forms. People may be deprived of access to resources on which they depend, their traditional tenure rights and rights to exclude outsiders may be abrogated, or their ability to make their own decisions regarding resource management may be curtailed. In all of these cases the result is similar: resource management decisions are taken over by those with insufficient stake in the local environment, and resources are extracted at unplenishable levels in order to benefit other, often richer, societies (Vivian 1992: 72-73).

In examining the relationship between empowering and participation Oakely and Marsden (1984: 25) distinguish between the emergence of the concept of participation as a process of empowering with the more common interpretation of equating participation with achieving power, that is power, in terms of access to, and control of, the resources to protect livelihood. This distinction has important implications for development practice.

Friedmann (1992) describes the concept of empowerment in relation to an alternative development centred on people and their environment rather than production and profits. An alternative development seeks the empowerment of households with respect to three kinds of power: social, political and psychological. He proposes changes in socio-political structures:

Alternative development....is to seek a change in the existing national strategies through a politics of inclusive democracy, appropriate economic growth, gender equality, and sustainability or inter-generational equity (Friedmann 1992: 34).

According to Friedmann disempowered people, as a result of their poverty, lack the requisite social power to meaningfully exercise their political rights. To foster dynamic political communities he advocates state intervention to devolve central functions and resources and the creation of 'political space' for the disempowered. In addition NGOs and other agencies can assist communities in increasing their social power. Improved access to information, improvement of skills and participation in social organisations are ways in which this could be achieved. NGOs also have a role in lobbying the state so that it is more responsive to the claims of the disempowered. Having a political voice and having a greater access to the bases of social power are seen by Friedmann, therefore, as being fundamental to empowerment of communities.

In addition to constraints that operate in the external environment, local power structures, either traditional or newly created, can sometimes be a constraint to local empowerment. Local leaders, for example, maintain their status within the community because of their privileged position with the state. There is usually a bias, also, to those who are better off, and to men rather than women. How do external agencies, in these cases, facilitate the necessary changes for the type of inclusive democracy and community empowerment put forward by Friedmann? In general, how can various external and internal constraints be addressed so as to achieve empowerment of communities which translates into local action for sustainable development? O'Riordan and Voisey (1997) allude to the tension between 'competitive globalisation'

and 'empowering localisation', operating at all levels of government which is beginning to emerge in the politics of the 'sustainable transition' (that is, the institutional dynamics of the transition towards sustainable development).

Clark (1991: 104-109) describes how social and political changes can come about through the NGO sector helping to build grassroots organisations. He draws from lessons of NGO activity in Bangladesh which include awareness raising and which build empowerment in the process. This has been achieved through programmes to improve reading and writing skills and through group meetings to discuss causes of poverty and means to overcome these, as well as through lessons which have social relevance such as those on legal rights, democratic processes, traditional injustices that oppress women and other important life-skills. In fostering strong local leadership, NGOs in Bangladesh have provided training opportunities and support structures that empower village leaders. The choice of leadership from among the village members is regarded as the single most important factor in determining success. The type of training, covering empowerment techniques and women's rights to agriculture and bureaucracy, assist in encouraging community strength while at the same time avoiding a local leadership which is authoritarian. Forging alliances of local groups has also helped. As an example, several village groups in the Kulna District of Bangladesh were successful as a result of taking collective action in demanding the right to fish in a large pond. A building-up of communication skills, especially for group leaders, has improved the way in which groups work together and, if required, develop a political strategy. Following this type of approach the Bangladesh Rural Advancement Committee (BRAC), as a non-governmental organisation, claims to have had success in breaking the cycle of rural poverty on a large scale (Lovell 1992).

These illustrations are mirrored by similar activities in many other countries, particularly in Latin America, South and South East Asia. This rich bank of experience allows confident conclusions to be drawn that, with good leadership and the right help, popular movements have the capacity to shape national institutions, shape national politics and shape development theory. Each of these

is shaping attitudes; attitudes of authority towards the impoverished, and attitudes of the poor themselves towards their own situation (Clark 1991: 109).

The interpretation of the concept 'participation' is conflicting and often reflects the development paradigm. Pretty (1995) describes various types of participation from the more common passive, consultative and incentive-driven types with an interest in increasing efficiency to ones that are more interactive and likely to support sustainable agriculture through initiating mobilisation for collective action, empowerment and institution building. The latter end of the spectrum, therefore, links participation to empowerment. Pretty emphasises the learning process, rather than teaching, for all those involved in rural development programmes with a range of methods comprising group and team dynamics, ways of sampling, interviewing and dialogue approaches, and diagramming and visual construction. As part of the participatory process Pretty et al. (1995) found using small groups of households with a common interest in resource management to be preferable to involving the whole community. This finding illustrates, however, one of the difficulties that may be faced by facilitators. The mechanisms to achieve an 'effective' outcome may conflict with those that are especially needed (such as awareness raising) for community members who are disadvantaged.

Participation has been defined as 'the organised efforts to increase control over resources and regulative institutions in given social situations on the part of groups and movements hitherto excluded from such control' (Pearse & Stiefel 1979: 8). Carroll (1992) describes the processes of building this group capacity in practice as very complex and difficult to evaluate. He describes the essential nature of the participatory process and the role of NGOs:

The heart of participation is growth in the capacity of a group to create new systems and mechanisms to accomplish its goals. It is the ultimate manifestation of the social learning process. Growth in capacity is not simply learning how to accomplish certain technical tasks, but also adapting to new circumstances and dealing more effectively with a dynamic external world. It is the function of

grassroots support organisations to strengthen the organisational and management capacity of beneficiary (grassroots) organisations or to help them create new local representative groups for collective action (Carroll 1992: 33).

In this way group capacity shows itself as empowerment and self-reliance. Carroll emphasises that the institutionalisation of group capacity is a key element in sustainability. With this understanding participation can be evaluated as a process - the extent of beneficiary involvement, and as a result - the increase in the group's ability to influence decision making and the extent to which the process has been institutionalised. Oakely and Marsden (1984) agree with Carroll that participation ideally should incorporate both the process and the result but have difficulty in reconciling them in practice:

Where participation is the means to achieving previously established development objectives, its strategy is to reform and improve. Where participation aims at achieving power in order to demand meaningful participation, it implicitly demands some kind of structural change (Oakely & Marsden 1984: 29).

Oakely and Marsden point out that the concept of participation is multi-dimensional and this in itself will influence the identification of constraints. They are most likely to include, however, structural constraints relating to power and production. Other constraints, such as the 'culture of silence' operate within communities, as described by Freire (1972: 59-60):

The dependent society is by definition a silent society. Its voice is not an authentic voice, but merely an echo of the voice of the metropolis - in every way, the metropolis speaks, the dependent society listens. The silence of the object society in relation to the director society is repeated in the relationships within the object society itself. Its power elites, silent in the face of metropolis, silence their own people in turn. Only when the people of a dependent society break out of the culture of silence and win their right to speak - only, that is,

when radical structural changes transform the dependent society - can such a society as a whole cease to be silent towards the director society.

This type of situation was similar to that found in some of the villages of this study where people quietly resisted the take-over of land by the HTI (industrial timber plantation) (see chapter 9, section 9.3.3); the findings emphasise the need for structural changes.

Pressures on traditionally sustainable resource management systems have given new emphasis for participatory and collective strategies to address such problems. This participatory approach involves a number of potential strategies such as encouraging farmer experimentation, developing technology with an understanding of local and ecological conditions, fostering local empowerment for natural resource management and having access to information and resources. The dialectical relationship between local activities and broader forces must be taken into account when designing strategies for sustainable development at all levels. This reorientation would involve increasing local level involvement in the assessment of existing problems, in the formulation of development strategies, their implementation and evaluation.

Redclift and Sage (1994: 13-15) also discuss the necessity of a framework of demands, formulated by the rural poor themselves, as an essential element of local participation and empowerment in managing the environment. Sustainable development is only feasible when it is endorsed by local communities and groups. Critical issues are raised concerning the role and responsibility of government institutions, non-governmental organisations and groups of local people. Policy interventions for management of environmental resources have more chance in succeeding if the right type of social relationships are established between the various parties and there is greater involvement of decision making at the local level.

With regard to gender and sustainable development the United Nations (UN 1994) stresses as one of its objectives:

...the enhancement of women's contributions through the involvement of policy and decision making processes at all stages and participation in all aspects of production, employment, income-generating activities, education, science and technology, sports, culture and population-related activities and other areas, as active decision makers, participants and beneficiaries.

To facilitate local involvement by men and women, it would be helpful to analyse the effectiveness of different strategies, taking account of approaches used, the nature of development and social interaction together with underlying social structures.

Ghai (1990) distinguishes between three different interpretations of participation in this grassroots approach: the mobilisation of people to undertake social and economic development projects; the equating of participation with decentralisation in government and related organisations; and a process of empowerment of the deprived and excluded. The first and second interpretation do not give assurance of participation by deprived groups. As a process of empowerment participation requires the sharing of power and of scarce resources through the creation of organisations which are democratic, independent and self-reliant. Ghai and Vivian (1992) explore a 'grassroots' approach which emphasises the potential of local initiatives to secure sustainable development; they give examples in which this approach has been adopted in various countries and conclude that they have achieved a considerable measure of success. The three elements that have contributed strongly to this success are work in the preparatory phase prior to initiation of activities, encouraged by change agents or facilitators; an institutional framework which provides the vehicle for the practice of participation; and the formation of groups as basic units in the organisation.

Salam (1998) describes how a similar type of approach, involving both 'top-down' and 'bottom-up' planning processes and the establishment of a multi-sectoral resource access unit has been of benefit to 36,000 persons in 26 villages southeast of Pune in Maharashtra state in India. The resource access unit, operated by NGOs, supports village planning and programme implementation, facilitates in-village and inter-village consultation and decision making, generates appropriate technologies needed to meet

locally defined objectives and trains locally appointed village activators who will collaborate with and train other villagers to implement action plans. One of the successful village projects, in this case, has enabled village women to earn a livelihood as tailors while still taking care of the home and families. This type of approach follows a model for sustainable village-based development of which the essential components are: expanding and empowering human resources through local participation; the establishing of a multi-sectoral resource unit for a number of contiguous villages forming a 'basic development unit'; creating sustainable development patterns, both internally (human resource development) and environmentally; and maintaining a dynamic learning process through monitoring and evaluation. The concept of a basic development unit functions as an interface between 'bottom-up' and 'top-down' development strategies. Real development, as expressed by this model, must be initiated from both 'top' and 'bottom' (Albertson, Shinn & Shinn 1993).

2.2.6 Facilitating self-reliance

Self-reliance, as a concept in development, refers to a reliance on oneself, giving confidence and independence for maintaining a sustainable livelihood. The economic dimension is emphasised by Ghai (1990) who discusses the role of external agents in facilitating self-reliance in families and communities. For organisations, such as the Grameen Bank, the Small Farmers' Development Bank and the Self-employed Women's Association he stresses the human qualities of their approach and style of work:

These include a deep understanding of the economy and society of the impoverished groups, compassion and sympathy with their plight, ability to inspire trust and confidence and to motivate and guide them, not in a paternalistic and authoritarian way, but in a manner to enhance their confidence and self-reliance (Ghai 1990: 98).

Ghai emphasises two elements in bringing about self-reliance: one is the growing control of economic resources and social environment, the other concerns the

mobilisation of labour and other resources to encourage income-generating activities and infrastructural and service projects. The provision of credit by the Grameen Bank, for example, for women's projects has a default rate of less than 5% (Kelly 1993) and this in itself is evidence of the self-reliant nature of these initiatives. Participation and empowerment are seen as an integral part of the self-reliant concept.

While there have been some obvious benefits with the initiatives discussed above there is a need for further clarification on the role of different external agencies and the methods by which self-reliance can be fostered for different locations and scenarios. Such methods include effective institutional structures in the provision of technical assistance, extension services, grants or loans, and for the adoption of improved technology. On a regional basis self-reliant economies might include the improved functional integration of rural and urban areas, ensuring food security, better service provisions, an enhancement of local production systems and strengthening of livelihoods. In this study, where access to land has become limited for maintaining livelihoods because of resettlement and other factors, the potential for households to achieve self-reliance through non-farm activities needs to be explored as well as aspects relating to village communities and the regional economy.

2.2.7 The institutional-human dimension of sustainable development

The institutional-human dimension embraces a wide range of factors which could influence rural development, such as knowledge and skills, organisation and management, motivation, participation, social relations, politics, public-private sector linkages, culture and values.

Institutions, according to Huntington (1968) are stable, valued, recurring patterns of behaviour. They include the people and the rules or procedures that give rise to patterns of their behaviour and roles or organisations that have attained special status of legitimacy. It is important to draw some distinction between institutions and organisations. As clarified by Uphoff (1993), 'institutions, whether organisations or not, are complexes of norms and behaviours that persist over time by serving

collectively valued purposes while organisations, whether institutions or not, are structures of recognised and accepted roles'. Organisations can, therefore, become more or less institutionalised over time to the extent they enjoy special status and legitimacy for having satisfied people's needs and for meeting their normative expectations over time (Huntington 1968).

A key component of sustainable development is the institutional framework underlying the implementation of development activities. Under this framework are a wide range of possible factors which could influence development, such as knowledge and skills, organisation and management, training, politics, local government, public-private sector linkages, culture and values. O'Riordan and Voisey (1997) in their study of the political economy of sustainable development conclude, though, that effective policy to integrate efforts from various interest groups is not taking place. The cumulative combinations of the performance of different working groups and institutional innovations have not resulted in any serious political or administrative force.

Goldsmith and Brinkerhoff (1990) draw attention to the importance of the 'institutional-human' dimension of rural development which, until recently, has been ignored in favour of the 'physical-technical' dimension and the 'economic-financial' dimension. They define institutional sustainability as the ability of a system to produce outputs that are sufficiently well-valued so that enough inputs are provided to continue production. Increasing focus on the importance of institutions is now being given to serve both the development projects and the underlying development aims. Brinkerhoff et al. (1990) develop a unified conceptual model of institutional sustainability that draws upon systems theory, contingency theory and political economy. In this way the components of the internal system, together with their interrelationships, are examined with respect to their external environment and specific circumstances for resource management.

Institutional change, comprising the type and rate of change, is an important consideration with respect to agricultural and rural development. This applies to both the internal and external environment, as mentioned previously. For Indonesia, changes

which have been imposed by the New Order to institute a system of national law and administration have undermined the traditional law and custom of *adat* which was often linked to religion (Guinness 1994). The institutional mechanisms for traditional resource use which were embraced by *adat*, such as the transmission of environmental knowledge, social sanctions limiting overexploitation and tenurial rights for land use, also have been undermined or replaced. From another perspective there is also a lack of institutional change in normal bureaucracy which would be required to fit the farmer-first approach as described by Chambers (1989: 186):

Unfortunately, normal bureaucracy tends to centralise, standardise and simplify, and agricultural research and extension are no exceptions. They fit badly, therefore with the conditions of the resource-poor farm families, with their geographical scatter, heterogeneity and complexity within any farm and farm household.

To achieve farmer-first reversals in national bureaucracies, Chambers points to three aspects of management deserving attention: decentralisation and greater use of local resources; search for, support and spread of farmers' innovations; and the provision of incentives for those working with farmers at the local level. Pretty and Chambers (1994: 185) recognise the importance of new institutions to respond better to interactive learning environments and participatory methods: 'they will be learning organisations, with realistic and rapid feedback flows for adaptive responses to change. Multiple realities will be understood through multiple linkages and alliances, with continuous dialogue between different actors'.

While these recommendations may be appropriate for new initiatives in the external environment, or from above, they take less account of the inequalities existing in traditional societies such as the exclusion of women in decision making and the disproportionate access to resources. In addition, there are changes in traditional communities resulting from various external and internal pressures, such as government policies on land use, increase of population, intrusion of a Western type of culture and the market economy. Communities no longer have a traditional frame of reference and

the pace and direction of change may be too great for them to adapt. The way in which these changes can have an impact on sustainability of resource use, and thus the viability of societies, remains an open question (Vivian 1992). Some of the strategies for supporting local institutions and helping them to deal with internal as well as external constraints are described by Pretty and Chambers (1994). These include encouragement of responsible leadership, training in basic skills, facilitating organisational development and the mutual reinforcement of institutions at different levels. For a people-centred development practice Korten (1987) also emphasises the need to strengthen institutional capacity supportive of greater local control, accountability, initiative, and self-reliance.

There is potential then for exploring ways in which local, mediating or new types of institutions can deal more successfully with environmental problems. For example, traditional institutions warranting investigation include the impact of changes in land tenure systems and the importance of developing programmes using traditional environmental knowledge, traditional management structures and local experimentation.

2.3 Conclusion

While sustainability is a complex and contested concept with economic, political, social, cultural, institutional and environmental elements, it can be viewed as a part of a learning process in which these elements are studied more appropriately at the local level or in a contextual situation. An understanding of the relationships of people with their environment is more likely to reveal a clearer picture of this development process as well as constraints to sustainability. The concepts of participation, empowerment and self-reliance are seen as very relevant to the social dimension of sustainable development. They provide an institutional challenge requiring changes in values and structures in society. At the local level there needs to be consideration for the poorest segment of the community as well as for gender equity. The relationships between local activities and external forces need to be taken into account so as to give a clearer

understanding of the role and opportunities for government and non-government organisations, and groups of local people, to manage resources in a sustainable way. The linkages that extend from local to non-local levels also need to be understood, and have implications, for building sustainability into livelihoods.

As the primary focus of this study is to explore the complex relationships between resource management, population movements and ethnicity a first step is to link the relevance of concepts discussed in this chapter with an understanding of the resource management process in Indonesia before proceeding further to examine the implications of population movements and ethnicity.

CHAPTER THREE

RESOURCE MANAGEMENT

3.1 Introduction

The previous chapter provided a framework for linking resource management issues to the study of population movements and ethnicity. In order to explore the potential of building institutional capacity for resource management, focus must be directed on the nature of the management process, incorporating some of the concepts previously discussed.

The aim of this chapter is to assess the current situation in Indonesia with respect to management of resources for village and rural development. To accomplish this the chapter will develop an understanding of the management process, covering external and internal agents of change. It will include the role of basic skills development, organisational performance, and the limitations imposed by constraints operating at the village and higher levels. It will seek out appropriate resources to be used to facilitate rural resource management. Resource management issues confronting Indonesia, and relevant to this study, will be discussed in the light of concepts developed. The findings in this chapter and their accuracy correspond to the period from the beginning of 1994 to the end of 1997; they do not take account of the new political and economic changes following this period.

3.2 The process of resource management

Management can be defined as the process of making an 'organisation' perform well through clarifying goals and making decisions about the efficient and effective use of resources (Anderson 1988: 8). This definition is useful since it can be applied to all management work in all types of organisations. Basic management skills such as decision making, and the organisational system are key aspects of resource management. These need to be considered in the light of what was discussed in the

previous chapter with respect to the concept of a participative strategy, namely emphasising a process of empowerment.

3.2.1 Linking basic management skills, the organisational system and the participative process to resource management

Basic management skills are required for an organisation to function effectively; these might entail skills in decision making, communication, goal setting, leadership, and motivation. There are likely to be constraints operating at the village and higher levels which inhibit operation of these skills for management. How can the constraints be minimised so that these skills can be cultivated and used more effectively? Other questions that arise include: What type of participative approaches are used and how effective are they? How effective is the community-based approach of participation? What are some of the obstacles at the community level and higher levels that hinder the participation strategy? How do government organisations 'mesh in' with the aspirations of villagers, especially where there is a centralised bureaucratic system? How can NGOs assist in the participation strategy?

The most fundamental management skill is decision making. For the village it is important to know what kind of decisions are made that can influence village life and how these decisions are reached. Decisions can be made by individuals in power or by delegating decision making or involving others in reaching a consensus. Simon (1989) differentiates between 'programmed' and 'non-programmed' decisions. The traditional techniques of programmed decision making are habit, including knowledge and skills, standard procedures and the organisation's structure and culture. Non-programmed or novel decisions would be made without this background. The two types of decision making are not mutually exclusive but rather make up a continuum from one to the other.

The relevance of Simon's theory for village development appears to involve two areas of importance. Firstly, in an effort to promote some order and uniformity in funding arrangements by national bodies the decision making is often taken out of the hands of

villagers. To reverse this process, changes would have to be made in government organisations to allow greater input by villages. Secondly, the decision making process at the village level today in Indonesia has evolved from a ruling culture of the past to absorb elements of new structures, such as the village council, LKMD (*Lembaga Ketahanan Masyarakat Desa*). This has resulted in moving away from the programmed type of decision making process towards the non-programmed type.

In order to promote shared involvement and responsibility for decision making in villages increased participation has been advocated. Where the participative process has been managed effectively results have been promising. The benefits include villages becoming more self-reliant and responsible for their development with each villager having an access to the participative decision making process. As well, the skills of communication and decision making are improved throughout the community with a consequent improvement of morale, as people feel they have an important part to play in village life (Ghai & Vivian 1992). The participative decision making process could be regarded as one of the keys to a development process in which villagers set priorities and work towards their own goals. Different groups of people, such as those designated by class, gender or ethnic status, will have a greater opportunity for their particular needs to be met, thus promoting a more equitable type of development (Clark 1991). Johnston and Clark (1982), however, warn against a type of participation which involves a consensus approach of all community members for development strategies. They argue that the 'rural poor are more inclined to make sustained investments of participation in organisations that have perceived benefits and that embody a relative harmony of objectives'. Multi-function groups with these 'heart-felt' needs are aided by policy making that has the ability to recognise and design programmes capable of mobilising participation. Community participation is likely to give a better expression of community values but offers no guarantee for values and knowledge to be part of the decision making by governments.

Various types of participatory approaches in rural appraisal and research have emerged during the 1980s and 1990s (Cornwall, Guijit & Welbourn 1994). Rapid Rural Appraisal, involving the generation and discussion of data by farmers, stresses cost-

effective trade-offs between the quantity, accuracy, relevance and timeliness of information. It combines a range of methods for rapid and cumulative data collection. Participatory Rural Appraisal (Chambers 1994) goes a step further and encourages the production of knowledge and the potential solutions by the farmers themselves; it combines research with action, offering opportunities for mobilising people for joint action. With respect to research, Farming Systems Research-Extension (FSR/E) developed as a reaction to the 'transfer-of-technology' model which was limited in application due to constraints at the farm level. The key principles in this approach involve joint efforts by researchers, extension people and farmers to design, test and modify improved agricultural technologies appropriate for local conditions. Agriculture is seen as an holistic system in which all important interactions that affect its performance should be considered. A multi-disciplinary perspective is therefore required for problem analysis, technology design, trial implementation and evaluation. Farmer Participatory Research moves beyond FSR/E with more focus on the farmer as innovator and as experimenter and therefore involving farmers more closely with on-farm research (Cornwall, Guijt & Welbourn 1994).

For survey work, participatory rural appraisal involves villagers presenting and analysing their own situations, determining their preferences and priorities, and initiating a process towards sustainable development. Skills are required for managing the participative process and are tied up with skills of leadership, communication, group handling and conflict resolution. A facilitator needs to know what are the constraints to the decision making process and how to encourage participation and delegation where appropriate (Chambers 1994). This approach has been tried in Latin American countries among groups working on natural resource management. Thrupp, Cabarle and Zagueta (1990) describe the participatory rural appraisal approach for a situation in Ecuador which involved planning and management. It had a positive impact on the FAO's Participatory Forest Development Programme in the Andes; one of the benefits included linking the participatory activities with policy issues and policy making processes. Studies of indigenous farming systems in Indonesia indicate that agronomic and ecological research into local practices and approaches are more important than using techniques developed in other areas (Colfer 1983b; Colfer, Gill &

Agus 1988). Farmers experiment (Chambers, Pacy & Thrupp 1989) and these local results can provide a useful basis for further exploration. The value of local trees and plants, for example, might be an untapped resource. The need to incorporate indigenous knowledge and community participation in planning (the human resource factor) is evident.

Korten (1981) emphasises some of the obstacles within the community which hamper the participation strategy. These include the lack of an appropriate organisation; lack of organisational skills; poor communication facilities; factionalism and differing economic interests; and corruption. Korten gives possible ways of overcoming these obstacles such as helping to build organisations and communication networks, and providing informal training to improve organisational skills. Korten also alludes to obstacles within development agencies, and society in general such as in the political, legal and bureaucratic arenas. National governments, for example, have a desire for central administrative and budgetary control as they try to pursue policies of national unity. The budgetary measures may be in direct conflict to the participatory process at the village level. These external influences are much harder to resolve.

The participatory process implies that emphasis is given to the 'bottom-up' process of decision making. While this may be important for most aspects of village development the nature of the development process has to take into account the requirements for regional development, conservation of resources on a wider scale, urban-rural relationships and equitable development, implications of population movements and settlements, provision of services and necessary infrastructure. All these may conflict with priorities established by villages in terms of funding and resource allocation. A compromise could be realised combining both bottom-up and top-down approaches in planning. Difficulties arise, though, for villagers who lack empowerment to determine their future development or when development is imposed by more powerful institutions from outside the village. As a result, the development process often takes a tortuous path with villagers not being able to participate fully in their own development (Korten 1990).

From a different perspective, Leach, Mearns and Scoones (1997) discuss the limitations of a 'community-based' approach where the emphasis is on community participation. They put forward the view that recent approaches to community-based natural resource management, based on local-level solutions derived from community initiatives, 'frequently present communities as consensual units, able to act collectively in restoring population-resource imbalances or reestablishing harmonious relations between local livelihoods and stable environments'. They argue that these underlying assumptions are flawed as guidelines for policy making. As an alternative, they suggest it would be more appropriate to start from an appreciation of the politics of resource access and control among diverse social actors, and determine patterns of environmental change as the outcomes of negotiation or contestation. In this context a focus on institutional relationships provides a valuable framework for understanding the links between differentiated communities and differentiated environments. To achieve this shift of emphasis, they introduce the concept of 'environmental entitlements' which refer to 'alternative sets of benefits derived from environmental goods and services over which people have legitimate effective command and which are instrumental in achieving well-being'. The processes by which people gain environmental entitlements are shaped by the diversity of institutions, both formal and informal. In adopting an 'environmental entitlements' approach, analysis is focused on three areas:

1. Livelihood analysis, involving investigating community differentiation and the various endowments and capabilities of different social actors.
2. Environmental analysis, involving the analysis of ecological difference, the dynamics of environmental transformation and the creation of landscapes through human action.
3. Institutional analysis, involving an assessment of the role of formal and informal institutions in creating livelihoods through endowment and entitlement mapping processes (IDS 1997: 16).

A number of methods or 'tools' are available to assist in each of the above types of analysis. The use of an environmental entitlements analysis overall has been found useful in analysing case studies of resource management in India and Africa. For example, Matose (1997: 69-77) examines the conflicts around forest reserves in

Zimbabwe and concludes that a greater understanding of people-environment interactions has opened the way for improved prospects for co-management of forestry resources.

The potential for such an analytical framework could well be considered for similar types of resource management situations in Indonesia. However, efforts to move in this direction are likely to be constrained at some stage by a government bureaucratic organisation that divides work, has extensive control mechanisms, and relies on specialisation (Pugh 1989). Decision making tends to be centralised, made by top management. This type of organisation, common in developing countries, is more suited to a blueprint approach to development planning where there is emphasis on well-planned and clearly defined projects, such as the building of an access road or bridge. In rural development, though, often there are many unknown variables operating, relating for example to tasks, costs and the nature of the environment. The need is for a more adaptive process in achieving a fit between programme outputs, beneficiary needs and organisational competence (Korten 1980).

The shortcomings of large-scale bureaucracies can be lessened by methods, such as increasing the level of participatory management and improving managerial skills. Often, though, constraints due largely to size and inflexibility remain. As a result official channels may be circumvented. Boonyawat (1989) found that the competing nature of bureaucratic structures at the provincial level in Thailand inhibited inter-agency coordination with most of the meaningful interaction taking place at an informal, rather than formal level. The extensive use of informal relations emerged as the most effective means for overcoming blockages to provincial rural development processes. Likewise, Wiggins (1985) asserts that the single most important trait determining the operation of bureaucracies in developing countries is their dependence on the use of informal networks.

As an alternative to bureaucracies, Esman (1991) advocates multi-organisational service networks, where two or more organisations, usually including government and non-government agencies, participate in the joint production and provision of services.

Specialisation and differentiation create the need for integration, the function performed by service networks through consensus, cooperation and leadership skill for facilitation. Networks are regarded as dynamic and decentralised organisations in contrast to bureaucracies. If these types of organisations are going to be of value, under a pluralist strategy of development for countries like Indonesia, then governments need to consider how to support them. Non-government organisations, for example, could be encouraged to take on the provision of a range of services. According to Esman, with the adoption of a pluralistic strategy for rural development, there would be recognition of the contribution from all segments of society thus lessening controls and regulations and encouraging instead, self-organisation and self-management. With increasing specialisation and differentiation, multi-institutional networks could then integrate contributions from a variety of organisations.

In a similar way, Carley and Christie (1992) identify an action-centred network as a key innovation in environmental management. These networks which comprise a flat and flexible organisational structure are conducive to team work or partnerships between diverse sectors and interests and aim to foster consensus. They emphasise participation and organisational learning and involve a process of local problem redefinition which generates the necessary local commitment and an understanding of the skills needed to implement solutions. Institutional and organisational development are important as well as the linkages between public and private sectors and non-governmental organisations. The importance of a learning environment and networking is highlighted for improving communication and the flow of information which will help catalyse transformation processes in bringing about a 'sustainability revolution' (Meadows, Meadows & Randers, 1992).

Overall, there appears to be no unified organisational theory for management. Contingency approaches focus on making the correct choice in specific organisational situations so as to achieve the best fit between environmental conditions, the tasks expected of the organisation, the members of the organisation and the type of organisation structure (Lawrence & Lorsch 1989). Process theories focus on how development occurs and draw from lessons of experience; policies, programs, projects

and activities - often called levels of organisation; and the learning process approach (Perrier 1987). For open learning environments the new institutions should emphasise flexibility, decentralisation and a multi-disciplinary approach and will in effect be learning organisations that readily adapt to change (Pretty & Chambers 1994).

3.2.2 Non-governmental organisations and resource management

Tackling organisational design more from a village perspective has allowed non-government organisations (NGOs) in particular, to become associated with the maturing of grassroots organisations (Clark 1991). Essentially, the NGOs are usually private organisations of various types and functions. How can these organisations be involved in the participative process? Korten (1987) discusses the role of NGOs in regard to the threefold crisis of poverty, environmental destruction and social disintegration. He emphasises the importance of an NGO having a development strategy underpinned by a development theory which directs action to the underlying causes. Korten identifies three generations of strategies that have involved NGOs, namely, relief and welfare; community development; and sustainable systems development. Third generation strategies look beyond the community and focus on changes in policies and institutions at local and national levels. Here, building of local capacity is not enough. The underlying theory for a change in strategy assumes that structural causes, such as centralised control of resources, need changing as well. In a similar way Ghai and Vivian (1992) advocate that participatory development should involve local and national responsibilities especially where inputs are needed to decentralise administrative structures and redress inequitable asset distribution. Carroll (1991) studied the performance characteristics of 30 NGOs, termed grassroots support organisations (GSOs), supported by the Inter-American Foundation (IAF) in Chile, Peru and Costa Rica. A GSO is defined as:

A developmental entity which provides services for and channels resources to local groups of disadvantaged rural or urban households and individuals. In its capacity as an intermediary institution, a GSO provides a link between the beneficiaries and the often remote levels of government, donor and financial

institutions. It may also provide services indirectly to other organisations that serve the poor or perform coordination or networking functions (Carroll 1991: 1-5).

The more successful GSOs, according to Carroll, have reached poorer segments of the population, encouraged participation, helped to build local capacity and have extended their influence into policy-making areas. Vivian (1994) studied the implications of NGO involvement for sustainable development in Zimbabwe. In Zimbabwe, as in other countries, NGOs are increasingly emphasising resource management and environmental activities. The complexity of problems concerning wider scale involvement for environmental issues and institutional change management, such as land reform, have necessitated a refocusing on the potential of NGO activity to 'scale-up' in size and efforts, and for having an increasing influence on the government through cooperative links. Vivian (1994) points out, though, that there are 'no magic bullets' and that NGOs should adopt a contextual and learning approach to environmental problems as well as defining areas which they can address. Adams (1990: 201) also endorses this approach with an emphasis on starting from the needs, understanding and aspirations of individual people and enhancing their capacity to help themselves.

Lovell (1992) examines the role of the Bangladesh Rural Advancement Committee (BRAC) as a grassroots learning organisation and shows how this approach has affected decision making on program design, implementation, planning and redesign. The underlying principles of BRAC include awareness-raising and self-reliance for villagers, participation, a market perspective and an entrepreneurial spirit, and the importance of women as participants in development. Adopting a flexible approach is especially important as BRAC learns through village experiences how best to facilitate development (Korten 1980). Senge (1990) ascribes five attributes to a learning organisation: building a shared vision; developing skills for learning, both personal and organisational; building-up an openness for change; team learning; and systems thinking. BRAC, according to Lovell, is one of the few examples of Senge's theory of a learning organisation.

To benefit from agricultural and rural services, and rural development initiatives in general, the building-up of village organisational capacity at the grassroots level appears to be a prerequisite, or at least to go hand in hand for development which is ongoing and sustainable, both internally and environmentally. The roles played by government and non-government organisations need to mesh with, and preferably enhance, those at the village level.

The roles of government and non-government organisations in empowering or facilitating local participation in planning need to be defined; they will be explored in this study. In what way can these organisations provide support, such as through infrastructure, marketing and services without diminishing the role, responsibility and ownership of local people? Here there may be an impasse with rigid government structures influencing the degree of delegation of authority and responsibility at the local level. How can these structures be modified so that the institutional capacity of local government and non-government organisations can be improved?

3.3 Resource management issues for Eastern Indonesia

Key issues involving land use in Eastern Indonesia are indicated by the World Bank (1994b) and emphasise the need to protect biological diversity and critical ecosystems and to ensure sustainable management. The kinds of problems faced in the more fragile environments of parts of Eastern Indonesia include a contracted and more variable rainfall season; easily erodible topsoils, especially on hillslopes cleared of vegetation (such as after burning in shifting agriculture) and low inputs of organic matter and soil nutrients (Barlow et al. 1990). The practice of removing organic matter from the land for fuel and other purposes is a serious constraint to long-term sustainability in developing countries (Oram 1988). Compounding the above are the effects of overgrazing that lead to reduced surface vegetation and to greater susceptibility of the soil to erosion.

Management of resources for sustainable agricultural production under these circumstances requires a participation of resource users, extension officers and planners

to foster and implement appropriate regional development and conservation strategies, such as the protection of watershed and forestry areas, while at the same time improving rural livelihoods. In practice this rarely happens, either at the regional or local level. Extension services are minimal, perhaps confined to the larger producers, and research efforts are often not relevant to the various localities or to subsistence farmers. As an example of the one-sided approach to development, some areas formerly belonging to villagers in the Kupang regency of West Timor, with little consultation, have been taken over for replanting by the commercial arm of the Forestry Department, *Perum Perhutani*.

The traditional laws existing in communities to prevent exploitation no longer have the authority that they once had. Government decisions often override and work against the livelihoods of the poor in villages. This has happened with reforestation programs where people have been moved off the land they are cultivating or grazing. The resettled people have little say in control of their destiny or their environment. The 1982 Environmental Management Act mentions participation of the community in protection of the environment. However, the degree of actual involvement appears to be limited (Hardjono 1991).

The Environmental Impact Management Agency (BAPEDAL, *Badan Pengendalian Dampak Lingkungan*) was established in 1990 with responsibilities for pollution control and development. This includes responsibility for the environmental impact assessment program (AMDAL, *Analisis Mengenai Dampak*), technical guidance to regional governments, and the establishment of a reference library and data processing centre (World Bank 1994b). MacAndrews (1994) examines the role and development of *Bapedal* and concludes that Indonesia has taken a major step towards improving environmental management. The slow rate of establishment of regional offices (BAPEDALDA), its lack of enforcement powers and difficulties of working with other relevant agencies have emerged as early problems for *Bapedal*.

In Java, from the 1920s onwards, according to Geertz (1963) there was a capacity to absorb increasing labour inputs per hectare because of the ecological characteristics of

the wet rice terraces and the accommodation, called a process of 'involution', that could be made through social and cultural structures, technology, institutions and organisations. This idea, though, has been challenged in a number of studies (Collier 1981; Alexander & Alexander 1979; White 1983). Access to off-farm employment and growth of the industrial sector in recent years has allowed the agricultural labour force to fall as well as reducing poverty in rural Java. In the outer islands, however, population growth is now far more rapid than in Java, off-farm employment opportunities are limited, and the agricultural labour force is growing faster. Booth (1991) describes some of the difficulties in following the Java experience of increased mechanisation and intensification of agricultural production: they are due to low levels of inputs traditionally used for increasing food and tree crop production from relatively poor quality land and a lack of investment in non-agricultural income generating industries, such as processing of fish and fruit products. Booth states also that there is less evidence for outmigration or circular migration in augmenting rural household incomes, as has happened in Java. However, despite the poorer documentation of circular mobility there are considerable levels of migration to Java and specifically to Jakarta by several ethnic groups from Sumatra, Kalimantan and Sulawesi (Hugo 1982b; Hugo 1997). Potter (1993b) also notes, for example, the seasonal inter-rural movement of Banjarese in the Hulu Sungai region of South Kalimantan as well as movement from rural areas to Banjarmasin.

Policies and strategic planning for management of rural resources where population growth will have an impact on the environment need, therefore, to take account of measures to promote off-farm employment, increased agricultural productivity, alternative agroforestry systems, security of land tenure and environmental safeguards.

Careful analysis of the environment is necessary if strategic management is to be effective. Analysing the rural environment identifies the ways by which availability of resources, economic conditions, demographic trends, technological changes, socio-cultural trends, government regulations and other factors will affect resource management. This is assisted by data collection, monitoring and evaluation. The outcome of the implementation of any resource management strategy can be assessed

as well, particularly with respect to sustainability. This study will focus on the resource management issues of land degradation and forest management: these are introduced in the following sections.

3.3.1 Land degradation

'Land degradation should be by definition a social problem' (Blaikie & Brookfield 1987: 1). To take account of the interaction between natural processes and human interference in degrading land as well as the natural restorative processes which may be aided by human interference they give the following equation:

$$\text{Net degradation} = (\text{natural degrading processes} + \text{human interference}) - (\text{natural reproduction} + \text{restorative management}).$$

Blaikie and Brookfield (1987: 7).

Harrison (1993) links land degradation to poverty. Poorer farmers are pushed into marginal areas which in turn marginalise their inhabitants. He states that the main reasons for poverty and marginalisation are structural factors such as unequal landownership, discrimination against women and low agricultural prices and not due to the growing of cash crops *per se*. This type of inequality compounds the effect of population pressure. The costs of conserving marginal land are higher and so the cycle continues. Blaikie and Brookfield (1987) emphasise that marginalisation rather than population pressure is a primary cause of land degradation: population pressure may only aggravate the problem. Bilborrow (1987) gives a greater weight to the effect of population pressure on land degradation while Thapa and Weber (1991) and Blaikie (1985) take a political-economic view with the dominant influence coming from those who have political and administrative power. Cleaver and Shreiber (1994) in their study of Sub-Saharan Africa show the importance of the demographic dimension on agricultural production where population growth, combined with traditional farming practices, contributes to environmental degradation, in turn resulting in agricultural stagnation. The breakdown in customary laws and rules governing sustainable use and management of land has occurred under the pressure of population growth and movements of people and through the changes in social values and customs. These

changes were originally induced by colonialism and more recently by pressures imposed by the state which itself is pressured by the global system. Factors include the commercialisation of agriculture causing changes in land use and farming systems; inappropriate pricing signals; and the undermining of local decision making bodies to manage their natural resource environment (Blaikie & Brookfield 1987). Vivian (1994) also gives evidence of a strong association between poverty and land degradation in a Zimbabwean context where resource-poor households are harmed by price support policies; they are unable to leave their lands fallow or to adopt the labour-intensive conservation measures recommended by the agricultural extension service. The linkages between population, development and the environment are discussed in the following chapter more fully (see section 4.2.3).

Hardjono (1991) cites population growth as an important contributing factor to deforestation in Java. In upland areas of relatively dense population the normal processes of weathering have been accelerated by the cultivation of both food and cash crops on steep slopes, where prevailing agricultural practices expose untterraced soil to wind and rain. Added to this is the increased pressure on land due to housing, industry, construction of roads and other developments. These developments have ecological and hydrological implications which directly or indirectly affect the quality of land as an agricultural or natural resource. Extensive land degradation has also occurred in areas outside Java. In Kalimantan, for example, the logging industry has destroyed wide stretches of forest, particularly in Central and East Kalimantan (Potter 1991). The resultant condition of the land, together with the practice of shifting cultivation has increased its susceptibility to further degradation. In this case the primary cause of degradation is more attributable to government and private encroachment in response to Indonesia's national debt and to global market demand (Potter 1987). Recent research suggests that a variety of factors need to be defined more precisely, such as the type of land-use practice, to gain a clearer explanation of the causes of deforestation (Sunderlin & Resosudarmo 1996). Brown and Schreckenberg (1998) cite many causes of deforestation other than shifting cultivation such as 'resource privatisation, land speculation, fiscal incentives for land conversion, tenurial policies, and government

development projects, particularly resettlement schemes'. They suggest that a situational approach be adopted to generate policies appropriate to specific localities.

The low-input shifting cultivation and cattle production systems of the outer islands in Nusa Tenggara are not, in general, amenable to intensification without external inputs (Barlow 1991). Land degradation was noted by Ormeling (1957) and by KEPAS (*Kelompok Penelitian Agro-Ekosistem*) (1986) with shortening fallows and removal of watershed cover. According to Ormeling any increased pressure on shifting agricultural practices, such as the reduction of fallow period which he observed (1957), accelerates erosion if sustainable practices are not introduced to offset the loss in soil cover, fertility and organic matter. Brookfield (1997: 49), however, emphasises a cautionary note in his study of landscape history involving land degradation in Indonesia:

What remains important in writing Indonesian landscape history is that change in the landscape and its qualities takes full account both of historical antecedents and of natural processes, and also examines both natural and induced repair of damage done in the past.

For Timor, Brookfield gives due consideration to environmental and historical factors, such as the long dry season and the steepening of the coral reef slopes by uplift. These factors, along with human interaction, need to be taken into account for the persistence of grassland, deforestation and accelerated erosion (part of which is natural), rather than blaming these problems on shifting cultivation or the introduction of cattle *per se*.

Traditional systems in these areas based on *adat* and administered by local groupings are now no longer so effective in controlling degradation practices. This has been shown by Metzner (1982: 119) where the transfer of land to a more individual type of ownership has resulted in land degradation. The way back or the way forward may be through a decentralised approach which attempts to re-empower the local people. Principles, common to all agroecosystems, include maintenance of biological diversity (incorporating biological and cultural biodiversity) and nutrient cycling mechanisms

(Edwards et al. 1993) and these must be given due attention in the design of new sustainable agricultural systems. Nuberg, Evans and Senanayake (1994) examine the future of forest gardens in the Uvan Uplands of Sri Lanka. They conclude that while these traditional agroecosystems have real environmental and social benefits they are unable to satisfy the material needs of a rural population undergoing demographic and cultural changes. There is a need to design a smallholder farming system that incorporates the high productivity of market gardens with the biophysical sustainability of the forest garden. Overall there is division on the direction to go: to follow the successfully tried and traditional system or to devise completely new systems where environmental, social and economic outcomes are uncertain.

3.3.2 Forest management

In Indonesia the management of natural forests is based on a forest land-use classification which distinguishes protected forest, limited and general production forest and conversion forest, in addition to smaller areas for parks and reserves (Potter 1993a). In addition to logging natural forests there is an emphasis on plantation forestry with the planting of fast-growing exotics to supply wood for pulp and paper plants, wood chips and fillers, light construction and the furniture industry. Criticisms of the plantation industry have focused on the type of technology adopted and the social and economic costs. At present 16% of all the country's forests are classified as 'conversion forest' (Collins, Sayer & Whitmore. 1991).

The emphasis on monocultures in plantation forestry makes them more susceptible to attack by diseases and pests; poor soil conditions are likely to affect their long-term sustainability; local species and habitats for indigenous flora and fauna are ignored; and there are unknown hydrological implications. The cost of establishment of the plantation forest is high and for some of the species planted there is a long growing time before returns are reasonable, for example, teak needs about 40 years to produce about 9-12 cubic metres per hectare per year (FAO/GOI 1990). While these are important considerations the ones most affecting local people concern the loss of

traditionally-held land and the lack of involvement or participation in the management of these forest areas.

The State Forestry Corporation (SFC or *Perum Perhutani*) is the commercial arm of the Ministry of Forestry and is mandated to protect forest cover and watersheds, to generate state revenues through forest production and stimulate improvements in rural welfare through forest-related earning opportunities. Peluso (1992: 156) describes the forest management approach of the State Forest Corporation as comparable to the colonial Dutch style with the orientation of production for export and luxury markets, the adoption of a security system backed up by policies of exclusion from forest lands, and management by forest personnel with little or no community involvement apart from the use of 'voluntary' labour. Peluso concludes that the 'separation of community development efforts from routine forest production lies at the root of the program's failure to successfully reforest and develop the area'. The SFC has been forced to adopt a modified stance based on the reaction of village communities and other concerned parties and it would be important here to examine the initiatives made to incorporate village communities in the management of these plantation areas.

3.3.2.1 Social forestry

Social forestry or community forestry has a social approach to forestry that involves local participation in forestry-related activities to meet local needs (Kirchhofer & Mercer 1984). Projects have been designed to address the problems of deforestation and the rehabilitation of degraded land. Social forestry programmes in Indonesia have been designed to help people manage their forest resource more effectively.

Key elements of the social forestry program are:

- data collection on existing forest condition, local production systems and needs;
- development of local organisations for participatory forest management;
- introduction of appropriate technology and systems of management, eg agroforestry;
- development of land tenurial arrangements to provide local people with security

incentives for investment in sustainable forest management (World Bank 1990: 39).

Established forestry policies, however, did not encourage community-oriented management systems. There have been conflicts between foresters and villagers. For Java, diagnostic research revealed that most conflicts were due to long-standing disputes between forest villagers and state foresters over forest lands and tree tenure; a history of bureaucratic misbehaviour among many field foresters, including corruption, exploitation and involvement in teak theft; and the failure of the highly centralised SFC to adapt its forest management policies to diverse ecological and socio-economic circumstances in forest villages (Peluso, Poffenberger & Seymour 1994). For Java, Peluso (1992: 235) argues against the custodial-paramilitary approach to forest management in a region characterised by a dense and growing population, by severely skewed distribution of privately owned resources, and by insufficient employment opportunities outside of forestry or agriculture. She cites rising social, economic and political costs, a continued alienation of the rural population, the failure to ameliorate forest degradation and the exacerbation of poverty among forest-dependent people. As a result of SFC activities customary rights of forest access and use have been denied. Effective recognition of customary law extends only to areas under permanent cultivation or occupancy (Colchester 1986).

3.3.2.2 *Tumpangsari* (or *taungya*)

Conceptually, a distinction can be drawn between true social forestry programs, where there is local participation in forestry-related activities to meet local needs, and *tumpangsari* (also called *taungya*) where a contract is made between individual farmers and the forestry enterprise. The contract specifies the area to be planted, and the amount of money to be paid for tree planting and tending. Usually a 0.25 ha plot is allowed per family and intercropping is allowed for 2 years with dryland rice, maize, peanuts and soybeans. On sloping land erosion control measures are built, such as trash or stone ridges. Ongoing local participation in these activities is not an essential requirement and can be bypassed. This would conflict with the idea that the *tumpangsari* system is equated with, or comes under the umbrella of, social forestry (Gajaseni 1992).

The intention of the *tumpang Sari* system is to provide for establishment of high value timber that will be an income-generating asset for the state and private companies in future years as well as reduce the degradation caused by shifting cultivation (Gajeseni 1992). In some districts, once the period of *tumpang Sari* (tree-intercropping) was over young forest species did not have the same protection from fires, cattle and undesirable secondary growth. Closing of the *tumpang Sari* particularly affected the landless and land-poor farmers. The effect of population growth is associated with a decline of the quality of teak stands. According to Simon and Wiersum (1992) the evidence in the decline of quality of these teak stands in the 1960s was instrumental in the Forest Service encouraging farmers to adopt an intensified *tumpang Sari* cultivation which included high yielding crops and modern cropping practices. By 1990 the new intensified system was practised in 74% of the total reforestation area. In some cases perennial crops, such as fruit trees, replaced annual crops. Although there has been some attempt to address rural problems in Java related to the forest, such as increasing people's shares in the *tumpang Sari* areas, this has not addressed the fundamental problem of villagers not being actively involved as participants in managing their resources.

In a further step local Forest Farmers Associations have been formed, from 1986 onwards, to create a basis for equal partnership between the forest enterprise and the local farmers to facilitate joint decision making on plantation mixtures appropriate for the area (Kartasubrata 1990). This approach would allow for the incorporation of indigenous knowledge concerning the micro-environment and soil conditions as well as moving away from top-down decision making to more informal arrangements. In designing management regimes for the various types of location-specific forest management, Simon (1989) advocates an emphasis on a greater variety of people-oriented management tools. Peluso (1992) calls for an integrated social strategy which would identify appropriate solutions, taking into account an understanding of forestry policies, the structure and nature of forestry production and the impact of structural changes on poor people's access to and demand for forest resources. Soemarwoto (1991) also argues that past programmes have failed and must take account of the needs

of people as a first priority with particular reference to off-farm employment combined with the provision of training, improvements in the marketing system and a reduction in the rate of population increase through family planning. These directions coupled with the adoption of intensified agroecosystems would take the pressure off land.

In the outer islands, as well, in the 1990s, new approaches are being tried by the SFC to gain the support of the villagers in social forestry development. On West Timor they appear to be at an early stage of implementation.

3.3.2.3 Industrial Forest Plantations - *Hutan Tanaman Industri* (HTI) activities

The current programme of rapid expansion of silvicultural plantations or HTI, beginning in 1990, followed on from previous programmes. HTI form an important part of the rural development scenario for all the villages surveyed in this study. The consequences of these activities need to be assessed along with the implications of current and intended strategies for future development of the HTI areas.

In order to examine the approaches adopted and potential for village involvement in the plantation areas of West Timor it will be necessary to evaluate the principles and practices under which the HTI operates. From a consideration of the type of participatory approaches that could be made from previous discussion, obviously it would have been more beneficial to have involved the communities from the start. The question that could be asked, given the establishment of the plantations, is how effective new cooperative management strategies are likely to be.

Nugroho (1994) describes the historical development of HTI. In 1916 the Dutch Government promoted the development of the wood industry in Indonesia concentrating on the production of soft wood for the manufacture of paper and matches. After independence one of the documents for development of HTI in 1957 led to the production of various upright stands such as teak and mahogany. From 1983 HTI development gathered momentum with various scientific seminars and workshops organised to discuss the importance of HTI to the wood industry and to the economy of

Indonesia. For example, a national workshop was organised by the Forest Faculty of Bogor Agricultural University (IPB) entitled '*Kini Menanam Esok Memanen*' (Plant Now Harvest Tomorrow). Arising from these meetings were recommendations which assisted the Government, through the Forestry Department, to draw up policies for long-term strategies to develop the HTI. The policies were endorsed by provision of a legal framework.

The basis of the HTI concept is set out in the publication '*Peraturan Pemerintah No. 7*' (1990). An understanding of the HTI program encompasses a step-wise approach to increase the potential and quality of forest products by the application of intensive silviculture so as to realise the demands of the timber industry. It is envisaged that the development and expansion of HTI will proceed cautiously as part of a strategic plan to provide raw materials for various industries, and by the twenty-first century, HTI will have an important role in meeting this demand and logging of natural forestry areas will have significantly decreased. However, for *Repelita V* (1989/1990 - 1993/1994) where the replanting target for HTI was 1.5 million hectares, 771,627 hectares were actually planted (Forestry Department 1993).

Since the beginning of *Repelita IV* (five-year development plan, 1984/1985 - 1988/1989) the aims of the new government programme were as follows:

- To support the growth of the timber industry so as to provide a stable and continuous supply of wood.
- To support the export of processed wood products.
- To improve the potential of wood producing regions, especially in the less productive areas.
- To expand the opportunities for employment.

The Forestry Department (1993) states that HTI projects are carried out privately or by the state or by a joint venture between private and state companies. By the end of 1994 there were altogether 193 companies or timber estates in operation (BPS 1997). In addition, approximately 110 companies have been granted rights or HPH (*Hak Pengusahaan Hutan*) to plant areas associated with the HTI-Transmigration

programme. The number of timber estates and land controlled by them for each province are given in Table 3.1.

Table 3:1: Number of Timber Estates and Land Controlled by Timber Estates for Each Province at the End of 1994

Province	Number of Timber Estates	Land controlled by Timber Estates (ha)
DI Aceh	2	341,500
Sumatera Utara	11	288,638
Riau	18	269,104
Jambi	8	175,039
Sumatera Selatan	18	667,610
Bengkulu	2	7,000
Lampung	5	7,050
Nusa Tenggara Barat	1	30,000
Nusa Tenggara Timur	5	39,937
Timor Timur	1	48,730
Kalimantan Barat	26	224,129
Kalimantan Tengah	17	94,998
Kalimantan Selatan	21	188,124
Kalimantan Timur	37	805,363
Sulawesi Tengah	4	23,600
Sulawesi Selatan	6	46,313
Sulawesi Tenggara	1	170,000
Maluku	10	69,380
Total	193	3,496,515

Source: BPS 1997

12.2% of the land controlled by timber estates is in Eastern Indonesia (excluding Kalimantan). For Nusa Tenggara Timur, 0.8% of the province's land is controlled by the timber estates, compared to 3.2% in Sumatra, 2.4% in Kalimantan and 1.1% in Sulawesi. HTI development is carried out within permanent production forest areas or production forest within or beyond concession areas. The HTI has been given priority

for those areas designated less productive. In order to support the HTI activities 7 nursery centres have been established at different locations and these are expected to supply 100 million seedlings per year. In addition, a joint venture between a state company and a private company, HTI-Trans, supplies seedlings for 63,000 hectares to cover forestry plantings associated with transmigration (Forestry Department 1993). The philosophy, stated by the Forestry Department, is that the HTI-Trans programme is one of several approaches used to promote HTI activities for the benefit of communities, especially shifting cultivators. It is stated that shifting cultivators within forestry areas should be an integral part of forest management, food production and tree planting, that is, of HTI development. They should have the usage of non-wood products from HTI areas (Forestry Department 1993: 12). It is important in this study to determine what measures have been carried out to include communities in the management and benefits of HTI development.

Nugroho (1994) examined the HTI development programme with respect to its ability to meet the needs of the timber industry and concluded that there were a number of economic and ecological constraints. From an economic point of view the investment climate could be made more attractive for concessionaires with *inter alia* a subsidy which is sufficiently large to maintain permanent development. The unmanaged timber stands are likely to be worth much less at maturity which will reduce their economic potential as well as not fulfilling their environmental role of reducing pressure on the natural forest. The selection of trees for HTI areas favours exotic species with little attention given to locally adapted species and indigenous knowledge for their production. Other problems relate to the likelihood of fire, exclusion of livestock and attack by pests and diseases. General support is given to these findings (World Bank 1990; Potter 1993a; Colchester 1995). Although the problem of disputes with the local people was mentioned there appears to be little investigation as to the importance or lack of community involvement. Also the impacts from resettlement of people from HTI-designated areas have not been investigated. In this study, where people have been resettled from *adat* or customary-owned land there is an opportunity for further investigation.

3.4 Evaluation of development processes in Indonesia for village and regional development

Having examined the management process and the key resource issues involving this study it is appropriate to make some evaluation of rural development processes in Indonesia to determine the types of constraints which exist, particularly with respect to participation and empowerment at the village level. Traditional belief systems together with customary law and regulations have persisted in village societies to the 20th century. Colonialism, as well as newly formed independence structures, with their emphasis on bureaucratic centralism, imposed a new regime on village management. In Indonesia, this may be in the process of changing again but it is still at an experimental stage, to accommodate a decentralised approach. However, the end result for villages, depending on their degree of isolation and other factors, has been a motley amalgamation of still dominant centralised structures, influenced by past colonialism and top-down state systems, with diminished power and authority of the traditional systems (Hardjono 1983; MacAndrews 1986; Guinness 1994).

The legal basis for the current system of regional/local government in Indonesia is based on Law No. 5 of 1974. This law contained three principles for distributing governmental functions:

- decentralisation of responsibilities to provincial and regency levels of government
- deconcentration of activities to regional offices of central ministries (at the provincial and regency levels)
- co-administration, in which provincial and regency governments carry out activities on behalf of the central government.

Devas (1997) in his analysis of the Indonesian approach to decentralisation distinguishes between the conventional concept adopted by western public administration, in which there is a transfer of power and responsibility to elected local governments, and the concept of decentralisation of management in which there is no political or democratic accountability to electors. With the latter approach organisational performance with efficiency is emphasised, especially in the provision of

services. According to Devas this is the perception of central government departments for which decentralisation involves the implementation of activities and delivery of services at the local level, but not about the transfer of power and authority, and involves shifting administrative responsibility to local officials rather than delegating decision-making to local elected representatives. Superficially, this approach would seem to fall within the decentralised management model. Devas (1997) draws attention, however, to a number of institutional requirements that are not met. These include a requirement for a degree of delegation of authority for decision making, the need for incentives, performance indicators and an effective system of controls which includes a proper system of accountability. One of the most important reasons given by Devas for the government of Indonesia resisting any real decentralisation of authority is the preservation of a unified source of power and authority.

Although Indonesia has adopted a policy of decentralisation the rate of progress in changing from a strong central bureaucracy to one giving greater regional and local authority appears to be a gradual one. Regional planning ability has been given emphasis with the establishment of planning boards (BAPPEDA, *Badan Perencanaan Pembangunan Nasional*) at the provincial and regency levels. A key function of *Bappeda* is to promote intersectoral coordination and to reconcile national policies and programmes with local aspirations and needs. As an outcome this led to the drawing up of a five-year development plan and an annual plan, together with a budget, at both the provincial and regional levels. These plans would be in tune with the five-year development plan at the national level. In addition, a branch of the Department of Home Affairs (BANGDES, *Badan Pembangunan Desa*) is expected to build capacity for village level planning at the sub-regency and village levels.

In practice, both *Bappeda* and *Bangdes* have lacked the capacity to fulfil Indonesia's decentralisation policy as shown by an investigation into the operational constraints in the Sulawesi experience (Ferrazi, Bolt & Kirby 1993). Here, participation of the poor in the villages was limited for development planning, the funding process was complex, going through many steps for approval and modification and often tied to sectoral interests, and *Bappeda* and *Bangdes* both lacked planning capacity - particularly in

assisting bottom-up planning. In essence the type of decentralisation practised was little more than deconcentration, where there is delegation of administrative responsibilities but no transfer of authority from central to local agencies. A study in the mid-1980s showed that the *Bappedas* had very limited control over development programmes in their regions (Morfit 1986). The weakness of the *Bappedas* is typified by their lack of ability to influence development budgets, which are largely controlled by sectoral line agencies with direct links to national offices in Jakarta (Tirtosudarmo 1995a). The conflict concerning the responsibility for supervising regional development programs is illustrated by the fact that most of the development budget is channelled through regional offices (*Kanwil*) for sectoral programs rather than through provincial or regency technical offices, which are under the control of the governor or the regency head (*bupati*) (Tirtosudarmo 1995a).

Development activities at the provincial level, based on Law No. 5 of 1974, which established the legal framework for the role of authority of the provincial governments, can be classified into three broad categories:

1. Those development activities and programs implemented by the sectoral line agencies in the regions. Here, planning, implementation, control and financial support are mainly the responsibility of the central government.
2. The activities which are funded and implemented by the Regency Technical Offices (*Dinas*).
3. The development activities, that should be the responsibility of the provincial government, but because of financial limitations, usually become the responsibility of the central government, for example, the INPRES (*Instruksi President* or Presidential Instruction) projects. The *Inpres* projects, which are directed from the President, were started in 1969 with two main funded-lines: a multi-level block grant system covering province, regency and village and a set of special aid programmes with sectoral orientation (Steigerwald 1987).

The time-scheduling of the annual development plan is given in Table 3.2. Tirtosudarmo (1995a) points out the shortcomings of this eight-stage process.

Table 3.2: 'Bottom-up' Regional Development Planning and Implementation Mechanism *

Stages	Activity	Organisations and key persons	Timing
Stage One	Preparation of village development plans. Plans submitted to sub-regency head.	LKMD, village head, sub-regency head and <i>Bangdes</i> representative	January-April
Stage Two:	Regency-level workshops - selection of projects	<i>Bangdes</i> , regency-level <i>Bappeda</i> , regency head	April/May
Stage Three	Second-level coordination meeting - selection of proposals according to various budgets and grants. Programmes and projects submitted to higher levels.	Sub-regency head, regency-level <i>Bappeda</i> , head of Regency Technical Offices	June/July
Stage Four	First-level development coordination meeting - reconcile regency and provincial priorities (includes those proposals from provincial sectoral line agencies and autonomous institutions).	Heads of regency and provincial level <i>Bappedas</i> , regency heads, <i>Bappenas</i> , National and sectoral agents.	July/August
Stage Five	Regional consultation development meeting - revision of project proposals	Provincial-level <i>Bappedas</i> , <i>Bappenas</i> , Governors, Department of Home Affairs	September
Stage Six	National development consultation meeting - discusses provincial-endorsed projects and national grants such as <i>Inpres</i>	Heads of provincial-level <i>Bappedas</i> , <i>Bappenas</i> and Department of Home Affairs, <i>Bangda</i>	October/November
Stage Seven	Preparation of budgets - national budget and first and second-level regional budget	Budget Team, Home Affairs, <i>Bappenas</i> , Governor	January/March
Stage Eight	Preparation of project budget and regional project budget	<i>Bappenas</i> , Technical agencies, Director General of Budget, provincial <i>Bappedas</i>	March/June

* the mechanism, as stated in government regulation No. 9 of 1982, may not reflect the actual process
Source: Tirtosudarmo (1995a: 26-28).

The slowness of budget disbursement by the central government can cause difficulties in the implementation of projects within a specified time. What appears to be 'bottom-up' planning is actually a 'top-down' process with development projects and projects at

the provincial level being designed and funded by planners of the National Planning Board (BAPPENAS, *Badan Perencanaan Pembangunan Nasional*) and the sectoral line agencies in Jakarta. This gives little room for the budget to reflect the specific requests made by village communities. Powerful groups have emerged to informally lobby central government with the result that more determined provinces benefit at the expense of the relatively weaker provinces of Eastern Indonesia. In 1993 the National Advisory Council on the Development of Indonesia was created in recognition of the disproportionate rate of development. According to Tirtusudarmo (1995a) the establishment of this council is a symbolic measure and the role of the National Planning Board should really be strengthened to coordinate and monitor planning and its implementation.

As part of the village development structure the Village Development Council or LKMD (*Lembaga Ketahanan Masyarakat Desa*) is a community-based forum for discussion and decision making. The Presidential Decree No. 28 of 1980 outlines the structure, role and function of LKMD which should serve as an umbrella for various village development activities as well as a vehicle for community participation and self-help activities.

The LKMD assists the village head in planning and implementing measures to improve living conditions. It must be consulted on the village budget for regional needs development projects, APPKD (*Anggaran Proyek Pembangunan Keperluan Daerah*), and on decisions relating to development. It is a non-government organisation and the members are elected by the community. The LKMD, therefore, has a role in coordinating development activities which are either regional or village-directed. Given the importance of the functions of the LKMD in planning, coordination and building local capacity, it would be necessary for its members to have matching skills (Steigerwald 1997).

Problems of management of rural development, though, at the village level have been widely acknowledged and include a lack of leadership, planning and organisational skills (Soewarno 1983).

The Village Consultative Council or LMD (*Lembaga Musyawarah Desa*), also constituted under the 1979 Village Government Law has a charge to implement democracy (in accordance with *Pancasila* principles) at the village level. It has formal powers in village government. The village head (*kepala desa*), a government functionary, appoints the LMD and he in turn is nominated by the LMD. The LMD has the authority to deliberate on and approve all decisions of the *kepala desa*, to constitute the Electoral Committee for nominating candidates and conducting the election of the *kepala desa*.

Specific mention of women's participation in development is given by government with respect to the role of the official women's organisation, the Family Welfare Association, PKK (*Pembinaan Kesajahteraan Keluarga*). The explicit function of local PKK units remains a passive one of transmitting government directives and promoting state ideology to the mass of ordinary women (Warren 1986)

Overall, in an examination of the effectiveness of the above village-based organisations (LKMD, LMD and PKK), Warren (1986) concluded that these administrative structures, with their undemocratic and authoritative features, did not increase participation, but in fact exacerbated the lack of communication between central government and the Indonesian population and threatened to undercut long-evolved and effective mechanisms for community cooperation which already existed throughout Indonesia.

Since 1979, a village (*desa*) classification system has been used:

1. *Desa swadaya*: a traditional village of socio-economic conditions safeguarding subsistence and survival.
2. *Desa swakarya*: a village where living conditions are improving due to diffusion and acceptance of new technologies.
3. *Desa swasembada*: a more advanced village integrated into the market economy with access to social and physical infrastructure (Steigerwald 1987).

Customary and traditional law are, therefore, undermined by a government-imposed institutional framework to transform villages from traditional *swadaya* (self-help) through transitional *swakarya* (self-activating) to modern *swasembada* (self-sustaining). This would result in a decline in the spirit of *gotong royong* (mutual cooperation) with greater authority being transferred to a central bureaucracy.

With regard to institutions at the national level responsible for regional development one of main functions of the Directorate General of Regional Development (BANGDA, *Bangda Pembangunan Daerah*) is to determine the proper balance among development priorities and to synchronise regional development reflecting national plans, as well as planning determined by lower levels of government.

The responsibilities of *Bangda* extend from the provincial to sub-regency level while those of *Bangdes* concentrate on village and sub-regency administration and monitoring. *Bangdes* has the leading role in guiding the development effort at the village and sub-regency level. It is also charged with assisting villages in planning and implementing the village *Inpres* funding. *Bangdes* should be working closely with the *camat* and *kepala desas* and representative bodies to improve overall planning for projects, ie. build up local capacity. Local people could be involved in data collection, monitoring and evaluation of projects and programmes; these type of activities could be an important part of the application process for funding (Ferrazzi, Bolt & Kirby 1993).

In summary, the main problems which face the Indonesian planning and implementation organisations include the continuance of a top-down approach, low and often uninterested village involvement, allocation of funds mostly for infrastructure and various sectoral uses. In addition, there is a lack of effective village building capacity by *Bangdes* and of planning and coordinating development programs by *Bappeda* (Ferrazzi, Bolt & Kirby 1993).

3.4.1 Non-government organisations in Indonesia

In 1983 a decision was taken in Indonesia to change the term 'NGO' to 'LPSM/LSM', a self-reliant community development institution (*Lembaga Pengembangan Swadaya Masyarakat/Lembaga Swadaya Masyarakat*). The LSMs are primary groups of poor people or local groups working directly with them and the LPSMs are larger, city-based support groups which assist development. In practice the term, 'NGO' is still widely used (Eldridge 1989). Eldridge distinguishes between three groups or models of LPSM/LSMs with different approaches:

1. LPSMs that cooperate in official development programmes while seeking to influence their design and implementation in more participatory directions.
2. Those LPSMs that have a strong advocacy role, aided by well-established networks.
3. Organisations that operate more at the local level that emphasise 'consciousness-raising' and awareness of rights rather than campaigns to change policy. This group, in contrast to the other two, has minimal contact with the government.

Eldridge stresses that despite these differences the Indonesian NGOs have an orientation towards strengthening community groups, a strong commitment to ideals of popular participation in decision-making and are supported through various networks. He concludes that the NGO movement in Indonesia has contributed toward strengthening the process of democratisation. There is scope, though, for improving their effectiveness through integration of different modes and levels of action, and through improving relationships. Billah and Hakim (1989) examined the effect of constraints imposed by the government of Indonesia on NGOs. They conclude that NGOs have largely been unaffected by the 1985 'Law on Social Organisations', a law defining the terms on which political organisations could operate, and that they will continue to function largely unhindered by state controls.

About 300 NGOs are linked together in WALHI (*Wahana Lingkungan Hidup*, Indonesian Forum for the Environment). WALHI conducts research, advocates policy changes

related to the environment and campaigns on forest and other environmental issues. WALHI also promotes the concept of decentralisation of management of Indonesia's natural resources. SKEPHI (NGO Network for Forest Conservation in Indonesia) is also a national forum linked to groups and organisations working to stop forest destruction. It supports the rights of local individuals to manage the forests for their livelihood.

Eccleston and Potter (1996), in a study of environmental NGOs and different political contexts in Southeast Asia, conclude that these NGOs face a range of political obstacles in their campaign to reduce deforestation. For Indonesia, where logging concessions are part of local patronage systems and where the military are an additional economic and political interest, forestry campaigns by NGOs have to confront powerful forces. In making advocacy work more effectively to resolve environmental problems there should be attention directed to the political context at the global, national and local levels. Vivian (1992) confirms that the success of movements of environmental activism is often due to their ability to form a coalition with regional, national or international groups which have similar interests, and to publicise their grievances and causes.

3.5 Conclusion

Indonesia has essentially adopted a 'top-down' approach to rural development where modernisation is achieved through economic growth and socio-cultural change. The entrenchment of structures and values from colonial times and western models of societies make it difficult for the newer concepts of sustainability, participation and empowerment to be institutionalised.

In this study due consideration must be given to the importance of these concepts for resource management in a sustainable way and for rural development. The concepts have relevance for creating sustainable development patterns through an internally sustainable process that builds local management capacity. The management process involves basic

skills, such as participative decision-making, improvement in organisational design and the potential of NGOs to assist in the maturing of grassroots organisations. NGOs are further challenged in the move towards sustainable systems of development with an opportunity to bring pressure on policies and institutions at the local and national levels. On a wider front a multi-dimensional approach, incorporating economic, political, social, environmental and cultural aspects, is needed to accomplish this, firstly, by giving an understanding of the constraints that operate at various levels limiting sustainable development and, secondly, by determining the inputs required from villagers as well as external government and non-government agencies. Of particular interest in this study is the take-over of village land by the HTI. A study of resource management issues for Indonesia together with an understanding of concepts for rural development, have provided a useful framework to examine the implications of population movements for policy making. These will be discussed initially in the following chapter with respect to Indonesia, and later in chapters 8, 9 and 10, more specifically in relation to the study area.

CHAPTER FOUR

POPULATION MOVEMENTS - TYPES, IMPACT AND POLICIES

4.1 Introduction

Population growth and population movement in developing countries have been major concerns for governments in their planning and policy making (United Nations 1994). Studies on the effects of population trends on development generally focus on their influence on particular parts of the economy such as health, housing and transport, resources and the environment and employment problems.

As indicated in chapter 1, policy makers have an ultimate responsibility in drawing together the results of population census and research findings on population-related topics, in an attempt to formulate appropriate policies. An understanding of the theories of rural development, the concepts of management and organisation, and of the resource management issues confronting Indonesia, as discussed in chapters 2 and 3, provides a framework to review the knowledge concerning the nature of population movements and its associated consequences for rural development. In addition, it would be valuable to appreciate the difficulties arising from attempts to adopt appropriate population policies and programmes, and the ways in which this present study could assist.

The aim of this chapter, therefore, is to understand the importance and implications for policy makers of rural-rural population movements. The chapter will focus on factors responsible for these movements in Indonesia, their characteristics and consequences and their links with government policies and programmes.

4.2 Population movements

4.2.1 Theoretical approaches to population mobility

Parnell (1993: 12) distinguishes between 'migration' which generally refers to permanent or quasi-permanent relocation, and 'population movements' which include a much wider range of short-term, circular and cyclical forms. Population movements between regions have implications for demographic, social, economic and environmental contexts at both the place of origin and place of destination.

Early explanations of human mobility focused on factors which might 'push' people out of rural areas such as insufficient land and those that might 'pull' migrants towards other areas such as better education (Lee 1966). Skeldon (1990) criticises this 'push-pull' interpretation as it is unclear how these factors are grouped or interact to cause population movement.

A neo-classical perspective on the causes of population mobility emphasises interregional differences in social and economic opportunities. It is seen, primarily, as a transfer of labour in response to imbalances in the spatial distribution of labour, natural resources, land and capital (Lewis 1954). Criticism of the neo-classical approach over-emphasises the choice of individuals with not enough weight given to macro-structural forces which underlie society, such as the capitalist mode of production and type of development (Wood 1982: 303). Forbes (1990: 156) alludes to mobility research being 'marked by implicit notions of voluntarism in which society is assumed to be the sum product of intentional actions of individuals'.

As a consequence of unemployment in rural areas, labour mobility is seen as a household survival strategy by structuralists (Wood 1982; Breman 1985). There is a complex interaction between structural and behavioural factors in influencing the pattern of population mobility. Parnwell (1993) criticises the macro-structural perspective since it offers few explanations for the linkages between macro-level processes and household decision-making. He examines meso and micro-level

influences on migration patterns and concludes that these give a clearer understanding of why people move. There are, however, a variety of factors involved as well as a complex range of movement types which results from an interaction of these factors. Decision making by households can, for example, be influenced by the development process, the existence of networks, the participants in decision making, the perceptions of benefits arising from different locations and the influence of non-economic factors. Selectivity of the population movement process with respect to age, gender, economic status, ethnicity and other characteristics will also affect its outcome.

The policy implications stemming from the neo-classical and structural perspectives will be different, as shown in Table 4.1. On the one hand a neo-classical viewpoint would encourage a *laissez faire* approach to allow market forces to operate and, on the other, a structuralist perspective would endorse an interventionist approach to alter mobility patterns.

Unlike the neo-classical and structural views the humanist approach focuses more on the individual and calls for a detailed understanding of a community in a localised setting. Forbes (1990: 146-47) argues that the economic context is largely ignored in this approach and that details of population movement should be set within the context of socio-economic change. Skeldon (1990: 150) also concludes that a study of the spatial and temporal structure of movement should be placed within a macro-political and economic context.

According to Zelinsky (1978) several theoretical approaches used to study migration do little to account for actual events. Policies which stem from them are, therefore, in jeopardy. Zelinsky argues that migration is only a small part of what he terms the 'mobility transition', which is associated with social and other forms of mobility. Thus an adequate migration theory must take into account a larger theory of society. Zelinsky (1971: 221-2) suggests the existence of a 'mobility transition' is marked by:

definite patterned regularities in the growth of personal mobility through space/time during recent history and these regularities comprise an essential component of the modernisation process.

Table 4.1: Broad Theoretical Perspectives on the Relationships between Internal Migration and Regional Development

	Neo-Classical Equilibrium Perspective	Historical-Structural Perspective
1. Causes of internal migration	A response to spatial imbalances in the distribution of land, labour, capital and natural resources	Structural forces such as the emergence and uneven expansion of the capitalist mode of production, the nature of the development policies of the government, uneven development within and between countries, the political economy of the country
2. Consequences of migration for regional development	A positive 'development fostering' impact since the amelioration of spatial inequalities will result from redistribution of human capital from places of low to high productivity	A negative, inequality exacerbating effect. Concentration of talented people, resources, power and capital in particular areas widens the gap between regions, contributes to major inefficiencies and social and economic problems at both origin and destination, and impedes national development
3. Policy implications	Allow market forces to operate. Interventions only to speed up or smooth flow of labour between regions by removing barriers to such movement	Intervention is favoured by most governments as part of attempt to reduce inequalities. Most fly in the face of existing population flows and are unlikely to succeed, unless underlying political economic forces are tackled

Source: Generalised from Wood 1982; Lipton 1980; Hugo 1982a

Forbes (1990) argues that both the voluntarists and structuralists overlook the complex relationships between the individual and society. An alternative framework for analysing these relationships is suggested by the concept of 'structuration' (Giddens 1979). The term refers to 'a two-way dialectical relationship between the individual and society in which they transformed and reproduced one another' (Forbes 1990: 76).

Forbes raises the question as to whether the concept of structuration is applicable to a peripheral capitalist society like Indonesia. He points to the uneven spatial development of capitalism in Indonesia where, for example, a significant proportion of migrants to urban centres are involved in the informal sector, at a subsistence level. Human mobility, according to Forbes, is closely associated with the processes of this uneven development so that 'populations are redistributed towards the centres of accumulation and away from those of disarticulation'. In order to link the macro-level analysis with the individual and local circumstances Forbes suggests that a mobility research methodology, such as space-time geography, be used which collects longitudinal micro-data on human behaviour over time and space. In this way a theory of mobility can take account of the changes in Indonesian society incorporating the development of a conceptual framework using concepts such as structuration to understand the relationships between the individual and society. Firman (1994) adopts this kind of interactional approach to population mobility where a framework of analysis is constructed to examine the links between rural households, labour flows, and the housing industry in Bandung, West Java. He concludes that processes in the urban labour market affect the mobility patterns, and vice versa. Likewise the nature of mobility affects rural household behaviour. As a result labour market processes are linked to rural household behaviour through population mobility. The study demonstrates 'that population mobility is a spatially discontinuous process that both connects and gives territorial expression to the dynamics of labour market segmentation and rural household strategies'.

4.2.2 Rural-to-rural and urban-to-rural movement

Movements from urban to rural areas and between one rural area and another, in general, have been less researched compared to movements from rural to urban areas but represent an important part of population movements in Indonesia. On the less populated islands of Eastern Indonesia, where the economy has a strong agricultural base, inter-island and inter-rural movement, particularly on the coastal fringes, has been taking place over the centuries. This type of movement, mostly spontaneous, has resulted in a slow mixing of ethnic groups; it has been assisted with inducements from

the Dutch colonial era and the present-day Indonesian Government (Hugo et al. 1990: 28-106).

The main contributing factors to rural-to-rural migration have been linked to the availability of agricultural land and to those regions or countries in which the agricultural sector has predominated. Where there is an opportunity to expand agricultural activities and create alternative sources of employment, in-migration can be sustained. Eventually, the availability of land will diminish and continued absorption of migrants will be more a function of alternative livelihood opportunities. In the absence of these the labour absorption capacity of in-migrants is limited (ESCAP 1992b).

4.2.2.1 Unsponsored spontaneous settlement

Traditionally, spontaneous agricultural settlement, a long-established phenomenon in Indonesia, is defined as agricultural development of new areas by immigrants who arrive and settle of their own accord (Charras & Pain 1993). This can occur as part of a natural movement from Java, say, to the outer islands regardless of any transmigration policy. The reasons for this type of movement include the taking up of available land and a desire for independence. An example is given by the development of the marshy coast of Sumatra, firstly by the Banjarese (from South Kalimantan) and later by the Bugis (from South Sulawesi) (Potter 1993b; Charras & Pain 1993). The Banjarese also developed the swampy areas in South Central Kalimantan (Potter 1993b). Uhlig (1984) cites the successful establishment by the Bugis of trading and fishing posts along the coasts of Indonesian islands as well as the founding of agricultural settlements. Economic reasons, as well as socio-cultural factors, have caused a high level of population mobility of the Bugis, as indicated by Lineton (1975: 190-191) in the following description:

The fact that Bugis have been emigrating for centuries is in itself a factor predisposing other Bugis to leave their native land, since the Bugis colonies abroad are sources of information about more favourable economic

opportunities elsewhere and often provide both financial and moral assistance to the would-be emigrant.

Kartawinata and Vayda (1984) describe the activities of migrant Bugis pepper-farmers in East Kalimantan. After clearing logged-over forests the Bugis planted annual food crops along with the perennial pepper crop. The Bugis realised an opportunity which would improve themselves socially as well as economically. In another type of rural-rural migration, Kipp (1979) describes how the Karo Batak see their migration from home villages in the highlands of North Sumatra to rural areas along the east coast as an extension of village land holdings. The new communities eventually become independent as part of the social change process.

According to Fasbender and Erbe (1990) the volume of spontaneous migration (including that with limited government support) is several times that of transmigration. The effects of spontaneous migration on the management of resources in the settled areas concern the level of farming expertise and technology applied to manage the resource base, the degree of extension of subsistence activities, especially if these involve clearing of forested land, and the nature of their entrepreneurial activities for diversification. In a study of spontaneous migration to the province of South Sumatra, Charras and Pain (1993) find that where legal title to land is obtainable communities are more likely to carry out sustainable farming practices. For upland areas, assessments on a regional basis are required to determine the capability of land for hillslope farming and to assess the economic benefits of conservation for subsistence farmers. More research is needed to evaluate the possibilities of alternative farming systems. Most spontaneous migrants, they find, have limited capital and are unable to supply the necessary inputs such as for fertilisation. Their decision to migrate is often a reaction to poor access to resources such as land and to poverty. Charras and Pain conclude from their study in South Sumatra that a poor land status determination prevents an optimal balance between productive use of fertile land and vital conservation of watersheds and forest reserves. In a similar way Soemarwoto (1991) cites problems of soil erosion and flooding as a consequence of deforestation activities by spontaneous settlers coming into the province of Lampung, Sumatra. He advocates

that land-use planning projects should incorporate a wide range of commodities as well as downstream industries for processing of products rather than concentrating on food or tree crops as sole sources of production. Arising from studies of this kind are the implications for policy-makers concerning land tenure and resource management on a regional basis.

A renewed focus has been given to promotion of spontaneous migration as financial resources have progressively become more limited for resettlement programmes (Table 4.2). The Government has been limited in its ability to identify and generate the policies needed to stimulate spontaneous migration (World Bank 1988). An understanding of the process of spontaneous movement as well as the constraints to settlement would assist policy makers.

The main constraint to spontaneous movement, according to the World Bank (1988) study is the inability to find land free of claims and obtain legal rights to it. Land governed by *adat*, or traditional law, may be allocated for cultivation but does not guarantee security of tenure. Settlers acquiring land for farming could subsequently lose such land to locals under this traditional system. Other constraints include the difficulty of finding capital for land purchase and the high cost of land registration. Where disputes over land and compensation have occurred the provincial governments have assisted in resolving the conflicts.

Table 4.2: Transmigration: Sponsored and Spontaneous (households)

Types	1951- 1968	Rep. I* 69/70- 73/74	Rep. II 74/75- 78/79	Rep. III 79/80- 83/84	Rep. IV 84/85- 88/89	The 1st year of Rep. V, 88/89
Sponsored	95,276	122,585	205,544	571,521	799,943	810,501
Spontaneous	0	12,884	12,884	182,381	704,109	720,084
Total	95,276	135,469	218,428	753,902	1,504,052	1,530,585

Source: Tjiptoherijanto 1992

* Rep. I represents The First Five-Year Development Plan, etc.

The report of the World Bank (1988) study concludes that the relatively large numbers of spontaneous migrants during the period 1975-1985, from the inner to outer Indonesia, has been in response to the creation of labour opportunities. Employment prospects have been generated through the process of creating transmigration sites, secondary services required by migrants, and also the development of different sectors of the economy such as mining and manufacturing. The findings support a continued investment to sustain high levels of spontaneous movement to the outer islands and key policies to include establishment of an appropriate system of land registration, availability of credit for the purchase of land and development of measures for protection of the environment.

In this study an opportunity exists to examine factors that could be studied include the importance of establishing a 'natural bridge' between migrants and their homeland, the ethnic background, the nature of integrative and adaptive processes, as well as constraints to establishing viable livelihoods.

4.2.2.2 Resettlement programmes

Resettlement has occurred in Indonesia as a result of partly planned transmigration which has guided and subsidised movement of people from overpopulated islands, such as Java, to more sparsely populated ones like Irian Jaya. The programmes are related to agricultural development and require that farmers adapt their farming methods to the new environment. It is important to examine the outcomes of these programmes and make some comparison with the present study.

In these resettlement programmes some of the transmigrants receive government sponsorship while others move on their own without such assistance (Leinbach 1989: 85). Tjondronegoro (1991) states that the resettlement programmes have resulted in a significant expansion in arable land with the population in the outer islands becoming more self-sufficient in food supplies. The findings of the World Bank (1988) also state that resettlement has led to an expansion of other services in the outer islands,

particularly extension, agricultural input supply, education and health services. In general, though, the resettlement programmes have done little to relieve population pressure on Java.

One of the main problems is the fair acquisition and distribution of lands to transmigrants. Land on which transmigrants are being settled is the ancestral territory of local ethnic groups. As a result land disputes are frequent (Colchester 1986). According to Colchester (1986) and Brookfield and Hart (1971) a loss of traditional ownership of land has repercussions on cultural identity which has been built up on its relation between a society and its lands. In addition to the acquisition of uncultivated lands for resettlers, concern also exists that isolated people who are unaware of their rights may be persuaded to relinquish occupied or cultivated land against their best interests (Hardjono 1986).

Also important, especially in resettlement programmes, is the social impact on local people, particularly with the merging of different ethnic groups. Large differences between ethnic groups, due to religion or social and cultural background are usually not conducive to integration. This type of situation, for example, happened with the resettlement programme in Irian Jaya in which tribal cultures clashed with Javanese and Sundanese ones (Fearnside 1997: 563). This can be accentuated by the establishment of enclaves in the neighbourhood of indigenous settlements or by provision of services to the settlers but not to the locals. Arndt (1983) indicated that there has been little genuine assimilation based on intermarriage, due in part to the recruitment of poor Javanese who do not achieve the same social standing in Minangkabau, Buginese or Batak communities.

Environmentally, there may be problems such as those which arise from the clearing of new land or the adoption of a different farming system (Arndt 1983: 60-61). For example, serious problems have arisen from the management of swamp reclamation sites. With migration to the outer islands there is a potential for increased degradation of land through the adoption of shifting cultivation practices and clearing of forested land. In Tarakan (Northwest Kalimantan) the fallow period in the slash and burn

rotation has been reduced from 15 years to less than four years (UNDP/FAO 1982, cited by Secrett 1986). There is strong evidence to show that shifting cultivation, practised by new arrivals, is more likely to result in soil erosion, extensive and permanent forest clearance, and failed crops than that carried out by indigenous peoples (Secrett 1986). Secrett endorses a restoration of Indonesia's degraded land, making future agricultural settlement of the outer island's rainforests redundant. At the very least aid should be channelled into environmentally sustainable production areas comprising the development of new farm models based on mixed cropping and agroforestry

From the results of the income survey carried out by the Central Bureau of Statistics (BPS 1985, cited in World Bank 1988) about 20% of transmigrant families fall at or below subsistence levels (compared to 4% of indigenous households) and about 6% are classified as severely deprived. In general, incomes and the number below the poverty level vary by farm model and period of settlement. An emphasis, according to the government, on improving site selection and the type of farming systems carried out will raise income levels. Another important finding by BPS is that a very large proportion of transmigrant incomes is drawn from non-agricultural work, 30% to 80% in the studies cited. This has implications for resettlement in general as to what part farming and other income-generating activities contribute to sustained livelihoods. Also what is the appropriate level and kind of assistance, if any, from government and non-government agencies?

Mollett (1991) gives evidence to suggest that restraining efforts of farmers in developing their own initiatives and not allowing them to act as entrepreneurs through imposing some form of control, holds back development. Extension services should, therefore, encourage the experimental and analytical role of the farmer. According to Mollett settlers avoid risk as much as possible during the initial resettlement phase. After, in the development phase, a majority appear to be more capable of rapid economic development and cultural change than if they had not moved at all. The reasons given for this include a rise in confidence as they establish viable communities and production systems, social constraints are lessened and new opportunities are often

provided by government and other external agencies. The nature of this assistance is important so that it can enable settlers to use their initiative and encourage a process of integrated development. The study concludes that rural migration, both spontaneous and forced, which involves land settlement, can be a positive force in agricultural development. From a study, also, on the effects of resettlement on development in Indonesia by Wu (1993), agricultural development activities, although failing often to provide sufficient income, improved the welfare of migrants compared to that of surrounding areas. Since the problems faced in each area varied, Wu concludes that planning and implementation needed to be undertaken on a regional basis rather than as a generalised top-down approach.

Resettlement programmes also have been associated with specific land use planning programmes, such as building of dams, afforestation and preservation of water catchment areas. These usually require resettlement of people in the vicinity of the project site. As an example, Badcock (1991) describes the government resettlement programme of 50 families from the highland village of Nenas, in the regency of Timor Tengah Selatan, West Timor, to Linamnutu, a small rice growing community in the south coastal area of the regency. The programme was introduced by the government in the 1970s by the Forestry Department to reduce pressure on local resources. By the late 1980s, however, many of the families had returned to Nenas because of difficulties they had experienced with the climate (hotter and drier), malaria and the conflict with local people. With the take-over of other areas for reforestation along with enforcement by government officials and the military, it is now difficult for the villagers to return to their former lands. Other response options need to be examined where there is a threat of take-over of land or where it is a *fait accompli*. Lee (1996) describes, for example, a way of responding to the threat of relocating villagers living in upland areas of East Sumba, NTT, in or near a forest zone, towards the southern coastal plain. The Sumbanese villagers would experience a spiritual loss and they would also be affected economically since they would lose a traditional system of social security protecting them against famine in the dry season. Because of this threat, Lee found that the villagers were motivated to adopt (or pretended to adopt) the tree-planting technology

promoted by a local NGO, *Yayasan Tananua*, and which had some government support.

In the regency of Kupang, West Timor (the site of this study), the government has also encouraged the movement of people in more localised situations from hillier areas, where shifting agriculture had been practised, towards the coast. Although most of these movements were contained within the village boundaries there were readjustments in terms of land use, a change in agricultural practice, land availability, access to water throughout the year, and living in closer proximity to coastal dwellers of different, as well as their own, ethnic background. Following resettlement the land was taken over by the commercial arm of the social forestry department (*Perum Perhutani*), and limited access to the land is now strictly controlled by enforcement of forestry regulations for their replanting programmes. The details of this type of take-over, along with responses made by the villagers and others, will be discussed in relation to the study area in chapter 9.

Sabrani and Saepudin (1994) point out that this type of resettlement, or sedentarisation, is likely to bring villagers in contact with aspects of the modern market economy and there is, therefore, a potential to change from a traditionally-based sector where the emphasis is on home consumption and risk minimisation to one of maximising profit. This has implications for dealing with both external factors, such as the lack of economic and market infrastructure and technology for a different kind of farming system, and internal factors such as changes in social and cultural systems. As a result of these problems Sabrani and Saepudin (1994: 53) recommend that planning should encompass all dimensions at the farm level to cover internal adaptations, sustainable production systems, extension and technology transfer; the sector or sub-sector level to incorporate policies on commodities and marketing strategies; and the regional level to address problems of the environment and coordination of the agroforestry and resettlement programmes. Although this type of planning appears to be appropriate it needs to take into account the role and strength of community action and the type of interaction with government and NGOs to facilitate adaptation. In addition, what are the

constraints of present organisational structures at these different levels and how might they operate more efficiently?

The pursuit of alternative occupations may be a response to the difficult agricultural conditions associated with movements of households. Viewed positively, new enterprises may emerge along with people in new occupations such as traders, artisans, clerical workers and business people. As far as policy and planning are concerned it would be helpful to gauge the impact of these local movements, how people have adapted to a newer environment, the influence of different ethnic groups on development, the types of livelihood options available and resource management practices being adopted. The potential for a greater input into, and benefit from, forestry programmes needs also to be considered.

4.2.3 Circular migration

Although the main focus of this study concerns permanent rural-rural population movements, some understanding of the level and consequences of non-permanent movements for rural development is needed. This is discussed in the following section with respect to circular migration and in chapters 8 and 10 where the findings from the field study are discussed.

Circular migration relates to temporary migration where migrants usually leave rural areas for the city and usually stay for short-term periods of up to one year, but sometimes stay up to several years, before returning to their village (Parnell 1993). The time away from their family often depends on 'economic circumstances' (Nelson 1978). Prothero and Chapman (1985) argue that it is possible to differentiate between permanent migration and circulation by assessing the nature of the linkages that the migrant maintains with his place of origin.

The bulk of this type of mobility goes unrecorded in large-scale demographic surveys and censuses (Goldstein 1978; Hugo 1997). However, it is widely evident in Indonesia with social and economic implications. In a West Java study (Hugo 1975), circular

migration was found to be an important type of non-permanent mobility. Here movers did not change their usual place of residence in the village but were absent at an urban destination for periods longer than a single day and were usually involved in the informal sector of the economy. Circular migrants often obtained seasonal work; the frequency of return to their village was dependent on the distance and cost of travel, their earnings and the availability of work in the home village. In the fourteen villages that were studied, three-quarters of the families were partly dependent on income sources outside the village. Remittances from urban informal sector earnings have been an important contribution to rural income in densely populated Central Java (Hetler 1989; Collier et al. 1982; Lerman 1983). Hetler found that as income level increased circular migration remittances increasingly dominated as the primary source of support. Living standards were raised as a consequence; however, the poorest segment of the villagers (24% in this study) still lacked basic necessities.

Hugo (1982b) discusses the theories relating to the causes of non-permanent migration. In general, economic considerations appear to dominate and these may be modified by social and cultural forces. With respect to economic explanations, micro-level influences, such as risk minimisation and maximising family income and utility from consumption, need to be considered along with macro-structural forces in society, such as large scale centralised capital investment to exploit resources. Hugo concludes that the spatial socio-economic inequalities are a major causal factor in non-permanent migration; however, more research needs to be undertaken to define the causes as well as to examine the consequences and implications for regional development. Is circular mobility, for example, beneficial or counterproductive in the long run in improving the condition of the rural poor? Will it encourage sustainable development at the village level with appropriate income-generating activities? In a broader context, how will regional development be influenced, and what are the policy implications of this type of mobility?

Non-permanent movements have been shown to be important on other islands apart from Java eg, Kalimantan, Sulawesi and Irian Jaya (Hugo 1982b). The extent of circular mobility, though, and its impact, on the less populated islands of Nusa

Tenggara Timur (including West Timor) is not well documented; it will be assessed with respect to the rural areas in this study.

4.3 Population dynamics, development processes and environmental changes

In broad terms, increased population density occurring as a result of rural-rural movements and natural increase can put pressure on limited natural resources. An example of this is shown with the immigration of Han farmers into the pastoral Inner Mongolian Autonomous Region resulting in degradation of the environment (Ma, Swift & Mearns 1993). Similarly, Myers (1988) describes a situation in the Philippines where, following the closing of agricultural land in the 1970s, large numbers of landless people migrated into the uplands over a short period of time. This resulted in an increase in the rate of deforestation of the tropical forests and soil erosion. Any equilibrium that could have formed with a low level of exploitation is foregone with the rapid influx of people who are intent on pursuing survival strategies.

From a global perspective, the eighteenth century English economist Malthus tried to explain that the growth of food resources could not keep up with the geometric rate of population growth - unless stopped by preventive checks (Malthus 1976). In the twentieth century there have been warnings of population growth outstripping economic growth (Brown 1983). A 'limits to growth' model was put forward (Meadows et al. 1972) to explain that economic growth will cease as the earth runs out of renewable resources within the next 100 years. Current projections predict that the population of the developing world will grow this decade by more than 80 million a year. There is evidence, however, that fertility rates have fallen in all parts of the Third World, with the exception of Africa (World Bank 1992).

From an alternative viewpoint, Boserup (1965) asserts that the methods of cultivation and systems of land use in traditional societies adapt to changing demographic conditions:

As the labour of the population in the area increases, the fertility of the soil can no longer be preserved by means of long fallow and it becomes necessary to

introduce other systems which require a much larger agricultural labour force. By the gradual change from systems where each cultivated plot is matched by twenty similar plots under fallow to systems where no fallow is necessary, the population within a given area can double several times without having to face either starvation or lack of employment opportunities in agriculture (Boserup 1965: 167).

Various studies have shown that increased population growth has led to the adoption of labour intensive farming systems (Hayami & Ruttan 1971; Binswagen & Ruttan 1978). An approach ignoring the impact on the environment, though, is implied by Boserup. Limitations to the adoption of more intensive systems could be related to the sensitivity of the environment as well as to the small size of land holdings, particularly in subsistence agriculture, and the insecurity of land tenure. Blaikie and Brookfield (1987) challenge the implications of the Boserup model, that population growth always leads to agricultural innovation. They observe that environmental degradation has often occurred instead and suggest that one of the model's shortcomings is that population is isolated and used as a single causal variable. On the other hand degradation does not always result from increased population pressure. Sage (1994) describes four ways in which population growth, treated as an independent variable, can interact with the environment: causing expansion of area under cultivation; intensification of agriculture; being scale neutral in terms of the local resource base; and involved in feedback loops where changes in the local environment influence fertility, mortality and migration. These interactions give some idea of the variable responses which can emerge which often do not conform to either the Boserupian or Malthusian model. Sage namely advocates that for regional development an understanding of other demographic variables (apart from population size and birth rate) is required, such as migration flows, the spatial distribution of population and where people are in relation to the type and resilience of the ecosystem.

There are a number of factors such as socio-economic inequities, cultural constraints and government policies, together with their interactions, which need to be taken into account to clarify the nature of the complex relationships between population,

environment and sustainable development. Formulae based mainly on a 'carrying capacity' approach have been challenged. For example, in the Paul Ehrlich's $I = PAT$ formulation, the environmental impact (I) is equal to population size (P) multiplied by per capital consumption (A), multiplied by the impact of technologies used in supplying each unit of consumption (T). Hayes (1997) emphasises the limitations of this formulation which ignores interactions among P, A and T and does not take into account their intrinsic organisation. As an alternative, Hayes tries to provide a framework to help explain how these interactions are exploited in the development process. Development is seen by Hayes as a human activity comprising an input to systems which integrate components from society (economy, culture), population (human resources, population dynamics), environment (natural resources, ecosystems) and the built environment (infrastructure, technology). In this framework, population can affect the environment through interactions between the population and environment variables or through a feedback loop on the system via the output, namely, the quality of life and development efforts (government, community).

As an example of the importance of culture, Hayes alludes to the dominance of the subsistent shifting agriculture ecosystem of the Ata Tana 'Ai people of the Tana 'Ai Valley of eastern Flores which was directed by their culture and social organisation.

From an ecological point of view, the people of Tana 'Ai constitute the dominant species of the valley's ecosystem: their horticultural activities both determine and regulate the ecological succession of species in the valley....they occupy this position of dominance not by virtue of their numbers alone, nor because of their biomass, but because of their culture. Their dominance of the ecosystem is effected by their system of subsistence agriculture, and this is informed and directed by their culture and social organisation (Hayes 1996: 14).

Lewis (1992: 53) observes three important facts concerning the ecosystem of the Tana 'Ai. First, the agricultural ecosystem of Tana 'Ai appears to be relatively stable. Second, small groups of senior women 'allocate land for the community's horticultural activities by exercising culturally constituted authority to determine which plots of

secondary forest will be cleared for forestry in a given year'; they take decisions regarding the organisation of human resources for exploitation of environmental resources. Third, men provide the organised labour required for the heaviest work of horticulture, such as clearing of the forest and construction of fences. Lewis shows that the decisions of women strongly influence the productivity and stability of the system. For the maintenance of a stable system these decisions include the type of settlement pattern of the society and the pattern of outmigration.

This finding supports the statement of Hayes (1997) that an examination of the interaction of subsystems and their elements, especially giving attention to cultural values, could offer an insight into the constraints and contributions to the development process. An understanding of the links between demographic processes and other components is also needed to determine which values and lifestyles are consistent with sustainability.

With respect to the actual impact on the environment Harrison (1993) differentiates between density of activity and the carrying capacity of the environment. Density of activity can have an effect on resource demand as well as waste output. Carrying capacity has a productive component - the ability to provide resources such as food as well as a waste carrying component - the ability to absorb a certain level of pollution or degradation without significant damage. Adaptations to new technology give flexibility and help to explain why a raised carrying capacity of resource use has met the demands of population growth in most places. Adaptation, however, is not limitless and continued pressures on resource use lead to critical levels where irreversible changes occur.

Population pressure, as expressed by population density, can, but not necessarily does, correlate closely with density of activity. The concept of population pressure, involving number, rate of growth and distribution of people, is normally applied to a given area. Soemarwoto (1984) attempts to analyse population pressure on a quantitative basis. The model includes the hectareage of land required for a perceived adequate standard of living and the fraction of income from off-farm activities. Soemarwoto describes

population pressure as a need for land as a source of livelihood; it is a force which either drives the farmers to increase the amount of land under cultivation to meet increasing demands by a factor equal to the value of the population pressure or which pushes the farmers out of their farmland to find a living elsewhere, so that the number of the farmers in the area will be decreased by a factor equal to the reciprocal value of the population pressure. In this way population pressures are compared for different provinces in Indonesia.

The model shows that environmental quality is tied to population growth and that population pressure does not bear a relationship with population density. The model also shows that policies to counteract population pressure should be aimed at reducing the need for agricultural land among rural people. This can be achieved by focusing on increasing level of production through improved technology and introducing improved varieties for crops or breeds of livestock; off-farm income-generating activities such as a home cottage industry, post-harvest processing of agricultural products; and skills training for non-agricultural employment in the village. The results of calculations of population pressure are only indicative of trends since other factors add to the complexity of relationships between people and the land. The model has been used as regional planning aid by the Department of Forestry for Indonesia in its watershed programme (Soemarwoto 1984).

While the relationships described above and quantitative models assist in the understanding of factors which can contribute to environmental impact there is an inherent danger of oversimplifying the nature of fundamental causal factors. Stonich (1989), in a Central American case study examines the dynamics of social processes and environmental destruction in Southern Honduras. Although there was a rapid increase in population growth in this region, population growth *per se* could not explain the destructive land-use patterns that have emerged. The expansion of capitalist agriculture into highland areas involved the intensification of agriculture and the expansion of agricultural and pasture lands into steeper, more marginal, areas. The land-poor and landless peasants were unable to produce enough for their own needs and became integrated into the new capitalist structure; they helped convert forest lands into

pasture for raising cattle. Stonich concludes that environmental degradation in Southern Honduras originated from the fundamental structure of society - the outcome of a complex web of interconnected problems of land distribution and use, demography and poverty.

Studies that have been carried out in Costa Rica, Uganda and Pakistan to examine the linkages between population, environment and development have also shown these to be complex. Improved living conditions or more secure local livelihoods appear to be the central requirements for a decline in fertility, as well as a more sustained and balanced environment (Ghimire 1993). According to Ghimire, effective policies need to 'strike the right balance' between outside intervention and local involvement for this to occur. In Pakistan it was found that individuals and communities look towards the government and aid agencies to resolve problems instead of drawing on their own resources and skills. Traditional forms of collective decision making, ownership and responsibility need to be revived to address problems related to different aspects of population, environment and development. Through local participation and local initiatives, planning and implementation processes are more likely to benefit local communities in a sustainable and equitable way.

Taking into account some of the theoretical aspects discussed, an evaluation of the linkages between population, environment and development processes for this study will be explored in chapter 10.

4.3.1 Population dynamics and shifting cultivation

Shifting agriculture is practised widely in Indonesia including the district surveyed in this study (Potter 1993a). It is important to review some of the pressures on this type of system in the light of what has already been discussed. Shifting cultivation in its broad context is defined as:

an economy in which the main characteristics are rotation of fields and not of crops; short periods of soil occupancy alternating with long fallow periods;

clearing by means of fire; absence of draft animals and of manuring; use of human labour only, employment of the dibble stick or hoe...Many shifting cultivators no longer change their dwellings when they turn to new land; they have become sedentary as least as far as their houses are concerned. They may build a hut in the *ladang* if it is too far away from their village and may occasionally live in such a shelter..., but after the harvest they return to their permanent houses in the village (Pelzer 1948: 17).

Land clearing by fire is often termed 'swidden' or 'slash-and-burn' and the agricultural practice 'swidden cultivation'. Fields may be used for 2 to 4 years before fertility declines, often accompanied by an increase in weeds, to such an extent that they have to be fallowed. Ormeling (1957) points out, however, that for the more arid areas of Eastern Indonesia, such as West Timor, the secondary forest needs a long period of fallow (greater than 12 years) to regrow.

Boserup (1965) maintains that a change from forest fallow to a shorter fallow or even to a system of annual cropping or multi-cropping with hardly any fallow can occur under increased population pressure because a more intensified system is possible with increased labour input. Shifting cultivation, however, has persisted into the present time occurring across a wide range of densities, from less than 1 to more than 500 persons per square kilometre (Turner, Hanham & Partararo 1977). Weischet and Caviedes (1993: 275) give evidence that environmental factors are ignored in explaining the relative permanence of shifting cultivation despite the apparent availability of modern agrotechnology:

On the basis of ecological reasoning it can be proven that this particular mode of rotating food crop and forest or bush fallow is a specialised adaptation to the environmental conditions of the tropics which not even modern agrotechnology has been able to replace, at a normal farm unit scale, by making use of fertilisers and intensive cropping systems for the production of cereals or tubers and man's staples...the ecologically decisive soil properties which act as limiting factors for plant growth, and which cannot be markedly manipulated by man.

According to Weischet and Caveides, though, low-input technology and models of agroforestry, apart from shifting cultivation, are alternatives. As population growth continues the practice of burning will be abandoned and a greater labour input will be used.

In Eastern Indonesia the over-exploitation of forest resources by local populations (Ormeling 1957) has been a major cause of the appearance of perennial grasses such as *Imperata cylindrica*. Some of the previously available forest area for shifting cultivation has been taken over for plantation forestry by the *Hutan Tanaman Industri* (HTI) during the last 20 years; this further exacerbates the exploitation process of the remaining land available to farmers.

The population density further varies markedly with region, being for Nusa Tenggara Timur 125 persons/per square kilometre in 1990 on land under 40% slope compared to an average of 69 persons per square kilometre for the whole of Nusa Tenggara Timur (Hayes & Hidayati 1995). Estimates of population density for a twelve-year fallow vary from 20-30 persons per square kilometre in the more arid areas of Nusa Tenggara to 50 per square kilometre for more favourable areas (Ormeling 1957: 185). However, Metzner (1982) analysed the main factors determining stability of agricultural systems in Central Sikka on the island of Flores. From his analysis he found that the ecological stability for the area's agricultural systems, including shifting agriculture, is a complex which could not be adequately explained by a simple relationship of population density to physical resources under a given form of agriculture. Metzner found high population densities under shifting cultivation systems. Any approach to encourage agricultural development and improve the stability of the system should take into account the value of indigenous resources. Ecologically-based improvements such as the use of mulching, crop rotation and the growing of legumes would work in well with the farmer's concept of risk minimisation, rather than promoting high level expectations of imported technology such as the use of chemical fertilisers and pesticides.

While the persistent nature of shifting agriculture has been attributed to environmental limitations, in some areas other problems have arisen which have caused shifting

cultivation to undergo a substantial degree of change so that it is no longer practised in a traditional way. In the upland areas of the Philippines, for example, where the population pressure has risen sharply due to the movement of displaced people, and levels of deforestation are severe, the main objectives have been to reduce soil erosion and to improve the sustainability with the introduction of agroforestry and the provision of tenure certification (Borlagden et al. 1990). With the transmigration programmes in Indonesia a similar type of pressure is faced when the dryland agriculture prescribed for settlers (on land classified as forest land) is not successful and migrants attempt shifting agriculture with further clearing of forest (Secrett 1986). In these and other cases of change and conflict for Indonesia, new systems of land management and tenure need to be resolved with the cooperation of different sectors. Macro-level decisions are required to deal with associated issues such as the conflict between commercial logging interests and indigenous peoples as well as preventing further deterioration of the resource base.

There is a divergence of opinion concerning the relative merits and disadvantages of shifting agriculture but there is general consensus concerning the potential for exceeding environmental limits. From the previous discussion it appears that while population density is an important variable, it should not be used on its own for assessing the pressure put on local resources. Outside pressures may be most influential in the modern situation. Also, the nature of demographic change and the interaction of people with their environment are important considerations. There is potential for alternative systems to shifting agriculture but these need to be worked out according to each ecological zone and taking into account land tenure, and social and cultural factors which may inhibit or promote these changes.

4.3 Policy issues

With population movement into a village, or from one part of a village area so that population pressure is increased in another part, there are a number of considerations to take into account for policy making. These include the availability of resources to the incoming families, the extra pressure on land, services etc, the acceptance of the immigrants by the residents and ease with which the immigrants will assimilate into their

new environment and find a niche for their livelihood and lifestyle. In addition, how will overall village development be assisted or constrained by the new arrivals? What type of relationships will form with this merging? How will the different ethnic groups coexist and how will they affect development?

Policy makers and regional development planners are concerned about movements of people from a number of aspects. Potential problems which can arise from demographic, social, economic and environmental factors necessitate revised planning for allocation of resources and provision of services. What kind of outcomes can be expected from the adoption of various policies and programmes, including a *laissez faire* approach?

Theoretical perspectives could influence policy making with respect to the type and degree of intervention. From a broad neo-classical economic view market forces predominate and are seen in a positive light with respect to the consequences of population movements. In time, an urban-rural equilibrium will emerge which will utilise the factors of production (especially labour) more efficiently for resource utilisation. The policies adopted would tend towards a *laissez faire* approach with perhaps some intervention to remove barriers to movements of people. On the other hand more proactive policies are preferred where the root causes of regional inequalities are underlying macro-structural ones. Adopted policies would attempt to reverse or minimise these movements.

Effective population distribution policies are those that, while respecting the right of individuals to live and work in the community of their choice, take into account the effects of development strategies on population distribution (United Nations 1994). Here, the United Nations stressed the objectives as:

(a) To foster a more balanced spatial distribution of the population by promoting in an integrated manner the equitable and ecologically sustainable development of major sending and receiving areas, with particular emphasis on the promotion of economic, social and gender equity based on respect for human rights, especially the right to development.

(b) To reduce the role of the various push factors as they relate to migration flows.

The actions which follow from the above objectives emphasise the adoption of strategies for regional development which include the growth of small or medium-sized urban centres, improvement of the social and economic environment for income-generating activities and decentralisation of administrative systems.

Policy makers have the opportunity to affect the type of migration, either directly or indirectly. Some of the direct actions that can be taken as a result of policy action include redirecting, encouraging or altering the rate of flow of migrants. This has implications for a whole range of policies which may concern industry and agricultural development support, regional centre development, housing and living conditions, infrastructure, transport, marketing and land reform. As well, disincentives such as limiting education or employment opportunities may be considered.

Some of the difficulties which face policy makers involved in decisions concerning migration are the uncertainty of outcomes. For example, rural development programs designed to keep people in rural areas could encourage more people to leave for the city as they become more educated and wealthier. On the other hand seed money for specific micro-enterprises could be attractive for rural settlement. Findley (1977: 79-88) has given evidence to suggest that rural development programs have a better chance of success of keeping people in rural areas if intensification of agriculture is combined with provision of services and scope for alternative employment opportunities. Goals for population distribution policies, however, are also often not self-evident (Jones 1982) and the policies themselves are diverse for achieving these goals if they are defined, the appropriate policies varying according to the circumstances peculiar to the region (Richardson 1981: 273-6).

Parnwell (1993) points out that policies have failed because policy makers are not aware of the following: the range of factors influencing migration decisions; policies have

focused on 'single variable' solutions; broader policies for rural development have an implicit function of influencing migration; and development programmes continue to emphasise rapid and urban-focused economic growth. Policies which have been successful require financial resources (South Korea and Malaysia) or have the political will (China).

Studies are needed to determine the importance of life at the village level, family and community values, type of livelihood and the kinds of bonds and linkages with outsiders that exist to influence their mobility patterns. There are empirical studies showing support for both positive and negative rural development outcomes from migration; however, these need to be interpreted in the particular development context, in assisting to formulate guidelines for policy makers. The impact of different types of movement needs to be assessed at the local level.

Lessons can be learned from the results of resettlement programmes and how they have contributed to regional development. More helpful, though, may be the findings from studies where there has been spontaneous inter-island movement. This is because spontaneous settlers are not subject to the same constraints as transmigrants and are more likely to be assimilated. For example, Guinness (1982) describes the spontaneous settlement of Javanese and Madurese in Binuang, South Kalimantan. Linkages are important as earlier settlers paved the way for a smoother transition period for following spontaneous settlers - to acquire land and cattle, and learn agricultural techniques. In this case, the settlers copied the Madurese settlers who had brought bananas into the district. The banana crop which was introduced into the hillier areas by the Javanese made a positive contribution to regional development. Good working and social relations were formed with the villagers. Guinness concludes that for this region the government should move away from the tight control of the transmigration operation to one which allows flexibility and a greater degree of settler participation. In this way, promising developments, with the diffusion of new technology, could be initiated by the newcomers which could be of potential benefit for all families living in the region.

4.4 Conclusion

An understanding of the dynamic interactions between population movements, ethnic factors and resource utilisation give a basis for policy formulation. Monitoring and evaluation of environmental trends along with factors associated with resource management at the local level allow a tailoring of policy interventions which address the need for equitable and sustainable development, giving opportunities for both cultural and biological diversity through a participatory approach.

More specific studies of a localised context need to be carried out to elucidate the relationships between movements of people and regional development. Areas where spontaneous movement has occurred should be emphasised. These studies should help to define goals of regional planning in various localities and match these with appropriate policies and programmes to encourage self-reliance and village-directed development.

Population movements in Indonesia have invariably led to the coexistence of different ethnic groups. The implications of their ethnicities for rural development are discussed in the following chapter.

CHAPTER FIVE

ETHNICITY AND DEVELOPMENT

5.1 Introduction

In the previous chapter the importance of movements of people for policy making in Indonesia was assessed. With the existence of a large number of ethnic groups, movements of people into village areas from other villages on the same island, or from neighbouring islands, will invariably result in communities of different ethnic composition. This is particularly so in this study where there has been immigration over time to the coastal villages and where there have been changes in village boundaries. It is, therefore, important to examine the ethnic factor in development.

Stavenhagen (1986: 4) defined an ethnic group as 'a collectivity which defines itself or is identified by others, in cultural terms'. The most common criteria distinguishing ethnic groups, according to Stavenhagen, are: language, religion, tribe, nationality and race. In reality, each ethnic group, characterised by a particular history, set of social and cultural traditions, range of livelihoods and other factors, adds a distinctiveness to the community. An understanding and appreciation of the importance of ethnicity in development can assist in adopting policies to promote an environment in which ethnic contributions are encouraged.

The kinds of influences which need to be taken into account include compatibility of ethnic groups living in the same environment and the particular attributes, qualities and skills which can benefit the community as a whole. In addition, the relevance of both ethnic identity and ethnic inequalities need to be examined, along with relations and interaction among ethnic groups, for participation in management of development or for resolution of conflict.

In this chapter the aim is to assess the importance of the nature and contribution of ethnic factors in influencing policy making for rural development; it begins with a review of present knowledge, followed by an indication of the fresh understanding which may be produced from this study.

The review will assess the progress which has been made in understanding the apparently elusive relationship between ethnicity and development as well as in answering more basic questions. These could entail the kinds of benefits that can be expected from the integration of ethnic activities. The kinds of questions that can be raised concerning ethnic groups include the following: What influence do the various ethnic identities have on the development processes and resource management? How may these be affected by loss of ethnic identity as in the case of intermarriage? Is there a transfer of knowledge and skills from one ethnic group to another? How important is it to maintain separate types of livelihood? In essence, what are the comparative advantages of different ethnic groups living together in a village environment and will they in any way be diminished over time due to loss of identity such as from the merging of values, customs and traditions? Can positive outcomes be facilitated in any way? Or, what are the constraints concerning ethnic relations which need to be removed before development can take place?

5.2 Ethnic factors related to rural development

Ethnic identity (Barth 1969; Arizpe 1992), ethnic diversity (Rambo, Gillogly & Hutterer 1988), ethnic inequalities (Barrera 1979) and ethnic relations (Premdas 1995) are considered important in any study of rural development. These are now discussed more fully before assessing the overall implications of ethnicity in migration and for policies and rural development.

5.2.1 Ethnic identity

Ethnicity refers to a sense of identification with a larger community. Often that community is bound by certain ascribed commonalities such as common language,

race, religion, tradition, region, or a combination of these (Cohen & Bains 1988: 24). Geertz (1963) describes ethnicity as a 'primordial attachment' which results 'from being born into a particular religious community, speaking a particular language, or even a dialect of a language and following particular social practices. These congruities of blood, speech, custom and so on, are seen to have an ineffable, and at times, overpowering coerciveness in and of themselves'.

Underlying the concept of ethnic identity is the perception that a group of people have a distinctiveness and a cohesiveness which separates them in various ways from another ethnic group. A society, made up of a number of different ethnic groups is therefore heterogeneous with these groups having perhaps different historical backgrounds, different beliefs, traditions, cultural and social orientation. One of the main tasks in defining an ethnic group is to identify its uniqueness, that is, to determine its identity and language (Gonzales 1994: 21).

From an alternative viewpoint Barth (1969: 14) focuses more on the boundaries of ethnic groups as the important defining features, rather than what is enclosed by those boundaries. Boundaries may change, according to Barth, as well as cultural characteristics of members, yet the differentiation, which continues between members of an ethnic group and those outside, allow us to study the changing form of this ethnicity. Ethnic groups should, therefore, be seen as organisational entities that exist, not in isolation, but in relation to others. Nash (1989: 5) claims that the 'building blocks of ethnicity', defined as self-conscious groups within a nation-state, are virtually the same over time whereas the reality of ethnic identity, its content and boundary lines are subject to change and redefinition. Bacal (1991) states that 'ethnicity results from inter-ethnic relations, whenever two different groups or societies come into contact and establish various modes of spatial, political-economic, cultural and social relations'.

Barth (1956; 1969) emphasises an ecological approach to ethnicity where ethnic groups may occupy different niches in the environment or adapt to separate territories. They could also occupy the same niche which could be unstable or exist in a relationship, akin to symbiosis, involving the exchange of goods and services (Barth 1969: 19).

Environmental and cultural changes, according to Barth can result in persistence or a change in identity. For example, Pathans, who have moved into new regions of Pakistan, have encountered environmental constraints which have precluded maintenance of their cultural values, such as the seclusion of women and hospitality. A new and less demanding ethnic identity emerges (Barth 1969: 124). By contrast, in a study of the Maasai (Spear & Waller 1993) the interpretation of ethnicity stressed the ways in which ethnic ideologies effectively served to control access to pastoral, agricultural and gathering resources. A shared cultural understanding among different groups ensured complementarity and one another's survival.

With migration and evolution the strength and nature of this identity will change. As a consequence, ethnic relations will be affected which in turn may influence the outcome of village development. For example, minority groups could perceive themselves as being isolated from society so that bonds within the groups become stronger and ethnic identity is enhanced. Alternatively, ethnic groups could live together in relative harmony, interacting favourably and not allowing ethnic differences to dominate to the detriment of these relationships. In time, therefore, ethnic identity could become less important and be subsumed by an overarching identity which incorporates communal and national characteristics.

If there are factors associated with ethnic identity which inhibit village development should policies be directed towards removing these constraints? What are the consequences of a change in ethnic identity? How valuable is ethnic identity as a part of ethnodevelopment and what is the impact on village development?

In a study illustrating the importance of ethnicity, Wali (1990) tested the hypothesis, that organic forms of local social organisation, rather than being obstacles to overcome, are prerequisites to successful sustainable development. The study was undertaken among the Mapuche and Aymara Indians of Chile and showed that, where non-government organisations (NGOs) used strategies to reinforce ethnic identity, the results in both cases were higher production and greater control of land and resources. According to Wali, many of Latin America's efforts to modernise have viewed cultural

and social differences as obstacles to be overcome, and this had led to failure. Wali concludes that it would be unlikely for either group to retain its ethnicity if their fundamental relationship with the land is forcibly altered. Ethnic qualities associated with this relationship with the land are likely to be in jeopardy if modern approaches to development are encouraged at the expense of local cultural and social differences.

The promotion of indigenous agricultural development, as an alternative, could be valued as an integral part of the struggle for indigenous ethnic identity, especially if there are social and technological limitations (Field 1991). Conversely, one could question the effect of an imposition of administrative structures and 'top-down' development on ethnic identity and associated values. Is impairment of ethnic identity, or disregard for indigenous knowledge, a worthwhile sacrifice for community development?

Ethnic identity is subject to social and cultural influences. Adams (1989), for example, examined how ethnic identity had been redefined for the Sa'dan Torajans, living in the highland areas of South Sulawesi, Indonesia. Staudt (1991: 48) questions whether anthropologists should advise against too rapid a change in ethnic identity, suggesting that incrementalism may lose pace with ongoing adaptations (Cochrane 1979).

Premdas (1992), on the other hand, introduces a concept of ethnic solidarity which, if encouraged by ethnic conflict and pushed too far in intensity, will give rise to a 'collective insanity threshold'. This will destroy any rational chance for healthy participation among ethnic groups for development.

For Southeast Asian countries that were formerly under the kind of colonial rule which favoured ethnic segregation, ethnic integration is now emphasised. The national government of Indonesia, for example, with its motto of 'unity in diversity', acknowledges the widespread existence and importance of ethnic diversity. Policies promoting the nation-state, though, have implied the diminishing importance of ethnic groups. Guinness (1994) describes ways in which the New Order government of Indonesia has embarked on a strategy of national stability and unification. These

include the introduction of cultural and material uniformities implemented by military personnel; the promotion of a common language and a state-run education system; commitment to the benefits of a capitalist economy and consumer culture; and the adoption of monotheism. According to Guinness, these forces of neo-colonialism, or 'javanisation', have undermined locally-based ethnicity within Indonesia. The unification process by the New Order government was in harmony with state ideology (*pancasila*) - the five basic principles of the Republic of Indonesia, namely, belief in one God, humanitarianism, Indonesian unity, democracy and social justice for the entire population. The process itself involved the transformation of village government by the Village Law of 1979. This introduced uniform administrative structures such as the *desa* (village) and the *dusun* (hamlet) and approved the appointment of the *kepala desa* (village head). Despite opposition from local *adat* (traditional) and religious groups these changes were implemented. The New Order also encouraged an intensification of agricultural production, particularly the adoption of the Javanese wet-rice cultivation system. Guinness concludes that expressions of local *adat* can be interpreted as resistance to the New Order in attempting to reaffirm the importance of ethnic identity - an identity which has become a tool in seeking to control access to resources. Hettne (1993) describes this type of reaffirmation of identity as 'ethno-nationalism' which constitutes nowadays, together with class and gender, one of the main structural axes of socio-political mobilisation. This was also recognised earlier by Glazer and Moynihan (1974: 37) as a shift in the nature of ethnic goals, from cultural, linguistic and religious to socio-economic and political.

In a different context Gomes (1988) describes the making of an ethnic group, the Semai, in Malaysia. The Semai do not have legal title to land and resources which they claim through their traditional system of landownership. Most of their land is officially classed as government-owned forest reserve. As one of the aboriginal groups (*orang asli*), the Semai now perceive themselves as having a strong ethnic identity. The Semai consciously manipulate ethnolinguistic markers for membership purposes. The formation and persistence of an ethnic group like the Semai gives support to the theory that this is linked to competition for scarce resources (Despres 1975). Winzeler (1988) describes the situation generally in Malaysia where the Malays are in a dominant

position over other ethnic groups, such as the Chinese and Thai, since they have the political and legal power. Access to land, loans, government employment is restricted by ethnic status. On the basis of Barth's ecological approach, ethnic identity would change. However, changing from a non-Malay to Malay, for example, may be difficult, legally or socially. Indonesian groups such as the Banjarese in Malaysia, now want to identify as Malay and relinquish their formerly held identity as Banjar. Such an identity, while significant in Indonesia is no longer relevant in modern Malaysia (Potter 1993b).

In the present study, because of the strong attachment to the land by Timorese and Rotinese villagers being under threat from various pressures, especially over the last 10 years, ethnic identity itself could change more rapidly compared to previous generations where an ecological equilibrium had been established. The implications of any unfolding ethnic identity could become clearer following this and other similar studies. Both the loss of cultural identity and the forging of a new identity are factors deserving consideration in the formulation of policies by governments.

5.2.2 Ethnic diversity

An attempt has been made to explain ethnic diversity as a result of ecological adaptation (Barth 1956; 1969). As well as the physical environment, adaptation to the social and economic environments should be considered. There is convergence towards an alternative evolutionary model for explaining ethnic diversity. Here differentiation occurs as a result of interactions between neighbouring groups competing for limited resources. Migration becomes an added factor in bringing groups of people together that interact to shape their new identities. With respect to the Indonesian transmigration programme, migration could be viewed more strongly as 'breaking down' the ethnicity of indigenous peoples. Physical, cultural and even legal constraints, however, may inhibit their assimilation into an homogeneous society (Winzeler 1988). The knowledge, skills and value orientation required to exploit one type of resource such as forests may be widely different from another, for example arable land. This differential control, while maintaining a distinctiveness in ethnic groups, could promote

specialisation and efficiency in managing resources. As a result there is an opportunity for mutual and complementary benefits to village communities.

The models explaining ethnic diversity through ecological adaptation or intergroup interaction emphasise the importance of differential access to natural resources. Because of ecological specialisation, such as for management of forest resources, the crossover from, say, shifting agriculture to forestry is unlikely to occur, even if, potentially, there are opportunities. Ethnic groups living together in a relatively homogenous agricultural area may specialise in one type of agriculture, for example, raising of pigs. Alternatively, activities may be complementary, such as growing crops and trading of produce. Ethnic diversity is maintained in these situations, however, if competition favours the dominant ethnic group, for example, if one ethnic group adopts commercial practices and another subsistence farming. The latter group might lose its ethnic cohesiveness as it becomes dispersed or absorbed. Persoon et al. (1989) describe the relationship between the nomadic Kubu and the sedentary Malay farmers in southern Sumatra, Indonesia. Through time the relationship has changed from one of barter with minimal contacts to a situation in which the Kubu can no longer survive independently from the farming population. The sedentarisation policy with respect to swidden-based communities being encouraged to practise settled agriculture in more accessible areas, could have a similar outcome and needs to be examined.

In other situations ethnic diversity may take on new expressions as identities and cultural change take place. Superlan (1994) studied the diversity of cultures in ethnic groups in Irian Jaya. Cultural differences are due to ecological or environmental factors. According to Superlan, cultural change is taking place partly due to the emergence of an Indonesian identity associated with improvements in economic and social life, and a market economy. These changes, viewed positively, result in a new kind of ethnic diversity on the one hand and unity with Indonesia on the other.

Cultural diversity can have implications for planning resource management programmes taking account of new environmental situations. Where deforestation had caused degradation of the acid upland soils in north Vietnam, Tai et al. (1995) found

that it was necessary to take into account the socio-economic differences between ethnic groups to develop various types of improved and sustainable management systems. For example, Dao people have a need to replace shifting cultivation with a system that could include agroforestry, food and medicinal crops, rattan, quality timber and livestock; Hmong people in a remote high altitude area require a new cash crop because of food deficits and pressure to cease opium production. Options include production of resin from pine plantations, cultivation of medicinal herbs, and improved home gardens. In a similar way, changes in resource management systems in this study may need to reflect the ecological situation with respect to ethnic diversity.

5.2.3 Ethnic inequalities

It is important to understand how ethnic groups may be disadvantaged, to what degree this is so and how existing inequalities could be affected by public policies. For appropriate strategies to be adopted, therefore, there needs to be an evaluation of the extent of inequalities among ethnic groups living in the same community, especially examining differences in educational and occupational attainment. These inequalities could be in addition to those normally expected from social class or gender.

Current attempts to explain ethnic inequality are based on the following theories: deficiency theories ('blaming the victim' for their social condition); theories based on racist/ethnic prejudice; and socio-structural theories (Barrera 1979). Of interest in the socio-structural category is the influence of colonialism on ethnicity. Barrera (1979: 193) defined colonialism as:

a structured relationship of domination and subordination, where the dominant and subordinate groups are defined along ethnic and/or racial lines, and where the relationship is established and maintained to serve the interests of all or part of the dominant group.

whereas:

neocolonialism refers to the maintenance of the old colonial system of domination of the old colonies under a new format, as 'the imperialism of free trade' (Barrera 1979: 192).

The nature of neo-colonialism has been characterised by the domination of capitalist corporations which works through foreign aid, investment and trade (Rex 1983: 186; Korten 1995: 252). As described by Korten the social fabric of society is weakened while the foreign money economy is strengthened. Wallerstein (1988: 7) found a correlation between the class and ethnic dimensions of the households, across the world system. The lowest stratum, from the criteria of both class and ethnicity, is denied access to full political and human rights. Wallerstein explains the existence of the class-ethnic understratum by reference to the intrinsic inegalitarian nature of the capitalist world and national economies, and the ethnic dimension.

Differences in educational attainment represent one of the important inequalities between ethnic groups and could have a differential effect on the following: the ability to communicate and lobby for improvements; the availability of options for alternative livelihood, both inside and outside the village; resource utilisation, such as the improvement of agricultural land with the adoption of new technologies; and family size, health and nutrition. Those with a higher education are likely to be more mobile and more open to business and other opportunities existing outside the village.

Belonging to a minority ethnic group could be an additive or interactive component to other factors contributing to social poverty. A study of indigenous people in Latin America (Psacharopoulos 1994) confirmed that they are seriously disadvantaged. Living conditions are poor; there is a strong correlation between schooling attainment and indigenous origins; parent's skills and educational attainment are reflected in the schooling and other human capital characteristics of their children; and their health problems are severe. The study concludes that policy makers can help these indigenous people by strengthening human capital.

For Indonesia, Hull (c1996) describes the progress of the education system in the early part of this century under the Dutch colonial government:

By 1940 a dualistic system had become entrenched with separate hierarchies of schools for European and select elite students, and for indigenous students. In both cases, there were private and public schools. Some of the public schools had religious backing (Hull 1993: 130).

With the establishment of school buildings across the country under the New Order, virtually all primary-aged children attended school by the end of the 1980s. The growth of primary education led to a rise in literacy rates (illiteracy among those aged ten and over dropped from 29 to 16% between 1980 and 1990) (Hull c1996: 131). Although the census provides data for urban and rural areas relating to primary, secondary and other levels of education, there are no data for different ethnic groups. This will be examined and discussed along with other educational data in this study to assess the extent and implications of any disadvantage.

Ethnic groups may differ in their control of, and access to, resources, shortages of which may constrain development. The constraints operating may have had an historical origin such as being caused by a number of discrete migrations into the region or they may be due to inherently different traits or customs which might clash with certain activities, such as pig raising being forbidden to Muslims.

While the type of constraint can often be identified it may not be so easily removed. Redistribution of land, for example, to provide equitable control and access among ethnic groups is a powerful issue to resolve satisfactorily. Differential access to land might lead to ethnic groups exploiting different niches such as in trading or building rather than farming. In other situations remedial action can be taken to remove constraints such as in access to education and health services. Local transmigration of dispersed communities to more accessible areas has facilitated the provision of these services. With regard to transmigration in Indonesia, recommendations have been made to allow access to local people to the schools, clinics and other community services

provided for transmigrants as well as allocation of land or compensation, as required (Arndt 1983).

Openness to settlement and acceptance of cultural diversity may allow the formation of ethnic communities which form part of a multicultural society. On the other hand, denial of rights to groups of people could lead to the formation or persistence of ethnic minorities who are marginalised.

An ethnic minority can be defined as a group having some of the following characteristics:

- subordinate groups in complex societies;
- special physical characteristics which are held in low esteem by dominant groups in society;
- self-conscious groups, bound together on the one hand by language, culture and feelings of shared history, tradition and destiny, on the other hand by a common position within the society concerned;
- membership in the ethnic minority is to some extent transmitted to subsequent generations by descent (Taifel 1982: 217).

Minority groups are more likely to be displaced and relegated to an impoverished way of life. Their voice is less likely to be heard and they are more likely to suffer discrimination and prejudice. In some cases the possession of economic power, by the Chinese for example, leads to this situation. Dominant ethnic groups can also influence decision making with respect to resource management. Ireson and Ireson (1991) describe a development situation in Laos which is made up of a number of different ethnic groups that have maintained separate cultures and languages through generations of limited contact. To foster rapid economic improvements, support is given to the model of development of the dominant group of lowland Lao which is based on sedentary paddy production, cash cropping and small industry. Concerns for improving the ethnic minorities are lost as there is little acknowledgment of their particular conditions, capabilities and interests. The aims of the government and the interests of

local ethnic groups can, therefore, become polarised. Similar consequences occurred because of the large social difference between government-supported Javanese migrants and the Papuans of Irian Jaya resulting in various conflicts involving resource allocation (particularly land). The traditional way of life, with its sustainable resource management practices of hunting, gathering and simple cultivation, is placed under threat (Assmann 1990). Plant (1994) concludes from a study of the problem of the world's minorities with regard to access to and use of land and other natural resources that vulnerable minorities will require a range of strategies to ensure territorial security and, ultimately, survival.

Ethnic minority groups often lack the power and influence to participate fully in rural development. They are generally more likely to be disenfranchised, marginalised and with diminished access to resources. In each situation there needs to be careful consideration of the rights of minority groups and whether these are in any way threatened by more powerful groups, thus limiting their contribution to participation in community development. It is appropriate to ask here what kind of social environment is required to ensure effective minority inputs for development and how this environment could be encouraged.

Peralta (1989), drawing on material from the Philippines, examines the factors which have been responsible for erosion of ethnic boundaries, such as a national education system and the implications for ethnic minorities. The question is raised as to how minorities can compete on equitable terms while still retaining their ethnicity. Pyakuryal (1983), in his study of the Tharus, an ethnic group indigenous to the Tarai region of south-central Nepal, emphasises maintenance of ethnic solidarity as a means of motivating minority groups so that they are more able to participate in the rural development process.

In some cases, however, alternative economic strategies pursued by different ethnic groups can be disadvantageous and lead to inequality. Conelly and Brokensha (1990) examined the process of increasing inequality in the frontier settlement of Napsaan on the west coast of Palawan, in the southern Philippines. Here the indigenous ethnic

minority, Tagbanua, were worse off compared to the lowland Christian settlers. Forest collecting by the Tagbanua created scheduling conflicts with essential agricultural tasks and had given rise to malnourishment. Land scarcity, brought about by continued immigration and the closing of the frontier by government regulations banning forest swiddens, was an additional constraint. Those with access to limited irrigable land had the best chance of ensuring an adequate supply of rice. Indonesia has experienced similar types of outcomes. For example, Abdoellah (1987) found that socio-economic inequality had developed beyond what it was early in the resettlement phase of Javanese transmigrants in Barambai, South Kalimantan. The transmigrants experienced a decline in rice field productivity (as a result of the duplication of the Javanese wet-rice system) which forced them to engage in seasonal migration (*merantau*). At the same time the local people, who practised shifting cultivation and grew only traditional rice varieties, felt disadvantaged due to a lack of government assistance (compared to the transmigrants). In a similar environment in South Kalimantan, the Javanese minority learned survival strategies from the Banjarese majority. These included the adoption of indigenous agricultural systems as well as the development of off-farm sources of income, new ways of organising capital, and changes in their socio-cultural practices (Hidayati 1994).

5.2.4 Ethnic relations

In many developing countries that were formerly colonised, the old style of colonialism has taken on a new face with a trend towards modernisation and nationalism. The boundaries delineating ethnic groups are predicted by leaders to disappear as countries aspire to state principles, and to a national culture and a unifying language. For Indonesia this can be appreciated from the institution of a *pancasila* indoctrination programme (mentioned previously) and from the fact that there are no ethnicity questions in the population census. Fearnside (1997) gives evidence that one of the objectives of the Indonesian transmigration programme is to 'integrate all the ethnic nations into one nation'. In general, for nation-states the theory is that ethnic identities and cultures would be subsumed under national ones. The evidence, though, indicates a worldwide rise in ethnic conflicts with ethnic groups becoming proactive in demanding

political reform. Most of the conflicts are complex and usually involve economic interests, such as competition for scarce resources, regional imbalances or labour market conflicts (Arizpe 1992; Eriksen 1993). This is true for Indonesia as shown by the separatist movements in Irian Jaya, Timor Timur, and Aceh, a province in northern Sumatra.

As a result, therefore, of the attempts of formerly colonised countries to deny and diminish the importance of ethnic factors, little direction is given concerning ethnic groups towards living together in a constructive and harmonious way. Factors influencing ethnic relations are not taken into account in rural development programmes and predisposing factors giving rise to ethnic conflicts are avoided (Hettne 1990: 191). In general, for localities in which there is intensive interaction, such as in resettlement areas, studies have focused on technological, economic and ecological aspects rather than the relationships between the indigenous population and the immigrants (Koentjaraningrat 1985).

Ethnic constraints may lead to ethnic conflict, especially if one group has more power or dominates another. Land ownership is a common source of ethnic conflict. Some indigenous rights are customary ones and, therefore, subject to take-over by individual settlers, by government agencies, and by public and private companies. Thus poverty, powerlessness and landlessness can result in and lead to ethnic conflict and, therefore, difficulties in achieving sustainable and equitable village-based development.

Premdas (1995) examines the effect of ethnic conflict, arising from diverse ethnic groups - the Europeans, Africans, Indians, Amerindian and the mixed - on development in Guyana. The predisposing factors were cultural pluralism, occupational and residential differences and lack of overarching institutions to foster cross-ethnic links. Triggering factors, such as rivalry over resource allocation, ignited the conflict. Premdas analyses the conflict in terms of the political, economical, socio-cultural and psychological dimensions of development, all of which highlighted elements of rivalry and distrust in a multi-ethnic plural society, exacerbated by politicians as political parties are organised along ethnic lines.

In contrast to the situation presented by Guyana there have been cases reported where immigration of different ethnic groups has been accommodated without undue conflict. For Indonesia Arndt (1983) concludes that for transmigration programmes relations have generally proved easier where local people benefited from employment or business opportunities opened up by Javanese settlers. However, the studies of Arndt and Leinbach (1989) indicate little genuine assimilation based on intermarriage.

Lynch (1987) also reports that social and cultural integration of ethnic groups is evident in Kalimantan where mutual tolerance has been created with longstanding interaction between Kutainese, Dayak, Buginese, Banjarese and others. In a similar way, Broch (1987) examined ethnic relations in small polyethnic communities on the island of Bonerate, Indonesia, and observed an ethnic symbiosis which gave rise to a high level of tolerance in everyday behaviours. Suggested explanations for the harmonious existence include vague group identity formation, need for economic cooperation, common belief in Islam and little stress on natural resources. In contrast to the above situations there has been inter-ethnic conflict, such as between the immigrating Madurese and the indigenous Dayaks in West Kalimantan where ethnic tensions led to an outbreak of rioting in early 1997 (Van Klinken 1997). While the Madurese were the focus of Dayak anger, the main underlying factor most likely involved government policies which have promoted the appropriation of Dayak land for logging concessions, rubber, pulp and oil plantations and transmigration sites (Dove 1997).

Studies of this kind assist in focusing on ethnic factors that could influence ethnic relations and rural development, as well as predict the likely outcome of different types of settlement. These might include, for example, human characteristics, such as tolerance and understanding, arising from previous contact with other ethnic groups; qualities for contributing to community development, such as ability to communicate; skills that can be transferred to a new environment; and ethnic inequalities arising from cultural, religious and social differences.

It is important to try to understand the factors involved in ethnic relations which have a bearing on resource control and management. Concepts encapsulating the changing role

of ethnic identity with important determinants of ethnic relations help to achieve this. In turn a clearer picture emerges concerning ethnodevelopment.

5.3 Ethnodevelopment

A development process appropriate for a particular ethnic group can be called 'ethnodevelopment' (Stavenhagen, 1986). Ethnodevelopment means a systematic and consistent voluntary strengthening of those characteristics which make up ethnic identity, and, most importantly, which are consistent with cultural pluralism and internal self-determination for all groups. The basic need of cultural identity is seen as a fundamental right, which it is conceded complicates the process of development. The emergence of the 'ethnic question' is, it is held, a fundamental contradiction in terms of the 'nation-state' approach to development and, as such, this approach needs to be redefined (Hettne 1990).

Hettne emphasised a territorial approach, where the cultural identity of ethnic groups is closely related to the ecological system of the region, rather than adopting a more functional system. In the case of non-territorial ethnic groups he advocates that ethnodevelopment would be best expressed in the protection of cultural, religious and linguistic rights, in the framework of a functional system. Thus ethnodevelopment is a development in the framework of cultural pluralism, based on the premise that different communities in the same society have distinctive codes of behaviour and different value systems (Worsley 1984). In practice, this is likely to entail policies which focus on decentralisation, participation by ethnic and sub-groups, self-reliance and a systems approach which facilitates sustainability of the ethnic environment.

Hettne (1993) describes different sources of ethnic conflict, such as competition for resources, which could impede development. As an alternative, he outlines the principles of ethnodevelopment which are mutually supportive, namely: cultural pluralism, a pre-condition, based on the different behavioural and value systems of communities; self-determination, such as the right to speak a native language; territorialism which guarantees essential rights and needs which are dependent on a

particular habitat; and sustainability. Ethnic identity, ethnic relations and the way in which ethnic groups participate in development are important in understanding something about the relationship between ethnicity and rural development, including the sustainable management of the environment.

If ethnodevelopment allows for the strengthening of those characteristics which are important for ethnic identity, development strategies may need to be redefined to accommodate this diversity. This has implications for government policies with a bias toward the perceived benefits of modernisation and a unified state, encompassing a national identity and culture.

Following this theme Cochrane (1979) developed a set of criteria to portray the cultural landscape. With respect to ethnic groups this would involve identifying them on a 'social map', describing the social organisations, evaluating the significance of belief systems for any proposed development changes, describing the type and function of wealth that people accumulate, establishing mobility patterns and assessing the circumstances of the poor, along with the causes of extreme poverty.

The present study focuses more on the influence and consequences of movements of people along with an understanding of the differences of ethnic groups based on attributes, skills and access to resources rather than adopting a comprehensive anthropological approach incorporating cultural development, customs and beliefs.

The benefits arising from different ethnic groups living together in a village environment may be evident from a consideration of the specialisation that has occurred along with skills, such as leadership, which have contributed to overall development. A comparison of village communities of different ethnic composition would assist in determining the kinds of benefits and factors involved, coming from particular ethnic groups.

5.4 Ethnicity and resource management

A study of the above ethnic factors and their interrelationships is helpful in determining how ethnicity can influence resource management given the likelihood of changes to the way of life of ethnic groups. People faced with these changes may choose to confront the challenges through their traditional institutions and values (Prabhu 1993). Davis (1985) describes how a community of lowland Indians, formerly nomadic hunters and gatherers, are trying to renew their culture by protecting and selectively harvesting the forestry resources around them. The results are promising, where a change of resource management has been effected by indigenous groups confronting the challenge of their new environment with limited capital and technical assistance - an operation normally reserved for state agencies or private companies. Where such changes in resource management do not occur, however, there may be important underlying reasons associated with ethnicity. For example, Helliwell (1992) describes the importance of swidden cultivation to the Dayak community of Gerai in West Kalimantan, as a 'marker' of ethnic identity in relation to their Malay neighbours who are permanent wet-rice cultivators and dominate trade between the hinterland and the coast. In this case, the Dayak community have resisted a move towards permanent rice cultivation (although that has happened to some extent) which they view as being 'made into slaves', that is, production of rice for Malays is part of an 'unequal and exploitative relationship'.

Traditional knowledge and management of resources are becoming more studied as a commodity with economic potential such as the value of indigenous medicine. Studies of indigenous farming systems in Indonesia indicate that agronomic and ecological research into local practices and approaches are more important than using techniques developed in other areas (Colfer 1983b; Colfer, Gill & Agus 1988). Farmers experiment (Chambers, Pacey & Thrupp 1989) and these local results can provide a useful basis for further exploration. The value of local trees and plants, for example, might be an untapped resource. The need to incorporate indigenous knowledge and community participation in planning (the human resource factor) is evident. Pawluk, Sandor and Tabor (1992) found that indigenous knowledge systems of specific ethnic groups,

related to local soil types and land management, were available to create local-level classification systems suitable for smallholders. To encourage a sustainable resource management approach basically involves the villagers or custodians of the land, endorsed by the village and sub-district leaders, to make responsible decisions concerning land management. The communication, support and facilities which any organisation can offer are there to back up their responsibilities. Sustainability of human resources is a vital factor here for environmental care, viable agricultural practices and well-being of villagers, socially, culturally and economically. An important aspect here concerns the diversity of cultures, derived from different ethnic backgrounds, which represents a resource - paralleling biological diversity. Biological and human diversity could be regarded as environmental risk reducing mechanisms (Edwards et al. 1993).

5.4.1 Ethnicity and gender

The importance of the role of women in agricultural activities and resource management is well documented (Lado 1992; Fellows 1993). In Indonesia women are actively involved in agricultural enterprises, such as livestock production (Petheram & Basuno 1986) and rice farming (Watson 1985). Many projects now focus on improving women's productive capacity. As an example of this Joss (1989) describes how Nepalese projects include initiatives to reduce the burdens of water collection through the establishment of taps and tube wells; power-driven mills to aid food processing; retail cooperatives for operating loan disbursement schemes; the planting of seedlings of local varieties of fuel and fodder trees; and village care centres. These small projects have successfully released women to diversify their activities and use their time more profitably. The opportunities to improve the role of women need to take account of the changing circumstances in which they live. Colfer (1983a) discusses the importance of circular migration among the Kenyah of East Kalimantan for women who are left behind in the forests. The implications of circular migration concern women's productivity and general competence at subsistence. Policy recommendations include the development of additional income-generating opportunities for women and the provision of agricultural inputs and training for women as well as men. In another

situation Peluso (1981) describes the survival strategies of rural women traders in Cebongan in the Special Region of Yogyakarta, Central Java. The women trade in a variety of goods, including betel leaves, salt, nuts, fruit and spices and cooking utensils, as well as carry out agricultural tasks. The lives and activities of the women traders adapt to changing market conditions and to the introduction of new technology, such as rice hullers which have reduced their rural employment prospects.

Ethnicity may be an additive or interactive component with gender and class often further disadvantaging women. Melville (1980) refers to the situation of Chicano women in Mexico as being 'twice a minority'. Similarly, Bacal (1991) describes the situation of Peruvian peasant women suffering from disempowerment, poverty and as ethnic indigenes.

The influence of ethnic groups in gender analysis has shown to be an important factor in resource management. Fellows (1993) describes the situation for Ethiopia with 11 major ethnic groups, each with its own definition of socio-cultural practices. To allow women to participate fully it was necessary to understand the relations between men and women for each ethnic group and, in particular, to analyse their roles, responsibilities, access to, and control over, resources, together with the differential decision-making powers, needs and constraints of men and women. This finding is supported by a Malaysian case study of gender, population and environment in the context of deforestation (Heyzer, Leach & Green 1995) which showed that gender relations, in the four ethnic groups studied, were an important variable in understanding community responses to declining resource availabilities.

5.5 Ethnicity and migration

Movements of people today are occurring on an unprecedented scale, both internally and internationally; they may be spontaneous, forced or encouraged through settlement programmes. Ethnic groups and different cultures come into contact with one another with implications for the building of new identities, establishing ethnic relationships, social reorganisation, institutional reform and the type of development.

These movements are responsible for distinctive ethnic groups coexisting in the same area with different potentials to control and utilise resources. As already discussed the interaction between these groups influences their respective ethnic identities. Of interest is the outcome in various contextual situations, particularly in relation to evolving ethnicities and resource utilisation.

Bacal (1991) describes a process of transformation over time, from immigrant ethnicity to structural ethnicity in which immigrants participate in the processes of class formation, nation-building and social stratification. Ethnicities evolve as relations are established between immigrants and those of indigenous origin and as a consequence of nation-state policies - often to assimilate and marginalise ethnic minorities.

In Indonesia, with the increase in population pressure, there has been considerable movement of people from Java to rural areas on other islands, both spontaneous and encouraged by governments. There have been many other movements of ethnic groups too, for example, the Bugis from South Sulawesi to other islands. This has given rise to issues such as the integration of different ethnic groups, land entitlement, adoption of and adaptation to new livelihood patterns, and promotion of sustainable village-based development. Because of the diverse nature of ethnic backgrounds there is opportunity for ethnic minorities to fill niches in overall regional development. However there needs to be a clearer understanding of how ethnic groups can best utilise their comparative advantage in expediting rural development and of how they can be encouraged to live in an interactive and productive environment.

Population movements are likely to produce a change in the ethnic composition of receiving areas. The nature of these movements and their ethnic consequences need to be considered with respect to rural or urban development. The process of cultural adaptation could, for example, result in assimilation of the subordinate ethnic group and a diminished ethnic consciousness. Alternatively, the government may adopt a policy of multi-culturalism and promote respect for the uniqueness of each culture. As an example Ping (1990) examined ethnic integration process in a multi-ethnic society in a frontier area of Xinjiang province, Northwest China. Immigration of predominantly

Han Chinese from 1949 has dramatically changed the population composition resulting in large differences in education levels, urbanisation levels, income and age structures among the ethnic groups as well as in the various regions. Ping concluded from his study that ethnic pluralism would persist strongly in the community for a long time. In some cases the differences between the migrants and the locals might be too great for any convergence to occur. Assmann (1990) documents this with the Javanese agricultural migrants living amongst the Papuans of Irian Jaya, primarily hunters and gatherers. The clash of ethnic groups has led to the deterioration of the Papuan way of life and culture. Conflicts have resulted from land quarrels, different customs and traditions as well as power restrictions of traditional leaders and mistakes by the administration. The large social difference between the migrants and locals, according to Assmann, contributed to this problem.

Different cultural and socioeconomic conditions in communities may affect migratory processes. Ruppert (1991) illustrates this by a comparative study of three ethnic groups in the Sudan. The migration of these groups to towns was strongly influenced by their ethnic background. In a similar way it is well known that certain ethnic groups in Indonesia, such as the Bugis of Sulawesi and the Minangkabau from Sumatra, have a traditional propensity towards migration (Hugo et al. 1990: 197). The Bugis have had a strong seafaring tradition for centuries and this has led to the establishing of colonies on other islands (Lineton 1975: 174). As part of their cultural tradition, the male members of the matrilineal Minangkabau were obliged to leave West Sumatra to earn a living or seek further knowledge or experience before returning home (Naim 1976: 50).

With regards to the ideology of nationalism, Skeldon (1990) states that mobility, both social and spatial, is an integral part of the process. The movement of people from rural to urban areas facilitates the integrative processes for the nation-state as people in urban areas are more likely to come under the influence of government strategies. The sense of a national identity would in the longer term diffuse towards rural areas of origin. At the same time there are implications for policies in such areas as education, the degree of decentralisation, population redistribution and infrastructural improvements.

5.6 Policy issues

Policies and strategies can focus on the adoption of changes including methods and techniques within the existing social structures. Progress, however, might be impeded by these underlying structures and could even reinforce inequalities within communities. Under a more radical approach, emphasis could be given to the transformation of social structures, decision making institutions, service provisions, infrastructure and land reform. Settlement and resettlement programmes could provide an opportunity to break away from inflexible existing structures.

On analysing situations for indigenous social change processes, Belshaw (1977) suggests that anthropology can offer ideas about society, and through a study of cultural expression of values together with cross-cultural comparisons, can make contributions relevant to policy makers. It offers some insight to change generated by internal forces rather than external ones. This type of research in the past two decades assumed a higher priority in relation to issues of development policy and planning (Gabriel 1991). With respect to ethnicity, issues that can be considered here include the importance of ethnic relations, the identities of ethnic groups and possible loss of identity during the development process, and the perspectives of ethnic groups on whether development and benefits to the quality of life at the village level are actually occurring. Problems that are difficult to resolve may result in the polarisation of ethnic groups and ethnic conflict. Policies specifically targeted at ethnic groups need to be based on an understanding of the factors which create prejudiced treatment and group tensions.

With the move from subsistence to more commercial production, with the adoption of alternative agroforestry systems and reforestation strategies, and with the changes involved in resettlement and land tenure, there appears to be a need to strengthen units of social organisation so that decision making and management are more effective and long lasting (Chambers 1988). Likewise social research and action in the fields of education, health, population and fertility/family planning, could play a key role in the design planning, implementation and monitoring of policy objectives.

Young (1994), in discussing ethnic diversity, considers four major policy spheres: constitutional formulas, particularly federal or decentralised alternatives to the centralised unitary state; cultural policies, especially in the fields of education and language; remedies for marginalised population categories (indigenous peoples, immigrants, peripheral minorities); and resource distribution issues. He concludes that 'nation' defined as civic community, rooted in values that can be shared by all ethnic components of the national society, offers the most durable framework for accommodating diversity. Thus constitutional accommodation of ethnic diversity should foster sharing of power among major communal segments, provide incentives for intergroup cooperation, and assure a voice through reasonable representation. Similarly policies guaranteeing cultural autonomy and language preservation should not be seen as opposing the nationhood of the state.

Bangura (1994) examines policies relating to ethnicity under two broad areas: socio-economic development and institutional arrangements. For socio-economic development the main issue is equity where ethnic grievances can arise from discrimination and/or inequalities in education, provision of services, assets and employment. According to Bangura, redistributive policies would need to be carefully formulated and monitored. With respect to institutional arrangements Bangura advocates a case for plural identities where states need to grant autonomy, rights and freedoms to the various ethnic groups that constitute their society. To ensure that ethnic groups are represented and participate in the political life of their society, key policies based on the experience of countries that have tried to move in this direction are the devolution of power, power sharing arrangements, electoral systems that seek to reflect the plural character of the population, and cultural policies that promote harmonious relations (encouraged by a sound policy on public education and culture). Some countries, for example, India and Malaysia, have found that power-sharing arrangements between the centre and the regions, as well as among different ethnic groups, can be effective in easing ethnic tensions over critical periods (Ghai & Alcantara 1994). Most countries, though, with their inflexible bureaucratic and centralised structures, face problems that appear to be insurmountable, for creating new institutions which fulfil the economic and political needs of most people.

An understanding of the dynamic interactions between population movements, ethnic factors and resource utilisation give a basis for policy formulation. Monitoring and evaluation of environmental trends along with factors associated with resource management at the local level allow a tailoring of policy interventions which address the need for equitable and sustainable development, giving opportunities for both cultural and biological diversity through participatory research.

5.7 Conclusion

Ethnic factors, such as the importance of changing ethnic identity, the existence of ethnic inequalities, ethnic relations and how ethnic groups living together exploit resources, need to be examined more thoroughly in local situations. Movements of people are important with respect to changes in ethnic composition and the consequences arising. Policies for rural development are more likely to be effective given an understanding of these ethnic influences.

With the background provided in this chapter concerning ethnicity and development, and in the previous chapter with respect to the relevance of population movements, a clearer focus can be given to the importance of these factors in the case study area, described firstly in its West Timorese context in the following chapter and in the village level context in chapter 7.

CHAPTER SIX

WEST TIMOR

6.1 Introduction

A grassroots approach to rural development was emphasised in chapter 3, involving such concepts as participation and empowerment and the potential of these concepts to be applied in practice was discussed. This was necessary to provide a suitable framework to examine possibilities and constraints in the present study with respect to population movements and ethnic factors. Chapters 4 and 5 focused on the importance of population movements and ethnic factors for rural development and policy making in Indonesia. This background enables one to obtain a clearer focus of the importance of the local context, and of findings from the research study, with respect to a wider sphere of influence. With this background it is appropriate now to introduce and describe West Timor, in which the research area is located, as part of the province of Nusa Tenggara Timur (NTT) in Eastern Indonesia.

The chapter will first describe the physical and human environment of West Timor. This will be followed by looking at West Timor in its regional context, with respect to key issues for rural development in Nusa Tenggara Timur and Eastern Indonesia. It will analyse the existing levels of immigration and outmigration at the regency and provincial level. It will also examine the claims that the region of Eastern Indonesia is poor by comparison with Western Indonesia and that it has been a neglected area with respect to development. The scene is then set for a description of the village study area and the research methodology used (chapter 7).

6.2 Land and climate

Timor is the largest and most easterly of the Nusa Tenggara band of islands and part of Eastern Indonesia (Figure 6.1). The island is about 550 kilometres long and 60-90

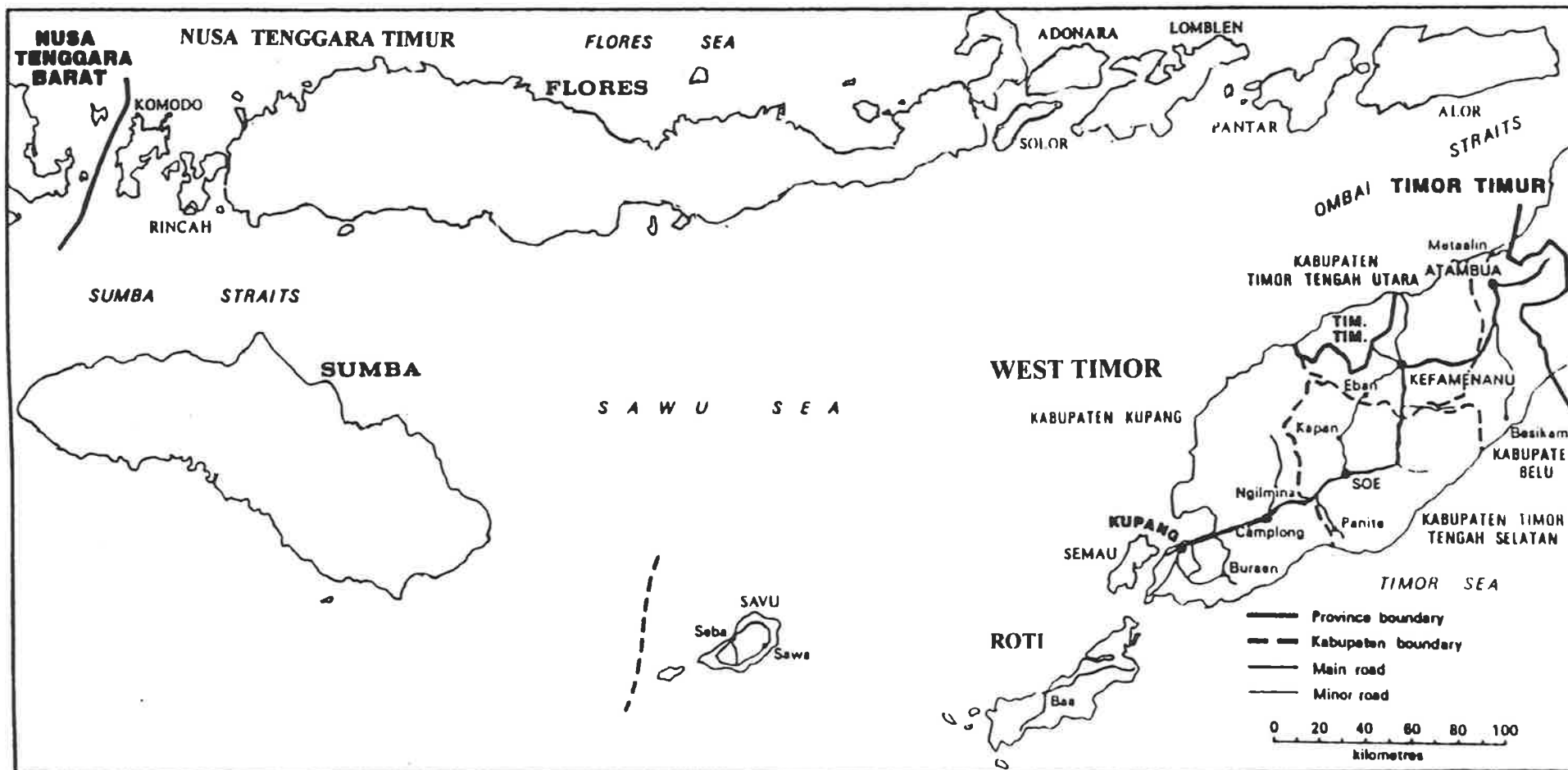


Figure 6.1: West Timor, Roti and Savu: kabupaten, towns and roads, and surrounding islands of Nusa Tenggara Timur

Source: Barlow et al. 1990

Note: Kabupaten Kupang comprises part of West Timor, and the islands of Semau, Roti and Savu.

kilometres wide. The provincial capital, Kupang, is situated at the western end of West Timor with Kupang Bay providing the main access port for shipping trade. East Timor, under Indonesian administration since 1976, forms a separate province. Timor is a young island, originating in the late Tertiary and Quaternary periods. Sedimentation and uplift have given rise to a mixture of folded coral limestones, marls, sandstones and clays. These rock and soil features are widespread, often with shallow layers of red or brown clay soils overlying them. The dominant soils in West Timor are fine textured, calcareous clay types with a tendency to be dispersive (Duggan 1991).

Geomorphological processes are very active resulting in soil erosion and land movement. The factors contributing to these are the moderate to high erodibility of the clay soils, high intensity falls of rain following depletion of vegetation during the dry season, low permeability of consolidated clay and rock underlying the surface soil, large areas of steeply sloping land and the type of land use. The steepening of the slopes by land uplift leads to natural accelerated erosion (Brookfield 1997: 36). The land formerly comprised a more open monsoonal forest/savanna-type of vegetation. Most of the area is now depleted of the original primary forest species as a result of shifting agricultural practices that have included burning of vegetative cover before planting or grazing of grasses for cattle and fallowing to restore fertility (Barlow et al. 1990).

In West Timor the central mountain chain splits into two ranges which run roughly parallel to the coasts, enclosing a series of highland plateaux (Figure 6.2). These central highlands are devoid of trees to a large extent and have eroded landscapes; they contain much of West Timor's population. Arising in the northwest and southeast uplands are the major river systems - the Noelmina and Benain rivers which flow across broad alluvial plains in the lower reaches (Figure 6.3). There are many short, branched rivers which show a marked change in volume on arrival of wet season rains (Aldrick 1983).

Timor has an extended dry season of seven to eight months of the year with its annual rainfall of approximately 1200 mm falling usually in the wet season months of

November to April. However, despite the general monsoon patterns the rainfall distribution is complex and variable from year to year; in a given year the amount can vary from less than 700 mm on coastal or sheltered inland plains to over 2000 mm in the higher mountains. The rainfall and variability play a large part in controlling farming and other activities. During the rainy season wide swollen rivers and the damage to unsealed roads make transport difficult. Maximum temperatures are generally high throughout the year (approx. 30°C), although there is considerable variation between lowland and upland areas (Barlow et al. 1990).

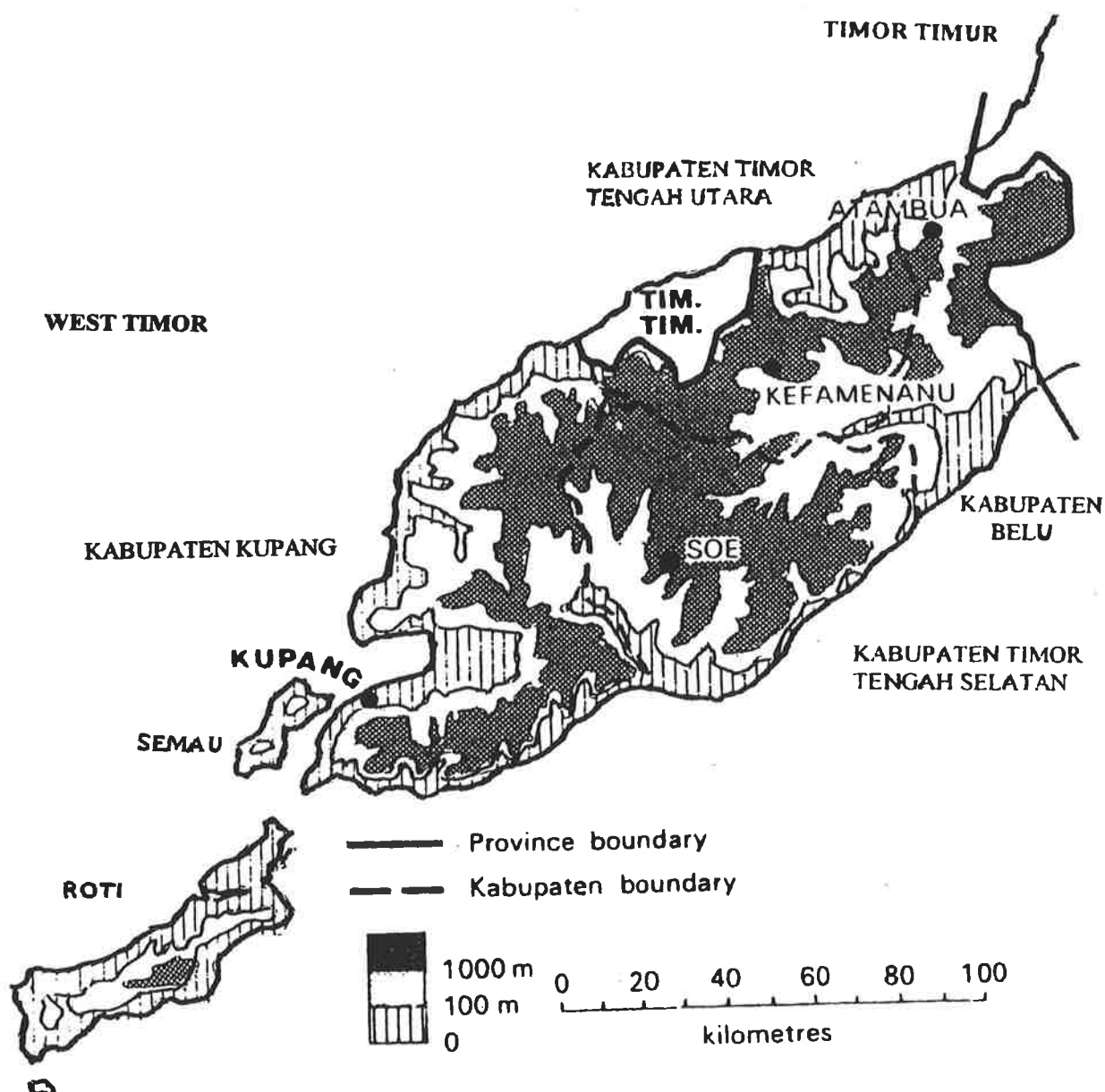


Figure 6.2: Topography of West Timor and Roti

Source: Barlow et al. 1990: 8

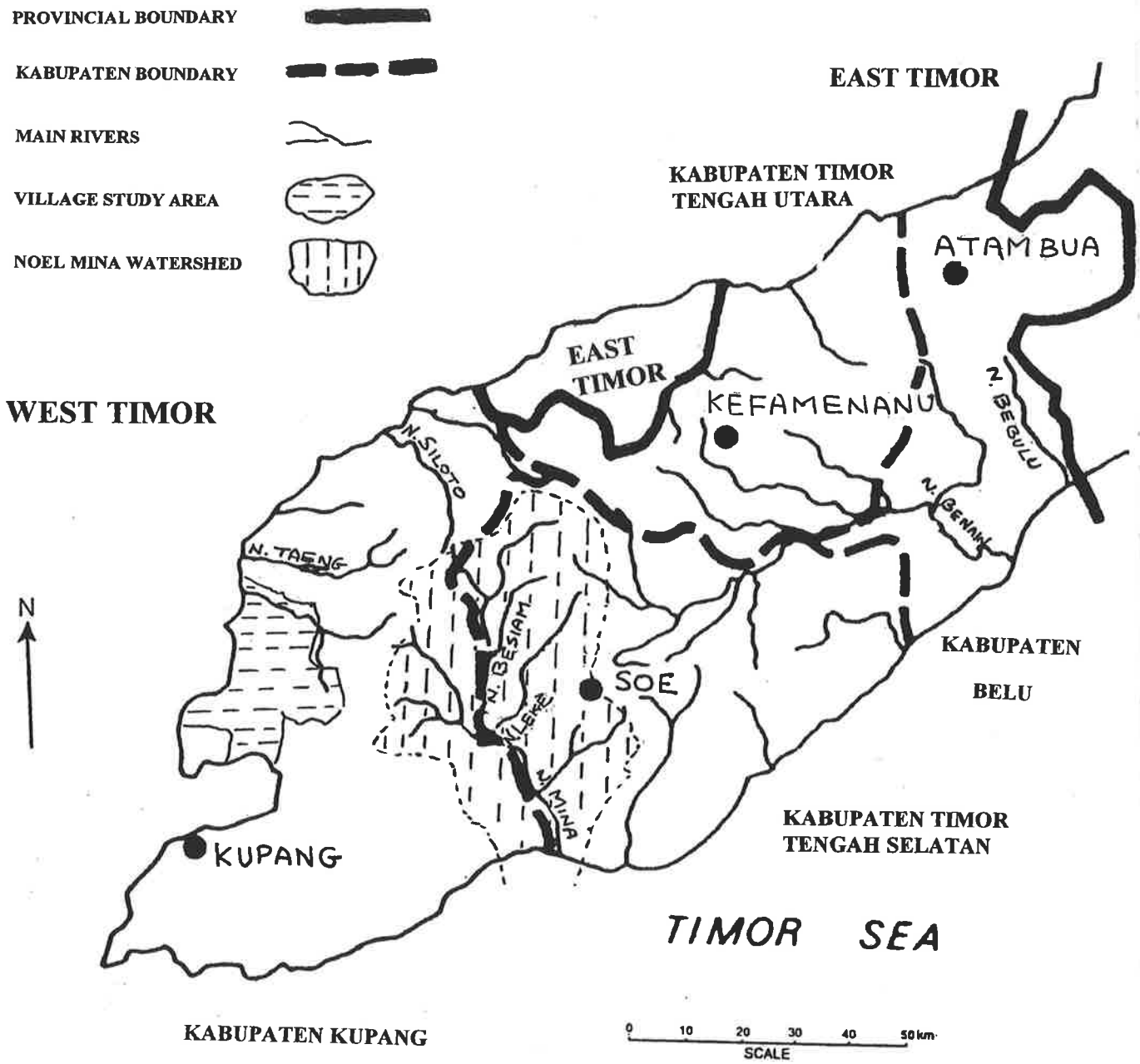


Figure 6.3: Map showing the main rivers of West Timor, the village study area and the Noel Mina watershed.

Adapted from Barlow et al. 1990: 9

Rangeland areas on the plateaux, and areas not suitable for cultivation, are dominated by savanna grassland with species such as *Imperata cylindrica* (*alang alang*), *Themeda arguens*, *Digitaria sanguinalis*, *Heteropogon contortus* and *Brachiaria millianum*, and scattered scrub such as *Eucalyptus alba* and *Acacia catechu*. Apart from grazing of rangelands mostly by cattle, the agricultural systems include: the *ladang* dryland swiddening system producing maize, upland rice, cassava, sweet potatoes, pumpkins and various types of beans; the *sawah* or irrigated ricelands where a more plentiful supply of water is available; a home garden system growing a number of vegetable and root crops along with trees, such as bananas, mango, jack fruit and coconut; and the *mamar* a traditional type of agroforestry system located near a stream or spring and planted with a mixture of tree species and ground crops such as coconuts, areca nuts, banana, betel vine and herbs (Suryanata et al. 1986).

Lontar (*Borassus sundaicus*) and gewang (*Corypha elata*) palms are valuable in terms of the tapped palm juice and derived products, including the use of palm leaves and fronds for containers, house building materials, clothing and household articles. Mature gewang is a source of dryland sago which is fed to livestock in dry years. Despite the diverse utility of these two species of palm there is evidence that the extent of their distribution and use is declining in South Asia and Southeast Asia. (Davis 1985). In Eastern Indonesia, many of the natural habitats of these slow growing species are succumbing to a range of pressures such as land clearance for alternative agricultural enterprises. The ecological benefits of these palm complexes warrant further investigation as even the casual observer is aware of the gewang palm forest's ability to exclude a species like the composite exotic *Chromolaena odorata* which can blanket adjacent land in West Timor. The latter plant is useful to shifting cultivators as it restores soil fertility quite quickly, but no use to cattle. Immature gewang forests can support pastures where cattle graze. Dransfield (1977) suggested that sago-producing species such as the gewang could make an important ecological contribution to utilising degraded land in the semi-arid tropics.

Overall, the key features affecting the development potential of West Timor are those for the province, namely, poverty, the dry and variable climate, the poor social and economic infrastructure, the remoteness from markets and the complex social structure (Barlow & Gondarwarsito 1991). Manuwoto (1991) describes the structural nature of poverty as being caused by limited natural resources, geographical isolation, the lack of a base for industrial development, and the low level of absorption of labour in non-agricultural sectors, as well as socio-cultural constraints. Despite these limitations Barlow is optimistic for economic potential in the key sectors of agriculture, tourism, fisheries and the cottage industry (Barlow & Gondarwarsito 1991: 30).

6.3 The People

6.3.1 The Timorese

The original inhabitants of Timor are known as the Atoni (or Atoni Pah Meto - 'the people of the dry land'). The Atoni inhabit the mountainous interior of central western Timor. According to Nordholt (1971) this name indicates the type of cultural choice made by them, as they avoid the sea and the coast. The other three major indigenous ethnic groups comprise the Tetum (Belu) of the central east, the Helong people of Kupang and the Bunak of central Timor. An approximate distribution of ethnic groups for West Timor is shown in Figure 6.4.

Ormeling regards the Atoni as part of an indigenous population forced into less desirable areas by incursions of Belunese (principally Tetum) and Rotinese people. Myths collected by Middlekoop in 1938 attribute Atoni knowledge of rice and maize to a Belu invasion and the subsequent establishment by Belu princes of the kingdom of Sonbai in western Timor (cited in Ormeling 1957).

Many Timorese have converted to Christianity (Ryan 1993). Tribal wars ceased at the beginning of this century after a 'pacification' program by the Dutch. This paved the way for the opening up of Timor's interior. New towns were built - Soe, Kefamenanu and Atambua - and Protestant and Catholic missionaries were able to bring Christianity

to the Timorese. Catholicism (introduced by the Portuguese) is today dominant in the regencies of North Central Timor and Belu while Protestantism is dominant in South Central Timor and Kupang. Traditional beliefs, though, are powerful and still tied up with animism or spirit worship, even though there is an outward profession of the Christian faith. Religion for the Timorese affects their whole way of life and generally they are regarded as conservative; old customs practised by their ancestors could be in opposition to any imposed development.

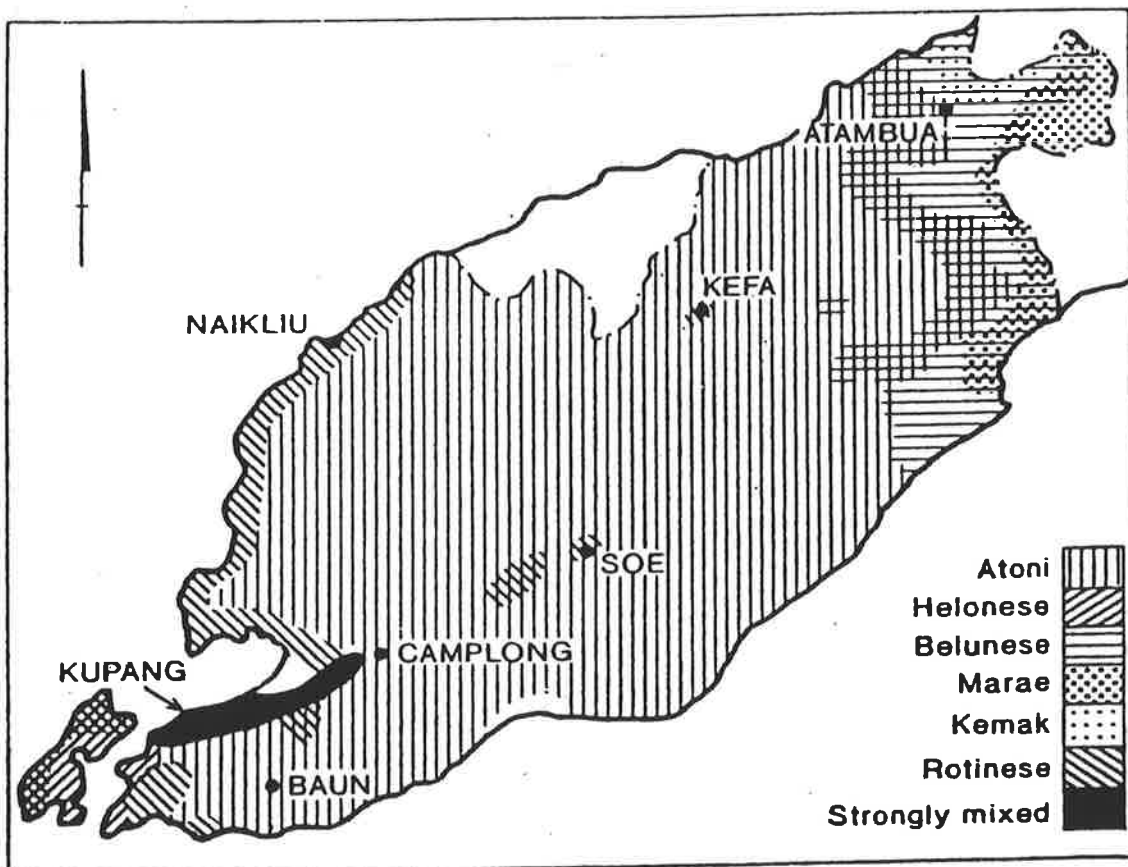


Figure 6.4: West Timor: major ethnic groups

Source: Ormeling 1957: 68

Friedericy (1937) describes the importance of the principal kinship unit of the *suku*.

Life in the *suku* is linked up with traditional concepts....Violation of traditional usages or *adat* threatens the community with sickness, crop failure and famine. Conservatism also rules shifting cultivation, each stage of which, from the selection of the tract to be cultivated to the harvesting, is attended with magical rites and sacrificial offerings. Thus agriculture is closely bound to religion. It is extremely difficult in such circumstances to introduce new agricultural methods or techniques even when, according to western concepts, this is extremely urgent. Intervention with *ladang* cultivation signifies interference with religion and social life.

Ormeling (1957), in a similar way, describes aspects of the Timorese society:

In this tradition-bound society the individual has little chance to develop. He follows the familiar *adat* pattern and to break away from this and begin anew is inconceivable. Powerful familial liabilities moreover impede Timorese initiative. Each individual is confronted with the necessity of meeting his *suku* member's obligations. When his wages become steady, by local standards, his *suku* feels free to descend on him to share his earnings.

Van Cooten (1997) studied the agricultural beliefs and practices of five 'people groups' from within the province of Nusa Tenggara Timur, namely, from East Sumba, Savu, Alor, West Timor (Atoni people) and central Timor (Belu people). He found that traditional beliefs are still a major influence on agricultural development today as described in the following way:

All the people groups here believe that a successful harvest is dependent upon them fulfilling all the agricultural rituals required by their religion and so maintain harmony between the spirit world, humans, nature and 'natural events'. Each group has a series of rituals accompanying the agricultural cycle. These rituals have to be carefully carried out if their crops are to grow well and

disasters are to be avoided. There are other rituals which can be conducted if there is a threat to the success of the crop, for example, not enough rain, too much rain, pests and diseases. Some of the people believe that edible plants and animals have a special relationship with the ancestors. Their agriculture is not so much tilling the ground and caring for their crops in a biological sense as it is caring for their ancestors in a filial and religious sense....for each of the people groups agricultural activity is led by the religious leader. He is the one who determines when and how the crops are planted, cultivated, harvested and stored. The agricultural cycle is interwoven with religious ceremonies which seek to maintain harmony with the spirit world and so ensure a successful harvest. If the ceremonies are not carried out correctly it is believed that a calamity, for example, poor rainfall, pest and diseases, will result. If disaster does occur special ceremonies can be conducted to determine where the mistake was made and to right the wrong....agriculture is, in essence, a religious rather than economic, biological or technical activity. The people do not consider it 'wasteful' in an economic sense to use some of their precious harvest of livestock in religious sacrifice but, in fact, the reverse. They consider that these sacrifices are the actual means of ensuring an increase in their resources. Conformity to the traditions and rituals as passed down by the ancestors ensures harmony in relationship between God, the ancestors, the 'unseen' world, the present generation and their life in the 'seen' world. This harmony results in prosperity (Van Cooten 1997).

The research findings of Van Cooten support the earlier studies of Friedericy (1937) and Ormeling (1957). The syncretism of traditional religious beliefs with either Protestantism or Catholicism, if a true reflection of the current situation across Timorese village communities, has major implications for the kind of extension system needed for the adoption of new technology and of improved systems of farming.

A characteristic feature of the Timorese society concerns community self-help or mutual cooperation (*gotong royong*) as described by Ormeling (1957):

People in the *suku* have common economic interests and work of all kinds is carried out cooperatively. Group labour is the Timorese' means of accomplishing the heavy work of clearing his *ladang* before the rains set in. In his turn each man works for another preparing the fields. The one to benefit gives a feast to mark the work's completion. Cooperative work occurs in house-building, fence erection, deer drives, clearing paths etc.

The *adat* institutions have lost much of their power, firstly, because of the Dutch influence at the beginning of this century, and secondly, as a result of village government. The implementation of the Village Law of 1979 by the New Order involved the uniform formation of villages (*desa*) headed by a village leader (*kepala desa*), appointed by the government. The loss of *adat* control, however, varies from region to region with some traditional leaders still having a powerful voice in the village community.

The Timorese *dusun* (hamlet) is relatively homogeneous in terms of ethnic background, in contrast to the *desa*, which is an administrative collection of *dusuns*, containing anywhere from 50 to 500 households. A village usually contains a church and one or more schools. The house inhabited by a nuclear family is the basic residential, economic and ritual unit.

Traditionally the Timorese have adopted a subsistence economy, growing maize as a staple crop supplemented with some dry rice, root and vegetable crops such as cassava, beans and pumpkins. In good seasons the maize may be sold for cash. Some irrigated rice is grown in the river valleys. Other crops grown help to spread the risk and supplement the diet. The betel vine and betel nut, coconuts, bananas and other fruit are grown in home gardens.

A major source of cash for villagers is cattle; they are used for feasts (along with chickens and pigs) and also for dowries. Bali, Ongole and Madura breeds of cattle were introduced to Timor in early this century and have largely replaced buffaloes in economic and social importance (Djogo 1994b). Apart from extensive cattle raising on native rangelands there is a stall-fed cut-and-carry (*paron*) system. A small percentage (representing 2-10% of the village population) of livestock owners run large cattle herds (more than 10 head of cattle) while in stall-fed systems, families rarely tend more than 3-4 cattle. Any croplands in the rangeland areas have to be protected by fences. Permanent home gardens planted with tree crops and annual food crops are located within fenced areas. There is a considerable amount of work necessary every year to restore fences so that crops are protected from cattle. Cattle are grazed on roadsides and fallow cropping areas in addition to the rangeland areas. Besides cattle, farmers commonly raise chickens, goats and pigs which scavenge freely around villages.

Home industry crafts are mainly weaving and basketry (Metzner 1983). Nordholt (1971) describes the emphasis on weaving as a craft:

...all garments are woven out of cotton, which in the drier areas is planted amongst the corn in the gardens. In addition modern yarns are used; these are great time savers, but detract from the splendour of the colours of the traditional fabrics...The art of *ikat* dyeing, in which intricate patterns have to be applied from memory, is the most difficult part of weaving.

The Timorese employ the *ikat* technique which involves stretching yarn bundles on a frame and tying it into threads and applying the dyes. Every political community or sub-section of a community has its own pattern, mostly involving red and indigo dyes. The art of weaving is regarded of economic importance and most Timorese in rural areas wear traditional dress today.

Sandalwood attracted traders from Java and Malaysia long before European contact. Through the sandalwood trade fabrics were imported into Timor as well as ornaments, working tools and porcelain. After many centuries of trading sandalwood - the most

important trade - the resources are much diminished so that only a small industry exists at present.

6.3.2 The Rotinese

Rotinese people have migrated to West Timor and settled in Kupang and nearby villages. They account for about 4-5% of the population on West Timor (over 50,000). They originally came from the nearby densely populated island of Roti, located off the southwestern tip of Timor. The Rotinese started to migrate as a wave from 1816, and settle down on the Oesau plain to the northeast of Kupang where they grew irrigated rice and tapped the lontar palm (Figure 6.5). They were encouraged by the Dutch to settle on the northeastern plains of Timor as they had readily accepted Christianity, seemed to be more enterprising than the Timorese and would support the Dutch if the Timorese or Portuguese caused trouble of any kind. Their settlement in a semicircular

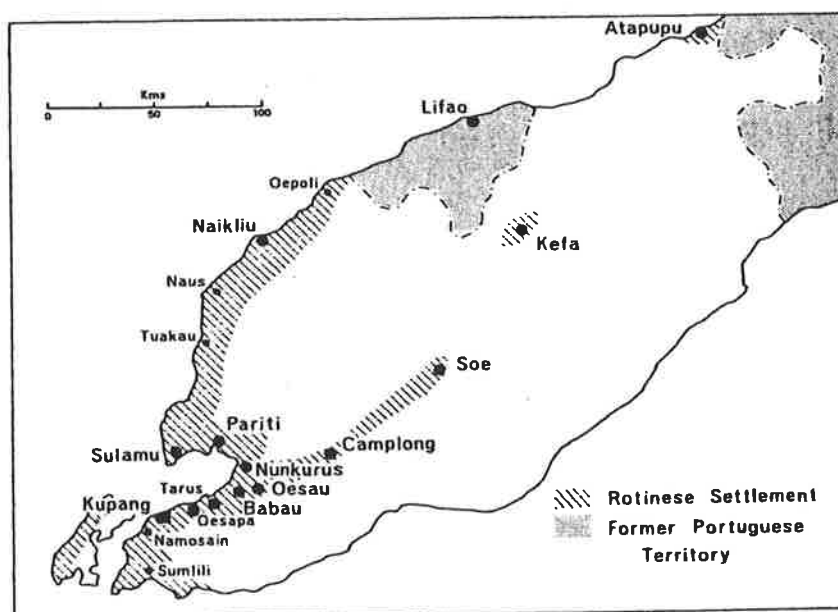


Figure 6.5: Map showing approximate location of Rotinese settlements

Source: Fox 1977: 145

band of land, approximately nine kilometres in width around the Kupang Bay provided an ideal location for their fishing, agricultural, civil and business activities. The Rotinese readily worked as retailers or as civil servants in Kupang. The existence of an extensive school system in the nineteenth century gave the population on Roti an educational advantage, which may have been conducive to emigration and resettlement. Rotinese now participate at all levels of Indonesian national life (Fox 1977). Rotinese settlements soon sprang up: Tarus, Oesapa, Babau, Oesau, Nunkurus, Pariti (Figure 6.5). The Dutch helped to protect these settlements against Timorese incursions with the help of conscripts from Roti. According to Fox (1977) the Rotinese migration was not just a gradual movement along the north coast and the interior trunk road. There was some movement in this century directly into Timorese areas. In the valley of Noil Leke in south central Timor Rotinese and Savunese live amongst thousands of lontar palms, having little contact, socially and economically, with the original Timorese inhabitants (Ormeling 1957: 152). The separate communities could easily be identified by the distinctly different houses. The Rotinese lived in rectangular *bebak* houses (made from gewang leaf stalks) while the Timorese occupied bee-hived shaped, thatched huts.

The value that the Rotinese attached to education continued to develop on Timor so that an educational elite established itself as an important part of the administrative bureaucracy in Kupang. Along with the tapping of lontar palms and growing of irrigated rice the Rotinese established a firm foothold in agricultural and civil activities on West Timor. By contrast the Timorese were mostly illiterate and kept to their traditional way of life as shifting cultivators (Fox 1977).

Rotinese have continued to tap the juice of the lontar palm on Timor. On Roti it formed a large part of their subsistence and contributed to the sustenance of a relatively large population with respect to the area of the island, dry climatic conditions and limited natural resources. Fox (1977) gives evidence that agricultural ecosystems in Eastern Indonesia incorporating the lontar and gewang palms provide for a way of life with significantly greater human carrying capacity than neighbouring non-palm agricultural systems. He estimated the population density in the lontar cultures of Roti and Savu to

be in the order of 100 persons per square kilometre compared with 50 persons per square kilometre on neighbouring Timor and Sumba. The tapped juice of the lontar palm can provide nourishment as a fresh drink; it can be fermented into a mild alcoholic drink, or boiled down to a rich syrup called *gula air*. Fox estimates that at the height of the tapping season, a mature male palm yields up to 6.5 litres of juice (or 1 kg of evaporated sugar syrup). The female plant can also be tapped for sugar and produces a pleasant tasting coconut-like fruit. The lontar palms are tapped through most of the dry season with peak periods in April and May, and again in September and October. The gewang palm has a more limited distribution (Uhl & Dransfield 1987).

The majority of Rotinese on Roti are farmers growing irrigated rice with corn, millet, sorghum, and a variety of root and vegetable crops in dry fields or home gardens. The main fruit trees comprise coconut, papaya, jack fruit, banana, citrus and mango. The Rotinese also grow betel palms (*Areca catechu*) which provide the betel nut which is used as a masticatory stimulant when mixed with lime and betel leaf (*Piper betle*). Dry fields are usually cleared by burning or worked with hoes in November while wet-rice fields are worked by driving herds of cattle through them after the ground is softened by opening rains (*rencah* system). Livestock raising includes horses, buffaloes, sheep, goats, pigs and chickens. Weaving and basketry are the main domestic crafts.

The Rotinese according to Ormeling's observations:

...make more use of the long dry season when agriculture is forced to a standstill...Besides lontar tapping they engage in fishing, salt-making, collecting *bebak*, and lime and charcoal-burning. With the Savunese they are active in the commercial field, although far behind the Chinese in this respect. Their main interest is the small retail trade known as *papalele*. As early as the previous century, mention was made of Rotinese visiting the interior for trading purposes. Their settlement at Naikliu, on the coast of Amfoan, where Buginese and Alorese *perahus* (boats) meet, has long been a commercial centre of local importance. Today Rotinese retailers sell lontar products, milk, vegetables, lime, and *bebak* in Kupang. Like the Savunese they regularly visit *pasars*

(markets) in Amarasi, Fatuleu and recently even Molo, where fruit, potatoes and vegetables are purchased from the local Atoni. Thus practically the whole *jeruk* (citrus) harvest from central Timor's highlands finds its way to the consumer in the *kotas* (towns) via Rotinese and Savunese intermediaries (Ormeling 1957: 74).

Ormeling's conclusion was that the Rotinese immigrants were economically stronger than the Timorese since they utilised the environment's potential more fully and had a wider range of economic activities (Ormeling 1957: 221). Today the Rotinese settlers continue to work as rice growers, lontar tappers, traders and retailers, and as public servants in Kupang.

6.3.3 Other migrants to Timor

Although the Rotinese represent the main ethnic group to have migrated to Timor in the last two hundred years, smaller numbers of other ethnic groups from neighbouring islands have also settled there. Migrants of Chinese and Malaysian descent are also present, mainly in Kupang and other towns and play a strong role in the business community. The Chinese have continued to expand their involvement in trade from the Dutch colonial time to the present day. Their presence on Timor, although small as a percentage of the population, is a powerful and dominant one in terms of their trade and business interests (Hugo 1995a). At the time of the Dutch Census, 1930 (the last census that provided data on different ethnic groups), the Chinese were well established throughout West Timor. The following description of an area study of Dutch Timor (Allied Geographical Section 1943: 40) gives some idea of their influence:

Chinese hold their predominant place in business and trade. Each large village on the motor roads, on the coast and in the interior has its own *toko* or store. There were some rich Chinese families in Kupang. One of them was proprietor of the electric power station, the ice-factory, the picture theatre, a motor vehicle establishment, a pawn shop and several private houses. They had their own schools in several places, their own temples, cemeteries, etc. They were

organised under a Chinese 'captain' and several regency heads. The Chinese did not form a uniform community: there were different classes and racial groups and very few had ties with China.

The Dutch census of 1930 (Table 6.1) also revealed that 22 per cent (17,146) of the Rotinese population and 7 per cent (2,734) of the Savunese population lived in West Timor. The Savunese had also migrated to Sumba (9 per cent of the population) whereas the Rotinese had almost entirely migrated to West Timor. As schooling and subsequent employment became more important there were movements of Savunese from Savu and Sumba, and Rotinese from Roti, to the Kupang environs. As well, there was movement from the coastal plains to Kupang. The Savunese were similar to the Rotinese with respect to lontar tapping, and their educational and employment pursuits. Reputations of their professional competence revealed differences, however. The Savunese were regarded as better policemen and military officers while the Rotinese made the best lawyers (Fox 1977).

Table 6.1: Numbers of different ethnic groups living in West Timor, 1930 (Dutch Census 1930)

Ethnic Group	Number	%
Timorese	322,864	92.6
Rotinese	17,146	4.9
Savunese	2,734	0.8
Chinese	3,457	1.0
Other, eg. Bugis *	2,625	0.7
Total +	348,826	100
Total (1990)	1,250,123	

+ excludes Europeans (488) and other foreigners (750)

* the percentage of Bugis living in the Timor residency (NTT plus the island of Sumbawa) was estimated to be 0.7% (11,652)

Source: Dutch Census 1930, Volkstelling 1936

Temporary or permanent Javanese settlers have tended to occupy positions as public servants. There is some concern that the bureaucratic influence they yield will promote Indonesian centralist interests at the expense of locally determined opportunities. Rural development strategies, for example, may not be tailored to the Timorese environment as Javanese attempt to establish agroforestry systems based on the Javanese model. Business entrepreneurial enterprises may run up against a wall of red tape and payment encumbrances.

The Bugis and Macassarese from South Sulawesi are well known for their seafaring and trading activities. They have also migrated and established new coastal communities, particularly in Eastern Indonesia. Their livelihood involves the retail and shipping business and the growing of cash crops. They have intermarried with the local people and are having an increasing impact on the economy of Eastern Indonesia (Horridge c1996).

Forge (1991: 171) describes the trading operations of the Bugis of the larger markets in Central Timor:

...the permanent traders are all Bugis or Chinese. It is they who control all manufactured and imported goods. They buy vegetables from villagers for their personal needs, but there is little consolidation of local produce into large lots for sale or export elsewhere. Bugis traders have *kios* (stalls) around the outside of the areas used by villagers to squat and sell. They sell clothes, cigarettes, pots and pans, plastic wares, simple steel tools and other manufactured goods. Other Bugis, and some Rotinese, sell from large stalls in the general selling area. These stalls mainly retail imported food, dried fish, mung beans, dried sliced betel nut (*pinang iris*), tobacco, onions (*bawang merah*), small packets of biscuits, and so on. They also sell soap and a range of medicinal and toilet items.

As well as trading in the *kabupaten* and *kecamatan* markets the Bugis can be found as shopkeepers in the more remote Timorese upland villages. The Bugis have also acquired land for planting local cash crops such as garlic. In contrast to the Bugis,

Forge found from his survey in Central Timor that the Timorese are small scale traders, buying at smaller markets when prices are lower and reselling at the larger markets when prices are higher; there are also Timorese-operated stalls in some villages.

6.3.4 Ethnic relations on Timor

A study of ethnic relations today is important in view of the history of settlement by different ethnic groups on West Timor and the way in which that may have influenced rural development. Positive aspects of ethnic groups living in the same environment could include: the transfer of knowledge and skills; the complementary and supplementary benefits arising from people with different trades, skills and qualities; the interchange of ideas from people of different social and cultural background; a greater potential to resolve problems relating to sustainable development (that is, with care of the environment and human resource development); overall, a more dynamic and richer environment, culturally, socially and economically, in which to live. However, there are also certain aspects of ethnic interaction which could hinder development. These could include exploitation of one group by another, harmful attitudes, situations giving rise to ethnic conflict, ethnic rivalries over land disputes and other issues, lack of cooperation, and irreconcilable differences due to culture and religion.

Since population movements invariably bring together different ethnic groups it is valuable to study the factors that could influence rural development through positive or negative aspects of ethnic groups living in the same region. In particular, the opportunity is there to examine the extent of ethnic group divergence or assimilation and the nature of constraints affecting inter-ethnic behaviour. The implications for government and non-government action could thus be determined with promotion of policies designed to sustain viable, multi-ethnic communities.

6.4 Forestry programmes

A forestry programme which started in the 1960s in NTT by the Department of Forestry concentrated on monoculture plantations of forests such as *Tectona grandis* (teak), *Eucalyptus urophylla* (ampupu), *Cassia siamea* (johar) and *Gmelina arborea* (white teak). These forests until recently were managed exclusively by the government forestry department and as part of a greening and reforestation programme have caused a dramatic change in water resource potential (Djogo 1994a). A recent reorientation of the programme has allowed the participation of local communities. The social forestry plantation programmes are located in forest buffer zones for protection purposes and involve an incentive cash payment to communities. This type of programme, along with the 'regreening' programme of tree planting on forest fallow areas, lacks the farmers' involvement in decision making and species selection. (FAO 1990).

Planning for the development of the Industrial Timber Estates or *Hutan Tanaman Industri* (HTI) commenced in the late 1980s for NTT. The aims of the development of HTI have been described in chapter 3 (section 3.3.2.3). For NTT, the Forestry Department has stated that 332,500 hectares, of the 1.6 million hectares of classified forest area, is allocated for HTI development. Each of the main islands will be affected in a substantial way with the potential allocation of land in hectares for plantation activities in Timor - 163,500; Sumba - 40,000; Flores - 111,500; Alor - 17500; and Roti - 17,500 (Tallo 1994).

Deforested, or sparsely forested, areas of NTT have been planted with fast growing or commercial species such as *Gmelina arborea*, *Enterolobium cyclocarpum*, teak (*Tectona grandis*) and mahogany (*Swietenia macrophylla*). Participation in management of the programmes has been minimal on the part of local communities and there is controlled access to the areas for work or for cropping and other activities. The take-over of land associated with the HTI programmes has been made easier in some cases by the prior resettlement of shifting cultivators or by confining the villagers into

smaller areas or enclaves. The impacts of resettlement and HTI activities are examined in chapter 9.

The HTI development could be regarded as a type of agroforestry system (*tumpanghari*) which allows for cropping in the early years of establishment of the trees. However, the focus is on long-term timber production. Normally the aim of agroforestry systems and their management is to integrate tree crops, annual crops and/or animal production in the one farming system to benefit from ecological and economic interactions between them. Important components in the development of agroforestry areas include designation of suitable land types, selection of plant species, integration of livestock, adoption of appropriate technology and farmer inputs. The trees in the agroforestry system can serve a number of roles such as supplying mulch, stabilising the soil, producing fodder for livestock, improving the microclimate, as well as growing wood for firewood and other purposes.

As an example of the potential of an agroforestry system for West Timor, Sabrani and Saepudin (1994) describe the Amarasi agroforestry model introduced to the semi-arid Amarasi area of Timor Island. Here, shifting cultivation has been modified by establishing high density planting of the tree legume, *lamtoro* (*Leucaena leucocephala*) and interspersing maize and other crops between the rows. The system improves cattle carrying capacity, provides shade and mulch, and gives an opportunity for other tree crops to be grown, such as coconut, banana, jack fruit and papaya. The micro-environment is enhanced with mulching of the soil and organic fertilisation; this offers opportunities for the introduction of other tree crops as moisture and fertility regimes improve (Metzner 1983; Sabrani & Saepudin 1994). Unfortunately, the psyllid insect (*Heteropsylla cubana*) arrived in 1985 and devastated most of the leucaena plantings on the island. The plantings are now showing signs of recovery. Research is directed towards the use of alternative species (Djogo 1994b).

To encourage the use of alternative legumes the NGO, *Yayasan Tananua*, worked with communities on the islands of Sumba, Flores and Timor from 1985 to incorporate live hedgerow establishment of various types of shrub legumes in the system, such as

Gliricidia sepium, *Calliandra calothyrsus*, *Calliandra tetragona*, *Flamengia congesta*, *Desmodium renzonii*, *Cassia siamea* as well as *Leucaena leucocephala*.

According to Djogo (1994b), though, there is insufficient information on the value and appropriate management for these and other potential species that could be utilised in agroforestry systems for West Timor. There is evidence, on the other hand, that valuable insights have been gained by NGOs in promoting tree-planting systems (Djogo, Asa & Nurak 1992; Lee 1996). From a case study in East Sumba in NTT, Lee describes the activities of a local NGO, *Yayasan Tananua*, promoting tree-planting via a participatory approach. While the NGO had identified a range of technologies and values of different tree species, their participatory approach was undermined by pressure from government officials and members of the traditional elite. The NGO, as a consequence, was not able to encourage a high quality adoption of tree-planting by farmers. This illustrates the type of learning difficulties encountered by NGOs in seeking to accommodate the interests of different parties. Land tenure issues have also become an important factor in the promotion and planting of new species. Farmers on Timor in the past exploited forage resources on communally owned land, but this opportunity has become more limited, with access only to small areas of land for cropping.

6.5 West Timor and its regional context

West Timor can be viewed in the wider context of its province, Nusa Tenggara Timur (NTT), as well as being a part of Eastern Indonesia. The province of Nusa Tenggara Timur comprises the four major islands of Sumba, West Timor, Alor and Flores along with 38 other inhabited smaller islands including those of Roti and Savu pertaining to this study (Figure 6.1).

Geographically, Eastern Indonesia covers the provinces of North Sulawesi, Central Sulawesi, South Sulawesi, South East Sulawesi, Maluku, Irian Jaya, East Timor (Timor Timur), West Nusa Tenggara (Nusa Tenggara Barat) and East Nusa Tenggara (Nusa Tenggara Timur). Politically, as mentioned previously, the four Kalimantan provinces

are classified as 'Eastern'. There are specific policies for development of Eastern Indonesia that the government has adopted:

The policy to direct transmigration to Eastern Indonesia is intended to develop a better economic and social-cultural infrastructure; to accelerate communication and transportation; to develop social institutions such as cooperation, financial institutions, and market facilities to enhance the bargaining power of the population... (*Repelita VI, Buku 3: 433*).

The government is, however, facing a large number of social and geographically related problems with respect to different regions in Eastern Indonesia for implementing development policies; these could ultimately influence levels of both immigration and outmigration (Tirtosudarmo 1995b). In addition, the government has encouraged extensive use of natural resources in Eastern Indonesia to help finance national development (Hardjono 1991). It is widely recognised that these resources are being exploited inefficiently and non-sustainably (Hayes & Hidayati 1995). It would be useful for this study to analyse the existing levels of immigration and outmigration at the regency and provincial level for Eastern Indonesia and determine possible factors influencing these types of migration. This would take into account associated factors such as the economy of the region, human resource development and the incidence of poverty.

6.5.1 Population movements in Eastern Indonesia

An accurate assessment of population movements in Eastern Indonesia is constrained by the limitations of the population censuses, up to and including the 1990 census. These limitations are described by Hugo (1997: 69) as follows:

- The census data fail to detect most non-permanent migration.
- Since the origin of migrants is only coded to the provincial level, migration cannot be categorised into rural-urban, rural-rural, urban-urban and urban-rural migration.

- The census does not collect data on international labour migration out of the country.

Internal migration data collected in the census only relate to interprovincial migrations which constitute less than a fifth of all permanent moves in the country. Efforts have been made to overcome these limitations in the 1995 Intercensal Survey (SUPAS). Questions have included the last place of residence, length of time at present residence and reason for migrating in the last five years. Census data are not available, however, for different ethnic groups.

The population density, distribution and growth rates are given for five provinces in Eastern Indonesia, and compared with other regions, in Table 6.2. Comparisons of these attributes are also made for the different regencies within the province of Nusa Tenggara Timur (Table 6.3).

Table 6.2: Population, Annual Growth and Population Density by Region and Province (1995).

Province	Total population 1995	% Annual Growth (1990-95)	Density (persons/sq. km) 1995
Java-Bali	117,629,135	1.3	854
Sumatra	40,830,334	2.4	86
Kalimantan	10,471,843	3.0	19
Sulawesi	13,732,449	1.9	73
Nusa Tenggara Barat	3,645,713	1.6	181
Nusa Tenggara Timur	3,577,472	1.8	75
Timor Timur	839,719	2.4	56
Maluku	2,086,516	2.4	28
Irian Jaya	1,942,627	3.3	5
INDONESIA	194,754,808	1.7	101

Source: Intercensal Population Census 1995 (BPS 1996)

The population densities vary widely between the regions and provinces with the provinces of Eastern Indonesia, except for Nusa Tenggara Barat, among the lowest. Although these are low by comparison with Java they could be regarded as high in relation to pressure on resources. The differences in annual growth rates need to take account of the trends in fertility, mortality and migration. Fertility has been shown to be higher, although declining, in Eastern Indonesia than in the rest of the nation.

For Nusa Tenggara Timur, the estimate of total fertility rate for 1992 is 3.9 compared to 2.9 for the whole of Indonesia while the infant mortality rate has dropped from 154 per 1000 live births in 1971 to 77 in 1990 (Jones & Hull 1997: 14-15). There has also been an increase of 30% on life expectancy over that period. The growth rate of 1.8% (Table 6.2) indicates the importance of migration out of the province. There is a not a great variation in population density between regencies (Table 6.3). The slow

Table 6.3: Population, Annual Growth and Population Density for Each Regency in Nusa Tenggara Timur (1990)

Regency	Area (sq. km)	Total Population 1990	% Annual Growth (1980- 1990)	Density (persons per sq. km) 1990
West Sumba	4072	291,921	2.32	72
East Sumba	7008	152,946	2.20	22
Kupang	7339	522,944	2.64	71
South Central Timor	3930	348,067	1.85	89
North Central Timor	2652	163,052	1.97	61
Belu	2462	216,060	1.78	88
Alor	2841	144,629	1.47	51
East Flores	3078	265,759	0.31	86
Sikka	1752	246,867	1.17	141
Ende	2036	218,841	0.82	107
Ngada	3030	198,100	1.39	65
Manggarai	7150	499,458	2.31	70
Total	47,350	3,268,644	1.79	69

Source: Statistics Office, Kupang

population growth in East Flores is due largely to outmigration, particularly to Sabah in East Malaysia (Hugo 1995a). Other areas of slow population growth in NTT - Ende and Sikka - are located in the drier, eastern end of Flores. The outmigration from these areas is associated with higher population densities and pressure on resources. Nusa Tenggara Timur has negative net migration rates for 1980 and 1990 and 1995 (Table 6.4). Lifetime net migration appears to be levelling off for the 1990-95 period, compared to the previous 1980-90 period, as the rate of outmigration moderates. This contrasts with Timor Timur, Maluku and Irian Jaya where a positive net migration rate indicates that more people are coming to these provinces than leaving them (Gray et al. 1995: 48).

Table 6.4: Nusa Tenggara Timur: Lifetime Migrants, 1980, 1990 and 1995.

Lifetime Migrants	1980		1990		1995	
	Total	Percent	Total	Percent	Total	Percent
Lifetime immigrants	35,007	1.28	46,310	1.42	57,915	1.62
Lifetime outmigrants	47,534	1.74	99,442	3.04	118,625	3.32
Lifetime net migration	-12,527	-0.46	-53,132	-1.62	-60,710	-1.70

Source: BPS, NTT Office 1997

According to Hugo (1995a) the net migration loss due to interprovincial migration is not sufficiently large in scale to account for the full deficit between the rate of population increase implied in the fertility and mortality levels in the province. Some of the loss, therefore, must be attributed to international migration. The problem of limited natural resources in NTT combined with low levels of economic activity has resulted in low levels of human resources development (Corner 1989), and, therefore, is likely to be one of the main factors leading to outmigration.

The flow of migrants to and from different provinces of Eastern Indonesia is shown for urban and rural areas, as estimated from the 1995 intercensal survey (Table 6.5). Immigrants to urban areas of NTT come predominantly from Nusa Tenggara Barat (33.1%) and South Sulawesi (66.9%) while migrants to rural areas come mostly from

Nusa Tenggara Barat (17%), South Sulawesi (33.6%), East Timor (18.1%), Southeast Sulawesi (13.8%) and Maluku (12.9%). Overall, migrants settling in rural areas of NTT account for 54.9% of all migrants. NTT was the most important area for sending

Table 6.5: Inflow and Outflow of Migrants to and from Each Province of Eastern Indonesia by Rural and Urban Areas, 1995 (%).

Place of current residence	Place of previous residence									Total No.
	NTB	NTT	ET	MAL	IRJA	NSU	CSU	SSU	SESU	
NTB										
urban		44.8	10.2	2.6	5.6	8.7		22.9	5.2	7,686
rural		9.4	4.6		4.5	2.2	4.5	65.4	9.4	16,133
NTT										
urban	33.1		10.0	8.6	3.2	3.7		66.9	9.9	13,609
rural	17.0		18.1	12.9	2.2	2.4		33.6	13.8	16,546
East Timor										
urban	2.3	62.1		2.6	4.3	0.6		24.4	3.7	12,853
rural	2.6	80.8		4.9	2.6	0.5	0.2	5.6	3.0	37,130
Maluku										
urban	0.2	1.8	0.7		10.0	10.2	0.7	39.6	36.9	48,047
rural		1.3			12.9	17.5	2.4	11.0	54.9	65,988
Irian Jaya										
urban	0.9	2.7		24.6		13.0	0.8	52.2	5.8	109,526
rural	0.3	10.4	1.3	22.2		9.3	0.6	53.7	2.2	29,783
North Sulawesi										
urban	1.2	0.8	2.2	16.0	8.6		28.2	42.2	0.8	34,515
rural		3.0	2.0	16.4	8.7		38.9	29.1	2.0	13,648
Central Sulawesi										
urban	0.1	0.2	0.1	0.5	0.2	27.4		65.5	6.0	89,499
rural	5.1	0.7		0.4	0.1	30.5		58.7	4.6	124,576
South Sulawesi										
urban	11.5	5.7	1.2	18.6	8.0	19.6	12.5		22.9	86,937
rural	19.4	7.3	0.6	7.8	9.2	6.1	22.2		27.4	65,585
S.East Sulawesi										
urban	2.3	1.2	1.9	6.0	1.9	1.7	3.2	81.8		66,184
rural	4.2	1.5	0.4	11.2	3.5	2.0	2.3	75.0		115,684
Total										
urban	4.4	3.5	1.2	11.5	3.8	13.3	5.1	46.4	11.1	468,856
rural	5.7	8.9	1.1	6.5	4.5	12.3	5.2	42.3	13.6	485,073

NTT - Nusa Tenggara Timur; NTB - Nusa Tenggara Barat; ET - East Timor; MAL - Maluku; IRJA - Irian Jaya; NSU - North Sulawesi; CSU - Central Sulawesi; NSU - North Sulawesi; SSU - South Sulawesi; SESU - Southeast Sulawesi

Source: Population Intercensal Survey 1995 (BPS 1996)

migrants to East Timor - about 76% of migrants to East Timor came from NTT. Rural-rural movements from NTT to East Timor accounted for 60% of all migrants. It represents a substantial flow of migrants (64% of all rural-rural movements for NTT

with respect to Eastern Indonesia). The mobility of people between West Timor and East Timor has been facilitated by an upgraded and sealed road linking the provincial capitals of Kupang and Dili. The people in Timor share common ties through their ethnicity, cultural values and religion which enhance their cooperative links. The government is also putting large investments into a number of development projects, such as building, transport, communication and education services; this has created employment opportunities. The substantial flow of migrants from South Sulawesi to both urban and rural areas of NTT indicates the degree in which they have established themselves as traders and business operators, such as in transport, in these areas. Sumbawa and Bima in Nusa Tenggara Barat have contributed significantly to the movement of people to Western Flores; many of these people are small traders.

On examining the inflow of migrants to each province in Eastern Indonesia from Western Indonesia and overseas countries (Table 6.6) 49% of all migrants to NTT from Western Indonesia settle in rural areas, most of these coming from Java-Bali (18%) and foreign countries (23%). Overall, there is a greater number of migrants to rural areas of NTT coming from outside the province (60.5%). Significantly, also, is the high percentage of Javanese and Balinese migrants going to urban areas of NTT (47% of all migrants from outside the province). This most likely reflects the importance of Kupang, the provincial capital of NTT, as a receiving area for these migrants. The Bugis are involved in trading and transport while the Javanese occupy government positions. The Chinese community are also represented in trading and business enterprises that include retailing, transport and building.

The tables overall show that there is a greater number of migrants (56.5%) moving to rural areas of Eastern Indonesia, whether from Eastern Indonesia itself or from other regions. The rates of urbanisation, though, have increased, as indicated by figures for urban-rural ratios for five provinces in Eastern Indonesia (Table 6.7). While estimates covering the extent of urbanisation and interprovincial movements are available from census data, the details of the types of intraprovincial movements are lacking. For this study, in particular, it concerns inter-rural movements and temporary movement from rural to urban areas.

Table 6.6: Inflow of Migrants, from Western Indonesia and Foreign Country, to Each Province of Eastern Indonesia by Rural and Urban Areas, 1995 (%).

Place of current residence	Place of previous residence				Total
	Java-Bali	Sumatra	Kalimantan	Foreign Country	
NTB					
urban	88.1	5.4	1.2	5.3	46,676
rural	49.1	6.9	18.2	25.9	53,063
NTT					
urban	91.6	3.8	3.0	1.6	26,614
rural	36.7	7.5	8.6	47.1	25,364
East Timor					
urban	85.7	8.3	4.9	1.1	9,837
rural	82.9	15.8	1.6		10,532
Maluku					
urban	80.3	10.8	5.0	4.0	30,409
rural	92.6	4.6	1.4	1.4	32,977
Irian Jaya					
urban	82.5	13.4	3.5	0.6	70,575
rural	95.8	3.9	0.3		73,429
North Sulawesi					
urban	75.8	8.8	9.0	6.4	25,326
rural	74.2	5.6	17.0	3.1	22,701
Central Sulawesi					
urban	87.6	3.6	8.5	0.3	31,381
rural	94.4	2.4	2.0	1.1	133,859
South Sulawesi					
urban	73.6	7.3	15.8	3.4	117,525
rural	53.1	10.2	15.7	21.0	158,340
S.East Sulawesi					
urban	76.3	9.0	12.7	2.0	17,842
rural	92.5	2.7	2.5	2.3	103,847
Total					
urban	80.6	8.1	8.4	2.8	376,185
rural	76.3	5.7	7.6	10.4	614,112

Source: Intercensal Population Survey 1995 (BPS 1996)

NTT - Nusa Tenggara Timur; NTB - Nusa Tenggara Barat

Mboi (1996) discusses a number of key issues concerning demographic and social changes in Eastern Indonesia. Some of these arise from the differential growth rates of provinces due to differences in interprovincial migration or problems associated with the rapid pace of urbanisation and high spatial mobility which are exerting pressure for an improved transportation system. In the towns the merging of different ethnic groups may create its own problems. At the village level major issues include social

Table 6.7: Population Growth and Urbanisation in Five Provinces in Eastern Indonesia, 1980-1995

Province	Urban population		Rural population		Population growth			Urban-rural ratio	
	(percentage)		(percentage)		(average annual percentage)			1980	1995
	1980	1995	1980	1995	Urban	Rural	Total		
NTB	14.1	18.8	85.9	81.2	4.1	1.8	2.1	0.164	0.232
NTT	7.5	13.9	92.5	86.1	5.9	1.3	1.8	0.081	0.161
East Timor	n.a.	9.5	n.a.	90.5	-	-	-	-	0.105
Maluku	10.9	24.6	89.1	75.4	8.3	1.8	2.7	0.122	0.326
Irian Jaya	21.4	25.8	78.6	74.2	5.1	3.5	3.9	0.273	0.347
Indonesia	22.4	35.9	77.6	64.1	5.2	0.8	2.0	0.288	0.560

Source: BPS 1982; Intercensal Population Survey 1995.

disintegration with the loss of the traditional institutions including the traditional form of leadership and the fact that the population is becoming more heterogeneous through immigration of outsiders. Mboi stresses the important roles of government pursuing policies of development to provide leadership; to encourage decentralisation while developing the capacity of local institutions; to provide administrative assistance for investment purposes; and to improve services and infrastructure. In addition, attention should be paid by the government in setting up economic policies for expanding the economic base and improving the efficiency of agriculture while integrating the economy of the immigrants with that of the local people in a harmonious way.

While Barlow and Gondarwarsito (1991) and Mboi (1996) have generalised the nature of problems facing NTT, there needs to be a clearer definition of these with respect to population movements involving the province and to this study in particular. An analysis of the economy of the region and of the human environment will assist in

focusing on the relevance of factors influencing rural development and the need for further research that could benefit policy makers.

6.5.2 The regional economy

The composition of Gross Regional Domestic Product (GRDP) for Indonesia and its provinces in 1992 is given in Table 6.8. The data show that except for Irian Jaya

Table 6.8: Composition of Gross Regional Domestic Product (GRDP), Indonesia and Provinces, 1992 (percentages) *

	Agri- culture	Min- ing	Manu- factur- ing	Const- truction	Trade, restaur- ants, hotels	Transport and comm- unication	Govern- ment	Other #
Sumatra	23.0	25.9	16.5	2.7	15.8	5.4	5.2	5.5
Java-Bali	19.5	2.7	23.7	6.1	21.0	6.6	6.7	13.7
Kalimantan	15.8	23.5	28.3	3.3	15.3	4.8	4.1	4.9
Eastern Indonesia								
NTB	45.8	1.6	2.8	6.5	17.3	9.0	11.2	5.8
NTT	47.1	0.6	2.0	3.6	12.1	9.5	19.1	6.0
East Timor	38.6	0.8	2.2	15.0	9.9	8.5	19.2	5.8
North Sulawesi	36.5	1.0	6.8	4.3	12.9	13.9	14.8	9.8
Central Sulawesi	40.2	2.8	5.4	7.5	13.7	8.5	14.2	7.7
South Sulawesi	43.4	4.2	8.8	3.4	18.4	7.5	8.2	6.1
South East Sulawesi	38.1	7.7	2.7	4.0	13.6	9.0	19.0	5.9
Maluku	31.7	6.0	17.3	5.7	19.9	4.2	9.8	5.4
Irian Jaya	16.4	55.6	2.1	4.3	5.3	4.1	9.2	3.0
Total (Eastern Indonesia)	37.5	8.9	5.6	6.0	13.7	8.2	13.8	6.3
Indonesia	19.5	11.5	21.8	5.9	16.4	6.6	6.7	11.6

* of provincial or regional GRDP

includes electricity, gas and water, banks and finance, and rents.

NTT - Nusa Tenggara Timur; NTB - Nusa Tenggara Barat

Source: Central Bureau of Statistics, 1993 and 1989-1994; Barlow (1996: 5).

agriculture is the main sector contributing to GRDP for each of the provinces in Eastern Indonesia, compared to the other main regions where there are greater contributions from the mining and manufacturing sectors. The data in Table 6.9 show that while agriculture forms a significant part of the GRDP for each province, the contribution to GRDP for the whole of Indonesia is small by comparison with Sumatra and Java-Bali. The total

contribution coming from five of these provinces (NTT, NTB, East Timor, Maluku and Irian Jaya) to Indonesia's GRDP is only 4.6%. The contribution of food crops in NTT (56.3%) is similar to Indonesia, as a whole (56.8%). However, there is a greater emphasis on the livestock production (23%) compared to all of Indonesia (11.2%). For NTT, lesser contributions are derived from small holding tree crops (10.7%), fisheries (8.6%) and forestry (1.4%).

Table 6.9: Composition of Agriculture's Contribution to Gross Regional Domestic Product (GRDP), 1992 (%)

	Food crops (%)	Estate crops (%)	Small holding tree crops (%)	Live-stock (%)	Fisheries (%)	Forestry (%)	Total contribution to GRDP (Rp. billion) *
Sumatra	42.3	12.2	16.2	11.0	11.6	5.7	13,364
Java-Bali	67.1	2.9	10.0	12.0	6.3	1.7	28,768
Kalimantan	33.3	1.4	11.9	5.6	18.0	29.9	3,600
Sulawesi	42.6	0.1	22.6	9.1	15.1	10.5	4,241
NTB	65.6	7.1	0.0	14.3	11.1	1.9	857
NTT	56.3	0.1	10.7	23.0	8.6	1.4	768
East Timor	47.4	n.a.	25.8	14.4	1.6	0.8	149
Maluku	21.4	n.a.	18.9	2.6	26.2	30.9	149
Irian Jaya	62.6	n.a.	3.2	5.1	21.7	7.4	507
Indonesia	56.8	4.9	12.3	11.2	9.7	5.1	53,144

* at prevailing market prices

Source: Central Bureau of Statistics, 1993; Central Bureau of Statistics, 1994.

Table 6.10: Harvested Areas and Production of Major Food Crops, 1992

	Irrigated rice		Dryland rice		Maize	Cass-ava	Sweet pota-toes	Ground-nuts
	Area ('000 ha)	Prod. ('000 tonnes)	Area ('000 ha)	Prod. ('000 tonnes)	Area ('000 ha)	Prod. ('000 tonnes)	Prod. ('000 tonnes)	Prod. ('000 tonnes)
Sumatra	2,393	9,595	483	1,056	966	3,672	413	91
Java-Bali	5,317	25,114	395	1,000	5,630	10,121	11,390	504
Kalimantan	696	2,452	278	490	53	466	66	21
Sulawesi	1,033	4,310	60	70	824	985	156	77
NTB	245	1,108	15	15	37	77	54	25
NTT	80	249	64	64	376	840	91	7
East Timor	19	45	-	-	82	49	11	3
Maluku	1	2	2	2	17	247	59	3
Irian Jaya	9	25	4	4	4	31	179	2
Indonesia	9,799	42,413	1,304	2,826	7,995	16,515	2,171	739

Source: Widodo 1997

Table 6.10 gives details of harvested areas and production of major food crops of the five provinces in Eastern Indonesia as compared with other main regions. Nusa Tenggara Timur relies on both wet and dry rice production, the yield of dry rice being approximately one-third that of wet rice. The yield of wet rice in NTT is about 3 tonnes/ha compared to yields of greater than 4 tonnes/ha in Nusa Tenggara Barat, Sumatra, Java-Bali and Sulawesi. As well, there is substantial production of maize, cassava and sweet potatoes. Table 6.11 compares the Gross Regional Domestic Product (GRDP) for five provinces of Eastern Indonesia and the whole of Indonesia. The three provinces of Nusa Tenggara Timur, Nusa Tenggara Barat and Timor Timur are the poorest provinces of Indonesia in terms of GRDP (Gross Regional Domestic Product). The next lowest is in the province of Lampung in Sumatra with an index of GRDP per capita of 50, 43% higher than Nusa Tenggara Timur (BPS 1996). Mining, included in the GRDP estimates, accounts for the relatively high value of Irian Jaya. The index of GRDP per capita for NTT has fluctuated from 35 to 44 for the period 1983 to 1994 and reflects both the dominance of the agriculture sector with its slow

Table 6.11: The Gross Regional Domestic Product (GRDP) of Provinces of Eastern Indonesia, 1994.

Province	GRDP 1994 (Rp. billion)	GRDP per capita 1994 (Rp. '000)	Index of GRDP per capita (Indonesia =100)
Nusa Tenggara Barat	2,735	724	36
Nusa Tenggara Timur	2,276	703	35
Timor Timur	567	738	37
Maluku	2,613	1,377	69
Irian Jaya	5,103	2,886	144
Indonesia	354,641	2,005	100

Source: Intercensal Survey 1995 (BPS 1996)

the growth rate due to widespread drought in 1991 and 1992 (Hugo 1995a: 47; Tomich 1992: 6). There are significant intraprovincial variations in changes of average per

capital income in NTT. Over the period from 1983 to 1991 the most rapid growth in incomes was in the regencies of West Timor and the eastern two thirds of Flores. The increased levels of urbanisation in these areas, especially the growth of Kupang as the capital of the province, are associated with these changes (Hugo 1995a: 54). There are also differences between the regencies with respect to the contribution of different sectors to GRDP. The tertiary sector of the more urbanised regencies of Kupang and Ende contributed 72% and 53% respectively to their GRDP in 1991, compared to 48% for the whole of NTT (Hugo 1995a: 55).

6.5.3 The human environment

An assessment of the human environment takes into account human resource development with respect to education and health. These, along with other factors, are linked to the incidence of poverty and employment prospects (Mboi 1996: 175). The 1990 illiteracy rates in provinces of Eastern Indonesia are shown for males and

Table 6.12: Illiteracy Rate in the Urban and Rural Areas of Provinces in Eastern Indonesia, Population 10 Years and Over, by Sex, 1995

Province	Males		Females		Both sexes	
	Rural	Urban	Rural	Urban	Rural	Urban
Nusa Tenggara Barat	21.0	8.9	35.1	21.0	28.4	15.2
Nusa Tenggara Timur	18.5	3.6	23.8	6.5	21.3	5.0
Timor Timur	45.7	13.1	58.6	24.2	52.1	18.2
Maluku	4.0	1.6	9.8	3.5	6.9	2.6
Irian Jaya	30.4	1.9	44.3	4.8	37.2	3.3
Indonesia	10.6	3.1	21.9	9.0	16.3	6.1

Source: 1995 Intercensal Population Census (SUPAS)

females, 10 years and over in Table 6.12. The lowest rates are shown in Maluku and the highest for Timor Timur.

Illiteracy is higher in the rural areas of all provinces and concentrated in the older age groups (Nagib, Jones & Tirtosudarmo 1995). Educational attainment levels for those over 10 are given in Table 6.13 for the provinces in Eastern Indonesia. They indicate a general improvement over the 1980-1990 period. However, there are still large

numbers of students not pursuing a secondary education. Students in Eastern Indonesia (except Maluku) have lower levels of educational attainment compared to the whole of Indonesia. Female students on average are less well educated than males. The gap

Table 6.13: Educational Attainment (Age 10+) for NTT, Eastern Indonesia* and Indonesia 1995 (%)

Educational level	NTT				Eastern Indonesia *				Indonesia			
	Urban		Rural		Urban		Rural		Urban		Rural	
	M	F	M	F	M	F	M	F	M	F	M	F
Never attended school	2.1	5.5	14.1	19.8	3.8	10.1	18.4	27.8	2.9	8.7	9.5	20.2
Not completed primary	21.0	20.0	42.7	38.1	19.2	20.4	35.6	32.6	17.9	19.8	33.8	32.7
Primary school (SD)	27.1	29.4	29.2	32.4	24.0	26.0	27.9	27.8	27.4	29.9	36.3	33.2
Junior high school (SMP)	19.2	21.5	6.4	5.3	19.3	19.4	8.9	6.7	18.7	17.4	11.1	8.2
Senior high school (SMA)	22.9	20.0	6.7	4.0	25.9	20.8	8.0	4.7	26.8	20.1	8.3	5.1
Academy/University	7.8	3.6	1.0	0.3	7.8	3.5	1.1	0.3	6.3	4.1	1.1	0.6
Total (males and females)	381,861		2,225,936		1,742,220		7,042,235		56,277,157		96,237,807	

Source: Intercensal Population Survey (SUPAS) 1995

* Provinces of NTT, Nusa Tenggara Barat, Timor Timur, Maluku and Irian Jaya

M - Males; F - Females

between males and females, however, has narrowed over time. The larger difference in educational attainment between those living in rural areas and those in urban areas is of much greater concern (Nagib, Jones & Tirtosudarmo 1995). Nusa Tenggara Timur is regarded as one of the poorest provinces in Indonesia (Hayes et al. 1995). There is considerable variation about the measurement and incidence of poverty (Bidani & Ravallion 1993). Table 6.14 gives the indices of poverty for provinces in Eastern Indonesia according to the method of Bidani and Ravallion (1993) in which adjustments are calculated to take account of regional differences in the cost of living. According to this measure NTT has the highest incidence of poverty with almost half of the people in rural areas living in poverty. The next highest in poverty for rural areas are the provinces of West Kalimantan (38.7%) and Maluku (33.9%). NTT is also the second highest in poverty for urban areas (17.9%) after Nusa Tenggara Barat (21.6%).

The National Regional Development Study (1991) uses a social welfare indicator, incorporating education, health and housing, to rank the provinces. The five lowest provinces in this ranking were NTT, Nusa Tenggara Barat, Irian Jaya, Timor Timur and West Kalimantan. The above findings indicate the linkages between poverty and other factors. This is expressed by Mboi (1996: 175) who emphasises the connection between poverty and health:

One finds in poor settings insidious interaction among a set of negative forces - low incomes, low education, isolation from new ideas and information, poor living environments, inadequate or inappropriate nutrition, limited health care and so on.

Table 6.14: Head-Count Indices* of Poverty at the Total Poverty Line (%) for Provinces of Eastern Indonesia, 1990.

Province	Urban and Rural		Urban		Rural	
	Unad-justed	Adjusted	Unad-justed	Adjusted	Unad-justed	Adjusted
Nusa Tenggara Timur	49.3	45.6	12.2	17.9	53.9	49.1
Nusa Tenggara Barat	40.3	27.6	19.0	21.6	44.7	28.8
Maluku	20.5	29.0	2.0	7.3	24.6	33.9
Irian Jaya	2.9	12.6	2.9	12.6	n.a.	n.a.
North Sulawesi	18.4	18.8	5.7	5.2	22.0	22.7
Central Sulawesi	29.0	24.9	2.0	2.2	34.1	29.2
South Sulawesi	29.1	23.1	10.0	15.2	35.0	25.6
Southeast Sulawesi	40.7	28.8	13.4	16.3	46.0	31.3
Indonesia	22.3	19.6	8.4	10.7	28.4	23.6

Source: Bidani and Ravallion 1993: 53

* The head-count index is given by the percentage of the population who live in households with a consumption per capita less than the poverty line.

According to the World Bank (1994c) human resource development has been given a high priority in the Indonesian government's most recent development strategies. The social indicators of infant survival, life expectancy, literacy, school enrolments and access to health services have improved substantially.

Improved access of the poor to basic education and health services has been an important factor in the reduction of poverty. According to the findings of the World Bank (1994c) improvements can be made in better targeting public education and health expenditures. In addition, more attention should be given to secondary and higher education, particularly technical education in which training and skills development should receive priority. Tirtosudarmo (1996), on the other hand, while acknowledging the improvements in human resource development, states that the 'generally low level of human resources and the imbalances within and among provinces are major problems in Eastern Indonesia'.

Corner (1991) states that education, particularly primary education, is the most effective form of human resources development, both to increase the level of national development and to alleviate individual poverty. The role of health and nutrition interventions, according to Corner, 'function more as complementary investments in human capital for the very poor and as major consumption benefits that provide important incentives for the participation of the poor in the development process'. Corner emphasises that a human resources development strategy linking poverty alleviation must be integrated. The challenge is to determine those projects which will offer the best returns in poverty reduction.

An indication of the unemployment rates for the provinces in Eastern Indonesia and for the whole of Indonesia is shown in Table 6.15. Overall the underemployment rates remain high for both males and females in the provinces with a pronounced disadvantage for females (compare, for example, 33% males underemployed with 61% females in 1995 for NTT). The proportion of females looking for a job (open unemployment) has risen substantially in the period from 1990 to 1995.

In highlighting a mismatch between education and eventual employment, almost half of the workers with lower secondary school education (years 7-10) from the five provinces in Eastern Indonesia work in the agricultural sector (compared to 31% in all Indonesia) indicating the lack of non-agricultural employment opportunities. On the

other hand those with higher educational attainment often work in low skilled jobs (Nagib, Jones & Tirtosudarmo 1995). The employment by major sector is given in

Table 6.15: Unemployment rate 1985, 1990 and 1995 (%)

Sector	NTB	NTT	NSU	CSU	SSU	SESU	MAL	IRJ	TT	IND
Under-employment *										
Male 1980	45.4	49.3	38.4	41.8	45.3	39.9	42.5	40.1	n.a.	35.4
Male 1990	46.6	35.3	39.7	33.9	38.3	37.8	34.6	39.8	35.2	34.7
Male 1995	41.5	32.9	33.0	32.6	33.2	35.3	30.4	43.9	39.5	32.5
Female 1980	60.2	56.0	59.2	58.2	66.5	63.0	45.8	47.7	n.a.	52.2
Female 1990	61.9	61.9	57.4	60.0	50.0	59.9	56.4	56.3	51.8	51.9
Female 1995	62.2	61.1	56.0	60.7	55.8	69.6	64.2	58.7	69.0	51.5
Open **										
unemployment										
Male 1980	1.4	2.0	4.9	2.5	2.0	1.1	3.6	2.0	n.a.	2.5
Male 1990	1.8	0.8	2.6	1.9	3.2	2.5	2.9	3.3	1.4	2.8
Male 1995	4.8	1.8	5.5	4.3	6.3	3.8	5.8	3.6	3.6	5.6
Female 1980	4.0	4.2	5.9	4.8	6.3	3.3	4.5	1.4	n.a.	3.2
Female 1990	2.9	0.8	8.2	4.8	9.0	4.6	4.4	2.8	2.4	3.9
Female 1995	11.2	3.6	24.5	15.6	19.8	11.5	11.6	6.1	8.1	10.1

NTB - Nusa Tenggara Barat; NTT - Nusa Tenggara Timur; NSU - North Sulawesi; CSU - Central Sulawesi; SSU - South Sulawesi; SESU - Southeast Sulawesi; MAL - Maluku; IRJ - Irian Jaya; TT -East Timor; IND - Indonesia

* underemployment = working less than 35 hours;

** open employment = % of people looking for a job to those people who are economically active

n.a. - data not available

Source: BPS: Population Census, 1980, 1990 and SUPAS 1995

Table 6.16, and shows the dependency on the agricultural sector, particularly for Nusa Tenggara Timur, Irian Jaya and Timor Timur which has changed little over the 1985-1995 period. This contrasts with the whole of Indonesia which shows a greater emphasis on the services sector and a more rapid decline in the dominant agricultural sector. In regard to the high unemployment rates in NTT and other provinces in Eastern Indonesia, the quality and relevance of education are seen as important problems facing education in Eastern Indonesia. Other problems in education that need to be taken into account concern the cost (from the perspective of the government and the people) and accessibility (Nagib, Jones & Tirtosudarmo 1995).

Table 6.16: Employment by Major Sector 1985, 1990 and 1995 (%)

Sector	NTB	NTT	NSU	CSU	SSU	SESU	MAL	IRJ	TT	IND
1985										
Agricultural	54.2	77.0	55.8	68.5	60.0	70.0	n.a.	75.0	n.a.	56.3
Manufacturing	16.2	11.0	13.0	10.5	12.0	9.5	n.a.	12.0	n.a.	12.2
Services	29.6	12.0	31.2	21.0	28.0	20.5	n.a.	13.0	n.a.	31.5
1990										
Agricultural	54.8	80.5	62.5	67.5	65.8	68.0	62.9	72.8	78.5	50.0
Manufacturing	17.0	10.0	11.5	6.7	14.0	6.2	11.5	8.5	7.5	14.5
Services	28.2	10.5	26.0	25.8	20.2	25.8	25.6	18.7	14.0	35.5
1995										
Agricultural	61.8	78.2	53.3	56.9	57.7	61.8	64.0	74.7	75.2	43.9
Manufacturing	11.2	6.8	11.0	10.0	10.2	7.8	8.8	5.8	4.8	n.a.
Services	27.0	15.0	35.5	33.1	32.1	30.4	27.2	19.5	17.0	n.a.

NTB - Nusa Tenggara Barat; NTT - Nusa Tenggara Timur; NSU - North Sulawesi; CSU - Central Sulawesi; SSU - South Sulawesi; SESU - Southeast Sulawesi; MAL - Maluku; IRJ - Irian Jaya; TT -East Timor; IND - Indonesia

n.a. - data not available

Source: BPS: Population Census, 1980, 1990 and SUPAS 1995

6.6 Conclusion

Although most of Eastern Indonesia is underpopulated by comparison with Java and Bali it is relatively poorer with respect to natural resources, infrastructure and human resource development. Notwithstanding this, there is significant movement of people within Eastern Indonesia to both rural and urban areas. While there are estimates of interprovincial migration, there is limited understanding of the types and extent of intraprovincial movements. There is little known, for example, about the kind of outmigration that occurs from rural villages. This has implication for different ethnic groups living together and being able to contribute in a positive way. These types of movements need to be characterised more fully to appreciate their significance in terms of overall development for Eastern Indonesia.

The chapter has attempted to define aspects of the human environment and the economy which characterise the provinces of Eastern Indonesia. The economy is

dependent on agriculture and this has made it vulnerable to the limitations imposed by the climate, environment and low-level technology. A combination of factors, such as limited health care, low education and unemployment, and poor living environments, interact to cause the highest incidence of poverty for Nusa Tenggara Timur, compared to any other province in Indonesia.

There are data shortages, reflected by the inadequacies of the censuses, that take into account population movements and ethnicity at the village level. These need to be studied, along with agricultural and forestry activities, to assess the kinds of constraints and opportunities that exist for rural development. The present chapter has provided a useful background to explore these aspects in the following chapters.



Plate 1: Timorese people of Poto. Included in this group are the village head (centre and behind) and the village pastor (front and third from the left)



Plate 2: A group of mostly Rotinese women of Pariti



Plate 3: Tapping juice from the lontar palm (*Borassus sondaicus*)



Plate 4: Pineapples offer a potential source of income for farmers of Nunsanen village

CHAPTER SEVEN

RESEARCH METHODOLOGY

7.1 Introduction and hypotheses

The overall aim of the research study, as stated in chapter 1 is to explore the relationships between population movements, ethnicity and rural resource management by focusing on an area in West Timor. The lack of understanding at the village level of the effects of movements of people and of ethnic factors for village and rural development was given as the main reason for this study.

The hypotheses which follow are:

1. Policies for rural development in developing countries need to take account of the nature and consequences of population movements and ethnic factors.
2. The characteristics of population movements and ethnicity need to be defined at the village level to determine their importance in policy making for sustainable village-based development.

The aim of this chapter is to discuss the nature and suitability of data sources, and the choice and description of methods for obtaining the data. The chapter will introduce the research area and describe the reasons for selection of the villages surveyed. This will be followed by a description of the nature and sources of primary and secondary data along with details of the questionnaire and how the interviewing process was carried out.

7.2 Introduction to the research area

The research investigation was carried out in the villages of Oelbiteno, Nunsanen, Poto and Nuataus located in the sub-regency (*kecamatan*) of Fatuleu, and in the villages of Pariti and Oeteta located in the sub-regency of Sulamu (Figure 7.1). Both Sulamu, comprising five villages, and Fatuleu, comprising 11 villages, are part of the regency

(*kabupaten*) of Kupang and belonging to the province of Nusa Tenggara Timur (NTT). There are altogether 12 regencies making up the province of NTT, of which 4 make up West Timor, namely, Kupang, Timor Tengah Selatan (TTS), Timor Tengah Utara (TTU) and Belu (Figure 7.2).

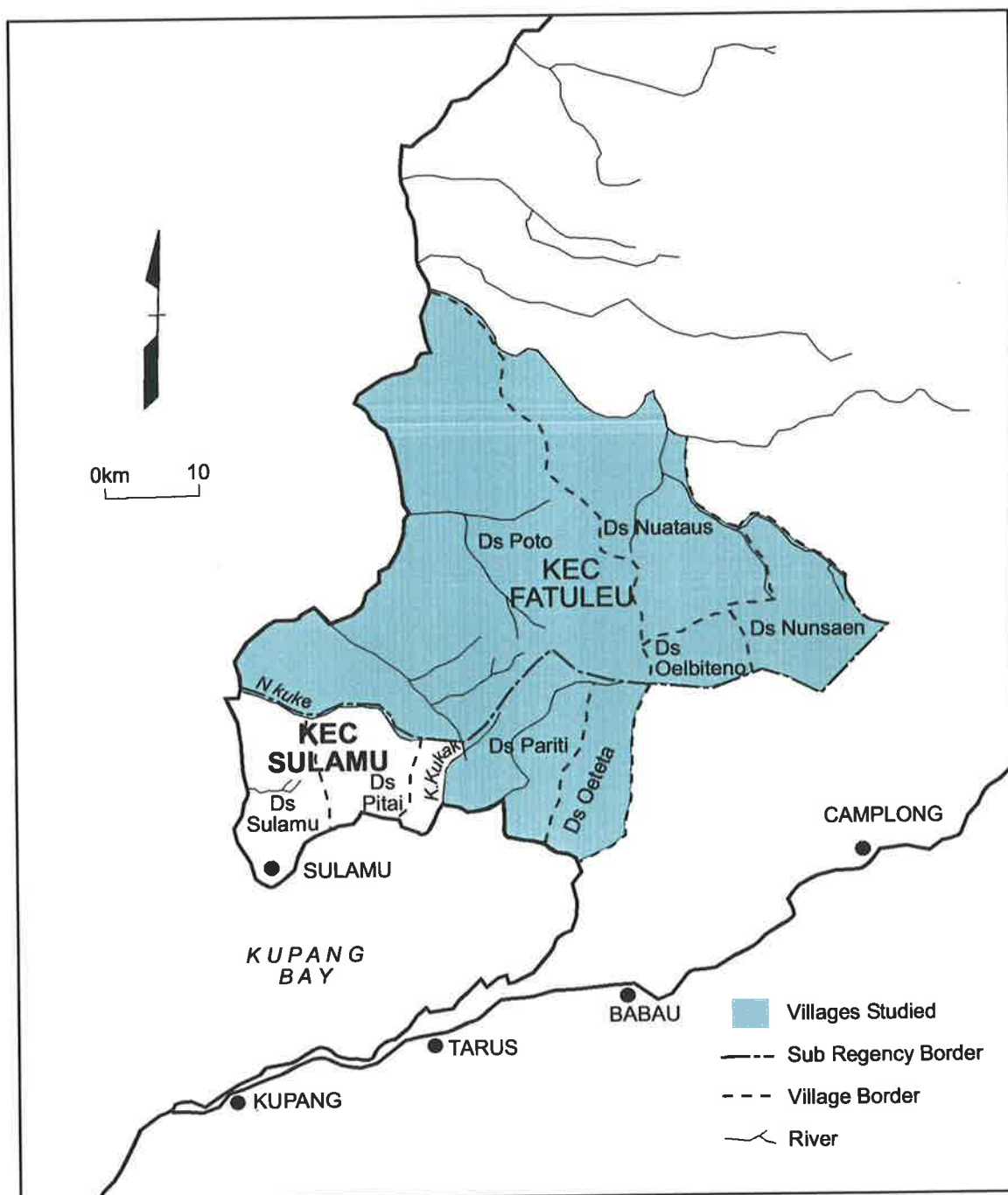


Figure 7.1; Map showing villages studied in the sub-regencies of Fatuleu and Sulamu, Kupang regency

Source: LREP, Land Resources Department, Kupang

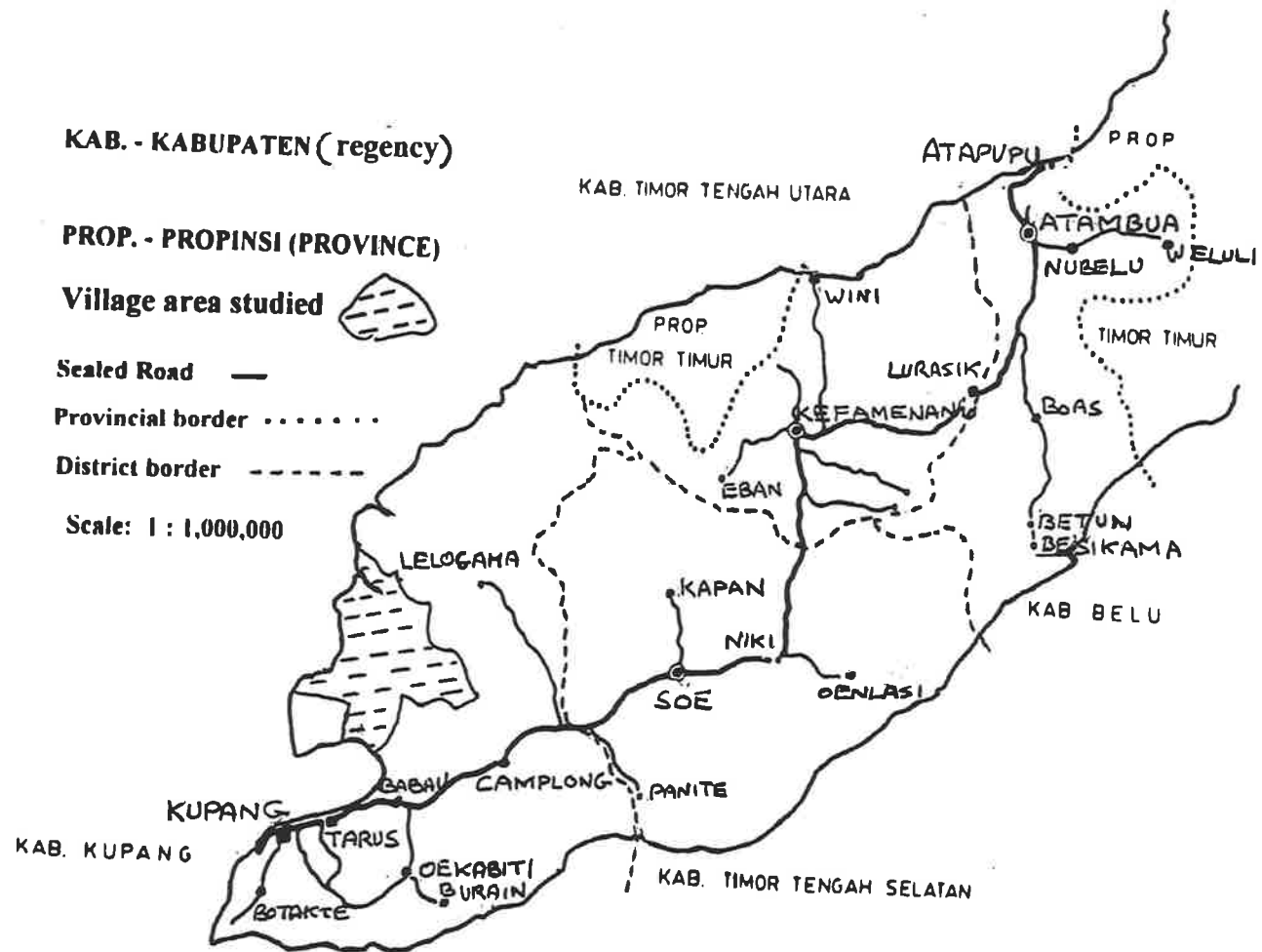


Figure 7.2: Map of West Timor showing main roads, regencies and village area studied

Source: Bappeda I, NTT

The mountain villages of Nunsauen and Oelbiteno are deeply dissected by ridges and intervening valleys. To the south the ranges fall off sharply to the moderate hill slopes and coastal plains of Pariti and Oeteta and on the western side, to the narrow coastal belt of Poto and Nuataus. The rivers for much of the year are wide, rocky-bedded dry watercourses which fill up in the wet monsoon season (December-April); they are liable to flood immediately after heavy rains. A cross-section of the area from Kupang Bay to Oelbiteno is shown in Figure 7.3. This was derived from the topographical map of Dutch Timor (Allied Geographical Section 1943).

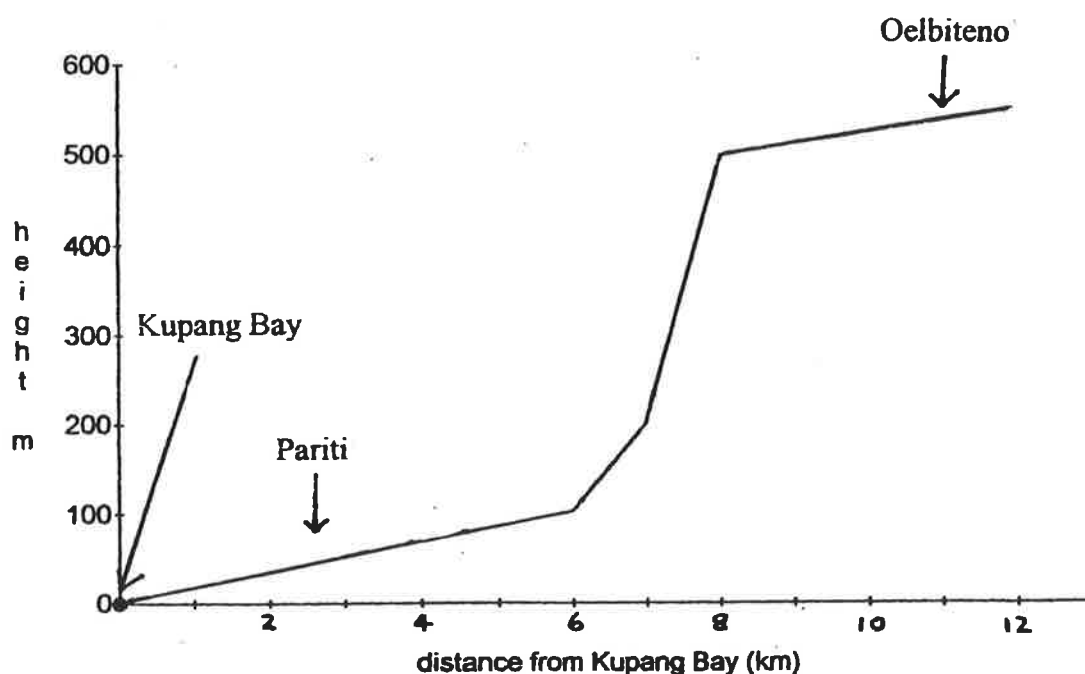


Figure 7.3: Cross-sectional representation of differences in height (metres) above sea level from Kupang Bay to Oelbiteno

Most of the original forests have been removed and have been replaced with shrubby species on the hillslope areas. Land here can either be allocated for cropping of dryland rice and maize under a shifting cultivation system, fallowed, grazed by cattle or set aside for forestry planting. Spring water is available for village use, though the spring

may be located at some distance from households. Only a small amount of water is available for irrigation of crops. The limestone soils are often shallow and easily erodible which is evident after burning of the land to clear all vegetation, prior to cropping before the monsoon rains.

On the relatively flatter areas of the coastal villages agricultural land is cropped most of the time, particularly for wet paddy. Irrigation is often used, although difficult to control because of the variability of rainfall. Other crops include maize, cassava, various types of beans and other vegetable crops. Bananas, coconuts and mangoes are also commonly grown.

Shrubby wooded areas with perennial grasses are available for cattle grazing on the low to medium slopes adjacent to the forestry annexed areas which in turn merge with the more precipitous limestone cliff faces of the mountainous areas, of which Nunsæn and Oelbiteno are a part.

The lontar and gewang palm are evident mostly on the coastal regions. Other trees include eucalyptus, acacia and bamboo species. The sandalwood tree, once abundant, is now sparsely distributed.

7.2.1 Selection of the study area

Preliminary investigations in West Timor suggested that there were opportunities to examine both movements and mixing of people with different ethnic backgrounds in rural areas. Rural to rural movement was emphasised in the choice of a suitable study area. The selection of the regency of Kupang was justified on the grounds that there had been a continuous slow movement and mixing of Rotinese with Timorese along the northern coastal areas of Kupang Bay, and into areas to the northeast of Sulamu, for more than a hundred years. In the latter half of the twentieth century movement of people into coastal villages has continued predominantly from Roti and other islands nearby such as Savu, Alor and Flores. In addition the government had persuaded people of mostly Timorese origin to move from the hillier regions of villages to the relatively

flat coastal areas in order to vacate the land for forestry activities. The local resettlement programmes started in the late 1960s and continued into the late 1980s. The latter was an unexpected intra-village movement and was worth examining since it represented one of a number of similar types of movement, fostered by the government on other islands. It also gave the researcher an opportunity to find out how resources were managed and how people coped under these circumstances.

7.2.2 Selection of villages for study

Initially two pairs of villages were chosen, two in the sub-regency of Sulamu, namely, Pariti and Oeteta, and two in the sub-regency of Fatuleu, namely, Poto and Nuataus. Pariti and Oeteta are neighbouring villages on the north coast of Kupang Bay and seemed an appropriate choice for study because of their mixtures of Rotinese and Timorese people, but, more importantly, they represented one village of predominantly Rotinese origin (Pariti) and one of mainly Timorese origin (Oeteta). The second pair of villages, namely, Poto and Nuataus, to the northeast of Sulamu, also with a coastal border and with mixtures of Rotinese and Timorese, were included because of the larger number of people moved off the hillside regions towards the coast. It would also be interesting to look at differences where the two groups are mixed. The resettlement of people allowed the replanting of various forestry species by the commercial arm of the Forestry Department, *Perum Perhutani*.

In addition to the above four villages a third pair of villages, namely Nunsauen and Oelbiteno, was chosen to represent traditional Timorese villages. These villages are situated in mountainous terrain, west of Camplong, in the regency of Fatuleu; they are relatively isolated and serviced by roads in poor condition. The selection of Nunsauen and Oelbiteno in this study would enable a comparison between traditional Timorese villages, in which there had been little influence by migrant or other ethnic groups, and the villages mentioned earlier. In this way these two villages could be termed a 'control set'.

The three pairs of villages chosen were adjacent to each other so as to provide an opportunity to measure variation within the village pair as well as between village pairs. Due to practical constraints, such as time and cost, the survey was limited to the selection of only six communities, to represent the ethnic mix.

7.3 Data sources

7.3.1 Primary data sources and the interviewing process

The main body of data was obtained by a structured questionnaire carried out on a representative sample of the households in each village. This was supported by semi-structured interviews with key village personnel after the completion of the household questionnaire for the village concerned. The data collected from these interviews related more to the village as a whole and included clarification and discussion of points arising from the household questionnaire. A third series of semi-structured interviews were also carried out with separate groups of men and women, again after the household questionnaire. A mixture of formal and semi-formal interviews were adopted to ensure reasonable reliability of the household data and information concerning family structure, ethnic background and movement activities etc, while offering the groups of village people an opportunity for ample discussion on more controversial topics such as the potential for village development or the role of women in agricultural and development activities.

The village head and secretary helped to organise the interviews. At the outset of each interviewing session an explanation of the aim of the research study, and how it would be carried out, was given by the interpreter and myself. The respondents were encouraged to participate freely and were thanked for their cooperation. About 95% of respondents were regarded as household heads and 6.4% of respondents were women (mostly widows). The household interviews were conducted by Samson Fungidae, an English Lecturer of Rotinese background from the Christian University of Kupang. The interviews were in Indonesian but where there was difficulty in communicating in Indonesian (with some Timorese only) the questions were translated into the *Dawan*

language (spoken by Timorese in the study area) by one of the village leaders. I was present at each of the interviews to ensure that the responses related to the questions and that there were few constraints to the interviewing process. Regular discussion with the interpreter and random checks on the responses helped to ensure that the questions were properly asked by the interviewer and understood by the respondent and an appropriate response given. Intermittent discussions were also carried out with a respondent or a group of respondents. This helped to put respondents at ease and often helped in clarification of responses and the raising of issues which concerned them. The initial contacts with the village leaders were also important in establishing a cooperative working environment for the survey to be carried out. The leaders were able to communicate the value of the survey to those villagers who had been selected for interviews. The cooperation of all those involved was the key strength of the survey. For our part we were able to provide transport when needed and we joined in various celebrations; on one occasion we assisted in transporting the bride and bridegroom to the church for their wedding ceremony. The main limitation experienced was having to work through an interpreter to communicate to the villagers. This was time consuming, especially in group discussions where conceptual matters were raised. Care was needed not to prolong the discussions to the point where attention waned; it was preferable sometimes to arrange an additional meeting at a convenient time. In the group discussions there was also a need to guard against the increased likelihood of misinterpretation. With improved fluency in Indonesian over time for the researcher this became less of a problem. Another problem concerned the accuracy of some responses, particularly those relating to the numbers of livestock owned by farmers. As far as possible checks were made to confirm their accuracy.

Participant observation was aided by the Rotinese interpreter, Samson Fungidae, and two Timorese women interpreters, Ernantje Hendrik and Chris Miningsih, Lecturers at the University of Nusa Cendana. The women were involved in group discussions with both men's and women's groups to explore gender issues as well as interview partners in mixed marriages.

7.3.2 Secondary data sources

To complement and supplement data obtained from primary sources interviews were held with government personnel at higher levels and data obtained from :

- the heads (*camat*) of the sub-regencies or *kecamatan*, at offices in Camplong (for *kecamatan* Fatuleu and Sulamu for *kecamatan* Sulamu)
- the Director of *Bangdes* (Village Development Office)
- *Bappeda 1 and 2* (the planning arms of the provincial and regency governments ie. levels 1 and 2)
- the Statistics Departments (regency and sub-regency offices)
- the Forestry Department, Kupang (regency level)
- *Perum Perhutani* - field stations (located close to villages of Pariti, Poto and Oelbiteno) and central provincial headquarters in Kupang
- Departments of Agriculture and Animal Husbandry, Kupang
- *Badan Koordinasi Kegiatan Kesejahteraan Social* or BKKKS (the provincial board for coordination of non governmental social development activity)

In addition, data were obtained from the following non-government organisations, tertiary institutions and Indonesian and Australian Projects :

- Plan International (Jaap Van Der Straaten, Director)
- Alpha Omega (Pdt.I.N.Frans, Director)
- World Wide Fund for Nature (Edi Suhardi, Project Manager)
- Yayasan Bina Mandiri (Donald E. Van Cooten, Senior Consultant)
- Duta Bina Bhuna Foundation (Ir.Priyadi Reksasiswaya, President Director)
- Agriculture Polytechnic (A.P.Y.Djogo, Director - concerning Agroforestry and activities of NGOs)
- *Pusat Studi Kependudukan*, Nusa Cendana University (Cornelius Serangmo, Head of Department)
- Eastern Islands Veterinary Services Project (Russ Locke, Project Manager)
- Indonesia Australia Universities Project (Graham Eagleton, Agronomist)

- NTT Watershed Management Planning Project (John Schottler, Team Leader and John Wood, Land Use Planning Adviser)

- Water Resources Development Service (Stephen Simpson, Agronomist)

The hierarchy of the Indonesian government administrative structure is shown in Figure 7.4.

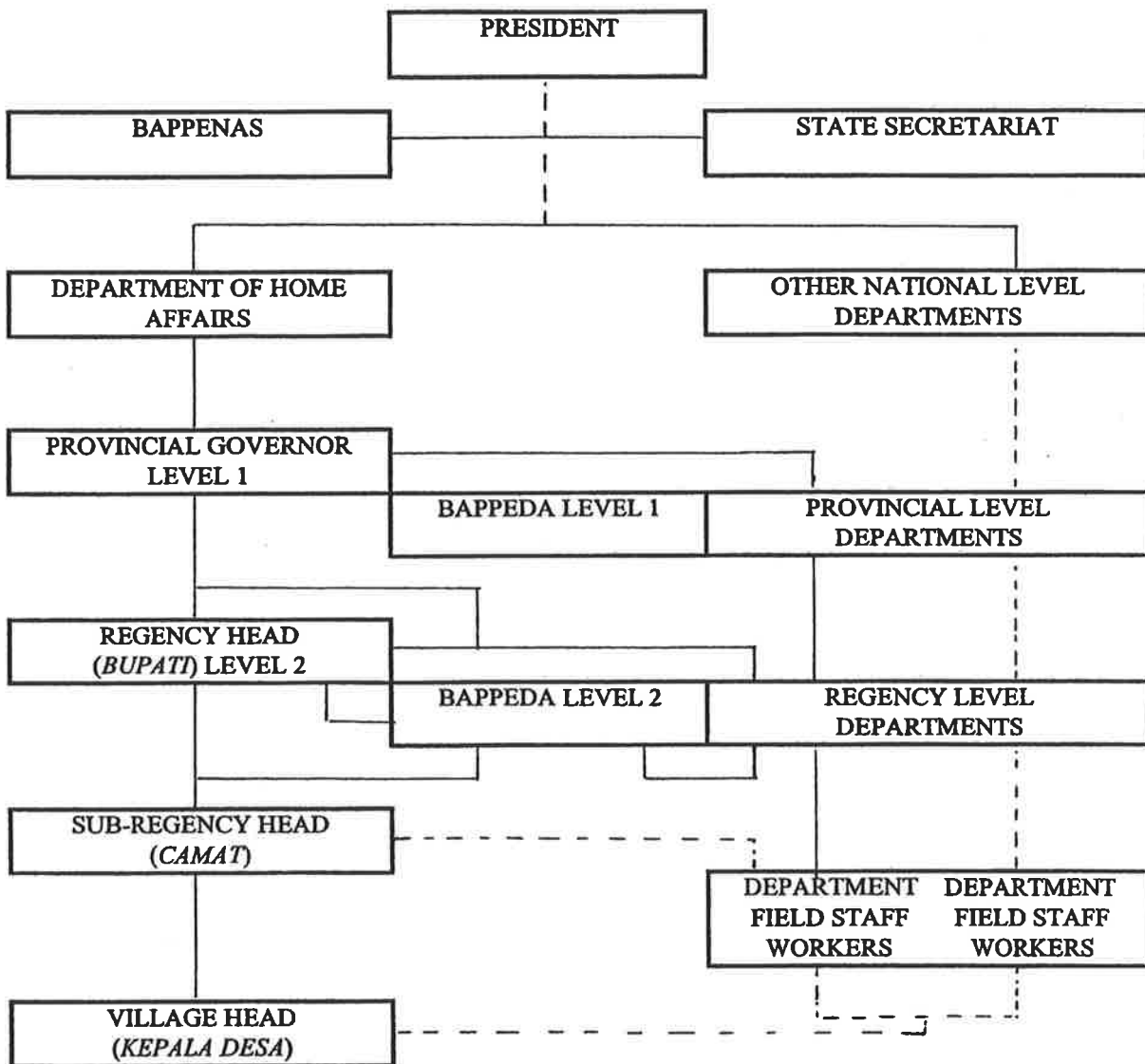


Figure 7.4: Indonesian government administrative structure

Source: MacAndrews, Fisher and Sibero 1982

BAPPEDA - *Badan Perencanaan Pembangunan Daerah* (The Provincial Level Planning Body)

BAPPENAS - *Badan Perencanaan Pembangunan Nasional* (The National Level Planning Body)

7.4 Design of questionnaires and survey

The main household questionnaire was prepared following visits to the villages and a pilot survey of 20 households undertaken to review the suitability of the questionnaire. The pilot survey revealed that the main problem was one of length and as a result the number of questions for each household was reduced so that the interview time per household took 30-40 minutes. The questionnaire was divided into two parts - an essential part of which every respondent answered and a second part in which only a segment (about a quarter) of the questions were answered by each respondent (with each new respondent answering a different segment of questions). In this way additional information of interest was gained while having the main questions answered by each respondent.

The details of the questionnaire are given in the Appendix B. The main sections of the household questionnaire included: respondent characteristics (including ethnic background and movement activities); household details (including mobility status); impact of migration; alternative livelihood activities; details on land and type of farming; problems associated with farming; membership and role in organisations. The other sections of the household questionnaire, offered on a segmental basis, were: description of cropping practices; interest in new crops; livestock management; value of trees and shrubs and their care; structure of homes; water source and distribution; and dietary information.

Group interviews, carried out separately with men and women, investigated :

- the role of men and women in household and community activities
- problems facing men and women
- the level of education reached by men and women
- types of training courses women would like, and also with respect to income-generating activities
- influence of mixed marriages, and mixed ethnic background, on activities of men and women

The village questionnaire, to leaders and key persons in the village, concentrated on:

- clarification and discussion of points arising from the household questionnaire
- the primary needs and problems of the village
- development potential
- access to resources
- land tenure
- importance of migration activities to village development
- impact of *Hutan Tanaman Industri* (HTI)
- village involvement in HTI
- resource management
- strength of village organisations, household participation in decision-making
- the interaction of the village with government and non-government organisations

After the pilot survey, and from a consideration of variation expected, the sample fraction of households chosen for the household questionnaire was 12% in each village. A stratified random sampling technique was adopted, taking account of *dusun* (village hamlet) and ethnic group. The names of all household heads, by *dusun*, of each village were listed by the secretary of the village. Approximately 12% of each *dusun* was selected with the aid of a series of random numbers. The ethnic status of each household head was identified and the samples checked for adequacy in numbers of Timorese and Rotinese, the two major ethnic groups.

As can be seen from Table 7.1 approximately 12% selection was achieved for all the villages except for Nuataus. The lower number sampled was due to the difficulties encountered as a result of a new *kepala desa* being appointed just prior to the survey of the village and also, the time lapse of 8 months since preliminary visits to the village and arrangements were made. The new appointed *kepala desa* was most helpful. However, some of the *dusun* and religious leaders believed that new authorisation should be given (the previous letter of authorisation from the *camat* having been lost). This was not possible as the newly appointed village leader might lose face. This illustrates the kind of problems one encounters if formalities are not followed carefully. Only 4.6% of households in Nuataus were interviewed and these results were included

in the tables for some comparison. The numbers of ethnic households sampled in each village are given in Table 7.2.

Table 7.1: Numbers and Percentages of Households Sampled for Each Village in the Survey.

Village:	Number	Percentage of total households	Response rate (%)
Oeteta	41	11.9	96
Pariti	54	11.4	95
Poto	67	12.1	100
Nuataus	25	4.6	38
Nunsaen	47	12.1	100
Oelbiteno	31	13.7	100

Table 7.2: Numbers of Ethnic Households Sampled in Each Village

	Villages:					
	Oeteta	Pariti	Poto	Nuataus	Nunsaen	Oelbiteno
Ethnic group: *						
Timorese	24	11	46	25	47	30
Rotinese	14	32	17			
Savunese	1	8	1			
Alorese		1	1			1
Florinese	1	1	1			
Chinese			1			
Bugis	1					
Other +		1				
Total	41	54	67	25	47	31

Source: field records

* The ethnic group of the household was taken as the ethnic status of the father of the household head.

+ from the island of Lombok

Preliminary visits to all six villages were made in September and October, 1994 (during the dry season). These were to establish contact with the *kepala desa* and other key persons. Meetings were arranged in each village to discuss the objectives of the research study and nature of the proposed household survey incorporating general discussions with groups of leaders, and with men and women of the village. Informal discussions were carried out on a number of different occasions for each village, as well as reconnaissance of the village area, before commencement of the household survey.

The survey commenced with the villages of Oelbiteno and Nunsæn since roads to these villages would be impassable in the wet season. It continued with the villages of Pariti and Oeteta while arrangements had been made to cover the villages of Nuataus and Poto after the wet season in May. This was a relatively quiet time for these villages, as well as allowing an opportunity to see the villages at a lush time of the year when the maize and rice crops were maturing. All villages were revisited in the dry season again, in June, 1995. During the height of the wet season, and at the completion of the survey at the village level in June 1995, opportunity was taken to make contact with government and non-government organisations which might influence village development. The findings of the village survey are presented and discussed in the following three chapters.



Plate 5: Hillslope areas showing mostly shrub species



Plate 6: Land set aside for forestry planting



Plate 7: Timorese elders meeting at the church in Oelbiteno to discuss the research study. Included in this group are the traditional head (in colourful costume), the village head (left of the traditional head), the interpreter (right of the traditional head), a sub-district officer (front and left) and the driver from Kupang (fourth from the left).



Plate 8: Group discussions with Timorese and Rotinese women in Poto

CHAPTER EIGHT

ETHNICITY AND POPULATION MOVEMENTS

8.1 Introduction

Chapters 4 and 5 reviewed the theory of ethnicity and population movements and its implications for rural development in Indonesia. The results from the survey (chapter 7) carried out in the four coastal villages and the two highland villages in Timor need to be examined in the light of this framework. The findings related to population movements and ethnicity are discussed in this chapter, and those related to the impact of resettlement of hill peoples and the HTI development programme in the following chapter. Together they assist an understanding of the complex relationship between population mobility, ethnicity and development processes and sustainable rural activities.

The aim of this chapter is to assess the relevance of ethnicity and population movements for the coastal and highland villages surveyed in this study. This will be carried out by analysis of the data collected from the survey and an examination of its significance from both a local and wider perspective, particularly with respect to Eastern Indonesia. The chapter will, first, examine differences, inequalities and relations between ethnic groups. Then the importance of farming enterprises, along with contributions from alternative occupations, will be analysed with respect to ethnicity. Finally, the type and extent of population movements and their implications for rural development will be assessed. These findings will provide a basis for analysis of the consequences and theoretical implications of population movements and ethnicity for sustainable development in chapter 10.

8.2 Ethnic factors

A number of factors are examined in relation to ethnicity and these include the types of livelihood, access to land resources, educational attainment and nutritional differences. While not an exhaustive list they have been selected to assist in the understanding of the nature of ethnic attributes and qualities, ethnic inequalities and ethnic relations, and where these might constrain or facilitate village development.

The unit of investigation was the household: one person of the household, usually the head, was questioned concerning details of ethnic background, age, sex, marital status, and mobility status of each household member. Approximately 95% of respondents interviewed were regarded as heads of households, namely, the oldest man of the nuclear family or the widow if she was the survivor, either alone or with children. For the most part, therefore, respondents can be regarded as household heads in the following findings.

8.2.1 Ethnic composition of villages

The ethnic composition of the six villages under study is shown in Tables 8.1 and 8.2 as the numbers of ethnic households by village and *dusun*. The remote highland villages of Nunsauen and Oelbiteno are 98-99% Timorese while the villages of Nuataus, Poto, Oeteta and Pariti have varying proportions of Rotinese, respectively, 6.4%, 18.5%, 37.4%, and 53.1%. Pariti is the only village where Rotinese families outnumber Timorese, by about 3.5 to 1. Its neighbouring village, Oeteta, by contrast has a ratio of Timorese to Rotinese of 1.4 to 1.

An examination of the ethnic make-up of the *dusuns* in the coastal villages of Pariti, Oeteta and Poto shows that there is considerable heterogeneity existing among *dusuns* in the same village (Chi-square values >20, $p < 0.01$). Historically, *dusuns* have evolved with groupings of people who are related or with some common tie. For administrative purposes village boundaries have been artificially imposed by the Indonesian government and even changed

in the course of time so that a village could comprise a number of *dusuns*, of differing ethnic composition and with a different social and cultural background.

TABLE 8.1: Numbers of Ethnic Households by Coastal Village and *Dusun*

Coastal Village	Ethnic Group +	Numbers of Households in each <i>Dusun</i>					Total	(%)
		<i>Dusun</i> Number:						
		1	2	3	4	5		
Pariti	Timorese	14	4	1	10	42	71	14.9
	Rotinese	36	40	58	56	62	252	53.1
	Savunese	5	25	8	29	13	80	16.8
	Florinese	8	3	1	5	3	20	4.2
	Other	17	10	12	6	7	52	10.9
	Total	80	82	80	106	127	475	
Oeteta	Timorese	12	89	78			179	51.9
	Rotinese	111	3	15			129	37.4
	Florinese	12		4			16	4.6
	Other	13	6	2			21	6.1
	Total	148	98	99			345	
Poto	Timorese	145	131	12	123		411	74.5
	Rotinese	1	33	64	4		102	18.5
	Other	4	19	5	11		39	7.0
	Total	150	183	81	138		552	
Nuataus	Timorese	163	72	93	87	86	501	91.4
	Rotinese	11		3	1	20	35	6.4
	Other	4	2	5	1		12	2.2
	Total	178	74	101	89	106	548	

+ The ethnic group of the household was taken as the ethnic status of the father of the household head.

Source: Village records

Of the other ethnic groups living in the coastal villages the Savunese are strongly represented in Pariti (16.8%) and to a lesser extent in Oeteta, Poto and Nuataus (1-2%). Florinese have also settled in small numbers in both Pariti and Oeteta (4.2% and 4.6%, respectively). In addition, other Indonesian islands represented are Alor, Sumba, Java, Sulawesi (Buginese). There are also a small number of families of Chinese or Malaysian descent, and from the Belu region of Timor.

TABLE 8.2: Numbers of Ethnic Households by Highland Village and *Dusun*

Highland Village	Ethnic Group	Numbers of Households in each <i>Dusun</i>						
		<i>Dusun</i> Number:					Total	(%)
		1	2	3	4	5		
Nunsaen	Timorese	93	81	69	60	82	385	99.0
	Other	3					3	1.0
	Total	96	81	69	60	82	388	
Oelbiteno	Timorese	90	54	85			229	98.3
	Other	2	1	1			4	1.7
	Total	92	55	86			233	

Source: Village records

The ethnic composition of the randomly selected sample of households (Table 7.1) is similar with respect to the proportions of different ethnic groups making up the total village populations (Tables 8.1 and 8.2). Data for the three pairs of villages are combined where appropriate and kept separate where variation between villages is recognised.

8.2.2 Intermarriage and ethnic identity

The extent of intermarriage among ethnic groups (important in all Indonesia) has implications for ethnic relations, the importance of ethnic identity and the transfer of

traditional customs and practices. An estimate of the degree of intermarriage was provided from a knowledge of the ethnic status of both the household head and spouse of each family in the coastal villages (Table 8.3). Overall, mixed marriages accounted for 8.3% of all marriages, this estimate having been derived from data provided by the secretaries of the villages for all marriages in each village. Data from the village secretary also showed that a higher percentage of Rotinese men (as household heads) intermarried (11.2%) compared to Timorese (3.9%). Although there were fewer mixed marriages for Timorese, 32% of these were to ethnic groups other than Rotinese, compared to 18% with Rotinese. Higher percentages of intermarriages occurred among Savunese, Florinese and Alorese household heads (22.6%, 37.2% and 54.2%); this would be expected among smaller groups. The Savunese men tended to take Rotinese brides whereas the Alorese and Florinese favoured Timorese ones.

TABLE 8.3: Numbers of Types of Marriages among Ethnic Groups in the Coastal Villages

Village	Ethnic Status of Household Head/Wife:						Other Ethnic Group	
	*T/T	T/R	T/X	R/R	R/T	R/X	SAME	MIXED
Pariti	58	10	3	241	5	6	108	15
Oeteta	174	4	1	120	8	1	28	9
Poto	379	8	8	79	21	3	20	15
Nuataus	408	6	1	3	12	0	2	10
TOTAL	1019	28	13	443	46	10	158	49

* T - Timorese; R - Rotinese; X - Other Ethnic Group

Source: Village records

The overall estimate of the degree of intermarriage (8.3%) derived from the whole population in coastal villages differs from that obtained from respondents in the sample,

namely, 6.1%. The latter estimate would be subject to sampling error and the former would depend on the reliability of inclusion of all mixed marriages by the secretary of the village.

While undertaking the field work I accepted an invitation to a mixed marriage, the bride being Timorese and the bridegroom Rotinese. The wedding reception took place over two nights, the first night at a venue close to Kupang, for mostly relatives and friends of the bride and the second night at the home of the parents of the bridegroom, located in Oeteta. Rotinese family members could attend the Timorese-organised reception and vice versa. The format of the receptions were similar with the guests seated on chairs for a lengthy session of speeches by honoured persons which included the pastor. This was followed by a sumptuous meal and mostly modern style dancing to recorded music. The wedding receptions were similar in culture and form to that of a western society.

Through intermarriage, ethnic identities change as a gradual process of assimilation occurs. While the loss of ethnic identity through intermarriage is not regarded as significant for the coastal villages, the positive benefits for village development are likely to come about through the formation of cross-cultural linkages and improved ethnic relations. Although the process of inter-ethnic assimilation, involving linguistic and other aspects, has occurred to some extent, the lack of intermarriage could imply that a pluralist community will persist.

When questioned about their ethnic identity, Rotinese and Timorese consider themselves as firstly Indonesian and then secondly as either Rotinese or Timorese. There are perhaps a number of reasons for this. All children are taught Indonesian in school; there is no formal teaching of the Rotinese or Timorese language. There are certain government rituals of the New Order which are performed throughout the year, such as singing of the national anthem in school, the parading of public servants and ceremonies commemorating Independence Day. Village government is centralised from Jakarta which continues to push for integration and unity aided by the media and other means of communication.

Ethnic identity is under threat though not without some resistance as described by Guinness (1994). Similar situations have been described in other developing countries. For example, Peralta (1989) interprets the gradual erosion of ethnic boundaries in the Philippines as partly due to the introduction of the educational system, changes in the person-land ratio and the 'politicisation' of the entire country. Kipp (1993) interprets the change of ethnic identity of the Karo in North Sumatra as being determined by Indonesia's policies on ethnicity, religion and class, as well as the shifting power relations within Karo society.

For the villages in this study, also, a further resistance to subsuming the local ethnic identity under a pervasive national one could come about from changes that have occurred in the strong ties that existed between households and the land and farming systems. These are discussed in chapter 9 and 10 with respect to the loss of land incurred as a result of resettlement of highland villagers and HTI activities. The loss of land assumes a greater significance than just losing a physical resource; it represents a part of ethnic identity itself. It would explain the resistance of families to move out of the villages where land is owned and has been passed on as a heritage.

While people gave an outward expression to their Indonesian identity it was difficult to determine to what extent this has been internalised. The possibility also exists that people believed that the correct thing to say was that they regarded themselves firstly as Indonesian. Anecdotal evidence suggests, on the other hand, that Timorese people in West Timor consider themselves as Timorese and having solidarity with the Timorese in East Timor (S. Fungidae, pers. comm.). Further study would need to be carried out to clarify this aspect.

8.2.3 Family size and age distribution

The mean family size is given for Timorese, Rotinese and other ethnic groups (grouped together) living in the six villages (Table 8.4). Overall, nuclear families were of similar

size, except for the Timorese families living in Pariti and Oeteta. In these coastal villages there was a significant difference in mean family size between Timorese and Rotinese. The increase in size to the extended family was less than 20% with no significant differences observed between the Timorese and Rotinese.

Table 8.4: Mean Family Size by Village and Ethnic Group

Villages	Ethnic Group	Mean Family Size	SE
Coastal:			
Oeteta and Pariti	Timorese	3.50*	0.36
	Rotinese	5.78	0.34
	Other	5.60	0.38
Poto and Nuataus	Timorese	5.19	0.25
	Rotinese	5.56	0.47
Highland:			
Nunsaen and Oelbiteno	Timorese	5.34	0.27

* $P < 0.001$ SE - Standard Error

The age distribution of males and females for Timorese and Rotinese are given for the three pairs of villages by constructing population pyramids (Figures 8.1a, 8.1b and 8.1c). These are compared with the age-sex structure of the rural and urban areas of Kupang Regency (Figure 8.1d). Urban areas show a greater proportion of younger people, compared to rural areas of the regency. Although migration trends of young people to Kupang and other main towns have been noted (Hugo 1995a; Mboi 1996) this field study did not provide evidence of a significant outmigration from the villages (see section 8.4.2). Differences are observed concerning both the younger and older aged groups for the different pyramids. In the villages of Oeteta and Pariti, the percentage of Timorese people aged greater than forty (10.2%) is significantly less ($p < 0.01$) than Rotinese (21.2%) and

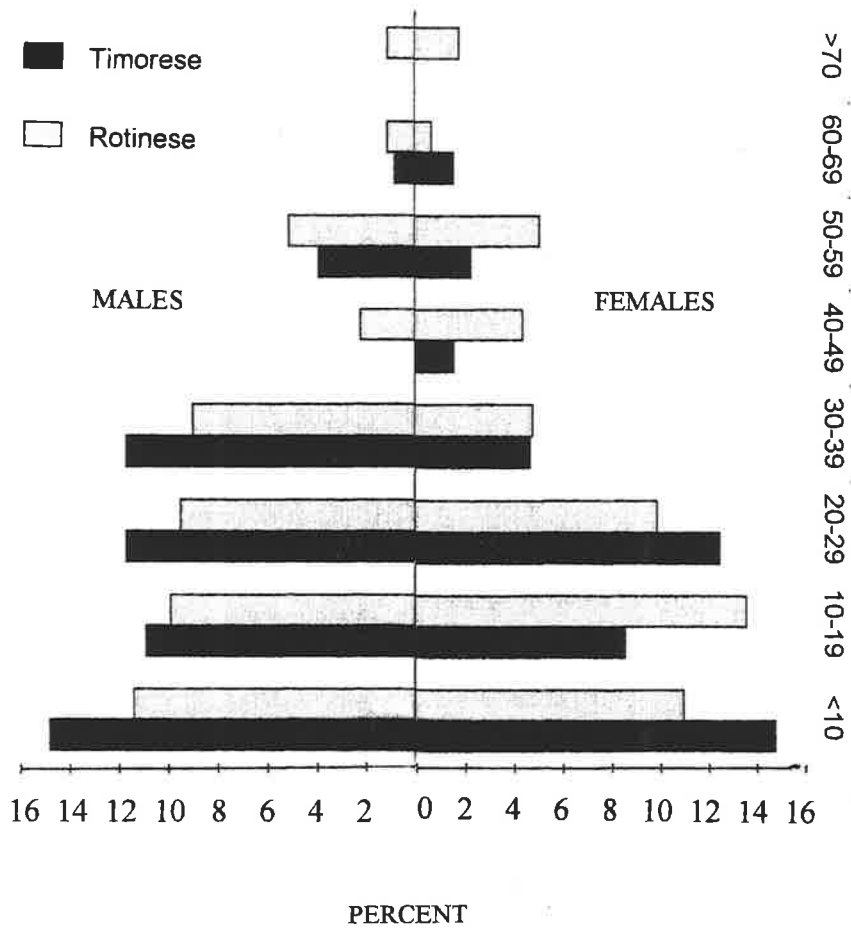


Figure 8.1a: Age sex structure of Oeteta and Pariti

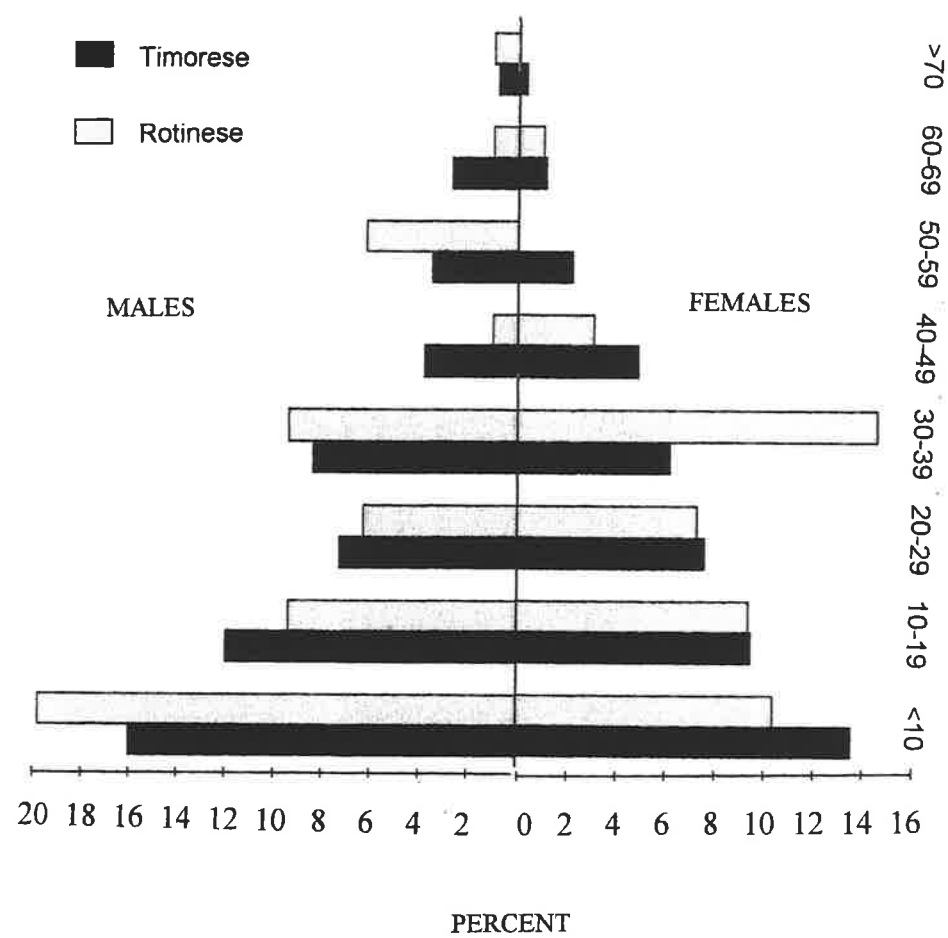


Figure 8.1b: Age sex structure of Poto and Nuataus

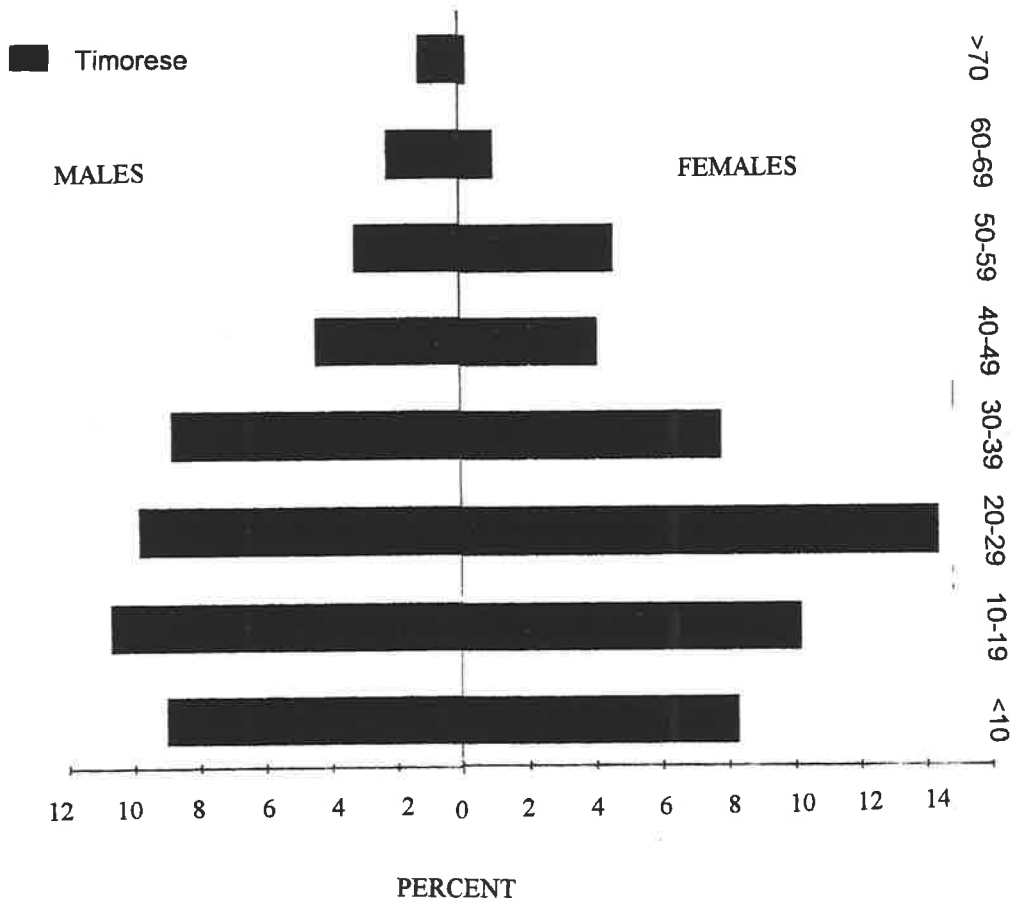


Figure 8.1c: Age sex structure of Nunsauen and Oelbiteno

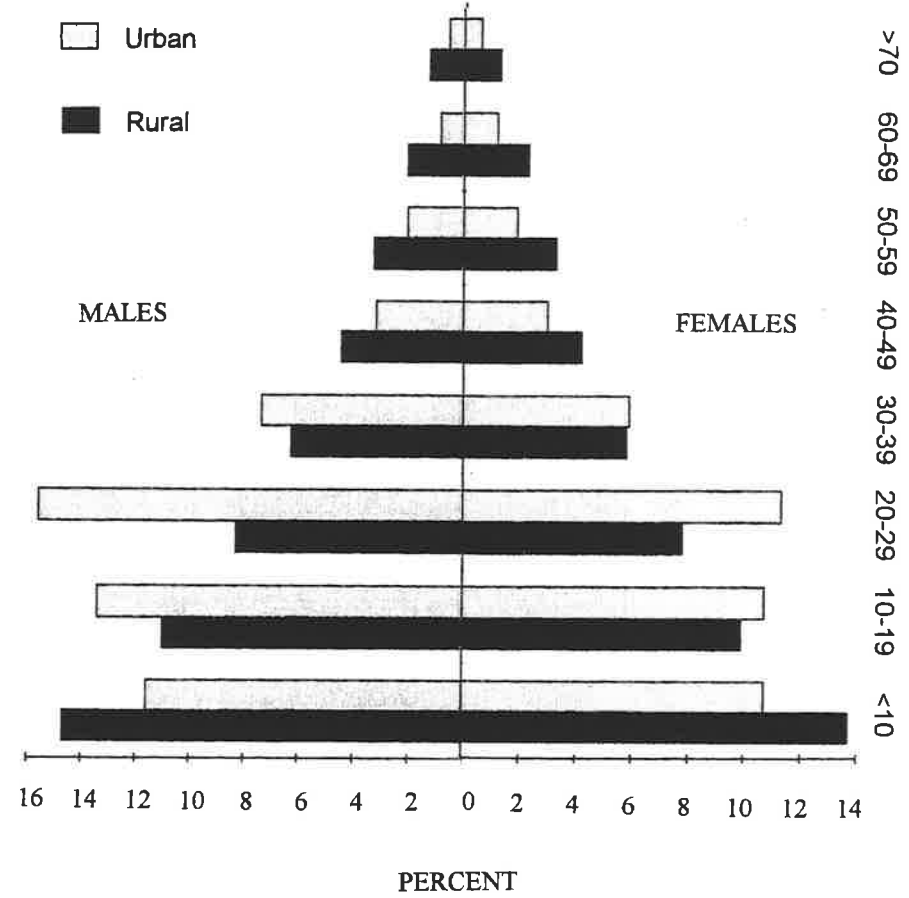


Figure 8.1d: Age sex structure of Kupang Regency (urban and rural areas)

the Kupang rural regency as a whole (22.5%). This could be associated with the difference in mean family size mentioned previously. In the highland villages of Nunsaen and Oelbiteno there is also a significantly smaller proportion ($p < 0.01$) of both males (9.0%) and females (8.3%) in the lowest aged-group category (<10 years) compared to the regency average for rural areas (14.7% for males and 13.5% for females). These matters were investigated further through discussions with village leaders and with health officials at the people's health centre (*Puskemas*). There was no indication of any mortality rate difference in this age bracket or any other; in general, no clear explanation could be given. Generally, there is a lack of data relating to types of mortality and life expectancy for different rural areas of Eastern Indonesia (Ruharjo & Ruslan 1995). These matters, including the influence of family planning to reduce numbers of children, deserve further investigation.

8.2.4 Education levels attained

The level of education attained by each household respondent (usually the household head) was obtained and the results were pooled as shown in Table 8.5. Overall 73% of respondents had received only some form of primary education while 12% had received no formal education and 15% had reached a higher level. There were no significant differences between villages or ethnic groups. An examination of education level attained for the respondents according to age, revealed little improvement with the younger age groups. Since 1994 the adoption of government policies require children to complete three years of secondary education. However, the question still remains as to how poor parents can afford it. Primary school facilities are available in all villages whereas secondary education facilities are only available in Pariti, Poto and Nunsaen. This requires that students walk or be transported to their neighbouring village. The problem of accessibility to secondary education is more difficult for Oelbiteno (compared to Oeteta and Nuataus) as the road linking Oelbiteno to Nunsaen is often impassable in the wet season. The availability of transport is generally poor for all villages. Outmigration of family members

on a temporary basis for educational purposes is discussed later in the chapter (section 8.4.2).

Table 8.5: Number of Household Heads by Ethnic Group and Educational Attainment

Village	Ethnic Group	Educational Attainment:						Total
		Primary	Primary	Secondary	Secondary	Tertiary/ Further	None	
		(1-3 yr)	(>3 yr)	(1-3 yr)	(>3 yr)			
Coastal:								
Oeteta	Timorese	8	15	1	1	2	1	28
and	Rotinese	13	20	3	1	1		38
Pariti	Other	1	2	1		1		5
Total (%)		31.0	52.1	7.0	2.8	5.6	1.4	99.9
Poto and Nuataus								
Poto	Timorese	17	32	3	3	3	13	71
and	Rotinese	3	7		1	1	4	16
Nuataus	Other		1	1	1			3
Total (%)		22.2	44.4	4.4	5.5	4.4	18.9	99.8
Highland: Nunsæn and Oelbiteno								
Highland:	Timorese	16	38	2	2	7	10	75
Nunsæn	Other			1		1		2
and								
Oelbiteno								
Total (%)		20.8	49.3	3.9	2.6	10.4	13.0	100
Kupang * - rural (%)								
Kupang *	Males	42.9	28.1	5.4	5.5	0.8	17.3	100
- rural (%)	Females	38.1	28.8	3.9	2.8	0.2	26.2	100
	Total	37.8	29.9	5.7	5.4	0.7	20.5	100
Kupang * - urban (%)								
Kupang *	Males	20.1	25.1	22.3	23.3	6.5	2.7	100
- urban (%)	Females	23.0	28.9	21.2	18.2	2.2	6.5	100
	Total	15.5	25.7	20.1	28.9	6.2	3.5	99.9

* Source: Statistics Office, Kupang (Results of the 1990 Population Census)

Although the levels of education attained were not determined for other male and female members of the households these are included for the rural and urban areas of the regency

of Kupang in the table to give some comparison with respondents in this survey. The overall trend for the rural areas of Kupang regency show a similar pattern to those of the coastal and highland villages with the majority of family members (>70%) not pursuing an education beyond the primary stage. The main disadvantage, therefore, comes from living in rural areas while there is a relatively smaller disadvantage for females compared to males in both urban and rural areas. For the province of NTT, as a whole, a similar educational gap persists between the urban and rural areas; the cost of education, and the poorer availability of educational facilities and transport are the main reasons for this difference (Nagib, Jones & Tirtosudarmo 1995). May (1998) concludes from her study of education in Nusa Tenggara Barat that the success of the nine years' compulsory education policy in Eastern Indonesia will involve an increase in spending on SLTP (Junior Secondary) education, especially on the poorer children who currently cannot afford to attend school.

While the educational attainment for the majority of household heads, regardless of ethnic group, is limited to the primary level, Rotinese seem to read and write more ably, and speak Indonesian more fluently than the Timorese (Table 8.6). For example, practically all Rotinese speak Indonesian fluently, compared to 84% of Timorese. The reason for this could be due to the fact that Rotinese respond positively to educational initiatives provided by the home environment or through business and trading contacts. The Rotinese readily adopted a Christian education provided by the Dutch missionaries. In addition, the Rotinese, because of their smaller numbers, could gain a comparative advantage from living in a society where another group is the majority. The Timorese living in the villages of Pariti and Oeteta have higher scores for these skills than the Timorese living in the other villages. Because of the remoteness of the highland villages and poor road access to the main highway the provision of educational and health facilities is affected. Timorese who live near the coast and are linked by reasonable road services to the main urban areas are more likely to have an educational advantage. In addition, an improved learning environment for the Timorese could be explained by their living in close association with other ethnic groups.

Table 8.6: Ability of Household Heads to Read, Write and Speak Indonesian (village by ethnic group)

		Number of Household Heads (%) and Level of Ability: (Scores: 1 - little/none; 2 - some; 3 - well)									No. of Household Heads
Villages	Ethnic Group	Reading (%)			Writing (%)			Speaking (%)			
		1	2	3	1	2	3	1	2	3	
Coastal:											
Oeteta and Pariti	Timorese	18.7		81.3	18.7		81.3			100	32
	Rotinese	7.5	2.5	90.0	10.0		90.0			100	40
	Other					10.0	90.0			100	10
Poto and Nuataus	Timorese	45.1	2.8	52.1	45.1	2.8	52.1	9.8	11.3	78.9	71
	Rotinese	29.4	5.9	64.7	29.4	5.9	64.7			100	17
	Other			100			100			100	4
Highland: Nunsæn and Oelbiteno	Timorese	40.3	3.9	55.8	39.0	5.2	55.8	26.0	3.9	70.1	77
	Other			100			100				1

Source: Field records

Through mixed marriages and living in the same environment there are opportunities for learning and communicating in another language. In the coastal villages of Oeteta, Pariti, Poto and Nuataus 37.5% of Rotinese can communicate in the Timorese language, *Dawan*, compared to 16% of Timorese speaking and understanding Rotinese (Table 8.7). Timorese who have the ability to speak Rotinese also speak Indonesian. In the highland villages there are still a large number of Timorese household heads (28%) who cannot communicate in Indonesian (compared to 5.4% of Timorese living in the coastal villages). All Rotinese household heads can communicate in Indonesian.

From the results of group interviews with men and women (other than household heads) of mixed Timorese and Rotinese marriages (20 in each group for the four types of marriages) in Poto, Oeteta and Pariti, 80% of both Timorese men and women could communicate in Rotinese while 90% of Rotinese women and only 55% of men could communicate in Timorese. The majority of the men and women in these groups had not proceeded beyond a primary level of education.

Table 8.7: Number of Household Heads (%) with Ability to Speak Languages

Villages	Ethnic Group	Percentage of Household Heads Speaking:					Total no.	%
		Indonesian and Rotinese	Indonesian Timorese and Rotinese	Indonesian and other native language	Indonesian and Timorese	Timorese		
Coastal:								
Oeteta and Pariti	Timorese		48.6		51.4		35	36.8
	Rotinese	65.2	34.8				46	48.4
	Other	14.3		85.7			14	14.7
Poto and Nuataus								
	Timorese				91.5	8.5	71	77.2
	Rotinese	64.7	35.3				17	18.5
	Other			75.0	25.0		4	4.3
Highland:								
Nunsaen and Oelbiteno	Timorese			1.3	70.5	28.2	77	100

Source: Field records

Education is generally perceived as an important factor in human resource development and employment (Corner 1991). A lower educational attainment for those in rural areas would mean greater difficulty in competing for off-farm employment positions, especially for Eastern Indonesia where there is a lack of non-agricultural employment opportunities. This has implications for the type of work taken up and may lead, for example, to greater involvement in the informal sector (Firdausy 1995). It could affect the rate of outmigration

from rural areas due to the lack of educational attainment and poor employment prospects. However, other factors would need to be taken into consideration such as the increasing pressure on available farming land and the difficulties of existing at a subsistence level. These will be discussed in chapter 10.

Policies would need to address the means of improving access to educational facilities for all children. As poverty is a key issue this needs to be coupled with the provision of essential services in health and transport and exploring ways to encourage the pursuit of viable livelihoods.

8.2.5 Nutritional differences

An examination of the frequency with which different food items are consumed can help to give an indication of the nutritional adequacy of the diet. As well, any differences arising between ethnic groups could be attributed to traditional preferences and practices, or to the availability of resources and expertise in production. Table 8.8 indicates that rice or maize are the staple daily foods, with rice being preferred to maize in the coastal villages of Pariti and Oeteta and maize, by necessity, substituting for rice more frequently in the highland villages of Nunsauen and Oelbiteno.

Timorese living in Pariti and Oeteta have an opportunity to include fish as a staple and do so, but less frequently than do the Rotinese. Of the other protein sources beef is preferred to chicken, goat and pig meats. Again, these meats are consumed less frequently by the Timorese. Vegetables, such as cassava, sweet potatoes, pumpkins and onions also form part of the diet, together with various types of beans, such as rice and mung beans, and leafy green vegetables. Beans and/or green vegetables are eaten daily when available and there are alternative protein sources derived from wildlife such as birds, lizards and insects, which are occasionally eaten. It is not known, though, whether these items in total are sufficient to rectify any nutritional imbalances as well as providing enough food in times of scarcity. Crop diversification has been one of the strategies adopted by the

Timorese to cope with the low productivity of the agricultural system (Suryanata et al. 1986). In very poor years families, though, have suffered from severe food deprivation. There is a need for detailed studies, therefore, to examine the nutritional adequacy of diets over time for different regions in Eastern Indonesia.

Table 8.8: Frequency of Family Eating Food Items (Villages: Pariti, Oeteta, Nunsæn and Oelbiteno)

Ethnic Group	Food Item	Frequency (%):				No. of persons
		Daily (1-3 times a day)	Once to twice every two weeks	Once to twice monthly	Rarely/never	
Timorese	Rice **	100 *				54
Rotinese	or	100 *				45
Other	maize	100 *				11
Timorese	Beef	1.9 #	7.4	33.3	57.4	54
Rotinese			11.6	53.5	34.9	43
Other			20.0	30.0	50.0	10
Timorese +	Fish	26.9 #	34.6	5.8	32.7	52
Rotinese +		73.3 #	24.4		2.2	45
Other +		33.3 #	55.6		11.1	9
Timorese	Chicken			26.9	73.1	52
Rotinese			6.7	51.1	42.2	45
Timorese	Goat meat		2.0	4.0	94.0	50
Rotinese					24.4	75.6
Timorese	Pig meat			7.7	92.3	52
Rotinese				17.8	82.2	45

* 2-3 times a day # once a day

** maize substitutes for rice in the highland villages

+ for Pariti and Oeteta

While some of the nutritional differences could be attributed to location, such as the substitution of maize for rice in the highland villages, there were other differences that

could be attributed to poverty status and tradition. The apparently higher protein diet of Rotinese, compared to Timorese, is in accord with Ormeling (1957) who found that the Rotinese consumed more carbohydrates and proteins than the Timorese as well as having a more balanced diet. To what extent this apparent lack observed here in the Timorese diet is compensated by other protein sources is not known but it merits further investigation in view of the possible interaction with other factors which could affect livelihood and well-being.

Malnutrition is higher in rural than in urban areas of Indonesia (Elfindri & Dasvarma 1996) and a 10% reduction in the proportion of the population under the poverty line would be accompanied by a fall of around 4-6% in the number of children suffering from protein and/or energy malnutrition. Elfindri and Dasvarma suggest that poverty reduction as a development goal can make a large contribution to alleviating malnutrition. Jodjana and Eblen (1997) report from two Indonesian villages in NTT on the prevalence of malnutrition, malaria and intestinal worms among 101 children aged 6-17 months. Malnutrition was the most widespread problem and was caused by food shortages and unsatisfactory traditional feeding practices rather than by disease or other environmental risk factors. Bangkona (1990) found that there were no significant differences between highland and lowland rural areas of South Sulawesi in the dietary quality of the diets of women and their families. There appear to be some worthwhile opportunities for improving the protein quality of the diet for those villagers unable to afford meat. As an example, the production of *tempe*, similar to soybean cake, from *lamtoro* (*Leucaena leucocephala*) seed has improved the local diet in Sumba and Flores, NTT (Terhorst & Bornhorst 1990). Cassava leaves also provide protein.

Rainfall is the main factor limiting production in NTT and cropping systems have evolved to reduce crop failure due to drought or a sudden end to the wet season (Pellokila, Field & Momuat 1991). McWilliam (1985) has shown that from a survey of villages in the regencies of Timor Tengah Utara and Timor Tengah Selatan total crop failure may be as frequent as one year in five. With continued population growth of about 2% per year in

NTT there is a demand for increased food production. According to Pellokila, Field and Momuat, there are opportunities to develop and integrate food crops into the system, such as the introduction of earlier maturing varieties of maize, the growing of cassava in areas where wet season drought is common, or tree legume intercropping to assist in supplying nitrogen to the annual crops and to reduce soil erosion. Improvements in the 'low input' systems are especially important for upland cropping and could be encouraged to improve both increased food production and food quality to meet both market demand and the basic needs of households.

8.2.6 Livelihood

The main farming enterprises of cropping and livestock are important for sustaining livelihoods. These are described with respect to villages and, where relevant, to ethnic groups. The importance of these enterprises, along with contributions from alternative occupations, are also examined with respect to ethnicity.

8.2.6.1 Cropping enterprises

In the coastal villages irrigated rice is commonly grown along with maize, cassava and sweet potatoes. Vegetables include pumpkins, cucumbers, tomatoes and various kinds of beans. Some farmers have also tried peanuts, cashews, soybean, garlic and eggplant. Food produced is mainly for subsistence though there appear to be opportunities to capitalise on the greater availability of underground water in Oeteta and Pariti for more intensive rice production. At this stage only a few farmers attempt to grow two rice crops a year. Some income is derived from the selling of vegetables, cassava and fruit (also fish and livestock). While rice is not usually sold, there is a barter system in Pariti and Oeteta whereby rice might be exchanged for products like cookies, fish or soap. Garlic, although grown more widely in the upland areas, is not as productive in the coastal areas due to the cool temperature requirements of the crop not being satisfied.

Rice is grown on semi-permanent small bunded areas which are flood irrigated without much control on timing and amount of water applied due to the variable wet season rains. The rice crops can be subject to a number of rice pests, the intensity of attack varying from crop to crop. Some rice paddies suffer a decline in production over a number of years and can be abandoned because of this or merely due to lack of labour available for land preparation prior to planting.

In the highland villages maize, dryland rice and cassava are grown at a subsistence level mainly to provide the staple ingredients of the Timorese diet. Vegetables, such as pumpkins, sweet potatoes and various kinds of beans, eg, kidney beans, are grown as supplementary food crops. Advantage is taken of *mamar* land which has access to water resources for the production of vegetables and fruit. In Oelbiteno there are five of these *mamar* areas and there are moves to provide each household with a portion of this land.

Burning of scrub and weeds prior to planting is still carried out but less frequently than before as a result of more confined land use. In Poto, Nunsan and Oelbiteno, after growing dryland rice for one or two years the farmers will move to another place. Farmers, working together, will cut the trees and shrubs, then leave them to dry for about a week before burning. After burning they will rest the land 2-3 days before planting rice. There is no use of organic or inorganic fertilisers. This is in contrast to farmers in Pariti and Oeteta who have given up the practice of cut and burn and have adopted the use of inorganic fertilisers, such as urea and triple superphosphate, if they can afford them. Practices involving organic materials for fertilisation are minimal.

Fallowing is carried out to restore soil fertility. It is practised for shorter periods, 4-7 years, in contrast to more than 10 years' fallow a generation ago. The land is prepared by hand with simple mattock-like tools and the seeds which have been saved from the previous season are used for planting. More than one kind of seed is usually planted in the same hole made by a dibble stick. Weeding is done by hand or hoe; no fertiliser or chemicals of any kind are applied. Harvesting is also carried out by hand. Groups of

farmers prepare and harvest the land together by mutual cooperation (*gotong royong*). No payment is involved and the owner will only provide food.

The main problems expressed by farmers in farming their land include reduced soil fertility, poor accessibility and availability of water particularly during the dry season. In Poto and Oelbiteno people claim they cannot use their garden effectively because of lack of water. Other constraints include the lack of availability of seeds for planting, the lack of suitable agricultural tools and equipment, and transport difficulties, especially in the wet season when the unsealed roads become gutted or washed away. Neighbouring livestock can also be a problem and farmers in Pariti and Oeteta avoid planting vegetables and crops in their gardens.

8.2.6.2 Livestock enterprises

More Timorese households (83%) own cattle than Rotinese households (45%) while similar percentages of Timorese and Rotinese households own small numbers of pigs, goats and chickens. Cattle and pigs are regarded highly for traditional feasts and cattle and have an important part to play as a form of insurance and, for the Timorese, can be made as a payment in marriage to the bride's family.

Cattle raising is the most important livestock activity, but now with reduced access to grazing on rangeland there is increased emphasis on the cut-and-carry system. Fodder for cattle comprises King grass (*Pennisetum purpureum*), crop residues, and leaves and pods from trees, such as *gamal* (*Gliricidia sepium*), *turi/gala-gala* (*Sesbania grandiflora*), *kapok* (*Ceiba petandra*), *lamtoro* (*Leucaena leucocephala*) and *kabesak* (*Acacia leucophloea*). Cattle act as store of reserve of capital in times of need and can be sold from 2 years onwards at the markets in Camplong or Kupang. They provide some social standing for the owner and can assist in cultivating the land. A few farmers own large numbers of cattle. Because of the problem of farmers underestimating, or deliberately understating, the numbers of cattle they own an assessment was made of cattle ownership

distribution with information derived from group interviews where the identification of the owner was avoided. Generally farmers were eager to give information on how many farmers own more than a certain number of cattle. The skewed nature of the distribution of cattle ownership is indicated in Table 8.9.

The estimates of cattle numbers for each village are based on sub-regency records. These are also likely to be underestimated; for example, a farmer as part of the sample selected in the survey for a *dusun* in Nuataus admitted to owning 2,000 cattle whereas the official estimate for the total number of cattle for Nuataus was 1974. The importance of wealth attached to the numbers of livestock owned is evident in Poto and Nuataus where those farmers owning more than 20 cattle are among the small proportion of households (about 10%) having well-constructed homes (brick or cement walls, cement or tiled-floors and corrugated iron roofs) as well as being privileged to own a radio and/or cassette recorder and in some cases a motorcycle. Despite the skewed nature of cattle ownership there are benefits for those involved as cattle herders as well as a traditional system of wealth distribution through the sharing of livestock products and income generated from livestock sold (though the extent of this was not estimated in this study).

Table 8.9: Cattle Ownership and Distribution

Villages	Total number of cattle	% of households owning cattle (No.)	Estimate indicating cattle ownership distribution
Coastal:			
Oeteta	4650	51 (176)	17% of owners own > 54%
Pariti	3750	19 (90)	42% of owners own > 22%
Poto	1989	17 (94)	14% of owners own >37%
Nuataus	1874	56 (307)	<10% of owners own > 90%
Highland:			
Oelbiteno	1134	72 (240)	14% of owners own >64%
Nunsaen	2674	83 (302)	9% of owners own >56%

Source: sub-regency and field records

The rangeland grazing system accounts for the majority of cattle owned by the traditional elite; in the stall-fed cut-and-carry system families usually tend 2-4 head. In Pariti and Oeteta the cattle tend to be more confined, with fodder cut and carried to the animals. Many of the households of Oelbiteno and Nunsauen are also involved in growing fodder (*Pennisetum purpureum*) for livestock. With Poto and Nuataus there are larger areas of rangeland available for grazing. In these villages, in particular, this bimodal type of cattle raising system contrasts with the Amarasi model (Metzner 1983) which has achieved a much more equitable distribution of cattle ownership with a shift from the rangeland system to the smaller stall-fed system. In Pariti cattle distribution appears to be more equitable than in Oeteta and may be attributed to the emphasis traditionally given to cattle-raising by the Timorese. Also, noted from Table 8.9 is the significant difference given to cattle-raising between the villages of Nuataus and Poto. It is not known to what extent access to rangeland grazing areas crosses village boundaries though it is apparent this occurs from discussions with village leaders. Using sub-regency estimates of numbers of cattle and land area data, the stocking rate of rangeland and village forest areas falls in the range of 0.5-5 head of cattle per hectare. These estimates only provide a rough guide because of the shortcomings of obtaining reliable data for livestock numbers as well as the area of rangeland accessed; they are similar in the lower range to stocking rates in the Noelmina watershed of West Timor (see figure 6.3) and high by comparison with the recommended carrying capacity of 3 hectares per head of cattle for dryland pastures (NTTWMPP c1990). More important, with respect to the environment, is an understanding of the grazing system to determine the effect of seasonal grazing pressure on plant cover (including shrub species), density and regeneration. Hillslopes are particularly susceptible to overgrazing following the dry season and the erosive effects of intense and variable rainstorms. Some of these appeared to be overgrazed in May and June towards the end of the wet season; in lower lying areas there was at least a temporary abundance of grass-dominant vegetation during the 5-month wet season of 1994-95.

8.2.6.3 Trees

Trees are mostly valuable as a source of fodder and fencing material with some additional value in terms of fruit and firewood. Living fences are deliberately planted to protect the house garden. The *gewang* and *lontar* palms are evident in some areas but unless food is scarce are not normally regarded as an important part of the diet, in terms of palm juice and its derived products. As a building material the palm ribs have an important role.

There is some emphasis placed on planting of new trees, particularly, bananas, mangoes, coconut and teak (*Tectona grandis*). The teak wood is sold for manufacturing purposes. Fodder trees include *gala-gala* (*Sesbania grandiflora*), *kapok* (*Ceiba petandra*), *kabesak* (*Acacia leucophloea*), *lamtoro* (*Leucaena leucocephala*) and *gamal* (*Gliricidia sepium*). Fence material includes living fences - *lamtoro*, *turi*, *kabesak* and *kedondong* (*Lanea grandis*) while dead material from the *gewang* (*Corypha elata*) palm is also favoured.

8.2.6.4 Importance of farming and other village occupations

Respondents were asked to rank the importance of their occupations, if more than one, which contributed to their income and livelihood. The responses show that 95% of both Timorese and Rotinese households perceived farming, including livestock raising, to be of primary importance as the source of their livelihood. Any temporary contributions to livelihood derived from the HTI forestry development programme were ignored in this ranking. In an attempt to gain some understanding of the contributions of additional occupations to livelihood, farmers were asked to give an estimate of the percentage of their income deriving from these other sources. Additional occupations, apart from agricultural activities associated with cropping and the raising of pigs, chickens and goats, included fishing, carpentry, building, forestry, cattle raising, shopkeeping and trading. Forestry activities included those with the HTI programme and cattle raising involved herders and larger cattle owners. There are also a small number of government officials, teachers and pastors. The contribution of these occupations to income and livelihood are given in Table

8.10. In the coastal villages there is evidence that some Timorese have engaged in fishing activities, traditionally a domain of the Rotinese; likewise Rotinese are engaged in cattle raising and forestry. At the time of the survey, income derived from the forestry development programme of the HTI made a significant contribution to livelihood. Once the HTI plantations have been established, however, it is expected that little further income will be realised unless some provision is made for village cropping and horticulture activities within the HTI areas.

Overall 55% of families (63% Timorese, 44% Rotinese and 47% of other ethnic groups) are involved in income-generating activities apart from farming. The numbers of families involved in alternative income-generating activities differed markedly between the three sets of villages with Pariti and Oeteta showing the least dependence (46%), compared to Poto and Nuataus (62%) and Nunsanen and Oelbiteno (73%). Nunsanen and Oelbiteno villagers are dependent on forestry while those in the coastal villages are more diversified in their income-generation activities. The variability of the climate and the subsistence nature of farming gives relevance for diversification in both the coastal and highland villages. The whole village community benefits from both diversification and wealth sharing. Extra work, bringing in a small amount of income, is also available in all villages as a carpenter (*tukang kayu*), stone mason (*tukang batu*) and an artisan working with iron (*tukang besi*). In Oeteta and Pariti the carpenter is usually Rotinese, the stonemason Timorese and the iron worker Savunese.

Cattle raising is regarded here as an alternative occupation to other agricultural activities such as cropping, horticulture and other livestock enterprises. It is an important source of income for herders and the larger cattle owners. Income derived from the HTI forestry programme is considered temporary in nature. Other occupations include trading (shop), and professional - teacher, pastor and administrative official.

Table 8.10: The Contribution of Alternative Occupations to Family Incomes

Villages	Ethnic Group	Activity	Number of Households				Total no.
			% Contribution of Alternative Occupations to Income/Livelihood:				
			<25%	26-50%	51-75%	76-100%	
Coastal: Oeteta and Pariti	Timorese	Farming	2	6	4	23	35
	Rotinese		5		9	32	46
	Other		1	1	1	11	14
	Timorese	Fishing			2	1	3
	Rotinese		4	5		3	12
	Other		2	1			3
	Timorese	Building	3	1			4
	Rotinese		2	2			4
	Other		1				1
	Timorese	Labour			1		1
	Rotinese			1		1	2
	Other					1	1
	Timorese	Cattle * raising		3	2	1	6
	Rotinese						
	Other						
Timorese	Other †	2		1		3	
Rotinese		1	1		1	3	
Other				1		1	
Poto and Nuataus	Timorese	Farming	11	11	22	27	71
	Rotinese		3		6	8	17
	Other				3	1	4
	Rotinese	Fishing	1	2			3
	Timorese	Forestry		6	1	7	14
	Rotinese			1		1	2
	Timorese	Building		1			1
	Rotinese					1	1
	Other			1			1
	Timorese	Labour		8			8
	Rotinese			1			1
	Timorese	Cattle raising		7	10	4	21
	Rotinese			2		1	3
	Rotinese	Other		2			2
	Highland: Nunsaen and Oelbiteno	Timorese	Farming	7	13	25	26
Other						1	1
Timorese		Forestry	12	25	13	5	55
Other			1				1
Timorese		Other				2	2

Source: Field records

* cattle raising is regarded as an important separate activity from other 'farming' activities

† other occupations include trading and professional, eg. teacher, pastor and government official

Note: For the highland villages of Oelbiteno and Nunsaen the activity of farming includes cattle raising

The extent of contributions coming from alternative occupations to farming vary widely, as perceived by the household heads of different ethnic groups. Forestry activities associated with the HTI and cattle raising are important income earners for the Timorese with 61% of those involved in these activities earning more than 50% of their family income from them; one may compare 24% of Rotinese, who earn more than 50% of their family income from fishing. The fishers are small boat fishermen and not involved in new methods of exploitation such as the use of cyanide or fishing platforms (*bagan*) for catching fish in large numbers. Male members of family households are mainly involved in income-generating activities. Female members assist in drying fish, tending animals, shop activities and selling farm produce in the marketplace.

Weaving, carried out by most Timorese women in highland villages, and to a lesser extent by Timorese and Rotinese women in the coastal villages, occasionally provides a contribution to family income of less than 25%.

8.2.6.5 Role of gender

An understanding of the role of gender in agricultural/rural development is important for adoption and implementation of appropriate policies. To gain some understanding of the types of activities carried out by men, women and children, eight groups of men and women, representing Poto, Oeteta, Pariti and Oelbiteno were interviewed separately concerning the perception of their role in various activities. Table 8.11 shows that for the most part the perceptions of men and women coincide. As is usual in Indonesia the actual harvesting of rice is carried out mostly by women whereas the overseeing of the harvest operations, carried out by men, could account for the difference in perception here. Perceptions also differ for weeding, gardening and social activities. In other parts of Indonesia weeding and gardening are traditionally regarded as mainly a woman's activity. On further questioning the consensus of opinion is that these activities are shared in the villages studied here. Many other tasks are shared indicating the flexibility of working arrangements. For some activities, though, there is little sharing. For example, in doing

their household activities women from all villages, except Oeteta, do not agree to let their husbands cook and wash as a sign of respect for their husbands. Women also say that household work is not for men.

Table 8.11: Role of Men, Women and Children in the Community (Ranked according to the perception of men and women)

Activity	Ranking:					
	(a) Women's Perception			(b) Men's Perception		
	Men	Women	Children	Men	Women	Children
Agricultural labour	1	2	3	1	2	3
Paid labour	1	2	3	1	2	3
Trade	3	1	2	3	1	2
Livestock production	1	2	3	1	2	3
Home industry	3	1	2	2	1	3
Drying fish	2	1	3	2	1	3
Carrying wood	2	1	3	1	1	2
Carrying water	3	1	2	2	1	3
Collecting fodder	1	2	2	1	2	2
Tending animals	1	3	2	1	3	2
Community work:						
Building houses	1	2	3	1	2	3
Harvesting rice	3	1	2	1	1	2
Wedding party	1	1	2	1	2	3
Childcare	3	1	2	3	1	2
Cooking	3	1	2	3	1	3
Gardening	1	1	2	1	1	3
Washing clothes etc	3	1	2	3	1	2
Cleaning home	3	1	2	3	1	2
Weeding	2	1	3	1	2	3
Political activities	1	2	3	1	2	3
Social activities	2	1	3	1	2	3
Religious activities	1	1	2	1	2	3

Source: Field records

With respect to education most men and women appear to have received only a basic primary education with a few men having the advantage of continuing into high school (or upper secondary school). The groups of women interviewed expressed a desire for the provision of training courses in weaving, farming and trading. The only previous training program has involved weaving but there appears to be ample scope for more of these to be run. Timorese women have shown a readiness to adopt the Rotinese motif into their designs.

There is some adoption of other traditional customs or practices. For example, Rotinese usually tap the lontar palm for juice but after living together with Rotinese for some time Timorese have adopted this practice. The Timorese tap the gewang palm for juice as well.

Overall, there are opportunities for an approach, involving participatory development, to take gender aspects into consideration. Connell (1997) has explored ways in which to adopt such an approach which is sensitive to class and gender for rural development in Irian Jaya.

8.2.7 Access to land

A common feature in developing countries is the disproportionate access to land as a resource. For example, 32% of households owned 74% of farm area greater than 2 ha in 1983 for the Indonesian province of NTT (BPS 1987). There is an unequal distribution of land for the coastal and highland villages in this study.

A comparison of access to irrigated and dryland areas was made here for the main ethnic groups, Timorese and Rotinese, to determine if there were differences apart from an unequal distribution already mentioned. The category 'dryland' refers to a combination of house garden areas and more distant areas, both of which are planted to a variety of food crops. Information on these areas was collected separately and later combined.

Rotinese have greater access to irrigated land in the coastal villages than do the Timorese as shown in Table 8.12 and Figure 8.2. For example, 22.9% of Timorese in Pariti and Oeteta had access to irrigated land greater than 0.5 hectare compared to 48.9% of Rotinese. For Pariti and Oeteta the Timorese tended, also, to have smaller dryland areas. A majority of Timorese and Rotinese farmers (75.6%) in Pariti and Oeteta have access to irrigated land, greater than 1/8 hectare and less than 5 hectare, compared to Timorese and Rotinese farmers in Poto and Nuataus (29.9%). Also, 83% of farmers in Pariti and Oeteta had greater access to land of more than 1/4 hectare (the area considered by most village leaders as a minimum for maintaining a livelihood at subsistence level) compared to Poto and Nuataus (58%) and Nunsauen and Oelbiteno (46%).

Table 8.12: Number of Household Heads with Access to Land (irrigated and dryland) by Village and Ethnic Group

Village	Ethnic Group	Type of Land	Access to area of land (ha)						Total No. of Households	
			None	<1/8	>1/8 - 1/4	>1/4 - 1/2	>1/2 - 1	>1 - 2		>2
Coastal:										
Oeteta	Timorese	Irrigated	8		11	8	5	2	1	35
	Rotinese		12		2	10	15	5	3	47
Pariti	Timorese	Dryland	2	4	17	10	2			35
	Rotinese			10	18	12	5	2		47
	Timorese	Total		2	3	11	10	6	3	35
	Rotinese			3	6	4	10	21	3	47
Poto and Nuataus	Timorese	Irrigated	52		13	1	2	2		70
	Rotinese		8	1	3	1	4			17
	Timorese	Dryland	3	11	35	8	4	9		70
	Rotinese				5	5	2	2	3	17
	Timorese	Total	1	10	24	18	5	11	1	70
	Rotinese				2	4	4	4	3	17
Highland:										
Nunsauen and Oelbiteno	Timorese	Dryland (Total)		31	11	14	15	6		77

Source: Field records

Irrespective of the differences in access to land of Timorese compared to Rotinese there is a skewed distribution of both irrigated and total land (dryland and irrigated) for each of these ethnic groups. This is shown more clearly in Figures 8.2 and 8.3 for Oetata and Pariti which gives comparisons between and within ethnic groups in land access. According to the village leaders the differential access to land has arisen from factors linked to ethnic status, wealth accumulation, privileged position and historical factors, particularly relating to the time of settlement. Access to land is determined by precedence in residence, clan membership and marriage. These entitlements favour village leaders who, it was noted, had access to larger areas of land. With respect to historical factors the coastal areas comprising Oetata and Pariti were settled over 100 years ago by Rotinese (Table 8.13). Rice fields were located close to a reliable source of underground water. In particular, the Rotinese of *dusun* 1 in Oetata were able to take advantage of the availability of this water to acquire larger parcels of land for irrigated rice production (Figure 8.4). Resettlement of Timorese on to the coastal plains was encouraged by the government in the mid-1970s to form *dusuns* 2 and 3 of Oetata. Although lacking the availability of water compared to *dusun* 1 these *dusuns* were partly compensated by having work available as labourers for the larger landowners. Similarly, *dusuns* 2 and 3 of Pariti were located closer to the river and this is likely to have been one of the main factors influencing households having access to larger areas of irrigated land.

For the coastal villages of Poto and Nuataus there are significant differences in the distribution of dry and irrigated land with respect to *dusun* number (Figures 8.4 and 8.5). The households in *dusun* 2 and 3 in Nuataus have greater access to dryland areas than *dusun* 1; and households in *dusuns* 2 and 3 in Poto have greater access to irrigated areas than *dusuns* 1 and 4. These differences between *dusuns* are more marked than those within the *dusun* and likely reflect the separate movements of people, most being involved in the resettlement programme from the hills. The households in *dusun* 3 of Poto were already settled in the coastal areas and had a greater access to both dryland and irrigated areas than the other *dusuns*. Their cropping, livestock and fishing enterprises give them a comparative advantage. Households in *dusun* 4 of Poto, by contrast, came from the hills in

1982 and have much less access to land (65% of households have access to less than 0.25 ha of dryland) and were mostly dependent on working for the HTI to generate income, at least at the time of the survey. A few have taken up alternative occupations such as raising pigs and extracting oil from the sandalwood tree.

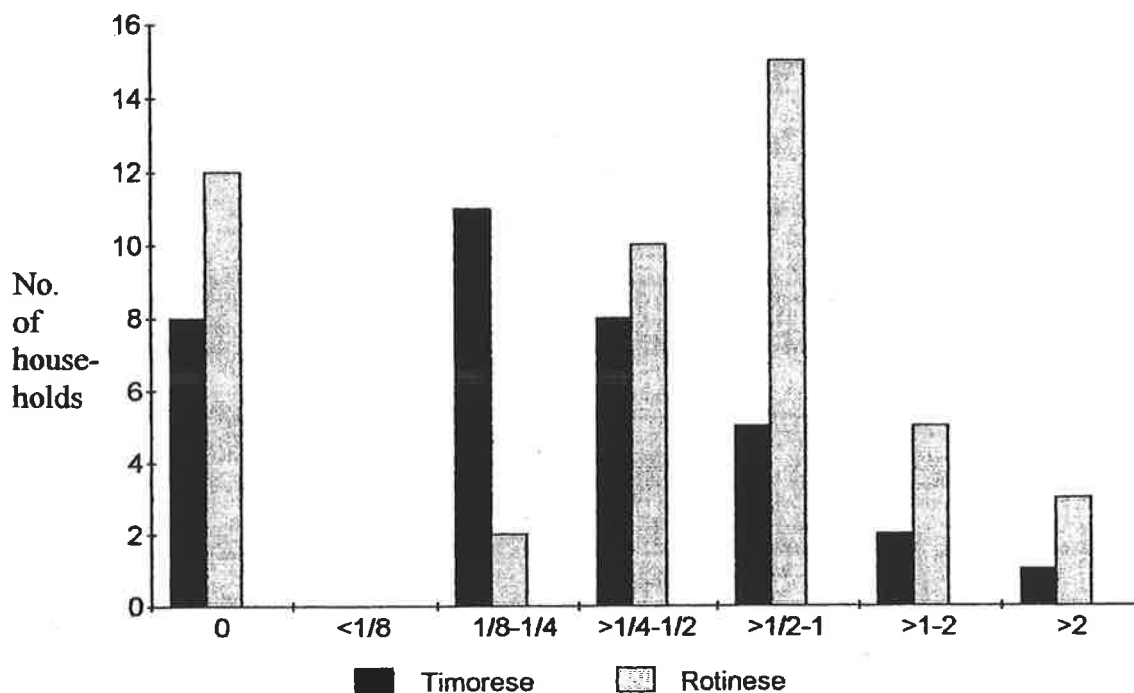


Figure 8.2: Access to irrigated land (ha) for households in Oeteta and Pariti

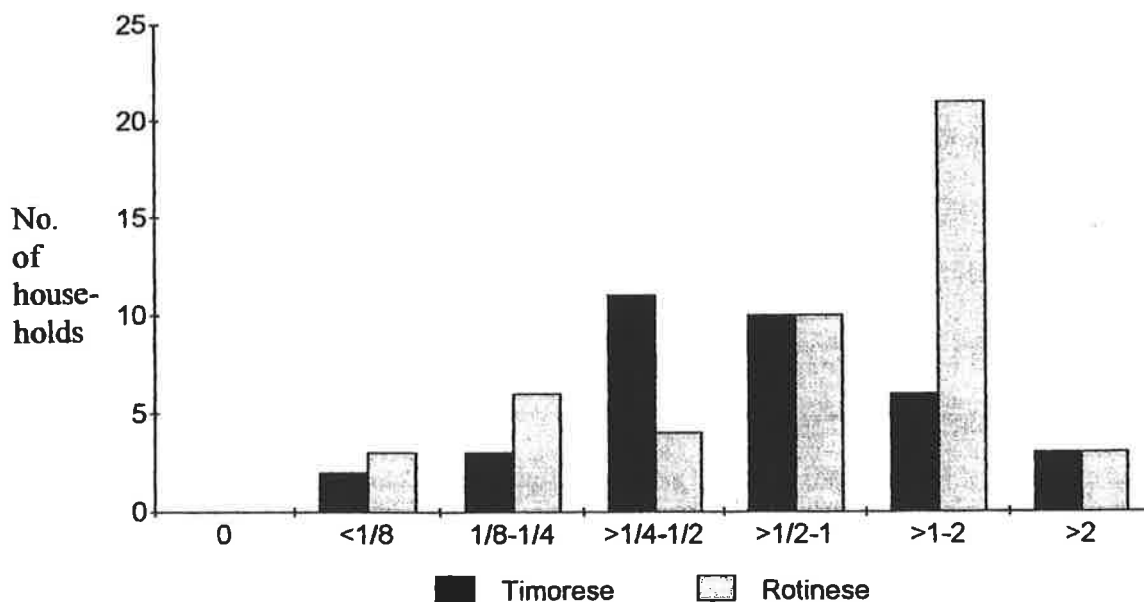
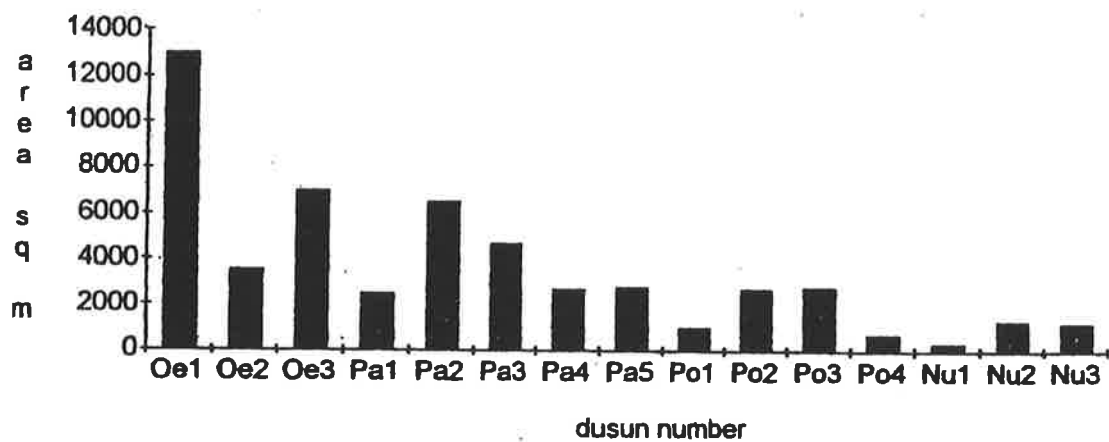


Figure 8.3: Total land access (ha) for households in Oeteta and Pariti

Table 8.13: Land History and Ethnic Status of Each *Dusun*

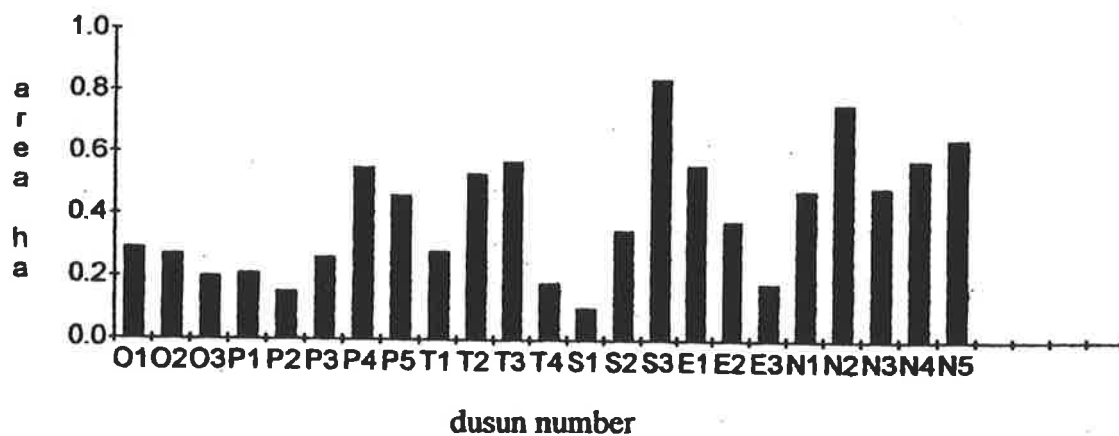
Village	<i>Dusun</i>	Ethnic status of households (%):			<i>Dusun</i> history
		Timorese	Rotinese	Other	
Pariti	1	17.5	45	37.5	Settlements for each <i>dusun</i> established over 100 years ago by Rotinese, other ethnic groups followed later.
	2	4.9	48.8	46.3	
	3	1.2	72.5	26.2	
	4	9.4	52.8	37.7	
	5	33.1	48.8	18.1	
Oeteta	1	8.1	75.0	16.9	<i>Dusun</i> 1 - similar to Pariti
	2	90.8	3.1	6.1	Resettlement of Timorese mid-1970s from hills on to coastal plains.
	3	78.8	15.2	6.0	
Poto	1	96.7	0.7	2.7	From hills - 1973 (Timorese) *
	2	71.6	18.0	10.4	From hills - 1967 (Timorese) *
	3	14.8	79.0	6.2	Early settlement (Rotinese)
	4	89.1	2.9	8.0	From hills - 1982 (Timorese) *
Nuataus	1	91.6	6.2	2.2	From Poto - 1990 (Timorese)
	2	97.3		2.7	From hills - 1985 (Timorese) *
	3	92.1	3.0	4.9	From hills - 1988 (Timorese) *
	4	97.8	1.1	1.1	Inmigrant Timorese mostly
	5	81.1	18.9		Some Rotinese established early, followed by inmigrant Timorese
Nunsaen	1	96.9		3.1	Early established settlements for all <i>dusuns</i>
	2	100			
	3	100			
	4	100			
	5	100			
Oelbiteno	1	97.8		2.2	Early established settlements for all <i>dusuns</i> .
	2	98.2		1.8	
	3	98.8		1.2	

* Village households were resettled under government direction from the hills on to the coastal plains; also inflow of migrants to coastal plains (intraprovincial movement) mostly occurred during 1970s and 1980s.



Legend: Oe - Oeteta; Pa - Pariti; Po - Poto; Nu- Nuataus

Figure 8.4: Irrigated areas of dusuns (mean area in square metres irrigated by farmers)



Legend: O - Oeteta; P - Pariti; T - Poto; S - Nuataus; E - Oelbiteno; N - Nunsaen

Figure 8.5: Access to dryland areas (mean household area in hectares by dusun)

This skewed distribution of land, along with a greater access to irrigated land by Rotinese in coastal areas, puts pressure for survival on families not so well endowed. Other aspects need to be taken into account, however, such as the traditional way in which land is parcelled out, the capabilities of farmers to manage their land, alternative opportunities for livelihood which could compensate for low productivity, and wealth levelling systems whereby those who have greater access to land or own large cattle herds distribute their wealth to poorer sections of the community (Simpson 1995).

8.2.8 Village poverty

In recognising the uneven impact of development efforts during the first 25 years of planned development, the government initiated a programme in 1993 to assist those villages that had been 'left behind' (*desa tertinggal*). The criteria used to determine the status of a village were grouped under three headings: (a) isolation of the village and available infrastructure, (b) housing and physical environment, (c) birth and death rates (Mboi 1996). According to this criterion 27% of villages in NTT are classified as 'poor'. The official poverty status of the villages at the time of the survey was uncertain.

Perceptions of villagers and of their lifestyles are difficult to quantify and could have a subjective bias but nevertheless could be valuable in interpreting some of the data in studies of this kind. Apart from the traditional elite, comprising the village leaders who owned more land and livestock, the majority of villagers in this study lived at a subsistence level.

Village poverty arises partly from its degree of isolation. In this sense the coastal villages of Poto and Nuataus appear worse off by comparison with those of Oeteta and Pariti. However, the quality of unsealed road linking the highland villages to the main road is far inferior to the coastal villages and virtually impassable during the wet season; they are effectively isolated. Within the village itself an indication of the variation of poverty

among households is given by the distribution of material assets, principally land, livestock, the quality of housing and personal items, such as a radio, watch, TV, sewing machine and a motor cycle. It was found that for all villages there was a small proportion of households (10-15%) that could be considered better off in terms of these indicators. As an example, approximately 15% of houses in Poto and Nuataus were constructed of brick or cement walls, cement or tiled-floors and corrugated iron roofs. The standard village home was constructed of walls made from palm leaf stalks (*bebak*), with thatched roofs of palm leaves and an earthen floor. There were no significant differences in housing quality noted between the Timorese and Rotinese ethnic groups. There were, however, significant differences between *dusuns* in the villages of Poto and Nuataus with respect to the extent of poverty as given by the indicator of land ownership as mentioned previously; the resettlement program, as a contributing factor, is discussed in chapter 9. A small percentage of homes (<10%) in Oeteta and Pariti had access to electricity.

8.3 Ethnic relations

A number of factors that could influence ethnic relations in this study are worth noting as they may relate to other ethnic groups living together in rural villages in Indonesia as a result of previous in-migration or to evolving communities where there is still a continuing in-migration of people - either forced, spontaneous or sponsored. A comparison of this study with transmigration programmes (Table 8.14) highlights some major differences which explain the relative harmony under which Timorese, Rotinese and other ethnic groups live together and perhaps the reasons why inter-ethnic tension has resulted in the sponsored programmes of transmigration. These factors are grouped under the headings of assimilation characteristics, skills and inequalities/differences. A consideration of each of these categories is judged to be important for ongoing rural development where skills are shared and directed towards productive outputs, interaction is meaningful and with a low level of conflict, and inequalities between ethnic groups are minimised.

The findings from this study suggest that the relative harmony under which the Rotinese and Timorese live together is attributed in part to the longstanding interaction between these ethnic groups which has engendered mutual tolerance. This is in agreement with Lynch (1987) who describes a similar situation for integration of social and cultural aspects among the Kutainese, Dayak, Buginese, Banjarese and others in Kalimantan. A study by Broch (1987) of ethnic relations on the island of Bonerate in Indonesia noted that ethnic interaction was characterised by a high level of tolerance of ethnic variations in evasion behaviours, for example, fishing and food preferences.

Explanations for harmonious existence from this study include a vague group identity formation, the need for economic cooperation, a common religious belief and minimum stress on natural resources. One of the positive benefits from this type of harmonious existence is the favourable framework for development. The findings in this study do not imply that a similar type of ethnic harmony exists in other rural and urban parts of West Timor. Anecdotal evidence suggests, for example, that there is tension between the Timorese and Bugis. The Bugis, who are mainly Muslim from South Sulawesi, are cropping land, formerly owned by the Timorese, and are prominent in the marketplace. Prices for crops harvested by the Timorese are controlled largely by the Bugis buyers.

It is interesting that Ormeling (1957: 225) noted that the Rotinese immigrants to West Timor were more educated and entrepreneurial and exercised greater political and economic influence than the Timorese; he suggested that this situation would probably lead to a greater antagonism between them. As far as could be assessed by this study, though, the mutual tolerance and respect gained by this association is more likely to facilitate, rather than impede, developmental activities initiated by the coastal communities.

An intriguing aspect of the co-existence of different ethnic groups is the way in which communities learn from each other. A beneficial learning environment is conceived as one

Table 8.14: Factors that could influence ethnic relations and rural development (A comparison of this study, involving spontaneous movement, with transmigration programmes)

Factors that could influence relations between in-migrants and indigenous people	This study (spontaneous movement)	Transmigration programmes *
Assimilation characteristics:		
Rate of settlement	Slow	Fast, initially
Intermarriage	>5%	<5%
Heterogeneity of settlements	Some, related to dusun history	Usually separate
Transfer of traditions, skills and language	Clearly evident	If evident, most likely related to survival strategy
Skills:		
Participation in decision making	Major ethnic groups represented in organisations	Polarised
Leadership (responsible position of elders)	Similar proportions in the village community	Polarised
Communication	Good, aided by mutual knowledge of ethnic languages (50%)	Poor
Conflict resolution	Through established and authorised channels	Difficult, outside negotiator required
Inequalities/differences:		
Cultural	Accommodated	Divergent, not readily accommodated
Religious	Majority Christians (Protestant)	Strong differences, either Christian with Moslem or Moslem with Moslem or Hindu
Social standing	Similar	Transmigrants often regarded as socially lower
Welfare services	Similar	Preference given to transmigrants
Infrastructure/transport	Similar	Preference given to transmigrants
Land acquisition	Similar	Transmigrants get legal tenure, others don't

* From Arndt (1983), Hardjono (1986), World Bank (1988), Abdoellah (1996), Hidayati (1994)

in which mutual tolerance, respect and understanding of practices, relate positively to their livelihood and well-being. Opportunities occur for the transfer of knowledge, traditions and skills. Interactive processes over time, as in this case, are more likely to be conducive to incremental changes with minimal disturbance to the sustainability of livelihoods. In the case of transmigration programmes, however, the learning response is more likely to come from a conflict situation in which livelihood is threatened thus necessitating a survival strategy. On the one hand the immigrants may face problems of survival, as shown by Hidayati (1994) where Javanese adaptations to upland environments in East Kalimantan included the pursuit of shifting cultivation rather than permanent agriculture. Hidayati concluded that new knowledge had to be acquired about their environment from indigenous sources so that the immigrants could survive. Alternatively, the survival learning strategy may be of more concern for the indigenous people. This is shown by the Javanese-Komering interaction in South Sumatra (Suwarno 1995). In this case the Javanese were economically successful in using modern farming techniques to establish their rice farms while the degradation of natural resources had affected the Komering source of income, life style and traditional culture, leading some Komering 'to learn from the Javanese'. Under these circumstances Suwarno found that the indigenous culture and economies were progressively 'javanised'.

Studies of this type are important as they help in the identification and tackling of future source problems where government programmes are planned. Alternatively, the government could capitalise on spontaneous agricultural settlement with the right kind of support to promote assimilation and development since these are more likely to be successful with a minimum of assistance.

8.4 Village movements of people

The major types of movement of people for the villages studied involved resettlement of people within villages, rural-to-rural movement that included movement of people from villages in West Timor as well as from neighbouring islands, and movement out of the

village, usually of a temporary nature. The movement data was collected through interviews with heads of households. The mobility status of each household member was recorded along with reasons for, and problems encountered with, movement. Finally, discussion of the data was carried out with village leaders to gain a clearer understanding of factors associated with immigration and outmigration. Resettlement of villagers is discussed in the following chapter.

8.4.1 In-migration

The numbers of household respondents and reasons for their movement into the villages are given in Tables 8.15 and 8.16. The contribution of permanent immigration to increased village population has been greatest in the coastal villages. Approximately 23% of respondents had moved to their present village with most settling in Pariti, Oeteta and Poto. Timorese, Rotinese and Savunese figure prominently in the migration process. A few Rotinese, born in Roti, migrated from the Kupang Bay region, coming from Sulamu, Lasiana and Semau (a small island situated on the southwestern tip of Timor, near Kupang Bay). The main reason for moving was the prospect of better farming opportunities. People in Roti and Savu knew about the potential for growing rice, fishing and raising cattle primarily through family connections. The opportunities in Pariti and Oeteta appeared greater than Poto and Nuataus because of better access to water resources and improved market and infrastructural facilities. The condition of the soil was regarded as favourable for crop production. The closer proximity to Camplong and Kupang facilitated trading as well as giving some families improved opportunities for secondary education and employment.

The main problems faced with movement into the coastal villages were obtaining enough food to support a family and having ready access to water, for household use and for irrigation. Links between the coastal villages and the neighbouring islands of Roti, Savu and Flores are well-established; they appear to be greatest in Pariti where immigration from the islands of Roti and Savu accounted for about 70% of the family migration in the survey

sample and where the combined ethnic proportion to the number of households in the village is currently 71%. In the last 50 years the pattern of immigration from the neighbouring islands hasn't varied greatly. By contrast immigration to the coastal villages

Table 8.15: Specific Reasons for Movement of Household Heads to Current Location Within Village

Villages	Ethnic Groups	Numbers of household heads			
		Main Reasons for Movement:			
		Farming opportunities	Family - ties/marriage	Land available	Other work *
Coastal:					
Pariti and Oeteta	Timorese	6	4	2	2
	Rotinese	9	4		
	Other	3		1	2
Poto and Nuataus	Timorese	8	3		1
	Rotinese	5			1
	Other	1			1
Highland:					
Nunsaen and Oelbiteno	Timorese	1	2		5

* These include pastors (2), teachers (7), traders (1) and administrative officials (2)
Source: Field records

from other areas of West Timor, and particularly from the Kupang regency, has increased during the 1980s (Appendix A, Table 4). The reasons for this have not been clearly identified.

From an examination of birthplaces of parents of households in these villages (Table 8.17) approximately 70% of those born outside the village come from West Timor and 30% from other islands (with about 60% of all parents of household heads being born in their

Table 8.16: Movement of Household Heads/ Families to Current Location Within Village (from outside).

Ethnic Status of Household Head	Number of Household Heads Moving to Village:					
	Oeteta	Pariti	Poto	Nuataus	Nunsaen	Oelbiteno
Timorese	6	8	8	4	5	1
Rotinese	4	10	6			
Savunese	1	7				
Alorese/ Florinese		2	2			1
Bugis	1					
Other		1				
Total	12	22	16	4	5	2
Total No. of Households	43	54	67	25	47	31
% of Households Involved in Movement	27.9	40.7	23.9	16.0	10.6	6.5

Source: Field records

respective village). The inter-island mobility is most likely a consequence of the well-formed links established over the last century by Rotinese and Savunese (Ormeling, 1957: 146). Bigsten (1996) found that networks of personal contacts were highly significant determinants of migration for members of farm households in Kenya. The recent development of relatively inexpensive transport networks has further improved social and economic linkages for Indonesia (Gardiner 1997). The Timorese in this study come mostly from villages in the Kupang regency with a few coming from villages and towns in the

regencies of Timor Tengah Utara and Timor Tengah Selatan. Metzner (1983), on the other hand, describes an inter-regency movement in West Timor of Timorese farmers.

Table 8.17: Birthplaces of Parents of Household Heads

Birthplace of Father	Birthplace of Mother:						Total no.
	Roti	Savu	Flores	Alor	West Timor	Within village	
Roti	15					3	18
Savu		9				1	10
Flores			2			1	3
Alor				3			3
Malaysia						1	1
West Timor	6				68	5	79
Within Village	2				5	148	152

Source: Field records

The overall contribution of immigration, in the 1980-1994 period, to the increase in number of households and village populations is given in Table 8.18. A substantial part of the total increase in household number for the coastal villages is due to immigration. It represents a strong rural-rural migration with the majority of migrants taking up farming. A smaller number, coming mostly from urban areas, take up positions as pastors, teachers and administrative officials. This type of intraprovincial migration is not picked up by the census; only data is provided on interprovincial migration, as shown in chapter 6 with tables 6.5 and 6.6. The finding in this study supports the view of Hugo (1982b; 1997) that intraprovincial migration is of a significant scale (and could be greater in scale than interprovincial migration) and needs to be understood in relation to planning the economic and social development of the province.

Metzner (1983) refers to a similar type of rural-rural immigration in West Timor of farmers from Amanatum in the regency of Timur Tengah Selatan to Amarasi in the regency of

Kupang. These farmers were attracted by economic advantages and contributed significantly to the high population growth of 2% annually. McWilliam (1985) found that there was a net increase in migration amounting to 1.8% of total population from 1983 to 1985 in the Middle Mina and Benain river catchments of West Timor.

Table 8.18: The Contribution of Immigration to the Increase in Number of Households and Village Populations (1980-1994)

Villages	Increase in * the Number of Households	Estimated + % of Increase in Households due to Immigration	Estimated % Increase in Numbers due to: in- mig- ration		Increase in Population	Population growth rate #
	No. (%)			natural in- crease	No. (%)	%
Coastal: Oeteta and Pariti	292 (51.5)	36.3	19.3	80.7	1284 (49.1)	3.0
Poto and Nuataus	403 (57.8)	68.0	38.3	61.7	2017 (54.5)	3.1
Highland: Nunsaen and Oelbiteno	228 (58.0)	8.8	4.4	95.6	941 (39.7)	2.8

Source: * Analysis Penduduk Kabupaten Kupang Statistik, Propinsi NTT 1990

+ Estimated from this survey

Calculated from census data (ibid.) using the formula:

$$P(1994) = P(1980) e^{14r} \quad (r \text{ is growth rate per year})$$

These movements reflect the relative importance of different economic sectors for the various provinces. The capacity to absorb agricultural labour, though, is likely to diminish if the agricultural sector continues to decline (Warr 1992; Tomich 1992), accompanied by the introduction of technical innovations (Naylor 1992). Warr attributes capital accumulation as the principal driving force behind the decline in agriculture's share of

GDP rather than the price movements of agricultural goods relative to non-agricultural goods. However, the decline in economic growth with the Indonesian currency problems of 1998 could offset further declines in agriculture's terms of trade. As a consequence of structural changes for Indonesia and because of congestion in urban areas Warr proposes that policies should be directed more to non-agricultural employment opportunities in rural areas. These take account of the provision of infrastructure, communication, marketing and financial services. This is particularly important for NTT, with an agricultural sector dominant in each regency, as any labour displacement trends will have a significant impact.

The inflow of migrants to the coastal villages represents a distinctly different type of movement from that occurring with the inflow from other provinces in Eastern Indonesia to rural areas in NTT. The inflow from other provinces is dominated by migrants coming from South Sulawesi (33.6%), East Timor (18.1%), Maluku (12.9%) and Nusa Tenggara Barat (17.0%). Similarly, the inflow of migrants to rural areas of NTT from regions other than Eastern Indonesia is separate; these migrants come from Java/Bali (36.7%), Kalimantan (8.6%), Sumatra (7.5%) and foreign countries (47.1%) (BPS 1996).

From group discussions with village elders immigrating families settle permanently and there is only a minimal permanent outmigration of whole families. It was difficult, though, to obtain any reliable data to clarify this. Inmigrants purchase land from the owner, and have access to other resources, subject to the approval of the village leaders. Their desire to settle permanently is most likely explained by the prospect of an improved livelihood in the longer term. Resettlement of hill peoples to the coastal areas, involving mostly movement within villages, is discussed in the following chapter.

8.4.2 Out-movements of family members

The number of household heads/families that have lived outside their present village residence for more than three months, together with reasons, is shown in Table 8.19. These

are grouped together because of the small numbers for each village. The reasons for living out were mainly for improved work opportunities and education. Overall, though, movement out of the village for educational and occupational pursuits represented only a small fraction of the total number of respondents, each accounting for 3-4%.

Table 8.19: Percentage of Household Heads Working Outside in the Last Year and Reasons for their Movement

Villages	Household Heads		Reasons (Temporary/Circular Movement)
	%	No.	
Coastal: Oeteta and Pariti	12.1	9	Labourers (2) Farming (1) Carpentry (1) Shop Assistant (1) Administration (3) Fishing (1)
Poto and Nuataus	2.4	2	Labourers (2)
Highland: Nunsaen and Oelbiteno	5.1	3	Teaching (1) Family (1) Farming near Kupang (1)

Source: Field records

The movements of all household members for both temporary and permanent types are given in Table 8.20. Circular movement was strongest for the coastal villages of Pariti and Oeteta (17.9% of households) compared to Poto and Nuataus (2.2%) and Nunsaen and Oelbiteno (3.8%). The closer proximity of Pariti and Oeteta to Kupang and Camplong, as well as better transport and communication services help to explain these differences. However, the extent of circular movement, even for Pariti and Oeteta, is low by comparison to other studies in Indonesia. For one of these studies, comprising 14 West Java villages, three-quarters of the families were at least partly dependent on income sources outside the village, mostly in Jakarta and Bandung (Hugo 1982b). Similar documentation is given by Hugo for circular movements involving the Minangkabau people of West Sumatra, and the Bugis of South Sulawesi.

Table 8.20: Movements of Family Members (apart from household heads)

Villages	No. of Households	Type of Movement	Household Members:		No of Families	% of Families	Reasons for movement
			Male	Female			
Coastal: Oeteta and Pariti	95	Temporary/ circular	2	1	3	3.1	Farming
			10	4	14	14.7	Non-farming work: admin. (3) labouring (8)* fishing (1) shop assistant (1) carpentry (1) Education
		Temporary/ Target	6	7	9	9.5	Education
		Permanent	2	3	5	2.2	Marriage (3) Farming (2)
Poto and Nuataus	92	Temporary/ Circular	2		2	4.3	Farming
		Temporary/ Target	2	2	4	4.3	Education
		Permanent	2	1	3	3.3	Marriage (1) Official (1)
Highland: Nunsaen and Oelbiteno	79	Temporary/ Circular	1		1	1.3	Farming
		Temporary/ Target	13	8	15	18.9	Non-farming work - labouring Education
		Permanent	12	8	10	12.7	Marriage (6) Admin. (5) Farming (2) Shop assistant (1) Family (1) Professional (3) Unknown (2)

Source: Field records

* includes the informal sector

With respect to benefits arising out of circular migration to the villages of origin, only a few families were recorded in this study as having received remittances from outside working members. Other impacts, such as loss of labour for essential farming tasks, also appeared to be minimal. Other studies indicate the value of circular migration, once established, for village households. For example, Hetler (1989) found that remittances from short-term circular migration in Central Java pushed many households into the middle and upper income ranges. In the Waghi valley of Papua New Guinea circular migrant earnings and coffee income contributed to the inflation of bridewealth and ceremonial exchange payments (Heaney 1990). Dawin (1996) found that the circular migration of women in China helped to return human and financial resources to the countryside. Generally, though, from these studies, these benefits are limited to certain sections of the community and do not provide a solution to the real problems facing villagers in sustaining a livelihood.

With respect to circular migration, 2.6% of households (overall villages) were involved in moving out of the village for farming while 7.2% moved out for non-farming reasons. Women actively participate in the informal sector which contributes to family income through the selling of products such as fish, cooked food, fruit, maize and weaving. Although the extent of the informal sector and its significance (as part of movement outside the village) were not assessed it contributes as one of the few means of earning cash to buy basic necessities. Business and trade linkages with Kupang are expected to be stronger with the Rotinese than the Timorese since Rotinese have established themselves as business people and entrepreneurs in Kupang and the surrounding region. However, any differences in socioeconomic and cultural conditions have not appeared to have had a marked influence on the readiness to migrate out of the coastal villages.

Approximately 10% of those in the non-agricultural sector were involved in professional employment. Improving the level of educational attainment was the most important reason for temporary outmigration, representing 10.5% of all households in the villages combined. It accounted for 70% of all temporary outmigration. Approximately 60% of

these temporary outmigrants were young students seeking a higher level of education at a junior or senior high school outside their respective village while the remainder mostly went to Kupang to take up tertiary or other post secondary studies. There was little difference between the percentage of males and females pursuing these courses. The parents of students pursuing education are mainly those from village leaders, pastors, teachers and administrative officials. Secondary or tertiary education is too expensive for most village families. The percentage of households, though, coming from Nunsauen and Oelbiteno was higher (18.9%) than Poto and Nuataus (4.3%) or Oeteta and Pariti (9.5%). This is partly explained by the fact there is no secondary school in Oelbiteno. Irrespective of this, the cost of secondary education for both the junior and senior levels is viewed as too high for most households. Few students attend the senior level of secondary schooling; and while it is now compulsory for all students to complete the junior (three years) level the difficulty of meeting these costs will have to be faced (see earlier discussion in chapter 6, section 6.5.3). Overall temporary outmigration accounted for 73.5% of the total outmigration.

Education influences outmigration in two ways. A better educated individual may migrate to find suitable employment (Corner 1991: 148) or a young person may migrate to an urban centre to acquire a higher level of education. It is useful to examine some of the factors involved in outmigration from an interprovincial perspective. Soewartoyo (1996) analysed the internal migration between Java-Bali and Eastern Indonesia. He found that migrants from Eastern Indonesia had higher levels of education (44% of migrants had finished senior high school) than migrants from Java-Bali moving to Eastern Indonesia (29% of migrants had finished high school). Almost all migrants from Eastern Indonesia to Java-Bali worked in the manufacturing (25%) or service industries (73%) while 81% of migrants from Java-Bali worked in the non-agricultural sectors and 19% worked as farmers. The educational attainment of migrants was strongly related to their occupation. The majority of migrants from Eastern Indonesia are young and educated and could not find employment. Migrants from Java-Bali by contrast perceived better opportunities in maximising their skills and knowledge, such as being employed by the government as civil

servants. At this stage, for the villagers in this study, interprovincial migration is limited to taking advantage of improved levels of education. Most of the outmigration in this area is due to a raised level of expectation through an improved education. Ultimately, rural villagers might form part of the educational stream to other provinces especially if there is a lack of opening up of economic growth centres. Tirtosudarmo (1995b) describes the increased population mobility to the provinces of Irian Jaya, East Timor and Maluku in Eastern Indonesia as due to a surplus of labour and the increased industrial development. It represents, from a wider perspective, the response to socio-economic processes and to government economic policies which have encouraged foreign investment and opened up to the global economy. NTT, however, has had negative net migration rates for 1980, 1990 and 1995, in contrast to these provinces, and this indicates the difficulty for those seeking employment for a province highly dependent on agriculture. This has implications for government policies to be focused on the development of economic growth centres for NTT, particularly in rural areas to facilitate the change in the employment structure from agriculture to manufacturing and services which in turn needs to be matched by an appropriate education and training.

There is no data on the outmigration of whole households since there is by definition no informant left to provide information. This inevitably leads to bias in the data sets.

8.5 Implications of population movements

The increase in village population has not been offset by permanent outmigration to any great extent, as determined by responses to questions asked of village leaders. The reason given for the majority of households staying in their villages is that they have land, most of which is regarded as a valuable heritage passed on from generation to generation.

Circular movements are also low by comparison with studies carried out in Java. The low level of outmigration is due most likely to a combination of cultural and economic reasons. Timorese communities, in particular, have strong ties to their land and to their family

origins (Ormeling 1957). The small percentage of households involved in circular movements (6.3%) indicates the extent to which the Timorese in isolated highland areas have an affinity to the land and to their way of life despite the severity of their lifestyle, even compared to those living in urban areas of West Timor. The relative 'unwillingness' of villagers to move outside their villages could also be attributed to a lack of opportunities elsewhere, resulting from NTT's low economic base, and to a low level of attainment in education. Young people, though, are moving to Kupang as evident by the rapid rise in Kupang's population and it is likely that circular movements arising from rural villages will increase due to the planned developments for Eastern Indonesia, the improvement in educational and transport services, the increasing pressure on village resources and the continued establishment of urban-rural links.

Although only a relatively small proportion of households are involved in circular movements at the present time it would be important to monitor this over time and space, as suggested by Forbes (1990), to determine the influence and interaction of macro-level factors in society on individual decision-making. This should take into account labour market processes and the incentives or constraints to promote or hinder business investment and the establishment of business enterprises. Positive developments could strengthen urban-rural linkages which could in turn facilitate agricultural and rural development but these mechanisms need to be clarified. In this way, also, Skeldon's (1990) concept of 'transition in mobility pattern', can be examined in the light of changes in social networks, development processes and the different kinds of impact in rural areas. In view of the new initiatives brought to bear on Eastern Indonesia by the Government of Indonesia it seems an appropriate time for further investigations to be carried out over the next five to ten years.

8.6 Conclusion

Taking account of ethnic factors assists in the understanding of how they might facilitate or constrain village development. Differences in attributes, skills and access to resources

are accommodated through cultural tolerance, cross-cultural learning experiences and sharing of the benefits arising from different resources, for example, wealth sharing arrangements. The long association of Timorese and Rotinese has helped nurture relations between these ethnic groups and, along with the importance of ethnicity, needs to be taken into account for sustainable development.

An opportunity has been taken to examine intraprovincial movements at the village level, not covered by the census, and to evaluate them in terms of structural changes occurring in Indonesia. Immigration represents the dominant type of movement for the coastal villages and has arisen primarily through family connections with neighbouring districts and islands. This rural movement has been in response to better opportunities for farming and the availability of land. The expansion of land, though, cannot continue indefinitely, and an assessment needs to be made concerning village population pressure, the carrying capacity of the land, types of responses and policies required.

The pattern emerging from this study, with respect to changes in social mobility within Indonesia, is that there are four distinct flows of people. The first is that of rural to rural migration, primarily within the province, to take up available farming areas; these are now diminishing rapidly. The second concerns movement of people to the main urban centres, such as Kupang and Soe in West Timor, causing an increased level of urbanisation. Improvement of education represents an important part of this flow. However, employment prospects have not kept pace with the raised levels of educational attainment due to the lack of business and industrial opportunities or to a mismatch between the type of education or training and the type of skills required. Many of the government positions are taken up by a third wave of migrants from Java. This contributes to a further flow of migrants out of NTT to other provinces. These types of flows have implications for government policies which relate to the quality of on-farm and off-farm human resource development and to the nature and encouragement of off-farm employment opportunities.



Plate 9: A Timorese wedding with the bride and bridegroom standing outside the church in Oelbiteno



Plate 10: A mixed marriage in Pariti (Rotinese bride and Timorese bridegroom)



Plate 11: Small banded areas for growing rice



Plate 12: Rice fields at harvest time



Plate 13: A village trading shop



Plate 14: An alternative source of income to farming - shrimps caught off the Pariti coast



Plate 15: Burning at the end of the dry season in the highlands (Nunsanen village)



Plate 16: A fence made of *gewang* leaf stalks - to protect dryland areas from cattle



Plate 17: Planting seed using a dibble stick



Plate 18: Weeding the young maize plants (note the teak trees in the field)



Plate 19: The main road (unsealed) from Nunsæn to Oelbiteno - impassable in the wet season



Plate 20: Ponies carrying corn cobs to a village market

CHAPTER NINE

RESETTLEMENT AND HTI DEVELOPMENTS

9.1 Introduction

In the previous chapter the significance of population movements and ethnicity were examined at the village level. An introduction to HTI activities for Indonesia and NTT was presented in chapters 3 and 6 respectively. At the outset of the study the significance of the impact of HTI on the villagers was not anticipated nor appreciated. Since it is a relatively new development of the 1990s little has been documented with respect to its impact on villages and rural development. Arising from the industrial forestry development programme of the HTI and the resettlement of villagers are the consequences of increased population pressure on resources which needs to be evaluated.

The aim of this chapter is to evaluate the impact upon, and response of, villagers to resettlement and HTI activities. The implications for village development and the broader issues of security of land tenure, political ecology and potential of co-management of industrial forestry activities will be examined in relation to concepts for sustainable development.

9.2 Resettlement of Hills People

Local transmigration, or *transmigrasi lokal*, is the movement of people to resettlement areas within the province (Hayes & Hidayati 1995: 141). In this study resettlement has involved moving villagers from the hills to the coastal plains. Mostly, this has meant a movement within the same village or to an adjacent village. From discussions with government officials in Kupang, the reasons given for resettling hill villagers are varied and include protection of the forest (from shifting cultivation and other activities), protection of villagers who are isolated, improved monitoring of activities and enabling

people to be closer to essential services. A primary reason for resettlement has been stated as safeguarding the environment and guaranteeing the success of watershed management and reforestation programmes (FAO 1990). Sedentary farming is supposed to replace shifting cultivation. The perception by the government officers is that excessive damage is caused to the forest and land as a result of slash-and-burn activities. Local resettlement is handled by the Department of Transmigration and Forest Squatter Settlement. As a consequence of resettlement villagers live close to the main access road. Figure 9.1 illustrates the type of settlement that is desirable for government purposes.

The loss of village land to the HTI and the year of resettlement of family households within the villages of Oeteta, Poto and Nuataus are shown in Table 9.1. For the most part these have occurred in separate phases, 1975 for Oeteta; 1967, 1978 and 1982 for Poto; and 1988 for Nuataus.

Table 9.1: Area of HTI* Land and Movement of Villagers

Village	Area of Village (ha)	Area of HTI Land (ha)	% of Land Allocated to HTI	Year of resettlement of village households
Pariti	7,039	4,867	69.1	
Oeteta	4,021	2,019	50.2	<i>dusun 2 - 1975</i> <i>dusun 3 - 1975</i>
Poto	30,160	11,129	36.9	<i>dusun 1 - 1973</i> <i>dusun 2 - 1967</i> <i>dusun 4 - 1982</i>
Nuataus	11,509	4,485	39.0	<i>dusun 2 - 1985</i> <i>dusun 3 - 1988</i>
Nunsaen	4,462	3,452	77.4	
Oelbiteno	1,895	1,150	60.7	30 households of <i>dusun 3</i> moved to Poto - 1988

* HTI - *Hutan Tanaman Industri* (Plantation forest)

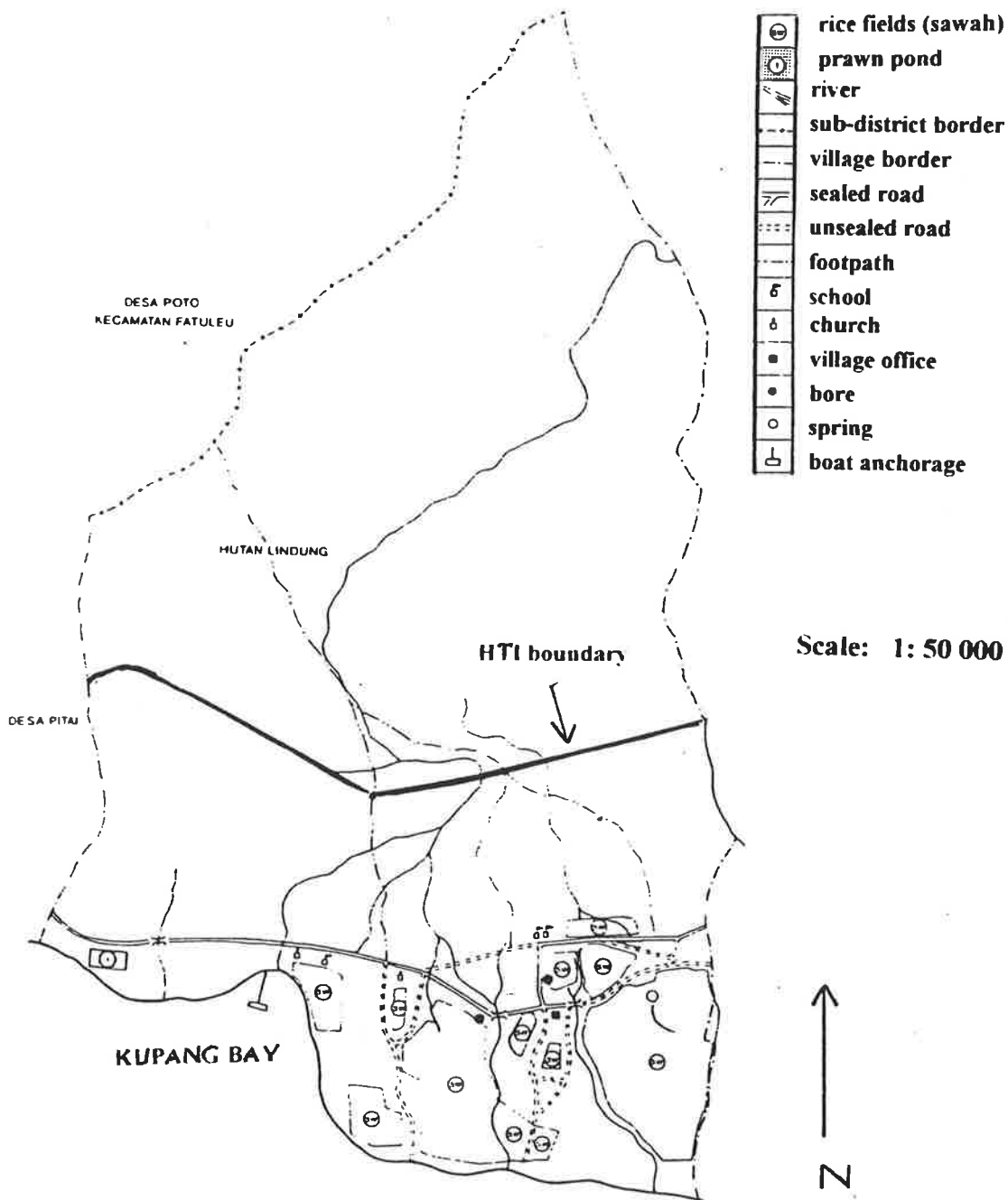


Figure 9.1: Map showing Pariti (with settled areas close to the main road)

Source: village records

Movement from the hills towards the coastal plains was enforced by the government in each case. Except for Oelbiteno all the villagers in the *dusun* were moved to the lowland areas of their respective villages.

In all villages, according to the village leaders, there was little discussion with the government authorities concerning the resettlement programmes. Households were given a small block of land, and assistance in building a new home, these activities being organised by the village head and the elders of the village. However, there was no formal compensation by the government for the cost involved in the resettlement process. An FAO (1990) report on watershed rehabilitation in NTT states that the necessary infrastructure support is seldom provided; in some cases the local transmigrants are able to maintain some kind of dual settlement contrary to the express purpose of the resettlement programme. In the case of Oeteta, Plan International, an NGO, helped provide financial assistance in the building of new homes. Villagers were forced to adapt to the loss of land and work. Many households now depend on deriving an income from work on HTI areas (3,000-5,000 Rupiahs/day). The highland village families, in particular, rely on forestry activities for a greater part of their income, much more than the lowland settlements: compare Nunsauen (85% of families) and Oelbiteno (55%), as against Poto (36%) and Nuataus (28%). According to a HTI official the various working activities have already given an opportunity of daily work for 1,650 persons (spread disproportionately throughout the year according to the nature of work operations). For Poto and Nuataus the difficulties experienced by the villages were more serious and included not being able to grow enough food for sustenance, longer distances to travel to obtain water, lack of grazing land for cattle and crop pests. Of the 54 families involved in resettlement (representing 59% of the sample interviewed in Poto and Nuataus), 60% rely heavily on alternative occupations, particularly cattle raising and working for the HTI to generate more than 50% of their income. About a third of the families sampled in Nuataus and Poto only had access to small garden plots so that alternative occupations were their main means of livelihood (overall for 67% of families). In addition to cattle raising and HTI work the range of

occupations included carpentry, labouring for others, fishing, trading, building, pig raising and extracting oil from the sandalwood trees in the village forest.

For some of the resettled households there has been an opportunity to take up rice production on dry or irrigated land. Irrigated rice areas are cropped as many years as possible in contrast to a one or two-year crop in the hills. There is pressure to utilise all land for fear of it being taken over. Further adaptations include the growing of bananas, mangoes and jackfruit. Although this type of garden culture existed on some of the *mamar* areas in the hills it was only available for a few. The *mamar* land with its access to water was also lost. As a result of more limited access to rangeland areas for cattle, there is increased grazing pressure on fallowed land and forest areas still belonging to the village.

Although Timorese and Rotinese are more closely settled following resettlement the village still shows considerable heterogeneity due to the differences in ethnic composition of *dusuns*, as mentioned previously. In Poto, for example, *dusun* 1, 2 and 4 comprise mostly resettled Timorese while *dusun* 3 consists mostly of Rotinese who were originally settled there. A similar situation exists for Oeteta.

9.3 HTI developments

The HTI acquired 36,000 hectares of land in the Kupang regency for their forestry activities, more than 25,000 hectares of which had been planted by mid-1996. Approximately 80% of this land lies within *kecamatan* Fatuleu and *kecamatan* Sulamu (the latter formerly a part of *kecamatan* Timur). Plantings of forest species commenced in 1987 on sloping (8-45%) and undulating land (100-800 metres in height above sea level) and on brown soils (kambisols, brunizems, lithosols and grumusols) with the presence of siltstone, limestone, shales and marls as parent material. The average rainfall in the HTI region is 1,400 mm/year and falls mostly between December and March. Rill and gully erosion are common with a rapid surface run-off and slow infiltration. The intensity of

rainstorms contributes significantly to erosion, especially where vegetative cover is minimal.

The total area planted by June 1996 was approximately 70% of the total designated area. Figure 9.2 gives the location of the area designated for HTI activities and details of areas planted up to 1996. Species planted for building materials and furniture include *jati* (*Tectona grandis*), *mahoni* (*Swietenia macrophylla*), *johar* (*Cassia siamea*), *kayu merah* (*Pterocarpus indicus*), *segon buto* (*Entolobium schlerocarpum*) and *Gmelina arborea*. Oil is extracted and handicraft products are made from the famous sandalwood tree, *cendana* (*Santalum album*); while *kayu ampupu* (*Eucalyptus urophylla*) supplies the raw material for pulp and paper. The dominant species planted up to 1996 comprise *jati* (19%), *johar* (21%), *Gmelina arborea* (42%) and *mahoni* (6%) (Table 9.2). *Gmelina arborea* is the most popular species with the largest area planted. This is probably due to its adaptation to a wide variety of climatic and soil conditions. In addition, it is a close relative of teak and a desirable species because of its rapid growth and ease of establishment. The timber is processed into particle board and plywood and used for construction work (Gupta 1993). The stronger commitment to timber production over pulp for West Timor is similar to that of other provinces in Eastern Indonesia (excluding Kalimantan).

The coastal and highland villages have all lost substantial areas of land to the HTI, as shown in Table 9.1 and Figure 9.2. The estimates of land lost were determined with the aid of a planimeter from a map provided by *Perum Perhutani* and these agreed to within 10% of estimates given by village leaders. The villages have access to the land, as labourers, to plant teak, eucalyptus, mahogany and other tree species; also, to weed and care for the growing trees, to collect firewood and fodder as directed and to cultivate and harvest crops on the *tumpangsari* system in the first few years of the growing life of the trees. There is a limited amount of access to grazing. Otherwise cattle grazing continues right up to the boundary of the planted or fenced-off areas. The management and decision making are controlled by the HTI.

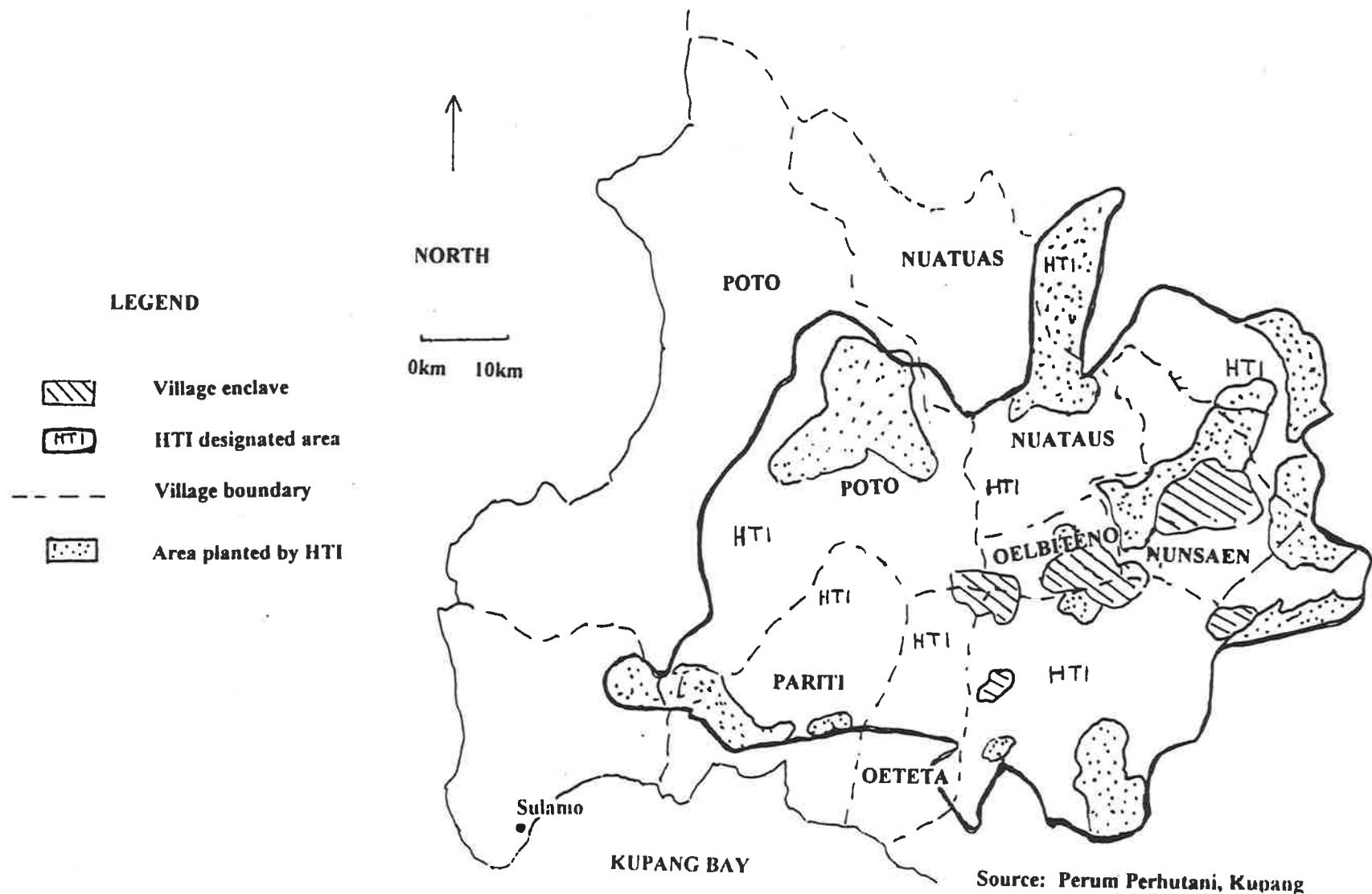


Figure 9.2 Map showing location of villages surveyed and Hutan Tanaman Industri (HTI)

The plantings for Pariti and Oeteta commenced in 1992. For Oeteta the planting was 200 ha, that is. 5% of village land or 10% of land allocated to HTI. There has been no further expansion of the HTI areas, though there now appears to be acceptance of the new HKM (*Hutan Kemasyarakatan* or community forestry) approach of *Perum Perhutani* by village leaders of Oeteta. For Pariti the HTI planted 500 ha, that is. 7% of village land or 12.2% of the land allocated.

Table 9.2: Areas of Tree Species Grown in the HTI/HKM Development Program (1996)

Tree Species	Area Planted (ha)
<i>Tectona Grandis (jati)</i>	4,741
<i>Santalum album (cendana)</i>	547
<i>Cassia siamea (johar)</i>	5,316.5
<i>Switenia sp. (mahoni)</i>	1,438
<i>Eucalyptus urophylla (ampupu)</i>	193.25
<i>Entolobium schlerocarpum</i>	808
<i>Gmelina Arborea</i> (white teak)	10,636
<i>Nangka</i> (jackfruit)	154.5
<i>Kemiri</i> (candlenut)	248
<i>Jambumete</i> (cashew)	1,050.5
<i>Other</i>	67.25
Total	25,200

Source: Perum Perhutani, Kupang 1996

For Oelbiteno and Nunsauen most of the land taken over by HTI had been planted to teak (*jati*), mahogany (*mahoni*) and *johar*. The loss of grazing and cropping land was considerable - 61% (1,150 ha) loss for Oelbiteno and 77% (3,400 ha) for Nunsauen. Cropping was only allowed on land where trees had failed to grow. Grazing was prohibited for at least three years until the trees were well established.

The villages, Oeteta and Pariti, did not agree to the program. There were strong verbal protests made to the forestry officials. Since there was no participation on the part of the

villagers the tree planting program was carried out by HTI workers. Most of the trees failed to establish, however, and so HTI activities were suspended. The villages of Nunsauen and Oelbiteno, on the other hand, because of fear of the government and military forces, passively and reluctantly accepted the loss of land and the conditions of work and payment.

For Poto, more than 200 ha of land has been planted by the HTI without the consent of the villagers. The *kepala desa* along with the villagers went up to the hills to confront the HTI officials in a show of force. Following a strong verbal protest an agreement was reached in which there would be no new program. However, villagers do not have access to HTI land which has been fenced off. Nuataus, by contrast, offered only a weak protest and reached a verbal agreement on the introduction of a cooperative type of project. On further investigation, though, it seemed that some of the villagers, including the traditional chief (*ketua adat*), agreed to the new project conditions and others were against the project but offered no resistance.

Despite the accommodation to this and other problems previously described, villagers continue to express anger at the take-over. Villagers, for example, in Ekateta, a neighbouring village to Nunsauen, met in April 1995 (L. Potter, pers. comm.) to actively protest against further loss of land to the HTI.

The issues that concern HTI activities in the villages need to be understood in an overall framework of HTI development in Indonesia (chapter 3) and, in particular, Nusa Tenggara Timur (chapter 6). The developmental approach by HTI, with the support of the government and forestry department has implications for the security of land tenure, the impact on livelihood sustainability, the political-environmental scene, and the relevance of the new cooperative programmes, such as HTI-HKM projects. These need to be discussed to help in identifying constraints and opportunities for sustainable resource management.

9.3.1 Security of land tenure

Allocation of land for HTI development is based on the national approach of exploiting Indonesia's resources to increase national income. Implied in this approach is the outdated model of development which relies on a 'trickle down' effect to the poorest in the rural villages. Following criticism of logging activities relating to forest destruction, the HTI programme was instituted in 1990, namely, 'plantation forests which were developed as part of the plan to improve the potential and quality of production by incorporating intensive silviculture to meet the demand for raw materials of the forestry products industry' (Government Regulation No. 7 1990). By 1993 more than 350 applications had been accepted for various types of HTI enterprises (Saman 1993).

As a result of the implementation of HTI activities land rights have become a much debated issue. The interpretation of Article 5 of the Basic Forestry Law undermines *adat* property rights. Article 5 states: 'All forest land within the territory of the Republic of Indonesia, including the natural resources they contain, are taken charge of by the State'.

In addition, paragraph (c) of Article 5 is interpreted as the State being empowered to determine and regulate legal relations (including *adat* property rights) between individuals or corporate bodies and forests, and deal with legal activities related to forests. As well, Article 1 provides that: 'the forestlands determination is to be controlled and defended by the Ministry of Forestry'. As a consequence lands owned by indigenous communities are often designated as state-owned forest land. The current Indonesian laws, therefore, do not protect indigenous land rights. The land becomes a target for government and commercial interests.

The above interpretation is in conflict with the Basic Agrarian Law, as mentioned previously, and even the Basic Forestry Law (Basic Forestry Act No. 5/1967, Article 2 and Article 17) which acknowledges community rights and customary law. This is reconciled

from the State's perspective in that unregistered claims over lands amount only to residual rights (*hak ulayat*) and that in both law and practice these residual rights are interpreted as being alternative instead of complementary to rights of ownership (*hak milik*) (Dove 1987).

The Indonesian Forum for the Environment (WALHI) and the Indonesian Legal Aid Foundation (YLBHI) have made recommendations concerning the development of Indonesia's tropical forest plantations. These include the 'recognition of people's property rights, observation of local legal systems for property transfer, and fair and open negotiations and just compensation if they agree to such a transfer' (WALHI & YLBHI 1992).

9.3.2 Implications for livelihood sustainability in NTT

As a result of confiscation of their land, village people lost access to water sources as well as to grazing, cropping and forested land. The loss is expected to affect villagers differentially. For example, the loss of grazing areas to cattle owners would affect the larger cattle owners. However, because they are wealthier, they might be able to sustain that loss compared to the smaller cattle owners and the people who look after the herds. Some of this loss might be retrieved if the cattle are given access to the HTI areas once the trees have established. Further studies, though, would need to be carried out to determine the extent of livelihood loss for this, or any other situation arising, for different people over time.

For some villagers, livelihood was partly dependent in the short-term on HTI employment. Villagers agreeing to the conditions laid down by the HTI helped to establish the plantations. For example, in 1994 for Oelbiteno each hectare that was cleared, burnt, fenced, holes dug and trees planted, fetched Rp. 50,000 (approx. AU\$27 at the 1994 rate of exchange). After three years the income per hectare was reduced substantially and is

expected to be withdrawn altogether. The creation of temporary dependence misrepresents the reality for long-term sustainability.

Potter and Lee (1998) describe similar experiences for villagers involved in HTI projects in Southeast Sulawesi, one in South Kendari, covering 30,000 hectares and the other in the northern part of Muna island, covering 35,400 hectares. The main disadvantages from the villagers' perspectives included the reduction of land available for farming, the provision of only a temporary income, poor maintenance of the plantation after establishment, loss of existing forest and water resources, poor planning and supervision, loss of rights to land and tree ownership. These disadvantages outweighed the advantages such as the earning of wages and the opportunity for *tumpanghari*. The projects did not provide them with a long-term productive livelihood.

The impact of these types of HTI activities on livelihood sustainability needs to be considered along with the overall consequences of loss of land in relation to resource management and sustainable development. These are discussed more fully in the following chapter.

9.3.3 Political-environment interactions

In order to protect their environmental base there have been various responses by villagers to the HTI take-over. These need to be examined to identify the different contexts as well as to see the kinds of interaction and outcomes which have relevance for livelihood sustainability. For this purpose case studies are drawn from Nusa Tenggara Timur and Kalimantan and combined with those from the present studies.

Because of fear of the government and military forces most villages in NTT were forced to accept, only quietly resisting the loss of land and the conditions of work and payment. There have been a number of reports concerning physical maltreatment by forestry workers and officials, as well as by the military. Some villages have succeeded in having their land returned, after prolonged resistance (sometimes helped with the support of

NGOs) (Yones Pellokila of Yayasan Haumeni, pers. comm.). Responses of villagers to the take-over varied from a reluctant acceptance to a strong protest. The strong protests in Pariti, Oeteta and Poto appear to have been effective in either stopping or limiting HTI activities. The security of land tenure is unresolved.

For Ekateta, a village bordering Nunsanen, the demonstrations and resistance to HTI development did not have the desired effect of land being returned to the village. Alliances were sought outside and an NGO was involved in legal aspects. However, there was no follow up. The HTI commenced planting and the villagers accepted the conditions under duress.

In other parts of NTT types of response on the part of village communities to the loss of land ranged from acceptance of working conditions for establishing the plantation to active forms of resistance that included sabotage of the planting program, demonstrations and petitions to government leaders. A few villages in other parts of NTT sought help. These include the following two cases:

Case 1: Nusa village, sub-regency (*kecamatan*) of Amanuban Barat, regency (*kabupaten*) of Timor Tengah Selatan (TTS), West Timor.

In 1991 the government forest agency, *Dinas Kehutanan* of TTS, decided to take over 250 ha of land, belonging to 77 village households of Nusa, for reforestation with *Swietenia macrophylla* (mahogany or *mahoni*) and *Cassia siamea* (*johar*). The owners of the land objected by sending a letter directly to the regency head (*bupati*). After no response the owners took matters into their hands and pulled out the planted trees. This action resulted in one of the villagers being sent to prison for nine months. A further 20 villagers were arrested in August 1992; they were detained illegally and subjected to immersion in water. Subsequently the villagers were forced to work each day from 8 a.m. until 5 p.m. for a plate of rice and a fillet of fish as repayment. The village group requested legal advice at a cost of Rp. 3,000,000, but without achieving any satisfaction.

In March, 1993, the village leaders of Nusa requested assistance from *LSM Cintai Damai*, a non-government organisation (NGO). This organisation supported the villagers through discussion on tactics, distribution of information, advice on legal matters and linking up with other groups and organisations. Following a strike of the village workers on the HTI project, as well as petitions to the regency head and governor, an agreement was eventually given by the regency head to hand back the land to the Nusa village community.

Case 2: *desa Fatukanutu, kecamatan Kupang Timur, kabupaten Kupang*

In 1992, an area of 976 ha was allocated for HTI development; this land really belonged to 100 family households. A variety of existing tree species were cut down without permission. The village owners were angry but were afraid to confront HTI officials fearing military intervention. In July 1993 the village community requested assistance from five local NGOs, to help direct their grievances and protest to the appropriate authorities in Kupang and Jakarta. In September 1993 the villagers, supported by members of nearby villages, numbering 280 altogether, demonstrated outside the governor's residence. The following day the regency head, accompanied by officers from various agencies arranged a dialogue with the villagers, LSM members (NGO fostering self-help at the community level), and the head of the Protestant Church. After further discussions and clashes with the military, which included arrests and maltreatment, the regency head of Kupang agreed to return the land to the villagers.

The conflict emerging from HTI activities involving take-over of land is also well-demonstrated by the responses shown in West Kalimantan (Djuweng 1996). These include the following two cases:

Case 3: The resistance of Keriau Dayak from nine villages in Sundai sub-regency, Ketapang regency, West Kalimantan. The people wanted their land returned and

compensation for their cultural, social, religious and natural losses. Demonstrations included burning of the company's assets. The regency head, local church leaders in Pontianak and Ketapang, including the Archbishop of Pontianak, and WALHI were all involved in mediation; a delegation met with government officials in Jakarta. The outcome of this conflict and mediation was that the HTI company, PT Lingga Tejawana, stopped its operations pending a final resolution.

Case 4: The Bakati Dayak in Belimbing village, sub-regency Ledo, regency Sambas, West Kalimantan, were never properly consulted by PT Nityada Idola (Pulp-HTI) which planned to take over 120,000 ha of land. The villagers reacted to the initial planting of 120 ha. Negotiations with the site manager failed and these were followed by burning of the company's cafeteria and the seedling area of the HTI. Planting activities stopped pending a resolution.

The following case, though, illustrates the difficulties with which village communities and NGOs face in dealing with powerful companies which have the backing of the President.

Case 5: Conflict with P.T. Fendi Hutani Lestari (FHL) in Nusa Tenggara Timur (NTT)

One of the more recent newcomers on to the HTI scene is the involvement of P.T. Fendi Hutani Lestari (FHL), a private company owned by Muhammed 'Bob' Hasan, the biggest logging tycoon in Indonesia. The company has gained a permit to develop HTI concession areas as large as 100,000 hectares, and had raised 300 billion rupiahs (approx. AUS \$167 million at the 1997 rate of conversion) to develop land for industrial forestry. Much of the money has come from the 'Reforestation Fund' (*Dana Reboisasi*), to which contributions come from logging companies all over Indonesia. Allocation of money is based on the President's prerogative rights. The Presidential Decree, executed by the Ministry of Forestry, allows HTI companies to request additional capital in the form of low-interest loans (*Kompas*, August 14, 1997).

FHL is, in reality, a joint company comprising a subsidiary company formed by P.T. Inhutani I (a state-owned forest company from Java) and P.T. Fendi Indah from the Kalimantan group owned by Bob Hasan. Bob Hasan in 1997 was often considered as “the real minister of forestry” of Indonesia because of his acquired power and influence, derived from his close relationship with President Suharto (Simanjuntak 1997). To show his support the previous President inaugurated the initial phase of development of the first private-owned HTI in NTT, at the FHL’s headquarters in Pollen, TTS, on October 14, 1996 (*Suara Timor Timur*, July 1, 1997). This company now has 30,000 hectares as their concession in this area and a further 30,000 hectares in Viqueque, East Timor. These forestry enterprises were initiated in 1995 but by June 1997 had only planted 3,085 hectares in Pollen and 2,100 hectares in Viqueque. However, they are now planning to expand their activities to another regency in West Timor, TTU (Timor Tengah Utara), with a 20,000 hectare concession, and to Ambeno in East Timor with a further 20,000 hectare concession (*Pos Kupang*, June 23, 1997).

Most of their concession areas lie on Timorese customary-owned lands. Negotiation with the various communities was not an option. As a result, land conflicts have occurred with the villagers of Laob, Konbaki, Bijeli and Niki-Niki Un in TTS. For example, on July 7, 1997, 40 people from Laob came to Soe (capital of TTS) to complain to the regency head about the installation of boundary posts defining the FHL concession area. However, this issue and others were not resolved. In TTU, the expansion plan of FHL with the implication of land-grabbing has angered the people in North Biboki, South Biboki and Insana sub-regencies (Simanjuntak, pers. comm. 1997).

The standpoints taken by the indigenous communities were supported by *Jagat NTT* (The NTT NGO Network to Promote the Rights of Indigenous People). A public letter of concern, sent by *Jagat NTT*, appeared in *Pos Kupang* (Kupang Post) on May 9, 1997, asking the government and FHL to respect the land rights of the indigenous people and to re-consider the proposed expansion plan to Biboki. The Governor of NTT, Herman Musakabe, stated that FHL should involve the village leaders and land owners in the

negotiation process. However, there was apparently no follow-up to this statement. Local and civil officials continued to threaten communities in a take-over of their land. To further support the communities a second letter of concern was published in *Pos Kupang* on June 25, 1997, calling for a public debate on the Biboki expansion plan. On July 23, 1997, *Jagat NTT* followed this by launching a press conference in Kupang to voice their protest against FHL and to request that FHL step back from the land already taken over and re-negotiate (Simanjuntak, pers. comm. 1997).

Up to the end of 1997 there was little change taken in the stance adopted by FHL. With the virtual support of the provincial government, together with the backing of the President and a complex legal system, there was little opportunity to meet the demands of village communities or provide any meaningful protection with regard to customary land rights (Simanjuntak, pers. comm. 1997).

Similar types of struggle for forest control in Indonesia have occurred in the past and have been well-documented (Peluso & Poffenberger 1989; Peluso 1992) for Java. She describes the following type of conflict:

Rural people perceived the SGC's efforts to reestablish state control over the forest as threatening to their survival. These differing interests, exacerbated by the confrontational tactics used by the forest police, created tense situations in rural areas. The tension is reflected in the figures on teak theft, forest damage and other forest "crimes" (Peluso & Poffenberger 1989: 335).

These examples illustrate the problems arising from HTI take-over on West Timor are of a similar nature to those in other parts of Eastern Indonesia and Kalimantan, and in Java where the State Forestry Corporation managed all production forest and most protection forest (prior to the institution of the HTI). While there has been partial success in addressing the problems of HTI take-over of land through demonstrations, active negotiation with the HTI company and government officials sometimes assisted by NGOs,

there is no coordinated strategy to unite the efforts of farmers in different regions. This could be aided by mapping of the *adat* areas concerned; carrying out studies of the potential impact of HTI activities on social, economic and cultural aspects of village communities; compiling a database of HTI regions and making the information known to interested parties, such as NGOs and the media - in effect, creating a network of interactive mediators, advisers and village representatives. Coordination of legal activities and strengthening of the legal system could form part of the overall strategy and these could ultimately be directed towards land ownership rights. In this way, villagers would be given access to land tribunals with proper representation for settling land disputes and for provision of compensation if deprived of land by the state.

A few villages, as mentioned above, sought assistance from NGOs and through their persistent efforts of resistance met with success in having their land restored, at least for the present. With hindsight, it appears that other villages might have conceded too quickly to their changed land status. Apart from the fear of the government and military forces another factor, more deeply embedded in the village administration, concerns political measures, described by Fauzi (1996) as 'directed towards the centralisation of the power of village democracy'. This is illustrated in a village called Selomartani:

The village administration body once again depends on the subregency. It has a greater responsibility towards the subregency than towards the farmers...Political parties are prohibited from operating at the village level, thus removing farmers' protection against the misuse of power by government officials...This prohibition also eliminates their right to organise themselves, to collectively struggle for their interests, and strengthen their bargaining position in relation to the local village elite (Loekman Soetrisno, cited in Fauzi 1996: 30).

Nordholt (1988: 497) from an in-depth study of local government describes the lack of an official organised opposition at village level as 'a barrier to the regular participation of people determining their own development'. Suwondo (1991) describes the legislation of

the Rural Government Administration (UUPD) as undermining the progress of participatory democratic political procedures. For example, the village head, whose position is approved by the government, is head of the Village Community Group (LMD) and the Village Council (LKMD) while the Family Welfare Foundation is led by his wife.

The above factors could explain the relative ease with which the HTI take-over of land was implemented. This could change as villages realise the prospects for an organised resistance. The backing of NGOs for villages proved successful in some cases. Resources, however, are spread thinly with the gathering of necessary information to present cases of injustice being time-consuming. The basic problem of preserving customary land rights is at issue and this requires advocacy and leverage at the regional and national levels.

From a wider perspective the political confrontations need to be examined in the light of macro-structural changes in Indonesia. For example, Fauzi (1996) describes various types of protest that have arisen as a result of oppression and subjugation of farmers. These include protests carried out by farmers with the support of NGOs; protests directed towards parliament, government departments, such as the National Land Body, or other involved organisations, such as the World Bank; protests for settlement of damages by the farmer victims; and protests using media coverage. NGOs involved in these protests are diversified and include those offering legal aid, such as *Lembaga Bantuan Hukum*; those concerned with the environment, such as *Wahana Lingkungan Hidup Indonesia* (WALHI) and the *Secretariat Pelestarian Hutan Indonesia* (SKEPHI); and some promoting alternative models of development, such as *Kelompok Studi dan Pengembangan Partisipasi Masyarakat* (KSPPM). Fauzi argues that agrarian conflict can be taken as a basic characteristic of the structural change of society occurring during the New Order and these can only be understood in the context of the growth of capitalism and globalisation endorsed by the New Order.

Fundamentally, the New Order has pursued a policy of economic development which has brought itself in conflict with indigenous people, as described by Poffenberger (1990: 17):

Ultimately, conflicts over Indonesian forest land in the Outer Islands result from economic development policies in which indigenous people have little role or no role, and from the agencies' inability to understand indigenous land management and tenure practices or to respond to their diversity.

The drop in oil prices in the mid-1980s influenced the government to place more reliance on forest resources for revenue generation. This primary goal has been in conflict with other responsibilities associated with increasing village income through forest development activities. Peluso, Poffenberger and Seymour (1990: 225) identify three factors causing conflict for the Java social forestry programme involving *tumpanghari*: long-standing disputes between the government and the villagers over forest land and tree tenure; a history of bureaucratic misbehaviour such as corruption and theft; and the failure of forest policies to respond to diverse ecological and socio-economic conditions in forest villages.

In general, an examination of these case studies of political-environmental interaction help to give a greater understanding of both the 'community' and the 'environment' in its diversity and complexity. There is potential for combining field analysis at the village level with an understanding of macro-structural influences of economy and politics and the relationships among institutions at different levels. This supports the 'environmental entitlements' approach described by Leach, Mearns and Scoones (1997) and summarised in chapter 3. They suggested that approaches should 'address conflict rather than assume consensus, embrace social and ecological heterogeneity, rather than assume commonality, and work from an understanding of institutional diversity and dynamics' (Leach, Mearns & Scoones 1997: 3).

9.3.4 Co-management programs

Acquisition of land in NTT by forestry officials for HTI activities has been supported by other government agencies and the military. There has been little involvement of the

village leaders in any type of participatory program. At the most a verbal agreement was reached after explanations were given of the benefits that would be gained by the village community. The take-over itself was made easier by the prior resettlement of people. The consequences of these one-sided activities were to make the villagers feel vulnerable, powerless and isolated.

In practice, the implementation of the HTI projects did not go smoothly, partly because of the resistance of people but also due to other factors such as lack of funds and the technical difficulties in establishing the plantations. Faced with the problem of criticism and increasing resistance from village communities, new government strategies have incorporated measures to give a fairer distribution of benefits to local people as well as adopt a more participatory process in the forestry enterprises. At this stage it is too soon to gauge how effective these new approaches will be for NTT.

An understanding of how effective this reorientation might be comes from a study of the effectiveness of community involvement in the SFC (State Forest Corporation) on Java (Peluso, Poffenberger & Seymour 1990). Conflict, described above, arose over the old *tumpanghari* system which allowed farmers to cultivate agricultural crops between the rows of reforested timber species for two to three years in return for planting and protecting the seedlings. Survival of the villagers was threatened as a result of limited access to forest resources. From 1984 onwards there was a commitment by the SFC to allow greater community involvement in forest management. The structural changes involved longer rights of tenure on reforestation lands, greater involvement in selecting alternative crop species and an empowering of villagers through forest farmers' organisations. A number of problems were faced in the learning process as the SFC attempted to implement the new approach. These include technical, financial and technical constraints as well as issues related to gender, attitude, and general management.

The researchers conclude that despite these initial constraints a reorientation of management strategy can prove beneficial in the longer term given supportive leadership,

improved communication and opportunities to learn through experimentation and management alternatives. In addition, participation by rural women is needed because of their knowledge of forest ecosystems and since they had often as much involvement as men in the forest or agricultural plots. While there may be some promising changes, entrenched attitudes by staff (in regard to community participation in forest use decision making) pose constraints to a proper consultation process. Other problems include rigid centralised control organisations, poor communication channels and operational procedures, and the need for farmers to have long-term tenure security. All these have implications for new policy making, planning, methods and legal aspects (Peluso & Poffenberger 1989).

For NTT, *Perum Perhutani* claim that in the last three years they have adopted a co-management approach with projects identified as HTI-HKM (*Hutan Kemasyarakatan* or Social forestry). The new HTI-HKM projects are aimed at countering village hostility by promoting community participation in decision making; they have attempted to offer greater income-incentives to villagers through the growing of their own crops such as cashews in the HTI areas. The scheme, a modified version of *tumpangsari*, makes allowance for the growing of fruit trees along with forest species, the growing of maize and rice crops in the initial years of establishment and gives a limited access to cattle for grazing. The income arising from 30% of harvested products of trees would be distributed among the villagers. Although the scheme appears to soften the impact of HTI activities it is not known how collaborative decisions will work out and whether there will be a cooperative partnership in management of these areas. *Perum Perhutani* claim that in the last three years the new approach has increased community participation and offered greater income incentives to villagers through the growing of their own crops, such as cashews, in the HTI-HKM project areas.

Co-management projects have been initiated for Oeteta and started in Nuataus. Although it is too early for a proper evaluation, the evidence up to date, derived from Nuataus and the village of Helebik on the island of Roti, is that this type of project is the same body dressed

differently. For Helebik, the land handed over by the traditional chief in a verbal agreement had not been clearly defined. For implementing the HTI-HKM project owners of the land were employed for a low wage, and not even supported by a written guarantee. There was also no written agreement concerning the ownership of the cashew-grown area, amounting to 30% of the overall HKM land. This new approach caused divisions in the village community due to loss of grazing areas as well as land for shifting cultivation and garden use; some of the villagers appeared to benefit at the expense of others (Pellokila 1997). A similar story emerged with Nuataus with the traditional leader supporting and being involved in the plantings while others disapproved of the HTI project. In this case, too, there was no written agreement.

Potess (1996) discusses an integrated-HTI system for 100,000 hectares of timber plantation in West Kalimantan involving PT Finnantara Intiga, a Finnish-Indonesian consortium, jointly owned by ENSO Oy's daughter company Nordic Forest Development Holdings Pty. Ltd., the privately owned Indonesian company PT Gudang Garam as well as the Indonesian state forest company PT Inhutani III. Participation of local people involves land-use contracts, temporarily replacing local tenureships, and various community development activities, such as inter-village organisations, agricultural groups, and small credits and loans. As well, local people participate in the design of a village master plan for all components of the land-use system. Potess concludes that the integrated system offers options, rather than forcing, for economic development based on a combination of land intensification practices and local traditional systems. Potter and Lee (1998) find from their study of trends, impacts and directions of tree planting in Indonesia, however, that despite a more conciliatory approach being adopted by Finnantara Intiga, the operation is perceived as too expensive by regional authorities and as a result has not received the required support. This is emphasised by support given for investment in oil palm estates by the regional government as a preferred means of generating both local income and regional economic growth. Mayer (1996) also examines the potential social and ecological effects of this timber plantation project. She raises questions concerning the operation of the project which could affect adversely the best interests of local rural populations despite the

good intentions of plantation planners. These arise out of the difficulty of matching the aims and requirements of a large scale project with the needs, aspirations and necessary involvement of local people. For example, 'Who is clearly able to represent village people's interests to the company, given Indonesian policies that discourage independent social organisations or political activity in rural areas?' (Mayer 1996: 10).

Some of the questions that could be raised concerning the integrated-HTI project in West Kalimantan and similar projects, concern the guarantee ultimately of legal recognition of customary property rights and whether those rights are really a prerequisite for the success of joint ventures involving community participation in forestry development. The likely clash between those used to an indigenous resource management system and those managing a complex development project and the nature of business ethics between the two major companies are causes for concern. One might question the genuineness of the participatory process and the possibility of creating divisions in the community which could exacerbate differences between those better off and the poor. From a wider perspective is it possible to reconcile the vested interests of capital holders with the aspirations of indigenous farming people?

In general, there has been some attempt by *Perum Perhutani* to address the lack of community participation in West Timor. These efforts parallel other attempts in Indonesia to have greater involvement in forestry projects, such as increasing people's shares in the *tumpang Sari* areas and the promotion of a joint partnership in plantation enterprises by the Forest Farmers Association. For the Noelmina catchment area, West Timor, McKinnell and Havel (1995) view the prospects of *tumpang Sari* positively. According to their findings the aim should be to establish a partnership between the forest management agency and the farmers that is beneficial to both in the long term. They recommend management under a modified *tumpang Sari* method that results in a mosaic of planted areas, each no more than 10 ha in area. These smaller areas then support a group of farmers, perhaps at the *dusun* level. A proportion of tree species, such as candlenut (*kemiri*), could be included for cash crop production, giving the farmer partners the right to collect the produce and

benefit on a profit share basis. This appears to be an improvement on the short-term tenure period described by Peluso and Poffenberger (1989) for cases in Java in which closing *tumpang Sari* after two or three years had the greatest effect on household economies of landless or land-poor farmers who depended on access to reforestation areas for survival.

For the present situation there appear to be some options within the bureaucratic structures to facilitate viable *tumpang Sari* programmes if due emphasis is given to tenure periods, the role of incentives for all parties to be mutually supportive, and the development of participatory processes through improved communication and organisational capacity.

9.4 Conclusion

Resettlement of villagers and HTI development programmes have substantially changed opportunities for livelihoods from shifting cultivation to a range of survival strategies. Although villagers who were resettled are most affected, the increased pressure on resources has implications for resource management, adoption of alternative livelihood enterprises and outmigration. These include the adoption of modified farming practices for lowland areas and working for the HTI programmes. The latter offer short-term employment prospects while the longer term situation remains uncertain.

There is as yet no coordinated strategy in confronting HTI take-over of land. Powerful corporations, together with strong government and military pressure, threaten to undermine attempts to negotiate a just outcome. Strategies for cooperative management of HTI designated areas have some potential but still may fall short of addressing the basic problem of land security, and of villagers being actively involved as participants in managing their resources.

Active resistance has been successful, in some cases, in having land returned to villages. In other cases there has been no satisfactory resolution of the conflict. The acceptance of the

HTI development programmes, albeit reluctantly, by some of the villagers is explained, in part, by the previous undermining of villagers' direct participation in their development.

Resistance measures adopted by villagers may have a positive benefit, however, in the longer term, in strengthening the provincial or national case for addressing their problems. Their efforts could also be strengthened by a coordinated strategy involving the assistance of NGOs. Villagers are themselves empowered through these processes for affirmative action rather than accepting passively the development imposed from above.



Plate 21: HTI plantation block established with *Gmelina Arborea* (70 ha), jambune or cashew (18 ha), kemiri or candlenut (2 ha) and kapok or silk-cotton tree (10 ha)



Plate 22: HTI warning notices on the boundary fence prohibiting livestock grazing and the lighting of fires



Plate 23: Acacia species on the perimeter of a well-established HTI plantation (three years growth)



Plate 24: Bali cattle grazing close to the boundary fence of a HTI plantation

CHAPTER TEN

POPULATION MOVEMENTS, ETHNICITY AND DEVELOPMENT

10.1 Introduction

The significance of the findings from chapters 8 and 9, with respect to population movements, ethnicity and the activities of the HTI development programme, need to be assessed in the context of sustainable development. The dominant type of movement affecting villagers in the coastal areas has been immigration. Increase in population density together with the pressures on resources exerted by the HTI have affected all villages. The types of response to these pressures need to be evaluated, along with other aspects, for sustainable development. An understanding of these processes and outcomes is necessary for improved decision making and policy formulation.

The aim of this chapter is to explore options for improved livelihood opportunities and resource management practices. This will be achieved by, first, assessing the impact of population pressure. From this assessment an attempt will be made to examine the type of response to this pressure and to clarify how factors influencing development processes can constrain, or provide opportunity for, adaptations to agricultural systems. Secondly, the roles of external agencies will be discussed for promoting livelihood opportunities and strengthening resource management practices. Finally, the relationships between population mobility, ethnicity and development processes and sustainable rural activities will be assessed.

10.2 Population pressure on resources

The concept of increased population pressure on village resources needs to be considered from a number of aspects. These include the components contributing to an increased rate of population growth and the spatial distribution of population, together with the nature and intensity of resource use, along with its environmental consequences. Implicit in this concept is also the concept of carrying capacity which can be defined as the maximum population that a given area can support at a particular level of technology without any degradation of the natural resource base (Kirchner et al. 1984). This concept is not, however, a straightforward one in its application since people can alter the carrying capacity of any area in either direction, for example, through improvement of technology or through environmental mismanagement. In addition, people can vary the extent of resource utilisation. As a result of these factors estimates of carrying capacity or optimum population must be treated with caution and, at best, offer only a guide in a contextual situation.

10.2.1 The impact of population pressure

In an attempt to arrive at some estimation of population pressure the increase in population densities was determined for the period 1980 to 1994. The combined population density for each pair of villages (number of persons per square kilometre) before HTI take-over was 35 for Oeteta and Pariti, 14 for Poto and Nuataus and 52 for Nunsaen and Oelbiteno. After the take-over the population densities were 93 for Oeteta and Pariti, 33 for Poto and Nuataus and 152 for Nunsaen and Oelbiteno (Table 10.1); this compares to a population density of 57 for Nusa Tenggara Timur in 1980 and one of 75 in 1990 (BPS 1983; 1992b).

Over the period of about 15 years (1980-1994) the loss of land to the HTI combined with rapidly growing village populations due to both natural increase and immigration has effectively more than doubled the density of persons per square kilometre. This puts the highland villages of Nunsaen and Oelbiteno under ecological constraint should they wish

to continue to practise swidden agriculture. The villages of Oeteta and Pariti also have significantly increased in population density but have given up the practice of shifting agriculture. This has been relatively easy compared to Nunsaen and Oelbiteno due to the availability of alternatives for diversification including irrigated rice production. Nunsaen and Oelbiteno are limited in this respect and so far have not adjusted their farming system to the new population pressure and restricted land availability. Such adjustments would require inputs for a more intensive agriculture; while these may be innovative, such as the incorporation of organic materials to improve fertility, they are also likely to be costly such as the purchase of new seed material. In addition, the potential to establish new enterprises, such as the growing of pineapples by some farmers in Nunsaen for local and other markets, is made difficult because of poor road services and the lack of suitable facilities for marketing and processing (Forge 1991; Jones 1995).

Table 10.1: Population Densities in Villages

Village	Village area (before HTI) ha	Village area (after HTI) ha	Population in village in 1980 (No of persons)	Population in village in 1994 (No of persons)	Density of population in 1980 No/sq km	Density of population in 1994 (before HTI) No/sq km	Density of population in 1994 (after HTI) No/sq km
Oeteta	4021	2010	1266	1760	31	44	88
Pariti	7039	2182	1348	2138	19	30	98
Poto *	30160	7540	2306	2815	8	9	37
Nuataus *	11509	9783	1396	2904	12	25	30
Nunsaen	4462	1026	1367	2056	31	46	200
Oelbiteno	1895	1156	1006	1258	53	66	109

Source: Analysis of Statistics for Population in the Kupang Regency, NTT Province, 1990; and field records.

* Some of the settlements formerly belonging to Poto now are part of Nuataus, hence the apparent greater increase in population density for Nuataus

In contrast to the slower migration of inter-island people into the coastal areas, which mainly affects Pariti and Oeteta, the movement of people within West Timor has occurred over a shorter time span affecting mostly Poto and Nuataus. This, coupled with the movement of people from the hillslopes to more closely settled areas closer to the coast and access routes, has placed an additional adjustment strain on household survival. Farmers must adapt to a more permanent system of agriculture. Well-watered and fertile *mamar* land has been lost; grazing areas have been reduced and those that exist are grazed by livestock owned by a few rich cattle owners. Close access to water is no longer possible for many of the villagers in Poto who have to walk more than 2 kilometres to a spring supply or well. The village leaders have sought help from Plan International, an NGO that has already contributed substantially to the provision of water supplies to the villagers of Oeteta. Despite the relatively large village areas of Poto and Nuataus compared to the other villages studied, there is still a forfeit in land lost as shown by the closer type of land settlement in which a number of the farmers interviewed have very small plots. Some have only garden areas and a few in the sample are virtually landless. As a result, farmers are now forced to look towards other livelihoods, such as becoming labourers, to fully support their families. The leaders in these villages stress the impact of the loss of land on their livelihoods and the future livelihoods of their offspring.

In the villages of Nunsauen and Oelbiteno some adjustments are being made because of land lost to the HTI which was formerly available for shifting cultivation (60% and 77% of the original village-owned land under *adat*). The population density has, in effect, more than doubled over a short time, taking it to 2 to 3 times the safe limit of Ormeling's estimate of 20-30 persons per square kilometre for shifting cultivation in this area. The villages have had little time to adjust to a more permanent system of agriculture. This has been further constrained by the remoteness of these villages with one mostly unsealed access road in a very poor state and often impassable in the wet season. The villagers are not able to meet the costs of technological inputs to increase agricultural production. Access to water for drinking and irrigation is limited during the dry season, especially for

some *dusun*s situated at some distance from the springs. At this stage there has been little attempt to store water for the dry season or for times of drought. Many of the farmers, who have fewer options compared to those living in the coastal villages, are forced into a situation of dependency to supplement their income through participation in the forestry programs. Apart from difficulties in transport and access to an available supply of water throughout the year, the main problem constraining their farming practices is soil fertility. According to village leaders, this has become more noticeable since the acquisition of land by the HTI. Suitable replacement activities to the one of traditional fallow for restoring fertility have not been successfully incorporated into more permanent types of production systems.

The estimates of population densities as a guide to population pressure for shifting agriculture pose some problems. In the highland villages farmers state that their fallow periods have been reduced from more than seven years to less than four years. In the coastal zone irrigated rice fields are cropped as long as possible, and for dryland crops the length of fallow period may be as low as two or three years. Shifting agriculture has many variants: composite systems combining irrigated and dryland rice are common in other countries and in other parts of Indonesia, for example West Kalimantan. They are also found in parts of the Noelmina basin in West Timor, for example at Oebobo (*kecamatan Amanuban Barat, kabupaten TTS*). Ormeling's estimates would need to be redefined in terms of the potential of the current types of farming systems. The second problem concerns the actual amount of arable land, both irrigated and dryland, capable and suitable for cropping. Knowing the availability of this land would give a clearer idea of pressures being exerted on cropping land for which the majority of farmers are dependent for a livelihood. This is not easy to determine since sub-regency records have been carried through from one year to the next and are known to be unreliable.

With increased pressure on resources farmers themselves are affected differentially. Those who have been recently resettled are at a disadvantage with respect to previously settled

farmers who gained the best access to land. In Poto it was noticeable that the farmers who had little or no land as a result of settlement had few or no livestock. They were dependent on relatives or neighbours for their livelihood. Conversely, especially in Timorese society, those families who are better off may become poorer as a result of this obligation to share wealth. In the settlements where households are living closer together it is harder for farmers to crop land that is further away and likely to be unprotected from cattle grazing. With respect to the HTI take-over, as already discussed, farmers who have suffered the most are those in the coastal villages of Poto and Nuataus and in the highland villages of Nunsauen and Oelbiteno. Farmers in Pariti and Oeteta still graze their cattle in most of the HTI designated areas and are, at the same time, more dependent on cropping for their livelihood. Pressure on available cropped land has increased in Poto and Nuataus because of resettlement and immigration and, according to village leaders, has resulted in land scarcity. A similar situation exists for Nunsauen and Oelbiteno even though the contribution to increased population from immigration was much lower (8.8% increase due to immigration during the period 1980-1994; Table 8.17). Pressure on grazing land has also increased; estimates of actual grazing land (some cattle may still have access to HTI designated areas) and stock numbers are difficult to determine. Estimates of stocking rate vary from 0.5 to 1 head of cattle per hectare which is high by generally recommended standards (3 hectares per head of cattle). Similar estimates of high stocking rates have been found in the Noelmina watershed of West Timor (NTTWMP 1992). The grazing pressure is reduced a little by the cut and carry system which is popular with smaller cattle owners; the larger cattle owners (> 10 head of cattle) graze their cattle on communal grasslands and account for more than 80% of cattle.

Quantitative data supporting the farmers' claim to an increased pressure on land was either not available or was difficult to determine in this type of study. Reliance is based on qualitative assessments that farmers who have lost access to cropping and grazing land, and who, having settled into coastal areas along with new arrivals from outside the village, are now facing difficulties in sustaining a livelihood dependent largely on dryland cropping. The amount of dryland (actually cropped) considered necessary to support a

household of five to six members is given as 1 ha (based on the assessment of village leaders). If this is cropped for two years with a fallow period of four years three hectares of land is required per household. Approximately 70% of farmers in Nuataus, Poto, Nunsauen and Oelbiteno have access to less than this amount. Ultimately, livelihood is threatened, particularly for the poorer members of the community if there is no adaptive response.

An assessment of the impact on the environment could provide further evidence of increased pressure on resources. As a result of HTI activities, this needs to take account of increased stocking rates of cattle on rangeland areas and changes in the hydrological cycle. Also important are the effect of clearfelling and other forestry activities on erosion. Productive farming land is threatened by a lowering of soil fertility and rising salinity levels in the irrigated areas. In this study the environmental impacts of different types of production areas were not measured. The qualitative evidence, coming from the reports of farmers and from visual assessment, suggesting that there is continuing soil loss from hillslopes due to rill, sheet and gully erosion. There appears also to be disturbance to the hydrology of the region (the causes of which could be human-induced) with loss of water supply points to the villagers; and deterioration of the soil structure making it hard and compact when dry. The loss of structure and organic matter which is likely to accompany these soil changes would account for some of the loss of yield which farmers claim has been declining over the last five years. It is important here to distinguish between natural erosion due to a combination of geological, climatic, vegetative and topographical features and the effects of the farming systems. The main geological material in West Timor, Bobonaro clay, is highly susceptible to erosion. During the early part of the wet season a lack of vegetative cover accelerates erosion and run off. Field observations from the NTT Watershed Management Planning Project (NTTWMP c1990) indicate that shallow soils, used for shifting cultivation, have lost their A horizon. From the findings of the Project's environmental analysis for the Noelmina watershed and other parts of West Timor, it is concluded that degradation of the soil, reduction of yields, invasion of plants such as *Imperata cylindrica* and *Chromolaena odorata*, and population gains have put pressure on land resources resulting in shortening of the fallow cycle and the acceleration of erosion.

Aerial photography and satellite imagery have also shown that extensive areas of the Noelmina are eroding as a result of clearing or partial clearing. An examination of soil profiles gives evidence that erosion is accelerating rather than being part of the natural process of long-term erosion. The environmental analyses indicate that other important contributing factors to accelerated erosion include the indiscriminate overgrazing of cattle and burning of vegetation before the onset of the wet season. As mentioned previously, though (see chapter 3, section 3.3.1), Brookfield describes other factors, some of which interact with human, that need to be taken into account for the persistence of grassland, deforestation and accelerated erosion, rather than blaming these problems on shifting cultivation or the introduction of cattle *per se*. The government, on the other hand, is more likely to use the evidence to justify the HTI take-over.

10.3 Responses to population pressure

The main types of response to population pressure comprise the following:

- * increasing agricultural output through expansion of areas of cultivation, intensification of cropping and adoption of new technology or innovation.
- * off-farm or non-agricultural employment
- * outmigration to urban or other rural areas
- * fertility reduction

The various outcomes have been discussed by a number of authors (for example, Davis 1963; Boserup 1965; Grigg 1976; Oberai & Singh 1983).

Outmigration and off-farm employment have been discussed in the previous chapters. Attention here will be focused on the importance of intensification and innovation. This will assist in examining the linkages between population, the environment and development processes.

10.3.1 Intensification, innovation and diversification

The indicators showing increased pressure on the land can be examined in the light of the Boserup hypothesis (1965) which holds that with increasing population densities, a corresponding shift to greater agricultural production and more intensive use of the land takes place autonomously. Basic concepts integral to the Boserup hypothesis are factor substitution and technological change. The land is worked harder with a shift to increased crop production. The surplus obtained from the more intensive agriculture is likely to generate income beyond the subsistence level which in turn has implications for growth in other sectors. The findings from this study indicate that farmers have intensified their cropping with reduction of fallow but have so far not adopted new agricultural systems with the form of intensification envisaged by Boserup.

In her 1981 study, Boserup herself introduces other variables which could explain a weak autonomous intensification, citing examples in Africa. These include lack of infrastructure, inefficient extension and marketing, and rural-urban migration. Apart from migration these could have some additional influence here in the remote villages but the primary factors appear to relate more to environmental constraints. In particular, any quick response to population pressure, from an extensive form of cultivation to an intensive one, is likely to aggravate poor soil conditions for plant growth where the land is 'mined' for short-term economic gain. The declining yield of crops, due most likely to decreasing soil fertility, was a common observation among farmers in all villages in this study. Unfortunately, reliable data to substantiate these claims are lacking. In general, Boserup's theory appears to be inapplicable for this situation because of the rapid HTI developments and their pressure on resources. This type of scenario is very common throughout Third World countries. Metzner (1982) in his study in Central Sikka, Flores found that no correlation emerged between population density and labour intensity and that the environment rather than the population density was a determining factor of labour intensity. Of importance,

also, was the level of social and economic expectations which accounted for the lack of correlation between population density and agricultural intensification.

This study also needs to take into account the contrast made by Geertz (1963) of the likely outcome of population pressure on a system of shifting agriculture with that of the wet-rice system in Java. Geertz endeavours to show that increased population densities in Java are accommodated through a process of labour intensification, which he calls 'agricultural involution' where there is a continuing marginal return to labour without noticeable declines in yield. Labour intensification in the *ladang* system could, however, also affect the fragility of the ecosystem and there is the possibility of marginal returns declining rapidly and even falling below zero if the system becomes unstable through poor environmental practices. Although labour intensity was not studied here there is a general support to the Sikka study of Metzner that the environment is more resilient than supposed by Geertz and that a kind of 'involution' has occurred where labour has been absorbed in less intensive adaptive changes, such as an increased dryland cropping frequency.

Geertz did not recognise the transitional nature of the Javanese wet-rice system which eventually had to adapt to macro-structural changes that incorporated increased population movements, increased commercialisation and factor substitution. This facilitated off-farm employment, the introduction of new technology and capitalist modes of production (Svensson 1991). White (1983) and Collier (1981) criticised the involution paradigm with respect to explaining these new processes and their consequences. These included increased inequalities in the distribution of land, the breakdown of village institutions that 'shared out poverty' (if these ever existed), the end of village egalitarianism (if this ever existed), a fall in agricultural employment, an unequal distribution of the benefits of new technologies and capitalistic forms of economic calculation in agricultural enterprises.

Brookfield (1972) attempted to reconcile the theories of Malthus and Geertz on the one hand and Boserup on the other by taking into account the variables that each disregarded. This was accommodated by envisaging a hierarchy of agricultural ecosystems with each

system having a range of population capacities. The marginal and average productivity will vary according to the level of factor input (land, capital, labour and skills) and this in turn will depend on the number of people working the land. The marginal return could approach zero, as in the case of Geertz, before a shift to a higher level system. The shift to higher technological levels with population increase is also in accord with Boserup. In the long run the Malthusian limit is reached in which there is no known or feasible technology that will correspond to that population. Induced innovation, therefore, involves the allocation of resources for the adoption of new technologies being directed by relative factor scarcity.

Brookfield and Padoch (1994) make the point that not all adaptations are successful, particularly with rapid changes to the system, such as areas of adjacent land having been taken over by settlers or foresters. Response to population and commercial pressure could involve intensification of the same management system with ensuing land degradation. Population increase in the rural areas of Java has resulted in the cultivation of steeper slopes and a reduction of forest cover (Repetto 1986). This has led to increased rates of erosion from exposed top soils; it has ranged between 23 and 38 millimetres per year, more than 10 times that average rate of soil formation. Coxhead (1997) describes a situation in which intensive vegetable gardening has replaced ecologically more sustainable agroforestry systems. These new types of agricultural systems have also exposed the fragile soils of the tropical uplands to leaching and the eroding effects of the monsoon rains. This is supported by Hefner (1990) who carried out a research study in the Tengger highlands of East Java and found that short-term interests of production ran contrary to those of soil preservation. This was particularly noticeable in the vegetable-growing upperslope region. In contrast, a shift to tree crops in the midslope region from the double-cropping of maize (which involved deep-hoeing and extra stripping of the soil surface of weeds) was more sustainable. Palte (1989), similarly, recognises the serious consequences of agricultural activities in upland areas on Java but advises against a simplistic remedy such as converting all land above 500 metres in altitude to protective forestry. This type of approach ignores the likelihood of different causes existing for different problem areas, each with its own specific characteristics.

Cleaver and Shreiber (1994) have put forward evidence indicating that traditional systems in sub-Saharan Africa have not been able to respond sufficiently to forest exploitation practices and environmental degradation has followed. However, there is also evidence coming from the same region that agricultural systems have adapted to high population pressure without land degradation (Turner, Hyden & Kates 1993). Similarly, a study of upland use in the Gunung Kidul Regency of Java by Nibbering (1991) showed that the farmers were adaptive in situations of population pressure. A drive for change was generated once new opportunities presented themselves and there was a willingness to conserve endangered resources. Jones (1993) makes the point for the outer islands of Indonesia that the environmental problems arising are often due 'to unwise development policies or ineffective policing of regulations', rather than overpopulation *per se*. From a consideration of these findings it would be useful to assess the constraints and opportunities for the villagers in this study facing similar pressures.

To accomplish this, further insight can be gained from Brookfield (1984) who explores a social theory for innovation and intensification. The distinction between innovation and intensification is important for elaboration of a socially-based theory. Innovation involves the application of new practices and combination of practices while intensification refers to the intensified use of existing technological or socio-economic systems.

Intensification can arise under a range of modes of production without leading to innovation or improvement in the social condition of the majority. However, where sustained improvements in the social condition do occur without the surplus being either dispersed through levelling mechanisms or concentrated into the hands of a small minority, a condition arises in which individuals are far more likely to be willing to innovate, and to take the risk involved in the adoption of new practices (Brookfield 1984).

Brookfield cites cases from the Pacific and elsewhere in which social organisation rather than simple pressure of population plays a key role in innovation. A revised theory of innovation and intensification, according to Brookfield, must include social and population

considerations, and incorporate resistance to change. Innovation arises, primarily, to reduce risk and should take account of opportunities as well as pressures. Rigg (1986) explored the relevance of Brookfield's concepts to analyse a case study in Northeastern Thailand. The farmers in the villages studied were reluctant to innovate or intensify production of rice and upland crops. There was strong evidence that the marginal environment was seriously limiting the scope for innovation. The majority of households had access to very limited resources of cash and this limited the purchase of inputs, such as chemical fertilisers. Rigg concluded that a more sophisticated typology of innovation and intensification was required.

Opportunities for diversification have been taken up to a limited extent by those who have been resettled but there appears to be considerable scope for improving the present type of farming system to make it more sustainable. Alternatives include the adoption of agroforestry systems and increased cropping intensity incorporating different species of legumes. Growing annual crops for market, such as garlic and chillies or switching to tree crops such as cashew are other possibilities. Garrity, Bottema and Stiltz (1994) emphasise the importance of diversification in the humid sloping uplands of Asia. They found that given high marketing and production risks in the uplands, and generally low marginal returns, the farm family must engage in mixed farming systems, especially in field crop production and agroforestry, to provide income and nutritional security.

For all villages in this study, extension and research activities to encourage alternative livelihood enterprises and farming practices are minimal, with perhaps 1-2 visits per year to a village by an agricultural extension officer. Local initiative is also likely to be constrained by a lack of capital investment for inputs, expertise and cultural factors. There appears to be a potential for the development of a farming systems research and extension programme for both the highland and coastal areas. Some of the areas for improvement which have been suggested by villagers include post-harvest storage and processing of fruit and other produce, and the construction of coastal ponded areas for shrimp culture in the villages of Pariti and Oeteta. Veterinary care is needed for cattle but is limited due to the

fact that field officers of *Dinas Peternakan* (Livestock Department) lack transport and budgetary support. The officers are involved in occasional vaccination and artificial insemination programmes. Crop yields may be improved through practices of integrated pest management and organic fertilisation.

With the increase in population pressure on resources the question could be asked as to why there has been a lack of innovative response, particularly for the highland villages. At this stage there is little evidence of temporary or permanent outmigration relieving the situation. Off-farm employment is very limited. As capital, land and the acquisition of new skills are lacking the only factor input that could respond is labour. From a social and cultural standpoint Timorese group labour is used in preparing the fields and cooperative work is involved in building houses, erecting fences and other communal-type activities. This mutually supportive arrangement is efficient and helps to reduce risk. Ormeling (1957) suggests that intervention into shifting cultivation signifies an interference with religion and social life. According to Ormeling the individual farmer is bound by tradition (*adat*) and innovation has to be sanctioned by the religious and traditional leaders. This is supported by the recent findings of Van Cooten (1997). Fox (1982), on the other hand, disagrees with these ideals and states:

the so-called “conservatism” has nothing to do with their “culture” or “mental rigidity”. The Timorese are probably the most flexible and pragmatic people in the province and they are quick to seize anything that they recognise as successful.

Fox provides an illustration of innovation in which a Timorese cattle owner had developed an effective system for watering his herd. The innovation was based on the adaptation of the traditional concepts of the control of water. In a similar way, Metzner describes an innovative system, adopted by farmers in Amarasi, West Timor, of feeding cattle with a leguminous shrub, *Leucaena leucocephala* (*lamtoro*). Metzner found that this type of innovation, incorporating traditional institutions, had a greater chance of being accepted by the villagers. In an attempt to find out if Timorese and Rotinese were innovative, they were

questioned about their willingness to try out new crops. These were crops suggested by Dr Eagleton (pers. comm. 1994), an agronomist at Nusa Cendana University, that had been found adaptive to the region but were regarded as relatively minor in overall crop selection; they were soya bean, sesame, rice bean, yam, garlic and papaya. Most Timorese and Rotinese claim to have tried out some of these crops at some stage and some were currently growing rice bean, yam and papaya. The main reason given for not growing these crops was the 'lack of availability of seeds'. Village leaders were also asked what types of innovative changes could benefit them. One of the responses from the Timorese village of Nunsauen concerned an interest in the improvement of a variety of sweet pineapple grown on the hillslopes. In another situation villagers have already taken up the growing of King grass (*Pennisetum purpureum*) to assist in providing fodder for cattle. Some of the Rotinese farmers were keen to grow alternative crops such as soya bean and cashews. While these findings suggest a readiness to innovate, most dryland farmers need to be cautious with a variable climate and diversify with well-proven crops, such as maize, dryland rice, cassava, mung beans, pigeon pea and pumpkins to spread the risk. Unless there are clear advantages the opportunity to adopt new crops or technologies for high yield and profit motives is usually passed over for those crops and practices which offer a better chance of surviving at a subsistence level. An additional constraint concerns the possibility that the profit realised by the adoption of a new crop or technology may be negated by wealth levelling factors (Simpson 1995). The constraint of a limited time period to take advantage of rains at the commencement of the wet season could be offset, to some extent, by the use of cultivating implements. For most small scale subsistence farmers this is not a feasible option. In Pariti and Oeteta, however, a small proportion of wealthier landowners, including the village head of Pariti, are taking advantage of new technologies which include the use of phosphorus and nitrogenous fertilisers, application of pesticides and cultivation with small, low horse-powered tractors. The tractors are leased to farmers to assist in their timely cultivation and preparation for sowing; in 1997, there were 10 tractors operating in Pariti. The implications of these technologies, however, need to be assessed with respect to the livelihoods of poorer farmers who are unable to afford them. In addition, with the benefit of hindsight arising out of the Green Revolution experience for

Java, the indiscriminate use of some of these new technologies is of concern for the environment. While a few Rotinese farmers have adopted new technologies in Pariti and Oeteta, the villagers of Poto and Nuataus, mostly Timorese, seem to be more constrained by their relatively poorer status. However, while the lack of wealth, and perhaps the lack of availability of cash, are factors influencing the rate of change, social, cultural and institutional constraints need to be considered. An understanding of these might be helpful in facilitating innovative practices that could be carried out given the availability of indigenous resources. At present there appear to be a number of opportunities for all the villages to adopt environmentally-safe technologies.

The use of environmentally-safe technologies is supported by Metzner (1982) in his study in Central Sikka, Flores. The lack of correlation emerging between population density and agricultural intensification is partly explained by distinguishing between production for subsistence and production for trade or social purposes; the latter two types of production do not necessarily correspond to population density. Metzner advocates that a study of agricultural productive systems should pay more attention to the role of human behaviour, to a theory of production which incorporates production for social and ritual purposes. The agricultural systems studied on Flores were quite adaptive to increasing numbers of population; Metzner concluded that ecological stability was only determined to a minor extent by population pressure on resources. He suggested that it would be more appropriate to capitalise on indigenous resources and to promote sound ecologically-based practices such as mulching, crop rotation and the growing of legumes.

The findings of this study support the view that social and cultural mechanisms (rather than 'rational economic behaviour') are more likely to accommodate changes in the environment in the short-term due to pressure on agricultural systems. The development processes incorporating these mechanisms are more conducive to risk-reduction type of responses which involve firstly intensification under a traditional type of technology, later graduating to innovation. The potential for innovation will partly depend on the opportunities, assistance and improvements in infrastructure provided by outside

agencies. This type of buffering system, involving incremental changes, has been jeopardised with the more rapid changes that have resulted from HTI developments. Not only is the environment put at risk but the coping mechanisms break down. Under these circumstances outmigration could well be an appropriate response in the short-term rather than occurring over a longer period in response to a raised level of expectations.

One scenario, described by Nibbering (1991) for the stages that occurred in upland land use in Java, involves adoption of intensified practices in the short term that lead to a decline in soil fertility and crop yields. This is followed by more villagers seeking off-farm employment. In the longer term, through remittances, skill sharing and rising educational levels, together with improved networks and infrastructural services, opportunities arise for innovative approaches. The consequences of land degradation might be the trigger for such a sequence of events, although, naturally, it is desirable that responsive mechanisms take effect prior to ecological breakdown.

10.4 Resource management and sustainable development

The human and institutional aspects of this study need to be clarified with regard to the popular concepts of participation and empowerment. This has already been discussed to some extent with regard to the HTI development programme in which political aspects were raised. An opportunity has also occurred to combine some of the findings from this study with those from two rural development projects that were implemented on West Timor.

From a consideration of the popular concepts of development, as discussed in chapter 2, the primary response comes from the villagers themselves. This recognises human resources development at the village level as a strong component of sustainable development. The component is now discussed with respect to the present situation, and the constraints and opportunities operating at the village and higher levels.

10.4.1 Human resources development

As part of the survey villagers were asked about their participation in organisations, their roles as members of organisations and how village or external organisations had assisted them. The majority of villagers (>95%) do not have an active part in decision making for community development. They attend few meetings throughout the year, have little affiliation with any organisation except the church, and are basically constrained by a village power structure, endorsed by the government, of several prominent and wealthy villagers. In addition, traditional values, attitudes and customs are still pervasive throughout village life despite a lessening of *adat* rule and the influence of traditional leaders. Poverty is accepted as an inescapable characteristic of farming life and survival is the crucial factor affecting decision making. As an ultimate resource a household can rely on a spirit of cooperation (*gotong royong*) and some measure of wealth distribution as described above. Any hardships or injustices are handled by the *kepala desa* or other leaders.

There is potential for skills development for management of resources and these include basic skills in leadership, communication and decision making and participatory skills along with monitoring, implementation and evaluation of resource projects. From discussions with groups of women in the villages of Poto, Oeteta, Pariti and Oelbiteno (chapter 8, section 8.2.6.5), there is a demand for increased training skills in agricultural areas, weaving and cooking. Women's work is crucial to all aspects of the economy; as well as their household activities they contribute to the husbandry and harvesting of crops, raise animals, collect water and weave patterned materials. Women meet to discuss important issues such as family planning and health improvement (field observations). This is an improvement from the time men would make all the decisions on community affairs. While a thorough investigation of the contribution of women to rural development was not attempted, the outcome of discussion among groups of women in the different villages favoured a more active involvement of women in managing agricultural activities including provision of a reliable supply of water. They also wanted to have their traditional

skills enhanced so as to hold and improve their place in the community. Hence the demand for training skills in these areas. One of the objectives of the Australian aid funded NTT Integrated Area Development Project (NTTIADP) for West Timor was to promote the participation of women in off-farm income generating activities (agriculturally-based). The project concentrated on women's small-scale group activities and provided specific training in financial management. These activities were regarded as successful and prompted the support of a local NGO. In general, the improvement of skills and awareness raising of villagers would give them a greater opportunity to control their destiny.

Human resource development involves aspects of human physical well-being, such as nutrition and health as well as socio-cultural aspects, such as education and employment, political expression and cultural diversity (Lim 1986). Tirtosudarmo (1996) endorses the concept that a holistic approach should be adopted for human resources development. Emphasis is usually confined to education, health or employment. From the broader perspective Tirtosudarmo describes the low level of human resources and the imbalances within, and among, provinces as major problems for Eastern Indonesia. Tirtosudarmo maintains that narrowing the gap, especially between Eastern and Western Indonesia, is vital in sustaining national development. Levelling of the gap also has implications for population movements and their consequences, especially where there is a parity of labour markets.

In this study, the differences in educational attainment between urban and rural areas are observed and these are compounded for the upland villages through the difficulties of transportation and communication. In addition, the cost of meeting the government's requirements of a minimum three-year secondary education will impact on rural households. At this stage, while there is a pronounced movement of young people into Kupang, the contribution of households in this study to rural-urban migration is relatively minor. The most likely reasons, from discussions with village groups, are: educational opportunities are limited to a minority of wealthier households; competition in the Kupang

labour market is high with a high unemployment rate, even for persons with a secondary or tertiary education; and the socio-cultural links to family and the land are strong.

Although improvements in educational standards offer some advantage for employment they also offer an opportunity for villagers to be proactive in village and rural development issues. Benefits come through greater community participation and decision making, communication with external agencies, informed leadership, political expression and entrepreneurial activities. A human development policy would need to encourage these positive outcomes. Policies for these types of improvements for villagers, though, cannot be taken in isolation. On a wider front, as observed by Hugo (1993), the match between human resources and labour market needs affects movements of people. The quality of human resources in an area might be reduced as a result of the better educated people leaving to seek employment in the main city. To offset this trend more consideration would need to be given to policies which encourage basic service provision and the expansion of employment opportunities in regional growth centres.

10.4.2 Organisations and institutional strength

The structure of the village organisations are shown in Figure 10.1. While there appears to be a well-established village organisational structure by the government apart from elected leaders, the contribution of household heads to decision making is minimal as already mentioned. The church appears to be the pivotal organisation to which all villagers claim membership with the pastor and elders having key roles of responsibility. The pastors are educated and have an important influence in the village. The balance of power between church leaders, the traditional chief, the *kepala desa* and other village leaders varies between villages and is likely to influence village development. The traditional chief (*ketua adat*) is still powerful in terms of ownership of assets including land but his power and decision making role has been considerably reduced as a result of the village structure put in place by the government with its sanction to appoint a *kepala desa*.

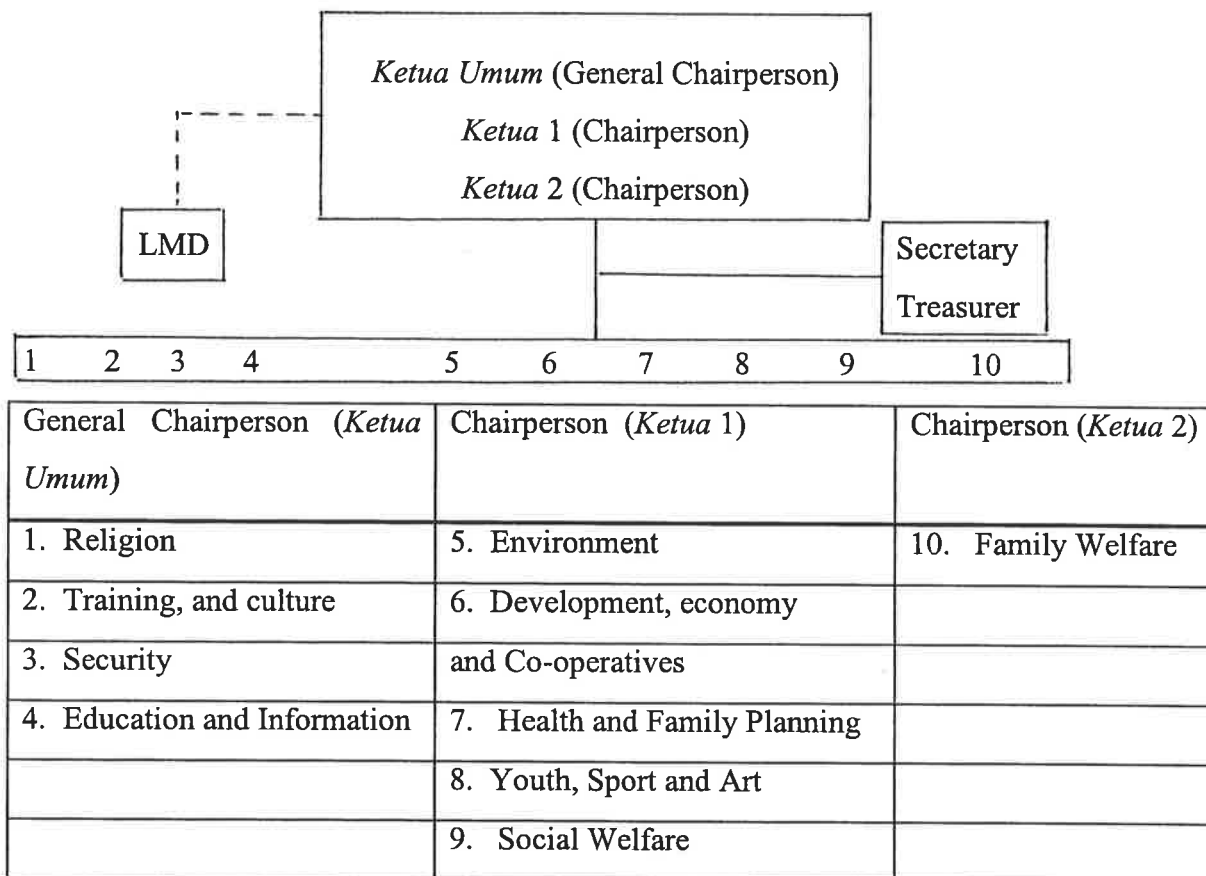


Figure 10.1: Organisational Structure of LKMD (Village Public Security Council)

Note: The *Kepala Umum* (village head) presides over the LMD, LKMD and the heads of each *dusun*.

Source: *Keputusan Menteri Dalam Negeri*, No. 27, 1984.

Preference is given to the appointment of a *kepala desa* who is better educated. Apart from Nunsanen, this has given rise to the appointment of younger village leaders (aged 28-40). Although it was difficult to get an accurate assessment for participation of women in organisations like PKK (*Pembinaan Kesejahteraan Keluarga*), most of the involvement appears to come from a small proportion of influential persons, with the village head's wife usually taking an active role in the running of the organisation. This was particularly noted for the villages of Pariti and Oelbiteno. Overall, the village hierarchy has accommodated to the imposed village government structure; but they are unable to influence it greatly as evidenced by continued demands for the improvement of roads and water supply.

The interaction between the government and the village hierarchy is highlighted with its proposed policy for decentralisation - a key issue for restructuring central-local relationships for Eastern Indonesia (Mboi 1996). In general terms this policy supports the 'management of local autonomy' and that 'attention should be concentrated on the effectiveness, efficiency and harmony of governance' (Suharto, as cited in Mboi 1996: 123). Mboi advocates that, for each locality, consideration should be given to the following:

the types of activities to be transferred, the type of power or authority to be transferred, the levels of administration to which the power or activities are to be transferred, the organisations to which power is also transferred, and the political and /or legal mechanism needed to carry out the transfer and function thereafter.

Mboi sees the role of the government as critical with respect to its leadership, goal-setting, planning, policy-making, provision of services and financing of development. However, the place and role of the local government need to be re-examined for these functions to be carried out effectively and efficiently. These should take into account population growth rates in different areas including urbanisation, the degree of spatial mobility, the mixing of different ethnic groups, and structural changes at the village level involving village leadership and village organisations. In this way Mboi views the micro-approach to rural development problems in Eastern Indonesia as moving towards a participatory process.

In theory, the government's policy of decentralisation incorporates a greater responsiveness of policy makers to local initiatives. However, constraints in this participatory process appear to operate from the government downwards and from the local village communities upwards. As an example, sub-regency and village influence over the utilisation of funds for village development appear to be low according to village leaders. A large part of the funding to regencies and villages is presidential (*Inpres*) funding and integrated area planning funding. According to Pangestu and Aziz (1994) the *Inpres* funds

give little opportunity of reducing regional disparity because each region receives the same amount per head of population (thus favouring Java). Other funding is taken up with the operating costs of education, health and salaries for local government officials (Tirtudarmo 1995a). This together with the lack of input to build up village planning capacity (as discussed in chapter 3, section 3.4) has meant the direction of development for villages is primarily a top-down one.

Kuncoro (1993) identifies some of the main problems concerning the government organisations: the uncertainty over the role of different government agencies; the lack of communication and coordination of sectoral agencies with local government agencies; the relatively weak positions of the provincial and regency planning boards so that there is no inter-sectoral strategy to address those needs through local initiatives. Other types of conflict concern the political and legal arenas. These have already been mentioned with respect to the HTI take-over and the question of land tenure. Empowerment through land security and political identity is lacking.

At the village level one of the concerns is the institutional strength of the LKMD and LMD. For West Timor the reasons given are that members are insufficiently trained for encouraging community decision making and planning process; there is poor communication by government agencies with these institutions; and the development programmes conducted by government agencies may be implemented by the agencies rather than with the LKMD directly (NTTWMP 1992). The LKMD and LMD are part of the government administrative structure for the village. As a relatively new structure it has a difficult task of coordinating the activities and planning for a smaller and often heterogeneous mix of traditional communities, as shown in this study of the coastal villages. The institutional constraints at the village and higher levels are illustrated in government funding for various projects. Village proposals are submitted by the village head and the LKMD to the sub-regency level and then passed to the regency level administration under the coordination of *Bappeda* level 2. There the village community plans are rationalised by the various sectoral agencies for effective implementation. Overall there are eight stages

of planning for regional budgets in which the concept of bottom-up is practically irrelevant (Tirtosudarmo, 1995a). Some of these difficulties involving village and higher levels are described by Freeman (1996) for the NTT Watershed Management Planning Project (NTTWMP). The institutional development components of the project, which operated in the Noelmina catchment area of West Timor, were especially difficult to incorporate. The mission for this project was to achieve economically, ecologically and socially sustainable land use practices in the Noelmina Watershed and develop a planning process that could be replicated in other critical watersheds. Freeman explains the difficulties encountered in reaching a consensus at the regency level:

- Villagers do not necessarily have the technical understanding of what national sectoral planning is aiming to achieve.
- The sub-regency and regency general planning staff do not always have a grasp of technical requirements, while their technical ministry counterparts do not necessarily have a full understanding of community planning requirements.
- National and regionally seconded national staff do not necessarily find it easy to operate at the regency level, nor do they necessarily find their plans easily accepted.
- Funds are always insufficient to meet priority needs (Freeman 1996: 45).

These findings illustrate some of the complexities of regional development planning beyond the village level which attempts to coordinate planning and implementation among various agencies, incorporate sophisticated skills (such as the use of remote sensing) and still retain a sense of ownership on the part of the village communities. McKinnell and Flavel (1995: 35) are aware of this dilemma in their review of land management options for the Noelmina Watershed Management Project and state the following:

The recommendations that follow may seem to have the flavour of a top-down approach. This is not our intent, but the lead for change has to come from somewhere. An approach to change has to be formulated and then it has to be

promulgated in a variety of ways, by different organisations, both government and non-government. The approach needs to become the common theme of extension advisers and educators as well as policy makers, so that all are heading in the same direction, with the objective of sustainable management as the ultimate objective.

Barlow (1991: 236) raises an important point concerning 'a degree of irreconcilability existing between the integrated and coordinated approaches suggested on the one hand, and the decentralised local initiative-taking proposed on the other'. This type of conflict was apparently resolved satisfactorily in West Sumatra as determined from a case study of development in this area (Zain 1991). The integrated development planning involved constructive inputs from government departments, private institutions and local village communities. Further studies of this kind could be helpful for resolution of conflicts on a regional basis and to determine how restrictive are certain constraints such as lack of local autonomy, centralised structures and lack of governmental institutional capacity (Mboi 1996). As an example of a government constraint the provincial and regency *Bappedas* need to have greater technical expertise, authority and control of the operation of ministries and departments at the subnational level (Thorbecke & Pluijm 1993). In an integrated area development project for NTT, constraints limiting *Bangdes* capacity and village capacity were also identified (ACIL 1988).

10.4.3 Role of NGOs

Overall there has been practically no involvement of NGOs in the development of highland villages. Plan International has been instrumental in establishing 30 water tanks in Oeteta (1994) which supply drinking water and some water for irrigation of garden crops. As far as can be determined there has been no recent involvement of NGO activity within the villages of Poto and Nuataus. Pariti has received assistance in establishing wells from an international irrigation organisation to help intensify crop production. However, most farmers have continued with their practice of one rice crop a year. According to village leaders there have been difficulties in adopting an equitable system for farmers. Another

project that Plan International planned to fund for Pariti involved construction of levee banks in a tidal region so that aquacultural activities could be carried out. This was not implemented, according to the *kepala desa*, due to the NGO's failure to follow the necessary village formalities.

Apart from international organisations such as Plan International and World Wide Fund for Nature there are approximately 35 local NGOs that operate from Kupang. One of the largest is the Alpha Omega Community Service and Development Foundation which offers service to all sections of the community with a special focus on improving human resources. The organisation which coordinates the activities of NGOs for improvement of social welfare is BKKKS (*Badan Koordinasi Kegiatan Kesjahteraan Sosial*). It functions as a bridge between government and non-government groups, between donors and local organisations; it provides an information centre on social problems, policy and non-governmental projects; a source of training, support and advice in basic organisation management and social development for local organisations; and an adviser on funding and fund raising for local projects. In general NGOs appear to be involved more in the Kupang environs or where there is relatively easy access to village communities. From discussions with NGO directors of Delsos, Plan International, Alpha Omega and the Duta Bina Bhuana Foundation there is a shift away from large funded-projects providing material and structural inputs towards an emphasis in human resources development. This is despite the fact that many villages still require basic need inputs such as the provision of a readily accessible supply of water. Some like the Duta Bina Bhuana Foundation combine community self-help development while acting as a facilitator for micro-enterprise development.

One of the potential roles of NGOs is seen as acting as facilitating agents for strengthening local institutions and for community participation. In this study NGO involvement had been minimal with respect to these goals. Djogo (1995) views community participation, community organisation and local leadership as key factors for reducing dependency on external support and to strengthen their own capabilities for resource utilisation. From the

results of various activities of NGOs in Eastern Indonesia Djogo recommends that for the sustainability of programs the emphasis should be on community participation and social issues rather than on economic and biophysical factors. NGOs also have an important role in collaborating with government and non-government institutions which pursue other goals such as the improvement of physical infrastructure and addressing concerns related to population, migration and the environment.

The approach of building village capacity for local resource management, such as the Noelmina watershed catchment, brings into question the role of NGOs, especially if the government agencies do not have the skills or cannot build rapport with farmers. For this type of role to be adopted by NGOs, Mckinnell and Havel (1995), in their review of land management options for the Noelmina Watershed Management Project on West Timor (NTTWMPP), recognise that on-ground planning of rural development requires local level leadership and village participation in the planning process. They envisage that the bottom-up participatory planning process would feed into the higher level watershed land use planning process involving the collection of land information, land capability assessment and ultimately land use decision making. For other land management areas, such as the area of this study, a formal way of institutionalising the role of NGOs to integrate the top-down and bottom-up planning processes is needed.

The use of an NGO, *Yayasan Alfa Omega*, in the NTTWMPP to collect data and encourage community participation was seen as innovative. There was clearly a role seen for the village community development organisation, *Bangdes* (now known as PMD or *Pembangunan Masyarakat Desa*), to guide the LKMD and village head in issues of village development, and to monitor and evaluate the NGO facilitation process. This in turn has implications for the capacity of the PMD staff to fulfil these roles. From the findings of NTTWMPP and a previous project NTTIADP (Nusa Tenggara Integrated Area Development Project) this capacity was lacking at the outset of the project due to a lack of suitably trained staff and funding. In the case of NTTIADP the selection of village level facilitators by each traditional group was recommended. The final report of NTTIADP

(1993) describes a significant improvement in the planning and implementation of sustainable development involving *Bangdes* and village facilitators in consulting with communities helping to design water resource development and establish water user groups.

The basic steps of a community development approach involving farmers are given by Djogo (1995) in Table 10.2. Djogo gives some examples of NGOs, namely, *Yayasan Tana Nua*, *Yayasan Geo Meno* and World Neighbours, that have adopted this type of community-based approach with promising results for the development of agroforestry in NTT.

TABLE 10.2 Basic Steps of a Farmer-Centred Development Approach

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1. Use a community approach, establishing an informal or personal relationship between field or extension workers and the local community and its leaders.
 2. Identify the basic problems which will become the foundation of the development process.
 3. Perform a participatory needs assessment and devise possible solutions to local problems.
 4. Involve farmers in programme planning and specifically in farm planning.
 5. Identify and design basic technology that can be developed together with farmers in the context of their capability and local resources.
 6. Identify key local farmers and encourage local leadership.
 7. Carry out a farmer-based extension strategy to facilitate the process of self-motivation.
 8. Develop institutional collaboration for the exchange of experiences and information, and facilitate exchange visits among extension workers and farmers.
 9. Carry out farmer-based trials when introducing technology.
 10. Allow farmers to modify the programme to suit their farm conditions.
 11. Begin with what they have and start with small programmes

On a wider basis Djogo (1995) and Fernandez (1991) recognise the important role of NGOs in NTT, particularly church organisations and other religious groups who have appropriate methods to encourage community participation in rural development programmes. Where there are few government extension workers, the NGOs can contribute in training and extension activities. Several local government programmes already involve NGOs in planning, implementation and evaluation. Djogo (1995) raises key issues concerning improvement of links of NGOs with government, educational and research institutions. He suggest that what is needed is a strengthening of the community participation approach and improving local village capacity in terms of leadership, community organisation and local participation by all village groups and classes of people.

Facilitators of community development might not fully appreciate the power structure or understand how constraints operate to limit progress. The minimum guidelines for exploring the potential of villages would appear to involve all interested parties, to work within the formalities imposed by the government and village structures and to be cognisant of constraints operating at different levels. These constraints might include the more apparent ones such as a lack of agricultural support services and marketing systems to improve agricultural production and income-generation beyond the subsistence level. However, a lack of knowledge concerning socio-cultural constraints might present a greater barrier, as shown by a study of the necessary steps to the successful implementation of an irrigation project in West Timor (Simpson 1995). Simpson cites examples of social control mechanisms operating through traditional customs bringing about a levelling of wealth within subsistence communities. This levelling mechanism combined with other factors such as risk averse management and sanctions imposed by village leaders, inclined farmers towards a subsistence type of agriculture. This is strongly observed in the Timorese farmers, as described by Nordholt (1971), in his studies of the Atoni agricultural cycle where he found that religious sanction was used to maintain social control. Today, however, in a move towards cash cropping, Simpson describes the emergence of a cultural poverty trap where traditional customs for wealth distribution (that once provided social security control in the subsistence economy) have gradually evolved into mechanisms for

poverty levelling. Understanding the nature of this cultural poverty trap was crucial for devising project intervention strategies for a holistic approach, in this case, to water-user group development. In a similar way programmes for crop and horticultural improvement, as well as the development of agroforestry systems might involve a community development facilitator who can spend time at the village level to gain an understanding of social and cultural mechanisms and to establish links between village leaders and external agencies.

10.4.4 Ethnicity and sustainable development

Village communities in this study have apparently accommodated, to some extent, national principles, values and a national identity. In a similar way a loss of identity associated with the loss of rights for Timorese over land use in the highland areas has weakened their livelihood and their strong association with the land. The loss of self-determination through the imposition of village and centralised structures has accompanied this loss. The struggles about land are also about preservation of their cultures. This is shown in countries like Indonesia, Malaysia and Brazil where conflict arises from the incursions of commercial forestry operations. The loss of land for shifting cultivators and a way of livelihood existence has given way to a permanent type of agriculture and a dependence on alternative occupations. The close bond of the Timorese with the land, along with their beliefs and traditions concerning resource management (Ormeling 1957; Van Cooten 1997) are likely to be undermined. The significance of this loss, in terms of these aspects was not fully determined in this study.

A creation of dependency often results from the implementation of government handouts and schemes designed to resettle people who have lost land due to commercial exploitation. This is shown, particularly, with forest communities who have been dispossessed of their natural livelihood. As an example, the Penans, hunters and gatherers, living a nomadic life in the tropical rainforest of Sarawak are under increasing pressure to

leave their natural resource base and become dependent on the market economy for survival.

As discussed previously, the Timorese and Rotinese live in relative harmony, ethnic relations having been formed, incrementally, over a longer period of time. The inequalities that do exist between Timorese and Rotinese don't appear to have seriously affected ethnic relations. At the present time potential conflict arising out of competition for land resources is contained under the traditional system of land allocation. Other factors which are likely to contribute to harmony are the sharing of wealth in times of hardship and the mutual cooperation of villagers (*gotong royong*). This contrasts with urban areas that have recently experienced conflict amidst an economic downturn in the economy. In this situation religious and economic differences between ethnic groups assume a greater significance and can lead to ethnic tension.

Conflict has occurred in rural areas and this has constrained democratic and participatory processes in relation to sustainable development. For example, since the mid-1980s, movements of people to the provinces of Irian Jaya, East Timor and East Kalimantan have often given rise to conflict (Tirtosudarmo 1995b). The conflict between migrants and local populations has involved ethnicity and religion, as well as economic and political factors. Conflict can also arise from government intervention through rules and regulations on resource use; there is a clash between often well-tried resource management practices and those advocated by the government. This is illustrated in Laos where traditional customs and rules have been an important part in sustaining livelihoods of local highland people. The government, though, has carried out a policy of resettlement of the highland communities that are far from basic services and do not have permanent agricultural land. As a result there is now conflict with established settlers in lowland areas because of increased pressure on the resource base from the incoming highlanders. This has led to degradation of agricultural land and forested areas (Tubtim, Phanvilay & Hirsch 1996). For Indonesia, the activities of logging companies have clashed with shifting cultivators, as already discussed, the outcome of which has precipitated land degradation. In some case

immigrants have adopted shifting cultivation practices as part of a survival strategy and caused further problems.

The findings from these studies concerning ethnicity suggest that there are a number of factors which could either lead to ethnic harmony or conflict such as the historical background, the social distance between ethnic groups and the competition for resources. Each situation has to be examined in its own context. Ethnic groups, living in urban areas of Kupang, for example the Bugis, Chinese and Javanese, provide a different scenario to the Timorese and Rotinese living together in coastal communities.

Ethnodevelopment, as already described, is basically 'a model of development that releases the potential inherent in different groups' (Hettne 1993). The concept is used to give clarity to the important role of ethnic factors in development. In this study the principles of ethnodevelopment, as stated by Hettne (1993) are being compromised. Traditional knowledge systems are being bypassed (particularly with the use of forestry resources); loss of land rights and the loss of self-determination have occurred with the imposition of village and centralised structures; and sustainability is under threat. On the other hand ethnic diversity and the relative harmony in which ethnic groups live together in the community are of value in managing resources and could be encouraged further.

10.4.5 Population, development processes and sustainability - overall implications

The interrelationships between population, development processes and sustainability are generally regarded as complex. This is due to the number of variables that can interact. In principle, population growth need not result in unsustainable development as the relationship between population and the environment is neither fixed or direct (Panayotou 1994). Panayotou describes the situation in which constraints operate on farming systems:

Where markets are not functioning, mobility is restricted, land and wealth are skewedly distributed, and government policies counter or block avenues of

individual and social response, a low-level trap is artificially created where diminishing returns to land lead to resource depletion and degradation, rather than to investment and innovation (Panayatou 1994: 176).

These types of constraints are likely to have the greatest impact on subsistence economies and their agroecosystems, such as those in this study. Evidence of this type of response comes from a study of the degradation of uplands in Java (Repetto 1986). He found that, although economic growth reached almost 8 per cent during the 1970s and early 1980s, there was not an equivalent absorption of labour. According to Repetto, the resulting labour surplus in both the rural and urban areas restricted labour mobility while productivity and profitability of upland farming remained low due to lack of improvements. The lack of available capital or credit resulted in low efficiency and little incentive for conservation or innovation. As a consequence environmental degradation took place. Sustainable development, in these types of cases, reflects the importance of a number of factors of which immigration and population growth form only a part.

For the villages under study the responses to population pressure on village resources are constrained by a number of factors, as already described. These factors have hindered adaptive responses, as shown with the HTI take-over. Options are reduced under these circumstances and diminishing returns to land are likely to lead to land degradation, rather than to innovation. Where there are opportunities for increased mobility, off-farm employment, access to credit, and favourable institutions, there is more likelihood that population growth can be accommodated through adoption of responses involving outmigration, investment and innovation. The potential for sustainable development becomes stronger when there is flexibility in the system. These processes would be enhanced for villagers in this study through government policies, especially the provision of secure land tenure, and through NGOs that help build village institutional capacity and facilitate changes through adoption of low-level technology using indigenous knowledge. As facilitators NGOs have opportunities in learning how social and cultural mechanisms

influence farmer behaviour towards non-economic ends. This would help encourage a farmer-first approach for the adoption of appropriate innovations.

10.4.6 Regional and global factors

Villages that formerly lived subsistence lives far removed from the developed world have now experienced some of the hazards of becoming part of the national and global economy. Some have taken part in the Green Revolution where maximising agricultural yields was the objective without sufficient recognition of the impact on the environment. Export orientation has led to a focus on one or two cash crops in place of a range of crops to spread the risk. Conway and Barbier (1988) give an example in Indonesia where the government has promoted the production and export of cassava. As a result monocropping on erodible soils in the uplands of Java has threatened the long-term security of livelihoods and the sustainable management of upper watersheds. The involvement of villagers in a cash economy has given incentives to concentrate on those crops which return the most financial gain irrespective of the longer term consequences. Government and corporations have implemented development programmes which are in conflict with local agricultural systems and sustainable livelihoods, as observed with the HTI.

Villages can no longer be considered in isolation with respect to sustainable development; they are subject to a whole range of factors at the local, national and international level. In this study the villages have not experienced the same degree of agricultural change as those in Java, either through the Green Revolution or as a result of government policies directed at specific crops. This is likely to change though, as farmers increasingly become part of the cash economy and find ways of adapting their agricultural systems to meet their requirements. For the regency of Gunung Kidul in the Special Region of Yogyakarta, Central Java, Nibbering (1991) describes the stimulus for change as coming from increased population pressure which brought a deterioration of land and living conditions. People were forced to move out of the regency to find work. Farmers responded by adopting new practices such as the use of fertiliser and planting of improved crop varieties. These types

of changes were facilitated by government subsidies on farm inputs, improved infrastructure and marketing services, and opportunities for off-farm employment. Apart from the benefits of these new opportunities Nibbering raises concerns for sustainability of land use. Similar concerns could be expressed for the villages in this study area as agricultural systems undergo changes in response to both external and population-related pressures. At the present time the availability of off-farm opportunities to Gunung Kidul is in contrast to the lack of such opportunities in Timor.

At the close of this study Indonesia is in an economic downturn as part of the Asian crisis. President Habibie (successor to former President Suharto) and the Indonesian government are faced with a number of challenges which have implications for both rural and urban areas. The Indonesian Central Bureau of Statistics released data on July 2, 1998, that 79.4 million out of a population of 202 million are now below the government poverty line compared with 22.5 million in 1996. The IMF has accepted the Government's policy response to this situation of an increase in subsidies on basic foods, particularly rice. As a result of this financial commitment the budget deficit is forecast to be 8.5% of Gross Domestic Product or about 80 trillion rupiah (6% of GDP is estimated to be for subsidies of food, fuel, electricity and medicine) (*The Australian*, July 4-5, 1998). This will put an increased strain on IMF loan agreements. Rural areas in Eastern Indonesia are likely to be disadvantaged with reduced budget funding for allocation to essential services and infrastructure. Coupled with this setback is the problem of food security. Bulog, the State logistics agency and the main distributor of rice, argues that food security must take precedence over political and economic reform (*The Australian*, July 4-5, 1998). This may further delay the narrowing of the gap between Eastern and Western Indonesia.

10.5 Conclusion

The impact of population pressure, along with the HTI development programme, has weakened the resource base for sustaining livelihoods. The apparent lack of flexibility in response is partly due to a lack of village institutional capacity, undermined by centralised

structures, to meet these challenges. Improvement of this capacity to respond needs to take into account development incorporating contributions of women, land-poor farmers and different ethnic groups. Through participative processes that need to be worked out villagers could be empowered and become self-reliant. With respect to HTI development the opposite has occurred - villagers have become marginalised and further disempowered. Both governments and NGOs have an important role in encouraging these sustainable development processes.

Innovation, involving an incremental approach, could be facilitated if it was based on local knowledge and implemented through traditional institutions and organisations. A number of initiatives could be given with preference for a low-technology based system supported by the building-up of village capacity through skills training and improved organisational capacity.

Although results indicate that the existence of ethnic inequalities is of relatively minor importance compared to the major issues confronting village development there is scope to address the problems of land dispossession which have adversely affected the villagers. The question of land rights and land distribution are difficult problems to resolve and need to be undertaken in the full context of village development, which includes security of land tenure, the promotion of alternative farming systems and off-farm livelihoods. In general the findings from this study support the relevance of the principles of ethnodevelopment.

The changes in the farming systems which are evolving from a swidden agriculture into more permanent systems can be regarded as part of a transition state. As a consequence of increasing population density and reduced village access to rangeland areas, there is a strong imperative to counter any loss in basic dryland production with the establishment of alternative enterprises. The scope for adapting the system to population pressure and ensuring marginal returns will depend on such factors as the pattern of immigration and rate of population increase, the type of inputs, the resilience of the system to innovative changes and the skills required for its management. Ultimately, external factors could play

a part, as in Java, where increased population movements, improvement of transport and marketing facilities facilitate improved services, networking and trade outlets.



Plate 25: Traditional Timorese farmers - will they have a sustainable livelihood?



Plate 26: Young Rotinese farmers - will they carry on a tradition of farming?

CHAPTER ELEVEN

CONCLUSIONS

11.1 Introduction

This study has focused on the significance of population movements and ethnicity at the village level, in relation to resource management in West Timor, part of the province of Nusa Tenggara Timur, Eastern Indonesia. The dependency of the provinces in Eastern Indonesia upon the agricultural sector is associated with a higher level of poverty than in Western Indonesia. Research and development to alleviate poverty in Indonesia have been biased towards Western Indonesia, in particular Java. It is well known that rural development is a complex business which can result in the persistence of poverty or, in the worst scenario, famine. This study has attempted to elucidate the pressures facing village communities by focusing on the linkages between population movements, ethnicity and resource management. To fulfil this aim the concept of sustainable development and its associated concepts of participation and empowerment provided, firstly, a basis to examine resource management processes in an Indonesian context and, secondly, along with theoretical considerations of population movements and ethnicity, assisted in establishing a framework to examine the importance of these factors at a local level. The study attempted to put the findings of a local study into a broader context; this helped to give further insight into problems associated with sustainability and to show that they are not confined to one hierarchical level. This has implications for the integration of policy making.

The study had to take into account the impact of forestry development activities when it was realised that this was an important part of the picture affecting the livelihood of villagers. As a consequence the emphasis of the research shifted from one involving a more detailed study of population variables to one encompassing the relevance of a range

of options for resource management in agricultural and forestry systems. Overall the research gives support for the value of localised in-depth studies which provide more detailed data on the relevance of population movements and ethnic factors that are not apparent in village reports and census data; the findings from this data assist in determining policy making for sustainable village-based development.

11.2 Major findings of the study

11.2.1 Population movements

One of the objectives of the study was to determine the type and impact of population movements. The major flow of migrants in the study area was of immigration to the coastal villages. It represented a strong rural-to-rural movement in which migrants were searching primarily for better opportunities in farming. In particular, migrants exploited new areas for cropping and grazing. The establishment of well-formed links, especially with the islands of Roti and Savu, facilitated this migration process. Problems of sustaining a livelihood with increased population pressure on available resources, including scarcity of land, contributed to the migration process at the migrant's origin. In the highland villages immigration was relatively small by comparison, being mainly confined to those whose primary occupation was in the non-agricultural sector.

There has been minimal movement out of the villages, either on a permanent or on a temporary basis. Circular migration was highest for the coastal villages of Pariti and Oeteta. The reasons for this were most likely that these villages were less isolated, being closer to the main arterial road; they had sealed access roads, there were better communication and transport services and more established links with Kupang, especially for the Rotinese. The main reason for temporary movement outside the villages was to obtain an improved level of education. In the highland village of Oelbiteno there was no secondary school; only the children of village leaders, pastors, teachers and government officials were able to pursue a secondary education outside the village.

Altogether there was a lower rate of outmigration compared to villagers in Java. The reasons contributing to this were strong kinship bonds and an affinity for the land evident among village leaders and household heads, poor transport and communication infrastructure and a combination of lower levels of educational attainment (compared to urban areas) with a lack of accessible off-farm employment opportunities (an important factor compared to Java). It is uncertain how younger family members will respond to increasing pressures on village resources and the difficulties of sustaining a livelihood in farming.

The rapid growth of village populations during the 1980s and 1990s was due to significant contributions from immigration and natural increase. Altogether the rise in population numbers has contributed to pressure on village resources. The evidence for this is derived, firstly, from observations made by farmers of declining yields associated with lower fertility and poorer structure of soils. While this would be difficult to prove scientifically, an environmental analysis of land use systems in the Noelmina watershed of West Timor concluded that in a similar type of environment, indiscriminate grazing and overgrazing along with a more intensive dryland cropping regime, have resulted in accelerated erosion. Similar practices of cropping and grazing were carried out by villagers in this study. The situation, however, has been exacerbated by the resettlement of villagers from the hillier to the coastal areas and the take-over of land by the HTI. Those villagers who were resettled have reduced access to land. They have lost access to cropping and grazing land and to water sources. As a consequence of the HTI programme and other pressures on village resources, the poorer section of the community has been affected most, particularly those who had been displaced. Farmers have become partly dependent on social control mechanisms for sharing of wealth within the community, and on income derived from HTI activities; some have worked for other farmers in sharing arrangements, or as herders for large cattle owners. A few have sought alternative livelihoods such as pig raising. Their loss of land represented a loss of identity as well as livelihood. According to village leaders, most of the available land for cropping has now been taken up. The villages most

affected were the coastal villages of Poto and Nuataus and the highland villages of Oelbiteno and Nunsauen. Pariti and Oeteta relied to a greater extent on irrigated rice production.

11.2.2 Ethnicity

The study found that the ways in which different ethnic groups contributed to rural development processes were influenced by their diversity, by the way in which ethnic groups related to each other and by their identities which were gradually evolving over time.

The relative harmony under which the Timorese, Rotinese and other ethnic groups live in the same community, has been due partly to a common religious belief and to a long and growing association in which there has been a gradual merging of cultures. The Timorese, traditionally associated with highland areas, have adapted their livelihood to farming in coastal areas. The lack of competition for resources was an additional factor in the earlier stages of settlement due to the availability of land. With increased village population pressure, though, land scarcity for farming is now perceived as a constraint by village leaders. At present, potential conflict arising from competition for resources is contained under the traditional system of land allocation and the way in which ethnic groups have accommodated differences in culture. The outcome of this growing association was shown by such factors as the transfer of skills, such as in fishing, the tapping of palm juice and adoption of motifs in weaving. Intermarriage and the ability of the Rotinese to speak Timorese and vice versa were further evidence of a compatible and mutually beneficial coexistence. As a result of intermarriage, economic cooperation, merging of cultures, and the influence of the Indonesian government, ethnic identities appear to be evolving toward those with common group characteristics. Viewed positively, this will be beneficial for new identities reinforcing each other and improving the capacity of villagers to participate in the management of their resources.

Overall, ethnic inequalities with respect to education and land access were not regarded as relevant issues for development *per se*. In the coastal villages Timorese had less access to both irrigated land and dry land compared to Rotinese. The unequal access to land attributed to ethnicity, though, was small by comparison with the overall skewed distribution of landholdings for both Timorese and Rotinese. The differential access to land in both ethnic groups was caused by other reasons, namely, precedence in residence, clan membership and marriage.

The beneficial effects arising from these ethnic groups living together, and their diversity, are conducive to development and could be encouraged by governmental and non-governmental support, particularly through education, skills development and incentives for small scale enterprises. This would release the potential inherent in different groups, as described by the concept of ethnodevelopment.

11.2.3 Resource management and sustainable development

An assessment was made of local level household options that were selected and practised, and how resources were managed. The responses to increased pressure on resources have been limited with respect to innovation and diversification. There has been some intensification with increased cropping intensity of cereal and legume crops, combined with a reduced period of fallow. Living above the subsistence level is difficult, though, especially for poorer farmers who lack access to land and capital and who have already devised strategies for minimising risk and ensuring food security in an uncertain environment. Although Timorese and Rotinese farmers have shown a readiness to innovate, the adoption of new agroecosystems or new enterprises is likely to be slow where there is a perception of risk or low returns in the short-term. The wealthier farmers in Pariti and Oeteta have experimented with the application of inorganic fertilisers and pesticides and some have purchased small tractors for cultivation. Other factors are known to constrain the rate of adoption of innovative systems and practices. These include wealth-leveiling mechanisms, such as an obligation to share profits, the sanction of village leaders

and traditional belief systems. The social and cultural control mechanisms by which these factors operate are not fully understood and would require further investigation. Their understanding would be important for the implementation of future projects.

Participation and empowerment were seen as a very necessary part of the sustainable development process. In addition, increasing self-reliance would mean that farmers were in a better position to determine an optimal outcome for their livelihoods given the circumstances they confronted. There were a number of constraints operating at different levels, which hindered this participation and empowerment. The take-over of village land by the HTI marginalised and disempowered farmers as well as reflecting a loss of land security. Their economic and social vulnerability were exposed by a lack of an overall strategy to confront these issues. At the government level decentralisation has not yet occurred to the extent that power and authority have been devolved to sub-regency and regency agencies which could respond to village initiatives. The village hierarchy itself, through government control, has undermined democratic and participatory processes for representing all sections of the village community. A dependence on government funding and the decision making of sectoral agencies for projects has encouraged a handout attitude and loss of self-determination.

In partnership with the state, NGOs have an opportunity to facilitate change through building up of village capacity and through participatory processes. They can explore options for innovation, diversification and alternative livelihoods as well as assist in providing essential services. In addition, for villages affected by HTI, there is an opportunity for NGOs to help coordinate a strategy to confront the challenges to village livelihood and loss of land security.

11.3 Theoretical implications

Two factors have emerged in this study which appear to have influenced the relationship between population mobility, development processes and sustainability. They have

interacted to put the environment at risk. The first concerns the rapidity of changes that has occurred from 1980 to 1994, as a result of the build-up in village population numbers and the take-over of land by the HTI. The second relates to the flexibility of farmers practising subsistence agriculture. The farming system is flexible in one sense in that it is diversified to reduce risk and ensure food security. In another sense the responses are not flexible enough to cope with the rapid increase of pressure on resources. This was shown by the nature of constraints operating at the village and higher levels. They included: isolation of villages due to distance, poor roads and communication; vulnerability from a centralised government, corporate structures and insecurity of land tenure; the lack of political and economic empowerment of villagers; low levels of education; and a lack of alternative employment opportunities. In particular, innovations which had the potential of adapting to these pressures would have to take into account social and cultural mechanisms. These were suited to a slower incremental approach more consistent with current farming practices. They would include the use of on-farm resources in preference to synthetic fertilisers and pesticides, increased use of legumes in crop rotations to help restore fertility, the use of organic materials as mulches and fertiliser, and the adoption more widely of the cut-and-carry system for cattle. This approach to sustainability, which could involve participatory processes and farmer-experimentation, has been put at risk, however, due to sudden changes, such as the loss of grazing land, which could lead to resource depletion and degradation. The extent to which environmental risk is contained will depend not only on the sensitivity and resilience of the environment but also on the stability and capacity of social control mechanisms.

Overall, the options available for an adaptive response for four of the six villages in this study are assessed as being limited. Despite the complex nature of relationships between population and the environment, due to the influence of a number of variables, the link between them appears stronger for these villages. At the same time the potential for sustainability appears weakened. This contrasts with other contextual situations in which more flexible responses are mediated by such factors as government policies, access to markets and land security. The scenario presented in this study encompasses social,

economic, institutional, environmental and political aspects operating at the farm, watershed, regional and national levels. For Indonesia these concern the processes of globalisation, the domination of corporations, the adoption of a more liberal economic paradigm and the priorities for investment. In comparison to Java, the villages studied here have been protected from the worst environmental effects of the Green Revolution and monoculture. They have not been as exposed to market forces and price uncertainties. With a new phase of development planned for Eastern Indonesia, though, factors are already emerging which could undermine management of natural resources. These include the roles played by market forces and state institutions, the rise of corporate power and the adoption of Javanese-style technology and bureaucracy. These factors could compound the lack of flexibility in responding to a depleted resource base and could further contribute to environmental degradation and the unequal distribution of benefits across different sections of the farming community. This parallels the way in which the activities of poor countries are manipulated by richer ones, as described by the neo-colonial dependency theory. This type of outcome is similar in many Third World countries and leads to the extension of a theory of development beyond that which emphasises the differences of 'developed' and 'developing' countries.

11.4 Policy implications

An evaluation of the importance of the research findings for policy making was made. Where population density is viewed as the main problem affecting the environment, population policies lack coordination and tend to focus on family planning. Policies have not reflected an understanding of the interrelationships between population dynamics, environmental changes and development processes. Although family planning policies have been successful in Indonesia, other factors which could influence livelihood security and the management of resources, such as educational attainment and off-farm employment, are downplayed. As a consequence policy making is affected, especially in its emphasis towards the role of human resources development, the strengthening of institutional capacity and participatory processes.

In this study, as a result of movements of people and of increased numbers and concentration of villagers in the coastal villages, and of villagers losing land in coastal and highland areas, policies need to be directed towards supporting a more diversified agricultural base with opportunities, also, for non-agricultural enterprise development, such as cottage industries. This would take the pressure off the environment and assist in providing a more secure and sustainable livelihood.

Implications for policy making arising from this study take into account the changes occurring at the village and wider levels. These concern, on a national level, the declining relative contribution of the agricultural sector leading to displacement of labour. The contribution of agriculture to gross regional domestic product is declining though agriculture retains the most important role for the economy of NTT. The pace of urbanisation in NTT is high (6.1% per year over the 1980-1990 period, compared to 5.4% for the whole of Indonesia) (Hugo 1995a: 115). The proportion of people living in the urban areas of Kupang regency was 27.1% in 1990, compared to 21.8% in 1980 (Hugo 1995a: 117). Movement to the main cities is mainly for education services; an industrial base is lacking and employment services are restricted. Overall these changes indicate limits to the absorption of agricultural labour and they have implications for policy making in the non-agricultural sector.

While population policies are important in attempting to cope with pressures facing rural and urban areas, there needs to be a clearer understanding of linkages and the types of movements between rural and urban areas and also between rural areas. An appreciation of the extent and type of movement is helpful in understanding disparities and opportunities between regions. As shown in this study the question of factors constraining movements of people from the villages to urban centres is also an important consideration. The poorer segments of the village communities are most likely to be affected by increased pressures on resources. Policies aimed at assisting villagers under these circumstances might focus on incentives for investment in small scale labour intensive industries, either on-farm or

off-farm. Investment in rural infrastructure such as providing electricity, improved roads and communication services would provide better facilities for the home environment as well as improved links with urban and rural growth centres. This in turn provides opportunities for off-farm employment, access to marketing outlets, health and educational services. Investment in rural growth centres, such as Sulamu and Camplong, could help in the creation of off-farm employment and could provide opportunities to villagers that otherwise might be met by migrating to Kupang. Policies, nevertheless, are important for promoting linkages between Kupang and the outlying villages. Here, investment could be encouraged for business growth in the manufacturing industries and, in particular, the handling and processing of agricultural products. Policies to help improve linkages, services and employment prospects need to be reinforced at the village level to enhance opportunities for local initiatives in the agricultural and non-agricultural sectors. These have implications for the following: the strengthening of institutional capacity, as previously discussed, through a human resources policy and decentralisation; the role of government extension and research services; providing security of land tenure; the role of NGOs; and the operation of credit facilities for investment in micro-scale enterprises.

The general thrust of these types of policies is to take advantage of the positive influence of labour mobility for village development. This could be achieved by empowering villagers to pursue initiatives, by improving linkages between villages and rural and urban growth centres and by assisting in the provision of off-farm employment. The growth of rural centres may reduce migration to urban areas in the long-term. In the short-term, though, the benefits to villagers should come as a result of increased opportunities rather than directing efforts to influence a particular flow of migrants.

The outcome of a particular policy reform is uncertain due to the number of interactions between environmental, population and development variables. As shown in this study a comprehensive and integrated policy approach would have more likelihood of succeeding as it would involve the villages, rural and urban centres, and sectors of employment; it has

particular relevance for villages experiencing rapid changes especially where the livelihood of farmers is threatened.

11.5 Directions of future research

A more detailed environmental analysis in conjunction with data on land use, land resources and land capability for each village would have given an improved assessment of resource utilisation for various types of land unit within the villages. This would have provided a clearer idea of environmental risks for each land unit and of resource potential for cropping, grazing, village forestry and agroforestry.

It would have been of value to have spent more time in examining ways in which indigenous knowledge and traditional systems, including traditional authority, have a place in the changing environment. Further research could be done into the role of the informal sector, the limitations of markets and potential for market development and the nature of wealth-levelling mechanisms. Specific groups of people could be interviewed such as seasonal migrants, commuters, herders, poorer men and women of the community, landless or land-poor people, and those involved in alternative enterprises to farming, such as in fishing. These would help assess more effectively the activities of outmigrants with respect to village development as well as understand the nature of constraints operating at the village level and how villagers cope. A clearer understanding of how the social and economic environment influenced sustainability would emerge. Overall, a more detailed analysis of livelihood, the environment and institutions would provide an improved framework to examine the potential of options for resource management and policy making.

Further research could also include a detailed understanding of the efficiency and effectiveness of governmental organisations in relation to its policy of decentralisation; and the potential role of regional centres. On a broader scale, as well, a more detailed study of

ethnicity and development could be carried out in different contextual situations for West Timor, covering both rural and urban areas.

APPENDIX A

Appendix A, Table 1: Official Estimates of Total Fertility Rates (TFR) by Province

Province	1980 PC (1976-1979)	1994 IDHS
1. Daerah Istimewa Aceh	5.235	3.30
2. Sumatera Utara	5.935	3.88
3. Sumatera Barat	5.755	3.19
4. Riau	5.435	3.10
5. Jambi	5.570	2.97
6. Sumatera Selatan	5.585	2.87
7. Bengkulu	6.195	3.45
8. Lampung	5.750	3.45
9. DKI Jakarta	3.990	1.90
10. Jawa Barat	5.070	3.17
11. Jawa Tengah	4.370	2.77
12. DI Yogyakarta	3.415	1.79
13. Jawa Timur	3.555	2.22
14. Bali	3.970	2.14
15. Nusa Tenggara Barat	6.490	3.64
16. Nusa Tenggara Timur	5.540	3.87
17. Timor Timur	n.a.	4.69
18. Kalimantan Barat	5.520	3.34
19. Kalimantan Tengah	5.870	2.31
20. Kalimantan Selatan	4.595	2.33
21. Kalimantan Timur	4.985	3.21
22. Sulawesi Utara	4.905	2.62
23. Sulawesi Tengah	5.900	3.08
24. Sulawesi Selatan	4.875	2.92
25. Sulawesi Tenggara	5.820	3.50
26. Maluku	6.155	3.70
27. Irian Jaya	5.350	3.15
Indonesia	4.680	2.85

Source: Central Bureau of Statistics and the Indonesian Demographic and Health Survey (IDHS)

n.a. not available

PC - Population Census

Appendix A, Table 2: Population of Indonesia by Province, 1971, 1980, 1990, 1995

Province	Population			
	1971	1980	1990	1995
1. Daerah Istimewa Aceh	2,008,595	2,611,271	3,416,156	3,847,583
2. Sumatera Utara	6,621,831	8,360,894	10,256,027	11,114,667
3. Sumatera Barat	2,793,196	3,406,816	4,000,207	4,323,170
4. Riau	1,641,545	2,168,535	3,303,976	3,900,534
5. Jambi	1,006,084	1,445,994	2,020,568	2,369,959
6. Sumatera Selatan	3,440,573	4,629,801	6,313,074	7,207,545
7. Bengkulu	519,316	768,064	1,179,122	1,409,117
8. Lampung	2,777,008	4,624,785	6,017,573	6,657,759
9. DKI Jakarta	4,579,303	6,503,449	8,259,226	9,112,652
10. Jawa Barat	21,623,529	27,453,525	35,384,352	39,206,787
11. Jawa Tengah	21,877,136	25,372,889	28,520,643	29,653,266
12. DI Yogyakarta	2,489,360	2,750,813	2,913,054	2,916,779
13. Jawa Timur	25,516,999	29,188,852	32,503,991	33,884,002
14. Bali	2,120,322	2,469,930	2,777,811	2,895,649
15. Nusa Tenggara Barat	2,203,465	2,724,664	3,369,649	3,645,713
16. Nusa Tenggara Timur	2,295,287	2,737,166	3,268,644	3,577,472
17. Timor Timur	n.a.	555,350	747,750	839,719
18. Kalimantan Barat	2,019,936	2,486,068	3,229,153	3,635,730
19. Kalimantan Tengah	701,936	954,353	1,396,486	1,627,453
20. Kalimantan Selatan	1,699,105	2,064,649	2,597,572	2,893,477
21. Kalimantan Timur	733,797	1,218,016	1,876,663	2,314,183
22. Sulawesi Utara	1,718,543	2,115,384	2,478,119	2,649,093
23. Sulawesi Tengah	913,622	1,289,635	1,711,327	1,938,071
24. Sulawesi Selatan	5,180,576	6,062,212	6,981,646	7,558,368
25. Sulawesi Tenggara	714,120	942,302	1,349,619	1,586,917
26. Maluku	1,089,565	1,411,006	1,857,790	2,086,516
27. Irian Jaya	923,440	1,173,875	1,648,708	1,942,647
Indonesia	119,208,229	147,490,298	179,378,946	194,754,808

Note: Including non-permanent residents (homeless people, sailors, boat people and remote area communities)
n.a. data not available

Source: 1971, 1980, 1990 Population Census, and the Intercensal Population Survey; Jones and Hull (1997: 12).

Appendix A, Table 3: Population Growth by Province

Province	Average annual population growth rate		
	1970-1980	1980-1990	1990-1995
1. Daerah Istimewa Aceh	2.9	2.7	2.4
2. Sumatera Utara	2.6	2.1	1.6
3. Sumatera Barat	2.2	1.6	1.6
4. Riau	3.1	4.3	3.4
5. Jambi	4.1	3.4	3.2
6. Sumatera Selatan	3.3	3.2	3.7
7. Bengkulu	4.4	4.4	3.6
8. Lampung	5.8	2.7	2.0
9. DKI Jakarta	3.9	2.4	2.0
10. Jawa Barat	2.7	2.6	2.1
11. Jawa Tengah	1.6	1.2	0.8
12. DI Yogyakarta	1.1	0.6	0.0
13. Jawa Timur	1.5	1.1	0.8
14. Bali	1.7	1.2	0.8
15. Nusa Tenggara Barat	2.4	2.2	1.6
16. Nusa Tenggara Timur	2.0	1.8	1.8
17. Timor Timur	n.a.	3.0	2.4
18. Kalimantan Barat	2.3	2.7	2.4
19. Kalimantan Tengah	3.4	3.9	3.1
20. Kalimantan Selatan	2.2	2.3	2.2
21. Kalimantan Timur	5.7	4.4	4.3
22. Sulawesi Utara	2.3	1.6	1.3
23. Sulawesi Tengah	3.9	2.9	2.5
24. Sulawesi Selatan	1.7	1.4	1.6
25. Sulawesi Tenggara	3.1	3.7	3.3
26. Maluku	2.9	2.8	2.4
27. Irian Jaya	2.7	3.5	3.3
Indonesia	2.3 *	2.0	1.7

* excluding Timor Timur

n.a. data no available

Source: 1971, 1980, 1990 Population Census, and the 1995 Intercensal Population Survey: Jones and Hull (1997: 13).

Appendix A, Table 4: Origin of Family Migration to Coastal and Highland Villages

Villages	Origin	No. of families migrating in a given time span:						Total	% of # families
		1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-1994		
Coastal: Oeteta and Pariti	Roti	1	3	3	5	2	1	15	
	Savu			2	3	3		8	
	Other Is. +		1			2	1	4	
	Kupang regency		1	1	1	3		6	
	Timor*		1		2	3		6	
Total		1	6	6	10	13	1	39	41.1%
Poto and Nuataus	Roti				2	1		3	
	Savu					1		1	
	Other Is.				1		1	2	
	Kupang regency		1	1	2	18	3	25	
	Timor*				1	4		5	
Total		1	1	6	24	4	4	36	39.1%
Highland: Nunsaen and Oelbiteno	Other Is.					1		1	
	Kupang regency		2	1		1	1	5	
	Timor*			2				2	
Total		2	3	3	2	1	1	8	10.1%

+ Other islands

* except Kupang regency

% of families in the village sample

7. (a) Describe your working status (tick more than one if necessary)
- Farmer (.....) Home duties (.....)
- Student (.....) Pensioner (.....)
- Other, please state
- (b) If you have more than one job, please state job types in order of importance:
1.
2.
3.
8. Level of schooling reached?
- (a) Type of school
- (b) Class
9. (a) Ability to read? Little (.....) Reasonable (.....) Easily (.....)
- (b) Ability to write? Little (.....) Reasonable (.....) Well (.....)
10. Ability to speak Indonesian?
- Not able (.....) With some difficulty (.....) Fluent (.....)

B. HOUSEHOLD CHARACTERISTICS

1. Would you please supply the following details for:

(a) Persons currently living in the household? (Less than 6 months away in the last year)

Number. Relationship to head, sex, age, marital status, current mobility status, reasons for mobility status

CODE:

Sex: Male (1) Female (2)

Age: State age in years (estimate if necessary)

Marital Status: Never married (1) Married (2) Widowed (3) Separated (4) Divorced (5)

Current Mobility Status (for previous year): Commuter (1) Seasonal (2)

Short-term temporary migrant: (3A) City

(3B) Village (another)

- (c) Were there difficulties in adjusting to the move?
 Yes (.....) No (.....)

If Yes, what kind of difficulties were there?

.....

5. What were the places of birth of the household heads?
 (a) Father? Ethnic origin? (.....)
 (b) Mother? Ethnic origin? (.....)

CODE: Timorese (1) Rotinese (2) Buginese (3) Savunese (4) Javanese (5)
 Other, please state (6) Mixed, please state (7)

6. (a) What languages can the household head speak (comfortably)?

.....

- (b) What does the household head see himself as ethnically?

.....

7. What occupation did the household head's father have?

.....

8. How frequently does the family eat?

Frequency (tick closest answer): 2-3 times daily, once daily, more than once a week, once to twice a week, once to twice every two weeks, once to twice monthly, rarely, never, other.

- (a) Rice?
- (b) Beef?
- (c) Chicken?
- (d) Goat meat?
- (e) Pork?
- (f) Fish?
- (g) Drink tuak?

9. Estimate the area of land operated by the household in the last year (Are/ha)

Type of Land

- Irrigated
- Dryland
- Garden
- Rested

C. IMPACT OF MIGRATION ACTIVITIES

1. As a result of migration activities which may have occurred have there been any changes in the following (for household):

Effect of Migration

Activities on: Yes/No If Yes, impact/effect is: SMALL MEDIUM LARGE

1. EMPLOYMENT
(of household members)
2. LABOUR SUPPLY
(for farm operations)
3. INCOME LEVEL
(of household)
4. FARM ACTIVITIES
(technology, inputs)
5. CHANGES IN ROLES OF:
 - (a) men
 - (b) women
 - (c) children (<15)
6. OTHER, please state

D. ALTERNATIVE LIVELIHOOD OPTIONS

What other activities (apart from farming) are there for the household members, which help to provide income/sustenance/well-being for the household?

Type of activity Value (estimate as % of income) < 25% 25-50% 51-75% 76-100%

(a) MALES

On-farm (eg. mechanic)

Off-farm (eg. fishing/forestry)

(b) FEMALES

On-farm (eg. weaving)

Off-farm (eg. shop assistant)

E. FARMING PRACTICES

1. What are the main problems for farming your land?

.....

.....

.....

2. What kinds of crops are grown?

(a)

.....

(b) Cash value crops (include tree crops)

.....

3. What methods are used for the two most important crops?

ACTIVITY/METHOD	CROP 1	CROP 2
	Species:	Species:
(a) Preparation of land for planting (eg. burning)		
(b) Selection of seeds (or material) for planting		
(c) Planting (eg. Implement used)		
(d) Other crops sown alongside		
(e) Weed control		
(f) Pest control		
(g) Improvement of fertility of soil for growing crop		
(h) Irrigation		
(i) Harvesting		
(j) Marketing		

4. (a) What new crops or crop practices have been tried out in the last 5 years?

.....

.....

(b) Would you plant any of the following?

YES/NO	COMMENT
(1) Soya bean	
(2) Sesame	
(3) Rice bean	
(4) Yam	
(5) Garlic	
(6) Papaya	

5. Have there been any changes observed by you in soil fertility/soil condition as a result of certain farming practices?

Yes (.....)

No (.....)

If Yes, which practices?

.....

6. Approximately, how many of the following livestock do you have?

Type of livestock and age	Number of males/females
Males	Females

- 1. Cattle < 1 year
- 1-2 years
- > 2 years

- 2. Goats
- 3. Pigs
- 4. Chickens

7. If cattle and goats are kept, what kind of feeding/grazing practices are there?

(a) Cut and carry (.....) Open grazing (.....)

(b) Plants grown (eg. King grass)

.....

(c) Crop residues used

.....

(d) Leaves from trees

.....

(e) Supplements (eg. Salt)

.....

8. What type of breeding practice is there for cattle?

(a) Age of bull put to cows?

(b) Selection of bull?

(c) When and how long is the bull put with the cows? (eg. December to March)

.....

9. When are cattle sold?

(a) Bulls

(b) Cows

10. How are they marketed?

.....

.....

11. What value is gained from the trees/shrubs on your land?

Type of tree/shrub	Value:		
Fencing Fruit	Firewood	Fodder	

CODE:

Value minor (1) Some or fair importance (2) Important (3) Very important (4)

12. (a) What trees/shrubs have been planted on your farm in the last 5 years?

.....

.....

(b) Is there any management for the trees?

Yes (.....)

No (.....)

If Yes,

Tree Species	Type of Management
--------------	--------------------

13. How important are the lontar/gewang palm species to the household?

No importance (.....) Minor value (.....)

Moderately valuable (.....) Very valuable (.....)

F. DEVELOPMENT

1. Name the types of organisations to which members of the household belong.

Member Organisation	Role
---------------------	------

2. Which organisations have assisted your household in its working activities?

Name of Organisation	Value/Importance of assistance from organisation		
	Some or little value	Important	Very important

Village:

Church

LKMD

Other

Research/extension service

Market organisation

Government or non-government (please state)

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