



GENDER AND FOREST DEGRADATION
A CASE STUDY IN TWO VILLAGES IN EAST LOMBOK,
WEST NUSA TENGGARA, INDONESIA

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A thesis submitted in partial fulfilment of the higher degree
in Geography and Environmental Studies

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ABSTRACT

The study examines the impact of forest degradation on the social structure of a community, and especially gender roles. The study was conducted in two *dusun* in East Lombok, Sempur and Timbenuh. Administratively both *dusun* belong to two sub-districts, although physically they are only separated by 15 kilometres. Both share the same forest area, which is the main source of their livelihood. The study was conducted over a period of one year, between 1996 and 1997. The study applied both qualitative as well as quantitative approaches.

For a long period of time, the main source of livelihood for the people of both *dusun* was dry land cultivation and exploitation of the nearby forest. In the early 1970s both *dusun* experienced rapid social change, predominantly due to a decrease in the availability of land for cultivation and forest. This decrease was caused by, among other things: (1) a growing demand for access to resources which were relatively limited; (2) during the mid 1970s the forest, which was used as a main resource, became subject to the government monoculture policy (cinnamon); (3) In 1990 Act No.5 was issued, declaring the forest a protected endangered area.

In 1996 when the study was carried out, the cinnamon plantations were severely damaged and under-managed, after the dispute between the plantation owners (government) and the local people. This tension between the local people and the plantations indicated the frustration of the local community concerning the ever-shrinking access to resources, especially land. There are still available resources such as forest areas, however these

areas are not easily accessible, being a long distance from the *dusun* and at a much higher altitude.

To cope with this situation, people from these two *dusun* have adjusted using different strategies to ensure their livelihood. In comparing the two, the impact of the social changes on *dusun* Sempur was more severe. This can be attributed to the shrinking of access to their resource-base as the forest was severely damaged and then protected by law. Most men decided to migrate to look for alternative sources of income. The remaining men were forced to intensify their exploitation of the forest, although to do so, they were forced to walk long distances, and break the law. Women tended to replace men's roles, for example in agriculture. On the other hand, people in *dusun* Timbenuh still had relatively easy access to their resources; especially because their forest was less severely damaged and within walking distance. This is why the traditional division of labour, where men and women worked together in the forest, and separately in tasks involving the land, changed more in some places than others. This is the process of change and continuity within the paradigm of gender roles.

DECLARATION

I hereby declare that none of the material contained in this thesis has been accepted for the award of any other degree or diploma in any institution and that, to the best of my knowledge and belief, the thesis contains no material previously published or written by another person, except where due reference has been made in the text of the thesis. I consent to this thesis being made available for photocopying and loan, if applicable, and if it is accepted for the award of the degree.

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This work 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 material previously published or written by another person, except where due reference has been made in the text.

SIGNATURE:

DATE: 7 NOVEMBER 2000

ACKNOWLEDGEMENTS

I owe a debt of gratitude to many people for their contribution to make this thesis possible.

Firstly I would like to address my gratitude to AusAID for their funding to give me the opportunity to continue my study in Australia.

My thanks also to Dr Yulfita Raharjo head of Centre for Population and Manpower Studies Indonesian Institute of Sciences (PPT-LIPI) who gave me permission to continue my study and also her support while writing my thesis.

I owe a great debt to Professor Graeme Hugo and Dr Lesley Potter for their supervising, guidance, support and encouragement while writing my thesis.

I must thank as well the Geography Department Supporting Staff at the University of Adelaide especially Sue Murray, Chris Crothers, Janet Wall, Margaret Young, Joanna Rillo and Margaret Bruce who helped me in drawing maps, solving computer problems and other administrative aspects.

I am grateful to my colleagues in LIPI from their support and encouragement during the writing of my thesis.

I am indebted to all people who helped me during my research study in West Nusa Tenggara especially people in Dusun Sempur and Timbenuh for their warm welcome while I lived there and their substantial information regarding my study. They include Amaq and Inaq Isah in Sempur, Inaq and Amaq Atun in Timbenuh and Bapak and ibu Ruslan in Lendang Nangka who received me in their home. Thanks also to my assistant interviewers who helped me to collect the data.

I must thank too my colleagues and my fellow students in Adelaide especially Titik, Jonet, Sri, Eka, Kacung, Ade and Nico for their understanding and for being friends during the difficult time in Adelaide.

My special thanks also I address to Dr Curt Andersen who helped me in correcting my English expression and has helped me in many other ways during my stay in Adelaide.

Last but not least I must thank all my family for their understanding and prayer during my absence from the family. My deepest gratitude especially I address to my mother and father who have worked hard to bring me the opportunity to continue my study.

GLOSSARY

BAPPEDA	Badan Perencanaan Pembangunan Daerah	Regional Development Planning Board
CIFOR		Center for International Forestry Research
BPS	Biro Pusat Statistik	Central Bureau of Statistics
CARE		An Australian Non-Government Organisation
LP3ES	Lembaga Penelitian, Pendidikan, Penerangan Ekonomi dan Sosial	Institute for Economic and Social Research, Education and Information
NTBESWS	Nusa Tenggara Bara	Environment, Sanitation and Water Supply
CIDA		Canadian International Development Agency
SUPAS	Survei Penduduk Antar Sensus	Inter Censal Population Survey
WCED	World Commission for Environment and Development	
PSW	Pusat Studi Wanita	Womens Study Centre
Taikong	middle man searching for labour wanting to migrate	

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This study focuses on the relationship between gender and the environment, with particular attention being paid to the effect of forest degradation on changing gender roles. This topic is strongly relevant as forest degradation is becoming a pressing issue throughout the world and especially in developing countries. Indeed, it is estimated that 11 million hectares of tropical forest are destroyed every year worldwide (World Resources 1994-1995; WCED 1987), more than one million of them in Indonesia (FAO 1990).

Forests do not only play a role in maintaining river systems, absorbing carbon dioxide and protecting biodiversity but are also a source of livelihood for the people who live in and around them (Agarwal 1997, 1992; Nasendi and Mas'ud 1996; Rocheleau et al. 1996; Barraclough and Ghimire 1995; Sandhya 1995; Wickramasinghe 1994; Peluso 1992; Kelkar and Nathan 1991; Potter 1991; Hafner 1990; Colfer 1988; Dankelman and Davidson 1988; Shiva 1988). People gather forest products such as food, fodder, fuelwood, timber and medicine. Therefore, the destruction of the forest will have a negative impact on people whose livelihoods depend on forest products. According to FAO (1987) 200 million people in developing countries are dependent on forest products for sustenance.

Women, particularly those living in rural areas, suffer disproportionately from the deterioration of the environment (Dankelman and Davidson 1988). Many effects of environmental degradation are confined to women because of the

specific gender division of labour in many rural societies (Agarwal 1997, 1992; Dankelman and Davidson 1988). In most cases women are dependent on natural resources to produce food for their livelihood such as gathering fuel wood, fodder and water. Other than utilising natural resources women also have a role in maintaining them (Agarwal 1992; Davidson and Dankelman 1988; Shiva 1988).

Environmental problems throughout the world have highlighted the visibility of the relationship between women and the environment and have led to a number of strategies for women to play a role in sustainable development. This issue was raised in the Women, Environment and Development (WED) conference held in 1985 in conjunction with the UN decade for women. Some scholars and activists at this conference suggested that it is important to integrate the role of women in organising strategies for sustainable development (Braidotti 1994). Attention to the role of women in sustainable development has also been more apparent since the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992 (e.g., Raharjo 1997). This conference recognised the need for links between sustainable development at the macro level with sustainable community livelihoods at the micro level and the critical role of women in achieving sustainable development. This resulted in a dramatic increase in the volume of literature dealing with the relationship between women and the environment and the impact of environmental pressures on the role of women (Agarwal 1997, 1992; Rocheleau et al. 1996; Dankelman and Davidson 1988).

In addition, there has been growing literature examining the relationship between women and forests. However, the studies have mostly focused

specifically on women rather than gender concerns (Wickramasinghe 1994; Agarwal 1992; Shiva 1988; Dankelman and Davidson 1988). Studies of women and forests have been mainly conducted in India, Africa, Sri Lanka and The Philippines (Jackson 1996; Sandhya 1995; Sayo 1994; Wickramasinghe 1994; Agarwal 1992; Kelkar and Nathan 1991; Dankelman and Davidson 1988; Shiva 1988). Although Indonesia's tropical rain forest is the second largest in the world after Brazil (about 75 per cent or 143 million hectares is classified as forest) and much of this land has already been degraded, studies related to gender and the environment in Indonesia, especially in terms of forest degradation, are very limited. The present study, conducted in two *dusun*¹⁾ namely Sempur and Timbenuh in East Lombok, a district of West Nusa Tenggara province, Indonesia, that have experienced forest degradation is intended to at least partially fill this gap in the literature. In keeping with the aim of looking at gender concerns, the study will look at both men and women as units of analysis.

1.2 Aims and Objectives

In general, the study aims at identifying the circumstances of changes in women and men's roles both at the household and community levels in their strategies for living in the context of forest degradation. It also attempts to identify the extent to which the forest is degraded and how this has changed over time. Specifically, the aim of the study is to identify the kind of work done by women and men, including productive and reproductive activities, and examine the strategies used by women and men in response to degradation of their surrounding environment. Furthermore, this study aims to enrich the available

¹⁾ *Dusun* is a rural area which is headed by a *kepala dusun*. This is the lowest hierarchy in the governmental

empirical data that contributes to the development of theory concerning the linkages between gender and the environment.

In addition, the study aims to contribute to better policy making. This is very important since the approach to gender, environment and sustainable development has not been applied to mainstream development in Indonesia yet (Rahardjo 1996).

It should also be stressed that the study of gender and the environment, involving men and women as units of analysis, is still rare. The emphasis upon women, as occurs in most studies, can only give a partial picture of development and its impact on the environment.

1.3 Selection of the Study Area

This study was carried out in Lombok, West Nusa Tenggara, Indonesia. The study site was chosen for several reasons. The first is because the culture and socio-economic structure has always held particular interest for me, since I have done several research projects in Lombok. I also became increasingly concerned with how environmental problems have impacted upon women's and men's roles.

Sunderlin and Resosudarmo (1996) indicate that there has been a marked increase in the extent and rate of disappearance of Indonesia's forest cover. A study carried out by FAO found that in the past 30-40 years the forest cover has been reduced from 74 to 56 per cent (FAO 1990 p.3). FAO (1990) also estimated that 1,315,000 hectares of Indonesia's forests have been degraded each year (FAO 1990). Many people in West Nusa Tenggara are still dependent on forest

products for their livelihoods. Studies carried out in several villages in East and Central Lombok have found that people who live near the forest depend mostly on forest products for their livelihood including gathering food, fuel wood and timber. (Departemen Pendidikan dan Kebudayaan 1978). Another study conducted by LP3ES (LP3ES 1996) in three villages of Lombok had a similar finding. Both men and women gather fuel wood in the forest for sale. Therefore the degradation of the forest in this province will have a large effect on the livelihoods of these people.

There have been only a few studies conducted by scholars in Indonesia dealing with gender and the environment. Moreover, all of them have focused on women as the unit of analysis. Adiwoso (n.d) studied the relationship between women and the environment in urban and semi urban areas of Jakarta. She examined the perception and opinion of women related to the condition of the environment including their perceptions regarding the planting of trees along the streets, the use of showers instead of baths and the use of water pumps in every household. The study indicated that women in urban areas lack awareness of the environment compared to women in semi-urban areas.

Another article about women and the environment in Indonesia was written by Kettel (1991). She stressed the importance of studying women's environmental knowledge among different ethnic groups in Indonesia. The problematic point is that the studies only focus on women without giving attention to the relationship between men and the environment. It seems dangerous to make recommendations for decision-makers in Indonesia regarding integrating women into sustainable development programs without also taking into account the role of men.

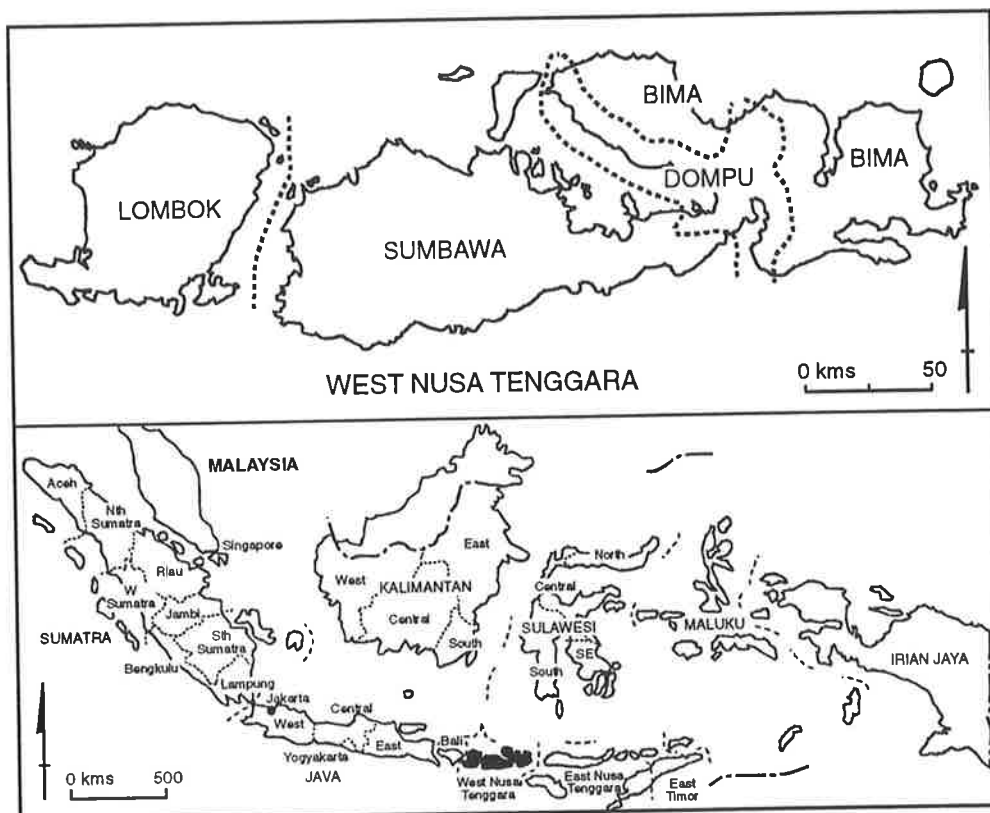
1.4 Background of the Study Area

1.4.1 Geography

Indonesia is the largest archipelago in the world, comprising more than 13,000 islands. The country is located at the crossroads between the Indo-Malayan and Australian realms. It is the one of the richest biological areas of the world. According to the Directorate General for Forest Protection and Nature Conservation (1994), Indonesia contains approximately 17 per cent of the world's total number of species. There are more than 500 mammals and 1500 bird species.

West Nusa Tenggara is one of Indonesia's 27 provinces located in eastern Indonesia (Figure 1.1). This province comprises two main islands, Lombok and Sumbawa, as well as a number of smaller ones.

Figure 1.1 The Location of West Nusa Tenggara



Some 52.8 per cent of the province's land is covered by forest, with the entire island of Lombok 34 per cent forested. (Kantor Wilayah Departemen Kehutanan NTB 1996). West Nusa Tenggara has experienced the third highest degree of forest degradation of all provinces in Indonesia (BPS 1992b, Soemarwoto 1991). Fourteen per cent of forests in West Nusa Tenggara have been classified as degraded. In addition, it is pointed out in the Development Planning Guide of West Nusa Tenggara (BAPPEDA, 1996) that this province has experienced a decreasing quality of environment caused by the activities of people who depend directly on natural resources for their livelihood.

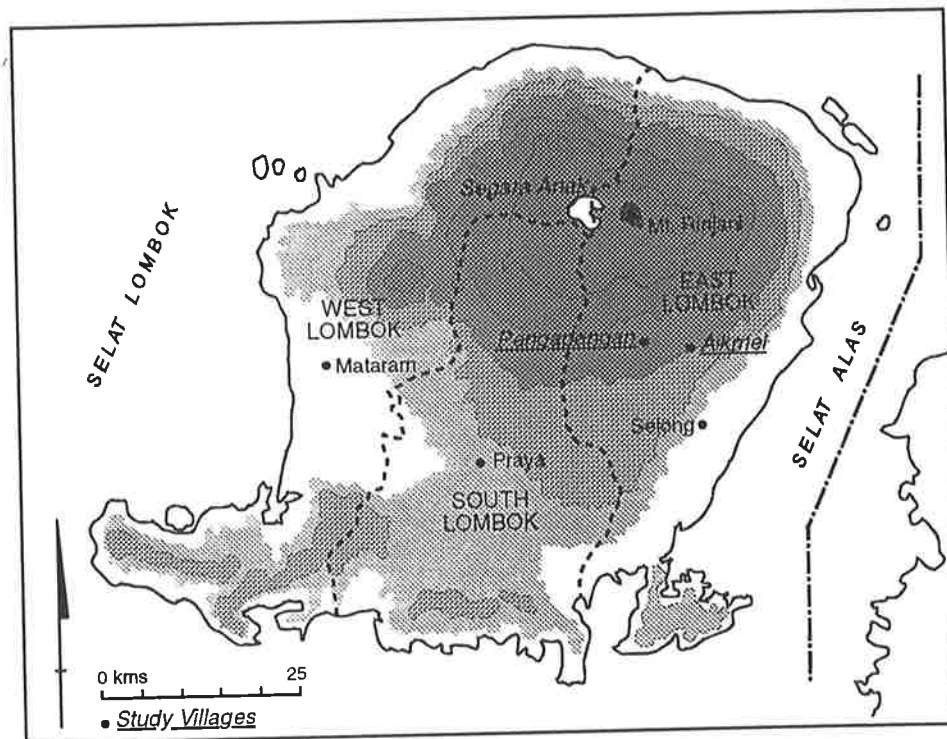
The climate of West Nusa Tenggara is tropical and strongly influenced by monsoons. The dry season takes place between April and September while the rainy season occurs between September and April. West Nusa Tenggara is also characterised by uneven rainfall (Daroeman 1976) with some areas experiencing high rainfall while others experience very low rainfall levels. In 1996 the average rainfall on Lombok Island was 96 mm per month. Overall the highest was in West Lombok and the lowest in East Lombok, namely 126 and 70 mm.

Lombok Island can be divided into three geographical regions (Figure 1.2). North Lombok is made up of young volcanic rock, interconnecting with highland mountains. Mounts Punikan, Rinjani and Nangi are located in this area. Mount Rinjani is still an active volcano and has erupted several times this century. Therefore, much of the surrounding soil is relatively fertile (Institute Technology Bandung 1996). Central Lombok stretches from east to west with a breadth of about 15 kilometres. The soil is made up of alluvial and volcanic sediments (andesite and basalt) thereby being relatively fertile. Several big rivers are found

in this area, and have their mouths in the Punikan Rinjani area. Most of the cities and wet rice paddies in Lombok are located here.

South Lombok is mountainous with a height of between 200-716 meters above sea level. The land is generally dry and scrub-covered.

Figure 1.2 Physiographic map of Lombok
Source: Bandung Institute of Technology 1996 p. 22



Only a small area is still covered by forest. The soil is infertile and water resources are very limited in this area.

1.4.2 Demography

Administratively, West Nusa Tenggara consists of six regencies and one municipality. Three of the regencies and the municipality are located in Lombok, namely West Lombok, Central Lombok and East Lombok regencies and Mataram municipality. The proportion of the province's population living in Lombok was

71.3 per cent (2,591,115 persons) but the island accounts for only 23 per cent of the total area of West Nusa Tenggara (BPS, 1996b). Therefore, the population density in Lombok was higher than that of West Nusa Tenggara as a whole, namely 547 and 181 persons per square kilometre respectively. East Lombok was the most densely populated area among the three regencies with a population density of 572 persons per square kilometre. The results of the 1995 intercensal population survey indicate that the proportion of the population in West Nusa Tenggara living in urban areas is about 18.8 per cent while the proportion in East Lombok is only 13.9 per cent (BPS 1996a).

In 1997 life expectancy at birth for Indonesia as a whole was 64.4 years (Wilopo 1997). This is much higher than for West Nusa Tenggara at only 53.7 and reflects the point that the health conditions of the people in this province are still poor compared with Indonesia as a whole. The sex ratio in West Nusa Tenggara is also lower than that of Indonesia as a whole, indicating that the percentage of females was higher in West Nusa Tenggara than in Indonesia.

1.4.3 Socio-Economic Conditions

The World Bank (1994) reported that over the past twenty years, before the economic crisis, Indonesia had been successful in achieving its development objectives. Income per capita rose from US\$50 in 1967 to US \$650 in 1994. This led to a decline in poverty, from 60 per cent of the population to 15 per cent in the New Order (post 1965) period and the adult illiteracy rate was cut by two-thirds (The World Bank 1994).

However, socio-economic conditions vary among Indonesian provinces. The socio-economic conditions in West Nusa Tenggara are still poor relative to

almost all other provinces in the country. This is reflected in the low educational attainment level of the population and the low standard of living (Table 1.1). In 1996 the level of illiteracy was the highest in Indonesia, along with that of East Timor and Irian Jaya (BPS 1996c). The proportion of the population aged 10 years and above who had no schooling was higher than in Indonesia as a whole, namely 23.6 and 11.5 per cent, respectively, while the percentage of the population that had completed secondary school and above was lower than in Indonesia as a whole, namely 20 per cent compared to 28 per cent respectively.

There is a large disparity of educational attainment between the urban and rural areas of West Nusa Tenggara. Educational attainment of the population in urban areas is higher than in rural areas. In addition, there is also a gap between female and male educational attainment. Female educational attainment levels are lower than that of males. The percentage of females with no schooling in urban areas of West Nusa Tenggara was more than 20 per cent while for males it was only 7.5 per cent. In rural areas the educational conditions for female were even worse. It can be seen in Table 1.1 that the percentage of females with no schooling was 32 per cent while the proportion of males with no schooling was only 19 per cent.

The GNP per capita at current market prices (without oil and gas) in 1996 was lower than the Indonesian average (BPS 1997). Indeed, the income per capita of West Nusa Tenggara, East Nusa Tenggara and East Timor are the lowest of all the provinces in Indonesia. The figure for West Nusa Tenggara was 1,062,212 *rupiah* or about US\$ 450 in 1996. This is lower than Indonesia's income

Table 1.1 Socio-Economic Indicators of Indonesia and West Nusa Tenggara, 1996

Indicator	Indonesia	NTB
GNP per capita	1.928.245	851.398
Per cent employed in agricultural sector		
Male	44.1	52.8
Female	43.8	47.1
Total	44.0	50.4
Percentage of those employed in Manufacturing, mining and construction		
Male	19.7	17.9
Female	16.0	18.9
Total	18.4	18.3
Per cent employed services		
Male	36.2	29.3
Female	40.2	34.0
Total	37.6	31.3
Male labor force participation rate	85.7	73.9
Female labor force participation rate	47.3	50.8
Educational attainment		
Urban		
Male		
No schooling	2.9	7.5
Primary school	45.3	48.4
Secondary and tertiary school	51.8	44.1
Female		
No schooling	8.7	20.4
Primary school	49.8	46.9
Secondary and tertiary school	41.5	32.7
Rural		
Male		
No schooling	9.5	19.1
Primary school	70.0	61.6
Secondary and tertiary school	20.5	19.3
Female		
No schooling	20.2	32.0
Primary school	66.0	55.8
..... Secondary and tertiary school	13.8	12.2
Total		
No Schooling	11.5	23.6
Primary school	60.5	56.4
Secondary and tertiary school	28.0	20.0

Source: BPS 1997, BPS 1996c, BPS 1996d

per capita as a whole of (2,491,358 *rupiah* or about US\$ 1155)²⁾. This reflects the lack of development in the province since the early 1940s. Indeed, this province has faced severe famines in 1940, 1965-1966, 1972 and 1977 (Payne 1984). The lack of development in the province is also reflected in the scarcity of employment opportunities outside the agricultural sector. The agricultural sector is still dominant in West Nusa Tenggara's economy (Corner, 1991) with 55 per cent of the population still involved in this sector in 1990 (BPS, 1992a). In 1995 economic development in West Nusa Tenggara was still mainly dependent on agriculture. This is reflected in the results of the 1995 intercensal population survey (SUPAS) which found that 50.4 per cent of the population was still engaged in the agricultural sector (BPS 1996c). This percentage is higher than that of Indonesia as a whole, which is 44 per cent (1996d).

Table 1.1 shows that there are differences between males and females, in this regard, with the proportion of females in the agricultural sector being smaller than that of males, both in urban and rural areas. This figure is quite different to the situation in sub-Saharan Africa, where women produce more than 80 per cent of the household food (FAO 1984). In addition, this table shows that the proportion of males engaged in construction and transportation was higher than that of females in 1995, while the proportion of females involved in trade, restaurants and hotels was higher than that of males.

Despite this, most farmers are only smallholders or are landless (Payne, 1984). Historically in the mid 1930s, 35 per cent of the adult male population was

²⁾ The recent statistic following currency crisis is \$610 (Kompas 1998)

Table 1.2: Socio-Economic Characteristics of Households in East Lombok, West Nusa Tenggara and Indonesia, 1995

Characteristic of the household	Urban	Rural	Total
Households with no agricultural land			
East Lombok	65.6	44.5	47.4
West Nusa Tenggara	82.4	44.2	51.1
Indonesia	89.1	37.3	55.4
Households with the roof of the house made of sugar palm and leaves			
East Lombok	17.7	33.3	31.1
West Nusa Tenggara	6.8	22.4	19.6
Indonesia	2.2	11.7	8.4
Households with the floors of the houses made of earth			
East Lombok	29.2	47.1	44.6
West Nusa Tenggara	12.4	29.8	26.6
Indonesia	7.2	31.1	22.7
Households that use electricity for light			
East Lombok	94.2	59.7	64.5
West Nusa Tenggara	92.3	62.3	67.7
Indonesia	94.6	57.2	70.3
Households that use wood and charcoal for cooking			
East Lombok	67.7	90.4	87.3
West Nusa Tenggara	39.2	92.5	82.9
Indonesia	19.2	82.3	60.2
Households that use the river as a toilet			
East Lombok	52.1	51.7	51.8
West Nusa Tenggara	33.1	46.6	42.5
Indonesia	12.2	30.4	24.0
Households that use the river as a source of water for bathing and washing			
East Lombok	43.2	18.9	22.3
West Nusa Tenggara	14.3	22.9	21.4
Indonesia	3.3	18.0	12.9
Household that use the river as a source of water for drinking			
East Lombok	0.5	0.4	0.4
West Nusa Tenggara	0.2	3.1	2.6
Indonesia	0.6	7.2	4.9

Source: BPS, 1996c Table 38,44,46,50,51,52,54,56

landless or propertyless, whereas in the 1995 intercensal population survey (BPS 1996c) 44.2 per cent of rural households in West Nusa Tenggara were described

as landless (Table 1.2). In addition, the energy source for cooking is still mostly wood, with 83 per cent of households still using firewood for cooking (BPS 1996c).

The socio-economic situation of East Lombok in general is poorer than that of West Nusa Tenggara as a whole, especially in rural areas (Table 1.2). However, the proportion of landless households in rural areas is about the same as in the rural areas of West Nusa Tenggara. In addition, the condition of houses in East Lombok is still poor. About 31 per cent of the households are in a house with a roof made of leaves and 45 per cent of households live in houses with earthen floors. The proportion of households that use electricity for light is quite high, namely 45 per cent. Most of the households still use fuel wood for cooking (87 per cent). This figure is higher than that of West Nusa Tenggara. Most of the households in East Lombok still use a river as the toilet (51 per cent) and the river is sometimes also used for bathing and washing (22 per cent).

1.5 Concepts and Definitions

There are some concepts used in this study that require definition

- The term gender role used in this thesis is adapted from Moser (1989) and includes both productive and reproductive work.
1. Production: work done by both women and men for pay in cash or kind. It includes both market productions with an exchange value and subsistence/home production with actual use value, but also a potential exchange value.
 2. Reproduction: women, of course, bear the children and are primarily connected with daily child rearing and domestic tasks in most societies. This

includes not only biological reproduction but also the reproduction of the labor force and social reproduction.

3. Community managing role: activities undertaken mostly by women, but also men, at the community level, as an extension of their reproductive role, to ensure the provision and maintenance of scarce resources for collective activities such as water, health care and education. This is involuntary unpaid work.
 4. Community political role: activities undertaken at the community level, mostly by men but also women, organising at the formal political level, within the framework of traditional decision-making structures or national politics.
- Changes in work: changes related to work can be either symbolic or real. Symbolic change could be, for example, the head of the household being a woman rather than a man. Real change is more common, however, related to increasing workload, or variations in the type of work performed.
 - The definition of gender refers to the definition given by Naila Kabeer (1990) 'the process by which individuals who are born into biological categories of male or female become the social categories of women and men through the acquisition of locally defined attributes of masculinity and femininity' (Naila Kabeer 1990: 9)
 - Forest degradation is defined as the reduction in the value of the forests, especially through the reduction in diversity and availability of the vegetation and animals, normally used by people living there. This results in the decreasing access of people to forest products. This definition is derived from my observation and also information from local people.

1.6 Organisation of the Thesis

This thesis consists of eight chapters. The first chapter is an introduction comprising the background of the study, its objectives, selection of the study area and the concepts and definitions employed in the thesis. The second chapter reviews the literature related to the topic and presents the theoretical framework used in the study, while the third chapter outlines the research methods used. The fourth chapter examines the level of forest degradation in the study area. Chapter five investigates the roles of men and women in productive and reproductive activities in Sempur and how they have changed. Sempur is an area that has experienced severe degradation. Chapter Six examines the role of men and women in Timbenuh, an area that has experienced relatively low amounts of environmental degradation. Chapter Seven analyses the difference in the roles of men and women in the two study areas and finally Chapter Eight presents the conclusions of the thesis.

1.7 Conclusion

This chapter has presented the aims, objectives and the reasons for focussing on a particular area in Indonesia. Literature dealing with the degradation of the forests was examined, as it is clear that there has been an increase in the deterioration of forests in Indonesia. This will have an impact on the livelihoods of people, both men and women, particularly in West Nusa Tenggara, since many of the people still rely on forest products to fulfil their basic needs.

This chapter also examined some of the literature dealing with women and the environment in Indonesia. It is clear that those studies have only focussed on

women. In addition, the chapter also examined the lack of studies dealing with gender and forests in Indonesia, although much of Indonesia's forests have been degraded over the years.

Furthermore, this chapter has presented the geographical conditions of West Nusa Tenggara and the socio-economic characteristics of the people there. The data indicated that West Nusa Tenggara was one of the poorest provinces in Indonesia. In addition, this chapter presented a definition of key terms employed in the study, including forest degradation and productive and reproductive tasks.

CHAPTER TWO

THEORETICAL FRAMEWORK

2.1 Introduction

A number of difficulties were encountered in studying the relationship between gender and the environment in this study. In part this was because there are many perspectives on the connection between gender and the environment. In addition, there is no single theoretical framework accepted for the study of gender and the environment. According to Jackson (1993) this is because many recent studies related to gender and the environment are separated from the analysis of gender in development. The literature has been little concerned with establishing clear evidence that supports theory. In addition, Plumwood (1993, p. vii) states that 'currently there are no theoretical means except for fine sentiments and goodwill...' Another difficulty relates to the inconsistency of empirical research on gender and environment (Stern *et al.* 1993). In this regard, some scholars (Levey 1995; Homborgh 1993; Jackson 1993) suggest the need to develop a more suitable theoretical framework.

This chapter consists of four sections. It begins with an introduction followed by a discussion of conceptualising the relationship between people and the environment. The third section highlights the concept of the specific relationship between gender and the environment. The last section examines the theoretical framework utilised in this study.

2.2 Conceptualising the Relationship Between People and the Environment

In the 1970s and the 1980s studies of the environment had a tendency to focus on the physical environment, both the causes and consequences of environmental degradation. The result was a focus on conservation issues. The impact of environmental degradation on people received little attention. However,

Jackson (1993 p.390) indicates that 'nature is respected for its own sake not only for its usefulness to humanity ... without people there would be no meaning'. This study therefore, is aimed at exploring the relationship between people and the environment. Some of the relevant literature in the area of study is highlighted below.

Scholars are still debating the main factors causing environmental problems. There are at least three apparent factors, including physical events (natural disasters), rapid population growth, and human activities (such as war, and development processes) which are said to create environmental problems (Harrison 1993). Adoko (1993) also presents a similar argument. According to Harrison (1992) the factors that cause environmental degradation are different from region to region and he provides examples from several countries. Land degradation is worst in Africa because of rapid population growth along with technical stagnation although the forestland is protected by government, which has led to more problems. In addition, deforestation has occurred in the Amazon basin because of unequal land ownership, the absence of democracy for a long time, resistance to land reform, and fiscal favours to rich ranchers (Harrison 1992).

Hardjono, in her study in Indonesia, argues that population pressure and the process of development have both led to environmental degradation (Harjono 1991, p.8). Some land degradation has occurred in Java's watersheds, caused by high population density in the upland areas, which has accelerated the cultivation of both food and cash crops on steep slopes. This cultivation practice has increased erosion. In addition, the degradation of land has also occurred outside Java. For example, in Lampung increasing erosion occurs every year in the wet

season, because of the activities of extensive small holder coffee growers (Harjono 1991).

Fraser (1996) argues that high population density has caused the degradation of the forest in Indonesia. Forests are cleared and are changed to agricultural land. However, this statement is criticised by Sunderlin and Resosudarmo (1996) who maintain that there are several variables excluded in Fraser's analysis such as logging by big private sector companies which damages the forest. They give an example of the work done by both Grainger (1993) and Kummer and Turner (1994). Those scholars noted that it is very common in Southeast Asia and in the humid tropics for forests to be cleared by loggers and then occupied for agriculture by people around the area or people who come to utilise the land.

Donner (1991) gives an example of land degradation in Lombok. He shows that high population density has contributed to the degradation of the land. The practice of clear cutting, shifting cultivation and overgrazing in this area has led to serious erosion problems and increasing water shortages.

The literature mentioned above tends to focus on the destruction of the environment. Little attention has been paid to the impact on people of this destruction of the environment. Blaikie and Brookfield (1987) suggest that, in order to understand the relationship between people and the environment, both sides must be considered. They argue that the interference of people with their environment is not always the cause of degradation. Rather, people are also capable of managing their environment. Furthermore, Blaikie and Brookfield suggest that 'physical changes have to be evaluated also in social terms' (1987, p.5). Blackstone (1984) has made similar suggestion. He states that special

emphasis should be given, not so much to the factual data of the ecologist but the implications of the data for society.

Some scholars and activists see no gender differences in the ways human beings relate to the environment while others see that there is a major differences that is rooted in biology (Rocheleau *et al.* 1996). Hence some of the literature relating to the study of the relationship between gender and the environment will be reviewed next.

2. 3 Conceptualising the Relationship Between Women and the Environment

In recent years there has been an increase in the literature dealing with the relationship between women and environment. Most of this has focused on conceptualising the connection between women and nature. In addition, case studies have been presented in some of the literature. (Rocheleau *et al.* 1996; Warren 1994; Gaard 1993; Plumwood 1993; Agarwal 1992; Kheel 1990; King 1990; Merchant 1990; Zimmerman 1990; Dankelman and Davidson, 1988; Shiva 1988). However, there are a number of different ways in which the links between women and the environment are examined in the literature. There are at least three major divisions in conceptualising this linkage according to Awumbila and Momsen (1995): 1) eco-feminism 2) 'women and the environment' and 3) developmentalism. Other scholars divide it into five streams: 1) eco-feminist, 2) feminist environmentalist, 3) socialist feminist, 4) feminist poststructuralist, and 5) environmentalist. In this review the perception of the women and nature connection will be categorised to become four divisions including eco-feminism, 'women and the environment', feminist environmentalism and developmentalism (Rocheleau *et al.* 1996).

2.3.1 Eco-feminism

Eco-feminism is a theory that conceptualises the connection between women and nature. Eco-feminists perceive that there are similarities between the process of the domination over women and nature. This approach has come primarily from western writers and posits that women and nature are both subordinated within a patriarchal social system. Hence they argue that because women are close to nature then women can solve environmental problems solely (Shiva 1988). The liberation of nature also means the liberation of women. Eco-feminists have also set out to criticise western science and perceive that the scientific revolution has increased the domination and exploitation of both women and nature. (Shiva 1988; Merchant 1981).

Within eco-feminist thought there are two perspectives in conceptualising the link between women and the environment (Rocheleau *et al.* 1996). The first perspective is primarily based on an ideological position, which believes that women have a close relationship to nature. This was primarily argued by eco-feminists in the 1970s and 1980s. The second perspective argues that the women and environment association is socially constructed.

Sherry Ortner (1974), a feminist anthropologist conceptualises the link between women and nature as being based on a biological position. She states that 'woman's traditional social roles, imposed because of her body and its functions, in turn give her a structure, which...is seen as being close to nature' (Ortner 1974). King (1990) also discusses the ideological construction between women and nature. She argues that women themselves can be thought of as nature. This is reflected in her statement '...including our natural, embodied selves' (King 1990, p.117). The concept of women as nature is also addressed by

Mies (1993). Her argument is based on the biological fact that women deal with pregnancy and give birth - essential aspects of life.

In conceptualising the link between women and the environment Shiva made a step forward. In *Staying Alive*, she conceptualised the relationship between women and environment as being based on both the ideological and material positions of women. This approach was developed from 'Indian cosmology'. She states that:

Women in India are an intimate part of nature, both in imagination and in practice. At one level nature is symbolized as embodiment of the feminine principle, and at another, she is nurtured by the feminine principle to produce life and produce sustenance (Shiva 1988, p.38).

Shiva believes that women are guided by a 'feminine principle' of taking care of the environment, and that this concept was practised in India before the colonial period. In this idea 'life was more balanced then than at present'. Women in India were able to fulfil their subsistence needs as well as sustain the environment. Both modern science and the progress of development in India, in which the western patriarchal idea has been applied, have destroyed the country's natural resources (forest, water and land). The destruction of nature has also meant the destruction of women's role in this regard. Shiva states that 'the violence to nature, which seems intrinsic to the dominant development model, is also associated with violence to women who depend on nature for drawing sustenance for themselves their families and societies' (Shiva 1988, p. xvi). For example, in a study conducted in several villages of Uttar Pradesh, India she found that women have to walk 15-20 miles to gather water, because the sources of water in their village are drying up. Shiva believes that this has been caused by the destruction of the forest (Shiva 1988).

Shiva also believes that women can solve environmental problems. Women in India, she argues, have been able to some extent to protect the environment from destruction; she gives as evidence the 'Chipco movement'. This was a mobilisation of women in 1975 to protest the exploitation of forests for commercial purposes.

Gaard (1993, p.1) in defining eco-feminism differs from earlier eco-feminist thought by stating that not only women are in a subordinated position. Gaard also includes races, class, physical abilities and species. Gaard noted that 'the ideology which authorises oppression such as those based on race, class, gender sexuality, physical abilities and species is the same ideology which has led to the oppression of nature. The attempt to liberate that oppression group is the same as the attempt, to liberate nature'.

Plumwood (1993) conceptualises the link between gender and the environment differently to the eco-feminists of the 1970s and 1980s. She indicates that women are not all the same. Rather women are not always concerned about the environment. Furthermore, she states that the perception that women have an automatic ecological consciousness and can do no wrong in terms of nature is not correct. Therefore, in order to develop this theory Plumwood (1993) suggests the need to include race, class and gender analysis in studying the relationship between women and the environment.

2.3.2 Women and the Environment

'Women and the environment' perspectives conceptualise the link between women and the environment from the point of view that women are managers of natural resources. This concept is derived from the work that is done by women.

In many rural societies women have a responsibility to perform several tasks, including agricultural and household tasks such as gathering water, collecting fuel wood and caring for children. Because of the tasks women perform they will suffer more under environmental degradation (Dankelman and Davidson 1988). Because of such daily tasks women also have a profound knowledge of the environment.

The argument that women are managers of the environment is explained by a study about the visible water manager (Dankelman and Davidson 1988). As managers women have to decide:

- Where to collect water, how to draw, transport and store it
- How many water sources can be used and on their quality for various purposes - for drinking, washing and in the kitchen
- How to purify drinking water using simple techniques (such as filtration) or material available from the environment (Dankelman and Davidson 1988, p.32)

In addition the study conducted by Dankelman and Davidson (1988) reviews the introduction of agricultural technology in South Asia, China and Mexico. They indicate that this agricultural development has had an impact on the deterioration of the environment in those countries and this degradation has had a negative impact on women. This argument is also supported by Rodda (1989) who argues that the destruction of the environment has resulted in an increase in women's work.

2.3.3 Feminist - Environmentalists

This concept was developed based on the criticism of eco-feminist western writers, especially from the United States, who linked women and the environment in 'ideological terms'. This is rooted in a system of ideas, values and beliefs of male dominance over women and the 'non-human world'. This is not appropriate for analysis of the relationship between women and the environment in

developing countries. The link between people and the environment in developing countries, especially among the poor is material; the environment meets the people's needs in their struggle to survive.

The feminist-environmentalism concept was developed by Agarwal (1992) in order to search for an alternative to the above concept of the relationship between women and environment. She formulated this link in material terms. She developed this concept based on the experience of the women of India in their struggle to live in environmentally degraded areas.

The link between women and the environment can be seen as structured by a given gender and class (/caste/race) organisation of production, reproduction, and distribution. Ideological construction such as of gender, of nature and of the relationship between the two, may be seen as (interactively) a part of this structuring but not the whole of it. This perspective I term "feminist environmentalism" (Agarwal 1992, p.127).

Unlike Shiva (1988), who believes that women have an intrinsic natural instinct to take care of the environment, Agarwal (1992) argues that women are victims and the environment suffers as a consequence. The environment is degraded because of the gender construction within the society such as the presence of the division of labour in which women remain in a disadvantaged position.

2.3.4 Developmentalism and Other Perspectives

Developmentalist and other scholars have criticised both eco-feminist (mainly eco-feminists in the 1970s and 1980s) and 'Women and Environment' perspectives. The criticism is mainly derived from the unit of analysis that focuses only on women. (Levey 1995; Braidotti *et al.*1994; Jackson 1993; Agarwal 1992; Leach 1991; Momsen 1991). Many aid agencies tended to adopt this approach including CIDA, ODA (the British Development Administration) and the World Bank (Parpart 1995; Jackson 1993).

Biehl (1991) criticises the ideological eco-feminist perspective that links women and nature based on biological fact. Jackson (1993) questions the women-nature connection for development intervention in the third world. 'What significance does this have for attempts to understand gendered environmental relations in the Third World or for development intervention?' (Jackson 1993, p. 398). She also indicates that the women-nature connection does not fully explain change in the relationship between gender and the environment in either the short or long term. In addition, Jackson also criticises the evidence in some literature depicting the close relationship between women and nature. For example she cited the work of Fortman (1986) who reveals that women only gathered dead wood for fuel. According to her, women collect deadwood not because they are more caring for the environment but because deadwood is lighter. She suggests that the application of gender analysis to environmental relations involves seeing women in relation to men, the desegregation of the category 'women' and an understanding of gender roles as socially and historically constructed (Jackson 1993, p.399). She also argues that property rights influence the way in which women and men interact with their environment. In many societies men have greater access to land than women. Therefore, the greater effect of environmental degradation on women is influenced by the presence of a large number of women as heads of households in which they have little access to resources. Such women will find it difficult to support themselves and their families.

Mohanty (1991) also criticises the essentialist links between women and nature that are raised by eco-feminists. This link is not appropriate to the analysis of the connection between women and environment in the Third World. The association between women and the environment in Developed countries is different to Third World countries. The women's movement in Developed countries deals with their need to increase the quality of life while women in Third World countries struggle to survive.

Braidotti *et al.* (1993) also criticise the 'women and the environment' perspective. They argue that in several regions in developing countries the division of labour between men and women is not clear. Rather, men and women perform tasks that are complementary. Men also may perform domestic tasks that are usually considered to be women's tasks. Therefore, men also have accumulated knowledge of the environment. A study that was conducted by Stoler (1977) in rural Java found that men also cook, take care of children and perform related activities while women work in order to make money.

A study conducted by Sayo in the Philippines (1994), in which the unit of analysis was both women and men, suggests that both men and women suffered a negative impact in the destruction of the environment. The depletion of the environment that was caused by a calamity has had an effect on men's work as well as on women's work. For example the extraction of timber resources has taken existing sources of income away from men. They have to look for other opportunities to earn income outside their villages. On the other hand, women continue to work on their swidden fields to supply food for their families. The absence of men from their villages disrupted childcare patterns and the allocation of household's tasks.

The suggestion that women can manage the environment is also criticised by Moser *et al.* (1989). She states that

Any measures to enhance their capacity to manage the environment must be careful not to rely on their voluntary time without taking account of their current workloads. Otherwise, the result may be that women are not able to find the necessary time to guarantee success, or at best are forced to extend their working days (Moser *et al.* 1989:139).

They give an example of women in Guayaquil, Ecuador. In that locale women have to work harder in their community management role. This restricts the time that women can spend on productive work, which earns money (Moser *et al.* 1989).

Leach (1991) also criticises the two approaches (eco-feminists and 'Women and Environment') which only focus on women as the unit of analysis. She suggests that a detailed examination of men's and women's roles is necessary to obtain a clear picture of development (and environmental impact). She thinks that just looking at women alone only tells a part of the story. In addition, Awumbila and Momsen (1995) also criticise both approaches. Their criticisms are based on the ideological conceptualisation of the linkage between gender and environment. These approaches neglect the variability of social relations. Furthermore, they also argue that the linkage between women and the environment based on biology, which is argued by eco-feminists, is essentialist. There is no place for the social construction of gender that determines the allocation of spheres of activity and competence to women and men. In addition Awumbila and Momsen (1995) indicate that gender roles are dynamic. They can change along with social and economic change brought about by different environment conditions. They also criticised the 'women and environment' approach that proposes that women solve environmental problem separately from men. This approach does not take account of the demand on women's time that may constrain their involvement in this activity.

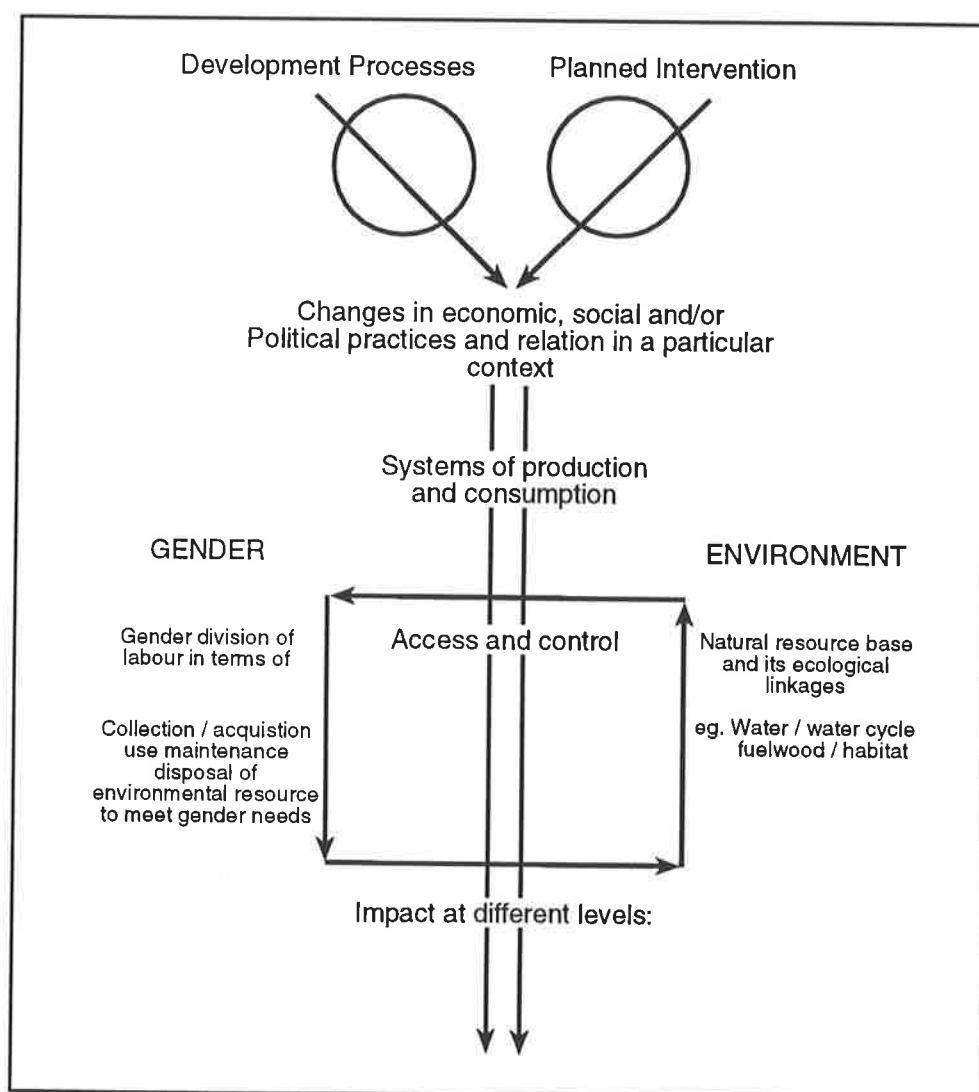
Recently, feminist political ecology has developed a new framework in analysing gender and the environment (Rocheleau *et al.* 1996, p.2). This approach derives from several feminist perspectives including feminist cultural ecology, feminist political economy, feminist geography and political ecology. They emphasise that in studying gender and the environment it is necessary to include gender, class, caste, race and culture. They state that

this treats gender as a critical variable in shaping resource access and control, interacting with class, caste, race, culture, and ethnicity to shape processes of ecological change, the struggle of men and women to sustain ecologically viable livelihoods, and the prospects of any community for sustainable development' (Rocheleau *et al.* 1996, p.2).

This framework indicates that people are not homogeneous in having access to and control of resources

Levey (1995) also criticises the approach that was raised by eco-feminists in the 80s. Her criticism emphasised the suggestion that it is only women who can solve environmental problems. She proposes an alternative framework highlighting the link between gender and the environment. The link is mainly

Figure 2.1 The connection between gender and the environment



Source: Levey 1995 p.36

focused on the material position that natural resources are used by both women and men. The activities that involve women and men in the use of natural resources are part of a wider system of production and consumption that are supported and maintained by economic and political interests. Figure 2.1 shows the connection between gender and the environment. It is suggested by the diagram that this connection is largely through the gender division of labour and its manipulation of resources in the natural resource base through differential access and control.

In summary, many perspectives have been adopted for studying the relationship between gender and the environment. Each approach has strengths and weaknesses. The approach adopted here does not follow any one stream but rather, in exploring the circumstances that underlie the changes of gender roles brought about by forest degradation, a combination of approaches are utilised in order to examine the influence of different factors. This approach focuses not just on women as the unit of analysis but on both women and men. This is in line with the approach that is suggested by Agarwal (1992) that both men and women are influenced by environmental degradation in gender specific ways. In addition, the link between gender and the environment will follow both the perception and the practice of people in the study area regarding their environment. The analysis takes place at the individual level and household levels, and considers both regional and international factors. It is argued that the relationship between gender and the environment is socially constructed. Therefore, it will be different at different levels of environmental stress, as suggested by Awumbila and Momsen (1995). This study will investigate the impact of degradation on both men's and women's roles in the face of different levels of environmental degradation.

In order to achieve the aim of the study the basic element essential for conducting gender analysis (Raharjo 1996) will be investigated. This is reflected by several key questions including:

- a) Who does what? (Division of labour between women and men in the social system under analysis). These indicators include the participation of men and women in household and community activities such as the involvement of men and women in productive as well as in reproductive activities. Productive activities cover involvement in paid employment and agricultural activities, whereas reproductive activities include involvement in domestic tasks.
- b) Who has what? (access to property entitlement and decision making over private and public resources within this system).
- c) Where are the activities conducted? (in the work place, in the forest, in the field, in the house)
- d) When and for how long do the activities take place? (days and hours)
- e) What factors influence gender arrangements? (culture, law, economic and political policies, how these are changing)
- f) How are public and private resources distributed and who gets what?

2. 4 Gender Relations

As was mentioned earlier, the definition of gender used in this study is the construction of a system of roles and the relationship between men and women within society. Thus gender relations prescribe a division of labour and responsibilities between men and women. It also determines their different rights and obligations within society. This gender system also creates inequalities between men and women including differences in power, authority and well being.

Gender is socially constructed which means that it can change over time. Still, ideas about gender are central to a community and are passed on from generation to generation. They are enforced both by the community and the state.

Informal sanctions can be imposed on both men and women who behave differently from the expectations of society.

Gender relations can be balanced, however in many societies gender relations are imbalanced. This is most strongly reflected by the unequal gender division of labour in many societies. The evidence of the gender division of labour in the agricultural sector has been studied by many scholars (Jansen 1993; Agarwal 1992; Whitehead and Bloom 1992; Momsen 1991; Hudson and Lee 1990; Dawson 1987; Heyser 1986; Bjorkman 1986; Boserup 1970). A gender division of labour in agricultural work is widespread. Dawson (1987), in her study of one village in West Java, found that women and men do different tasks in rice fields. Women's contribution to the rice fields is characterised by being confined to more labour intensive, time consuming activities and manual operations, such as seeding, weeding, harvesting, threshing and planting. Men perform tasks which demand more physical involvement, such as land and seed-bed preparation (Dawson 1987). While both men and women may have productive roles and public functions, the tasks related to reproduction in society and the household typically fall onto the shoulders of women, such as fetching water, collecting fuel wood, slaughtering animals, cooking, and gardening (Dawson 1987; Sayogyo 1983). In rural areas of West Nusa Tenggara household tasks are also performed by women. Women have the responsibility of gathering water and fuel, and preparing food. Women are also involved in agricultural work and paid work (Field notes 1992, 1993). Judd (1989), in her study in Lombok, Indonesia revealed that both men and women work in the fields. Momsen (1991), in her study of the gender division of labour in India, found a similar pattern to the study conducted by Dawson. She found that women performed certain tasks in rice fields as well

as domestic tasks such as fetching water, collecting fuel wood, raising livestock and gardening. (Momsen 1991; p. 50).

Dankelman and Davidson (1988) claim that women, especially those who live in rural areas in many third world countries, perform three types of tasks: survival, household and income generation tasks. For survival tasks women in subsistence economies have the responsibility of providing daily household needs. Women are actively involved in food crop production including home gardening, raising small livestock, collecting water, fuel gathering and other related tasks. Women are also involved in tasks that generate income.

In addition, generally women work longer hours than men. The responsibility of women to do agricultural tasks along with their other household responsibilities such as gathering fuel wood and fodder causes women to work longer hours than men. A study conducted by White (1981) in Central Java found that women worked 11.1 hours per day while men worked 8.17 hours per day. Similar patterns were also found in the studies by Palmer (1977) and Mukhopadhyay (1987).

The gender division of labour is not static, but is influenced by several factors. Beneria and Sen argue that the gender division of labour may change along with changing social and economic circumstances (Beneria and Sen, 1981). They give evidence from a study conducted by Bukh (1979) in Ghana, which found that an increasing number of men engaged in cash crop production and their migration for work purposes caused a change in the division of labour. Several tasks which used to be men's were taken over by women.

Deere (1982), in her study in Cajamarca, Peru, also found that the division of labour was strongly influenced by socio economic class. Poor women participated more in agricultural work. Hull (1982) and Stoler (1977), in their studies in Java highlighted the importance of examining class structure in looking at women's employment. A study conducted by Judd (1977) about survival strategies among the landless and poor in a Sasak village of Lombok, West Nusa

Tenggara, found that women from poor households are more successful than men in securing employment. Women contribute more to the household income than men. This is because the perception of men and women's roles is different in Sasak society. Men's lives are public while women are more secluded and lead more private lives. Men are bound by formal etiquette while women are less bound in this regard. This public identity of Sasak men is governed by the emotion of *malu* (shame) in their lives. This influences the daily lives of men. For example, men who have a secondary level of education do not want to do manual tasks such as agricultural labor. They prefer to be unemployed and wait for a good job.

2.4.1 Gender Relations in the Study Area

Literature concerning the construction of gender relations among the Sasak people is very rare. Construction of gender relations is based on information provided by both Sempur and Timbenuh residents. Both female and male informants mentioned that traditionally in their society men were expected to protect their families materially and physically. This expectation is mainly based on the stereotype that men are strong and women are weak. In addition, men are expected to be the head of the household while women, the mother. This perception is the basic concept of gender ideology of the people in these *dusun*. Kelkar and Nathan (1991) also indicate that the sexual division of labor is a social construction of biological fact.

In practice this gender ideology should be reflected in the different activities or roles performed by men and women. Men conduct the activities that need a large amount of energy while women do the opposite. This traditional division of labor is seen to be complementary rather than exploitative. Domestic tasks that are perceived to need less energy are seen as being appropriate for women. However, some men also participated in these tasks, especially when the

tasks were perceived as being inappropriate for women. For example, cooking for the household is mostly undertaken by women but cooking a large amount of food for a ceremony is performed by men. Men did not dominate productive tasks, as women also participated, but their tasks were different from those performed by men. This division appeared to be more egalitarian than dominating. This complementarity of roles was also strongly stated by all female and male informants.

In explaining gender relationships some scholars focus on the importance of identifying the tools that women and men used in their activities (Agarwal 1992). In this *dusun* gender relations could be viewed in that way. Men used a large hoe (a *tambah* or hoe is a tool that is used for digging) for the preparation of agricultural land while women used a small sized *tambah* for performing the same task. In addition, men used a *kampak* or axe (a tool which usually is used for cutting wood) while women used the small size tool that is called *kandik*. These tools are shown in Plate 2.1. The tools used by men and women have the same function but are of different capacity. For example, a *kampak* can be used to cut

Plate 2.1 The tools that are used by men and women.



Kampak



Kandik

big logs while a *kandik* can only cut small pieces of wood. This reflects the fact that women in this society can undertake the same activity as men.

Men and women in this society started their adult roles when they were married. Usually the parents give agricultural land to their sons to support their new families. This land would be worked by both husband and wife. They learnt their roles when they are strong enough to carry out specific tasks, at about 7 years of age. Sons mostly would follow their fathers and help them. My field



Plate 2.2: Young boys learn their role.



Plate 2.3 : Young girls learn to perform their role

observation was that many young males (6-10 years old) work together with their fathers at the edge of the forest. They started to do activities by themselves such as collecting grass (Plate 2.2).

Young girls work together with their mothers and help them. They also start to carry out tasks by themselves, such as collecting water (Plate 2.3).

Both sons and daughters remain with their mothers, however, when they are still under five years old. This pattern is similar to a study that was conducted in Papua New Guinea by Dickerson (1996). To sum up, it is clear that gender roles are socially constructed. Both men and women experience different socialisation from a young age.

2.4.2 Gender Access to Resources.

Some literature suggests that it is important to analyse the different access to resources between men and women in studying gender and the environment. This is because it influences the relationships between both men and women in maintaining their environment (Agawal 1998, 1992; Rocheleau *et al.* 1996; Joekes *et al.* 1994; Jackson 1993). The existence of a distinction in access to resources between men and women is apparent. There are variations in this regard among different cultures and religions. Agarwal (1989) gives an example of the different access to resources between men and women in the Hindu and Islamic religions. In Hindu law women do not inherit immovable property, including land, while Islamic law allows women to inherit land. This division of inheritance is also influenced by customary law in the different societies.

This variable access to resources is also influenced by government law. Rocheleau *et al.* (1996) give an example for Kenya where the government excluded women from resources previously available to them through customary

right and access. This was also found in the case of the transmigration program in Indonesia, where the access to land is only given to men.

It was mentioned before that residents of Lombok island are from several ethnic groups. Two of the major groups are the Balinese and Sasak. Most Balinese follow the Hindu religion while Sasak are Moslem. Therefore, gendered access to resources cannot be generalised over this island. This will depend on custom and religion. Therefore the regulation of access to resources in this section only holds to this study area.

Women and men in *dusun* Sempur and Timbenuh have different levels of access to household resources, especially land. Land is the most important of all the resources for people in agricultural societies. In development programs land can become a security for credit and to gain access to programs such as memberships in co-operatives. Moreover, land rights are an important factor where there is a high level of marriage instability.

The access to land in both Sempur and Timbenuh is mostly derived from inheritance and the land reform program that was initiated by the government in 1971. Traditionally both men and women in this *dusun* inherit land from their parents. However, the practice of distribution of an inheritance to sons and daughters is not uniform between households. Some families divide an inheritance equally between their sons and daughters. Other households give to their daughters half of what they give to their sons. In addition, other families practice a different system where sons receive an inheritance five times the size of the daughters. In the case of poor families, who have limited land, women generally do not receive any. Rather, the land is only given to their sons. One male informant, a member of a wealthy family in this *dusun*, mentioned that he

and his brothers inherited from their parents about five times more than their sisters. He also mentioned that the quality of the land that was given to the men was also superior to that given to the women.

The differential access to land in the area of study is mostly influenced by the land reform that occurred in 1971. In this year the government distributed land especially to the people who lived around the forest. This land is called *tanah GG* (land formerly owned by the government at the provincial level). Each household could own land that had been controlled (land that had been cultivated) by that household. The distribution of land was based on the head of the household and that was usually male. Therefore, women did not have access to land ownership. The data recorded in the *Badan Pertanahan Nasional* (land agency) of East Lombok reveals that only men received land in the land redistribution exercise. Therefore, land in both *dusun* Sempur and Timbenuh is mostly owned by men. The data on land ownership shows that 93 per cent of the land in the 75 households in Sempur is owned by men. In Timbenuh this figure is 91 per cent.

The different access to land between women and men relates to their perception of gender ideology. As mentioned previously men are expected to become heads of households with the responsibility of fulfilling the needs of their family. Therefore, land rights are given to the men. Informants mentioned that land is the capital for the men to perform their role as a head of the household.

In addition, in the case of divorced women, they have access to household resources collected during their marriage, however, their household resources are given to their children through the inheritance system. The husband has the responsibility of taking care of their children financially until they can live independently.

The gender role with regard to the environment is strongly reflected by inequality in tree planting. Planting trees is exclusively a male domain. Several men and women informants mentioned that planting trees is prohibited for women in the household on land owned by men. However, women have the responsibility to care for the trees together with their husband. Women also have the right to harvest the trees but cutting and regeneration of trees is a male right. This phenomenon is also found in African countries (Jacobson 1992) where women only plant food crops.

2.5 Conclusion

This chapter has outlined some approaches to conceptualising the relationship between gender and the environment. However, there is a problem in studying the impact of forest degradation from a gender role perspective. This is because the concept of the relationship between gender and the environment has been debated. In addition, it mostly focuses only on women. This chapter also proposed the approach that will be utilised in this study. This approach is expected to give a clear picture of the relationship between gender and the environment, though this is a broad question, in which there are still many uncertainties.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

As was mentioned in Chapter One there are few comprehensive studies concerning gender and environmental change. Existing studies mostly focus on women without any comparison to men. Therefore, those studies do not give a clear picture of roles according to gender. In addition, previous studies have mainly been conducted in areas which experienced environmental degradation, and comparative studies among regions which have different levels of degradation are still few. Furthermore, those studies mostly were conducted in India, Africa and the Philippines (Sandhya 1995; Agarwal 1992; Kelkar and Nathan 1991; Guha, 1989; Shiva 1988). Studies of gender and the environment in Indonesia are still limited. However, recently there has been increasing attention paid by women scholars to this area (Raharjo 1996; Kettel 1994; Adiwoso 1994).

As outlined in Chapter One, this study is focused on two selected *dusun*, in East Lombok, West Nusa Tenggara. Even though these *dusun* are small, the activities of people are influenced by structural factors such as government regulations and policies on regional development. Therefore, this study uses a combination of micro and macro level of analysis. The macro analysis traces the historical and structural causes of environmental change and sets out the current environmental situation in the area. The impact of environmental degradation on people is analysed using a micro level of analysis. This takes place at the level of the household and the individual but it is, of course, also related to macro level considerations.

To achieve its aims, this study employs multiple methods by combining quantitative and qualitative approaches. This is an appropriate technique to understand the impact of forest degradation on people. Secondary and primary data are utilised. The data were collected through surveys, in-depth interviews, participant observation and focus groups.

This chapter comprises several sections. Section 3.2 outlines the reasons behind using quantitative and qualitative approaches. Section 3.3 presents the type of data that are utilised in this study. Section 3.4 discusses the selection of the study areas and section 3.5 looks at the research techniques applied. Section 3.6 describes the data collection in the second *dusun* followed by an examination of the data. Section 3.8 is an explanation of the limitations of the study and the conclusion comprises the final section.

3.2 Quantitative and Qualitative Methods.

It was noted earlier that a combination of quantitative and qualitative approaches are utilised in the study. The reason for this was that it was difficult to obtain a comprehensive picture of the topic when relying on only a single method. Moser and Kalton (1986, p.301) argue that using a combination of methods “can provide a more powerful research strategy than the reliance on any one method alone”. Each method also has advantages and disadvantages. As Blumer (1984, p.29) states, there is “no one best method and each method has its strengths and weaknesses”. Therefore the use of multiple approaches can, ideally, compensate for the weakness of each method. Denzin emphasizes the reason for using this approach: “the rationale for this strategy is that the flaws of one method are often

the strength of another; and by combining methods, observers can achieve the best of each while overcoming their unique deficiencies" (Denzin 1978, p.32)

The aim of the study is to understand the circumstances producing change in gender roles in response to the impact of forest degradation. It attempts to use quantitative measurement (such as time allocation) in order to look at the changes. In addition, to understand the change of people's behaviour and attitudes, qualitative methods can provide descriptive in-depth data (Taylor and Bogdan 1998). Moreover, these methods also allow the researcher to interpret the survey data in a more profound manner. Both methods are used to complement each other. Corner (1995b, p.1) argues that using 'these approaches are complementary rather than alternatives because they fulfil quite different research functions'.

3.3 Secondary Data

Secondary data are data or information on the topic that were collected by other researchers. It was expected that these data would help explain the topic being studied. These data were obtained from a variety of sources. Literature searches were conducted in libraries in South Australia including Adelaide and Flinders Universities and the Women's Resource Centre. Other university libraries were also used such as those at the Australian National University and other Australian universities. Literature searching was also undertaken in Indonesia, especially at the Center for Information and Documentation, Indonesian Institute of Sciences, Jakarta. Several libraries in local universities both in Mataram and in East Lombok, and the state library in Mataram were used. A particular problem in searching literature related to the limited study of gender and environment in Indonesia was that the majority of studies were conducted overseas.

The search for secondary data also led me to the Indonesian Central Bureau of Statistics at the levels of subdistrict, regency and province. This institution provides data related to the background of the area of study at the provincial and regency level. These data include geographical background, population, and socio economic conditions of different areas. Data were also obtained from the forestry department, at the provincial and regency levels, including regulations regarding the management of forests and the size of forests. However, important data such as the amount of forest that has been degraded cannot be obtained from this institution. Data were also obtained from *BAPPEDA* (Regional Development Planning Board) at the level of the province and regency, especially that related to ecological conditions. This institution, in collaboration with ITB (The Institute of Technology, Bandung) has studied the ecology of West Nusa Tenggara province. In addition, data were obtained from several NGOs involved in related work, especially from LP3ES in Mataram. They provided information related to the utilisation of forest products for the livelihood of people located near the forest. This institution conducts studies about West Nusa Tenggara's forest and forestry practices and also carries out community development projects, especially social forestry development projects.

A search of secondary data also was conducted in Jakarta and Bogor, including the forestry department in order to obtain data about the history of forests outside Java. I visited the Center For International Forestry Research (CIFOR) to obtain data related to the amount of forest that has been degraded and the Coordinating of Survey and National Charting Development Board (BAKOSURTANAL) in order to obtain detailed maps showing the location of forest.

3.4 Primary Data

Primary data are data that are directly collected by the researcher. These data were derived from individual perceptions, to help explain the topic of the study. Primary data were collected using surveys, participant observation and other observation, in-depth interviews and focus groups.

3.4.1. Selection of the Study Area

There were several steps involved in selecting the area of study. The first step was to select the province, then the regency followed by the village. There are many types of environmental degradation. However, at the outset of the research I defined environmental degradation as being essentially land degradation. Land degradation refers to degradation of the value of all of the elements of the biophysical environment; but 'value' is measured solely or even primarily in economic utilitarian terms- that is, in terms of its usefulness to people (Conacher and Conacher 1995, p.3). Land as a concept includes soil, local water resources, land surface and vegetation or crops that may be affected by one or a combination of processes.

As the research project progressed it became clear that this definition was too broad and therefore, difficult to implement in the field. Local scholars who deal with environmental problems informed me that there are many such problems in Lombok. However, the data which delineate those problems are not yet available. For example, information is not available for indications of degradation such as soil erosion or the decrease in agricultural production in certain areas. Therefore, I decided the definition of environmental degradation should be simplified to mean only the degradation of the forest. This was done for several reasons. Even though

data pertaining to total forest degradation were not available, degradation relating to the decrease in vegetation is clearly visible on the landscape. I was also able to obtain information from people in the surrounding areas about the history of the forest. Another consideration was that studies of the impact of forest degradation on people are still rare. This is important, since most of the population in Lombok who live around the forest are directly dependent on forest products to meet their basic needs (Departemen Kehutanan 1996; LP3ES 1996; Departmen Pendidikan dan Kebudayaan 1978).

I used a definition of forest degradation based on the existing physical evidence and the perceptions of local people. Therefore the definition relates to the decreasing access to forest products because of the degradation of the physical forest, and related restrictions on the use of forest products imposed by the government.

Since the purpose of the study was to examine the impact of environmental degradation on residents of villages which have different levels of environmental degradation, two *dusun* were selected, namely Sempur and Timbenuh. Sempur is located in the village of North Aikmel, East Lombok, and is considered to be a village which has a significant level of forest degradation (Plate 3.1). Timbenuh is located in the village of Pengadangan, Masbagik subdistrict, East Lombok regency (Figure 3.1), and is considered to have a low level of degradation. The identification of the two areas for study using different levels of environmental degradation was based on information provided by some officials of the forestry department, the perceptions of local people and also my own observations.

Plate 3.1: Forest Without trees, Sempur 1996



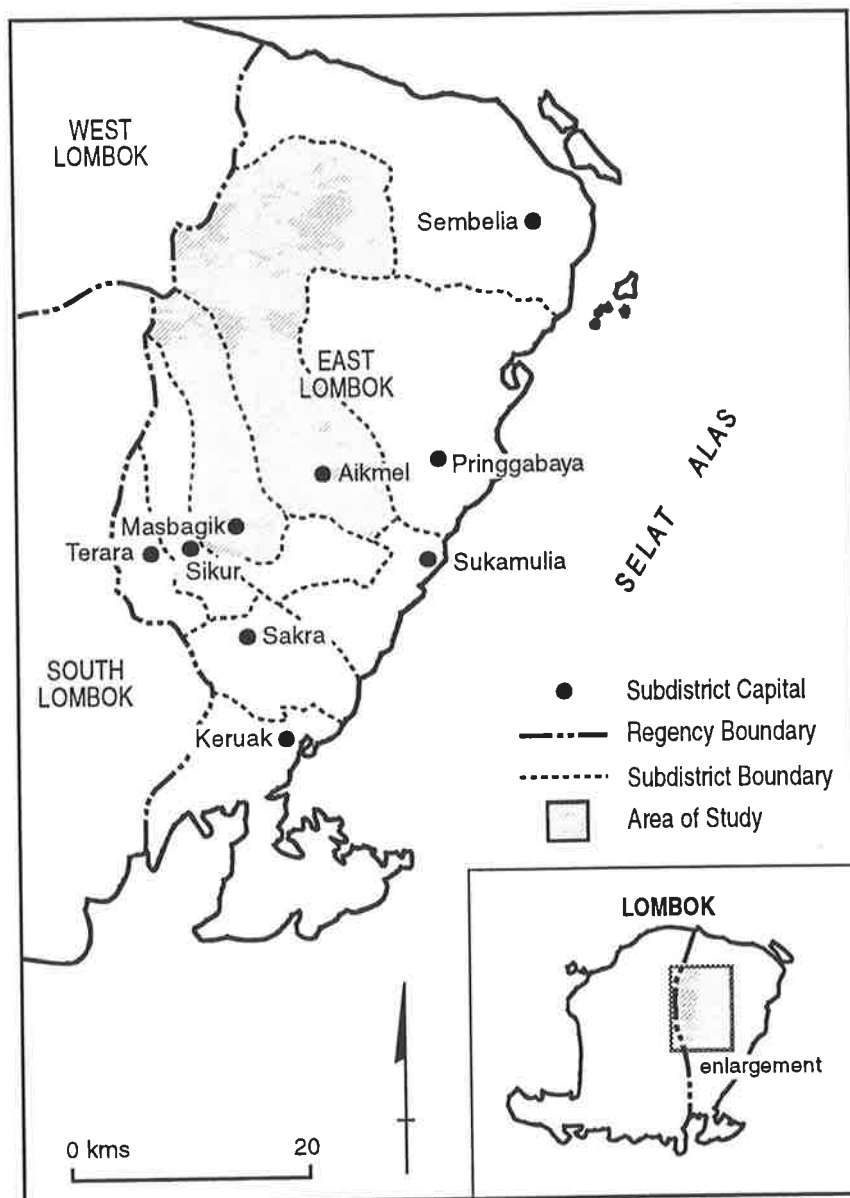
The two *dusun* are relatively close (about 15 km away from each other), and they are similar in terms of their socio-cultural and religious structures. The educational level of residents of both *dusun* was low with about 50 per cent of the population 10 years of age and over having no schooling at all. All Sempur and Timbenuh residents are Moslem (this will be discussed later).

I arrived in Mataram, Lombok, the capital city of NTB, on January 20, 1996. The first day I spent securing research permission and the following day I began the process of selecting appropriate study areas. I visited scholars in the Population Research Center (PSK) at the local university (University of Mataram), and discussed my proposed study. At this time, my definition of environmental degradation had not yet been decided upon. From my discussion I began to formulate a general picture of the environmental situation in Lombok. Some scholars who spent most of their lives in Lombok feel that environmental degradation includes soil erosion, decreasing water resources, and the decreasing type and number of flora and fauna in the forest. They also outlined the way in

which different institutions deal with environmental issues including government and non-government organisations (NGOs) such as Nusa

Figure 3.1 Map of East Lombok Regency, West Nusa Tenggara

Source: BPS, 1996a p.xiii



Tenggara Barat Environment Sanitation and Water Supply (NTBESWS) whose work deals with sanitation and water management, LP3ES which is concerned to the forestry management and CARE that deals in the development of

infrastructure, especially water supply sanitation and agro forestry projects. I also visited the women's study center (PSW) of Mataram University. This is because my study was related to gender issues. However, studies relating to gender relations have not been conducted in Lombok. Therefore, they only provided me with a general picture of women's roles in Lombok based on their experiences there.

Following this initial contact, I visited all the NGOs who deal with environmental issues. I visited LP3ES where they told me of several areas which had experienced forest degradation and the problems of dealing with forest management. I also visited NTBESWS, where they showed me several areas which lacked water resources. When I visited CARE, I received information about several areas which had experienced soil erosion.

The next step was to collect secondary data, to verify these descriptions of environmental change in Lombok. I visited the agricultural department to obtain data about agricultural production over the last 5 years. I also went to *Dinas Pekerjaan Umum* (Department of Public Works) to get data about water resources and to the forestry department to secure data on forest degradation. These data did not indicate environmental change. For example, agricultural production appeared to increase every year although the size of agricultural land in some areas had decreased. When I asked why all types of agricultural production always increased every year, the official answered that the data were not accurate. In fact agricultural production in some areas had decreased every year. They had manipulated the data to make it more politically acceptable, since good reports were required and bad reports were not acceptable. This lack of reliable data made it more difficult to select the appropriate study areas.

With these factors in mind I again held discussions with scholars from the local university and NGOs. From these discussions I realized that my definition of environmental degradation was still too wide. Therefore, I decided to study the impacts of forest degradation on people (both men and women).

I visited the forestry department to obtain data about forest degradation, but it was not available at that time. They informed me that, at the moment, there was no established measure of forest degradation. The official forestry department suggested that degradation of the forest could be identified by looking at the decrease in vegetation. This official, who had been working for 25 years in Lombok, informed me that there are 6 areas that have experienced decreasing vegetation. There were three areas in East Lombok, two in West Lombok and one area in Central Lombok. This information was the same as that given to me by an NGO official.

Along with two colleagues from NTBESWS, I travelled around Lombok visiting these six areas. In each location we examined the condition of the forest and then visited the leader of the nearest village. I asked the head of each village (*kepala desa*) several questions including what is the condition of the forest at the moment? Could you describe the situation of the forest before the present damage? When did the forest start to be degraded? And, what are the impacts of the degradation on local people? After I obtained information from these *kepala desa* I conducted interviews with several people in each village to get information about their activities related to the degradation of the forest. When I finished with the examination, I noted that there were two villages almost suitable given the criteria of the survey; namely 1) The people were still using forest products or previously used

to be dependent on them; 2) The degradation of the forest occurred recently; and 3) Most of the people in the village still remember when the forests were not degraded and when the people made more use of the forest products. The two villages selected, as noted earlier, were North Aikmel in East Lombok and Sesaot in Central Lombok.

Along with colleagues from NGOs I visited the two villages again. In those two villages I conducted focus group discussions. Since my study was to focus on women and men, the target of the focus group was both women and men, and the key questions concerned changing activities because of forest degradation. Four women and men joined this group in each village. My colleague became a moderator of each focus group, since she had substantial experience in this type of data collection. After I learned the results of the focus group I decided to choose one village in East Lombok namely North Aikmel to become the study area with consideration of the following:

1. The degradation of the forest occurred recently and most of the people still remembered the forest conditions before this happened.
2. Some people still used, and more had previously used, forest products. Their land now does not provide enough to support their needs
3. Most of the previous studies related to forests and people focused on West and Central Lombok.
4. The willingness and the enthusiasm of people in this village to support the research project.

3.4.2 Selection of the *Dusun*.

North Aikmel consists of 9 hamlet villages (*dusun*). Since the aim of the study was to examine the impact of forest degradation on people, the hamlet was chosen on the basis of the forgoing criteria. The head of the village informed me that the only *dusun* where the majority of people were using, or had previously used forest products, is Sempur. Even though this was just one hamlet, it covered almost one third of the area of the village. The location of this *dusun* is isolated and located quite far from the others. The distance of the hamlet to the location of the central activities of the village is about 5 kilometres and it is close to the forest.

The next step was to select areas of study which could be used for a comparison. A truly appropriate area would be one which had not experienced forest degradation. However, there is no forest which has not been degraded in West Nusa Tenggara. Therefore, I looked for villages where the forest had a low level of degradation and where the population had similar characteristics to that in Sempur.

I visited *BAPPEDA* and the forestry department of East Lombok. Some officials of *BAPPEDA* informed me that if I wanted an area which had similar population characteristics, it would have to be close to the first area. This is because in East Lombok there are considerable inter-regional variations. If the distance between villages is great so too will be the social and economic differentials. This was also found by Krulfeld (1966) in her study about fatalism in Lombok, which indicated that there were substantial differences in the social systems of villages in Lombok.

I visited the forestry department of East Lombok to obtain information on forests which had a low level of degradation but which were close to the first area. A forestry official who had worked in this area for about 30 years informed me that there were two relatively undegraded areas. The distance between those areas and the first area was approximately 17 kilometres. The hamlets which were close to the forest were Timbenuh and Banok. Timbenuh was located in Pengadangan village while Banok was in Jurit village. Both of the villages were located on the subdistrict of Masbagik.

I visited the leader of the Masbagik subdistrict to get permission and then to *kepala desa* of Pengadangan. He brought us to Timbenuh, the hamlet which is close to the forest. I observed the forest and the people's yards. The forest is covered with *sonokeling* (Javanese palissander) and other trees and most of the people's yards were full of vegetation. This hamlet is also quite far from the central activities of the village (9 kilometres) and from other hamlets. In my observation, I found that the activities of people in this hamlet were similar to those in the first village including dry field farming. Their yards provided a lot of fuel wood and vegetables and most of the people still use or used to use forest products.

My assistant and I also visited Banok, Masbagik along with an official of the village. The condition of the forest was similar to Timbenuh, Pengadangan. However, the activities of the people were quite different, being merely associated with wet rice cultivation. Therefore, I decided to chose Timbenuh as a study area for comparison

3. 5 Research Techniques.

It was mentioned earlier that this study used both qualitative and quantitative approaches. Survey methods were employed in collecting quantitative data. Participant observation, in-depth interviews and focus groups were carried out to gather qualitative data.

3.5.1 Data Collection and Preparation.

On March 15, 1996, I took up residence in Sempur. I lived in the house of the leader of the hamlet (*kepala dusun*), and his family treated me as one of their own. The advantage of living with the *kepala dusun* is that I could easily obtain information on events in the village, since whatever occurs in the village is reported to the *kepala dusun*. Some researchers have said that living in the house of the chief of the hamlet would create too great a distance from the people being researched (Corner 1995a). However, since, the *dusun* population is quite homogeneous and differentials of class status rarely appear, living in the house of the head of the *dusun* was felt to provide more opportunities than difficulties.

Once I had settled in I began to learn the local language (sasak) from the daughter of the *kepala dusun*. She speaks the local language as well as the national language. This was very important for effective communication with the locals. Lucas (1995) pointed out that to have knowledge of local terms and phrases can give the researcher a degree of insider status that may be helpful in the research. Besides this, I tried to adapt to the situation in the hamlet which was in some ways rather rough, for example there was no electricity. Therefore, I learned to read and write at night using an oil wall lamp (*lampu tempel*) and I also took baths in the public bathroom with other members of the *dusun*. In addition, I

accompanied the daughter of the *kepala dusun* on visits to many households in the *dusun*, talking with men and women as well as children. Sometimes, the daughter of the *kepala dusun* acted as my interpreter.

I also observed the situation of the *dusun* as well as the households in order to construct my questionnaires for the survey. Later, some women began to visit me. This participant observation and sharing life with the people in the *dusun* was crucial to establishing rapport with members of the *dusun*.

A focus group was also used to construct my questionnaires. This focus group aimed to obtain information quickly. As mentioned by Corner (1995b) a focus group is useful in order to gather a lot of information quickly and effectively. In particular, the focus group sought to gain information about the time when the forest began to change. This is important because the aim of my study was to understand the impact of forest degradation on gender roles. Therefore, I had to know when and how fast the forest began to change. I conducted this focus group after I had lived in the hamlet for about two weeks. This focus group revealed that the forest clearance really occurred about 5 years before my arrival. Therefore, information on the living strategies of the respondents for the past 5 years was gathered as well as of the present situation. In this focus group I also identified 'terms' and 'phrases' that were very common in use in everyday conversation such as forest (*gawah*) and work (*begawe*). More detailed information about focus groups will be presented in a later section.

3.5.2 The Survey

Using a survey is a method for collecting data which has both advantages and limitations (Vaus 1986). Survey research is efficient in terms of data collection

and is a good technique for obtaining information about past actions (Vaus 1981, pp.185-186). The key limitations of surveys are that information gathered is not in-depth. As pointed out earlier, however this limitation was countered by using a combination of other data collection methods such as in-depth interviews, observation and focus groups.

The survey was conducted as the second step of the research and was aimed at obtaining basic information about people's activities. Combined with other data collection methods, the information from the survey was used as a base for further investigation. As pointed out by Sonquist and Dulkelberg (1977, p.18) the survey is suitable to gain descriptive information 'this is the objective in the purely descriptive work undertaken in the early stage of research in a particular subject area'.

The survey was conducted using structured questionnaires with combined face-to-face interviews. The advantage in using structured questionnaires is that the interviewer can easily follow the instructions of the question and minimize mistakes, which result from interviewer bias. In addition, the result can be easily coded. There are other advantages of using face-to-face interviews, including a high rate of response, generally complete data and the fact that the interviewers can observe and make notes of the attitudes of the respondents. (Sanders and Pinhey 1974).

The questionnaires contained questions concerning both households and individuals. The household questions included ones on land ownership, income, number of members of the household who stay in the village and the number who migrate and the characteristics of members of the households. The individual questionnaires contained five parts, including individual characteristics, economic activities, domestic activities, access to resources, values and norms and questions

related to the environment. The basic questionnaire was designed in Australia and was then developed in the study areas (Appendix 1).

The type of questions that were used included both open-ended and closed questions. Open-ended questions allowed the respondents a free response, while closed questions meant that the respondent's answers were limited to specific choices. The alternative answers to closed questions were developed in the study areas.

3.5.3 Survey Respondents

The respondents included both men and women. Agarwal (1994, p.123) suggests that in order to study the relationships between women and the environment 'it is critical to examine the underlying basis of the women's relationships with the nonhuman world at levels other than ideology, such as through the work women and men do ... '. In addition, Hausler (1994) argues that segregation of data by gender is necessary to understand the contribution of women to the economy. It is important to provide the basic data for development planning. In this study women and men were represented by the head of the household and her/his spouse (the head of household was usually male). If for some reason there was no male head of the household, the female de facto household head was interviewed. This happened for example, when the male head of household had migrated to Malaysia.

3.5.4 The Process of Selecting Respondents

In selecting respondents for the survey in the two areas I applied the same method, namely a systematic random sampling. This method was appropriate since

the population in this *dusun* is relatively homogeneous, such as having low education, a similar religion and occupations.

The target population was the household. Therefore, as a first step I constructed a list of all households in each *dusun* to form a sampling frame. The number of households in the two villages is almost the same. Sempur consists of 523 households and Timbenuh, 492. In Sempur, respondents who were eligible to be included were those who had resided in the *dusun* more than five years and also had been married for at least 5 years. This was necessary to eliminate the influence of those variables on changing activities, since the change in women's and men's strategies of living are examined by comparison between the situation at five years ago and the time of the research. The total was 489 and 461 households respectively. All households in these two *dusun* had an equal probability of being included in the sample (Sonquist and Dunkelberg 1977). Because the study had a time limitation, not all households were selected. Rather, a sample of households was taken using systematic random sampling. All households were listed and 75 households were selected in each *dusun*. This means that the sampling interval was $489:75=6.65$. The summary of this information can be found in Table 3.1. I selected the first household at random, choosing a number between 1 and 7. The first number was 2, the second household was 9 and the third was 16 and so on.

Table 3.1 The Process of Selection of Household Samples

	Sempur	Timbenuh
Total household	523	492
Eligible household	489	461
N (sample)	75	75
Sampling interval	7	6

From the households that were selected, the head of the household and the spouse were chosen as individual informants. This was because the aim of the survey was to examine the impact of forest degradation on people, including both men and women. Any member about the household who was knowledgeable of the household's circumstances could answer the question relating to the household.

3.5.5 Research Assistance and Pilot Test of Questionnaire

Six research assistants, consisting of three males and three females in each *dusun*, collected data. The interviewers were from the village itself and had graduated from senior high school. The interviewers were already familiar with and knew the location of the respondents' houses. Another reason for the choice of interviewers was that they could understand the local language. In *dusun* Sempur about 30 per cent of males and 45 per cent of female respondents cannot speak the national language while in Timbenuh the figures are 25 and 47 per cent. The interviewers were trained for four days before they began conducting the interviews. The meaning of each question in the questionnaire was carefully explained.

The questionnaire was pre-tested on people who lived nearby the area of study, chosen essentially for their willingness to cooperate. This was undertaken after the research assistants were trained and was carried out by research assistants and the researcher herself. The pre-test of the questionnaire is a procedure that is well-established in social research (Moser and Kalton 1986, p.56). The revision of the questionnaire was done after the pre-test. This was because respondents had difficulties in answering some of the questions. In addition, the sequence of the questions was also improved.

3.5.6 Running the Survey

After the respondents were selected, the interviewers were appointed and the questionnaire was revised, the interviewers began the survey. It was run in the second week of April. Two interviewers (male and female) visited each household. Male respondents were interviewed by male interviewers and female respondents by female interviewers. Both males and females were interviewed at the same time. This method was selected to avoid respondents influencing each other. Interviews were not always conducted in the respondents' houses but often in their dryfields or yards. Each interviewer interviewed 25 respondents, at a rate of two respondents a day.

The interviewers collected the questionnaires that had already been done and I checked them. Questionnaires which were still not complete or had mistakes were returned to the interviewers. The interviewers then had to return to the respondents to complete or correct the questionnaires.

The response of the respondents to this survey was good. There were no respondents who refused to be interviewed. One couple in Sempur was omitted from being interviewed because they were in Bali during the survey.

3.5.7 Participant observation and Other Observation.

This study is also highly reliant upon participant observation and other observation. This is because this study aimed to discover the attitudes and behaviour of people. Such data cannot be obtained from a conventional survey as often people's practices are different from what they say (Corner 1995a; Whyte, 1994).

Participant observation has usually been a technique used by anthropologists, but more recently it has also been utilised by demographers (Corner 1995b). There is no clear definition of participant observation, however, many scholars mention that participant observation involves the researcher living in the field together with the people being studied (Corner 1995b; Whyte 1994; Sanders and Pinhey 1974). It gives a better understanding of the respondents' attitudes and behaviour. Whyte pointed out that 'participant observation offers learning opportunities that can not be duplicated by any other method (1994, p.23)

The observations that I made in the first week allowed me to discover the general physical lay out of the study area. In the first day the *kepala dusun* and his secretary accompanied me in a walk around the *dusun*. The *kepala dusun* provided information along the way. From this observation I identified the borders of the state forest. Later, it was very useful to me because I knew who the people were who gathered products from the state forest. I also knew the location of most people's dryfields and I learned the distance that people walk from their houses to their dryfields. I learned what kind of vegetation people planted in their dryfields and their yards, together with the location of the taps from which people obtain water.

Participant observation and other observation were also done to learn about daily activities. In this case I observed six households in each *dusun*. I stayed in respondents' houses from morning to night. Sometimes I also stayed the night in the respondents' houses after developing a close relationship between the respondents and myself. At this time, I also followed the women while they carried out their activities and other times the men. This observation enabled me to learn their activities at home as well as outside the home. Observation in their houses

allowed me to learn about the involvement of women and men in domestic work and how this work was undertaken. In addition, I found I better understood the decision-making process relating to agricultural and family matters in the household.

With respect to observation outside the house I followed people while they worked in their dryfields, gathered forest products, worked for wages and travelled to the market for securing daily needs and sold agricultural products. In their dryfields I observed the different tasks that were performed by men and women, how many hours they spent time in their dryfield etc. In order to have close relationship with respondents I not only observed this but I was involved with their activities such as planting seeds and weeding.

The observation that I undertook in the forest included the type and amounts of products that were gathered by men and women on a day to day basis. At this time I also learned the way women collected forest products and how this was different from that of men. For example, I learned the way men cut timber, how many trees they fell every day etc and these kinds of data could not be obtained using other methods.

Participant observation was also carried out on their social activities, such as attendance at their religious activities. In this time I learned how this religious meeting influenced their behaviour. I attended all formal meetings that were run in the *dusun* including meetings about water problems and electricity. I was also present at all of the parties held by the members of the *dusun*. From this I learned about differentials in the tasks that were performed by men and women. I was surprised that men cooked while women managed the raw materials and gave directions to the men.

3.5.8 In-depth Interviews

In-depth interviews were carried out to explore particular subjects in greater detail than was possible using other methods. Such subjects included the processes of ecological change, decision-making, power relations and migration. As pointed out by Khan and Cannell (1957, p.149 in Marshall and Rossman 1995) in-depth interviewing is 'a conversation with a purpose'. In-depth interviews were mostly implemented by using unstructured questionnaires. Usually I began with a descriptive question. In the process of in-depth interviews I mostly listened to respondents' explanations. Sometimes, I made a comment and probed in order to get a more detailed explanation. The information provided by respondents was also recorded. Some respondents did not want their information to be recorded for personal reasons, however in those cases the information was written down.

A number of informants were interviewed in depth. They included seven forestry department officials, four persons from an NGO, two persons from *BAPPEDA*, two persons from University of Mataram, two *tekong*, fifteen persons who had just returned from Malaysia or who were just visiting (eight persons in Sempur and seven persons in Timbenuh), the head of the *dusun*, the head of the village and nine men and ten women in Sempur and seven men and eight women in Timbenuh. The latter informants mostly were chosen from the sample survey.

The method which was used to select the informants was a snowball approach. This means that several informants were interviewed until the detailed information regarding the subject of study was obtained. I did an interview with the first informant. When the informant could not explain the details regarding a particular subject, I would ask him/her from whom I could obtain the information. I

did an in-depth interview with the second informant who was pointed out by the first informant. I did such in-depth interviews until I obtained clear information about the topic. Therefore, sometimes the informants of my in-depth interviews are different from those in the respondent' sample. For example, the informants who gave information related to the history of forest degradation mostly were elderly or government officials especially from the forestry department and NGOs. In addition, informants who gave information regarding the migration process mostly were returned migrants who recently returned or who had come back for a visit.

3.5.9 Focus Group Discussion

Focus groups were involved in several steps in the study, including the selection of the study areas. This approach was also used at the step of questionnaire construction. In addition, a focus group was conducted to understand the social norms and values and attitudes of people regarding the utilisation of forest products and their future expectations for the forest. These data were used to support data obtained from surveys, in-depth interviews and observation.

These focus groups were conducted in the last month I lived in these *dusun*. There were four focus groups in each *dusun* consisting of five people each. Two groups were men and two groups were women. One group consisted of young people (below 40 years old) and one of people above 40 years old. The groups were differentiated by age because the experiences and expectations of young persons are likely to be different from that of the older generation. Since the population in the hamlet is quite homogeneous, it was not too difficult to obtain participants.

I was assisted by colleagues from NGOs in running the focus groups. The focus group for women was held outside the village in a tourism/recreation area. In this location the members of the focus group could speak freely. Focus groups for men were conducted in the yard and house of one of the respondents

3.6 Individual Data Collection in the Second *Dusun*

Activities in Timbenuh began after the survey in Sempur finished. I began to live in Timbenuh in the second week of May. In conducting the research I applied the same procedures as in Sempur. In this *dusun* I felt it was easier to adapt to the local circumstances. This may be because I had been living in Sempur for about two months. After a week of living in Timbenuh I began to construct my questionnaire for the survey. The questionnaire was different from questionnaires that were used in Sempur. This questionnaire contained questions for only one period of time because the activities of people in this *dusun* were relatively little influenced by the degradation of the forest. The survey was finished in about six weeks. After I finished the survey in both study areas I lived in Sempur to carry out in-depth interviews and observe. I also did this in Timbenuh depending on my workload.

3.7 Data Analysis

As mentioned earlier the study used a combination of quantitative and qualitative approaches. The analysis of these two types of data are explained in the following section.

3.7.1 Quantitative Data Analysis

There were several steps in processing the quantitative data. The first step was coding. Coding is 'a term generally use to describe the process of interpreting, classifying and transferring information from survey instrument to data storage medium' (Sonquist and Dunkelberg 1977, p.73). The code is a systematic framework for classifying responses to questions. Each variable in the questionnaire was coded. The second step was data entry. After all questionnaires were coded, the codes were entered into computer storage and an SPSS program was used for data processing.

These data were analysed using simple frequency distributions and cross-tabulation. The frequency distributions were used to describe the characteristics and activities of the respondents. Cross-tabulations were used to examine the relations between variables. For example through this process women's work can be divided according to the economic situation and composition of the household.

3.7.2 Qualitative Data Analysis

As mentioned earlier, qualitative data collection aims to develop the information obtained from a survey. These qualitative data were mainly derived from in-depth interviews with respondents and informants and through participant observation and focus group discussion. The data were derived from fieldnotes and tape recordings of the interviews.

There were several steps in processing these data. The first step was to transcribe the data. The information from each informant was typed into a different

file. The second step was data reduction. This was mainly comprised of reading transcripts of the recorded interviews. The data from each respondent were selected according to theme and period of time and the data transformed through summaries and paraphrasing. Information that was not appropriate was eliminated. Similar information from each respondent was put together. These data were used to support data from surveys that needed detailed explanation.

3.8 Limitations

This study has a number of limitations. The key limitation was the lack of supporting secondary data, because studies dealing with forestry problems and gender roles are still rare in the literature, and especially on West Nusa Tenggara. In addition, there was a constraint to obtaining secondary data dealing with forestry problems from government institutions because such data are secret. The number of key informants that can explain the government regulations on the use of forest products are very limited. Therefore, this study is more focused on the micro level.

Another limitation of the study derives from the status of the researcher herself, as a single and relatively well-educated woman. The community in the area of study believes that marriage is very important in life. Adults who have not yet married are believed to have not completed their lives. In this community women who had begun to menstruate were considered to be adults. In the first months of my residence I encountered some difficulties because of my status. Everyday I had to explain why I was not yet married and why I was carrying out the study alone. In this community women must be accompanied by a male relative or husband when

they venture far from the *dusun*. Many women and men understood my status and helped provide substantial amounts of information about their experiences.

3.9 Conclusion

This chapter has examined the methodological approaches that were utilised in this study. It attempts to explain the rationale in using a combination of qualitative and quantitative methods to collect the data on the impact of forest degradation on both men and women in the area of study. The data were gathered by face-to-face interviews with a sample of respondents. Moreover, information from other people was also gathered by interviews with informants. Furthermore, the method that is used in the study is expected to obtain accurate data. The data can reflect the actual impact of forest degradation on gender relations in this area. The chapter also examined the method of data analysis that was utilised. Finally the limitations of this study were highlighted.

CHAPTER FOUR

HISTORY OF FOREST DEGRADATION

4.1 Introduction

Forests have been identified as a part of the resource base for livelihood of the Sempur and Timbenuh residents; they are not concerned about the government classifying the forest as 'protected'. At present, people in Sempur have a greater burden sustaining their lives compared to five years ago. Between 300 and 400 adult men and a few women have migrated mostly overseas in search of jobs while others have been forced to go into the depths of the forest to look for timber and other forest products. This phenomenon cannot be understood purely from an examination of the current situation but rather it is a result of ecological changes, which have occurred over time. The relationship between people and the forest in Sempur and Timbenuh has brought about a change in their livelihood that has affected men and women differently

The impact of forest degradation will be discussed in Chapters 5, 6 and 7 but this chapter aims to assess the history of forest degradation in the study area. The factors which have contributed to the degradation of the forests will be discussed. Chapter One points out that the causes of forest degradation are very complex, involving many factors of human interference, including management of forests by the state and peoples' activities among others. This chapter will not explain the primary causes of forest degradation but rather describe the process of forest degradation, touching upon a range of factors influencing this.

Some scholars have pointed out that degradation of the forest in developing countries has increased dramatically over the last 40 years (Ooi Jin

Be 1994.). This chapter will examine the degradation of the forests in the last 50 years, focusing on the areas of *dusun* Sempur and Timbenuh. Since there is a lack of secondary quantitative data about the condition of forests in the past, the information in this section is mostly based on a Memorie van Overgave (Handing over Memorandum) for Lombok that was written by Lekkerkerker (1922). This is the first literature that can be found relating to the condition of forest in and around Rinjani mountain. In addition interviews with people who have lived in the area for a long time and also forestry department officers who are responsible for the maintenance of the forests have been helpful. The discussion is divided into three time periods, namely (1) the degradation of forests from the colonial era up to 1973 (2) 1973 - 1981 (3) 1982 until present time. These divisions are based on important changes in the regulations pertaining to forests that have been implemented in the research area as well as major socio-political changes impinging on the area.

4.2 The Colonial and Early Post Independence Era.

The first available report relating to the condition of the forest in the Rinjani mountain complex was written by an official (Lekkerkerker 1922) in Dutch. This report was written as a result of his journey to the Rinjani mountain complex by horse. He described the Southern side of the mountain where the project was conducted. *Tjemara* (*casuarina*) trees were found at 2100 metres. From 2400 till 2950 metres they formed a continuous forest. He also described the area as a dark rainforest. The light coloured *tjemara* forest had a peculiar influence on the traveller caused by the filtering of light and air through the trees and also a melodious rustling of the 'trees that made music'. In addition, a luxuriant jungle

alternating with *pandan* forest (fragrant) was also found in this area. In the hollow of Segara Anak situated at 1975 m many plants from warmer areas could be found. In addition, this area was also covered by *casuarina* and meadows.

Other reports dealing with the forest condition in Southeast Rinjani mountain were written by Sanders (1932) and Rijkstra (1936). These reports are similar, indicating that the Rinjani complex above 800 metres was well covered with growth. Dense forest was also found in many places at a height of 500 metres. Moreover in several parts of the lower slopes the growth took on the character of a very dense forest or wilderness. At greater heights the trees became a meagre, sparse forest of low stems. At greater height the *tjemara* forests were more prominent. Daroesman (1976) also reported almost pure stands of teak, mahogany and *albizzia* and other hardwood at high attitude.

However, the forest conditions described in these works have not been maintained. The degradation of the forest in the area of study started around 1930. It began with the movement of people from the densely populated area in the low lands to the forested hills (Timbenuh and Sempur). Some old people in Timbenuh who joined this program mentioned that the movement of people to Timbenuh was sponsored by the colonial government. People from the low lands especially those who did not have land were encouraged to move to the forested hills area (Timbenuh). The first movement involved thirty households, especially men. These people were needed as labor to cut the trees and to clear the land for opening up of coffee plantations. Every household could clear two hectares of forest for growing coffee. During the initial time (about 2 years), food was provided by the colonial government (including coconut oil, sugar and salted fish). This program was called *mokok* which means that food was provided by the

government. Not all of the 30 households could remain in this area. After 2 years in Timbenuh, most of them returned to their village because of the hardships of living in the forested hills.

This initial movement was followed by other households, which were not a part of the *mokok* program. These movements occurred around 1935, with the people being used as a labour force by the colonial government again to cut the trees and open up coffee plantations. According to one of the first settlers who was able to be interviewed, the population in Timbenuh around this time was about 60 persons and they were mostly men. The women still remained in the former lowland village.

Almost at the same time there was a movement of people from the densely populated areas in the lowlands to the forested hills of Sempur. The total number of households that moved to this *dusun* was about 25. There is no clear information available concerning who or what forced people to move to Sempur. The old people in this *dusun* only remember that when they first came to this forest, their father cut trees that were given to the *kepala dusun*. *Papuq R* (75 years), the oldest male who came to this *dusun* (when he was about 10 years old), mentions that his father worked as a woodcutter and was paid in rice and salt. In addition, he also mentioned that after 5 years in this area he also begun to cut down the trees. 'I cut the trees that then I gave to the head of the *dusun*. I got rice and salt as a salary of my work'.

Old persons interviewed both in Timbenuh and Sempur gave information about the condition of the forest in the past, which supports the reports of Lekkerkerker (1922). This was mentioned by the oldest person aged 68 years in the *dusun* who moved to the *dusun* when she was seven. She mentioned that at

that time and even when she was an adult the *dusun* was still full of big trees. Because there were so many large trees she was afraid to go outside when it was dark (*peteng*) and also because large trees were believed to be haunted (*angker*). There were many trees of about six meters in circumference surrounding their hut. The belief that the forest in Rinjani was haunted was also reported by Lekkerkerker (1922). He wrote that Rinjani mountain was regarded as a sacred mountain, not only because it was the seat of the 'fertility - goddess of the lake', but also the seat of *selak* (a kind of devil who attacked people), much feared by the Sasaks.

The process of the degradation of the forest in the study area was similar to that in other regions of Indonesia. The degradation of much of Indonesia's forest has occurred since the colonial era. This is however particularly a result of colonial legislation which was concentrated upon commercialisation of the forest products, especially timber (Departemen Kehutanan 1986). In this era forests were exploited extensively. The colonial government only thought to make a profit from the forests. They were perceived as a source of valuable timber that could be used for construction of both dwellings and ships. No thought was ever given to the conservation of the forest (Departemen Kehutanan 1986).

In order to exploit the forests, the colonial government involved people who lived nearby to cut the trees. The colonial government even expelled people from certain villages so they could work full time to provide timber. The old people still remember that they had to work a long day to cut the trees. The exploitation of the forest in this way took place in Java as well as outside Java including Sumbawa and Bima (Peluso 1992; Departemen Kehutanan 1986).

In the colonial era, people's access to forest products was very limited. They only worked for the benefit of the colonial government. There was a total prohibition on the barter or sale of forest products by local people and those caught using forest products for themselves were punished (Departmen Kehutanan, 1986). Peluso (1992) in her study in Central Java also indicated that local people would be categorised as criminals when they gathered forest products such as firewood and cut timber for building a new house. According to Papuq Rin from Sempur and Papuq Ijah from Timbenuh, people in this *dusun* only used forest products to build houses and fuel wood for domestic use, and for this they had to have permission from the government (in this case from the *kepala dusun*).

In order to fulfil their basic needs, people both in Sempur and Timbenuh practised shifting cultivation. They cultivated forestland that had been harvested by the colonial government. Slash and burn were conducted to clear the trees to make enough space to farm in the forest. The old people in Sempur and Timbenuh mentioned that they practised shifting cultivation moving every year to another plot and coming back to the former plot after at least five years.

By 1942 the Dutch had lost their war with the Japanese, and Japanese forces occupied the Dutch colony between 1942-1945. Under the Japanese occupation the forests were put under pressure due in part to the lack of governmental control (Nibbering 1988). Peluso (1992, p.94) also argues that the Japanese occupation had a deleterious effect on Java's forest and forestry. The demand for forest products including timber, firewood and charcoal had increased for war-related industry. In Java older trees were destroyed and few trees were planted to replace them. The destruction of the forests under the Japanese also

occurred in the study area. Timbenuh's and Sempur's older people still remember that the exploitation of the forest was worse at the time. The larger trees were cut down and used for the war effort such as building bridges and stores for weapons and food. The old people mentioned that several food storages were established in this *dusun*. Trees were also cut down using a machine called a 'chainsaw' (a long saw that is operated by two people), which allowed for much more rapid deforestation than when clearing was by hand. My informant (Papuq Nir), who had provided labor for both the Dutch and the Japanese still remembers that exploitation of the forests under the Japanese occupation was more severe than when they were under Dutch control.

Forests were also cleared to make more land available for agricultural use. This phenomenon also occurred in Java (Peluso 1992). This was as a result of Japanese determination to eliminate food shortages among their soldiers and sailors. People in this area, including both men and women were involved in agricultural activities entitled *ngayah* (work without any payment). Women and men planted food, especially new kinds of vegetables that were brought by Japanese people to Indonesia. The old people in Timbenuh still recognise the type of vegetable that was brought by Japanese. People did not have access to land or to the agricultural products that they produced. They were just given food two times a day, and the old people in the two villages still remember that this was a very hard time for them.

From the early post independence period until 1973, there was little change in the management of the forest. Commercialisation of the forest still continued. It was classified as a limited production forest (*hutan produksi terbatas*). Commercialisation of the forests was applied in two ways. It was

performed by the forestry department itself and the forestry department also gave concessions to contractors that were called *anemeer* to harvest the timber. The exploitation of the forest was implemented by the selective cutting system or *tebang pilih*. This evidence is supported by the study of Daroesman (1976) in West Nusa Tenggara. She indicated that several small concessions had been given to domestic companies for extraction of teak.

The forestry department gave concessions to *anemeer* for periods of three months at a time but the *anemeer* could readily extend this period by three monthly increments. The maximum amount of timber that could be taken by an *anemeer* during the period was 10 cubic metres. However, in implementation the *anemeer* often harvested more than this amount. One former *anemeer* mentioned that he could, and did, harvest 20 cubic metres in a period.

The access of local people to the forest was more widespread. Besides being involved as woodcutters, local people also could gather fuel wood with purchased tickets. In addition, they could also gather forest products (except timber). Gathering timber for sale by local people was considered to be theft. In addition in order to use the timber for themselves locals had to have permission from government officials.

In 1971, 'stealing' timber (*Penebangan liar*) by local people started intensively. According to some local people they stole timber because they did not have access to forest products. The government only gave access to *anemeer* to harvest timber. Furthermore, the *anemeer* only employed local people who had close connections with them. In addition, this occurred because timber was in demand by people around the village as well as people from the capital city of

East Lombok. In this year the development of the capital city had begun, creating a substantial demand for timber.

In 1971 there was land reform in Sempur and Timbenuh. Every household received a maximum of two hectares and individuals could own their land. About 800 hectares of land was distributed to the local people. This privatisation ended the practice of shifting cultivation.

4.3 The 1973-1981 Period

This period was characterised by a change of forest management. Reafforestation was conducted in the forests around *dusun* Sempur and Timbenuh in 1973. About 800 hectares of forest surrounding *dusun* Sempur and about 200 hectares of forest close to *dusun* Timbenuh which had been identified as unproductive by the forestry department was replaced by industrial crops such as cinnamon (*Kayu manis*). This project was part of a government plan to manage the forest. This development of a monoculture crop was also a phenomenon in other third world countries such as Malaysia and India (Shiva 1988). Shiva (1988) claims that this type of afforestation project accelerates the degradation of the forest. According to her this project is based on commercial ideas, namely producing wood for the market. It ignores the needs of local people (food, fodder and firewood) and the ecological cycle.

This reafforestation applied the *tumpang sari* system, meaning a mix of agricultural and young tree crops. The *tumpang sari* was managed by the forestry department. The *tumpang sari* project in Sempur involved people surrounding the *dusun* and therefore brought many people into *dusun* Sempur. In Timbenuh the project did not involve people outside the *dusun*. The people were given the

responsibility of taking care of the healthy young trees and in return they were allowed to plant agricultural crops between the rows of trees.

In running the project the people were promised that they could be involved in the project for a period of 5 years. After five years it was expected that the *kayu manis* would have grown substantially and would no longer need care. This project was well known as a fixed period contract. In addition the department of forestry provided the young trees and tools such as hoes (*pacul*) and axes (*kampak*)

Most people who participated in this reforestation program lived nearby and some of them built huts in the middle of the forest. Therefore, the population in *dusun* Sempur increased dramatically, (6 times) to about 400 households. The project failed in its early years. The *kayu manis* would not grow, mostly because of a lack of rain. The cultivation of *kayu manis* was repeated in 1975, however, and this time it was more successful. However after five years the people did not want their contract to end. They claimed that the cinnamon plantations belonged to them. According to the people this was because the Department of Forestry did not keep their word. Young tree crops were not provided by the Forestry Department but instead were provided by the people themselves. In addition, the people also stated that they never received the tools that were promised by the Forestry Department. These misunderstandings between the Forestry Department and the people resulted in a dispute, which occurred in 1982 resulting in damage to the contract area. However, this dispute only happened in *dusun* Sempur. Every night male villagers stole *kayu manis* and sold it in the capital city of Mataram or to middle men. Some people in Sempur who were involved in 'stealing' *kayu manis* were sent to jail, along with one corrupt forestry official. The

rest of the *kayu manis* was cleared by 1990. The wood of *kayu manis* was used by forest dwellers for house construction and fuel wood.

Most immigrants returned to their original villages around 1985 but many of them remained in this *dusun*. They bought land from the local people. Around this time the population in Sempur decreased to around 350 households or about 1800 persons.

The forest surrounding Timbenuh was still full of many kinds of trees until the year of 1982. This because the area of afforestation was not large and also the dispute had not occurred in Timbenuh. According to several informants, in 1979-1981, hunting was still conducted by many people in Timbenuh. One informant mentioned that almost everyday he went to the forest to hunt and would be likely to catch two deer. The meat was sold and also eaten. It was also given to neighbours who did not hunt.

4.4 Period from 1982 - the Present

In 1982 the forestry regulation, No. 5 1967 was implemented. This regulation explained that 'cutting down the trees in the forest is prohibited without any permission'. This meant that the access of people to gathering forest products was limited and the forests were guarded by forestry police. This change had little influence on the activities of the people as forest gatherers.

All people in the village knew that they were not allowed to enter the forests, but they ignored this restriction. They told me that they continued to gather forest products as was done by their ancestors (*baloq*). They entered the forest when it was not guarded.

At present the evidence suggests that the condition of the forest has already experienced a degree of degradation. Official data relating to the degradation is not available. The only available data dealing with the forest degradation is measured by the level of erosion inside the forest. The measurement has not been completed yet. It covered 45 per cent of the total forestland. According to these data, the amount of degraded land in East Lombok is six per cent of East Lombok's forest. This figure is the highest among all of the regencies in Lombok (Departemen Kehutanan Nusa Tenggara Barat, 1994).

Deforestation and degradation are visible in the forest surrounding *dusun* Sempur. In *dusun* Sempur deforestation is noticeable by the fact that about 500 hectares of surrounding forest has become only scrub. Also there has been a decreasing number of trees and fewer animals in the forest. In Timbenuh however, successful reforestation has already taken place.

The evidence regarding the decrease in the tree cover of the forest near *dusun* Sempur is based on interviews with respondents in the areas of study. The data show that 99 per cent of respondents mentioned that the number of trees in the forest had decreased and only two respondents or one per cent mentioned that the tree cover had increased.

In addition, there has been a decrease in the number of tree species in the forest (mentioned by 98 per cent of respondents). One man who had lived here since 1960 mentioned that he used to use at least 83 species of wood for construction and fuel wood. Some of those species could also be used for a variety of purposes such as for medicine, food, construction and fuel wood. At present, several of these species are very difficult to find, such as *kayu gaharu*. This species is a valuable commercial tree as it is the best available timber for

perfume. In 1990 the status of the forest surrounding *dusun* Sempur and Timbenuh changed to that of a National Park (Act no 5, 1990). A National Park is defined as 'a nature conservation area which possesses native ecosystems, and which is managed through a zoning system utilised which facilitates research, science, education, breeding enhancement, recreation and tourism purposes' (Ministry of Forestry of the Republic of Indonesia n.d.).

This regulation has reduced the access of local people to the gathering forest products. It is explained in article 19 that 'Any and all persons are prohibited from doing any activity which leads to a change of natural integrity of the sanctuary or reserve'. This regulation is supported by the Presidential decree No 32/1990 which explains that cutting down trees in the forest is forbidden.

Although this regulation prohibited access of local people to utilising forest products and the forest was guarded by forestry police (called *jagawana*) local people still continued to gather forest products, especially timber. According to six informants from the *dusun*, gathering forest products was done for a long time. This was conducted by the early settlers of these *dusun* and they cannot easily change this practice.

The degradation of the forest in and around the study areas was also accelerated by natural disaster. This occurred in September 1994 when according to local people a landslide destroyed many large trees especially those growing along the Tanggik river bank that passes by *dusun* Sempur. This landslide has also closed the source of water used by people in *dusun* Sempur.

4.5 Conclusion

This chapter has attempted to outline the historical process of forest degradation in the study area. It has indicated that this degradation has occurred over time and involved many factors including the process of development in around the study area, population growth and natural disaster.

The process of development in the surrounding area included the establishment of new buildings that needed raw materials, for example houses. This development was highly reliant on the forest trees. In addition, the exploitation of the forest was generally not accompanied by appropriate reforestation. The high rate of population growth that has occurred in the surrounding forest area has also influenced the degradation of the forest.

The degradation of the forest together with the protection of the forests by government means that people have less access to forest products which in turn creates difficulties for people who rely on forest products for their livelihood.

CHAPTER FIVE

CHANGES IN GENDER ROLES: THE IMPACT OF FOREST DEGRADATION

5.1 Introduction

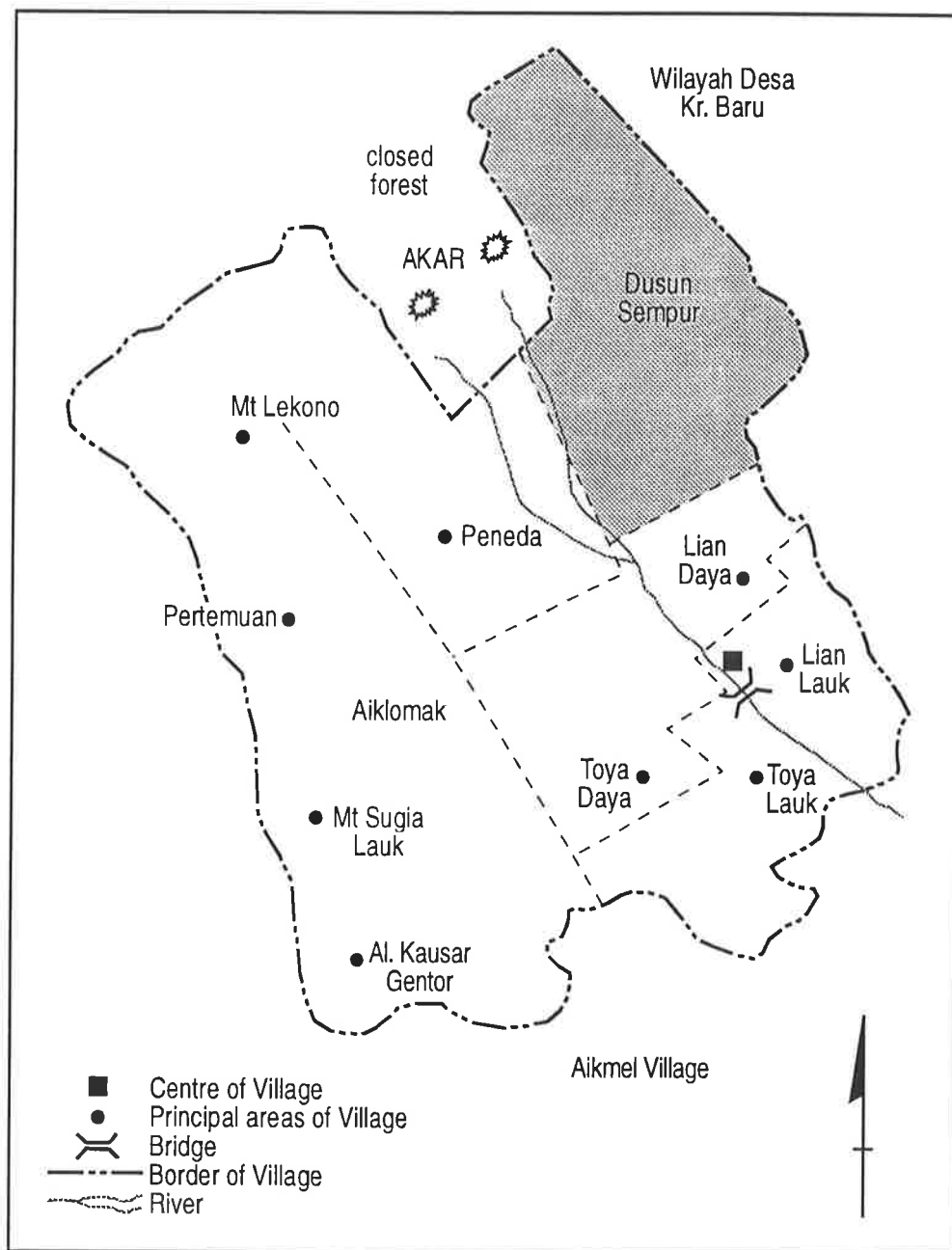
Chapter four examined the deterioration of the forest in *dusun* Sempur. This has resulted in decreasing access of Sempur residents to forest products. Since the forest has been an important source of life for people in this *dusun*, the decrease of this resource base has forced people to change their living strategies. Some scholars have indicated that the degradation of forest creates a greater burden on women (Shiva 1988, 1989; Dankelman and Davidson 1988). I argue that the degradation of the forest not only affects women but also impacts upon men. Both men and women have been affected by the degradation of the forest in gender specific ways and it has influenced the role of both men and women in the household and in the community.

This chapter examines the role of women and men in their strategies to sustain their livelihood in *dusun* Sempur five years ago and at present. The chapter begins with a description of the situation of the study area including size, location, population, infrastructure and customs. Section 5.3 presents a discussion of the demographic and socio-economic characteristics of the survey respondents in *dusun* Sempur. Section 5.4 examines the roles of men and women in productive and reproductive activities in the household and the community five years ago. Section 5.5 highlights the role of men and women in the present

situation. This examines the strategies that men and women have adopted in response to forest degradation.

Figure 5.1 Map of North Aikmel Village Showing Location of Dusun Sempur

Source: Hanah 1996



5. 2 Condition of the *Dusun*

5. 2.1 Location, Size and Population

Administratively, *dusun* Sempur is a part of North Aikmel village, Aikmel subdistrict, East Lombok regency, West Nusa Tenggara province. North Aikmel village consists of seven *dusun* (Figure 5. 1) which cover an area of about 2153 hectares. Physically, North Aikmel village lies south-east of Rinjani Mountain. It is on the slope of the mountain at a height of 100-700 m above sea level. The *dusun* lies in the northern section of the village, at a height of 650-800 m above sea level and is bordered by a state forest.

The size of the population was 18,912 persons in 1996 (Hanah 1996). *Dusun* Sempur was the largest *dusun* in terms of area and population, covering an area of about 598 hectares with a population of about 400 in 1960 and 2,105 persons in 1996, comprising 997 males and 1108 females. The high level of outmigration has caused the higher number of females from this *dusun*.

This *dusun* has long been isolated from the others and from the center of village activities. This isolation has resulted in a lack both of infrastructure including health facilities and sanitation and human resource development such as education and training. This has also influenced the availability of demographic data, thereby restricting information on this *dusun*.

At the time of my study, the economy of the *dusun* was still limited. Agriculture was the dominant sector in the economy. The majority of people were forest gatherers and farmers. There were a few who worked

on off farm jobs such as carpenters and drivers and these jobs *were* conducted outside the *dusun*.

The main form of farmland was dry fields (unirrigated land). In the local language it is called *rau* or *lendang* and usually covered by many kinds of trees such as coconut, jack fruit, avocado, candlenut, mango, tassel, and also vegetables. In the rainy season most Sempur residents planted several kinds of food crops in their *rau* such as corn, rice (*padi*) and other traditional food crops. (See plate 5.1). Corn can be harvested in three months and rice in six months. After all the food has been harvested, the land is left until the next rainy season. This activity is called *ngrau*.

Plate 5.1: The type of Agricultural Land In Sempur



The agricultural and forest products were not only consumed but also sold in the market or in the *dusun*. Sempur residents would go to the

market when they had many products. When the products were few they would sell to the neighbour who bought and sold agricultural products. This is because the location of the market is relatively far from this *dusun*. It took one and half hours to walk and the cost of travel by public transport is relatively expensive for people in this *dusun*. In this *dusun* there are about 14 small shops that provide daily needs such as soap, cigarettes and vegetables.

5.2.2 Settlement Pattern

The form of settlement in this *dusun* was scattered. Informants mentioned that they mostly lived in the middle of their yards that were located on the edge of the forest. The distance of the houses between one family and another was quite substantial and blocked by many big trees. They rarely visited their neighbours. Rather they just met each other when they gathered water, or in the mosque. Recently (at the end of 1995) the government has built a new settlement. People who lived in the protected forest have been forced to move into the new settlement. At present, one third of Sempur residents live in this new settlement. Each household received 150 square metres of land including a house of 26 square metres.

5. 2.3 Infrastructure

To understand how ecological changes have affected the contemporary livelihood of Sempur residents requires a general knowledge of the change in the situation of this *dusun* over time. This

knowledge includes the condition of infrastructure, the customs and activities of people including both men and women. The infrastructure here includes transportation, health facilities, clean water and sanitation and educational facilities

The availability of a decent road is necessary for people in order to perform their activities. However, people in *dusun* Sempur have enjoyed a decent road only recently. The asphalt road, which links the *dusun* to the outside world, was built at the end of 1995. Before this time the road linking *dusun* Sempur and other areas was rocky, steep and winding. The road was also partially blocked in places by many big trees. Therefore, it was quite difficult to reach this *dusun* from the outside. The only transportation provided was *ojek* (motor cycles); there were very few of these and they were relatively expensive for Sempur residents. Therefore, people wishing to leave the *dusun* preferred to walk about nine kilometres to catch the nearest public transportation. Nowadays, public transportation that is provided in this *dusun* is truck and *ojek*. Trucks operate in the morning (5 to 9 am) but *ojek* are rare. The limitations of transportation have resulted in the isolation of these people of Sempur who have generally lacked contact with people from other areas.

There are no health facilities in the *dusun*. The distance to the nearest public health facilities (*puskesmas*) is about 10 kilometres. Most Sempur residents, therefore, use *belian sasak* (traditional midwives) when they are sick. Most of Sempur residents also used *belian sasak* for

giving birth and in pre natal and postnatal care. All female respondents in the survey mentioned that they used traditional midwives for giving birth.

People in this *dusun* gained access to clean water in the end of 1995. Several water taps were built to fulfil the needs for clean water. However, the availability of tap water is still limited. About 75 households use one tap. Sempur residents had a problem with access to clean water five years ago. People collected water from a small spring that was located on the banks of the Tanggik River. People had to walk at least half a kilometre over difficult terrain to collect water. In addition, the limited water resource meant they had to queue at the spring. In the dry season Sempur residents experienced a water shortage. The incidence of diarrhoea occurred during this season. Generally speaking the establishment of water taps has resulted in a decreasing incidence of diarrhoea.

The infrastructure of this *dusun* included two primary schools, built in 1969 and 1981. However, until 1995 these schools were not fully used by Sempur residents. Only people who lived close to the school could easily travel there. People who lived in the forest had difficulty in sending their children to school as their children were not brave enough to walk there by themselves. Wild animals such as forest pigs and snakes were often found on the road that they would have to take. The establishment of the new road and the new settlement has encouraged people to send their children to school. The head of the primary school in this *dusun* revealed that the number of students in 1996 had more than doubled.

Besides the limited infrastructure available Sempur residents also had very little access to government sponsored development programs. Government programs did not reach this *dusun* until the end of 1995. The family planning program and agricultural training started to be applied at the beginning of 1996. Therefore, previously most of their activities were still conducted using traditional knowledge. Women in this *dusun* were still using traditional family planning practices such as prolonged breast-feeding to prevent pregnancy or went to traditional midwives to have an abortion. Recently, some women (especially young women who are literate) have started to use implants or injection.

In addition, several governmental programs to increase the status of women including the *PKK* (Family Welfare Organisation) and *Posyandu* (Integrated Health Post) had not touched until the end of 1995. Moreover, the rural development institution, which plans the development of the *dusun*, was not established until the end of 1995.

People from other *dusun* felt superior to Sempur residents. This feeling partly was caused by the lack of infrastructure and human development in Sempur. They called them *orang gawah*, that is people who lack knowledge or who are not touched by modernity. In fact the real meaning of *orang gawah* is forest dweller.

5. 2. 4 Religion, Ethnicity, Kinship

Sempur residents are strongly Moslem. There are two mosques provided in this *dusun* that are used to support their religious activities. The mosques are used especially for Friday prayers that are attended by

males and females whose houses are relatively close. The mosques sometimes are also used for religious meetings (*pengajian*) which are directed by the *tuan guru* (Person who instructs on religious matters). People in this *dusun* have great respect for the *tuan guru*.

Sempur residents also recognise themselves as being of Sasak ethnicity. Many other Sasak villages have social stratification (like the caste system). In their society which is divided into four strata the highest stratum is royalty or nobility (*bangsawan*), the lowest is serfs (*panjak*), and the members of each stratum have a different role (Judd, 1982). Sempur residents however, do not have such rigid class stratification. Each person in this *dusun* felt that they had an equal position in their society.

Informants stated that the kinship system of Sempur residents is based on family ties. The lowest social unit is *keluarga batih* (nuclear family) consisting of a mother, father and their children. Sons, especially the eldest, were expected to live with their families after being married. Oldest sons usually built a house in front of the yard parallel to their father's house. Other sons built houses behind the family house. Therefore, the houses all contained people who had close blood relationships. My field observations also confirmed this point.

Sempur residents also followed the pattern that men and women in this *dusun* usually marry people from within the *dusun*. Very few were married to people from other *dusun*. The main reason that was stated by informants for this practice was that they were afraid to marry women from other *dusun*, this was partly because the money that had to be given

to the bride's family or a bride price was expensive. The groom's family had the responsibility to arrange the wedding ceremony. This ceremony was also performed in the groom's family house. Several procedures are conducted before it, such as *aji krama* (the groom's family gives money to the bride's family). Male and female informants both said that the responsibility of men to fund the wedding ceremony resulted in a smaller number of young men attending school. They have to start work immediately after they became adults. The head of the primary school in this *dusun* mentioned that the total number of male students in classes five and six is lower than that of female students. This has been a common occurrence since the primary school was opened in 1981

Both men and women married young, often between 14 - 15 years. Women who are not married by age 15 are called *mosot* (It means that the women have married late). These young women have low status in the society. The reason for marrying early is to avoid sexual relations outside marriage. Recently, some girls have delayed their marriage. My observation revealed that there are many that are above 15 years old but are not married yet. According to the head of the *dusun* this phenomenon is influenced by the leaving of young men to work in Malaysia. Some young girls mentioned that they waiting for their boyfriends who are working in Malaysia.

5.3 Demographic and Socio Economic Characteristics

This section describes the demographic and socio-economic characteristics of individuals and households in the survey. Individual

characteristics include age and level of education, while household characteristics comprise land ownership, the size of the households and the number of children in the households under five years of age.

5.3.1 Individual Characteristics

The individual characteristics of respondents can be seen in Table 5.1. This table demonstrates that male respondents are older than female respondents. Most male respondents were concentrated in the 40-59 age group while female respondents tended to be aged between 20-39. According to the head of the household this figure may be influenced by the emigration of relatively young men and the difference in age at marriage.

Table 5.1 Percentage of Respondents by Age and Educational Attainment, Sempur, 1996

Characteristic Respondent	Female		Male	
	N	%	N	%
Age				
20-29	19	25	6	11
30-39	30	40	11	20
40-49	12	16	17	30
50-59	10	14	16	28
60-69	4	5	6	11
Educational Attainment				
Never Attended School	38	51	32	57
Did not Finish Primary School	11	14	10	17
Finished Primary School	26	35	14	26
Total Respondents	75	75	56	56

Source: Survey data, Sempur 1996

This table also shows, that in general the respondents' educational levels are low. It shows that more than 50 per cent of both men and women never attended school. Interestingly, the educational levels of

females are slightly higher than those of male respondents. About 35 per cent of female respondents have finished primary school while only 26 per cent of male respondents were in this category. This phenomenon relates to the existence of male outmigration, which has a relatively high association with education.

This educational level is low compared to the educational attainment of the rural population of West Nusa Tenggara as a whole as well as Indonesia's rural population (BPS 1996c, BPS 1996d). The proportion of the population aged 10 years and above who never attended school in rural West Nusa Tenggara is only 19.1 per cent for males and 32 per cent for females (BPS 1996c) while the proportion for rural Indonesia is 9.5 and 20.2 respectively (BPS 1996d). The low education attainment in this *dusun* was influenced by the difficulty in accessing educational facilities. It was mentioned earlier that the houses of most people were far from educational facilities. The road that links their houses to the school was still rough.

5.3.2. Characteristics of the Households

The characteristics of the households that are presented here include economic characteristics and the structure of households. These factors may influence the strategy of Sempur residents in response to the impact of a declining resource base on their living. The economic characteristics of households in this study are reflected in land ownership. The land is very important for Sempur residents since their lives directly depend upon agricultural products. The amount of land that

they occupy influences strongly the level of production of the household. Households that own small amounts of land will have a low level of production. Land ownership can be seen in Table 5.2. About 24 per cent of households only have land

Table 5.2: Household Characteristic of Respondents, Sempur, 1996

Characteristic	N	%
Land ownership (square metres)		
<1000	18	24
1000 - 2499	4	5
2500 - 4999	6	6
5000 -10000	25	33
> 10000	22	29
Total	75	100
Size of household (persons)		
1-2	7	9
3-4	33	44
5-6	24	32
>6	11	15
Total	75	100
The number of children under five years in the household		
0	26	34
1	32	43
2	14	19
>2	3	4
Total	75	100

Note:

Total of household 75

Source: Survey data, Sempur 1996

less than 1000 square metres and 13 per cent of respondent households have land of between 1000-5000 square metres. Respondent households that have more than one hectare of land total only 29 per cent. According to the head of the *dusun*, Sempur residents can survive when the household has land of more than a hectare.

The land ownership of Sempur residents is higher on average than West Nusa Tenggara as a whole where more than 50 per cent of the households are in the landless category. This high difference is due to the land reform that occurred around the year 1971. According to the heads of households through this land reform most Sempur residents had the opportunity to own their land.

Table 5.2 also shows that the percentage of households that consist of three or four persons are the highest, namely 44 per cent. The lowest proportions of households are in the two persons or less category (9 per cent). On average, the size of the households in the sample is 4.6 persons. In addition, table 5.2 also demonstrates that about 34 per cent of the households do not have children under five years old. About 43 per cent have one child under five years old. Only a few respondents have more than two children under five years old, namely 4 per cent. In addition, the average children ever born (CEB) of respondents age 10-54 is 5.5. The average number of children still alive is 4. This figure is higher than the CEB of rural women age 10-54 of West Nusa Tenggara as a whole namely 3.6 (BPS 1996c). In addition, the number of children still alive of women in rural West Nusa Tenggara is 2.8 (BPS 1996c).

5.4 Gender Roles Five Years Ago

An analysis is presented of the changing gender roles under the impact of forest degradation, examined through the comparison between retrospective data and the current situation. Retrospective data are data about the situation of five years ago when Sempur residents still found it

easy to access forest products compared with the current situation. Gender roles and time allocation in undertaking their roles will be used in explanation of these changes. This section aims to examine the role of men and women in the household and the community five years ago and the time allocation that was used in performing these roles. These gender roles will be examined through the activities of both women and men. They will be divided into two categories, of productive and reproductive activities.

5.4.1 The Role of Women and Men in Productive Activities Five Years Ago

As noted earlier the definition of productive activities that is utilised in this study refers to the definition that has been developed by Moser (1989). In this *dusun*, this definition of productive activities is similar to the concept of *begawe* (working). There are three major activities included in productive activities namely forest gathering, working on one's own farm and employment for wages.

5.4.1.1 Gender, Time Use and Forest Resources.

The relationship between people and the forest in this *dusun* can be viewed from a material standpoint. Forests have been an important source of sustaining life for people in *dusun* Sempur for a long time. They have provided food, medicine and materials that can be used immediately or after being processed. Some of the materials can also be sold in the markets. This phenomenon was clearly illustrated in my in-depth

interviews with both female and male informants. A female informant, (Inaq Kar) for example stated that:

The forest is a place for men to gather timber, fuel wood and food and women to collect food and fuel wood. This timber is mainly sold and a part of the money is used to fulfil the needs of the family and is also used to fulfil their individual needs. Food and fuel wood are used for cooking and also are sold in the markets

In addition, a male informant, Amaq Jim, stated that:

The forest is a place for women and men to conduct their activities. Men mainly gather timber, hunt and also find fuel wood and food while women collect fuel wood, food and tall grass. These activities have been very important for people in this *dusun* for such a long time since there are no other activities that can fully fulfil the needs of life

This information clearly illustrates the fact that both men and women in this *dusun* have a strong material relationship to the forest. This material relationship is also found in many other areas in the world. People who live around forests mostly use them as a source of life (Rocheleau 1996; Awumbila and Momsen 1995; Sayo 1994; Wickramasinghe 1994; Peluso 1992; Rodda 1991; Dankelman and Davidson 1988; Shiva 1988). The forest people in *dusun* Sempur also believe that the forest will always provide a source of livelihood for them and it will never finish.

The relationship between the forest and the people was reflected in the activities carried out by people in the forest (both gathering forest products and maintaining the forest). The activities of respondents involved in gathering from the forest are shown in Table 5.3. The table demonstrates that all respondents, both men and women are involved in gathering forest products.

Table 5.3: Men and Women as Collectors of Forest Products Five Years Ago, Sempur, 1996

Forest products	Women		Men	
	N	%	N	%
Do not gather forest Products	-	-	-	-
Timber	-	-	45	80
Fuel wood	51	70	17	31
Food	66	90	43	76
Tall grass (Alang-alang)	38	52	8	14
Hunting	-	-	8	14
Rattan	-	-	4	7

Source: Survey data, Sempur 1996

There was a difference in the types of forest products that were gathered by women and men. Men mostly concentrated on gathering timber with 80 per cent of male respondents reporting involvement while no women were involved in this activity. This is consistent with the concept of Sempur residents about gender relationships, that is, women are physically weaker than men. There are biological constraints upon women's ability to perform activities that need high energy. In addition, the tools that were used by women in this *dusun* were not able to cut the trees. Women used the *kandik* and men the *kampak*, as noted earlier. Furthermore, Table 5.3 also shows that about 20 per cent of men were not involved in gathering timber. Approximately 11 per cent of men stated that they were too old and weak to gather timber and other men mentioned that their farmlands were enough to support their lives without cutting down trees.

In the past, gathering timber was mostly conducted in a group of three or four persons. This was due to the fact that trees were so large one person could not cut them down alone. The members of these

groups were usually related to each other. One large tree could be used for about one month. Forty seven per cent of respondents mentioned that almost every day each person would take one or two pieces of timber with the size of 20x10x25 m while 53 per cent of respondents said that they only took the timber when they need cash money. They usually sold timber in the neighbouring village.

Table 5.3 also shows that 70 per cent of women concentrated on collecting fuel wood, while the percentage of male respondents who were involved in collecting fuel wood was only 31 per cent. Men who did not gather timber would collect fuel wood. Some men collected fuel wood along with women. When their spouses could not collect fuel wood for some reason, they would replace their spouse in undertaking this task. Seven women informants stated that: in the past when the forest was still close to the village, many men and women in this village went to the forest together. Men cut down trees to be sold and women collected fuel wood. The fuel wood that the women gathered was dead wood. It could be taken from the rest of the trees that could not be used by the men or from the dead trees. Women in this village traditionally never cut the forest trees.

An interesting finding here relates to food gathering. The percentage of women who gathered food was 90 per cent. This figure was slightly higher than that of men, at 76 per cent. A study that was conducted in South Lombok in 1977 (Departemen Pendidikan dan Kebudayaan 1978) revealed that *meramu* (collecting food from the forest) was conducted by men, women and children. In addition, this study also

found that there was a difference in the way people collected food between villages that had different physical conditions. Women and men were involved in collecting food in villages that were situated in dry areas. However, in villages where water was not a problem, women alone mostly collected food from the forests. (Departemen Pendidikan dan Kebudayaan 1978).

In this *dusun* collecting food was conducted by both men and women. This was clearly stated by a woman informant, Inaq Ijah:

When the forest was still full of trees I went to the forest together with my parents in law, husband, brother and sister and sometimes I also went with my friend to collect food. I could gather many kinds of food from the forest such as several kinds of yam, many kinds of fungi, *paku-pakuan* (ferns), fruit and nuts. When my husband gathered timber he also gathered food especially fungi. The type of fungi that my husband gathered was different to the fungi I gathered and he could get more than I got. Many kinds of fungi can grow in the middle of the forest, compared to those on the edge of the forest.

In addition she also stated that women did not dominate collecting food. Men also contributed to the collection of food. Both men and women in this *dusun* gathered food from the forest. Men who were not involved in gathering food usually had an off farm job.

Forest food was used for household needs as well as being sold in the market. Food gathered from the forest was very important for the life of Sempur residents especially during famines. In 1972 there was a long dry season, and famine occurred in many villages in Lombok (Lucas 1976). Sempur residents still remember that they used sago that they gathered from the forest to replace rice as a basic food. Recently, my second visit in this *dusun* revealed that the impact of El Nino in 1997 also resulted in a long dry season. According to the head of the *dusun* many

Sempur residents could not harvest their agricultural products properly. This long dry season resulted in more people going to the forest to gather forest products.

The data relating to the use of food gathered from forest products reveal that all women and men sold a part of the forest products that they gathered. My women informant Inaq Jen stated that:

When the raw material was still plentiful, at least two times a week my husband and I could sell forest products as well as agricultural products in the market. We walked to the market together with many men and women from this *dusun*. We went about 3 o'clock in the morning and came back at 11 o'clock. My husband would bring two bunches of fuel wood and I brought a bundle of vegetables, fruit and chilli.

This pattern is quite different to those reported in studies conducted by scholars who concentrated on women as a unit of analysis. (Wickramasinghe 1994; Rodda 1991; Dankelman and Davidson 1988). Those studies found that women are the major providers of food, fuel wood and fodder while men tend to concentrate in the areas of commercial potential of timber. In this *dusun* both women and men collected food in a complementary way. Men also collected food as part of their role to protect their families.

Table 5.3 also shows that both men and women gathered tall grasses. The percentage of women who gathered tall grasses was higher than that for men, 36 and 14 per cent, respectively. Tall grass (*alang-alang*) was also grown close to the houses of the village and could be reached easily by women. In addition, they also mentioned that gathering tall grasses was relatively easy and not heavy work. The gathering of tall grasses was not done throughout the year. They were collected in the dry

season between May and August. Men gathered two bunches and women one bunch every day, and it usually was sold at the market (for thatch making).

Hunting was one activity that was only performed by male respondents. This activity is perceived as being appropriate to men because high energy is needed to walk through the forest. About 14 per cent of male respondents mentioned that they hunted. This activity was conducted in a group consisting of three or four persons. They usually hunted deer and the meat was used for household consumption. Some meat and the skin were sold in the market. A study that was conducted in 1977 in the neighbouring village (about 11 kilometres from the study area) also had a similar finding. Only adult men (15-45 years old), being mainly related to physical constraints performed hunting. Men are strong enough to walk and run through the forest (Departmen Pendidikan dan Kebudayaan 1978).

Respondents who gathered fodder from the forest were very few. There were only three women or about four per cent of the total female respondents. This small number is related to the large amount of grass or other plants that grew in their agricultural land so there was no need to seek this in the forest. In addition, it was also influenced by the fact that only 55 per cent of households owned cows.

Some feminist scholars reveal that women have profound knowledge related to the environment (Dankelman and Davidson 1988; Shiva 1988). However, my study found a different pattern. Both men and women have accumulated knowledge in dealing with the forest. However,

there are differences between the type of knowledge that they have accumulated. The difference in the type of activities carried out by women and men has created a different accumulation of knowledge. Men who have concentrated on gathering timber have accumulated knowledge about different types of trees and quality of the timber. One male informant could identify 81 types of trees in this forest that can be used for construction and also for furniture (such as jackfruit wood and *suren* for furniture and *Tanjung* for construction). In addition, he also has knowledge of the location of where the specific types of trees could grow. Both women and men have knowledge about many kinds of food and also when and where special types could easily be found. For example, many kinds of fungi can be easily found in the rainy season, since fungi grows in wet wood.

This finding differs from studies conducted by several other scholars (Rodda 1991; Davidson and Dankelman 1988; Shiva 1988). Those studies found that women have a close relationship to the environment, based on the accumulation of knowledge about the environment. However, this study shows that men also have an accumulation of knowledge about the environment.

There was a difference between women and men in the amount of time spent in gathering forest products. The average time male used in gathering forest products was 26.6 hours a week while for women it was 11.5 hours. This difference in time allocation was influenced by the different activities that they carried out. It was mentioned before that the

majority of men gathered timber and went hunting, activities that take up much time.

Gathering timber involved several steps, including choosing a suitable tree to be cut. If a tree was straight it would be good for house construction or furniture. Furthermore, they also considered the type of tree that would be cut, since this tree would influence the quality of timber. In addition, cutting down the trees also needed time. Often trees that were cut were in difficult terrain and therefore needed more time to be cut down. After the trees had been cut they were usually brought to an open space. In this place the wood would be sawn to make it plumb so that it could be used for house construction or furniture.

The type of forest products that they gathered also influenced the smaller amount of time spent by women in gathering forest products. It was mentioned before that women mostly collected food, fuel wood and tall grasses. The locations for gathering them were not far from their houses. The food that women gathered mostly grows on the edge of forest. According to *Inaq Ika* the vegetables that women gather mostly grow in a place that has sunshine. In the middle of the forest where the tree canopy is full and the sunshine cannot reach the land vegetables are very rare, except fungi. In addition, in gathering fuel wood, women mostly collected dead wood. They never cut the trees. Dead wood was still readily available on the edge of forest. Sometimes, women just collected wood left by men in locations easy to access. The tasks that women performed in the forest included gathering fuel wood and cutting vegetables, also gathering tall grasses.

The role of men and women in maintaining the forests was apparent in the way men cut down trees and in the way women collected the fuel wood. In the past men only cut down big trees. They avoided cutting young trees because young trees would replace big tree that they had cut down. In addition, they also avoided damaging the other trees during the process of tree felling. Since they used traditional tools they could minimise damage to other trees. The role of women in maintaining the forest appeared in the way they collected fuel wood. It was mentioned before that woman only gathered dead wood.

It is clear that men and women have a role in gathering forest products as well as maintaining the forest. Men not only concentrated on gathering timber but also contributed to collecting food and fuel wood to secure the needs of the family. In addition, both men and women produced an income from gathering forest products.

5 4.1.2 Gender and Agricultural Activities

Sempur residents were also dependent upon their own agricultural land to support their lives. It was noted earlier that the type of their agricultural land is dry land. There were differences in managing their agricultural land. Some Sempur residents did not plant seasonal crops. Their dry land was only planted with trees or bushes such as cotton, candlenut, coconut, jackfruit and several kinds of fruit. This type of agricultural land is called *lendang*. In this study 14 per cent of households revealed that their dry land was only planted with trees. The majority of

Sempur residents planted seasonal crops. The form of their agricultural land was mixed trees and seasonal food crops (*rau*).

This difference in maintaining their agricultural land caused differences in workloads. People who did not plant seasonal food crops would spend less time on their agricultural land. The tasks that they performed included planting only trees or vegetables, cleaning their *lendang* and picking fruit. Both men and women conducted those tasks but there were differences between men and women in performing these tasks. Men predominantly planted trees while vegetables were women's responsibility. In addition, both men and women had a responsibility to take care of their *lendang* such as cleaning dead leaves and scrub from the dead wood. Both men and women would pick the fruit from the trees. However, the fruit that needed a substantial effort to pick such as coconut and jackfruit was done by men. The special tasks carried out by women centred on picking vegetables. This task related to the preparation of food that was mainly conducted by women. Vegetables that were planted were mostly for household consumption.

Sempur residents who also planted seasonal food crops in their dry land needed more time, especially in the rainy season. Usually the rainy season begins between August and September. These people started planting seasonal food crops between June and July. There were several steps to planting these crops and both men and women were involved in almost every step.

The first step was to clear the trees and scrub from land that had grown during the dry season. This task was conducted by both men and

women and involved all members of the household. In this study all female and male respondents mentioned that they were involved in this task. Often they also asked for help from other families. Men were involved in cutting down the trees while women cleared the scrub. The scrub was pulled out and was collected, then burned while wood was brought to the home. The clearance of the land was conducted in July or August.

The following task was to make a fence around their *rau*. This fence was used to protect the area from wild animals such as forest pigs. It was made from live wood and was mixed with several kinds of vegetables, including long bean, green peas and many kinds of plants. The plants could also be used for animal fodder. Men only conducted this task, because it was perceived as being a heavy task that needed high energy to perform. All men in this study mentioned that they performed this activity. Their sons or other male families assisted them.

Next women prepared the seeds that would be planted. This task was a special task for women. The seed was mostly derived from an earlier harvest. Some people, who did not have any stock of seed, bought it in the market. To have a good result the seed had to be of good quality. Therefore, women selected the seeds carefully. The best quality was used for seeds and the second quality was sold or consumed. All female respondents mentioned that they selected the seed. Selection of the seeds is not a heavy task but is time consuming. According to, Inaq Sah, preparation of seeds for planting an area of 2000 square metre

takes one week. This task was conducted every day from 8 a.m. to 2 p.m. and often a woman was assisted by her daughter.

Land preparation was conducted by both men and women. All men and women who were surveyed performed this task, and it was mostly done by hand. The land was dug by hoe. Men used the big size of hoe while women used the small size. Land preparation using cows was still rare. This related to the condition of the land. According to people in this *dusun* the land was still good, so they did not need to use cows

Najuk (seeding) was performed after the preparation of the land was completed and the rains had fallen. This activity was carried out by at least two persons. One person made holes using a *penajuk* (a tool made from wood with a diameter of about 10 cm and 2 m length) and another person would distribute the seed to every hole. The number of seeds in every hole was usually about five to seven. After this, the hole was filled in by foot. Both men and women carried out this task. However the percentage of men engaged in *najuk* was lower than for women, namely about 67 per cent while all women in this study were involved in *najuk*. This was because some men were involved in off farm jobs (e.g. carpenter) outside of their village.

The following step was planting. This task was performed after the seedlings had grown, and needed about two weeks. The young crop was distributed evenly. The plants that had grown substantially were divided into smaller seedlings. At this time, women and men also conducted *ngeder* (weeding). This is clearing the grass that grows around the plants. This task was also conducted every day while the plants were

growing. Men conducted this task only before they went to the forest and after coming back from the forest. Women spent more time than men doing this task.

Harvesting has been conducted by both men and women. There were three types of harvest. The first was corn that was harvested after three months. The second was paddy that was harvested after 6 months. There are two methods of harvesting paddy. Local yield paddy (*padi bulu*) was harvested with *rengkapan* (finger Knife, in Java is called *ani-ani*) while the high yield varieties of paddy were harvested with the *kandik* (a big knife). Most Sempur residents at this time planted local varieties of paddy. According to them the taste of local varieties is better than high yielding varieties of paddy. To harvest paddy with *rengkapan* was conducted by both men and women. However, the involvement of women was higher than that of men. All female respondents mentioned that they were involved in harvesting paddy with *rengkapan* as opposed to 32 per cent of male respondents. In addition, both female and male respondents mentioned that they were also involved in harvesting high yielding varieties of paddy and the last was the harvest of traditional food crops that took place after 9 months. Both men and women transported their agricultural products to their homes. Men shouldered two bunches of paddy or corn, while women carried one bunch on their head. Since the houses of most Sempur residents were close to their *rau* they did not have substantial difficulties in transporting their agricultural products.

Selling agricultural products has been an important activity for Sempur residents to obtain cash. All households that were surveyed

revealed that they also sold a part of their agricultural products. Both men and women have conducted this activity. The data show that 86 per cent of women and 59 per cent of men were involved in selling agricultural products. The smaller number of men involved in selling agricultural products is because they did not want to do this task. They had to sell the logs that they collected from the forest.

This activity was conducted at least once a week in the *pekenan* time (weekly market). In the early morning both men and women walked together to the market. Men shouldered the heavy products such as jackfruit, coconut and banana while women carried the lighter agricultural products such as chili, tropical fruit and candlenut. They could sell their agricultural products to the market at least once every week because they still produced plenty. Some Sempur residents did not go to the market often. They sold agricultural products in their *dusun*. They went to the market only once a month. In this area the *pekenan* took place on the Wednesday of each week.

The other important source of income for Sempur residents was animal husbandry. Cows and chickens have been the only animals owned by Sempur residents. This is due to the availability of fodder such as grass. Although this activity could be used for income generation, the households that own cows were limited, namely 55 per cent. This is because of the price of cows was relatively high. Therefore, many households were not able to buy them. Cows also were used for saving purposes. When the households needed money they would sell their cows. In addition, 93 per cent of households owned chickens.

Both men and women were responsible for taking care of their cows. With regard to giving them food and collecting fodder, 74 per cent of men and 75 per cent of women from households that owned cows mentioned that they were involved in collecting fodder. Respondents who were not involved in taking care of cows usually gave the responsibility to their son or daughter. Women collected the fodder when the husband could not do this task. Collecting fodder was also conducted by their young children (7-10 years old) both males and females. According to women informants the time allocated to collect fodder by males in this *dusun* was higher than that of women. Collection of fodder for their cows was performed on their own agricultural land and it could be collected from their neighbour's land without permission.

There were only minor differences in the time spent by woman and men on agricultural activities. The average time used by women was 28.3 hours a week and 27.9 hours a week for men. This time allocation excluded the extra time spent in the "busy season", such as in preparation of land, planting and harvesting. In the busy season they work on the field on average of 8 hours a day, from 7 until 11.00 and continued from 14.00 to 18.00.

5.4.1.3 Gender and Paid Employment

Paid employment is defined as a job that is carried out by men or women, which directly produces goods or money. Opportunities to work for wages or goods were very limited in this *dusun*. The social system of the *dusun* is known as *betulung* that means mutual and reciprocal

activities involving the sharing of food but not money. However, 44 per cent of males were able to find such employment (Table 5.4), mainly outside the *dusun*. Such men mostly worked outside the *dusun* as *buruh tani* (agricultural labourers) (15 per cent) and carpenters (5 per cent). In addition, 11 per cent worked as agricultural traders (7 per cent) and log transporters (4 per cent), carried out both outside and inside the *dusun* and the rest opened small shops (13 per cent) in their house. These activities were done together with their wives. However the time allocation for women to carry out these activities was higher than that of men. Men tended to accompany women to the market for shopping.

Table 5.4 Paid Employment by Women and Men Five Years Ago

Type of job	Women		Men	
	N	%	N	%
Not engaged in wage employment	55	74	31	56
Farm wage	4	5	9	15
Small shop	7	10	7	13
Selling and buying agricultural products	5	6	4	7
Transporting logs	-	-	2	4
Carpentry	-	-	3	5
Whatever job (<i>buruh apa saja</i>)	4	5	-	-
Total	75	100	56	100

Source: Survey data, Sempur 1996

The percentage of women who worked for wages (26 per cent) was lower than that of men (44 per cent). Such activities were conducted within the *dusun*. This included the opening of small shops (23 per cent). They could establish these small shops where they sold daily needs such as sugar, cigarettes and snacks because their *dusun* was far from the main market. Since the people of the *dusun* often lacked money, they

would incur debts with these small shops and pay them after they had sold their agricultural products. Sometimes, villagers would just barter their agricultural products for soap, cigarettes and other daily needs. Therefore, these shops did not always remain open because very often their capital disappeared. Women allocated their time fully to managing these small shops, including managing the money, shopping and serving. In addition, 11 per cent worked in the agricultural field such as selling and buying agricultural products (6 per cent) with 5 per cent working as agricultural labourers. The lower percentage of women engaged in paid employment can be seen in relation to the different ability of men and women to go outside the *dusun*. The main reason for women only working inside the *dusun* is that traditionally women could not go outside the *dusun* without being accompanied by men. They have difficulties in leaving the *dusun* since their responsibility is to take care of the family such as to breast feed their babies. In addition, some women mentioned that they were afraid to walk long distances since they must walk through the forest.

5.4.2 The Role of Women and Men in Domestic Activities Five Years Ago

Sempur residents conceptualise reproductive activities as tasks done within the household including child bearing and rearing, food preparation (including washing dishes), fetching water, laundry, cleaning the house, collecting fuel wood and house repairs. In this society these tasks are perceived as women's responsibility since the woman's main role is as a mother. In many societies, household tasks are regarded as

the woman's responsibility (Kurian 1989; Sayogyo 1983; Bernard 1982). The involvement of women and men in domestic tasks can be seen in Table 5.5.

Water is essential for life. However, people in this *dusun* had difficulty obtaining clean water five years ago. It was mentioned earlier that the only source of water was a small spring located on the bank of the river. This water was only used for drinking and cooking. The limited water source and the difficulties in collecting it influenced the time spent in water collection. All respondents mentioned that they only collected water in the morning and in the afternoon. All Sempur respondents still remember that it was difficult at that time to find water.

Table 5.5 The Involvement of Men and Women in Domestic Activities Five Years Ago, Sempur, 1996

Type of Activity	Women		Men	
	N	%	N	%
Collecting Water				
Yes	75	100	45	80
No			11	20
Fuel wood Collection				
Yes	75	100	53	95
No			3	5
Food Preparation				
Yes	75	100	32	57
No			24	43
Washing Clothes				
Yes	75	100	26	46
No			30	54
Cleaning House				
Yes	75	100	49	88
No			7	12
Child Care				
Yes	43	100	41	95
No			2	5

Source: Survey data, Sempur 1996

Collecting clean water was conducted by both women and men. However, the involvement of women in fetching water was higher than for men. As can be seen in table 5.5 all female respondents were involved in collecting water for household needs. Eighty percent of male respondents also assisted in collecting water. Males who were not involved in fetching water mentioned that they had a son or daughter who could help their mother with this task.

The collection of fuel wood for domestic use was done by both men and women. Men who did not undertake this task usually had an off farm job. They rarely went to the forest or to their farm. Informants mentioned that collecting fuel wood was not a difficult task. Five years ago there was plenty of fuel wood available. They collected it both from the forest and their own agricultural land. They also could collect it from their neighbours' land. Therefore, almost every household had substantial fuel wood supplies in their houses. In addition, they still could ask their neighbour for fuel wood if they ran out.

Food preparation was a woman's special task in this *dusun*. All female respondents mentioned they were involved in food preparation while only 57 per cent of male respondents contributed to this task. The contribution of men to cooking was mostly only to boil water in the morning and the evening. Men undertook this task when their wives were busy. Few men also undertook the cooking of the meal.

The food that they cooked was mostly derived from their farm or forest and included vegetables, fungi, beans and cassava. They rarely had to buy these vegetables. The commodity that they often bought was

rice, because the rice production from their farms was generally not enough for their consumption throughout the year.

It was noted earlier that wood is still the main source of energy for cooking in this *dusun*. All households used wood for cooking. Five years ago there was plenty of good quality fuel wood available. In addition, the raw materials for cooking were plentiful both in the forest and in their garden such as vegetables and root crops. They did not need to go to the market to buy it. This influenced the time spent cooking. All respondents noted that food preparation did not consume much time.

Washing clothes was usually done in a river. All female respondents were involved in this task. The proportion of male respondents who also performed this task was lower, namely 47 per cent. In addition, males who were involved in washing clothes usually only washed their own clothes while women generally washed all the family clothes. Some men mentioned that they washed their wives' clothes after their wives gave birth.

Both men and women in the household who had children less than 5 years old stated that childcare duty was the responsibility of both men and women. Table 5.5 shows that female and male respondents were involved in taking care of their children under five years old. The proportion of male respondents taking care of their children five years ago was slightly lower than those of women, namely 100 per cent and 95 per cent respectively. The total households who had children under 5 years old at 5 years ago were 43 households or 56 per cent.

In the past generally both men and women worked together on the farm. They carried all their children to their farm. Both women and men supervised their children while they worked. In addition, they often carried their children out to the forest when they worked. Therefore, both women and men could supervise their children together. The difference between men and women in taking care of their children related to the time allocated to this duty. Women's time allocation to childcare was higher than that for men. Women (who had children under 5 years old) spent about 36.6 hours on average (but combined with other jobs) while men spent 18 hours per week.

Women and men had different responsibilities in taking care of children over five years old. Men were mainly responsible for looking after their sons. Sons followed their fathers to the forest and learned what they must do as a man. They also helped their father in tasks such as gathering fodder. The daughters remained with their mothers and helped their mothers in household tasks such as collecting water, washing clothes and cooking. In addition, men primarily were responsible for supervising their children's education. Some men mentioned that they supervised the development of their children in terms of reading and writing and would complain to the teacher if their children's progress seemed slow.

Building and repairing houses was mostly conducted by men. The men in this *dusun* would help each other when one of them built a house. Women also contributed to this task. The contribution of women mostly

involved collecting *alang-alang* grass for the roof and cooking to serve all the people involved in the building.

Women also spent more time undertaking domestic tasks compared to men. The total amount of time for female respondents in the household without children under five years old was about 54.1 hours on average a week, while male respondents only spent 24 hours a week on domestic tasks. The average time spent on domestic tasks of women and men with children under five years old to do domestic tasks was higher, namely 90.7 and 42 hours respectively. More than one task would often be conducted at the same time such as childcare and washing, child care and food preparation.

It is clear that the involvement of women in domestic activities was higher than for men. Although there was an imbalance in the contributions of men and women to domestic tasks, this did not seem to cause any problem between them. According to the results of the in-depth interviews with several women informants, men and women respected each other and were happy with their tasks. In part this was because men and women are always together at almost every occasion including working on the farm, in the forest and at home. In addition, women were proud when they can do domestic tasks very well. This fits with the expectation of Sasak society that the woman is a mother who should undertake domestic work.

5.4.3 The Role of Men and Women in the Community Five Years Ago

Awumbila and Momsen (1995) suggest it is important to examine the roles of men and women at the community level. These data can give information on how long both men and women spent in performing these roles. In addition Rocheleau *et al.* (1996) also suggest the importance of analysing the involvement of women in political activities.

The data revealed that men and women in this *dusun* performed a traditional role in the community which was called *betulung* (mutual assistance). This *betulung* system could be found in their economic activities such as working on the farm, parties (such as wedding, circumcision, and the death ceremony) and building the house. In agricultural activities men helped each other in land preparation and making fences while women did so in planting and harvesting.

Women and men would help their neighbours who had a party. Women engaged in the management of the party including receiving contributions from the guests such as money and raw materials (rice, sugar, fruit, etc). Men undertook the cooking under the guidance of women. This reflects the fact that in the society women do not always have a lower status than men do.

Informants mentioned that five years ago, there were no formal political institutions. Traditionally the development of the *dusun* was discussed in informal meetings. They met each other at the river, in the forest or on a farm to discuss any problem that occurred in the *dusun*. Men and women were both involved in discussing strategies of problem solving, however informants mentioned that usually men took the final

decisions, for example, the establishment of a mosque. Both men and women collected raw material for the establishment of the mosque. Men engaged in its construction while women served food.

To sum up the study, it was found that men and women carried out different roles both in and outside the household. These roles were guided by their traditional customs in which men are perceived as a head of household who have the responsibility for taking care of their family materially and physically and women as the mother with the responsibility of domestic work. This traditional division of labour seemed complementary rather than exploitative, although in reality, men were not the only ones in search of an income for their household. Women were also involved in economic activities to assist in sustaining their family. Also, women were not the only ones to do house work, men also shared in domestic tasks.

The difference between men and women becomes apparent in their access to household resources such as land. This different access has resulted in the different power relations such as the prohibition of women planting trees. This appears to relate to permanency of access to land once trees are planted on it – a permanency available only to men. In the past this different access to household resources did not really impact on women, because the women could harvest the forest for their income. In addition, although women are prohibited from planting trees they could still harvest products with which to sustain the family.

5.5 Gender Roles in the Current Situation.

There are a number of different ways in which people have coped with the present situation in which the local economy does not provide an adequate resource base. There are at least three major strategies employed by Sempur residents to fulfil their basic needs. These strategies include migration in search of an alternative income, engaging in paid employment and exploiting the forest. This section aims to examine those strategies in relation to the changes in gender roles and other factors that influenced this change.

5.5.1 Gender Roles in the Productive Activities

The productive activities undertaken currently are different to the productive activities of five years ago. There is an additional activity in the current situation namely migration. Migration is included in productive activities because it is conducted in order to search for an income.

5.5.1.1 Gender and Migration

Migration is a complex phenomenon that involves 'push' and 'pull' factors. These factors include issues related to the area of origin that accelerate people to leave, those also associated with the destination area which attract people to come, intervening variables and personal factors (Lonergan 1997, Lee 1976). The number of people moving within countries or from one country to another for the purpose of searching for a job is increasing in Indonesia (Mantra 1995; Hugo 1993). Recently, it has been recognised that the mobility of people is increasingly resulting

from the deterioration of the environment (Homer-Dixon 1991; Jacobson 1988). Following the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, there have been an increasing number of studies of the relationship between environmental degradation and migration. However up to now, studies on the impact of environmental deterioration on internal and international migration has been very limited (Hugo 1996). The reason is simply because not much research has been conducted in environmentally degraded areas.

Migration has become an important alternative to locally solving the problem of an insufficient economy that has resulted from the deterioration of the environment. A study conducted by Bilsborrow *et al.* (1991) in Guatemala and Sudan found that several male household members, especially the elder son and the head of household, migrate seasonally to seek work. Similar migration of males from villages which have experienced environmental degradation has also been found in Central Java, Indonesia (Nibbering, 1991). Harrison (1992) in his study in Lesotho (Africa) found that soil erosion caused many men to leave their families. In addition Sayo (1994) in her study of farmers and loggers on fragile land in a Philippine mountain village, found that the depletion of the environment that was caused by this calamity has resulted in men leaving their villages. Men migrate to the city to look for other sources of income because environmental degradation has prevented them earning sufficient to support their families while remaining at home.

In this section the explanation of migration will focus on migration as a survival strategy. It includes consideration of the historical

perspective to the flow of outmigrants from this *dusun*. It will look at the situation in the area of origin as well as in the destination areas, the levels and impact of remittances and the impact of outmigration on the families of the migrants.

This study found that migration is an important strategy chosen by people in Sempur, especially males. The degradation of their resource base has forced them to leave their *dusun* to search for alternative sources of income. It was mentioned (in Chapter Three) that there are no recorded data relating to the number of outmigrants in the *dusun*. According to the *kepala dusun*, currently about 40 per cent of adult persons, or about 300 in total have left their *dusun* to work on a non-permanent basis. Almost all are men, either male heads of households or oldest sons. Only three persons are women. This phenomenon is similar to that found in the studies conducted by Sayo (1994), Harisson (1992) and Bilsborrow (1991). The destination area is usually Malaysia. Four persons have migrated to Bali including the three women.

The large number of men who have left this *dusun* is connected to the gender ideology that has developed in this society. As was described in Chapter Four, one of the expectations of this society is that men should protect their families economically and psychologically. Therefore, in order to perform that role they have a responsibility to search for other sources of income when local sources become inadequate. In addition, a few women were also forced to leave, all of whom provided the main source of income for their families. This study found similar results to the

review conducted by Sandhya (1995), who concluded that women tend to migrate when they are the primary source of income in their households.

5.5.1.1.1 Historical Migration in *Dusun* Sempur

The relationship between migration and environmental degradation in Sempur is evident when a historical perspective is adopted. The flow of outmigrants from *dusun* Sempur started in 1989. This flow occurred seven years later than outmigration from another *dusun* nearby (in Aikmel village) which began around 1982. Many informants from other *dusun*, who have a close relationship with people in *dusun* Sempur, and have observed developments there provided the information about the outmigration from Sempur. They said that previously Sempur residents were not interested in leaving their *dusun* because they could fulfil of their basic needs locally. They could still gather sufficient forest products to support their livelihoods. The Kepala Dusun of Sempur and other Sempur residents confirm this statement.

The outmigration from *dusun* Sempur began with one member (Amaq II) who was offered work in Malaysia by a *tekong* (middle man who searched for labor that will be sent to Malaysia), who came to Sempur in 1989. His wife mentioned that her husband had gone to Malaysia because he could no longer gather timber in the forest. Amaq II could not walk the long distances carrying large logs which were required, therefore, her husband wanted to search for other sources of income. His plan to go to Malaysia was approved by the family.

He came home, after he had worked in Malaysia for a year. He then acted as a recruiter (*tekong*) for other people in the *dusun* to migrate to work. There were about 20 people interested, and in 1990 he attempted unsuccessfully to bring them illegally. They were stopped by Malaysian police at the border and had to return to the *dusun*. However this did not stop migration to Malaysia.

Several *tekong* thus learned that people in *dusun* Sempur were interested in going to Malaysia and offered them the opportunity. A large number of Sempur residents went to Malaysia to search for jobs in 1992 and currently about 300 people have migrated to Malaysia. Almost all of them have migrated illegally. According to the head of the *dusun*, people in this *dusun* who migrate legally account for only about 10-15 per cent of the total number of outmigrants. Hugo (1998, 1996, 1995, and 1993) has analysed the labour migration in Indonesia and indicated that there is no accurate data regarding the number of labour migrants from Indonesia. This is in part because they leave illegally

The illegal migrants are coordinated by a *tekong*. In 1992, people had to pay between 300, 000 and 400, 000 *rupiah* (US \$150-200) to the *tekong*. In 1996 when this study was conducted, according to informants for both the *tekong* as well as some potential migrants the cost was between 600,000 and 800,000 (US \$ 260-350). Legal migration is coordinated by DEPNAKER (The Ministry of Labor) which gives concessions to several private enterprises (*penyalur tenaga kerja*) to perform recruiting activities.

Most people who migrate illegally have little knowledge about the destination area and also the difficulties of travelling illegally. My in-depth interviews with four persons who had been to Malaysia illegally, revealed that they did not even know where Malaysia was located nor how far it was from their *dusun*. In fact two of them did not know that Malaysia was outside Indonesia. The information that they received from other people was not complete. The only information they knew well was that there was the opportunity of a job and an appropriate salary. Generally they found jobs in plantation areas with a relatively good salary compared to what they could get in the *dusun* (between 400 - 800 *ringgit* or 360,000 to 720,000 *rupiah* a month). Other information such as the difficulties in reaching Malaysia and the processes of getting a job were not mentioned.

In the beginning, males who migrated to Malaysia were mostly adult men (more than 20 years old) and were already married. This is because men who are married have the responsibility to search for improved sources of income. In addition, they were also from relatively wealthy families, so could afford to pay the fee to the *tekong* before they moved.

The trend has changed since 1994, with the outmigrants now including young men aged between 14 and 17 years old. The *Kepala dusun* mentioned that about 50 young males had left the *dusun* to work in Malaysia. The data that I collected from my 75 household sample found that 30 members of those households aged between 15 to 19 left the *dusun* between 1994 and 1996. Several informants who had just returned

mentioned that this is in response to the increasing demand for young labour in Malaysia and the salaries for young labour are lower than for older workers. Generally speaking young men were paid between 350 and 600 *ringgit* or 325, 000 and 550, 000 *rupiah* in 1996. In addition, young men tended to be more dedicated to their work than older workers. Informants mentioned that older workers often left their jobs before finishing the contracts. They would move to another plantation to search for a higher salary.

Other changes were also found in the outmigrant's family background. At present the people who migrated were not only from relatively wealthy families but also from lower income households. The success of the early outmigrants, which was reflected in the flow of remittances, has encouraged poorer people to migrate. In order to pay the cost these people mostly borrowed money from their family or recently established local moneylenders. The success of earlier migrants has encouraged some better-off families who now lend money to people wanting to migrate overseas. They can borrow money that should be returned after they receive their salary in Malaysia. They must return twice the amount of money that they borrowed. Some migrants also borrowed money from the *tekong*, which would be cut from their salary when they have a job in Malaysia. This finding is similar to the study conducted by Skeldon (1990), in Sangarara village in Peru which found that the movement of people began with people from high economic status who were then followed by those of lower economic status. (Skeldon, 1990, p.68).

5.5.1.1.2 Characteristics of Migrants

It was noted in the section on research methodology that in order to analyse gender relations in households, this study would only focus on head of households and their spouses. Therefore, the characteristics of migrants examined in this section are only concerned with the heads of households and where other members, of the household (eg sons) have migrated no data were collected. This study found that from a sample of 75 households, 19 of heads of household, or 25 per cent have left this *dusun* to go to Malaysia. This gives an indication of the scale of the movement.

The characteristics of the migrants are presented in table 5.6. This table shows that the educational level of these migrants is higher than the average education level in the *dusun*. One of them had finished junior high school, and 42 per cent had finished primary school and 37 per cent never attended school. In addition, the migrants are relatively young. Most of them (90 per cent) are under 40 years old.

This study also found that heads of households who migrate are from a relatively high economic status. The majority of them are from households with at least one hectare of land (56 per cent), 33 per cent have land 2500 - 10000 square metres of land and only two have less than 2500 square metres. This relates to the relatively high cost of the migration travel. In addition, they also think about their family's ability to survive while they are away.

Table 5.6: Characteristics of Household Heads who migrated to Malaysia and those who still remain in Sempur, 1996

Socio Economic characteristic	Head of household who have migrated		Head of household who remain in <i>dusun</i>	
	N	%	N	%
Age				
20-29	8	42	6	11
30-39	9	47	11	20
40-49	2	11	17	30
50-59			16	28
60-69			6	11
Educational Attainment				
Never Attended School	7	37	32	57
Did not finish primary school	3	16	10	17
Finished primary school	8	42	14	26
Junior high school	1	5	-	-
Total	19	100	56	100
Land Ownership (m2)				
<1000	1	5	17	30
1000-2499	1	5	3	5
2500-4999	2	10	4	7
5000-10000	5	25	20	36
>10 000	10	55	12	22
Size of Household (persons)				
1-2	6	32	1	2
3-4	7	36	26	46
5-6	6	31	18	32
>6	-	-	11	20

Source: Survey data, Sempur 1996

Heads of households who migrate are mostly from small families. About 66 per cent have a total family size equal to or less than four persons (excluding the migrant). Almost all male heads of households who are from a total family size of 1 to 2 persons have gone to Malaysia. Only 34 per cent have families of more than five persons. Despite women's subordination in many areas of life, most women who have more than three children put pressure on their husbands not to leave, as it would be too much of a burden for them.

This study also found that people who migrate to Malaysia mostly do so illegally. Of 19 heads of households who have gone to Malaysia,

80 per cent of them migrated illegally, with only 4 persons migrating legally. People who migrate legally usually have particular skills such as a carpenter or driver and have completed primary school. These four persons included a carpenter and two drivers.

The reason for illegal migration is because the process of illegal migration is easier than that of legal migration. In the former case, there is no need to process any documents and usually they can leave soon after paying the *tekong*. Their departure is coordinated by the *tekong*. On the other hand the process of legal migration is quite difficult. They must secure a passport that is expensive and time consuming. Since they usually have no experience and have low education the step of securing a passport confuses them. Firstly, they must report to the *Kepala dusun*, then to the head of the village. They must report to the authority in the sub-district then go to the immigration office in Mataram. According to the wife of one respondent who wanted to migrate legally the husband spent 500,000 *rupiah* to obtain a passport but after waiting for six months still couldn't get it. In the end he decided to migrate illegally and he has been in Malaysia for a year.

The length of time the migrants stayed in Malaysia varied, but on average they have been away from the *dusun* between 2 and 3 years. Only two persons have been in Malaysia for less than a year: one person for six months and another person for a month. Three persons have visited their families once after spending two years working in Malaysia: they stayed home for about two months.

5.5.1.1.3 Difficulties Faced by Migrants

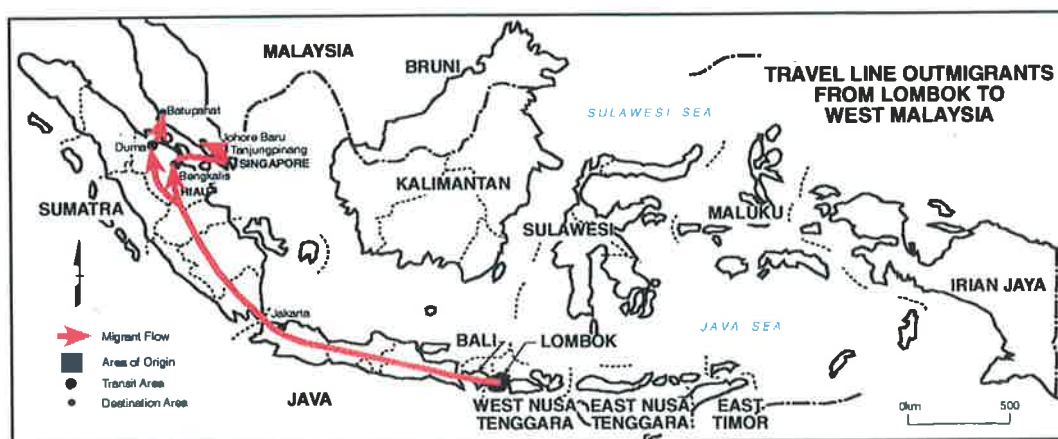
It was mentioned before that the degradation of the environment does not only affect women, but also men. The degradation of the forest has forced some men to leave this *dusun* to seek an alternative form of income. This movement however, is not an easy one. This section examines the constraints that some Sempur residents have encountered in migrating to Malaysia, such as the difficulties in reaching their destination, and the situation they found there. These data were mostly derived from in-depth interviews with people who had worked, or looked for work, in Malaysia.

Three informants who had migrated illegally felt that migrating to Malaysia was risky and that the difficulties faced by illegal migrants were far worse than those for legal migrants. Informants revealed that the first problem is to reach Malaysia. The second is to adapt to living in Malaysia and the third is to cope with the type of work to be done there. The latter point is particularly relevant since an informant mentioned that there are at least five people from this *dusun* who migrated to Malaysia and then died because of work accidents. This information was confirmed by the *kepala dusun*. In addition, many of them have been sent to jail because they entered the country illegally. Given these problems, the informants said that if there were job opportunities in the *dusun* they would prefer to stay home. This information is similar to that found in a study conducted in Lesotho, Africa. Many men from environmentally degraded areas migrated to South Africa to work in the mining industry, and about eight

thousand people had died over a ten-year period (Davidson and Dankelman, 1988).

Informants who migrated illegally mentioned in the interviews how difficult it was to reach Malaysia. This was a common experience among the informants, even though they did not travel together. In part the voyage was difficult because the respondents were not used to travelling long distances. Also, they had little idea as to when the trip would finish and anxious over whether or not they would succeed in their attempt to

Figure 5.2: The Travel Line of Migrant from Lombok



enter Malaysia. In this regard they had to depend on their *tekong*, who organised not only the voyage to Malaysia but also the place they would work and the type of work that they would do.

Each informant had a similar story to recount. In each case the informant went to Malaysia in a group consisting of between 20 and 25 people. They first went through Bali to Surabaya by ferry and bus, which

took approximately 24 hours. In Surabaya they spent the night in a place prepared by the *tekong*. From Surabaya they travelled to Tanjung Pinang, Sumatra a non-stop journey that took five days and four nights. The *tekong* did not travel with them, but rather met them in Tanjung Pinang. The travel line of migrants from Lombok can be seen in Figure 5.2.

The informants used a *kepompong* (ferry) to travel from Tanjung Pinang to Malaysia, and during this leg of the journey they were accompanied by the *tekong*. They crossed the border at night in order to avoid the police, travelling slowly, partly because the ferry was overloaded with passengers and partly to avoid the attention of the police. Towards morning the passengers were dropped off, but still far from Malaysia's shores so that the police would not catch the ferry captain. Hence, the passengers had to swim about two hours in the pre-dawn darkness, and then hide in the coastal mangroves to avoid border patrols. They had to stay in hiding between 7-12 hours to wait for the *tekong dalam* (middlemen from Malaysia who provide labour).

The migrants were transported by truck to a plantation area. A tarpaulin covered the truck so that the passengers could not be seen, but the respondents said that because of this they could not breathe easily. The trip took about three hours and they arrived in the plantation area in the evening.

The process of recruiting labour for the plantation areas was relatively simple. The *tekong dalam* contacted plantation owners who were in need of labour. When the migrants arrived the owners of the

plantations (*taoke*) met them in a secret place. The migrants were asked to form a queue and were each given a number. Each *taoke* called out various numbers, and those migrants went with that particular *taoke*. They were then transported to a particular plantation. The informants generally did not like to be a part of this process since they felt as if they were slaves (*budak belian*). However, if they wanted to work in Malaysia they had no choice but to follow this procedure.

There were also problems just in arriving in Malaysia. Two people from the study sample said that their husbands never managed to reach Malaysia. They were caught by the Malaysian border patrol when they were picked up by *tekong dalam* at the border, and were repatriated after spending three months in a Malaysian jail. Their other friends ran away with the *tekong dalam*. Those people at present are trying to go to Malaysia.

Those who went to Malaysia legally did not encounter such problems. In that case the only problem was dealing with the fatigue from a long trip. Two respondents who migrated legally said that they did not encounter any problems and were sent directly to work in enterprises in Malaysia that needed labour.

Both legal and illegal migrants said that it was difficult to adapt to new living conditions in Malaysia. They had to stay in accommodation provided by the businesses (usually plantations). Such accommodation was usually located far from any forms of entertainment, and the social dislocation was made worse by the fact that the workers generally did not know each other. Also, food had to be prepared by the workers

themselves, and this was difficult because they were men and had little experience in preparing food (a task usually performed by women in their villages).

Migrants also had to cope with loneliness. They rarely ventured outside of the plantation, partly because they were usually located far from urban areas and partly, in the case of illegal migrants, because they did not want to be arrested and deported. So, they generally had to be content with writing or receiving letters and playing cards with friends.

A third difficulty that was mentioned by informants related to the type of work that they performed. The work was often too hard for them, as it included planting young tree crops and picking *kelapa sawit* (palm fruit). Planting the young tree crop was not too hard but picking *kelapa sawit* is very hard work, and requires substantial energy. Informants said that this job is harder than gathering timber in the forest. In addition, they mentioned that in their *dusun* no one had died when gathering timber. However, over a seven year period, five people from this *dusun* had died because of work related accidents in Malaysia.

There is no standard salary for illegal migrants. Owners of the plantation paid a different salary to their workers. Amaq Lalu an illegal migrant mentioned in 1994 that he received an average salary of 25 ringgit a day in the first month for working 7 hours a day. On the other hand, Amaq Sud a legal migrant who had lived three and a half years in Malaysia (1993-1996) mentioned that in the first year (1993) he got a salary of about 300 ringgit a month. In the second year the salary increased to 500 ringgit and in 1996 his salary was about 800 ringgit a

month. Informants mentioned that there was a difference in the salary between legal and illegal migrants. The salary of illegal migrants mostly was higher than for legal migrants.

5.5.1.1.4 Remittances

Remittances are defined as that part of the salary sent back to the home country by a migrant (Cossen 1995). Some researchers define remittances more widely including goods that are sent to the home country. Remittances are important both for the migrants themselves and the families who remain behind. Indeed, this is the main reason the migrants are working abroad, and sending income home is an integral part of their role in the family. There was a general feeling among the respondents that the migrant would feel ashamed if they were not able to send money home. Female respondents who received the payments provided the following information about remittances, and by in-depth interviews with informants who returned to Indonesia for a visit, while working in Malaysia.

Most of the female respondents (90 per cent) whose husbands went abroad to work said that they were sent money. Only two persons had not received payments, and that was because their spouses had only been gone two months. The amount of the remittances varied, depending on the length of time the migrant had been working in Malaysia. The amount the female respondents had received in total varied from 50,000 to 3,000,000 rupiah (about US \$23 to US \$ 1333)

My in-depth interviews with four migrants who visited their families during my field research revealed that all of them attempted to save money and send it back to their families in the *dusun*. The remittances not only took the form of money, but also clothes. Two informants said that they sent clothes to their wives and children, and that these tended to be of good quality that could not be found in the village.

Generally speaking, the remittances totalled between 35 and 40 per cent of a migrant's salary. The rest of the salary was mostly used for living expenses in Malaysia, and respondents all mentioned that living in Malaysia is relatively expensive. In addition, some of the money was used to pay off police; otherwise illegal migrants had to continually live in constant fear of deportation.

All of the female respondents who received remittances stated that the money was very useful to them. About 80 per cent stated that the money they received was more than their husbands could make while living in the *dusun*. For example, one respondent stated that her husband only earned income in the *dusun* from agricultural products and taking care of one cow. For this work they received 600,000 (US \$ 267) for the former and 400,000 rupiah (US \$ 178) for the latter, and all of this income was used for providing basic household needs. Her husband, however, was able to send her two million rupiah (US\$ 889) over the one and a half years he has been working in Malaysia. Also, she was able to perform those tasks done by her husband previously, so that the extra income could be used to build a house. She mentioned that if her husband had

not gone to Malaysia then building this new house would not have been possible.

The use of the remittances varied between respondents. Eight of them (40 per cent) said that the money was used for daily needs, and to repay debts. In addition, they also gave money to the husband's family. Two respondents mentioned that the remittances were used for running a small business. These two women started to work at buying and selling agricultural products and also selling kitchenware. Four respondents stated that the money was used for house construction or buying a cow while three respondents (15 per cent) used the remittances to buy a cow and repay a debt. In sum, this data shows that more than 50 per cent of the respondents used the remittances for productive activities beyond meeting their basic living needs.

Some respondents also mentioned that the money influenced their lifestyles, and that it was used to increase their consumption. They bought toys, such as bicycles, for their children. Also, some females began to use cosmetics, such as lipstick, which was a new phenomenon in the *dusun*.

To sum up, the evidence suggests that the degradation of the forest in this *dusun* not only affects women but also forces some men to leave the *dusun*. They encounter many difficulties in their search for additional income, but the remittances that they provide tends to alleviate the economic difficulties faced by their families.

5. 5.1.2 Men and Forest Utilisation

Although the forest has been degraded and the government has announced that people are prohibited from gathering forest products, most Sempur residents still continue to do this. This is partly because the perception of people in this *dusun* regarding the forest has not changed. They still believe that the forest is a source of income for them. The different perception between people and the government has created a situation where the government regulations only have a small impact on the people. Informants mentioned that they couldn't stop gathering forest products because this activity has been performed for a long time and they have problems in finding alternative jobs in their *dusun*.

The data dealing with the utilisation of forest products by Sempur residents can be seen in Table 5.7. These data reveal that at present most male respondents who were surveyed mentioned that they still gathered forest products. Only 15 per cent of male respondents did not gather forest products anymore. The reason for not gathering forest products mostly relates to the damage to the forest that is close to their *dusun*. They are not able to walk the long distances that are now necessary to gather forest products. Four respondents mentioned that they are getting old and those tasks are now undertaken by their sons.

In addition the data also show that there has been a change in the pattern of gathering forest products compared to the situation five years ago. The number of male respondents who gather timber have decreased compared to five years ago. This relates to the decreasing availability of trees close to the *dusun*. They have to gather timber deep in the forest. In

addition, the percentage of male respondents collecting fuel wood and tall grass has increased, more than doubled. The increased number of men gathering fuel wood is because there has been an increased demand for fuel wood, which at present is more valuable in the market. In addition, the increasing male involvement in collecting tall grass relates to the growth of tourism in Lombok, which has meant the establishment of restaurants and hotels needing large amounts of tall grass for roofing. The table also shows that hunting animals and collecting rattan has decreased. This relates to the decreasing availability of animals and rattan in the forest.

Table 5.7 Males and Forest Utilisation, Present Situation and Five Years Ago, Sempur, 1996

Type of forest products	Five years ago		Present Situation	
	N	%	N	%
Do not gather forest product	0	0	8	15
Timber	43	80	35	65
Fuel wood	17	31	36	68
Food	39	76	29	54
Tall grass (alang-alang)	7	14	23	43
Grass	-	-	11	21
Hunting	7	14	1	2
Rattan	4	1	1	2

Note:

Total male respondents 54

Total households 75

Source: Survey data 1996

The degradation of the forests and the limited access to forest products by local people has influenced the attitudes of men in relation to the forest. My interviews with informants revealed that, at present, gathering timber is not selective. They do not cut down only big trees but

any trees that are valuable, including small trees. In part this is because the availability of big trees in the forest has decreased. In addition, the demand for logs has increased, and therefore, any kind of wood can be sold. Informants who were also involved in gathering timber mentioned that this attitude accelerates damage to the forest.

The attitude of men in gathering forest products is also influenced by the implementation of various regulations. Informants mentioned that people in this *dusun* are not treated the same way in dealing with the regulations concerning forest protection. Some people who are close to the forestry police, especially the elite of this *dusun* who give bribes to the forestry police are treated differently. Collusion between some Sempur residents and the forestry police has therefore been established which means they can gather timber without any constraints. On the other hand people who are not close to the forestry police will encounter problems in gathering timber. Informants said that the forestry police often seized the timber that they gathered from the forest. This different treatment of people was also found in the study conducted by LP3ES (1996) in West Lombok.

The increasing demand for timber from outside this *dusun* has also influenced the attitudes of some people toward gathering forest products. My observations revealed that some men in this *dusun* who were close to the forestry police had started to use chainsaws to cut down the trees. These people go to the forest in a group in the early morning and stay until evening. They can cut down many more trees than people who use traditional tools. These logs are then sold to the middlemen from this

dusun who in turn sends these logs away by truck. Forestry police received 1000 rupiah (\$US 44 cents) for each log. In some cases the log was also bought for a cheaper price by people who have power outside the area of study (such as Kapolres (head of police in the subdistrict) and head of the subdistrict).

These practices left some residents very unhappy, especially poor people who are not close to authorities. These people also cut down trees, especially small trees. The reason for this mostly relates to the fear that they have of the forestry police. The time that must be spent to cut down a big tree is quite long, therefore they are easily caught by the forestry police. In addition, the people who are not close to the forestry police generally only use traditional tools (axes) for cutting the trees. Moreover, they only go to the forest when the forestry police are not on duty. Therefore, they cut fewer trees than the people who are close to the forestry police.

Some male and female informants in this *dusun* mentioned that the destruction of the forest is not really caused by local people but rather by the attitude of some people who have power. Therefore the statements by some feminist scholars (Shiva, 1988) that men exploited nature can not be generalised. It is clear in this study that men who are in power and who are close to power will be more active in exploiting the forest while poor males only have limited access to the forest.

There are differences in time allocated to gathering forest products between 5 years ago and at present. At present the time allocation of

men in gathering forest products is 43.4 hours a week. This figure has increased compared to five years ago (26.6).

5.5.1.3 Women and Forest Utilisation

The relationship between women and the forest has changed dramatically. Essentially, the dependency of women on the forest has decreased considerably over the past five years, with approximately 44 per cent no longer gathering forest products when 5 years ago all engaged in this. This is because the distance from their homes to the forest has increased over time. They have also to cross difficult terrain (plate 5.2). In addition, they also mentioned that they are ashamed (*malu*) to go to the forest because the forestry officials have warned them not to do so.

Plate 5. 2: The road to the forest



Women who have withdrawn from gathering forest products can be considered as relatively wealthy. This is reflected in household land ownership, with these respondents having more than 5000 square metres of agricultural land. Women from lower economic status (households with less than 5000 square metres) continued to gather forest products.

Women who have withdrawn from gathering forest products generally have recruited their husbands and sons to gather wood in the forest for use as fuel. Therefore, there has been an increase in the number of men gathering forest products. This phenomenon is similar to that found in an African study by Awumbila and Momsen (1996), where men tended to become more involved in gathering wood for fuel as the scarcity of this wood increased. In Sempur women without adult sons gathered wood for fuel from their household farms, or purchased it. However, this wood is of poorer quality than that found in the forest. Vegetables that were previously gathered in the forest are now either grown on their own land or are purchased. However, generally speaking, such vegetables are now consumed less by their families.

Women of lower socio-economic status (land ownership of less than 5000 square metres) continue to gather forest products. These products include fuel wood, vegetables and grasses, and are sold as well as consumed. These women must continue to carry out these activities because they produce relatively little in the way of agricultural products. The data on forest utilisation by women are presented in Table 5.8. This table shows that at present, the use of forest products has changed compared to five years ago. The dependency of women on forest

products has decreased. The percentage of women gathering all items from the forest including food, fuel wood, tall grass and other grass has decreased. At present collecting tall grass is only conducted by 23 per cent of women, less than half of the proportion of five years ago. Since the tall grass is sold in the market, the decreased proportion of women gathering tall grass means that female income from this source has declined.

The destruction of the forest has also forced women to spend more time and energy in collecting forest products. Generally speaking the time needed to collect these forest products has increased over time. The average time used in gathering forest products was 11.5 hours five years ago and has now risen to 12.8 hours on average per week.

Table 5.8 Women and Forest Utilisation, Present Situation and Five Years Ago, Sempur, 1996

Type of forest products	Five Years Ago		Present Situation	
	N	%	N	%
Do not gather forest products	-	-	32	44
Vegetable	66	90	39	53
Fuel wood	51	70	30	41
Tall grass (alang-alang)	38	52	16	23
Grass	3	4	3	4
Total	75	100	75	100

Source: Survey data, 1996

The information discussed above suggests that the effects of forest degradation are not uniform. Women who are from relatively poor families tend to continue to exploit the forest to meet their needs and those of their families. On the other hand, women from relatively wealthy families can rely on other alternatives to fulfil their needs.

5.5.1.4 Men and Agricultural Work

The men leaving for overseas can no longer be involved in the agricultural activities at home. In addition, the increased time consumed in gathering forest products by men who remain home has created a decline in their involvement in working on their own agricultural land. Data of the participation of male respondents' work on agricultural activities including work in agricultural land and animal husbandry suggests that over the past five years there has been a decrease of 12 per cent in the number of respondents carrying out this kind of work. The reason for this is because gathering forest products is more lucrative and can produce money immediately, unlike working on farmland. The decreasing involvement of men on agricultural land means that they have left their responsibilities on building fences and planting trees, the function of which is to conserve the soil.

Based on my observations during the year that I lived in this *dusun* I found that at present only a few men are involved in agricultural activities. In addition, they are mostly only involved in their farms during the busy times such as preparing their farmland before planting and during the harvest. During the preparation period men are mostly building fences. Only a few are involved in land clearing or hoeing. At harvest time men are mostly involved in transporting the rice from the *rau* to their homes. Although men only make a small contribution to taking care of their *rau*, they must be involved in selling the agricultural products and often the money is used for personal needs such as buying cigarettes.

Over the past five years the number of hours per week spent in agricultural activities has decreased from 27.9 to 9.7 hours (This does not include time used during busy farming periods). At present it is very common to see only women working on the farms during the day and no men involved at all.

5.5.1.5 Women and Agricultural Work

The absence of men from the household caused by the increasing amount of time spent in the forest as well as the high level of male migration has resulted in an increase in women's workloads. All women who were surveyed mentioned that their workload on the family agricultural land had increased dramatically. The work that used to be done by both men and women now tends to fall on the shoulders of women alone. Presently, it is very common for only women to work on the farmland every day. Although they work hard on their farm, they can not harvest enough food products. It is because their men who are responsible for building the fences to protect their land, have gone overseas or are concentrated on gathering forest products.

The time used for agricultural activities has also increased considerably. At present the average time spent on agricultural activities is 39.3 hours a week during the slack season, almost one and a half times as much as five years ago (28.3 hours). During busy times they spend about ten hours per day at these tasks, from 8 am to 1pm and from 2 pm until evening.

Besides the change in time spent on farming, the absence of men from the household has also resulted in a change in the relative power of women in decision-making. Women have an opportunity now to decide what kinds of crops shall be grown, which used to be decided only by the men. Women are also now taking the initiative to be actively involved in training schemes for agricultural development, actually provided for men. They learn in meetings how to plant trees and ask to have several kinds of fruit trees planted around their house. Some 77 per cent of women who were surveyed mentioned that they were involved in this training. The involvement of women in agricultural training is a new phenomenon in this village. In the past only men participated in agricultural training. In addition, at present women also plant trees such as mango, coconut papaya and banana in and around their houses. Those tasks were considered as man's tasks for a long time. My in-depth interviews reveal that the reasons for women becoming involved in agricultural training was that they wanted to increase their ability to carry out agricultural tasks. They feel that for a long time they were never involved in such training, although they also conducted the tasks. It was considered a good time to attempt to become involved in the training, when most men had left the *dusun*. My observations reveal that several women came and persuaded agricultural training instructors to include women for participation in the training.

In addition, the reason mentioned by five women informants for women planting trees is to balance out the decrease in agricultural products. Besides they also wish to contribute with such plants that can

be harvested for an extended period of time. This contribution is expected to increase their bargaining power in the household.

As illustrated by one of the informants, Inaq Yam (not her real name) is the female head of her household. Her husband has gone overseas searching for a job. She looked very happy when I visited her house. In front of her house was growing a pink flamboyant, small coconut trees, small breadfruit and papaya trees that were bearing fruit. She strolled up to me and whispered that she wanted to have her photo taken beside her papaya trees. She is very proud of her papaya trees. She told me that she planted these trees around the house and it was her first experience in planting trees. These trees have helped her to sustain her family instead of going out into the forest. However, the attempt of women to develop their abilities in planting trees has faced several constraints. They are prohibited from planting trees on the agricultural land and they only have access to annual food crops such as rice, maize and vegetables.

5.5.1.6 Men and Paid Employment

The degradation of the forest has indirectly led to the lack of available labour in the household. This is because several men have left their *dusun* to work abroad. Some of them also go far into the forest to gather forest products. This reduction of available male labour in the households has increased the demand for reciprocal labour. The system or *betulung* in this *dusun* has also been eroded, and has been replaced by a wage system. This is because some households are now unable to

help others. Many households have started to use paid employment to secure labour for their own agricultural land. The lack of labour in this *dusun* has therefore created employment.

Plate 5. 3. Woman with her tree



Table 5.9 shows that there has been an increase in the number of respondents who have been involved in employment for wages. The data reveals that the involvement of male respondents in Paid employment has increased compared to five years ago. At present, 63 per cent of male respondents are engaged in Paid employment. This figure is higher than five years ago (44 per cent). The table shows that the type of work done for wages and the increase in farm work especially reflects the absence of men from their households. The table also shows that there has been an increase in carpentry work. This is related to the

establishment of new houses in this *dusun*, which have been built as a result of remittances.

Table 5 9 Male Paid Employment, Present Situation and Five Years Ago, Sempur 1996

Type of work	5 years ago		Present Situation	
	N	%	N	%
Do not work	31	56	21	37
Transported logs	2	4	1	1
Buying and selling agricultural products	4	7	1	2
Open Small shops	7	13	8	15
Farm Paid employment (buruh Tani)	9	15	19	33
Carpentry	3	6	6	11
Total	56	100	56	100

Source: Survey data Sempur 1996

The increase in the number of male respondents involved in paid employment indicates that many men have double jobs as a farmer and also a waged worker. Five years ago most Sempur residents only worked as forest gatherers and farmers. At present, however, many Sempur residents carry out several activities in order to meet their needs.

One male informant stated that:

At present, my workload has increased. I must work at whatever type of work that can create money to meet my household and personal needs. Sometimes, I collect timber. When I cannot go to the forest I work as a farm wage labourer and transport logs.

5. 5.1.7 Women and Paid Employment

Engaging in employment for wages is also a strategy employed by women in response to the reduction in products that they can gather from the forest. At present, the involvement of women in paid employment has increased compared to five years ago. It can be seen in Table 5.10 that

at present more than 50 per cent of women who were surveyed were engaged in paid employment. This figure has increased about 25 per cent compared to five years ago. The reason for this increase, according to the women surveyed, relates to the decrease of their income and goods from the forest. Therefore they must search for other sources of income to provide for their families.

Table 5.10 Paid Employment by Women, Present Situation and Five Years Ago, Sempur 1996.

Type of work	Five years ago		Present situation	
	N	%	N	%
Do not work	56	75	33	44
Farm Paid employment	4	5	14	19
Selling and buying agricultural products	5	7	10	13
Small shop/ Food processing	7	10	12	16
Whatever job (buruh apa saja)	4	5	6	8
Total	75	100	75	100

Source: Survey data, Sempur 1996

In addition, Table 5.10 reveals the substantial increase of women involved in agricultural wage labour (*buruh tani*) and general labouring work (*Buruh apa saja*) to earn cash income (general labouring work includes collecting sand from the river, transporting fuel wood, and food processing). The former has increased three times and the latter one and a half times. The reason mentioned by respondents for their engaging in these jobs is because the opportunities for work in this *dusun* are limited. The only job that does not require capital is wage labour. Another reason, mentioned by the head of the *dusun*, relates to the increase of paid employment because of the decrease in labour from the households due

to the emigration of many young men overseas (from the 75 household sample it was reported that 30 members of the households, especially the eldest sons had migrated to Malaysia). Therefore, many households have started to look for labour, especially during busy times. The flow of cash as a result of remittances has meant that many households are able to pay for labour.

Three informants whose sons have emigrated mentioned that they were not able to maintain their farmlands, especially at peak times. When their sons still remained in the *dusun*, all family members were involved in land preparation and planting. At present they must hire other people to help with these tasks.

Women who work at buying and selling agricultural products have also increased. Many Sempur residents prefer to sell their agricultural products to local traders. Outside traders no longer visit this *dusun* because of the reduction of agricultural and forest products. Several women now take advantage of this situation to generate their own incomes.

The number of women involved in paid employment has also increased. Twenty six per cent of women who were interviewed mentioned that they work at more than one job. Four women stated that they processed cassava for sale during the cassava season (May and June). To process this food is time consuming, as it needs about twelve hours from preparation until the food is cooked. In addition selling the food required two and a half hours. The preparation started about 11 a.m. and lasted until 11 p.m. This preparation includes collecting banana

leaves and fuel wood from the forest. This food requires around six to seven hours cooking depending on the quality of the fuel wood.

The comparison between women heads of households and women who still stay with their husbands reveals that the involvement in Paid employment is different. The percentage of women heads of households who are involved in paid employment is higher than those whose husbands are still present, 63 per cent and 46 per cent respectively. This is associated with the irregular remittances once every four or six months such women received from their husbands in Malaysia. The women also stated that they could not freely spend the remittances from their husbands. Only 40 female respondents used the remittances to meet daily needs. The rest saved the money to buy a cow or to repair the house and to give a part of the money to their mothers in law. Therefore, women who are left temporarily by their husbands have a responsibility to support their families.

My in-depth interviews with a woman who lost her husband reveals that she works very hard on the farm and work for wages to support her five children. The remittances from her husband have been saved to buy a cow and to repair the house. She said that she only used a part of the remittance as capital to set up a small business. Every afternoon she walks around the *dusun* to buy agricultural products and every morning she sells these products in the market by a truck. Five years ago, when her husband is still at home, she did not work for wages. She worked on the farm and in the forest together with her husband. She emphasised that 'the money that I receive from my husband can improve my

household economy because I also work harder than I used to but I am proud of it'.

The larger number of women de facto heads of household who are engaged in employment for wages feel more free to choose what they want to do. They appear to be more independent than those who still stay with their husbands. Three women informants who sought to employ labour stated that it is easier to offer jobs to women when their husbands are not at home. They can work continuously without any disturbance from their husbands.

5.5.2 The Present Role of Men and Women in Domestic Activities

This section discusses the changes to women and men's workloads with respect to domestic tasks which have been affected by the degradation of the forests. The discussion of the changes will be presented through consideration of the time those women and men spend on various activities.

5.5.2.1 The Role of Women in Domestic Activities at Present

Several studies reveal that the degradation of the forest has led to an increase in women's work (Sandhya 1996; Sayo 1994; Dankelman and Davidson 1988). This study found similar results. The degradation of the forests has impacted on women's workload both directly and indirectly. The indirect effect relates to the absence of men from the households because of migration or gathering forest products (an activity that now needs more time). The absence of men has increased the

women's share of household chores. The direct effect relates to the decrease in the availability of forest products. This is particularly pertinent because most women in this *dusun* have a high dependence on forest products. The decreased availability of forest products such as food and fuel wood has increased women's workload to search for products to meet household's needs.

The involvement of women in domestic chores, both five years ago and at present, can be seen in Table 5.8 This table shows that the participation of women in domestic chores has not changed. All female respondents who were interviewed were involved in every type of household chore, both five years ago and at present. This reflects the point that household work is mostly the responsibility of women. The difference between those two periods relates to the increase in time needed to do this task. All respondents mentioned that their workload in every type of household task has increased except in collecting water.

As mentioned previously, the availability of water in this *dusun* is limited. Tap water is only available in certain locations. However, at present collecting water is much easier than it was five years ago. Table 5. 11 shows that the involvement of women in collecting water has remained unchanged. All women who were surveyed were involved in fetching water five years ago and also still are at present. The data suggests that the change between those two periods relate mostly to time allocation. At present, the amount of time women spend to collect water has decreased compared to five years ago, from two and a half hours to two hours a day.

The reduction in time needed to collect water does not mean that the labour contribution of women to collect water also decreased – in fact it increased. Five years ago women collected water three times a day on average. Their efforts contributed about 40 per cent of the water requirements of the households. At present this figure has increased to four times a day, where they provide about 50 per cent of the household' water. Women who were interviewed mentioned that a part of this increase was connected to the decreased contribution of men in collecting water also because there is an increased need for water. At present many households in this *dusun* (about 50 per cent) have toilets which need substantial quantities of water. The reduction of the male contribution in collecting water has also led to an increase in the contribution of children, especially daughters, in this task. This contribution of children accounted for more than one third of the water needed in the household.

There are also differences in the time needed to collect water between women with their husband at home as opposed to those without. Women who are de facto heads of household collected water on average four and a half times a day, while women whose husbands have remained in the *dusun* collect water less than four times a day. This is because women who are de facto heads of households also have responsibility to take care of their cows, which also need water.

This table also shows that all women who were surveyed were involved in collecting fuel wood both five years ago and at present. The involvement of women in this task has not changed in the past five years.

This is because fuel wood has been an essential source of energy for all households in this *dusun*. The dependence of households on biomass such as wood and crop residues is high. At present all households in this *dusun* still use biomass for energy. This is also a common phenomenon in other third world countries (Jacobson 1992).

All women who were surveyed mentioned that there has been a change in the time needed to collect fuel wood for household needs. This is because at present most women tend to collect fuel wood from their agricultural land. Only about 23 per cent of women still collect fuel wood from the forest for household needs. The availability of fuel wood on their agricultural land is limited, and therefore they had to collect fuel wood more frequently. Five years ago, the frequency of women collecting fuel wood was twice a week. At present they collect wood about three or four times a week.

At present most households do not store fuel wood. This is because the fuel wood availability has decreased. Informants mentioned that five years ago most households stored up fuel wood in their houses, usually in the kitchen above the fireplace. This helped to dry the fuel wood very fast. At present the fuel wood that is collected one day will be burned the same day. My observation reveals that some women actually burned their house fences when they did not have enough fuel wood for cooking.

It was mentioned before that 66 per cent of households had children under five years of age. Such children are still not able to take care of themselves. Therefore the family members, especially the mother,

had to care for the children. All female respondents mentioned that they had a responsibility to do this task. During my year in this *dusun* I saw many women carrying their children while working on their farms, or collecting water or preparing food. The children were not carried by their

Table 5. 11 The Involvement of Women in Household Tasks, Present Situation and Five years, Sempur 1996

Type of Activity	Present		Five years ago	
	N	%	N	%
Collecting water				
Yes	75	100	75	100
No				
Fuel wood collection				
Yes	75	100	75	100
No				
Food Preparation				
Yes	75	100	75	100
No				
Washing clothes				
Yes	75	100	75	100
No				
Cleaning House				
Yes	75	100	75	100
No				
Child care				
Yes	53	100	51	100
No				

Source: Survey data, Sempur 1996

mothers when their mothers went to the forest. It was too risky to bring children to the forest, as the forest was far away and the terrain was rugged. The children usually were left with their grandmother who lived close to their house or with a neighbour. Women who have daughters more than five years old have an easier time. Daughters can help their mothers to take care of younger brothers or sisters. Few men now look

after their little children. Sometimes I saw men carrying their children around their houses in the morning.

Table 5.11 also shows that the involvement of women in food preparation has not changed. All women mentioned that they prepared food both five years ago and at present. The difference between the two periods relates to the overall increased women's workloads. The increased time needed for food preparation is influenced by two factors. The direct factor is the decreasing availability of fuel wood. This means that they have to use low quality fuel such as coconut fibre that adds to the time spent cooking.

Most households in this *dusun* cook food only once a day and this habit has not changed for many years. They cook rice and side dishes, which are mostly vegetables with coconut milk. Besides this they also make *sambal* (a side dish that consists of chili, tomato, fish paste and salt). If they do not have vegetables they only eat rice and *sambal*. In order to cook these kinds of food about two hours is needed for preparation and cooking. This food is eaten twice a day, at about eleven in the morning and five to six in the evening. In the evening, they usually only heat up the meal. At present, they often do not heat up this meal in order to save on fuel wood. When I lived in this *dusun* I often ate cold meals in the evening. In the morning they mostly only boiled drinking water for coffee.

Time spent by women on domestic tasks has increased dramatically in the past five years (Table 5.12). There are differences in the time allocated to domestic work between women who have children

under 5 years old and women without children under five years old. At present the average spent (by women who have children under 5 years old) on domestic tasks is about 108.9 hours a week compared to 90.7 hours a week five years ago. While women who do not have children under five years old, the total hours spent on domestic chores has increase slightly from 54.2 to 57.7.

Table 5.12 Women Time Allocated to Domestic Task a Week, Sempur, 1996 (in hour)

Type of work	Five years ago	At present
Care of Children	36.5	51.2
Fetching water	17.5	13.9
Fuel wood Collection	4.2	8.7
Food Preparation	12.6	14.4
Shopping	8.0	7.3
Laundry	5.7	5.1
House cleaning	6.2	8.3

Note: child care was undertaken coincidentally with other tasks.

Source: Survey data, Sempur 1996

In addition, women who left their husbands do not stop working from the time they wake up in the morning (at five o'clock) until they sleep at night (at 9 p.m.), and this is especially true for those who have children under five years of age.

5.5.2.2. The Roles of men in Domestic Activities

In many societies domestic activities including food preparation and fetching water are mostly done by women (Momsen 1996). However, in the Lombok study the data that was presented in the previous chapter suggest that the contribution of men in this society to domestic activities has been quite large, especially house repairing, childcare, fuel wood

collection and fetching water. However, the involvement of men has changed. In the contemporary situation, the degradation of the forest in *dusun* Sempur and other social changes have led to a decrease in the involvement of men in domestic chores. These changes can be seen in Table 5.13.

Table 5.13 The Comparison of Men's Contribution to Household Activities At Present Situation and Five Years Ago, Sempur 1996

Activity	Five years ago		Present Situation	
	N	%	N	%
Fetching water				
Yes	45	80	25	44
No	11	20	31	56
Food Preparation				
Yes	31	56	12	22
No	25	44	42	78
Child Care				
Yes	43	100	30	73
No	-	5	11	27
Washing clothes				
Yes	21	44	11	20
No	30	56	43	80
House cleaning				
Yes	47	87	33	61
No	7	13	21	39
House Repairing				
Yes	56	100	50	93
No	-		4	7
Collecting firewood				
Yes	53	94	53	94
No	3	6	5	9

Source: Survey data, Sempur 1996

Table 5.13 shows that, in general, the involvement of men in domestic activities has decreased between 1991-1996. It is only stable in the area of house repair. The proportion of male respondents who were involved in this task has remained high both five years ago and at

present. House repair is still perceived locally as being a male task and it may be that men continue to be involved because house repair is only needed occasionally and is therefore not time consuming.

Fetching water is an important domestic task in this *dusun* since water resources are limited. At present, the involvement of men in collecting water has declined from 80 to 44 per cent. The reason for this decrease mentioned by most of the male respondents is because of the greater time needed to gather forest products. In addition, the decrease is also influenced by the change in accessibility of the water source. The establishment of tap water in several locations of *dusun* Sempur has meant that residents no longer had to collect spring water. Generally speaking, collecting water is easier than five years ago. Male informants also mentioned that collecting water does not require too much energy. Therefore, women can perform this task. My observations revealed that adult males who went to the water tap only washed there. Some of them also washed their clothes. It was very rare to see adult men carrying water to their homes. When it did occur, adult men who lived close to the location of the water tap did it.

The decline of men's involvement in water gathering is clear in quantitative terms. Five years ago, on average, men fetched water 2.6 times a day and spent about 2.3 hours a day at the task. On average they contributed about 30 per cent of the water that was needed by their households. At present the average is only 1.5 times, and about half an hour a day. The contribution to household's water needs is less than 20 per cent.

Food preparations including cooking and washing dishes are domestic chores in which men have little involvement (Momsen 1996). Table 5.13 shows that the contribution of male respondents in preparing food was lowest both five years ago and today and has decreased from 56 per cent to 22 per cent. At present the involvement of male respondents in food preparation is limited to boiling drinking water in the morning. Only three male respondents mentioned that sometimes they also cook. The decreasing contribution in food preparation generally is related to the increased number of men going to more distant parts of the forest. Three informants explained that they used to boil drinking water in the evening. However, at present, they must carry timber from the forest to their homes in the evening. This is a strategy used to avoid the forestry police.

Another domestic task in which men participate is childcare. In this study questions relating to childcare were limited to households which had children under five years of age. This is because these children still need adult supervision. Children who are older than five years can usually already take care of themselves. It can be seen in Table 5. 13 that the participation of men in childcare is still quite high compared to other types of domestic activities both five years ago and at present. However, the contribution of men to this task has decreased. This decrease is influenced by the increased separation of men and women into different spheres of economic activity. In the past, men and women went to the forest and fields together, and brought their children with them. Both men and women could supervise their children together. At

present, men and women go to the forest and fields separately. Therefore, childcare is left to the women. Several male informants mentioned that they never take children under five years old to the forest or fields without their spouses.

Table 5.13 also shows that the involvement of men in collecting fuel wood for domestic use has remained stable. Male informants mentioned however, that more time is needed to collect this wood than previously, because of the need to visit different locations. Five years ago they could collect fuel wood from the forest nearby, or on their agricultural land. They could also collect fuel wood for household needs from their neighbour's gardens without obtaining any prior permission. At present men in this *dusun* mostly collect fuel wood from the forest that is relatively far from their houses. The availability of wood in the nearby forest and agricultural land has decreased. In addition, they can no longer collect fuel wood from their neighbour's gardens without permission. This phenomenon has also been experienced in the Mbere Division of Kenya. The privatisation of land has led people to live individually. People had to have permission to collect fuel wood from their neighbour's land. (Brokensha and Riley 1988).

In order to save time in collecting fuel wood, most male respondents have reduced their frequency of gathering fuel wood. At present, men collect fuel wood for domestic use only once a week. This figure has decreased compared to five years ago, when it was three times a week. Their behaviour here is different from that of women, who must collect fuel wood from an agricultural area (see p. 160).

It was noted earlier that, in total, the contribution of men five years ago to domestic activities was 42 hours per week. This has now decreased to an average of 33 hours a week. The most substantial decrease has been in collecting water and childcare. This change is due to the fact that men have had to increase their hours of involvement in productive activities especially in gathering forest products and this has resulted in reduced hours in household activities.

5.5.3. The Present Roles of Men and Women in the Community

It was noted earlier that formerly Sempur residents had a traditional role in their community that is called *betulung* or shared labour. The traditional *betulung* that was performed by both men and women especially related to work on the farm and in house building has been eroded but the *betulung* system in holding parties is in some cases still apparent.

Recently, both men and women in this *dusun* have been given additional roles in the community. These additional roles resulted from the establishment of several programs by the government in this *dusun* including LKMD (rural development institution), PKK, and *Posyandu*. These programs are not new in other areas. The LKMD is an institution that relates to political orientation. Its function includes planning for development at the village level. All members of this institution are men. This reflects that women do not have power in decision-making at the village level.

In addition, some women have recently become (in the beginning of 1996) involved in the *PKK* (applied family welfare) and *Posyandu* programs. Government constructs these programs only for women in order to increase their status. Although all women who are married are recommended to be involved in this organisation some do not want to be involved. Only 57 per cent of the female respondents are involved in the *PKK*. Most of the members of the *PKK* are younger mothers who are literate. Once a month these women have a meeting, which mostly discusses the role of women within the household. They try to understand the nutrient content of food, to improve their skill in carrying out domestic tasks and bringing up the children and to manage the expenditure of the household effectively and efficiently. According to older women this program is not useful for them. Some women state that this program is only an additional burden since they also should provide some money to run the program. In addition, they also mentioned that their role in the household is not only carrying out domestic tasks. This is similar to Sullivan's (1994) analysis that this program does not recognize the double role played by women especially in rural areas. They have a role both in productive as well as domestic tasks. The *PKK* program does not relate to women's productive activities such as to develop small-scale industries.

The *posyandu* is a basic community health program that is established by government and is managed by women volunteers. In this *dusun* the activities of the program include weighing children under 5 years old and pregnant women and advice to women on how to maintain

a healthy family life especially for the baby. This program is supposed to be conducted once a month, when the village is visited by a midwife who would assist in vaccinating babies and pregnant women. The tasks of volunteer women include giving information to women who have children under five years old and pregnant women regarding when and where the program would be held. In addition, they also prepare and cook healthy food that would be distributed to the babies who attend the program. However, the program did not run smoothly. Almost all women who were involved in maintaining the program complained that it not only put a burden on women but also influenced the relations between men and women. In the past men also were involved in caring for the children when their children became ill. They brought the children to the traditional midwife together. However, at present the involvement of men in the health of their children is very limited. The *posyandu* program only involving women has led to a decrease in the role of men in taking care of their children when they are sick. Some male informants said that they were ashamed to bring their children to the *posyandu* because women dominate it. Several women suggested that men should become involved in this program so that both can share this task. In addition, many women are now working hard so it is difficult to get volunteers for the program. The government indicates that the involvement of women in caring for the health of the community is perceived as the integration of women into development. However, for women in this *dusun* this program will result in a reduction of the responsibility of men in caring for the children.

5.6 Conclusion

This chapter has discussed the changing role of men and women in both productive and reproductive activities as a result of the degradation of the forest as the main source of income and other socio-economic change. It also examines the different impacts of this degradation upon men and women.

The study found that at present men tend to concentrate on work that directly creates money such as migrating and collecting forest products to be sold. Women concentrate on work that relates to family survival such as taking care of their farm and tree planting around the home as well domestic work. Traditionally both men and women shared in gathering forest products, working on a farm as well as carrying out domestic activity.

In addition, the impact of forest degradation is not uniform between men and women of different economic status. It has had a larger impact on both women and men from poor families than on those who are wealthy or people with power. Men who are from poor families have little access to forest products. Some women who are from relatively better off families have the opportunity to withdraw from gathering forest products because they do not want to walk long distances. Poor women are compelled to continue to gather forest products to meet the needs of their families

CHAPTER SIX

THE ROLE OF MEN AND WOMEN OF TIMBENUH

6.1 Introduction

This study analyses changes in gender roles under the impact of forest degradation through a comparison of living strategies of people in an area that has experienced substantial forest degradation (Sempur) and an area with low levels of such degradation. This second, relatively undegraded environment will now be investigated in the *dusun* of Timbenuh.

The chapter begins by examining the major characteristics of the study area, followed by a consideration of the characteristics of individuals and households in the sample interviewed. The third section examines the living strategies of both men and women. It includes an examination of productive and domestic activities.

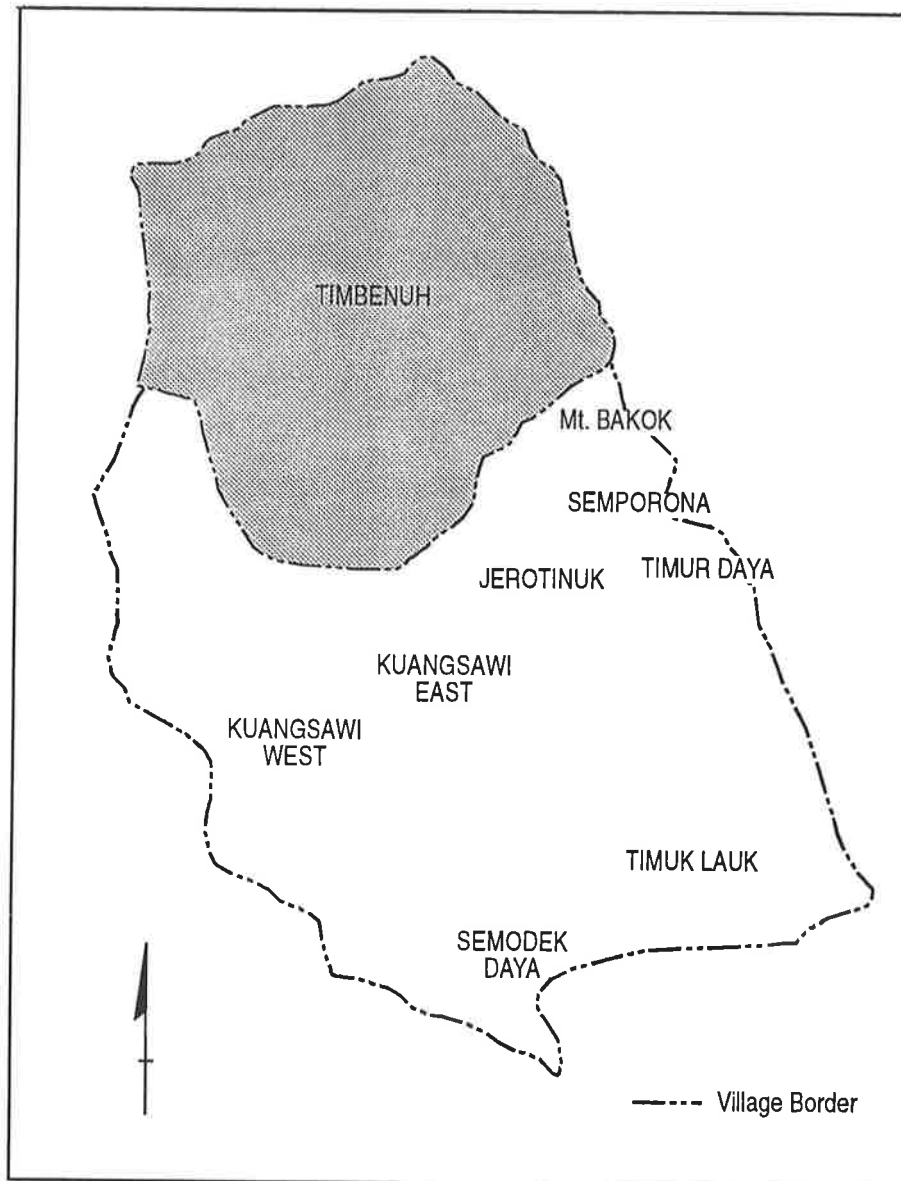
6.2 The Study Area

6.2.1 Location, Size and Population

Timbenuh is one of eight *dusun* in Pengadangan village, Masbagik subdistrict, East Lombok, West Nusa Tenggara province. Pengadangan village lies at the southern end of Mount Rinjani at 600 to 800 metres above sea level (see Fig 6.1). *Dusun* Timbenuh lies in the northern part of the village at 700 to 800 meters above sea level. This *dusun* is directly bordered by state forest. It comprises 700 hectares and is the largest section of this village. The total population, based on the registration system of the *dusun* in 1996 was 2413

persons or about 490 households. This is the second largest population in the village of Pengadangan.

Figure 6.1 Map of Pengadangan Village Showing Location of Dusun Timbenuh
Source: Kantor Desa Pengadangan 1996 p.3



The distance from this *dusun* to the centre of the village is about nine kilometres. The road that links it to the outside world was built during the colonial era in 1931. However, the condition of the road used to be very poor and there

was no public transportation. People who wanted to leave the *dusun* had to walk. This road was improved and made permanent, (asphalted) in 1981. Therefore the public transport which now enters this *dusun* includes minibuses, trucks and *ojek*. These forms of transportation can be used every day, especially in the morning. In the afternoon public transportation is very rare. The cost of transport is still relatively expensive for ordinary people. As with Sempur residents, people rarely leave Timbenuh except to go to market.

6.2.2 Infrastructure

The infrastructure that is provided in this *dusun* includes clean water, a primary school and electricity. Residents have enjoyed clean water since 1985 and tap water is available in several locations, the establishment of which was supported by a Non Government Organisation (Care Australia). At present some Timbenuh residents (about five per cent of households), especially the rich have an opportunity to pipe clean water to their houses. However, poor people still have to get their water directly from the public tap.

The educational infrastructure that is provided in this *dusun* consists of one primary school, built in 1979 that is located close to the main street. Children who attend have to walk between ten minutes and one hour to reach the school. The teaching in the primary school in this *dusun* is relatively ineffective. My observation revealed that many students, especially those from poor families, do not go to school during the busy times. They help their parents in the fields in the operation of land preparation and planting. This happens at the beginning of the rainy season, usually between October and November every year. In addition, during the coffee harvest season (between June and August) they often pick

coffee and have to earn money. The school head stated that at busy times, only about half of the total students attended school.

A secondary school is located in the centre of the village. Children who continue with their education usually stay in the centre because there is no regular public transportation that can bring them to the central village from the *dusun*. The cost is however relatively high, so that only the children of the better off continue their studies. Generally parents entrust their children to relatives or friends who live close to the secondary school. Food is sent by their parents. Children from poor families must be satisfied with education only to the end of primary school, because their parents are not able to pay for them to go further.

Electricity is also provided in the *dusun* that was connected to the power grid only in the middle of 1996 when fieldwork was being undertaken. However, the electricity is not distributed evenly. Only about 5 per cent of households, namely the better off families that live close to the main street, have electricity. Poor people do not have electricity because of its relatively high cost. In addition, people who live relatively far from the main street still do not have access to electricity. Generally, electrical power in this *dusun* is only used for lighting or powering radios or televisions.

As is the case in *dusun* Sempur, wood is still an important energy source for cooking for Timbenuh residents, but in contrast to Sempur it was still easy to find in this *dusun*. People who do not have land still can get firewood from their neighbour's land without any permission. Most of the households store away fuel wood equivalent to at least a week's needs.

Similar to Sempur residents, Timbenuh people also use the radio as an important source of information and entertainment. According to the leader of this

dusun about 30 per cent of households have radios. My observation was that people who do not have radios usually listen to radios in other households. It was very common to see people listening to radios together outside their homes.

Another source of information and entertainment that is provided in this *dusun* is television. This is only owned however by about 3 per cent of households, mostly those living close to the main street, because of the need to access electrical power. People who do not have television watch the televisions of others. Indeed, people may walk about one or two kilometres to watch television. Newspapers, news magazines and other sources of written information were very difficult to find. Therefore, people in this *dusun* rarely read.

Health facilities are only found in the center of the village but many people still do not use modern health facilities. As with Sempur residents, people in this *dusun* mostly use *belian sasak* and other traditional medicines to take care of their health. The materials to make these traditional remedies mostly come from the forest, and consist of many kinds of tree, bush and tuber. Fieldnotes indicated that some better-off families used *belian sasak* and traditional medicine for first aid but would go to the public health center if they did not get better.

The modern health service that is provided in this *dusun* consists of a monthly visiting nurse who mainly provided immunisations for pregnant women and children under five years old, together with family planning services.

6.2.3 Local Economy

The economy of this *dusun* is dominated by the agricultural sector. There are no recorded data regarding the types of economic activities of people in this *dusun*. The data about the economic activities of Timbenuh residents are based

on interviews with the leader of the *dusun* who indicated that the majority of people work as farmers and forest gatherers. In addition, some Timbenuh residents also work for wages as agricultural labourers and run small businesses. Only two persons were employed as government officials (teachers). Timbenuh residents who work as agricultural wage labourers usually come from households who do not have agricultural land.

The pattern of agricultural land use in Timbenuh is similar to that of Sempur. It reflects the *tumpang sari* system (a mixture between trees and food crops). The differences in agricultural land use between the two *dusun* relate to the type of trees that cover their land. The trees in Timbenuh are mostly coffee, and fruit such as avocado, *durian*, and jackfruit (see Plate 6.1). Food crops, including rice and vegetables will be planted under the trees in the rainy season. Rice is grown in both *dusun* for local consumption. In addition, they also plant food crops around their houses such as banana, yam and cassava.

In addition to working on their own agricultural land most Timbenuh residents are also involved in the *tumpang sari* programme that was run by government. It was noted in Chapter 4 that this *tumpang sari* programme aimed at reforestation and every household could participate in this programme. They had the opportunity to work on 0.25 hectares of state land. Several households, especially rich families can get more than 0.25 hectares on which they plant vegetables, including onion, garlic, bean, kidney bean, spring onion, rice, chili, and tomatoes. About 15 per cent of the households were not involved in this program. This was because the land was quite far from their houses. In addition, some of them also mentioned that they did not have the capital to plant crops on the land because they could not buy seed and fertiliser. They were worried that

the resulting products would not be balanced against the capital that would be spent.

Plate 6.1 Type of Agricultural Land in Timbenuh



This *dusun* is well known in East Lombok as a coffee and tropical fruit producer (including avocados and bananas). Coffee and fruit are the main sources of income for residents. The substantial volume of agricultural products has been attracting traders from outside. Since 1981, coinciding with the improvement in public transportation, traders from outside have visited in order to buy agricultural products. Some of the traders bought their agricultural products with the *ngijon* system (the system of buying agricultural products when they have not yet been harvested, thereby giving growers money before the harvest).

Recently, however, the number of traders who visit this *dusun* has decreased. People have started to sell their agricultural and forest products directly to the market or to local traders in the *dusun*.

Timbenuh residents especially men, who do not own small coffee holdings, have an opportunity to work as coffee pickers. As a coffee picker they could receive 6000-8000 rupiahs (US\$ 2.50 - 3.00 in 1996) a day. This amount of money is quite large for people in the *dusun*, with it they could buy between 7 and 10 kilogram of rice. Women and children especially those from poor families, pick coffee beans that have fallen on the ground (as they generally do not pick coffee from the trees). On average they pick between one and two kilograms a day which gives them 1500 to 3000 rupiahs.

Coffee is harvested between June and August, a busy time for people in this *dusun*, as many people have an opportunity to earn money. Children spend their money on clothes as well as on books and pencils for their studies. A part of the money is also given to their mothers.

In addition to coffee and tropical fruits, this *dusun* is also known as a source of fuel wood. This firewood is derived from their own agricultural land as well as from the state forest. Almost every day several trucks transport firewood to outside areas. Several local firewood traders who were interviewed mentioned that they sent this firewood to neighbouring villages. One of them indicated that he sold the firewood outside of the subdistrict.

The market is the centre of economic activities for people in this *dusun*. Most people use the market for selling their agricultural and forest products. They also bought their daily provisions there. The weekly market that is usually visited by most people in the *dusun* is located in the capital of the subdistrict and is about

12 kilometres away. People spent 2000 rupiah to take an *ojek* or 800 rupiah for a truck ride. This cost is relatively high for them. Therefore, most Timbenuh residents, especially women, would go to the market to sell their agricultural products only once a week, usually on Monday. This day is the big market in this subdistrict (in the local language it is called *pekenan*).

Some Timbenuh residents do not go to the market to sell their agricultural and forest products but sell to traders who come to their houses. Timbenuh residents also can buy their everyday needs locally where there are thirteen small shops that mostly provided cigarettes, snacks, vegetables, soaps and school supplies.

Similar to North Aikmel village, Pengadangan village is also classified as “poor” (*desa miskin*). However, this *dusun* does not appear too poor, since the land is fertile and many kinds of trees can grow easily. The problem is the uneven distribution of wealth. Some people own more than seven hectares of land but others are landless. The difference with *dusun* Sempur is that this *dusun* does not receive as much support from the government as does Sempur.

6.2.4 Settlement Patterns

Settlement is scattered in this *dusun*. About 70 per cent of Timbenuh residents still live in the middle of their gardens. Recently, about 10 per cent of them have established a new settlement that is near to, and parallel to the main street that provides easy access to public transportation. Another 20 per cent of Timbenuh residents have established a new settlement grouping of fifteen households. However, this settlement is far from public transport and people have to walk between 25 to 45 minutes to catch public transportation.

Plate 6.2 Type of Settlement of Timbenuh Residents who stay Far from the Main Road



Unlike Sempur residents, who received a contribution from the government to establish their new settlement, Timbenuh residents established the new settlement by themselves. The reason they chose to live in a group was because they were encouraged to do so by the government, so that they could provide the residents with information more readily. Another reason to establish a new settlement relates to security. Recently there has been an increase of crime in this *dusun*. Some residents believe that if they lived in a group they could reduce their susceptibility to crime.

The houses of people who live far from the street and who stay in the middle of their gardens are still simple. About 50 per cent of families live in a small house with a roof made of *alang-alang*, walls of bamboo and with an earthen floor. These houses also have limited ventilation (see plate 6.2). A few live on

platforms (*rumah panggung*) with walls of bamboo, a roof made from *alang-alang* and a wooden floor.

6.2.5 Customs

It was mentioned previously that Sempur and Timbenuh have similar customs. Timbenuh residents like those of Sempur are not divided by class (like a caste system) which is found in other Lombok villages (Judd 1979). They have similar status in their social relations.

As in *dusun* Sempur, planting trees is exclusively a male task. Several men and women informants mentioned that planting trees is prohibited for women, since the land is mostly owned by men. However, some women mentioned that they are allowed to plant trees on their own land. This custom is also found in several African countries (Kelkar and Nathan 1991; Chavangi *et al.* 1988). Women are only involved in planting food and secondary crops.

Timbenuh residents have a habit, inherited from their ancestors of having gardens always full of trees. They must plant a young tree for every tree that is cut. The survey indicated that 91 per cent of householders still continue to follow this custom. Only 9 per cent of respondents mentioned that they have cut down trees without replacing them because the land would be used to build new houses for their sons.

As noted earlier, the habit of Sempur residents to plant a young tree for every tree that is cut has eroded. Only a few Sempur residents, and generally the older ones, still keep to this habit. This is related to the agricultural development of this *dusun*. A greater proportion of Sempur land is becoming *ladang* for planting food crops including rice, corn and cereal wheat. Fewer trees are planted to avoid

interfering with these crops. During my year in this *dusun* I saw many Sempur residents cut down large trees (such as candle nut and jackfruit). Two of the Sempur residents mentioned that they cut down such trees because they disturbed the growth of their food crops.

At present the different habits of Timbenuh and Sempur residents are also influenced by government officials involved in the development of these two *dusun*. The development of *dusun* Sempur focuses on food crops such as rice, soybeans and corn (which is supervised by officials from the agriculture ministry (*Dinas Pertanian*)). The government supports this *dusun* by providing seeds of high yielding varieties of rice, and corn and also soybeans. However, this support was not distributed evenly. By contrast, the development of Timbenuh is supervised by plantation officials (*Dinas Perkebunan*). It received support from the government to replace old coffee trees with new ones and also to plant vanilla.

In order to maintain the fertility of the land Timbenuh residents use a terracing system. This system is still simple, mainly consisting of stones piled up along the contour to reduce erosion. According to informants this practice has occurred since the time of their grandparents. One informant mentioned that when he inherited the land from his parents it was already terraced. He still remembers that his parents worked hard to build the terrace, collecting stones and piling them up, a job they did every day for a long time.

6.3 Characteristics of Respondents

The theoretical framework showed that the economic status of respondents and their household structure might also influence the living strategies of both men and women to sustain their families. The characteristics of respondents that

will be described in this section include individuals and their households. Individual characteristics include age, marital status and level of education. Household background includes economic status and size.

6.3.1 Individual Characteristics

The characteristics of respondents can be seen in Table 6.1. This table shows that the age distribution of female and male respondents ranged from 20 to 69 years. The age of most female respondents was under 50 years namely 84 per cent, while most male respondents were under 60 years old.

Table 6.1: Age and Educational Attainments of Female and Male Respondents, Timbenuh, 1996

Characteristics	Female		Male	
	N	%	N	%
Age				
20-29	21	28	11	17
30-39	27	36	22	33
40-49	15	20	13	20
50-59	9	12	14	21
60-69	3	4	6	9
Educational Attainment				
Never Attended School	36	48	30	46
Did not finish Primary School	9	11	5	8
Finished Primary School	26	35	27	40
Junior High School and above	4	6	4	6
Total Respondents (N)	75	100	66	100

Source: Survey data 1996

The educational attainment of both female and male respondents is low. However, the level of female education is slightly lower than that of males. It can be seen in Table 6.1 that about 48 per cent of females and 46 per cent of male respondents never attended school. This level of education is lower than that for

West Nusa Tenggara as a whole. The proportion of population ten years old and above who never attended school was about 23.6 per cent (BPS 1996c). In addition, both male and female respondents who were in secondary school were only 7 per cent and 6 per cent, respectively. One male respondent had finished senior high school.

6.3.2 Household Characteristics

The economic status of respondents is reflected in land ownership since most Timbenuh residents are farmers. Table 6.2 shows that the size of land owned by the household sample varies. Twenty-six per cent of households have between 100 and 1000 square metres of land. These respondents generally only own land of about 200 square metres. Only one household owned 900 square metres.

Table 6.2: Characteristics of the Respondents' Household, Timbenuh, 1996

Characteristics	N	%
Land ownership (sq metres)		
<1000	19	26
1000-2499	3	4
2500-4999	6	8
5000-10000	25	33
>10000	22	29
The number of household member		
1-2	7	9
3-4	35	47
5-6	23	31
>6	10	13
N (total household)	75	100

Source: Survey data 1996:

The land is only used for houses and yards. They do not have any land for farming. These households are identified as “poor”. Households that own land between 5000 and 10000 square metres totalled 33 per cent. According to several informants these households should be included in the “enough” category (the production from this land can cover their basic needs). Households that have more than one hectare of land total 29 per cent. These households are usually seen as being better off.

The number of household members may influence people’s survival strategies. Most of the households in this *dusun* consist of a nuclear family. This means that the household is mostly comprised of a father (head of household), mother and the children. It was very rare to find households that include an extended family. This only happened when the grandparents were very old and sick. However, the houses of relatives are usually close to each other.

Table 6.2 shows that most households consist of 3 or 4 members (47 per cent). Few households contain 1 and 2 persons or above 6 persons, namely 9 and 13 per cent respectively. This size of household is slightly higher than those of Indonesia as a whole. Households comprising 1-2 and 2-3 persons were 17.6 and 41.7 respectively. In addition, households consisting of 5-6 persons made up around 28 per cent. Most households are headed by males. Only 9 households or 12 per cent have a female *de facto* head of household, because their husbands have gone to Malaysia. As is the case in *dusun* Sempur these women are usually called “widow of Malaysia” (*Janda Malaysia*).

6. 4 Gender Roles in Productive and Reproductive Activities

This section discusses the role of men and women in their strategies for living in an area, which has experienced a low level of forest degradation. As with *dusun* Sempur, the understood strategy of people includes productive and reproductive activities. As mentioned in the previous chapter, productive activities include migration, gathering of forest products, farming and working for wages, while reproductive activities include domestic duties.

The result of my in depth interviews and focus group discussion reveal that the livelihoods of Timbenuh residents have been relatively stable during the last 20 years compared to those of Sempur residents. The relatively low degradation of the forest and social economic change did not much influence the livelihood of people in this dusun. Therefore, the discussion mainly focuses on the present roles of both men and women. However, it also discusses some changes to their livelihood pattern.

6. 4.1 The Role of Men and Women in Productive Activities.

6.4.1.1 Gender and Migration

Pengadangan village is also well known as a sender of outmigrants to overseas destinations. Migration is an important strategy for many people in Pengadangan village. However, there was no recorded data available regarding the number of outmigrants from the village. This is because most of the migrants left their villages illegally. The data used here is based on interviews with village officials. They indicated that more than 900 persons have migrated to Malaysia. As in Aikmel village most of them are males and come from both well off and poor families. In addition, these migrants were relatively young, under 40 years old.

Migration as a survival strategy is also used by Timbenuh residents. However, this was not overly popular, reflected by the fact that few people were leaving this *dusun*. According to the head of the *dusun* the total number of outmigrants reached no more than 90 persons or about 4 per cent of the total population in Timbenuh. This study which surveyed 75 households found that only 9 heads of households, or about 12 per cent, had left the *dusun* to search for jobs. In addition, it was reported that only 8 household members, mostly eldest sons, left the *dusun* for Malaysia. This figure placed *dusun* Timbenuh as the *dusun* within Pengadangan village with the smallest number of outmigrants. In addition, there were no female outmigrants from the *dusun*. The reason why only men migrated was revealed by my in depth interviews. As *dusun* Sempur, men in this *dusun* also are perceived to be the head of the household with the responsibility of searching for the main income. Therefore, when the income becomes insufficient, the men feel that they must go in search of alternative sources of income.

The small numbers of people who migrate from Timbenuh to search for another source of income is related to their relatively easy life compared to other *dusun* in Pengadangan. Informants mentioned that people in this *dusun* are still able to fulfil their basic needs, although they do not have any agricultural land. People in this *dusun* do not need to buy vegetables for food. Many kinds of vegetable grow there. In addition, they do not need to buy firewood for cooking. They could find vegetables and firewood on neighbours' gardens and take them without permission. They can also work as agricultural wage labourers. Informants explained the relative ease of life in this *dusun* and they gave by way of explanation an example of two households. The first example is Amaq Har and

Inaq Har, a couple with three children. They have not had any land since they married five years ago, but rather they live on their neighbour's land. Both of them work as agricultural wage labourers. The wife also worked as a trader of agricultural products. After five years they were able to buy 300 square metres of land and a cow and build a simple house. They also sent one child to study in the centre of the village. The second example is Amaq Fat and Inaq Fat, a couple who only have 2000 square metres of land and 7 children. They rarely have a problem meeting their basic needs. Their oldest children sometimes helped their parents to earn money, especially in the coffee season.

The relative ease of life of people in Timbenuh has attracted people from other villages who come to this *dusun* in search of income. Several traders from other villages have also brought their merchandise (such as fabrics, kitchenware, food) to this *dusun*. The traders mentioned that their merchandise sold out quickly in this *dusun* especially in the harvesting time. In addition, many women from other villages nearby also come to this *dusun* to collect wild vegetables that can be sold.

Although people in this *dusun* had a relatively easy life, some people decided to migrate. One informant who came from a household that had a small amount of land (200 square metres) mentioned that he went to Malaysia because he wanted to buy farmland and build a house. The *tekong* who persuaded him to go to Malaysia promised that he would earn a substantial salary in Malaysia. He thought that with the money he could build a house more quickly than if he worked in the *dusun*. Indeed, after working in Malaysia for almost three years, the remittances that he sent to his wife were enough to build a small permanent house. He indicated that he would go back to Malaysia.

The reason mentioned by a second informant was quite different. This informant came from a relatively better off household. He went to Malaysia in order to have a new experience. He observed that people who went to Malaysia came back changed. They could speak well and own relatively good clothes. This informant did not mention economic reasons for migrating.

6.4.1.2 Historical Migration

The flow of migration of Timbenuh residents started around 1983. This is similar to the people from the other *dusun* in Pengadangan village. Several *tekong* came to the *dusun* to persuade people to migrate to Malaysia. The *tekong* convinced them that they could find jobs with substantial salaries. Several people in this *dusun* were attracted to the offer of the *tekong* and they indicated a desire to migrate.

The first flow of migration involved young men of relatively low economic status. They went to Malaysia together with people from another *dusun* in Pengadangan village. They migrated to Malaysia illegally (without any documents). They paid the *tekong* between 250,000 and 300,000 rupiah (US\$150 - US\$200).

The relatively poor people who migrated to Malaysia were also influenced by the existence of moneylenders in the *dusun*. They could borrow money that would be repaid twice after they received money in Malaysia. In addition, they also sold their valuables. For example, Inaq Is (not her real name) whose husband went to Malaysia mentioned that they sold their only cow to obtain some money to finance the journey. She hoped that they could buy another cow after her husband got a job in Malaysia.

The first flow was followed by other migrants that came from relatively wealthy families and were older (aged between 30-40 years old). They were attracted to the prospect of migrating because of the success of previous outmigrants as reflected in remittances sent and also their new life style when they returned to the *dusun*.

6.4.1.3 Characteristic of Outmigrants

The characteristics of outmigrants presented in this section include both individuals and households. Individual characteristics include age and level of education while household characteristics include economic status that is reflected by land ownership and the number of household members (Table 6.3).

It was mentioned earlier that the total number of male heads of households (from a 75 household sample) who went to Malaysia was only 9 persons. This number was just one third of Sempur outmigrants. The average age of outmigrants is relatively young, namely 32 years. The educational level of people who migrate is higher than that of household heads who stay in the *dusun* (Table 6.3). Most of them finished primary school (6 persons) and two persons have finished junior high school.

In contrast to Sempur, where outmigrants mostly are from relatively wealthy families, the outmigrants from Timbenuh are mostly from poorer families. More than 66 per cent own less than 5000 square metres of land. Four of them only have 200 square metres of land, namely a house and a bit of yard. Only one person is from a household which has more than a hectare of land and one person is from a household which owns 0.75 hectare. The sizes of households of outmigrants vary. More than 50 per cent or 5 persons have between 3 and 4

household member that they left behind and the rest have between 4 and 5 persons. It is interesting to note that migrants from relatively large households have land of more than one hectare.

The length of time that outmigrants left the *dusun* varied. One person has been in Malaysia for three years, three persons about two years, three persons one year and two other persons below a year. The destination is usually West Malaysia.

Table 6.3: Comparison between the Characteristics of Male Respondents Who Migrated and did not Migrate, Timbenuh 1996

Characteristics	Migrant		Non Migrant	
	N	%	N	%
Age				
20-29	5	55	11	17
30-39	4	45	22	33
40-49	-		13	20
50-59	-		14	21
60-69	-		6	9
Educational Attainment				
Never attended school	1	11	30	46
Did not finish primary school	-	-	5	8
Finished primary school	6	67	27	40
Junior High School	2	22	4	6
Land Ownership				
<1000	4	45	15	23
1000-2499	1	11	2	3
2500-4999	1	11	5	8
5000-10000	1	11	24	36
>10000	2	22	20	30
Size of Household				
1-2	-	-	7	11
3-4	5	56	30	46
5-6	4	44	19	28
>6	-	-	10	15
N	9	100	66	100

Source: Survey data 1996

It should be reiterated that this migration is not permanent, but rather long cycle migration (Findley 1996). Outmigrants usually come back to this *dusun* after

being away between two and three years. They would return to Malaysia after visiting the family for two and three months. According to the head of the *dusun* a few male respondents in this *dusun* had migrated twice to Malaysia.

6.4.1.4 Difficulties Faced by Outmigrants

The information here relating to the difficulties that were faced by migrants in searching for jobs in Malaysia was derived from three informants who returned to Timbenuh for a visit. The difficulties mentioned by these informants were similar to those experienced by outmigrants from Sempur.

The length of time needed to reach Malaysia varied. One informant mentioned that he reached West Malaysia in 18 days. According to him he was very lucky as it usually took longer. Another informant mentioned that he reached West Malaysia and found a job there after about five months. This was because the *tekong* neglected him. The *tekong* ran away after he and many other people arrived in Bengkalis (the camp where migrants stayed before crossing to Malaysia). He stayed in this camp, with many people more than four months. He mentioned that he suffered from hunger because he only brought limited money. He also had difficulty communicating with people in Bengkalis because he could not speak *Bahasa* Indonesia. He mentioned that he wanted to come back to the *dusun* but he felt ashamed if he returned without bringing anything back because he had sold a cow to pay the cost of his voyage. In order to survive he worked as a farm labourer around the camp, and sometimes he also worked as a construction labourer. After more than four months in Bengkalis he found a new *tekong* who brought him to West Malaysia. He mentioned that many outmigrants had the same experience as he did.

The last informant mentioned that the length of time to reach Malaysia was about two months. He stayed in a camp about two months. The *tekong* did not send him to West Malaysia but rather to East Malaysia. Besides of the difficulties related to the long journey from Lombok, he also received a low salary. This is because the *tekong* broke his promise. The *tekong* convinced him that he would have a substantial salary in Malaysia but in fact he only received between 200,000 - 250,000 rupiah a month. He had to work very hard in the plantation about 8 hours a day.

6.4.1.5 Remittances

The data relating to remittances are derived from the wives that remained at home. Seven female respondents (79 per cent) whose husbands left mentioned that their husbands had sent remittances. One person had not received remittances yet. This is because her husband had just gone about two months before the interview and had not reached Malaysia yet. Another person had been in East Malaysia for about a year but had still not been able to send remittances, due to his low salary. The money varies between 300,000 - 3,000,000 rupiah, and depends on the length of time since the husband left. All female respondents mentioned that they received their first remittances after about six months.

There was a variation in the way in which female respondents used the remittances. Two female respondents mentioned that they paid off debts and also met daily needs. These respondents mentioned that their husbands borrowed money to go to Malaysia. This debt had to be repaid twice (i.e. 100 % interest). They mentioned that they still could not save the remittance although their husbands had been away for about two years. One respondent said that the

money was used for repaying the debt and also to provide capital for a small business. She said that the remittances are very useful for her and her family because she could develop a small business, therefore, she and her family could survive. In addition she mentioned that this work was not too hard compared to her former job as a forest gatherer. She remembered that every day she went to the forest along with her husband. They collected firewood and sold it at the market. Nowadays she has stopped collecting firewood from the forest. She mentioned that if her husband had not gone to Malaysia she might still have to collect firewood and could never run a small business. Two respondents used the money for buying cows and to meet daily needs and two respondents used the money to improve their houses and to meet their daily needs.

6.4.2 Gender and Forest Gathering

Similar to *dusun* Sempur, the forest surrounding *dusun* Timbenuh was proclaimed by the government as a National Park in 1992. Since then it has been protected by the forestry police. Although this regulation was announced to the people, at present most Timbenuh residents still gather forest products because the forest is a main source of livelihood for them.

This perception has existed since their *balo'* (ancestor) first settled the area. The deep perception of the forest as a source of life came out in a focus group and was stressed by an old informant in an interview. He told me that 'My grand parents, my parents and I feel close to the forest, the forest is a place to search for several materials including food, firewood and many kinds of medicine'. The forest is also a place for play. This is because in the forest there are many kinds of animals such as birds, monkeys, and also insects.'

Gathering means the collection of various kinds of forest products including hunting. At present, gathering forest products is still perceived as an important survival strategy by people in this *dusun*. However, they do not depend solely on gathering forest products. Generally speaking, forest products contribute between 20 and 70 per cent of the income of most Timbenuh residents. Poor people have a greater reliance on forest products for their living. This is because the forest has been the main source of living for them, since they do not have agricultural land. Forest products were gathered by both men and women in this society.

The data relating to the involvement of Timbenuh residents gathering forest products can be seen in Table 6.4. This table shows that both female and male respondents were involved in gathering forest products. The percentage of female respondents who gather forest products is slightly higher than those of male

Table 6.4: Type of Forest Products Gathered by Female and Male Respondents, Timbenuh, 1996

Type of forest product	Women		Men	
	N	%	N	%
Do not gather forest products	10	14	12	16
Timber	-		20	31
Firewood	34	46	29	45
Food	49	66	25	39
Tall grass (<i>alang-alang</i>)	48	65	20	31
Orchid	6	8	7	10
Grass	2	3	6	9
Rattan	-		1	2
Animal (Hunting)	-		2	3

Note: Total household interviewed 75

Total female respondents interviewed 75

Total male respondents interviewed 66

Source: Survey data 1996

respondents, namely 86 and 84 per cent, respectively. This is because of the existence of male outmigrants. Therefore, several female respondents gathered forest products without their husbands.

Respondents who did not gather forest products were mostly older people (more than 65 years old). The reason for not gathering forest products was because their children now undertake this task. In addition, respondents who already had jobs such as teachers, running small shops and traders were not involved in collecting forest products, because their work already consumed much time.

The number of women involved in gathering forest products reflects the fact that both men and women in this society have the same access to forest products and have a close relationship with the forest. The differences between them only appear in the type of forest products that are gathered. Those gathered by male respondents were more varied than those of female respondents. Male respondents collected eight types of forest products including timber, firewood, food, tall grass, other grasses, orchids, rattan and animals. Women, however, only gathered five types of forest products including food, firewood, tall grass, grass and orchids. According to male and female informants this difference on the type of forest products that they gathered relates to the capacity of women to do these tasks.

Table 6.4 shows that firewood was collected by both men and women. The percentage of women gathering firewood was similar to that of men, namely 46 and 45 per cent respectively. Men and women also collected the wood together. They usually go in the early morning, (about 7 am) and return around noon. Men

generally carry two bundles of firewood using a shoulder pole while women carry one bundle of firewood on their heads.

All respondents who collected firewood from the forest, reported selling their product. About 65 per cent of them sold this firewood at the market every week, a task usually done by women. Men usually only helped to carry the firewood from house to the vehicle. One bundle of firewood was sold for between Rp750-1000 (\$ US 33 - 44 cents). This is different to the perception of some eco-feminist scholars that claim it is only men who collect forest products for sale (Shiva, 1988). The difference between men and women only appear in the amount of fuel wood they gathered due to physical constraints as women, on average, tend to be weaker than men, therefore unable to carry as much.

A few respondents sold the firewood to the wood trader in this *dusun*. This was relatively easy since they did not have to be concerned with transporting the wood. In addition, they could borrow money from the wood trader and repay it with firewood. This task was undertaken by both men and women. The price of firewood in this *dusun* was between 600 and 750 rupiah.

Respondents who collect firewood mostly come from households that have limited agricultural land (< 1000 square metres). Their households mostly depend on forest gathering and farm wage labour. Both men and women informants in this category mentioned that they work hard to fulfil their family needs. However, they still feel happy because they have a source of income:

Men and women appear to have similar attitudes with respect to use of the forest. My observations suggest that both men and women cut down trees in the process of collecting firewood. This attitude is influenced by the increased demands for fuel wood. They did not only collect dead wood, because such wood

is not good quality and it will command a low price at the market. This data contrasts with what was found in Sempur because women in Sempur mostly collected firewood for domestic use only.

The trees that are cut down are not directly brought home but rather are left to dry. After the trees have dried then they are chopped into pieces and transported home. The reason to bring dry wood is that it is easier to carry. In addition, it is done to avoid the forestry police, since they usually will allow people to bring dry wood from the forest.

Table 6.4 shows that collecting timber was only done by men. According to male informants this relates to the difficulty of this task. It was necessary to walk far into the forest. In addition, the position of the tree that would be cut often lay in difficult terrain. Female informants said that the tools used by women are not appropriate to perform that task.

The proportion of male respondents who were involved in collecting timber was 41 per cent. The timber collected was not only used for domestic needs but also sold. Informants mentioned that on average they sold 4 pieces a timber per week (the size 20 cmx10 cmx2m) with the price about Rp 4000 a piece. They usually sold these logs to the trader who came to the *dusun*. In addition, informants also mentioned that formerly people from relatively poor households carried out this task. Recently, however, this task has also been undertaken by people from relatively wealthy families. The increasing demand for timber has been followed by an increase in its value. Therefore, people from relatively wealthy families are also interested in gathering timber.

Collecting food was also done by both men and women. This task was mostly conducted in the rainy season. The type of food that they gathered was

mostly vegetables and fungi. The involvement of women in collecting food was higher than for men, 66 per cent and 39 per cent respectively. This finding supports the study that was conducted in several villages of Lombok in 1971. A high proportion of women tended to collect food in those villages that had experienced minor forest degradation (Departemen Pendidikan dan Kebudayaan 1978).

Few people hunt, because hunting in the forest is prohibited and penalties for doing so are severe. Nowadays hunting is only done for recreation. Those who hunt usually do so only once a month. Formerly, about 15 per cent of male respondents mentioned that they often hunted deer but only for family consumption. The collection of tall grass (*alang-alang*) was performed by women and men. However, the percentage of men who were involved in collecting tall grass is smaller than that for women, namely 31 per cent and 65 per cent respectively. Tall grass generally was only used for domestic needs (for roofing the house and cow pens). It is interesting that in Sempur, where the *alang-alang* is sold for the tourist industry, it is collected more often by men while here, where it is used only locally, the collecting is left in the hands of women.

Knowledge about natural resource management is very important in order to contribute to environmental rehabilitation (Kettel 1996; Rocheleau *et al.* 1996; Shiva 1988). Several scholars have indicated that women accumulate more knowledge than men. This is because women are perceived to be closer to nature compared to men (Dankelman and Davidson 1988; Shiva 1988). My study found that both men and women in this *dusun* have accumulated knowledge about their environment (i.e. the forest). This knowledge was accumulated from their day-to-day relationship with their environment.

Men and women gather knowledge differently. Men tend to be more familiar with the trees and animals. They also know where special types of trees can be found. In addition, men also know what kinds of plants can be used for medicines. Women accumulate knowledge about many kinds of plants that can be eaten. This finding supports studies conducted by others (Jackson 1993; Kelkar and Nathan 1991). They found that the extent to which both men and women accumulate knowledge about the environment depends on their involvement in gathering forest products.

Men and women in this *dusun* also have different knowledge relating to the agricultural tasks. Women have a better knowledge about seed of food crops while men are more familiar with land conservation, climate and tree planting.

6.4.3 Gender and Time Use of Forest Gatherers

The average time allocated to gather forest products was different between men and women. This is because all men went to the forest almost every day while women usually gathered fuel wood and food 4 to 6 days a week. In addition, the different nature of the tasks performed by men and women also influenced the differences in time allocation. Women mostly collected firewood and food, while men mostly collected firewood and timber. Collecting timber is very time consuming. The time spent by women in gathering forest products is lower than men. Women, on average, spent 15.4 hours a week in the dry season while men spent 27.3 hours. In the rainy season both men and women spent longer in the forest than in dry season.

6.4.4 Gender and Agricultural Work

The agricultural work discussed in this section includes work on farms, marketing and animal husbandry. It was mentioned earlier that farming is an important activity for Timbenuh residents along with a considerable amount of gathering. People who have a relatively large section of agricultural land will have a greater reliance on agricultural products for sustaining their families. These agricultural products contribute between 30 and 90 per cent of their income.

The agricultural land of most people in this *dusun* was planted with both cash and food crops. The cash crop that was planted was mainly coffee and several kinds of fruit such as durian and avocado. A few households also planted vanilla. In addition, the food crops that they planted also varied including rice, corn, beans and several kinds of vegetables.

The care of the two types of those crops was quite different. The time consumed in taking care of cash crops was quite short. This is because most of the cash crop plantations already existed. People mostly only weeded during the rainy season. Sometimes, they would plant new trees in place of the old. On the other hand, taking care of the food crops was time consuming. These crops were planted regularly and involved several steps (such as land preparation, planting, weeding and harvesting)

Working on the farmland was a responsibility of both men and women in this *dusun*. However, there was a difference between what was done by men and women. Planting trees (cash crops) was the responsibility of men. All male respondents mentioned that they planted trees. Only two female respondents did this. This is because planting trees was perceived to be a man's task. Women who did this job did so because their husbands were away. They did not have an

adult son who could replace their husbands. Therefore, they undertook to plant trees in their gardens by themselves.

Men and women have different tasks in taking care of their food crops. Land preparation was mostly done by males. All male respondents who had agricultural land mentioned that they were involved in land preparation. This task was done in the early rainy season. In this stage men dug up the fields by using hoes, while women cleaned the field of scrub growth. Planting was mostly done by women but several men also did this. Taking care of the food crop while waiting for harvesting was done by both men and women. They weeded together. Harvesting was also done by all members of the family both men and women and children.

The agricultural products were either consumed or sold. Both men and women sold the agricultural products, but women were more active. The proportion of male respondents selling agricultural products was 53 per cent, while all female respondents mentioned that they were involved in this task. Men usually sold large amounts of agricultural products such as coffee and beans. Usually the business of selling large amounts of those products was performed in the *dusun*. Women sold agricultural products that were produced regularly, in smaller amounts such as bananas, fruit and vegetables.

Every Monday many women from this *dusun* go to the market village to sell their agricultural and forest products. The money that they received was used to buy items such as sugar, noodles, snacks for their children and cigarettes for their husband. When they brought a heavy load from the market, the husband or other family would pick them up from the place the public transport dropped them.

Animal husbandry was also important for generating income for people in this *dusun*. Cows, chickens and ducks were commonly owned by Timbenuh residents. Forty per cent of those households sampled owned a cow while almost all households owned chickens or ducks. Both men and women were responsible for looking after their animals. However, there are gender differences in performing this task. Women were mostly involved in taking care of small animals such as chickens and ducks while men were more involved in taking care of the cow. All male respondents in households that owned cows mentioned they were involved in taking care of them, while only about 55 per cent of women were so involved. This related to the perception of the people that owning cows is a man's right.

6.4.5 Time Allocation in Agricultural Activities

It was very difficult to account for the time allocated to agricultural activities. This is because such activities covered several kinds of task including farming, marketing and animal husbandry. In addition, the time that was spent in working on the farm fluctuated. There is a difference between the peak time (land preparation and harvesting) and the slack season (between land preparation and harvesting) and after harvesting.

The average time consumed in agricultural activities was different between men and women. Men worked on the farm between 13 and 14 hours a week on average while women worked on average of 11 to 12 hours a week. Women tend to go to the field between two and three days a week (2.8 days a week), men a little more frequently, between three and four days a week (3.3 days a week). In

addition, women spent more time in marketing than men, namely 6.1 and 3.1 hours a week respectively.

In the peak season (harvesting and land preparation), both men and women were very busy. In this period, all members of the household worked on the farm. Children still attending school left school to help their parents. Most of them worked in the field from morning until evening. Males went to the field earlier than women, leaving home at around 7.00 a.m. Women followed later at about 9.00 a.m. bringing food and carrying their little children. They returned home together.

6.4.6 Gender and Paid Employment

It was mentioned earlier that some Timbenuh residents also worked for wages in addition to being farmers and forest gatherers. The involvement of respondents in working for wages can be seen in Table 6.5. This table shows that both male and female respondents worked for wages. The proportion of male respondents who were engaged in paid employment was slightly higher than female respondents, namely 50 and 44 per cent, respectively. This is because the jobs that were available in this *dusun* were perceived to be more suitable for men.

Table 6.5 also shows that the percentage of both male and female respondents involved in agricultural wage labor was high compared with other jobs. This is because the agricultural sector is an important source of life for people in this *dusun*. This work includes picking coffee, land preparation and weeding. In addition, Table 6.5 shows that the involvement of male respondents in agricultural wage labour was higher than that of female respondents. This is related to the type of work that is available. Most of the work was as a coffee

picker or person who prepared land. This work was perceived to be unsuitable for women. For example picking coffee requires significant manual effort, as does land preparation.

Table 6.5. The Involvement of Female and Male Respondents in Working for Wages, Timbenuh, 1996

Type of work	Women		Men	
	N	%	N	%
Do not work for wages	42	56	33	50
Farm wage labor	12	16	15	23
Selling and buying agricultural products	4	5	10	14
Small shop	9	12	4	6
Carpenter/woodcraft	1	1	2	3
Transported log			1	1
Coffee collection (<i>ngokor</i>)	6	8	-	-
Teacher			1	1

Source: Survey data 1996

Men, because of the difficulty of this job mostly did buying and selling agricultural products. Such a job requires time to be spent outside the home. Also according to women informants, buying and selling agricultural products requires a lot of energy. One informant mentioned that in order to collect a load they had to walk around the *dusun*. Then, they had to sell the product at the markets or send it to other traders.

Women who were involved in this job usually worked together with their husbands. My research indicated that women collected merchandise from people who live nearby while their husband collected products from people who lived quite far from their houses. They would sell the agricultural products in the market together.

The operation of small shops was mostly the purview of women. This work was perceived as being suitable for women since it is mostly done at home. They went to the market only when they needed to purchase something, usually twice or three times a week requiring about four hours. Usually they would leave the house in the morning about 7 a.m. and arrive home at 11 a.m. Small shops usually open at 7 a.m. and remain open until 8 p.m. When respondents were at the market household members would look after the small shop.

Coffee collecting or *ngokor* (picking coffee beans that fall to the ground) was only done by female respondents. My observations indicated that this work was carried out by women and male and female children. This work is perceived to be unsuitable for adult males who would be ashamed to be seen doing this.

Such work was an important source of income for females and children from poor families, since this work can provide significant income. During coffee harvesting (over a period of about two months) they could earn between 1500 and 2500 rupiah in a day. The money that they received from this work is higher than received from gathering forest products. Formerly *ngokor* was only conducted by women and children from poor households but recently this has also been conducted by women and children from wealthier families.

6. 5 Gender and Domestic Activities

As noted in at the previous chapter, domestic activities include firewood collection, childcare, food preparation, laundry, house repairs and collecting water. Women and men in this *dusun* share these domestic tasks. However, there are gender differences in conducting these tasks. It can be seen in Table 6.6 that men were predominantly engaged in tasks such as house repairs,

collecting firewood and childcare. Women are involved in all types of domestic tasks.

Collection of firewood for domestic use is a necessary task. As in *dusun* Sempur, firewood was the sole source of fuel used for cooking among Timbenuh residents. It is interesting to note that the involvement of men in this task was higher than that of women, namely 97 and 87 per cent respectively. In addition, the data also revealed that female respondents undertake this task on average one and a half times a week, while men do so about twice a week. The results of this study contrast with those carried out by several other scholars. They reveal that collection of firewood was mostly done by women (Wicramasinghe 1996;

Table 6.6: The Involvement of Female and Male Respondents in Domestic Work, Timbenuh, 1996

Type of activities	Women		Men	
	N	%	N	%
Firewood Collection				
Yes	65	87	63	97
No	10	13	3	3
Child Care				
Yes	45	100	40	89
No	-	-	5	11
Laundry				
Yes	75	100	10	14
No	-	-	55	86
Food Preparation				
Yes	75	100	5	8
No	-	-	59	92
House Reparation				
Yes	22	28	66	100
N	53	72	-	-
Fetching water				
Yes	63	96	18	33
No	2	4	36	66

Source: Survey data 1996

Dankelman. and Davidson 1988; Shiva 1988). This difference is influenced by the responsibility of men to plant and cut the trees in their gardens.

Childcare duty was only applicable to respondents who have children under 5 years old. Table 6.6 shows that the proportion of female and male respondents involved in taking care of their children was similar. Female and male respondents took care of their children regularly. The difference appears in the time allocated to take care of their children. Women spent more time in this task than men. When I lived in this *dusun* it was very common to see men carrying their little children outside of the home. Men and women also supervised their children when they worked on their farm. This is similar to a study in Bali (Geertz and Geertz 1975) and the study of the Santhal Hazaribagh and Santhal Parganas in India (Kelkar and Nathan 1991). These studies found that men and women shared looking after their children. However, a study of Munda, Ho, Oraon and Kharia found that men only take care of their children when their wives are ill or were unable to do this task (Kelkar and Nathan 1991).

As with respondents in *dusun* Sempur, food preparation and laundry were domestic tasks mostly done by women. There was little evidence that husbands sometimes undertake these tasks as shown in Table 6.6. The proportion of male respondents who prepare food and do laundry were only 8 and 14 per cent respectively. This is because these tasks were perceived as being suitable only for women. Most women in this *dusun* did not expect their husbands to participate in these tasks.

Drawing and collecting water is also an important task for people in this *dusun*. This is because most households in this *dusun* do not have their own source of water in their house. Therefore, they had to bring water from a public

water tap to the home. Table 6.6 shows that fetching water was mostly done by women. The proportion of women undertaking this task was 96 per cent while for men it was only 33 per cent. This study supports the findings of several other scholars who have found that women were predominantly engaged in water collection (Dankelman and Davidson 1988; Shiva 1988).

The smaller number of men engaged in collecting water was influenced by their perception that this task was not a heavy one. The location of the water taps meant that they were easy to reach. In addition, people do not need a lot of water in their houses. The water was only used for cooking. Washing clothes, dishes and bathing was conducted in the location of the water tap. Almost all male respondents who were not involved in fetching water mentioned that their children and wives were able to undertake this task.

Women and men share in cleaning the house. My observation while I living in this *dusun* revealed that men regularly clean the houses especially in the morning. In addition, men made a substantial contribution in house repairing. The contribution of women to this task was mainly in providing *alang-alang* (tall grass) used for roofing.

On average women's daily time budget spent on various domestic duties was 5.3 hours while for men it was only 1.9 hours. This excluded time spent on childcare, which was usually done along with other tasks. Both men and women spent approximately 7.5 hours at rest. Men spent about 1.7 hours for leisure that was usually allocated to playing games. Women spent 1.3 hours listening to the radio and watching television.

Decision-making relating to domestic matters was discussed between both husband and wife. Women predominantly made decisions on the purchase of

daily needs. Other purchases including furniture, clothes and cows were discussed together but men made the final decision. Women who earn money can make the decisions about spending their money without any intervention by their husbands.

Clearly women's share of domestic tasks is higher than that of men. Although women have a high contribution to these tasks they never feel that they have a lower status than men. All female respondents mentioned that the household tasks are the responsibility of women. They undertake these tasks in order to reflect their perception of the ideal wife. The perception of a good wife in this *dusun* is a woman who can manage and undertake domestic matters. My observations suggest that women who do not want to undertake household chores will be scorned by other women. Some women would advise her husband to divorce her.

6.6 Gender and Community Activities

The role of men and women in the *dusun* can be differentiated into two activities. The first is their involvement in traditional community roles and the second is governmental programs. The traditional community roles that are still maintained are agricultural tasks, building the house, building public infrastructure (such as village roads and the mosque) and traditional parties such as wedding ceremonies. The governmental program includes activities such as managing the community health post (Posyandu) and political activities.

As with *dusun* Sempur both men and women have roles in the community. However their roles are different. At present the traditional roles of men and

women are more complementary. In the fields both men and women participate in clearing their dry field at the beginning of the rainy season. Women clear the field of the grass and men cut down the small trees that grow in the field during the slack season. They will help each other especially within the household.

As with *dusun* Sempur conducting ceremonies five years ago, women have the role of managing the ceremony and receiving contributions from the guests while the men cook. This division relates to their gender perception that men should carry out tasks that require much energy. Cooking for a party requires a great deal of energy since they cook masses of food.

With regard to building the house, it appears that only men are involved in this task, as it is perceived to be unsuitable for women. The role of women is mainly collecting material along with men, such as stone and *alang alang* for roofing. In addition, women also cook for the men involved in building the house.

In contrast there is a segregation of roles between men and women in respect to governmental programs. The governmental programs that are run in this *dusun* mainly include managing the community health post (Posyandu). The activity is only conducted by the women and usually is aimed at involving women in development programs. This program impacted greatly on reducing the involvement of men in taking care of their children's health.

In addition, only men are engaged in the agricultural training provided by government. Men in this *dusun* and government officials (who are also men) decide what development programs to run for the *dusun*, especially in relation to the agricultural sector. This also influences the togetherness of men and women in maintaining their agricultural land. Many women mentioned that when the

training is only given to men, they worry that the role of food crop production will be on the shoulders of women.

6.7 Conclusion

This chapter has analysed the role of men and women in their strategies to sustain their livelihood in an area which has low-level forest degradation. It was found that the people in Timbenuh consider the level of forest degradation to not have impacted greatly on their livelihoods. The role of both men and women in their family has been relatively stable throughout their lives.

The change only appears to be in the outmigration of men from this *dusun*. However, migration is not an important survival strategy for these people, except for some poor families. This is reflected in the relatively small number of people who have migrated. The absence of migrant males has not had a negative influence by reducing the availability of labour and has not had a wider impact on changes in gender roles.

Changes have been found in the attitudes of men and women in relation to the forest. For example, at present women cut down trees to collect fuel wood whereas they have not done this in the past. This is caused by the high demand for fuel wood and the existence of fuel wood traders in this *dusun* who encourage both men and women, especially from poor families to collect fuel wood.

Timbenuh residents depend on two or three occupations to ensure their livelihood including forest gathering, farming and paid employment. These productive tasks were performed by both men and women. In addition, domestic work was also shared between men and women. A summary of time allocated by

female and male respondents for both domestic and productive activities is shown in Table 6.7.

Table 6.7: Average Time Allocation for Male and Female Respondents a Week, Timbenuh, 1996

Activities	Women		Men	
	Time (in hour)	N	Time (in hour)	N
Domestic Activities				
Care of children	41.3	45	27.3	40
Fetching water	5.6	63	3.6	33
Fuel wood Collection	3.5	64	6.3	62
Food Preparation including Washing dishes	15.4	74	8.5	5
Shopping	7.7	75	4.4	29
Laundry	4.9	74	1.5	9
House cleaning	1.3	75	0.7	66
Productive Activities				
Work in a farm	11.6	75	13.8	66
Work for wages	21.8	33	28.3	34
Gathering forest products	13.4	65	27.3	44
Marketing	6.1	75	3.1	35
Animal husbandry	7.1	68	21.4	66
Consumption Time				
Sleeping	51.8	75	51.1	66
Eating	3.1	75	4.2	66
Religious practice	7.7	75	9.1	66
Social and political activities	3.2	75	5.2	66
Leisure time	9.1	75	10.5	66

Source: Survey data 1996

This table shows that men tend to spend more of their time in productive activities while women's time is predominantly occupied in domestic activity. This reflects the gender construction in this *dusun* that women should be good in maintaining the household and helping their husbands in searching for income.

CHAPTER SEVEN

CHANGES IN GENDER AND ENVIRONMENTAL RELATIONS

7.1 Introduction

The aim of this chapter is to analyse the changes in the roles of men and women in response to a decrease in their source of livelihood as a result of forest degradation. The analysis will compare the roles of men and women who live in Sempur which has experienced forest degradation and Timbenuh which has a relatively low level of degradation. Particular emphasise is placed on how gender relations are affected.

It was mentioned in Chapter One that many studies of gender and the environment focus predominantly on women. Only a few such studies look at the relationship between women and men. The consequences of the first group of studies are that the impact of environmental degradation on gender relations is not completely clear. I argue here that the degradation of the environment has an impact on women's role, men's role and the relationship between men and women.

Chapter Five has presented an analysis of the role of women and men in productive and reproductive activities in the study area that has experienced environmental degradation. Chapter Six depicted the role of men and women in the area that has low levels of forest degradation. It was argued that there are two strategies used by people in response to the insufficiency of the local economy because of a decline in the sources of their livelihood. The first is migration, to search for another source of income. The second is to remain in the *dusun* and adapt to the situation.

This chapter consists of seven sections. It begins with an introduction and is followed by an examination of the impact of migration on gender roles. Section 7.3 looks at gender and forest gathering. Section 7.4 highlights gender and agricultural work. Section 7.5 explains the relationship between gender and paid employment and section 7.6 examines gender and domestic work. The final section summarizes the findings of the chapter.

7. 2 The Impact of Migration on Gender Roles

As noted in Chapter two, migration is often discussed in studies of gender and the environment. This discussion generally focuses on the existence of substantial outmigration, especially by males from areas that have experienced environmental degradation (Dankelman and Davidson 1988; Shiva 1988, Rocheleau, 1996). The existence of male outmigration from such areas is perceived in two major ways. The first perception holds that women are victims of the degradation of the environment. This is associated with the existence of a substantial number of female *de facto* household heads because of the outmigration of their husbands. This has the impact of increasing women's workloads (Dankelman and Davidson 1988). A second perception is that of Shiva (1988) who believes that women have a closer relationship with nature than do men. Therefore, she claims that because men leave environmentally degraded areas, they do not have a close relationship with nature. They leave their environment while women remain in the village and continue to maintain that environment.

These two approaches do not comprehensively examine the circumstances or effect of environmental degradation on people. This is because their analysis

only focuses on women. This has been criticised by many scholars (Braidotti *et al.* 1991; Jiggins 1996; Agarwal 1992; Leach 1991). There is a general feeling among these authors that studies which focus on women only provide half the picture of the impact of environmental degradation on the residents of a degraded area. The present study looks at the impact of environment degradation on both women and men. As Agarwal (1992) states, women and men react to environmental degradation in different ways.

It is evident that in the areas in West Nusa Tenggara that are environmentally degraded there is a high level of outmigration. As noted in the previous chapter, the areas that have experienced significant forest degradation have experienced outmigration of 3-400 persons while those with a low level of degradation show a comparative figure of about 90 persons. In addition, interviews with 75 households in each area found that about 25 per cent of household heads in the first area had left the *dusun* compared to only 10 per cent in the second area. It is clear that there is a relationship between migration and environmental degradation. As Hugo (1996) states, environmental degradation has had an important role in accelerating the flow of migration.

This finding is supported by studies conducted by many scholars (Mortimore, 1989; Bilsborrow and Delargy, 1994; Findley; 1994; Barraclough and Ghimire, 1995). Bilsborrow and Delargy (1994) analysed the relationship between migration and the environment by using data from Guatemala in 1950 and 1980. They compared the levels of forest degradation and migration flow and indicated that the population growth in the areas that experienced forest degradation had reduced. In addition, Findley (1994), in a study in Mali, found that during the 1984-1985 drought, circular migration increased. Barraclough and Ghimire (1995)

indicated that the degradation of forests during the industrial revolution in West Europe (such as England and Denmark for example) caused the emigration of people from those countries to America and elsewhere. Further evidence is supported by Mortimore (1989) who revealed that the reduction in agricultural production caused by the drought has accelerated the migration of male heads of household from Dugaceri, Nigeria.

In terms of the perception that environmental degradation has accelerated male outmigration and consequently led to a greater burden being placed on women, my findings were slightly different. My study found that both women and men experienced burdens as well as benefits. Men leaving does mean more work for women because all the tasks normally carried out by men must be done by the women. However, women also benefited from the men leaving, for example with the improvement of personal knowledge by taking agricultural training and involvement in informal education.

The most obvious benefits felt by men and women include remittances. It was mentioned previously that in order to alleviate the economic difficulties of their families at home, most outmigrants sent remittances and these allowed women to make purchases that otherwise would have been impossible. Men are ashamed if they are not able to send remittances while they are away. Similar findings are highlighted by Graham (n.d.) in a study in East Flores. Women who remain home acknowledge that the remittances are useful for the family.

In addition, the outmigration of men may indirectly enhance women's development. My observations for example found that many women started learning to read and write after their husbands left because they wanted to read the letters sent by their husbands. Many women depended on someone literate to

read these letters and some women mentioned that they felt embarrassed because the letter often contained personal information. The ability of women to read and write has made them more confident. Moreover, the men leaving has also enabled women to be more actively involved in training programs. It was mentioned in an earlier chapter that 50 per cent of women in Sempur have become involved in agricultural training, especially tree planting. This training previously was provided only for men, yet several women in Sempur demanded to be involved in this program. In Timbenuh, however, agricultural training is still only provided for men. In addition, young men leaving has influenced young women to delay marriage. At present many young women in Sempur continue their education to junior high school.

The difficulty that women often complained about was a greater workload. It was noted earlier that on one hand women as de facto heads of households work harder than women who stay with their husband, yet on the other hand they feel more independent.

It was mentioned earlier that the degradation of the forest has not only had an effect on women but also on men. The outmigration of men makes their lives harder in a number of ways. The difficulties experienced by men relate to the decision to leave the *dusun* itself. They often feel compelled to leave. Four male informants stated that if the work were available, they would prefer to stay at home. The other difficulty experienced by men, as mentioned in the previous chapter, relates to the long journey to reach Malaysia, the process of adaptation to the situation there and also the type of work they had to carry out in Malaysia. Hugo (1998), in his study of migration from East Flores (East Nusa Tenggara) to Malaysia, revealed that the type of work in the destination areas was generally

what is referred to as 3Ds (dirty, dangerous, difficult jobs). These difficulties were made worse because most migrated illegally. The difficulties of migrants from Lombok has been outlined by Harris (1997 pp 121-123) who found that migrants were often exploited. This difficulty was also revealed by Graham (n.d.) in his study concerning labour migrants from East Flores to Sabah, Malaysia. In addition, Connell (1997 p.205) found that labour migrants encountered difficult conditions and often lived in fear. Moreover, if they do have problems they are often ignored by officials.

The second perception, which holds that male outmigration indicates that males are not close to the environment is problematic in at least two ways. First the outmigration from the environmentally degraded areas is not only undertaken by males but also by females. My study reveals that there is a tendency for female heads of households to also leave Sempur, considered to be an area of severe degradation. Similar findings were also found by Findley (1994). Her study in Mali found that, during the drought, the number of male outmigrants was the same as female outmigrants. Several women, especially heads of households complained to me that they wanted to leave the *dusun*, yet there is no report that women have migrated from Timbenuh (the relatively undegraded area). Two informants (female heads of households) mentioned to me that they are still able to gather forest products and undertake paid agricultural labour for their living.

It seems apparent in this study that men do not leave because they are not close to the environment but rather because of the division of labour within the households. Men are perceived in the region as heads of households. This position means that they feel responsible for providing the family income. When women are heads of households they also must sometimes leave the *dusun*. One

female informant (a de jure head of household because her husband had died) migrated to Bali. As head of the household she felt it was her responsibility to fulfil the needs of her family. Since she could not work in the forest and her agricultural land was not sufficient to meet the needs of her family, she decided to migrate in search of other sources of income. She works in Bali as a cleaner at a golf course. She left her two children with her parents and returns to the *dusun* every year, sending remittances every two months. It is clear, therefore, that the high level of male outmigration is not brought about because they are not close to the environment. Both men and women will leave their environment when they must meet their family income needs.

This study tends to support the first perception that the migration of men has caused an increase in women's workload. However, not only women have a burden, men also face difficulties in playing their role as head of the household. The gender construction which places men as the bread winner has encouraged them to leave the *dusun* in search of another source of livelihood. The remittances that were sent by migrants were not merely used to cover the costs of daily needs but to fulfil more important plans such as buying a cow, building the house or repaying debts etc while women also had to work to ensure the survival of their family.

In relation to the impact of male migration on the forest, there has developed the perception, especially among government officials, that outmigration has also impacted by reducing further forest degradation. Some forestry department officials whom I interviewed stated that the high outmigration of people from this *dusun* (people who live close to the forest) has had a positive impact on forest conservation. This is because the large number of outmigrants

reduces the number of people who gather forest products. This has also been suggested by several scholars who consider that migration from densely settled rural areas could aid in reducing pressure on land and forest. This reasoning though, is that migration may provide remittances enabling rural communities receiving them to undertake productive activities rather than over exploiting soil and forest resources (Barraclough and Ghimire, 1995).

The statement of some forestry department officials that the outmigration of men in this *dusun* would reduce forest degradation did not apparently occur. A collusion was established between the elite of the *dusun* and the people from outside *such as* government officials, forestry police, military and wood traders. They encouraged certain men in the *dusun* to gather more timber for their own benefit. As these men are protected from forestry police, they can easily take timber without fear. The timber is usually transported outside the *dusun* at night.

7.3 Gender and Forest gatherers

As noted in the previous chapter, the forest is an important source of people's livelihood for residents of both Sempur and Timbenuh. This section analyses the effects of forest degradation on both men and women with respect to work in the forest. Some scholars have argued that forest degradation has a greater effect on women than men. (Shiva 1988; Dankelman and Davidson 1988; Jacobson 1992; Escobar 1989; Agarwal 1992). This is based on the perception that women predominantly provide food and fuel wood to sustain the family. Even Dankelman and Davidson (1988) claim that women are the providers of the three F's (Food, Fuel wood and Fodder). In addition, Jacobson (1992 p.37) reveals that

'men, lacking the responsibility for collection of fuel, fodder and the like may have different priorities'.

This role of women as the main provider of food, fuel wood and fodder cannot be generalised in every area. My study, in two areas that have different levels of degradation, namely Sempur and Timbenuh, found that collecting fodder is predominantly a male task. In Sempur the involvement of men in collecting fodder was 66 per cent while for women it was 44 per cent. In Timbenuh the figure was 83 per cent for men and 60 per cent for women. The difference is connected to the custom in those *dusun* of cows being men's responsibility. Therefore, collecting fodder is usually carried out by men.

There are different patterns in gathering forest products between the residents of Sempur and Timbenuh. The proportions of women and men involved in gathering forest products in Timbenuh are almost the same. In Sempur, however the proportion of women gathering forest products is smaller than that of men. This difference is influenced by the degradation of the forest in *dusun* Sempur. It was mentioned in Chapter Five that the degradation of the forest has compelled women to withdraw from gathering forest products.

The causes of these withdrawals, mentioned previously, are mostly (87 per cent) because women feel ashamed if they are perceived as being thieves. In addition, they also mentioned that they were not able to walk long distances. Most men, however still continue to gather forest products, because of the need to secure an income for their family. In this case women protect their husbands and other men who collect forest products, keeping a lookout for police while appearing to work on farms at the edge of forest. My observations reveal that

men often ask their wives or other women to protect them from police apprehension.

The withdrawal of women from gathering forest products has influenced the decrease in knowledge about forest. At present, they do not know what kinds of foods still grow in the forest. This withdrawal also has influenced the relations between girls and the forest. Some girls mentioned they do not have knowledge about the forest because their mothers never go to the forest. At present young girls mostly perform domestic tasks and continue their studies.

In addition, at present both men and women in Sempur and Timbenuh who still engage in gathering forest products also gather food (especially vegetables and fungus) and fuel wood. The foods were used for household needs with the surplus being sold, while fuel wood was mostly sold. Some differences appear in the pattern of collecting food and fuel wood in Sempur and Timbenuh. The involvement of women and men in Timbenuh in collecting fuel wood was 45 per cent for both. However, in Sempur the involvement of men was greater than that of women. Historically, as mentioned in Chapter Five, women in Sempur were predominantly concerned with gathering food, fuel wood and *alang-alang*. However, this has changed over the past five years, with men being more occupied with this task. This supports the study conducted by Awumbila and Momsen (1995) who found that in an environmentally degraded area there was an increased involvement of men in gathering fuel wood. The degradation of the forest therefore has an impact on the role of women in gathering food and fuel wood. This reflects the point that the role of both men and women with respect to the use of forest products is not static but can be changed over time.

The destruction of the forest therefore creates problems for both men and women in Sempur especially those from a poor family. The evidence from Sempur reveals that men have been forced to go to the depths of the forest to gather forest products. Men also risk being caught by the forestry police who patrol at the edge of the forest to watch for legal violations in this area. However, men who are close to the authorities still enjoy harvesting forest products especially timber.

Table 7.1 shows that the involvement of men in gathering fuel wood is higher in Sempur than in Timbenuh. This relates to the decreasing availability of trees in the agricultural land of Sempur residents. Therefore, the fuel wood production from their own agricultural land is not enough to meet their needs. The agricultural land of Timbenuh residents is mostly still full of trees such as coffee, avocado, jackfruit, and *durian*. Such trees still provide enough wood for household needs.

The withdrawal of some women from collecting forest products means that they have lost a part of their income. They therefore depend on their husbands for money. Women who are dependent in this way are relatively powerless in the decision making process. My interviews with two informants who stopped gathering forest products revealed that they now depend entirely on the money that they are given by their husbands. The husbands therefore control the purchasing of goods. Women cannot purchase items for private needs without their husbands' permission. This is different from earlier times when they were able to gather forest products, at which time they could decide on purchases by themselves.

The use of forest products is different in Sempur and Timbenuh. Most Timbenuh residents, including both men and women, collect tall grass (*alang-*

alang). This is an important activity because such grass is used as a roofing material, and most Timbenuh houses have this type of roof. Sempur residents on the other hand, sell *alang-alang*. This *alang-alang* is an important source of income for women in Sempur. Formerly, people in Sempur also used *alang-alang* for roofing. At present, the use of *alang-alang* for roofing of their house has reduced. This is because most of the roofs of Sempur residents house are made of iron.

Table 7.1 Forest Utilisation of Sempur and Timbenuh Residents, 1996

Type of forest products	Sempur				Timbenuh			
	Women		Men		Women		Men	
	N	%	N	%	N	%	N	%
Do not gather forest products	32	44	8	15	11	14	10	15
Timber		-	35	65	-	-	22	34
Fuelwood	30	41	36	68	33	45	29	45
Food	39	53	29	54	49	66	26	39
Tall Grass (<i>alang-alang</i>)	16	23	23	43	48	65	20	31
Grass	3	4	11	21	2	3	16	24
Rattan		-	1	2	-	-	1	2
Orchid (<i>anggrek hutan</i>)							7	11
Hunting			1	1			2	3

Source: Survey data 1996

There is also a difference in the use of fuel wood collected from the forest. Female respondents in Sempur used fuel wood for household needs. Only four per cent, or, 3 persons, collected fuel wood in order to sell it. On the other hand, all men collected fuel wood both for household needs and to sell. However, both men and women in Timbenuh collected fuel wood from the forest with the main purpose of selling it.

The difference in uses of fuel wood also influenced the way in which it is gathered. Men and women in Timbenuh collected fuel wood by cutting down

trees. But in Sempur, only men cut down trees while women collected dead wood. Historically, women in Timbenuh also did not cut the trees to collect fuel wood. The increasing value of fuel wood in the market has involved them in cutting the trees. Some scholars (Jacobson, 1992; Shiva 1988) indicate that women have close relationships with nature, which is reflected by the attitude that women give protection to nature (for example, in gathering fuel wood women always take the dead wood). However, women's attitude to protect nature is not always apparent. This attitude can be changed: my study, for example, found that Timbenuh women, together with men, often cut down trees in order to obtain fuel wood.

Table 7.2 Time Allocated for Productive and Reproductive Activities, Sempur and Timbenuh, 1996

Type of activities	Sempur		Timbenuh	
	Women Time (in hour)	Men Time (in hour)	Women Time (in hour)	Men Time (in hour)
Domestic Activities	109.4	33.0	89.5	56.5
Productive Activities				
Work on a farm	27.3	9.7	11.6	13.8
Work for wages	11.4	13.3	21.8	28.3
Gathering forest products	12.8	43.4	13.4	27.3
Marketing	5.8	2.9	6.1	3.1
Animal Husbandry	10.5	22.5	7.1	21.4
Consumption of time				
Sleeping	53.9	50.4	51.8	51.1
Eating	3.2	4.1	3.1	4.2
Religious Practices	10.5	8.7	7.7	9.1

Total respondent perempuan 75

Source: Survey data 1996

The degradation of the forest has an impact on the changing of time allocation to collect forest products. It is reflected by the differences in time allocation between Sempur residents and those of Timbenuh. The time spent by men in gathering forest products in Sempur is higher than that in Timbenuh,

namely 43.4 hours and 27.3 hours a week on average, respectively (Table 7.2). This difference is due to the length of their travelling to the depth of the forest, the difficulty to find trees that will be cut and also the significant restrictions on the gathering of forest products in Sempur. Moreover, women on average spent slightly different amounts of time collecting forest products: about 12.8 hours in Sempur and 13.4 hours a week in Timbenuh (Table 7.2). This difference is caused by the difference in the way in which they collect fuel wood. Women in Timbenuh cut down the trees, thus taking a longer time.

It is clear from this study that the degradation of the forest has influenced the division of labour in the gathering of forest products. In addition, women do not have an especially close relationship with the forest, as reflected by the withdrawal of women from gathering forest products.

7.4 Gender and Farming Activities.

Sempur and Timbenuh residents do not solely depend on forest products for their livelihood. They also farm on their own land. Both men and women are involved in working on their agricultural land. At the present time, there are differences between Sempur and Timbenuh residents in terms of their work. Women in Sempur tend to concentrate on working in their farmland to a greater extent than their husbands do. In Timbenuh, however, the area that has a low level of degradation, both men and women still work together on their land. The time allocated to working in their agricultural land was almost similar, at 13.8 and 11.6 hours a week on average, respectively. On the other hand, in Sempur, there is a very large difference between the time spent by males and females in working on agricultural land, that is, 9.7 and 27.3 hours on average (Table 7.2).

Previously, in Sempur, men and women worked together on their land. The degradation of the forest has forced men to go overseas and to go farther into the forest to gather products. This has led to the decreasing role of men in working their farmland.

The absence of men from the household has influenced the decision-making process. Women's decision-making power related to working in the agricultural sector has increased. Women, especially de facto heads of households, at present decide when they will start planting at the beginning of the rainy season. This means that women have gained new knowledge about climatic cycles, this information traditionally held by men. Women in this *dusun* sometimes have different ideas about the beginning of the rainy season compared with men. In addition, they also can purchase the agricultural products without the intervention of their husbands. The increasing role in decision-making that occurs when the husband is absent from the households was also apparent for women of the Luhya people in Kenya. Women whose husbands were employed away from home tended to have greater access to, and control over, household resources (Chavangi *et al.* 1988).

Besides the increase in their role in decision-making, women in Sempur also have different attitudes to women in Timbenuh in terms of the practice of tree planting. It was mentioned previously that in both *dusun* women were prohibited from planting trees. In Sempur this tradition has been eroded. Many women have started to plant trees, most of them being those whose husbands who have emigrated overseas. This erosion of customary law also occurred in Kenya when the husbands worked outside the district (Chavangi *et al.* 1988). The practice of planting trees was done not because they were more concerned with the

environment but rather to produce more agricultural products to meet the needs of their families since their husband cannot do this task. The practice of planting trees by women still has not appeared in Timbenuh. This may be caused by the small number of men who have migrated from this *dusun*.

The limited access of women to land rights has limited what they can do. It is reflected by the fact that this practice of women planting trees in Sempur was only done around their houses. They still do not plant trees on agricultural land. This is because the agricultural land is mostly owned by their husbands. The perception of some eco-feminists (Shiva 1988; Dankelman and Davidson 1988) that women can solely sustain the environment therefore is problematic. A study by Chavangi *et al.* (1988) revealed that there is a major constraint in increasing female participation in planting trees. This constraint relates to the traditional attitude to, and of, women, and their rights and responsibilities with respect to land and trees.

In addition women have limited rights to manage the agricultural land. For example making fences is exclusively a male's task. Women are prohibited from engaging in the activity. Since fences function to protect food crops from wild animals and also to reduce soil erosion in the rainy season, areas without fences suffer a decline in the production of food crops. Several women de facto heads of households informed me that the absence of their husbands resulted in a decrease in their food production. In part this is because they did not have the right to make fences. This finding is different from that in the study conducted by Kumar and Hotchkiss (1988) in Nepal. They found that the increasing time allocated for fuel wood collection due to deforestation has reduced the time allocated to crop cultivation. This leads to a decrease in crop production.

Again, the perception that women nurture the environment and can effectually manage the environment is problematic. Since women do not have equal right to land, they have difficulties engaging in soil conservation. Soil conservation in both Sempur and Timbenuh were predominantly men's tasks, because men own most of the land.

7.5 Gender and Paid Employment

Several studies related to gender and the environment have indicated that the degradation of the environment may cause people, especially women to promote further degradation (Bamba 1985). My study in Sempur, as was mentioned previously, found that women in particular started to withdraw from gathering forest products. The degradation of the forest has encouraged people to search for paid employment. The earnings from this can supplement their declining income from the forest. A comparison of the involvement in paid employment by respondents in Sempur and Timbenuh revealed that for both male and female respondents in Sempur, their employment for wages is higher than in Timbenuh.

It can be seen in Table 7. 3 that 51 per cent of women in Sempur were in paid employment while in Timbenuh it was 44 per cent. In addition the proportion of men in Sempur who were involved in paid employment is higher than in Timbenuh, namely 63 and 50 per cent respectively.

The high proportion of Sempur respondents who were engaged in paid employment was influenced by the increasing opportunities to obtain jobs in this *dusun*. It was mentioned in chapter 5 that the high rate of migration from this *dusun* has led to the reduced availability of labour in the household. This has

resulted in a decrease in the *betulung* system. Previously both men and women in Sempur have a traditional custom to help each other (*betulung*). This system has changed to become hired labour. Many households, especially, those in which the head of household and the eldest son have migrated, have started to hire labor. In this case, the substantial level of male migration has indirectly reduced the dependency of people on forest products.

Table 7.3: Involvement in Paid Employment, Sempur and Timbenuh Residents, 1996

Type of job	Sempur				Timbenuh			
	Women		Men		Women		Men	
	N	%	N	%	N	%	N	%
Do not work for wage	33	43	21	37	42	56	33	50
Buying and selling agricultural products	10	14	1	2	4	5	10	15
Small shop/processing food	12	16	8	15	9	12	4	6
Carpenter/ Woodcraft	-	-	6	11	1	1	-	-
Agricultural wage labor	14	19	19	33	12	16	15	23
Picking of coffee (ngokor)	-	-	-	-	6	8	-	-
Other labourers	6	8	1	2	1	1	-	-
Teacher	-	-					1	1
Total Respondents	75	100	56	100	75	100	66	100

Source: Survey data 1996

The low proportion of male and female respondents in Timbenuh who were engaged in paid employment is influenced by the limited availability of job opportunities. The rate of outmigration was relatively low, therefore each household still had enough labour. Moreover, the outmigrants from this *dusun* mostly come from households of low economic status which have limited land. Therefore, this does not create job opportunities. The system of *betulung* in

Timbenuh still exists. This was the case in Sempur when the forests had not been degraded and the male residents remained in the *dusun*.

Male respondents in Timbenuh who were engaged in agricultural work for wages mostly harvest coffee, while those in Sempur usually prepare land before seeding. The substantial outmigration of males from Sempur has reduced the availability of family labour, causing this demand for hired labour. The high proportion of males in Timbenuh who were involved in picking coffee is influenced by the substantial area of coffee crops in this *dusun*.

Table 7.3 also shows that there are gender differences in the pattern of paid employment between residents of Sempur and Timbenuh. Buying and selling agricultural products in Sempur was predominantly done by women. In Timbenuh, however, this job was mostly performed by men. The outmigration of men and the concentration of men in gathering forest products has led some women to undertake this job in Sempur.

The involvement of women in *buruh apa saja* (including collecting stones for home construction, transporting fuel wood and working on domestic task) in Timbenuh is lower than in Sempur, namely 1 and 10 per cent respectively. This is because collecting stone for home construction usually is done by the *betulung* system, involving both young men and women. In addition, there are gender differences in doing this job. Few males were involved in this task, because it does not pay well.

A comparison between women de facto heads of households and women whose husbands are still at home reveals that the involvement in paid employment is different. The proportion of women de facto heads of households who are involved in paid employment is higher than among those whose

husbands are at home. In addition, they are mostly engaged in trading (buying and selling agricultural products, opening small shops and processing food). In Sempur, the proportion is 65 per cent while in Timbenuh it is 55 per cent. This is associated with the remittances that they receive from their husbands. Often part of the remittances are used as capital to build up their small businesses.

My in-depth interview with a woman whose husband migrated reveals that she works very hard to support her five children and herself. Five years ago, when she and her husband still stayed together, she did not work for wages. She worked on the farm and as a forest gatherer. Her husband left to seek work in Malaysia four years ago. She then started to work as a trader of agricultural products. Every afternoon she goes around the *dusun* to buy agricultural products and every morning she brings them to the market by a truck. The remittances from her husband have been saved to buy a cow and also to repair their house. Women de facto heads of households feel relatively free to choose what they want to do. They appear to be more independent than those whose husbands remain at home. They work hard to survive.

7. 6 Gender and Domestic Activities

Gender division of labour is socially constructed (Agarwal 1992; Braidotti *et al.* 1991, Jackson 1993, Awumbila and Momsen 1995). This means that it can be changed over time. In this study, I argue that ecological changes will also have an impact on the changes in gender roles. The study conducted by Sayo (1994) in the Philippines indicates that the destruction of the environment has had an impact on women's domestic tasks. This is because the contribution of men to such tasks has been reduced as a result of their migration to cities. By

comparison the data from Timbenuh and Sempur relating to domestic activity shows that there are differences in the pattern of involvement between men and women in conducting domestic duties.

In general, as evident in Table 7.4, the involvement of women in domestic tasks in Sempur (in areas which have experienced severe environmental degradation) is higher than in Timbenuh (which is considered to have a low level of environmental degradation). For example, the involvement of men in childcare is higher in Timbenuh than in Sempur. The destruction of the forest around Sempur has forced men to migrate and go farther into the forest which in turn has reduced the involvement of men in child care.

Table 7.4: Gender Roles in Domestic Activities, Sempur and Timbenuh, 1996

	Sempur				Timbenuh			
	Women		Men		Women		Men	
	N	%	N	%	N	%	N	%
Firewood Collection								
Yes	75	100	54	96	65	87	63	97
No	-	-	2	4	10	13	3	3
Child Care								
Yes	53	100	30	73	45	100	40	89
No	-	-	11	27			5	11
Laundry								
Yes	75	100	11	20	75	100	10	14
No	-	-	45	80			55	86
Food Preparation								
Yes	75	100	7	12	75	100	5	8
No	-	-	49	88			60	92
House Repair								
Yes	26		52	93	22	28	66	100
No	49		4	7	53	72	-	
Fetching water								
Yes	75	100	26	46	73	96	20	33
No			30	54	2	4	38	66
House cleaning								
Yes	75	100	35	62	75	100	66	100
No	-	-	21	38	-	-	-	-

Source: Survey data 1996

Fetching water is perceived a woman's task in both Sempur and Timbenuh, and in both *dusun* all women have to do this work. This is similar to the study carried out by Dankelman and Davidson (1988) in East Africa and a village close to New Delhi. They found that water supply for a household is predominantly the concern of women and children. However, in my study it was found that men also fetch water particularly when the water is difficult to find. The contribution of men in this activity in Sempur is higher than in Timbenuh. This is influenced by the uneven distribution of water taps in Sempur. The taps are still quite far (often 1 km) from some houses. Therefore many men still have to do this task. In Timbenuh, however, the location of taps is such that it is close to most households.

There are no large differences in food preparation in Timbenuh and Sempur. In both areas, food preparation for households is exclusively women's domain. Men who were involved in this task usually just boiled water. Some men also cooked, but only because it was their hobby. This task is overall perceived to be women's work. Men however, often undertake this task during social functions. For example in wedding parties, men generally do the cooking while women arrange the food and its presentation, especially to visitors. This is related to gender ideology that has developed in this *dusun*, namely that men are strong. Therefore, cooking large portions is a man's responsibility.

It was mentioned previously that fuel wood for household needs is taken from both people's own agricultural land and the forest. In Timbenuh fuel wood for household needs mostly comes from agricultural land. In Sempur however, it was mostly collected from both the forest and agricultural land. Women mostly collected fuel wood from their agricultural land. It can be seen in Table 7.4 that the proportion of female respondents in Timbenuh who collected fuel wood is

lower than in Sempur, namely 87 and 100 per cent respectively. This phenomenon was influenced by the high rate of male outmigration.

Table 7.4 also shows that the involvement of women in Sempur in house repair is greater than that of women in Timbenuh. This again relates to the high rate of male outmigration in Sempur. The involvement of women in this task was only limited to wall repairs however. In general, the table shows that in both Sempur and Timbenuh the repair of houses is mostly done by men, because of the custom that roofing is men's responsibility.

Table 7.5 Time Allocated for Domestic Tasks, Sempur and Timbenuh, 1996

Domestic activities	Sempur		Timbenuh	
	Women Time (in hour)	Men Time (in hour)	Women Time (in hour)	Men Time (in hour)
Care of Children*)	51.2	7.1	41.3	27.3
Fetching Water	13.9	5.2	5.6	3.6
Fuelwood collection	8.7	7.1	3.5	6.3
Food preparation including washing dishes	14.4	4.9	15.4	8.5
Shopping	7.3	3.3	7.7	4.4
Laundry	5.1	2.1	4.9	1.5
House cleaning	8.3	3.3	9.1	4.9

*) This task is usually done in coincidence with other tasks.

Source: Survey data 1996

Table 7.5 shows that the time allocated by women to all types of activities, except food preparation, is higher in Sempur than in Timbenuh. This also is associated with the high incidence of male absence from the household. Work that used to be undertaken by both men and women nowadays falls on the women's shoulders. However, the time allocated to food preparation is lower than that in Timbenuh. The absence of men from the households means that women

can reduce their frequency of cooking. They rarely reheat the food to serve themselves and their children. This is different to other studies indicating that there is a reduction of cooking activities due to limitation of fuelwood (Agarwal 1986).

To sum up, it is clear that there are gender differences in carrying out domestic tasks. My study demonstrated that domestic work in both Sempur and Timbenuh is predominantly done by women. It can be seen in Table 7.4 that all women are involved in most domestic tasks except house repair. This phenomenon is caused by the gender construction in these two *dusun*. This is reflected by the general perception of the ideal wife. Such a wife, as seen by both men and women, is one who is 'diligent and can be a good mother'. This statement implies that women have a responsibility to perform domestic tasks and also contribute to work on the land, to support the family.

In addition, there are also differences between areas that have experienced environmental degradation and those with a low level of degradation. Women in the former area have greater involvement in domestic tasks. There are also differences in the time allocated between men and women in both areas. Both in Sempur and Timbenuh women spent more time than men on domestic activities. Moreover, women in Sempur allocated more time to domestic activities than those in Timbenuh, namely 109.4 and 89.5 hours on average a week respectively (Table 7.2).

7.7 Conclusion

This chapter has demonstrated that there are different roles for men and women in *dusun* Sempur and Timbenuh because of the different levels of

environmental degradation. The role of women and men in the households in Sempur has changed as result of the destruction of their source of livelihood. In addition, the data demonstrated that both women and men have experienced impact on their lifestyles from the degradation of the environment. However, their response to this phenomenon is different, and is influenced by the position of both men and women within the household. Men, who are expected to be head of household and who have the main responsibility to secure their family's livelihood, are compelled to leave the *dusun* or are forced to work in the depths of the forest. This has led to the change in their role in the household. This change can be shown from the time allocated to each activity including forest gathering, working on the farm, and domestic activities. In addition, the change also can be seen from their behaviour. Some women have the broken traditional custom that prohibits women to plant trees.

CHAPTER EIGHT

CONCLUSION

8.1 Introduction

People, especially those who live in rural areas, are mostly dependent on their environment for their livelihood and they struggle to sustain this livelihood when it is threatened, such as by a decrease in their environment-based resources. This struggle often differs between men and women, because of their different roles constructed by society. However, little research has been carried out on the impact of environmental degradation on gender roles. Although the number of studies related to gender and the environment have increased in recent years, this type of study is still very limited in Indonesia.

There have been several different research emphases on gender and the environment in recent decades. In the 1980s, the studies were mainly focused on women as passive victims, as well as agents, of environmental degradation (Dankelman and Davidson 1988). This view then shifted to seeing women as victims of environmental degradation as well as looking at the positive actions taken to conserve the environment (Agarwal 1992). In her study in India, Agarwal (1997, 1992) pointed out that degradation of the forest has an impact on rural women by decreasing their income and increasing the time needed to gather forest products. In addition, she indicates that women in India are deeply involved in protecting their environment. Recently, many studies have been focused on women's movements for environmental conservation (Rocheleau *et al.* 1996). However, research pertaining to the circumstances of the impact of environmental degradation on both women and men of different classes and at different levels of

environmental stress is still scarce. In addition, unequal gender roles that place constraints on both men and women in their efforts to conserve the environment have also as yet not been widely recognised.

There are two reasons for conducting research pertaining to the impact of environmental degradation on gender roles, namely practical and theoretical. The practical reason is related to the increasing degradation of the environment in the past 20 years and the need to address this problem. This is most strongly reflected by the accelerating decrease of forest cover. Indonesia's forests have decreased from 74 to 56 per cent in the past 30-40 years (FAO 1990) and it is estimated that this degradation will continue to rise in the future at a rate of more than one million hectares a year. There is thus increasing awareness of the need to understand the impact of this degradation on the roles of both men and women and how to involve both in the management of the environment for sustainable development. The degradation of their surrounding environment has wider socio-economic implications both for individual men and women, influencing their roles both in the household and in the local community.

The theoretical reason relates to the approaches that have been used so far in the study of women and the environment. There have been a number of different research approaches applied in studying gender and the environment. The first approach focuses only on women (Dankelman and Davidson 1988; Shiva 1988) while the second approach includes the relationships between men and women (Agrawal 1997, 1992; Braidotti *et al.* 1994). Even though the second approach utilises gender analysis, the majority of studies concentrates only on women as a unit of analysis. There is a tendency among researchers of women

and the environment to portray men as the destroyers of the environment while women are the caretakers (Shiva 1988; Mies 1993)

This study has focused on the impact of environmental degradation on gender roles in poor agricultural communities and used gender analysis by involving both men and women as the units of analysis. It explored the roles of both women and men in productive, domestic and community activities. The impact of forest degradation on gender relations is seen through the existence of migration and the changes in their division of labour in productive and domestic work, for example the changes in time allocation in productive and domestic work, and changes in their attitude to gathering forest products. It compared an area that is considered to have a low level of forest degradation (Timbenuh) and one with a high level of degradation (Sempur).

Gender division is a social construct and is apparent in every society. According to Kelkar and Nathan (1991) this division seems 'natural' because it has existed since the existence of human beings. However, this division is a product of culture, therefore, women's and men's roles in the household as well as in society are not uniform in every society (Raharjo 1996). Their roles are influenced by their social and economic settings as well as the condition of their environment.

8.2 'Traditional' Roles of Women and Men

The analysis shows that traditionally men and women in Sempur and Timbenuh have different roles within the household and the community. This difference is constructed by the perception that men are the head of the household, responsible for securing their family's material and physical needs

while women are expected to be the mothers that can bear and take care of the children along with other domestic tasks. This is because men are considered to be physically strong while women are weak. This construction has led men to undertake the activities that need much energy while women perform the tasks that need less energy, but in some cases consume much more time. There are also differences in the boundaries between the activities conducted by men and women, because the expectation is that they will provide for their family and are considered strong enough to care for themselves, and can conduct their activities far away from home, while women only undertake activities in their surrounding area, close to their house. In Sempur when the forest still provided adequate resources for the basic livelihood of the community this division of labour was not a burden. At present, in some cases, this is also still apparent in Timbenuh, the area that has a low level of forest degradation. Men and women complement each other in carrying out their tasks.

Before, both men and women gathered forest products. Men concentrated on gathering timber and hunting while women gathered food and fuel wood. Even though gathering food and fuel wood was a shared task, women tended to contribute much more to the task than men. The concentration of men in the collection of timber and hunting was mainly due to the energy expended and the distance to be travelled, whereas women collected fuel wood and food on the edge of the forest. In the past, both men and women sold the forest products that they gathered, keeping some for household needs. Men mostly sold timber while women sold a small amount of fuel wood and foodstuffs, especially fungus and vegetables that were gathered together by men and women. This phenomenon is still apparent in Timbenuh.

There were also differences between men and women in the activities conducted on the farm. Men mostly engaged in land preparation and fence making thus conserving the soil from erosion and protecting the food crops from wild animals. Women concentrated on weeding, planting and seed selection. Men also had the responsibility of planting trees while the women planted vegetables. Although women were restricted in planting trees on agricultural land they could harvest the products that could be sold or to meet the needs of the family. This division of labour between men and women is still apparent in *dusun* Timbenuh, the area which is considered to still have a low level of environmental degradation. The difference in the tasks carried out by both women and men did not reflect the dominance of men over women except for the restriction in planting trees. Both men and women had autonomy in carrying out their separate tasks. Men and women shared in the decisions related to maintenance of the farm; for example, men decided when to start planting food crops and women decided when to harvest the crops.

In the domestic arena, the contribution of men and women was separated along the lines of protection and provision as well. The men were expected to maintain the condition of the house as protection against the elements while the women were expected to provide the food and water as well as maintain cleanliness. They both shared the responsibility of raising the children. However, women had a greater responsibility in taking care of their children until they were five years old. Moreover, men mostly took on the responsibility of raising their sons when they reached 5 years old. The daughters still remained with their mothers. Both men and women have autonomy in conducting their activities.

Traditionally, both men and women have access to resources, however, the perception of men as the head of household has created a difference in the degree of access to resources between men and women. For example, traditionally men inherit a larger portion of land than women. In this society men receive 5 times more land on average than women. It is expected that the higher proportion of inherited land for men will assist them in performing their roles, namely, securing their family's material needs. The difference in access to land was not a problem in the past, because men and women worked together on the land.

The role of men and women in the community was similar to their role within the household. Men performed the tasks that needed much expenditure of energy while women do the opposite. This division was mostly apparent in the holding of a party, which did not reflect the dominance of men. In this case men would undertake the cooking while women engaged in the managing of the party. A large amount of food was required therefore the cooking needed much energy, suitably conducted by the men. This segregation of tasks was also apparent in the *betulung* system on farms where women helped each other in planting the crops and harvesting while the men were mostly involved in land preparation and fence making. Furthermore, both men and women were involved in the decision making process concerning the development of their *dusun*, however the final decision was always made by the men.

With regard to the accumulation of knowledge related to their environment, both men and women gained this through their daily contact with their environment. The differences in their knowledge were distinct, depending on their everyday tasks and usually complementing each other. For example, men

have knowledge on how to conserve the land while women can choose the seed that should be planted. Women mostly understand when and where vegetables can grow in the forest and the type of forest cover which can be eaten whereas the men would know what animal could be found and understand the utilisation of many kinds of tree and the location of those trees.

To sum up, this study found that in the past there was a different role between women and men both in their productive and domestic roles as well as in the community. Both men and women gathered forest products, were involved in farming activities and domestic activities. Moreover men and women were also involved in community activities such as *betulung* and in traditional parties. The division of labour between men and women was felt to be complementary rather than contradictory. Men and women worked together both in the field as well as in the gathering forest products. Men also assisted with domestic work. Although they have different access to farm land, women could harvest the products.

8.3 The Current Roles of Women and Men

Gender roles are not static (Raharjo 1996; Awumbila and Momsen 1995; Jackson 1993) They change over time according to changes in situations. This study indicates that the degradation of environment, reflected by a declining forest cover as well as socio-economic and political changes have impacted on the role of men and women within the household and the community in the areas studied. The role of men and women both in the household and the community no longer complement each other. Moreover, the implications of forest degradation are not uniform between men and women of different economic status. This phenomenon

was more pronounced in *dusun* Sempur, the area which is considered to have greater forest degradation.

The direct impact of forest degradation and other socio economic changes have created a burden for both men and women. It has forced men to search for other sources of income in other areas. *Dusun* Sempur, with its high scale of forest degradation has a much higher level of male migration to Malaysia than Timbenuh, which has a lower level of forest degradation. In their attempt to search for another source of income, men, especially those who are from poor families and were less educated, face many constraints especially the cost of travel causing them to migrate illegally. Several of them have even died in work-related accidents or while illegally crossing the border to Malaysia. In addition, the men who remain in the *dusun* must travel further into the forest in order to gather enough forest products and this is time consuming. Men, especially the poor, also face the risk of going to jail in gathering forest products, as gathering forest products especially timber is seen as thieving. Men who are relatively wealthy are not forced to take such a risk.

This study found that the degradation of the forests has a direct and indirect impact on women. The direct impact is a decrease in women's income but the process works differently between women who are from a relatively wealthy family and those from a poor family. The decrease in income is caused by a decrease in the availability of the products they gather from the forest, in part because of decreasing forest cover and in part because of competition with men who have begun to gather forest products in an effort to increase their own decreasing income which used to be exclusively a woman's task. Women who are from relatively wealthy families have withdrawn from gathering forest products.

Their husbands and sons can still easily gather forest products themselves. Poor women must continue to gather forest products, which means that they must suffer from shame, and walk long distances gathering forest products illegally. In addition, the decrease in the frequency and quantity of forest products gathered has also caused a decrease in their knowledge and understanding of the forest.

The departure of men to Malaysia and their need to go further into the forest to obtain enough income has created an imbalance in the roles between men and women in the farm. The participation of men in farm activities has decreased. This has increased the amount of time women must spend on farming. Many men can no longer carry out their roles on the farm such as building fences to protect the land, planting trees and preparing the land for cultivation. Although women are responsible for taking care of the farm, because of the departure of their husbands, women cannot fully maintain their farms. Women are still restricted from building fences and planting trees, causing the harvest to be less successful. Often their food crops are washed away due to heavy rainfall. Moreover, the restriction on women planting trees on the farm has led to their farmland becoming barren, decreasing the harvest of tree products. It is clear that the difference in access to land between men and women in Sempur at present has created a problem. Women who have little access to land cannot fully utilise their husband's land.

The decline in resources has caused women to ignore the restriction on planting trees. Some women have taken the initiative and planted trees around their houses. At present some women can harvest their own trees which assists them to supplement their income considering their decreasing income from forests as well as from agricultural products. The phenomenon is not apparent in

Timbenuh, as men and women still work together on the farm. Women in Timbenuh still have access to harvesting agricultural products.

At present there is also an imbalance in the fulfilment of household tasks between men and women. Men's contribution to domestic tasks has decreased. This decrease is most apparent in the upbringing of the children, especially their sons. They no longer take their sons to the forest introducing them to the important knowledge needed in relation to the forest. In addition, men lack in teaching their sons to make fences and plant trees. Therefore women whose husbands are absent overseas have undertaken some of the roles that are usually undertaken by men both in the household as well as on the farm.

The departure of men from the household to find work in Malaysia has also reduced their role in the community. It was mentioned earlier that in this society men help each other in land preparation but this system has eroded and has changed to hired labour. In addition, the contribution of men in traditional parties has also decreased. Now it is the women who undertake all tasks for the party including cooking and serving although some rich families can hire men for cooking.

The socio-economic and political change reflected in part by the development in and around the study areas has also contributed to a change of gender roles. The development in the study area includes the improvement of sanitation such as the establishment of water taps and toilets as well as the improvement of the road system. Development in the study area is also reflected in the establishment of several institutions which have been created by the government such as LKMD (village council), PKK (applied family welfare) and *Posyandu*.

To sum up it is clear that the social construction of gender (which is reflected in the gender division of labour and gives different access to resources between men and women) and of the relationships between gender and the environment is significant. The perception of men as the bread winners has caused the men to leave their homes to go overseas or to go further into the forest, while the women are more concerned with the family's survival. In addition, the different access to resources, especially land, which is maintained by customary law as well as government regulation has resulted in further degradation.

8.4 Theoretical Implications of the Findings

The use of a gender analysis framework in studying the impact of environmental degradation which involves both men and women as units of analysis allows for an examination of the differences in the role and responsibilities of both men and women in productive and domestic activities in the household and the community. The gender analysis framework that is utilised was developed from Moser (1989). It includes what men and women do (the gender division of labor) in forest gathering activities, agricultural tasks, employment for wages, domestic tasks and community activities. The analysis is also concerned with the location of activities conducted, the distance to that location and the length of time needed for the activities. The different access to resources between men and women and the impact of these differences upon men and women were also analysed. The factors influencing the division of labour and the difference in access to resources include culture, socio-economic conditions, environmental conditions and political policies.

In addition, the use of gender analysis also recognises the difference in use of natural resources between men and women. It can also provide a better understanding of the accumulation of knowledge by men as well as women. The difference in the attempts of men and women to secure their life and their family and the difficulties that they face in these efforts are also recognised.

The concept of gender relations is a social construct, therefore it allows for an analysis of change. It is clear from the findings that the roles of women and men have changed over time. Their relationship to their environment, especially to the forest, has also changed. This is reflected in the withdrawal of some women from gathering forest products, leading to a decrease in their knowledge of the forest. In addition, women can also cause damage to their environment. This is reflected in the change of attitude of some women to the forest who have also started to cut down trees in an effort to increase their income. Furthermore, the attitude of men towards gathering timber has also changed. They have also begun to cut down the small trees that they never touched before. Moreover, men have also left their exclusive roles on the farm due to the need to search for another source of income. The social construct in which men are perceived as head of the household and women as the mother has become a burden both for men and women as well as for the environment, especially when the resource base for the society's livelihood has decreased.

The use of gender analysis also allows us to understand the constraints upon women in conserving the environment. For example the limited access of women to land rights has led to great difficulties for women to be involved in soil conservation. The suggestion proposed by eco-feminists that women could solve the problem of environment alone will not be effective in this case.

8.5 Methodological Implications and Suggestions for Further Research

The use of a combination of quantitative and qualitative data collection coinciding with the use of research assistance from the *dusun* has greatly benefited this study. The quantitative approach utilised survey methods and obtained individual information regarding the different roles in the fields of study - for example, how many men and women were involved in gathering forest products, farming, employment for wages and domestic activities, how many hours these activities occupied and the distances covered in conducting the activity. This could be used to establish the change in the roles of men and women in a quantitative manner. In addition the use of qualitative data collection, including in-depth interviews, observation, and focus group discussions, gave greater depth of understanding regarding what roles were conducted by men and women in productive and reproductive activities and how these roles have changed. For example, through observation I discovered what kind of forest products were collected, how this was done, and what the different roles of men and women were in gathering forest products. This enabled me to understand the different attitudes men and women have in relation to the forest. With in-depth interviews I could explore the cultural and social system that influences the gender roles, the process of change, and what factors influence change.

In conducting the study I faced the difficulty of an inability to communicate as the locals spoke a different language. However, the use of an assistant interviewer from the *dusun* itself helped to reduce the time spent on this research, as the interviewer was familiar with the study area, the community and the language.

One of the most difficult aspects was obtaining information regarding the use of forest products. In the beginning when I lived in the two *dusun* most people, both men and women were afraid to provide information regarding their involvement in gathering forest products. This relates to the government regulation implemented in the study area that gathering forest products is considered to be theft. Several steps were taken in order to obtain their trust. These steps included attending all community meetings, such as religious meetings, parties and formal meetings. In addition, attempts were made to create individual rapport with several members of the community through visiting people at their houses and on the farm. The presence of the researcher over a year greatly helped in obtaining accurate data.

8.6 Suggestions for Future Research

As mentioned earlier the Indonesian population consists of many ethnicities and each ethnic group has their own culture. Therefore it would be better that research regarding the relationship between gender and the environment be carried out for each different ethnic group. What is women and men's role relating to their environment both in an area that has experienced environmental degradation and one that has not faced it? In this way we can create appropriate policies for each ethnic group in the different areas. The basic data relating to gender and the environment should be found within each separate region since each region in Indonesia will have greater autonomy in maintaining their region including their environment. In addition, this study is also important since it is predicted that forest degradation will continue in Indonesia (FAO 1990; Sunderlin and Resosudarmo 1996).

This suggestion is similar to that of Kettel (1995) who proposed investigation into the indigenous knowledge regarding the environment. However, the approach suggested by Kettel is only for women. I argue here that gender analysis that involves both women and men as a unit of analysis will give a much more comprehensive picture of the relationship between gender and the environment. In addition, the characteristics of individual and household respondents should be included in the analysis, for example the rate of divorce. This variable is still lacking in this study.

Regarding the difficulties experienced by migrants is it necessary also to carry out research pertaining to the constraints on migrants in searching for overseas work. Potential migrants need to have access to information before leaving about the social and economic conditions in the receiving area, what documents are needed to go overseas and how to process the documents, the type of job in the destination area and health protection etc.

The research relates to the social and economic impact of international migration, especially male, both in the origin area as well as in the destination area. This impact in the origin area should be investigated at the level of the individual, household and community. These data can give information about the advantage and disadvantages at all levels. Therefore, we can create policies that can increase the benefits of international migration and reduce the disadvantages. This study is still lacking in Indonesia especially relating to the impact of the migrants on health conditions including sexually transmitted diseases.

8.7 Implications for Development.

The study found several problems that must be taken into account for development planning. These problems can be seen at different levels, individual, household, community and government. The suggested solutions to the problems should be carried out simultaneously at each level. On the individual level, regarding the belief of forest people that the forest never finishes, a social awareness program should be implemented that involves both men and women in which an understanding of the finiteness of the forest, its reduced ability to renew itself under increased pressure, and the need for maintenance of the forest for future generations is disseminated. The suggestion by some eco-feminist writers (eg Shiva 1988) that women can solve environmental problems on their own is not relevant in every society. The reason is that both men and women utilise forest products to meet the needs of their family and themselves, so both can do wrong toward the forest. Therefore men as well as women have a responsibility to maintain their environment. In addition, my study indicates that in the area which has experienced severe degradation the time allocation for working on the farm and for domestic activities has increased for women. Therefore, women will have an even greater burden if they are given responsibility of maintaining the environment as well as their other tasks.

The social awareness of women and men regarding the society's construction that men are the bread winners, thereby giving them greater access to resources, is not appropriate at the present time. It has created a burden on both men and women and contributes to destroying the environment. In practice, not only men provide an economic contribution to the household but women also make a significant contribution in productive activities especially since the

degradation of the forest has increased. There should be a greater focus on gender equity at the household level. In particular, customary law relating to inherited land which gives men greater access to resources (especially land) needs to be revised together with government policy which gives access to land only for men.

In order to develop regulations and policies related to the forest, the government must involve the local community, both men and women. The forest is still believed to be a great source of livelihood for the surrounding people. Both men and women in the area of study have utilised forest products for such a long time that implementation of regulations to protect the forest will face many difficulties if no access at all is allowed. The implementation of regulations must be fair, just and equal. Whoever is stealing timber from the forest must be given the same sanction for their violation regardless of whether they are a village official, government official, policeman, army official or local person. This can also be controlled with the help and involvement of the local people.

Programs to improve the welfare of the local community are necessary in order to sustain the environment. This program should not only give access to men but women as well, especially women who are acting as a head of household. In addition, this program should recognise and facilitate the efforts that have been carried out by the people. For example many men and some women have migrated overseas, illegally. The government should give information to potential migrants on how to travel legally and regarding the living conditions in the destination area and the distance of the destination area from their village, thereby giving a greater chance to the potential migrant of not becoming a source of exploitation.

It should be emphasised by the government that migration is only a temporary solution to the problem of environmental degradation. Although migration is recognised by some policy makers and scholars as having a positive effect on reducing degradation of the environment, this cannot be seen as a solution due to difficulties arising from long-term separation of men from the family. In the long run, job opportunities in the study area should be created in developing the resources of that area.

Access to training for both men and women, especially for women in both low and high environmentally degraded areas should be a priority. At present the opportunities for training and assistance in agricultural development are only focused on men. Hugo (1996) suggests that improving job opportunities for men and women, health, education and human rights are important in order to achieve sustainable development.

8.8 Conclusion

This chapter attempts to cover all aspects regarding the study of the changes in the gender role that have resulted from the deterioration of the resource base. The approach used in this study provides a well-rounded picture of the impact of forest degradation on both women and men in the study area.

It is clear that environmental degradation has impacted upon men and women in different ways and has changed gender roles in Sempur. In the past when the forest was still large and could be used as the main source of subsistence needs for their livelihood, the gender roles in productive, domestic and community activities were felt to be complementary. Men could meet the traditional expectation of the society that men should protect their family materially

and physically. At present men concentrate on searching for cash by migrating overseas and going further into the forest. Men's involvement in agricultural and domestic tasks has decreased. This has left women to undertake activities on the farm and for the household. This change in gender roles is also reflected by the decreasing time used by men in carrying out domestic tasks in Sempur. In Timbenuh, the area which is considered to have a low level of forest degradation, the involvement of men in carrying out their domestic tasks is higher than men in Sempur.

The study found that the degradation of forest has created a burden for both men and women, especially those with low economic status. Men, who are perceived to be bread winners and strong, are burdened with searching for other sources of income, while the women are left behind and burdened with tasks that used to be shared. These difficulties have caused women to ask for equality of access, such as attending informal education, training and a breakdown of the restriction on planting trees.

The study of gender and environment with respect to the impact of forest degradation on gender relation is still limited. I hope that this study may become the first of many in Indonesia.

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