LANDOWNER PARTICIPATION IN PAPUA NEW GUINEA'S FORESTRY SECTOR: A Case Study of Pepaur and the Kumil Timber Project, Madang Province

by

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We accept this thesis as conforming
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ABSTRACT

Papua New Guinea, despite experiencing a significant increase over the past ten years in its rate of forest conversion, still possesses forests covering approximately 70 percent of its land base. Both the national government and customary landowners believe that the country's remaining forests have the potential to make a significant contribution to national, provincial and local economic development. With the majority of land in Papua New Guinea under customary forms of tenure, achievement of this goal will be dependent upon effective partnership between the state and its forest-dwelling communities. At present, there are few good examples of this partnership working in practice within Papua New Guinea, or South East Asia. Moreover, there is limited information currently available in Papua New Guinea about forest-dwellers involvement in timber projects and the impact that these projects have had on village society.

Working under the assumption that detailed investigation of existing timber projects might provide useful information to assist forestry policy-makers, planners and practitioners in their efforts to foster effective partnership between the state and forest-dwellers within Papua New Guinea, this study examines the case of Pepaur village, and its involvement in the Kumil timber project on the north coast of Madang province. The Kumil timber project was selected as a suitable case for study because of its size (55,000 hectares of mixed tropical lowland forest, home to approximately 4,000 subsistence farmers living in 23 villages), potential economic benefit (expected to generate upwards of $40 million (U.S.) in gross log sales over a 20 year period), and the fact that it represented one of the earliest attempts by the state to directly involve customary landowners in the commercial development of their forests through the establishment of a landowners' company.

The study was designed to gain insight into Pepaur social structures, particularly with respect to the issue of land tenure and forest use, and how

the timber project has impacted on community stability and prosperity. It also focused on Ulingan Development Corporation, the landowners' company, and investigated its role as a vehicle for meaningful villager participation within forestry development.

Findings of the study indicated that Pepaur's experience within the project has been overwhelming negative. Few financial or other benefits made it down to the village level. Moreover, these benefits were not distributed equitably within the village. From an environmental standpoint, timber harvesting operations increased the intensity, extent and frequency of creek flooding, reduced water quality and destroyed locally valued freshwater shrimp habitat. In social terms, logging operations and local involvement in the landowners' company resulted in increased tension within Pepaur, and between Pepaur and its neighbors. It also re-enforced the village's shift away from a communal clan-based system of land tenure, to one based on the individual. Finally, the project eroded villager's confidence and trust in the ability of their leaders and local political institutions to improve the quality of village life.

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EXCHANGE RATES

U.S. Dollars per Kina
Annual Averages, 1975-1992

	U.S Dollar ($)
1975	1.25
1976	1.23
1977	1.32
1978	1.45
1979	1.44
1980	1.55
1981	1.47
1982	1.34
1983	1.14
1984	1.06
1985	.98
1986	1.04
1987	1.14
1988	1.21
1989	1.16
1990	1.05
1991	1.06
1992 (April)	1.04

Source: Bank of Papua New Guinea, Quarterly Economic Bulletin, March 1984 and December 1991; Post-Courier, 6 April, 1992.

FORWARD

I became aware of tropical forest conversion issues while working in Papua New Guinea from 1988 to 1990. As coordinator of a local non-government organization providing non-formal education programs about small business development to rural communities, I had the opportunity to become personally involved with many rural communities and several timber projects. The experience provided me with the impetus, and opportunity for conducting this research project, as well as, important tools to assist me in conducting field research in rural Papua New Guinea, namely: language skills, patience, and an appreciation for the integrated nature of village life.

One project I was involved with during this time was a landowners' company, Ulingan Development Corporation (UDC), situated on the north coast of Madang province. UDC oversaw timber operations in the Kumil area of Madang province over the period 1982 to 1990. I assisted company directors with their financial accounts, organizing shareholder meetings and drawing up development proposals. Later on, I worked with a number of UDC shareholder groups delivering community workshops and providing business advice. I had the good fortune of spending time with one shareholder group in particular, Pepaur. A major forest owner within the Kumil area, this clan group had also played host to a significant proportion of the project's timber harvesting activities. It seemed to me, that, despite legally owning the forest resource and the company controlling its harvest, local people within the Kumil area had benefited very little from the timber project. I was intrigued to learn more about local people's actual involvement in the timber project, and their perceptions about how it has impacted their lives. Furthermore, not having actually lived in a rural village, I wanted to gain a better appreciation for village life. In particular, the nature of people's relationship with the forest - its importance in their day to day lives, and how this relationship is changing in the face of an expanding global economy.

ACKNOWLEDGMENTS

Support for the research was provided by many people and institutions in Papua New Guinea and Canada. Above all, the men and women of Pepaur village, Madang province - who made us (myself and my wife) welcome in their village, looked out for us over the course of our stay there, and who graciously put up with my constant questioning - made this study possible. I am grateful in particular to Melchior and Lucy Pesam, Anton and Ludwina Pesam, Alois and Anna Pesam and their families for their trust and generosity.

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The resources collected by Ulingan Development Corporation (UDC), in particular, by Bill Wells and M.L. Thompson (Canadians), and Daniela Renner and Christoph Oertle (Swiss), were instrumental in enabling me to conduct this study. Wells and Thompson managed UDC over the period May 1986 to August 1987, while Renner and Oertle were contracted by CUSO to conduct a three month study on UDC and the Kumil timber project in 1988. It is only through their effort and diligence that I had access to essential documentation about UDC and the legal agreements underlying the timber project.

At the University of Victoria, I am grateful to Dr. Flaherty, Dr. Vandergeest and Dr. Lonergan for their guidance and support, as well as, the

cartography department for their assistance in producing the maps for this study.

Finally, I am deeply grateful to Gayle, my wife, for her love, encouragement and support.

CHAPTER ONE

INTRODUCTION

"No effort to involve and assist forest dwellers in sustainable development strategies can succeed if policymakers do not possess an adequate degree of knowledge and sensitivity about forest dwellers. The urgency of the need ... is underscored by independent global estimates which range between 200 million to 500 million people."

Lynch (1990: 7)

1.1 Nature of the Problem

The loss and degradation of tropical forests[1] is regarded by many analysts as one the world's most significant and pressing natural resource problems (Gradwohl and Greenberg, 1988; Jackson, 1983; Mather, 1990). Located primarily in developing countries, along a belt around the equator, tropical forests account for approximately seven percent of the planet's land surface and contain over one half of the earth's species (Wilson, 1988).

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[1] It is important to note from the outset the ambiguity surrounding the concepts of loss and degradation. As Blaikie and Brookfield (1987) point out, these terms suggest social criteria which relate to a resource's actual or possible uses, and are therefore, by definition, social problems. The two most common terms to describe this issue within the literature are deforestation and conversion. I have chosen to use the term conversion throughout this thesis. Myers (1980) defines conversion as ranging from marginal modification, to fundamental transformation. Modification can be understood as being the result of human intervention, whereby the physiognomy, structure, and dynamics of the original forest undergo change. This change can be slight, substantial, or severe. For instance, hunting and gathering would constitute slight modification, whereas shifting cultivation represents substantial or severe modification. Modification assumes that it is possible for the primary forest to regenerate within a moderate length of time to its former make-up. Transformation represents a different category of conversion. Under this form of human intervention, the forest is entirely eliminated and replaced by a human-established ecosystem or inanimate structures such as highways and urban settlements. In summary, Myers (1980: 8) explains that conversion can mean a host of different things, "... it can imply floristic impoverishment, a diminution of standing biomass, a temporary disruption of successional processes, a gross disturbance of the species array, ... plus of course many other variations, together with gradients in between."

Additionally, they perform important protective, productive and regulative functions. It is generally recognized that tropical forests perform a vital ecological role in the global recycling of oxygen, nitrogen and carbon, influence temperature and rainfall, act as enormous sponges, collecting and distributing water, protect the soil from water and wind erosion, maintaining biological diversity, and actively contribute to human welfare and social and economic development.

There appears to be a general acknowledgment by scientists, politicians and the public throughout the world, that tropical forests are being lost at an accelerating rate. The United Nations' Food and Agriculture Organization (FAO) estimates that more than 8.5 million hectares of mature tropical forests are converted into agriculture, pasture lands or other uses every year (Barbier, 1991). Guppy (1984), for example, made a straight-line projection of 73 years until the demise of tropical forests. He painted a catastrophic picture of times ahead, if tropical forests are completely destroyed. The consequences he outlined - loss of genetic material, soil erosion and landscape degradation leading to declines in agricultural productivity, population collapse, rising sea levels, ... - are today, increasingly accepted as likely to occur even without the total destruction of tropical forests (see, for example, Homer-Dixon, 1991; McNeil et al., 1991). The conversion of tropical forests, is now viewed as only one of a number of contributing factors of increasing environmental damage around the globe. The environmental system, previously regarded as relatively resilient and stable in the face of human interventions, is now widely believed to possess multiple local equilibria that are not highly stable (Homer-Dixon, 1991). Scientists, policy makers and lay people are beginning to interpret data on environmental change in a new light:

> " ... progressive, incremental degradation of environmental systems is not as tolerable as it once was because we now realize that we do not know where and when we might cross a threshold and move to a radically different and perhaps highly undesirable system."
>
> (Homer-Dixon, 1991: 80)

There is an increasing urgency, therefore, to better understand the nature, magnitude and consequences of changes occurring within tropical forests, and to develop more effective control and management practices.

The loss and degradation of the world's tropical forests appears to be a simple issue: the resource is declining quickly, and its demise has serious implications for all planetary life forms. Global statistics, however, belie the complexity of the phenomenon because it is closely interwoven with so many seemingly intractable problems - social, political and economic. Moreover, this complexity differs not only from country to country, but region to region (Porritt, 1990).

Prior to the 1980s, forest management concerned itself primarily with the economic function of forests, in particular wood production. Today, there is a new awareness of the environmental function of tropical forests, as well as their social importance. Recognition of the important role played by forest resources (forest, trees and shrubs) in rural food security strategies throughout the South has resulted in forestry's increasing involvement with, and integration into, the more general rural development process (Blair and Olpadwala, 1988). A new framework for forest management, based on the concept of social forestry[2], has developed. This new framework contends that forest management and its socio-economic aspects should originate and involve constant consultation with the local people whose lifestyles and welfare are most affected by forestry procedures (see, for example, Montalembert, 1991; Rao, 1985). The problem is that to date, scientific research and conventional western-style land-use planning has been imposed

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[2] Gregerson et al. (1989: 3) define the term social forestry as a broad range of tree- or forest-related activities that rural landowners and community groups undertake to provide products for their own use and to generate local income. He uses social forestry interchangeably with the terms farm and community forestry, and forestry for local community development. Other forestry analysts, however, make important distinctions between these terms. Sanwal (1988) for instance, views social forestry as a model that has been developed out of the farming-system approach. Its main objective is to poverty alleviation and stresses the provision of services, their distribution, the extension of technology and geographical coverage. Rural people participate through periodic meetings and informal consultation. Community forestry is considered to be a much more 'bottom-up' process. Outsider scientists and foresters are no longer in control of the process as they are in social forestry programs; it becomes much more of a shared undertaking, but with rural landowners and farmers in control of the process.

from 'top-to-bottom' and as a result, has ignored the realities of rural people's lives (Burch, 1988; Herrera, 1981; Marshall, 1991).

Papua New Guinea (PNG), the largest country within Oceania, still boasts a forest cover of over 70 percent (Saulei, 1990). It's tropical forests, however, appear to be following the worldwide trend. Since the country's Independence in 1975, forest conversion has accelerated to the point that the majority of the country's commercial stands are expected to be exhausted by the year 2010 (Hurst, 1990). As Saulei (1990: 380), Director of the Forest Research Institute of Papua New Guinea states, "these forests are being cleared at an alarming rate." Not surprisingly, the World Bank led Tropical Forest Action Plan mission to Papua New Guinea (PNG-TFAP) in 1989 found the forestry sector to be in a state of disarray. Moreover, they reported that the country's medium term development strategy called for increased logging in the future (World Bank, 1990).

In Papua New Guinea, the majority of land is customarily owned by forest-dwelling clan groups. Forest utilization is, therefore, subject to their approval. Despite this, forest management and commercial forestry development in Papua New Guinea has been characterized by a 'top-to-bottom' flow of information and implementation (De'Ath, 1980a; Webb, 1982; Lamb, 1991). Not surprisingly, the recently completed PNG-TFAP review (World Bank, 1990: vi) stressed the need for the forestry sector to involve landowners in its management activities, in particular to enhance their "capabilities to negotiate and participate effectively in land use decision-making". In 1990 the PNG government introduced its own National Forestry and Conservation Action Plan (NFCAP) based on the PNG-TFAP recommendations. It included implementation of a new Forest Policy (PNG, 1991a) and Act (PNG, 1991b) and Forest Authority, as well as a long list of research and capacity development projects. The new forest policy and legislation provides the country with a revised decision-making framework for achieving sustainable forest management and increased local participation in the commercial forest industry. The framework explicitly acknowledges resource owners right to participate in, and be aware of, all transactions affecting their forest resources. It also seeks to encourage resource owner

participation in the development of Papua New Guinea's forest industry through the use of landowner companies.

There appear, however, to be few examples of effective partnership between the State and forest-dwelling communities in the management and commercial utilization of forest land, either within Papua New Guinea, or the South East Asia / Pacific region (Lamb, 1991). Part of the problem is that resource planners and managers possess a limited understanding of their forest-dwelling partners. This is certainly the case in Papua New Guinea. Saulei (1990), identifies the gap in the forestry sector's understanding of rural society as an essential research priority. He regards applied research into rural social issues, such as land tenure and use rights, forest use patterns, population growth and employment, as essential for developing improved forest management and utilization strategies, and suggests that the most rewarding approach is to monitor social impacts of current ongoing timber projects. To date, except for research conducted on the Gogol timber project, little information exists concerning resource owner involvement in commercial forestry or the effects of timber projects on local communities.

The Kumil timber project, located in tropical lowland forest on the north coast of Madang province in Papua New Guinea, was initiated in 1983. The project differed from the norm at that time, in that the State assisted in the establishment of a local organization, a landowners' company, and entrusted it with the responsibility of managing timber harvesting and development activities within the area. It was one of the first attempts by the State to directly involve customary landowners in large-scale commercial forestry. The project operated sporadically during the 1980s. In 1990, the landowners' company lost its authority to control logging activities. Both the State and local people had withdrawn their support for the company. In light of the government's stated commitment to enhance customary landowner participation within the country's forest industry, the failure of the Kumil timber project offers a unique research opportunity to improve our understanding of some of the on-the-ground problems and difficulties that must be addressed if this goal is to be achieved. In particular, this study focuses on the community of Pepaur, one of the twenty-two villages that participated within the timber project, and investigates its social structures,

particularly with respect to issues of land tenure and forest use, and the effects that timber operations have had on community stability and prosperity.

1.2 Purpose of the Study

The purpose of this study is to investigate a forest-dwelling community's involvement in a large-scale timber project in the tropical lowland forests of Papua New Guinea. The specific study objectives are:

- to review the process under which commercial forest exploitation occurs in Papua New Guinea, and what happened in the case of the Kumil timber project;
- to investigate land/resource ownership, forest use patterns, leadership and power dynamics within Pepaur, one of the Kumil timber project's shareholder groups;
- to investigate the nature and extent of Pepaur villagers' involvement in the timber project, and their perceptions about the impacts of the project on village life;
- to examine the implications of the study's findings for resource owner participation in Papua New Guinea's forest industry.

1.3 Outline of Thesis

This thesis has been organized into seven chapters. Chapter two provides a global overview of tropical forest conversion, then describes the current forest situation in PNG. Chapter three outlines the research methodology and data collection procedures. Chapter four describes the study area and the structure of the Kumil timber project. In Chapter five, Pepaur's socio-economic and political system is discussed. Chapter six describes the nature and extent of Pepaur involvement in the timber project, and the project's impact on the village. Finally, in Chapter seven, the study findings are summarized and conclusions are drawn.

CHAPTER TWO

BACKGROUND

"Ownership in Papua New Guinea especially to land is spiritual and sacred ... Therefore, the extension of this ownership by equity participation or ownership in resource companies brings to Papua New Guineans a sense of fulfillment and of being involved. They are then satisfied that they are part of the decision-making process."

Paul Nerau, Bougainville businessman,
Post Courier, February 17, 1993, p.2.

This chapter provides general context on tropical forest conversion and demonstrates the need for the study. First, the global phenomenon of tropical forest conversion is reviewed. This is followed by an overview of Papua New Guinea's forest resource, its system of land and forest tenure, forest conversion activities, and forest management policy and legislation.

2.1 Global Tropical Forest Conversion

Tropical forest, until recently, has been viewed as an infinite resource. International concern for the environment, beginning in the 1970s, however, prompted the first appraisals of its global extent and rate of regression (Sommer, 1976). Since then, debate about the resource has been beset by conflicting statistics and confusion over definitions, both of the forest itself, and of its rate and type of conversion (Mather, 1990). In addition, there has been conflicting assessments of the significance of given forest losses from social, biological and economic standpoints (Blaikie and Brookfield, 1987; Lugo, 1988). Despite problems of definition, measurement, and lack of consistent historical data, environmental, scientific and government communities throughout the world are agreeing that "tropical rainforest destruction is fast eroding the integrity of life processes and menacing the ecology of the earth, including ourselves" (Heinzman, 1990: 5).

In general terms, tropical forest occurs within the belt that girdles the Earth between 23 1/2 degrees north and 23 1/2 degrees south of the equator, in regions with year-round average monthly temperatures of 80 degrees Fahrenheit and annual rainfall of three to six meters (Perry, 1990). The biome is spread across three tropical regions within the 'humid tropics zone', and is divided among some 70 countries. Measurement of the biome is a difficult task because data from different countries are gathered by persons with different backgrounds using different systems (Myers, 1980). In addition, the task is further complicated by the diversity of the biome, in terms of structure and physiognomy (closed and open forest), and other factors such as vegetational rhythms (evergreen versus deciduous) and evolutionary aspects (primary and secondary forest) (Sommer, 1976). The main concern with tropical forest conversion appears to be over the state of closed, broad-leaved forest[1], of which rainforest, or tropical moist forest is the most expansive (Barbier, 1991).

Estimates of the extent of the tropical forest and its annual rate of conversion vary widely. Sommer (1976) concluded, on the basis of an analysis of data for thirteen countries, that the global tropical moist forest area of 935 million hectares was contracting at an annual rate of 11 million hectares. The Global 2000 (Barney, 1980) study suggested a rate of tropical forest loss of 18-20 million hectares per year, or nearly twice Sommer's (1976) estimate. Myers (1980; 1983) estimated the extent of closed tropical moist

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[1] Tropical broadleaved, closed forests are defined by the FAO as stands of broadleaved (hardwood) forests, which have sufficient canopy to cover a large area of ground (40 percent crown cover or more), little undergrowth, and are often multi-storeyed. They may be evergreen, semi-deciduous or deciduous, wet, moist or dry . The rainforests - or tropical moist forests as they are usually called - make up the vast majority (approximately 80 percent) of the world's tropical broadleaved closed forests (Barbier, 1991). In his global survey, Myers (1980: 11) defined tropical moist forests as:

> "evergreen or partly evergreen forests, in areas receiving not less than 100 mm of precipitation in any month for 2 out of 3 years, with mean annual temperature of 24+ degrees Celcius and essentially frost-free; in these forests some trees may be deciduous; the forests usually occur at altitudes below 1,300 meters; and in mature examples of the forests, there are several more or less distinctive strata."

forest at 1,200 million hectares, and suggested that it was not unreasonable to suppose that the earth is losing around 670 square kilometers of it daily. The most recent FAO (Barbier, 1991) figures estimate the total tropical moist forest area to be 1,045 million hectares with an annual conversion rate of approximately 8.5 million hectares. Despite disagreement about the precise rate of tropical forest conversion, there is widespread agreement that it is undesirably high.

Table 2.1 highlights the variations in conversion rates from country to country using the FAO (Barbier, 1991) data[2]. It highlights a number of points:

- almost all (91 percent) remaining tropical moist forest is located in Amazonia, Central Africa and S.E. Asia/Pacific;
- the majority of tropical forest outside of these areas - in Mexico, Central America, the Caribbean, West Africa and continental Asia - have already been lost;
- one country, Brazil, accounts for a third of the total moist tropical forest, and three countries - Brazil, Zaire and Indonesia - contain over half (54 percent) of the remaining global resource.
- tropical moist forest is being lost at an annual rate of .8 percent, with some areas experiencing large rates of conversion (total Other Areas 2.4 percent) and others small rates (Papua New Guinea .07 percent).
- close to one third of the globe's original tropical forest has already been converted to other land uses.

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[2] All areal measurements, or comparion of measurements, of the extent of the tropical forest biome assume a homogeneity within the resource that in fact does not exist. Tropical forest statistics need to be viewed with an appreciation that the tropical forest "is the most complex, diverse and species-rich terrestial ecosystem on earth" (Bruenig, 1987: 70). Primary tropical forest on the coastal lowlands of Papua New Guinea is very different in its species diversity, wood biomass, soil type, dependent human and animal life than is a Eucalyptus planation in the eastern Amazon region of Brazil. It is common in statistical surveys, however, to find both forests lumped together and considered simply as closed, moist tropical forest. It is important to realize when interpreting areal estimates that they provide very little information about the nature and quality of an extremely diverse and complex resource.

Table 2.1
Estimated Tropical Moist Forest Conversion (TMF), 1990

	Current TMF Area (mn ha)	% of Total World	Annual Rate of Conversion (000 ha)	Area TMF Converted To-Date (mn ha)	% Total
Amazonia	**613.6**	**58.7%**	**4,129**	**100**	**6.8%**
Brazil	347.0	33.2	3,200		
Peru	73.0		300		
Bolivia	55.5		60		
Venezuala	42.0		150		
Colombia	41.4		350		
Guyana	19.3		3		
Surinam	15.2		3		
Ecuador	12.3		60		
French Guyana	7.9		3		
Central Africa	**167.1**	**16.0%**	**325**	**30**	**2.0%**
Zaire	103.8	9.9	200		
Congo	21.1		22		
Gabon	20.3		15		
Cameroon	17.1		80		
Central Africa Rep.	3.6		5		
Equatorial Guinea	1.2		3		
SE Asia/Pacific	**167.0**	**16.0%**	**1,702**	**117**	**8.0%**
Indonesia	108.6	10.4	1,315		
Papua New Guinea	33.5		22		
Malaysia	18.4		255		
Philippines	6.5		110		
Sub-Total	**947.7**	**90.6%**	**6,156**	**247**	**16.8%**
Other Areas	98.0	9.4	2,324	177	12.0%
World Total	**1,045.7**	**100.0%**	**8,480**	**424**	**28.8%**

Source: R. Schmidt, "Sustainable Management of Tropical Moist Forests", Presentation for Asean Sub-Regional Seminar, Indonesia, Forest Resources Division, Forestry Department, FAO, Rome, January 1990, in Barbier (1991: 141).

The consequences of tropical forest conversion are uncertain because so little is actually known about the resource. Nonetheless, many scientists and analysts believe that the biome's continued conversion has the potential to generate serious impacts for humans, and other life forms, at local, national and regional levels. Locally, as trees and forest products become scarce, rural people feel the effects first. Herrera et al. (1981) suggest that a tropical forest's highly effective nutrient recycling mechanisms stop functioning when the forest is disturbed. This often leads to soil infertility and declines in the production of food and other forest crops. The progressive decline in the flow of forest products sets in motion a process of impoverishment that is difficult to reverse (Gregerson et al., 1989). Forest conversion also has important consequences over larger areas, in particular lower levels of deforested watersheds. Loss of tree cover at higher elevations results in flooding and erosion downstream, and more extreme climatic conditions (Bruijnzeel, 1991). At the regional and global levels, tropical forest conversion contributes to a decline in biological diversity (Myers, 1988). Tropical forests contain 2/3's of the world's organisms (Raven, 1988). Habitat destruction and modification leads to the extirpation of populations and species of organisms resulting in the impairment of ecosystem services. Erhlich (1988) suggests that as ecosystems falter, crop yields will become more difficult to maintain, desertification accelerates, and populations collapse. In addition, tropical forest is believed to cycle atmospheric carbon dioxide. Goreau and Mello (1988) suggest that loss and degradation of this ecosystem exacerbates the greenhouse problem, thereby contributing to climate warming.

The future of the tropical forest biome depends to a large degree on the causes of its destruction and on the prospects for their amelioration. Different causes operate at different scales, and proximate causes tend to conceal underlying pressures. Activities such as forest farming (shifting cultivation), commercial logging, plantation development, cattle-raising and fuelwood collection have all been cited within the literature as being causes of tropical forest conversion (see for instance: Ranjitsinh, 1979; Myers, 1980; Jackson, 1983; Gregerson et al., 1989). These activities are only symptoms of more basic factors. They merely give physical expression to some of the underlying structural causes: population growth and poverty (Leonard, 1989; Lappe et al.,

1990); government policies (Repetto and Gillis, 1987); socio-economic system (Ramitanondh, 1989; Hurst, 1990); and ideology (Noorgard, 1990; Shiva, 1990, Banuri and Marglin, 1993). These activities and forces are believed to operate at local, national and regional levels in interconnected, complex, and indeterminate ways (Mather, 1990; Lonergan, 1991). Improved understanding of these conditions are changing the context in which traditional forest management strategies have been developed.

Many people now believe that there is a critical need to improve the ability of foresters to manage both natural and human social systems (Hafner et al., 1990). Traditional forest management practices were based on the protective and productive aspects of natural forest. Biological, technical and macro-economic considerations received priority (Rao, 1985). As the resource diminished, and local populations dependent on forest products grew, past practices began to lose their relevance. In recent years, the need to develop holistic approaches that integrate environmental, economic and social functions of the tropical forest has emerged (Montalembert, 1991). Moreover, many analysts believe that the development of forest management strategies must begin with the needs and aspirations of local people (Chambers, 1983; Blair and Olpadwala, 1988; Gregerson et al., 1989; Hirsch, 1990a). Thus 'participation' has come to be viewed as an essential element of rural development and forest management strategies.

Interest in participation within rural development discourse began in the 1970s. Prior to this, the issue had been dealt with in a peripheral way. The prevailing theories of development following the Second World War, and right up until the late 1960s, implied a passive role for the majority of rural people. These theories were premised on the belief that development was induced largely by capital resources, with planning a matter of maximizing the stock of investable funds and then allocating them optimally among sectors. Rural people participated through their role as economic producers, and over the long run, through trickle down effects. Planning and linkages between national centres and rural areas tended to be one-way, top-down and extractive (Cohen and Uphoff, 1980). The impetus for concern with participation came from development practitioners who drew attention to the fact that, despite unprecedented change and progress in the South, the

majority of rural people within these countries had been excluded from the fruits of development and were living in conditions of absolute poverty (see, for example, Chambers, 1983). In the field, at the project level, it had become clear that success in addressing rural poverty was critically affected by the extent that beneficiaries participated within development efforts. This led to the revision of development theories to include the rural poor's active participation within development programming as formulators, planners, doers and beneficiaries.

The recognition of the importance of forestry activities for the subsistence and development of rural populations has led to a reorientation of forestry policies throughout the South. One issue currently receiving a lot of publicity today is participation. Interest in this issue stems directly from the forestry sector's increasing acknowledgment of its role as an integral component of rural development (Blair and Olpadwala, 1988). At the core of this relationship is an assumption that forest conservation is dependent upon the alleviation of rural poverty. In turn, without rural people's support and involvement it is unlikely that this latter goal can be achieved. This has prompted forest policy analysts, such as Montalembert (1991), to conclude that it is no longer enough that local people share in the benefits of forestry activities, rather, they need to take part in the design, according to their needs; manage activities in line with their own knowledge systems and practices; have access to the necessary resources; and be recognized as protagonists with rights of ownership to the fruits of their labour.

One major response to the growing worldwide concern over the serious and accelerating conversion of tropical forest has been the Tropical Tropical Forest Action Plan (TFAP)[3] . Launched in the mid-1980s, it

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[3] In 1983, the Committee on Forestry Development of the Food and Agriculture Organization (FAO) called for a plan of action to prepared for the conservation and development of tropical forests. The FAO published its Tropical Forest Action Plan in 1985. To confuse matters, a group of international organizations - the World Bank, World Resources Institute, the United Nations Development Programme (UNDP) - launched a complementary plan, also in 1985, called "Tropical Forests: A Call for Action". In 1987, these four organizations produced an amalgamated TFAP which was adopted by the international community. Following this, TFAP's were developed on a national basis to suit each country's specific challenges and needs. (Thomson, 1992)

represents an unprecedented international effort to stem the depletion of the biome. The key elements of the strategy include intersectoral action to tackle root causes of tropical forest loss and degradation; coordination of local, national and international efforts; and active involvement of local people and the private sector in the conservation and management of forest and tree resources (FAO, 1990). The TFAP has, from the outset, however, been heavily criticized. Environmental and peoples' organizations warned that the TFAP would actually accelerate the conversion process (see, for example, Colchester and Lohmann, 1990). Their concerns were that TFAP encouraged commoditisation of the forests and ignored its other, multiple environmental and social benefits; that the underlying causes of forest conversion were not being addressed, particularly the international economic causes; that the needs of the poor, and the forest-dwellers were ignored to the point of being threatened; and that the process was driven by the needs of donor organizations to distribute aid, rather than the needs of the countries concerned (Thomson, 1992). These criticisms led to a TFAP review and its subsequent revamping and revitalizing. The new TFAP (now called the Tropical Forest Action Programme), emphasizes the broader role of forests in national development. More significantly, TFAP has become a country driven, rather than donor driven exercise.

2.2 Papua New Guinea's Forest Resource

Papua New Guinea lies in the southwestern part of the Pacific, between 1°S and 12°S. It covers a land area of 463,000 square kilometers and is made up of the eastern half of the island of New Guinea, as well as a handful of other relatively large islands, and hundreds of smaller ones. The country lies within the region known to biogeographers as Malesia, which encompasses the countries of Malaysia, Indonesia, the Philippines and the Solomon Islands (see Figure 2.1).

Papua New Guinea, like the rest of Malesia, is biologically diverse and environmentally heterogeneous. Although the country lies wholly within the tropics, its vegetation formations are of an usually wide variety. This is due in large part to the central cordillera that extends 2,400 kilometers and

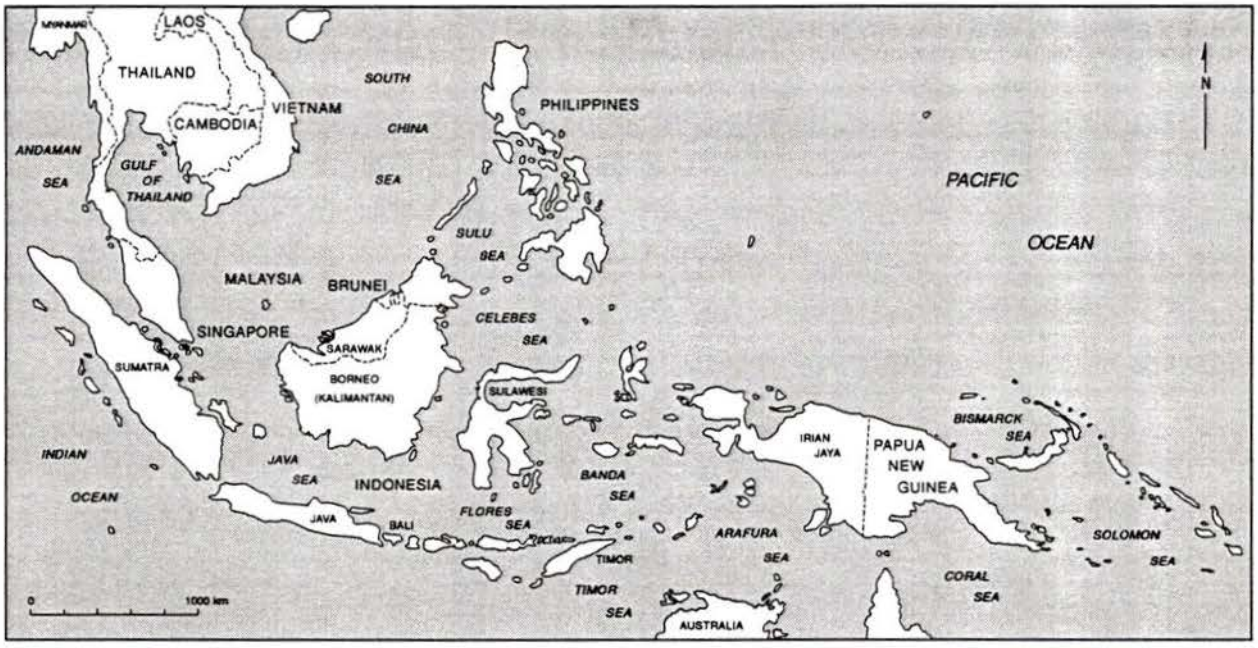

FIGURE 2.1 Location Map: Malesian Region.

rises in places to more than 4,500 meters in altitude. Johns (1977) notes that if you travel the 100 kilometers from the coast, at Madang, to Mt. Wilhem, the tallest mountain in Papua New Guinea, you cover essentially the same types of vegetation as those between the equator and the poles. Seven distinct forest systems are recognized, ranging from lowland evergreen rainforest to montane and subalpine ecotypes (Myers, 1980). The country's flora is estimated to comprise more than 11,000 species, with lowland rainforest containing more than 1,200 tree species (World Bank, 1990).

Table 2.2
Papua New Guinea Forested Area, 1985

	1,000 ha.
Total Land Area	46,200
Broad-leaved Natural Forest	35,623
Coniferous Natural Forest	520
Forest Plantation	35
Total Closed Forest Area	36,178
• Forest Area as a % of Total Area	78%

Source: World Bank (1990: xiii)

The total land area of Papua New Guinea is 46.2 million hectares. In 1985, the closed forest area was estimated at 36.2 million hectares[4], or 78 percent of the country's total land area. Papua New Guinea contains about 20 percent of the closed forest area of the four main forested countries of the Malesian

[4] The estimate of Papua New Guinea's closed forest cover provided earlier in Table 2.1 differs slightly from the estimate presented in Table 2.2. The reason for the difference is twofold: (1) Table 2.1 's estimate of 33.5 million hectares represents tropical moist forest, whereas Table 2.2's estimate includes all types of closed forest; and (2) they estimates were done in different years - Table 2.1 in 1990, and 1985 in the case of Table 2.2.

region (see Table 2.3). Because approximately three quarters of its forest land is located in mountainous zones, on broken terrain, or has been disturbed by shifting cultivation, the area considered accessible and potentially commercial forest is 15.0 million hectares. Papua New Guinea, therefore, contains only about 15 percent of the region's operable forest area.

Table 2.3
S.E. Asia / Pacific Islands - Forest Overview

	Indonesia	Malaysia	Philippines	Papua New Guinea
('000s of hectares)				
Total Land Area, 1985	193,600	33,040	30,000	46,200
Closed Tropical Forest	120,235	19,981	12,055	34,337
• % total area	62%	60%	40%	74%
Commercially Operable ('80)	73,735	15,552	6,890	14,085
Annual Conversion (81-85)	600	255	91	22
(millions)				
Population, 1989	184.6	17.4	54.9	3.9
• % Annual Incr. (1981-88)	2%	2.5%	2.8%	2.7%
• % of Population Rural	74%	65%	59%	87%
(hectares per capita)				
Closed Forest per capita	.65	1.15	.21	8.80
Operable Forest per capita	.40	.89	.13	3.61

Sources: Repetto and Gillis (1988); The Economist (1988).

Moreover, these forest stocks are believed to be relatively unattractive for commercial exploitation and management in comparison to those of its neighbours. Dipterocarpaceae, a commercially valuable family, is relatively poorly represented; the wide variety of tree species is relatively unknown in commercial markets; log form is comparatively poor; lowland forests are often swampy, hence difficult to exploit; and commercial yields are very low, on average only 30-50 cubic meters per hectare, in contrast with 100-150 cubic meters per hectare in Malaysian lowland forests (Myers, 1980; World Bank,

1990; Lamb, 1990). Papua New Guinea's population, however, is considerably lower than its island neighbours, giving it a comparatively high timber resource per capita. The implications arising from these comparisons are that:

- Papua New Guinea is rich in forested land and timber in comparison to other countries in the region;
- there should be less pressure to clear large areas of forest for agriculture;
- logging has the potential to contribute significantly to the national, regional and local economies.

2.2.1 Land and Forest Tenure

In most tropical countries, forest land is predominantly owned by the Crown or State (Lynch, 1990). In Papua New Guinea, land and some other resources, such as forest, belong to the people. Of the country's total land area, only about 800,00 hectares has been alienated: 600,000 to the State, primarily through government leases; and 200,000 to freehold titles - the granting of which, ceased in 1914 (Goava, 1984). The remainder, approximately 98 percent of the Papua New Guinea's total land and forest area is held under customary systems of tenure[5] (AIDAB, 1992).

The majority of Papua New Guineans, almost 90 percent of the country's population of 3.9 million, still live in small rural villages in and

[5] According to Acquaye (1984), land tenure in general, refers to the legal and contractual or customary arrangements, especially the rules and procedures governing the rights, obligations and liberties of individuals and groups in the use of, and control over, land and other resources. Customary tenure is the norm for most rural land, in most developing countries. However, it does not lend itself easily to precise definition and, because it varies from community to community, can never be of universal application. Nevertheless, Acquaye (1984) identifies the following features which he considers attributes of customary tenure: (1) rights rest on the fact that they are recognized as legitimate by the community; (2) social, mystic and religous attributes are usually attached to the land or resource; (3) the ultimate rights are usually held corporately by a social group; (4) group land is usually held in a fiduciary capacity by the head(s) of the group on behalf of the whole group (although the head(s) of the group articulates the consensus of the group); (5) rights are not often used on a communal basis, rather they are bestowed on individuals and households ; (6) individual/household rights derive from membership in the group, or acquisition from another group; (7) individual rights may revert back to the larger group if the land or resource is abandoned.

around forest areas and practice swidden cultivation[6]. Powell (1976), notes that plant resources form the basis of life in Papua New Guinea, whether the people are nomadic hunters and gatherers, fishermen, horticulturists or sedentary agriculturists. Although swidden cultivation often uses relatively simple agrarian technology, the rules of tenure associated with it are often complex (Weinstock, 1984). In Papua New Guinea, where no less than 700 different languages are spoken (Kulick, 1992), and where each group traditionally possessed its own unique system of rules and procedures governing land and forest resources, the complexity of customary tenure is further multiplied.

Ultimate control and transfer over land and forest resources in Papua New Guinea is commonly vested at the level of a kinship group, commonly referred to as a clan[7] (Kilori, 1984). These groups vary in size, and are all in a state of evolution. In areas of high population density, allodial title tends to shift to sub-clans. It is at this level, clan or sub-clan, that groups claim territories. According to Weinstock (1984), in clan customary tenure systems, all the resources of a specific territory are held collectively by the clan or sub-clan. Land is allocated to households for subsistence food needs by clan leaders. Households retain rights to specific parcels of land only as long as it contains economically valuable plants. A parcel of land returns to the communal pool of clan land when it is no longer in agricultural production. Use rights to land, tends to be shared by a number of individuals and

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6 Using Atal's (1984) categorization, swidden cultivation encompasses all types of cultivation done in the forest, through felling of trees and burning of debris. It includes groups that shift their homesteads as they shift their farms, as well as, those that have settled quarters but shift their fields. This type of economy rarely rests solely on cutting and burning; they also engage in food-gathering and hunting. It is a complex system of land use and cultivation, and in conditions of low population density, is believed to be highly suitable and viable form of agriculture in the tropics where soils are poor. Swidden cultivation can be classified in a number of ways, according to vegetation, mirgration, rotations, clearance, cropping and/or tool systems. It should also be pointed out that swidden is not just a form of cultivation, it is a way of life (see for example, Hong (1987), her discussion of the Dayak people of Sarawak, and 'adat', their system of customary laws and practices.)

7 The largest social unit in Papua New Guinea is the tribe. They consist of loose groupings of people possessing considerable degree of linguistic and cultural uniformity. Crocombe and Hide (1971) point out that while there is a recognized tribal territory in a general sense, the tribe as an entity does not exercise 'tribal rights' in the area as a whole.

households. Ownership of cultivated plants, however, is permanent and private. If an individual or household cultivate trees or other perennials, they secure tenure rights which could, in some cases, endure decades. While the clan would still retain ownership of the land under these trees or perennials, other members of the clan would be prevented from utilizing this land.

Brown et al. (1990), based on 30 years of research conducted in the densely populated Highlands region of Chimbu, suggest that some groups in Papua New Guinea also have individual systems of land and forest ownership. They found that clan members perceived currently, or recently used land, as individual property, while un-enclosed and long fallow land was more often seen as group territory. Under this system, ownership originates with cultivation. As cultivation became more intensive and semi-permanent, land rights in the clan or sub-clan became anchored to individuals and families. Once anchored, land rights became inheritable. Furthermore, they suggest that individual land and forest rights are not a recent phenomenon, but characterized Chimbu land tenure prior to colonial contact. Customary tenure systems in Papua New Guinea, therefore, appear to range along a continuum from total group ownership to private individual ownership. Where any community falls along this continuum, seems to be a function of agricultural intensity.

Resource management systems based on customary systems of tenure, have long existed in Papua New Guinea (Baines, 1989). Each of the country's cultural groups had, and to a lesser extent still have, their own measures - taboos, hunting and fishing restrictions, wildlife sanctuaries, sacred forest groves - which function to maintain the quality and diversity of the local physical environment. Clarke (1971: 72), for instance, observed that the Maring clans in the Highlands region of the main island of New Guinea have areas of forest which they call *Komung* - spirit-inhabited sacred groves where gardening and hunting are prohibited. The fact that Papua New Guineans have occupied the country's forests for approximately 50,000 years, many analysts suggest, speaks well for these management systems (De'Ath, 1982; Powell, 1976; Clarke,1992). This is not to suggest that environmental change did not occur. Forest disturbance in Papua New Guinea began with the

introduction of horticulture about 9,000 years ago (Golson, 1977). In some cases, particularly in densely populated areas such as Chimbu, Enga and Maprik areas of mainland Papua New Guinea and possibly on the Gazelle Peninsula of New Britain, it appears clear that resource management practices based on customary systems of tenure led to land degradation, i.e. conversion of forest land to grassland unsuitable for cultivation (Allen and Crittenden, 1987)[8]. This has led some people to question the intent to which these systems were conservational. Bulmer (1982) suggests that there is in fact little evidence of Papua New Guinean's 'consciously' managing their forests, or any other resource, on a sustainable basis. He contends that, like the overwhelming majority of humanity, Papua New Guineans are mainly concerned with immediate yields of crops and game. The most important conservational forces in the past were not intentional, but circumstantial, due to restraints on rapid population growth, and the limits imposed by pre-metal technology. He argues that the record of the past suggests that Papua New Guinean societies scored more points for adaptation, innovation and development of new resources, than they did for conservation. Despite this, Bulmer (1982) still believes that customary systems of resource management should continue to play an essential role in rural economies.

In 1973 Papua New Guinea was granted independence by the Australian government. The new State of Papua New Guinea, made specific constitutional provisions to ensure that customary systems of tenure and resource management would survive. The Fifth National Goal and directive principle of the Papua New Guinea Constitution states that "Development should take place primarily through the use of Papua New Guinean forms of social, political and economic organization" (King et al., 1985). Papua New Guinean governments, however, have also proceeded to implement forms of economic development which are in conflict with these traditional systems. For several analysts (Baines, 1988; Clarke, 1992), this poses a serious

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[8] Allen (1987), for instance, argues that the spread of new horticulture techniques with the introduction of the sweet potato in the Highlands was accompanied by the spread of inflationary and competitive exchange systems. As these exchange systems spread to marginal environments, they transformed forest to grassland.

development dilemma for the future of Papua New Guinea's citizens. According to Baines (1988: 278):

> "Traditional resource-management systems, reflecting the societies of their origin, are built on principles of allocation and cooperation within hereditary groups. Originally, they were geared to produce a surplus beyond subsistence needs only to the extent that they allowed for a local exchange of goods or for the maintenance of food reserves. The essence of economic development, of course, is the production of a surplus for monetary gain. This new mode of resource use strains the traditional management system and tests its adaptability."

TRAD. CBRM VS. ECON. DEV.

To date, these traditional management systems have displayed resilience in adapting to limited economic development initiatives such as cash cropping (coffee, copra and cocoa). They seem to be less capable, however, of withstanding change on a greater scale, such as that brought about by economic activities like logging, which can drastically alter a community's resource base. Without special attention and protection, Baines (1988: 292) fears, the country's diverse patchwork of traditional management systems are likely to succumb to development pressures.

2.2.2 Forest Conversion

It is estimated that over the period 1981-85 net conversion in Papua New Guinea's natural broad-leaved forest averaged 22,000 hectares per annum. Compared to many of its immediate neighbours (see Table 2.3), or other tropical countries (see Table 2.1), the rate of forest conversion can be considered low. This situation, however, is changing rapidly. Saulei (1990) states that the rate of conversion, today, is thought be between 200,000 and 250,000 hectares per annum. In the 1970s, the government of Papua New Guinea claimed there was enough forest to maintain a viable timber industry for 500 years. Analysts now estimate that most commercial stands will be exhausted by the year 2010 (Hurst, 1990). The two activities contributing most significantly to forest conversion in Papua New Guinea are agriculture and logging (Hurst, 1990, Lamb, 1977, Myers, 1980).

Swidden cultivation systems provide sustenance for the majority of the country's rural population. According to Lea (1971), in relation to the social, demographic and political changes that have occurred in Papua New Guinea, these farming systems have demonstrated little modification from the pre-contact situation. Under conditions where the population density is low and the fallow period after gardening is sufficiently long for the forest to regenerate, these systems do not lead to great, long-term damage to the ecosystem (Atal, 1984). In Papua New Guinea there is evidence to suggest that these long-practiced forms of cultivation have in fact degraded the environment (converted forest land into grassland), particularly in densely populated areas of the country. Moreover, Haantjens (1975) notes that up to 40 percent of the country's forest area shows signs of human disturbance. In the late 1970s the FAO estimated that this form of agriculture was responsible for clearing 15,000 hectares of forest annually[9](Hurst, 1990). Today, forest conversion due to indigenous farming systems is believed to have increased significantly due to population growth and migration. Over the past forty years, the country's population has almost tripled (from less than 1.5 million in 1950, to 3.9 million in 1990). This has led to an increase in the amount of forest land required for cultivation. In many cases, it has also resulted in reduced rotation cycles which has led to the introduction and extension of grassland. In addition, the country has experienced growth in timber and mining operations, along with government road building programs. These developments, apart from their direct impacts on the forest environment, have also opened up previously inaccessible areas of forest to rural communities.

Papua New Guinea's timber industry, while operative during colonial times, began to expand rapidly in the late 1960s. Up until this time, the timber industry was a minor part of the country's economic sector. Lamb (1990: 29) reports that for most of the period prior to 1962, annual log and sawn timber exports totaled less than 13,000 cubic meters. The gradual and

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[9] This figure was calculated by extrapolating the average area required per person and multiplying it by the estimated population. Given the wide variation of farming systems used, and the problems of collecting data in Papua New Guinea, the figure is a very rough estimate.

cautious forestry development policy that characterized this period, shifted in 1964, as a result of a World Bank report recommending aggressive commercial development and the export of raw logs (Hurst, 1990: 137). Since then, timber production has continued to expand, increasing from approximately 300,000 cubic meters in 1969 (Ibid: 143), to 1.3 million cubic meters in 1990 (AIDAB, 1992: 80). In 1988, Papua New Guinea earned about K91.0 million for forest product output, of which K84.5 million (93 percent) was for logs. This amounted to approximately 7 percent of the total value of exports (Ibid: 46,74). The World Bank (1990: 6) reports that value of forestry exports increased by 65 percent in real terms over the period 1981-88, in large part due to volume increases. The growth in timber trade has reportedly occurred predominantly within the country's lowland rainforests (Hurst, 1990: 145). The industrial forestry sector is controlled primarily by foreign companies. In the mid-1980s, Japanese companies controlled 53 percent of all logging major logging concessions and consumed almost 70 percent of all timber exports (Hurst, 1990: 145). Until 1986, despite a 36.5 percent corporate tax rate, no logging company operating in Papua New Guinea had paid tax on declared profits, or had declared any profits (World Bank, 1990: 31). Low company profit levels are reportedly the result of transfer pricing[10], which is believed to be widespread within Papua New Guinea's timber industry. It is estimated that the loss of revenue to the Papua New Guinea during the 1980s from transfer pricing has ranged between K11 to K30 million per year (Hurst, 1990: 135). Employment in the industrial forest sector has fluctuated between 4,900 and 5,500 people since 1979, with approximately 40 percent of the total employed in sawmilling activities (World Bank, 1990: 7).

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[10] The Barnett Inquiry (1989) into the timber industry identified a number of mechanisms by which transfer pricing was being practiced: misdeclaration of species, downgrading of log grades, underscaling volume, undervaluing log prices, over-valuation of external management, machinery, lease and consultancy costs, mistallying of ship loading, overstated freight rates, overstated claims for damages, nil profit accounting; double invoicing; complex distribution networks and collusion by importers (World Bank, 1990: 37). Transfer pricing tends not to take place situations where logging companies depend on independent marketing agents for sale of their logs.

Information on the effects of forest loss in Papua New Guinea is limited. The most thorough studies have focused on the activities of the Japan New Guinea Timber (JANT) timber concession in Madang province. Selective felling is the basis upon which most concessions operate, but in the case of the one controlled by JANT in the Gogol valley, the company has been issued rights to clear-fell large areas for its wood chipping operations. Saulei (in Hurst, 1990: 129) claims that forest conversion, and the timber industry in particular, is "accelerating erosion, weathering, humus decomposition, and leading to the widespread formation of soils with low nutrient and absorptive capacities". While there has been very little work done on the effects of forest loss on wildlife, Routley and Routley (1980) estimate that 65 percent of the country's endemic bird species are restricted to untouched forest. From a social and economic standpoint, logging activities have reportedly caused hardship (disruption of local food supplies) and tension (increased criminal activities and conflict between tribal groups around industry sites) (De'Ath, 1980). Moreover, many land owning groups feel that they have been cheated, that the money they received did not compensate them adequately for the loss of the forest as a resource (Friends of the Earth, 1984).

2.2.3 Forest Policy and Legislation

Papua New Guinea's first Forest Policy was formulated in 1973. The new Papua New Guinea government that came to power in 1973 had a somewhat different view of development from its colonial predecessor. Whereas the colonial Administration aimed to utilize the country's forest resource to generate national revenues, develop an integrated timber industry, provide rural employment and foster rural development, the new government was also concerned that the economy should come under greater Papua New Guinean control, that self-reliance should be promoted, and that there should be a more equitable distribution of the benefits of development (Lamb, 1990: 189). Papua New Guinea's first Forest Policy was formulated with the following objectives (Saulei, n.d):

- to manage the forest resources as a national asset in the interest of the present and future generations of the people;

- to preserve, develop and maintain forest areas through reforestation;
- to protect and manage the forest ecosystem for multiple uses;
- to promote the development of permanent forest industries and encourage local ownership and involvement in these industries;
- to direct a greater share of the benefits from forest development towards the landowners and other nationals involved in the industry;
- to promote research into forest technology to improve the efficiency of forestry development;
- to promote the use of local forest products to replace imported goods.

↓ export oriented

Since 1973, the National Forest Policy has been revised twice, first in 1979, and most recently in 1990. After independence, the new government was faced with fund shortages. All government departments were encouraged to find ways to increase revenue. As a result, the Forest Policy revisions issued in the 1979 White Paper related mainly to forest industries and generating foreign exchange. The revised Policy focused on two priorities: (1) achieving efficient utilization of existing sawn timber processing capacity, and (2) forming nationally-owned export logging enterprises (Department of Forests, 1986). Concessionaires were required to develop processing capacity and infrastructure along with their log export operations. The transition to processed products was to move as rapidly as possible (Lindell, 1980: 154). Neither priority was realized. Over the period 1979 to 1984 the volume of log exports tripled, while sawn timber production decreased; only a few Papua New Guinean owned or joint venture logging enterprises were formed, and none of their structures complied with the requirements of the Policy (PNG, 1986a). In 1987, public debate in the press and in Parliament commenced over the competency of the Forest Industries Council, a government body responsible for marketing the nation's logs internationally. A Commission of Inquiry (Barnett Inquiry) into the country's timber industry was announced in May 1987, chaired by a supreme court judge. The Commission began releasing reports from its investigations in 1988, and completed its work in July 1989. It reported widespread malfeasance in the timber sector, and concluded that the forestry sector was out of control, and that this had led to widespread environmental and social

why → '73 objectives ignored?

DOWNSTREAM PROCESSING

↑ EXPORTS

damage, and a lack of proper economic returns to either the State or landowners (see, for example, Asia Pacific Action Group, 1990). In May 1989, at the request of the Government of Papua New Guinea, the Tropical Forest Action Plan (TFAP) under the leadership of the World Bank initiated a review of the country's forestry sector. TFAP (World Bank, 1990: v-xii) identified six major problem areas that warranted immediate attention:

- lack of adequate information on the growth, yield or even the extent of Papua New Guinea's forest resource (making the concept of achieving a sustained yield management system impossible);
- lack of an effective decision-making framework to link the central and provincial governments and landholders (resulting in a breakdown in management);
- poor control over log marketing activities and an inadequate resource policy base (resulting in serious revenue losses for the country);
- internationally uncompetitive forest processing sector (dramatic decline since 1973 in local processing);
- uncontrolled logging (resulting in serious environmental problems)
- lack of trained personnel (present capacity is inadequate to provide minimum supervision of current activities, let alone tackle more complex tasks).

Based on recommendations from the Barnett Forest Inquiry (1989), and the World Bank Review (1990), a new National Forestry Policy was developed and tabled in Parliament in July 1990. Firmly rooted in the concept of 'sustainable development' (WCED, 1987: 43-44), the new Policy (PNG, 1991a) attempts to increase utilization of the country's forest resources and promote opportunities for greater Papua New Guinean participation in the industry, while at the same ensure that the resource is managed as a renewable natural asset. The new Forest Policy (PNG, 1991a) specifically addresses the issue of participation in two ways. First, it acknowledges the rights of customary landowners, and promotes ownership and organization forms respectful of traditional customary systems of land tenure (Ibid: 4). Thus, before any timber development can proceed, customary landowners must give their

written consent. Second, it aims to promote and encourage landowners involvement in Papua New Guinea's forest industry through landowner companies (Ibid: 30, 34). They may function commercially as holding or operating companies, and are designed to promote "long term development and investment projects within and outside the resource areas under operation" (Ibid: 34).

In many respects, the new Policy (PNG, 1990a) has changed little from the first National Forest Policy (PNG, 1973). The objectives, for instance, while couched in new terms, are quite similar. The main differences lie in the areas of decision-making structures and forest management controls.

The legislative framework for implementing Papua New Guinea's first Forest Policy (1973) was established under the 1971 Forestry (Private Dealings) Act, and the 1973 Forestry Act. These Acts were in effect until 1991 when a new Forestry Act, based on the new National Forest Policy (PNG, 1991a), was certified by parliament. Up until 1991, forestry legislation provided two possibilities for large scale timber exploitation[11]:

1 **Timber Rights Purchase**. The State, under the Forestry Act (PNG, 1973, Chapter 216, Sections 8,12) acquires cutting rights from customary landowners, assuming landowners are willing to sell them, and then issues them via a Timber Permit to a forestry development company to exploit under agreed terms and conditions.

2 **Local Forest Area**. Under the Private Dealings Act (PNG, 1971, Chapter 17, Sections 4,5) the State confers on landowners the authority to dispose of their timber resources to whomever they wish.

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11 In addition, the Forestry Act (PNG, 1973) permits two other mechanisms for issuing log rights - through a Timber Authority and Freehold Property Operations. Timber Authority's are granted to allow landowners to harvest timber for their own use. They generally do not exceed 5,000 cubic meters per year. On freehold property, no formal government approval is required. The amount of land held under freehold title, however, is small - 200,000 hectares in total. Moreover, the amount of land held under this type of title has remained constant since 1914, when its granting was abolished.

Both Acts explicitly recognize customary property rights to land and forest. In the case of the Private Dealings Act (PNG, 1971), full ownership rights are bestowed on land owning groups - they choose their own representative and negotiate directly with timber companies[12]. Each of the mechanisms by which logging rights are issued also stipulate a number of basic conditions that all agreements must abide by, including: landowners rights of access to all forest areas, to collect firewood, practice traditional gardening and freedom to hunt anywhere. In addition, logging must adhere to environmental criteria, such as: no felling within 20 meters of any permanent water course or within 50 meters of a river, no felling on slopes of 30° or more, no blocking of water courses to make bridges, and erosion control along all roads and tracks.

A number of other pieces of legislation have also been passed which impact on forestry development. In 1974, the National Investment and Development Act (NIDA) was introduced to provide guidelines on foreign investment agreements. It included clauses to promote labour intensive technology, indigenous hiring at all levels of operations, and local sub-contracting and purchasing. The Environmental Planning Act (EIA) and a new Conservation Areas Act were passed in 1978. The EIA stipulates that all major development projects must have an environmental impact assessment completed prior to the signing of any commercial agreement. The Conservation Areas Act enables government to exclude areas from development solely for reasons of conservation.

According to Hurst (1990: 139) , when combined, these various Acts provide for the most thorough basis for forest development in the South East Asia and Pacific Islands region. Despite this, forestry development in Papua New Guinea has come under sustained criticism. For the most part, it has focused on the government's lack of staffing and financial commitment to supervise, monitor and enforce their compliance (Saulei, n.d.), political corruption (Barnett Inquiry, 1989) and a general lack of ecological information necessary to manage the resource effectively. Several technical deficiencies

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12 Contracts, however, must be ratified by the Forestry Minister, who needs to be satisified that the sale or disposal is equitable, economically feasible and does not go against the national interest.

with the Acts have also been brought to light. Saulei (n.d), for example, points out that both the Private Dealings Act (PNG, 1971), as well as the Forestry Act (PNG, 1973), suffer from a lack of clearly defined regulations. In addition, all administrative powers are vested on a single individual, the Minister for Forests. More specifically, the Private Dealings Act (PNG, 1971) has been criticized for not providing limits on the size of the forest area, controls over the completeness of information supplied by the applicant and the timber operations in general, and inadequate reforestation and other development obligations (PNG Times, 1988: 3). In theory these technical deficiencies could be overcome without legislative revisions. However, many analysts believe that the appropriate solution is for all forest legislation to be incorporated into a single new legislation (Ibid: 3).

The new Forestry Act (PNG, 1991b)[13], addresses the above mentioned technical deficiencies in a number of ways. First, all timber utilization has been brought under a single piece of legislation. Moreover, whereas in the past, large-scale timber projects (over 5,000 cubic meters per year) on customary land could be initiated through either a Timber Rights Purchase (TRP) or a Local Forest Area, the new Act permits only one mechanism for timber utilization, a Forest Management Agreement (FMA)[14]. Under the FMA, similar to the TRP, the State acquires cutting rights from the customary landowners and issues them to a forest development company through a Timber Permit. Thus, landowners are no longer able to negotiate directly with companies to sell their timber. Second, administrative authority has been taken out of the hands of the Minister of Forests, and vested in a well defined decision-making process controlled by Provincial Forest Management Committees and a National Forest Board. The Act stipulates that the membership of both the Board and Committees must encompass a wide

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13 Ammendments to the Forestry Act (PNG, 1991b) were made in 1993. However, the changes were not substantive; the structure and the spirit of the Act (PNG, 1991b) were not effected.

14 The Act (PNG, 1991b), under the Timber Authority, also addresses forest exploitation in situations where logging is below 5,000 cubic meters per year, for salvage or road clearing. In these cases a Timber Authority is granted by the provincial minister responsible for forestry matters based on terms and conditions set by the Provincial Forest Management Council. A feasibility study and tendering process is not required.

range of interests: various government departments, non-government agencies, industry and landowners. It is the role of the National Forest Board, with the assistance of the Provincial Forest Management Committees to evaluate and recommend project areas (signing FMAs and issuing Timber Permits to companies) to the Minister of Forests for approval. The Minister does not have authority to go outside this process to consider proposals. Finally, the new Act specifies more rigorous conditions under which a Timber Permit will be issued and enforced. For example, project's being offered for tender must complete a feasibility study of the proposed project area, including an investigation of possible environmental and social impacts; and persons found guilty of a timber permit offence are liable to pay a fine up to a ceiling of K100,000 or five years imprisonment.

2.3 Information Needs

An important trend within forestry today is the recognition that forest management practices should be begin with an understanding of the needs and aspirations of local people. In Papua New Guinea, where the legal system recognizes customary systems of land and resource tenure, this perspective is given additional weight. The country's new forestry legislation, in fact, explicitly acknowledges and provides a basis for the implementation of forest management practices based on the realities of indigenous lives. For example, Section 46 of the Forestry Act (PNG, 1991b) acknowledges customary landowners right to participate in, and be aware of, all transactions affecting their forest resources, while the Forest Policy (PNG, 1991a: 4) gives priority to the development and promotion of customary systems of land tenure ownership and political institutions based on traditional precepts. In addition, the new forest policy is committed to increasing resource owner involvement in commercial forest development. These principles are not new - they have been reflected within past policy and legislation. The problem is that they have not been implemented. The government's response, based on the findings of recent reviews of its forest industry, has been to revise the decision-making framework under which forest management and utilization occurs. One of the main challenges for resource

planners and managers in the future will be to ensure that landowners become meaningfully involved within this new framework. Achievement of this goal in large part will be dependent upon resource planners' and managers' appreciation for rural communities and their interaction with the forest. According to the Forest Research Institute of Papua New Guinea, the country's forestry sector is currently lacking in this regard. The Director of the Institute, Saulei (1990: 382), believes that applied research into rural village social structures, in particular such issues as, land tenure and use rights, forest use patterns, population growth and employment is a vital research priority. He suggests that the most rewarding approach for research is to monitor the social impacts of current on-going projects. Except for research conducted on the Gogol timber project, very little information exists concerning the effects of timber projects, and forest conversion activities in general, on forest-dwelling communities (Hurst, 1990: 129). This study represents an attempt to gain further insight into the social structures that regulate village life, and how commercial forestry development projects impact on community stability and prosperity.

The Kumil timber project on the north coast of Madang province has been selected as the backdrop for this investigation. The project was initiated in 1983, and represents one of the earliest attempts by the State to directly involve landowners in large-scale forestry. The community of Pepaur was one of twenty-two villages organized into a landowners' company and charged with the responsibility of overseeing logging operations in the Kumil area. In light of the fact that the new Forest Policy (PNG, 1991a) promotes landowner companies as the key means for customary landowner involvement within the forestry industry, the Kumil timber project also presents a unique opportunity for reflecting on some of the on-the-ground difficulties that can arise when implementing this type of institution. The experiences and perspectives of Pepaur men and women are the focal point for the study, and provide the basis from which village-level social structures, the landowners' company, and the impacts of logging operations on village life are described.

2.4 Summary

This chapter has provided an overview of tropical forest conversion with a particular emphasis on Papua New Guinea. It has documented the fact that rural people, through customary systems of tenure, own the majority of land and forest in Papua New Guinea and by law have the right to be involved in all decisions regarding its utilization. It has also been shown that there remains a shortage of information about rural society in general, and more specifically, about resource owners past involvement in commercial forestry projects and the effects of these projects on village life. This suggests a need for detailed case studies of commercial forestry projects from the perspective of local people. The remainder of this thesis presents a case study of one forest-dwelling community's involvement in a large-scale timber project on the North Coast of Madang province. The following chapter outlines the research methodology and design.

CHAPTER THREE

RESEARCH METHODOLOGY AND DESIGN

This chapter outlines the methodology adopted for the study and describes the research design and data collection procedures.

3.1 Methodology

This study attempts to understand the experience of one village's involvement within a commercial forestry project, in terms of what it means to these people in determining their own lives, their community and the condition of their forest environment. The implications of this perspective are that:

- the subjective experience of community members and others is of critical importance;
- commercial enterprise and rural development must be seen as part of the broader scheme of community life and the natural environment.

Because of these assumptions, an interpretive, or qualitative research approach was selected to conduct the study. It is an approach that has been widely used within geography (Eyles and Smith, 1988), and in other social science disciplines, such as anthropology (Geertz, 1973; Marcus and Fischer, 1986) and sociology (Rabinow and Sullivan, 1979). According to Eyles (1988: 2), the task of interpretive research is "to uncover the nature of the social world through an understanding of how people act in and give meaning to their lives". Central to the approach are individual and group perceptions and knowledge, which are assumed the basis for examining the social world. The primary focus is on meanings (or definitions of situations) as seen from the standpoint of insiders (Jorgenson, 1989). It is important to note that while the approach searches for and accepts these meanings as given, a scientific ordering based upon previous work, theory and relations between theory and observation, is used to reshape the information derived from everyday

experience. As such, the approach is recognized as being in the "reality reconstruction business" (Eyles, 1988: 1).

The interpretive approach to research employed in this study is further informed by an appreciation that we live in a world in which knowledge is used maintain oppressive relations, where research has been largely the instrument of dominance and legitimation of power elites (Kirby and McKenna, 1989: 15). Chambers (1983: 76) expands on this viewpoint within a development context:

> "From rich-country professionals and urban-based professionals in third world countries right down to the lowliest extension workers it is a common assumption that the modern scientific knowledge of the centre is sophisticated, advanced and valid and, conversely, that whatever rural people may know will be unsystematic, imprecise, superficial and often plain wrong. Development then entails disseminating this modern, scientific, and sophisticated knowledge to inform and uplift the rural masses. Knowledge flows in one direction only - downwards - from those who are strong, educated and enlightened, towards those who are weak, ignorant and in darkness."

A different model of research is, therefore, required. It must be brought to serve the interests of dominated, exploited and oppressed groups (Mies, 1983: 123). It should empower people who are normally just the objects of research to develop their capacity to research their own situations and evolve their own solutions. The following are a list of guidelines, selectively appropriated from Mies (1983), that underpin the interpretive research approach used in this study:

1 *conscious partiality* - the notion of value free research (neutrality and indifference towards research objects) is rejected. Research objects are conceived of as parts of a larger social whole, and as research subjects. Moreover, a critical and dialectical distance between researcher and research subjects is created to enable the correction of distortions on both sides, and a widening of the consciousness of both (Mies, 1983: 123). As Chambers (1983: 100) notes: "Neither rural people nor outsider scientists can know in advance what the others know. It is by talking, travelling,

asking, listening, observing, and doing things together that they can most effectively learn from one another."

2 *view from below* - the traditional vertical relationship between researcher and research objects, which has been an instrument of dominance and legitimation of power elites, needs to be reversed so that research serves the interests of dominated, exploited and oppressed groups. In order for these groups to be better able to participate, control and benefit from research requires a shift in power. According to Chambers (1983: 101), an important first step in bringing about the necessary reversals is for "outsider professionals, the bearers of modern scientific knowledge, to step down off their pedestals, and sit down, listen and learn".

3 *active participation in actions, movements and struggles* - research must become an active part of the struggle for rural empowerment and emancipation. There is no place for contemplative, uninvolved 'spectator knowledge'. As Mies (1983: 124) states, the truth of theory is "dependent on ... its potential to orient the processes of praxis towards progressive emancipation and humanization".

4 *research must become a process of 'conscientization'* - people who were before the subjects of outsider research now become researchers themselves. This notion is elaborated on by Chambers (1983: 74) who identifies three poles of concentration for future rural research:

> "first, long-term, careful investigation, including statistical analysis, and involving social, medical and natural scientists; second, ad hoc, inventive work, improvising and adapting for the sake of timeliness and cost-effectiveness; and third, sensitive research which shifts initiative to rural people as partners in learning, enabling them to use and augment their own skills, knowledge and power."

5 *research must start from a holistic perspective* - based on the concept of 'systems model to human ecology'[1], research must consider the totality of rural development issues - components, dimensions and linkages.

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1 Human ecology is most broadly defined as the study of the interrelationships between human beings and the environment (physical and social) in which they live (Clark, 1985: 285). Several alternative concepts of human relations with the environment have been put forward since the beginning of the nineteenth century: environmental possibilism (Toynbee, 1947), cultural ecology (Steward, 1977; Geertz, 1963), ecosystem-based model of human ecology

3.1.1 Participant Observation

The study was grounded in participant observation. It involved openly participating, over a four month period of time, in the daily life of Pepaur village, watching what happened, listening to what people said, and asking questions. It is a method that allows the researcher the opportunity to piece together a rich and sensitive account of community life. This method was chosen over the more commonly used questionnaire method for a variety of reasons. Chambers (1983: 50), in writing about rural development and poverty in the third world, highlights a number of shortcomings with questionnaire surveys:

- embody concepts and categories of outsiders rather than those of rural people;
- limited, on their own, in identifying causal relationships;
- penetration is usually shallow, concentrating on what is measurable, answerable and acceptable as a question, rather than probing less tangible and more qualitative aspects of society.

Moreover, using such an approach in the rural Papua New Guinean context was not deemed realistic given the reality of having to operate in *tok pisin*, a language with a limited vocabulary and a second language for all parties involved.

According to Eyles (1988), there are two major challenges in this type of research, first, the need to grasp and untangle the complexities of context and the significance of local knowledge, and second, constructing a system of analysis whereby theoretical generalizations can be drawn from the densely

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(Rappaport, 1968) and the systems model of human ecology (Rambo, 1983). The systems model of human ecology describes social systems as they interact with ecological systems. Four relational aspects are emphasized: (1) inputs from the ecosystem into the social system, (2) inputs from the social system into the ecosystem, (3) changes within the ecosystem in response to inputs from the ecosystem, and (4) changes in the ecosystem in response to the inputs from the social system. In addition, each system is open to influence from neighbouring systems of the same kind. The basic unit of adaption is assumed to be the system itself, with each system changing its structural configuration according to its own internal dynamics. The greatest virtue of the model, according to Rambo (1983: 29), is the attention " ... it focuses on the significant areas of interaction between human social systems and ecological systems - the flow and counterflow of energy, material and information".

textured observations of community life. As Geertz (1973: 10) states, doing this type of research is like:

> "... trying to read (in the sense of 'construct a reading of') a manuscript - foreign, faded, full of ellipses, incoherencies, suspicious emendations, and tendentious commentaries, but written not in conventionalized graphs of sound but in transient examples of shaded behaviour."

The result is thick, or densely textured descriptions of social reality. The sheer volume of the data collected, along with the fact that data is specifically located and particular to contexts and biographies of participants, requires careful management in order to ensure that the mass of collected information is organized into manageable parts. The data management and analysis pattern followed in this study is based on the schema introduced by Kirby and McKenna (1989: 128-9):

> "The schema illustrates an analysis which is based on dynamic relationships between data, between categories and the changing links between categories. Part of the dynamic is created by the researchers efforts to simultaneously live with the data and make sense of the data. During this time, the researcher constantly reflects on both the data and the process of analyzing it. In this way, analysis emerges from the information at hand. The other part of the dynamic is created by the researcher's constant moving, back and forth, between data and concepts, and between individual ideas and research explanations in order to fully describe and explain what is being researched. This keeps the researcher constantly vigilant for new understandings at all analytical points."

Stability or reliability in the generalizations resulting from the analysis is thus achieved through an interactive process, whereby the researcher is required to account for all field data. In cases where conflicting or contradictory data emerged, it was restated back to participants for clarification and verification. Thus, an accurate picture of the situation under study is achieved only once all material had been accounted for within the analysis.

Despite the focus on a single case study, it is assumed that the research findings are capable of providing the basis for drawing some broad implications about involving forest-dweller communities in forestry development projects within Papua New Guinea. As De'Ath (1980b: 8) points out in his case study of the Gogol timber project in Madang province, while patriclan forest-dwelling villages in lowland areas of Papua New Guinea vary linguistically and culturally, they do exhibit considerable similarities in access to land and in exposure to outside influences. From De'Ath's perspective, the similarities of these rural patriclan communities outweigh their differences.

3.2 Research Design

Interpretive research uses a flexible, open-ended, on-going process to identify, clarify, and refine what it is that is to be studied (Jorgenson, 1990: 32). The approach, therefore, assumes that research questions will undergo refinement as the living context becomes more apparent. Appendix 1 outlines the research questions and data collection categories which eventually guided this study. Document review, informal interviewing, observation, and participation were the techniques used to collect data.

Document Review: I was fortunate to have access to the complete files of Ulingan Development Corporation (UDC). They are in the possession of a Pepaur resident, an ex-UDC Director. The files included the following documents:

- UDC incorporation papers;
- financial statements for the timber project;
- minutes of UDC Board of Directors meetings;
- correspondence between the landowners' company and its shareholders, logging companies and the provincial and national forestry departments;
- Kumil Timber Rights Purchase (TRP) Agreement;
- Timber Permit issued by the National Department of Forests for the Kumil TRP area;

- Logging and Marketing Agreement between UDC and the logging contractor;
- forest survey of the Kumil TRP area;
- and various other forestry and development related materials.

The UDC files provided essential information about the timber project, as well as a foundation for discussions with informants on several village specific issues, such as, clans, land ownership, and political institutions. An extensive review of other Papua New Guinean literature (academic studies, government publications and newspaper articles) was also undertaken in order to provide background on issues such as forestry policy and guidelines, rural development and social change.

Participation and Observation: Jorgenson (1989: 55) identifies four different participant observation roles ranging from (1) complete observer, where there is no contact between researcher and researched; (2) participant observer, in which the relationship between the researcher and others is defined by research; (3) observer-as-participant, in which the distinctiveness of the researcher's role is made clear from the outset; and, (4) complete participant in which the observation role is concealed. The two methods - participation and observation - are commonly seen as representing competing objectives. The more you participate, the less you are able to observe, and vice versa. In general though, the potential for understanding and accuracy of observation is increased as the researcher becomes physically and socially involved with the subject of study (Ibid: 56). Most participant observation falls into the middle two categories (Eyles, 1988: 9).

In conducting this study, I adopted a role of observer-as-participant. I entered the study setting with my own research agenda and asked for their assistance in pursuing it. There were two components to the request I made of the village: (1) to allow me to conduct personal interviews with people, and (2) to allow myself and my wife to live in the village. Both requests were agreed to by village leaders. Over a four month period, my wife and I lived in a bush material house in the midst of Pepaur's main settlement. We were the first white people to live in their midst. As a result, it took a number of

weeks before people became accustomed to our presence and we were able to move around freely without attracting a crowd. In many respects, we became part of the community's daily rhythm - attending village meetings, ceremonies and church, going to the local markets, and recreating with people. I was also called upon, from time to time, to assist people in their economic endeavours. As a result, I had the opportunity to put a roof on a house, make copra (dried coconut meat) and sago flour, operate a portable sawmill, and set-up a simple book-keeping system for a small bakery business. Aside from providing information, living and participating in village life was invaluable to the interview process. In particular, familiarity with everyday village life assisted me in grounding, focusing and refining my interview questions.

Informal interviewing: Informal interviewing was the primary method used to gather information. According to Moser and Kalton (1971), interviewing can be divided into formal and informal types. Formal interviewing assumes that the researcher already knows what the interview is designed to uncover. In this type of interviewing questions are worked out beforehand and the answers are recorded in a standardized form. With informal interviewing, the questions asked, their sequence and wording are not worked out beforehand. In this case, the interviewer tailors questions to the individual. The aim is to engage in conversation with interviewees to set them at ease, as well as ensure that questions have the same meaning to all interviewees. This type of interviewing differs from the former in that it seeks to explore particular matters in elaborate and comprehensive detail. This method is also referred to as in-depth interviewing (Jorgenson, 1989).

This study relied on two sets of interviewees: key informants and secondary informants. Key informants were individuals with whom I conducted lengthy, in-depth interviews. These interviews encompassed the study's entire range of data needs. Discussions lasted several hours, and I returned to these individuals many times over the course of my stay in the village. Secondary informants were sources of more specific information. I often consulted them to verify information provided by key informants, or to seek out information that only they possessed. These discussions tended to be

of shorter duration than those held with key informants, but these individuals were also revisited on an on-going basis.

Informant selection to a certain extent was determined by the social hierarchy within the village. I gained access to the village through my friendship with the ex-UDC Director who I had worked with in the past on UDC business, as well as village matters. With his assistance, I was able to draw up a list of 'important' men within Pepaur, as well as the neighbouring villages. As I became more familiar with the village, I was able to adjust the list to make it more comprehensive and balanced (i.e. include men who held no special village status) for the purposes of the study. Appendix 2 identifies the study's key and secondary informants. Of the 27 people identified in Appendix 2, just under half (13) were key informants. They represented ten different sub-clans from four villages (Pepaur, Muere, Tavulte and Asumbin), and ranged in age from 22 to 75. All key informants, and all but four of the secondary informants were male. This was due to social taboos within the village which make it unacceptable for an outside male to hold on-going, lengthy discussions with village women. I was able to get around this barrier to some extent through my wife's research. The two of us were living and working in the same village. She was working with village women investigating their environmental knowledge and their role in environmental management. Through her efforts, I had access to village women's perceptions far beyond what I would have been available to me if I had have been on my own. It was an avenue of investigation that I used on a day-to-day basis.

Almost all interviews were conducted in *Tok Pisin*,[2] the local *lingua franca*. Previous work experience within the rural Papua New Guinea meant that I possessed adequate language skills to carry out interviews without the need of a translator. Only one informant possessed adequate

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[2] *Tok Pisin* is also referred to as Pidgin English, neo-Melanesian and New Guinea Pidgin. It is called *Tok Pisin* by the people who speak it, and since 1981 has been the language's official name in Papua New Guinea. The language's primary lexifier language has been English, but other languages, in particular the Austronesian language Tolai, spoken on the island of East New Britain, have contributed up to 30 percent of its vocabulary (Kulick, 1992: 4-5).

English skills to permit in depth conversation. Discussion with this person usually took place in *Tok Pisin,* with English used at times to provide further clarification. Interview information was recorded using hand-written pen and paper notes. Note-taking was done in English, scattered with *Tok Pisin* phrases. During the interviews, only main ideas or points were recorded. Detailed note-taking, whenever possible, immediately followed the interview session. Access to computer equipment in Madang town permitted me the opportunity to organize and revise my field notes efficiently. Approximately every second week I spent a few days in Madang town on this task. In the later research stages, particularly with respect to questions of land ownership and forest use, I often worked directly from this organized information. Revisions were recorded on the hard copy and the file was updated on my next trip to town.

3.3 Summary

This chapter has outlined the methodology, research design and data collection techniques used in the conduct of the study. Because of the study's focus on rural, third world villagers' perceptions and knowledge, an interpretive research approach oriented towards participant empowerment was adopted. Document review, informal interviewing, observation and participation were the main methods used in exploring Pepaur society and villagers involvement with the timber project. The following chapter describes the regional context for the study, and provides an overview of the Kumil timber project.

CHAPTER FOUR

KUMIL TIMBER PROJECT BACKGROUND

> *"A recent example of the continuing unhealthy attitude towards this nation's economic and ecological wealth was exemplified by the Madang Premier in the recent negotiations with a Korean company wishing to buy the virgin 100,000 hectare Joesephstaal Forest. The Premier is quoted in the Post Courier of 4 July 1990 as saying about the negotiations of this sale: "Usually this kind of negotiation takes months ... but we did it in one afternoon." This kind of cavalier attitude still exists within government even after the exhaustive and condemning study of Judge Tos Barnett."*
>
> Friends of the Earth, PNG (August, 1990: 13)

The purpose of this chapter is to describe the regional context, and clarify the structure and process of the timber project that Pepaur village participated within. The first section briefly reviews the provincial setting and the history of commercial forest exploitation in Madang province. The Kumil area's physical attributes, forest resource, linguistic and ethnic diversity, and socio-economic conditions are then outlined. Finally, an outline of the Kumil Timber Project is sketched: players involved, underlying legal agreements, organizational structure, and chronology of events.

4.1 MADANG PROVINCE

The Kumil timber project, and Pepaur village, are situated in Madang province, on the main island of Papua New Guinea. The province, which also includes four major islands, stretches between 2 and 6 degrees south latitude, and 144 and 148.5 degrees east longitude (see Figure 4.1). The province occupies a total land mass of 28,339 square kilometers. The landscape on the mainland is very rugged, featuring a series of mountain ranges and dense bush. A narrow plain runs along the entire coastline. In the southeast, the Finisterre Range rises to 3,800 meters ASL, while in the north, the Adelbert Range attains heights of 1,500 meters ASL. Further

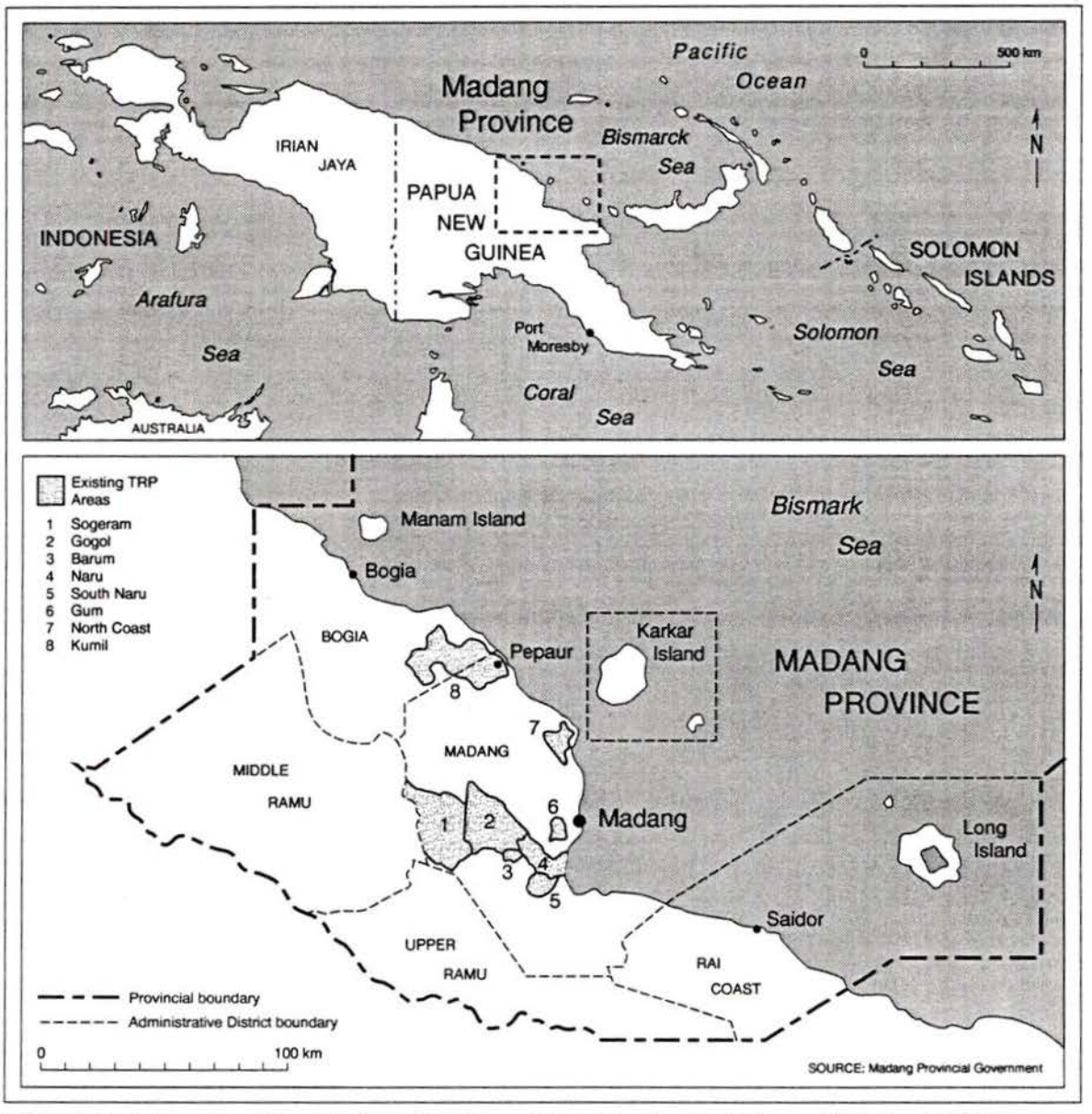

FIGURE 4.1 Location Map: Madang Province, Administrative Districts and Existing TRP Areas.

inland, a wide and extensive river valley system, Markham-Ramu, separates the coastal ranges from yet another mountain range, the Bismark Range, rising to 3,500 meters ASL. Offshore, two of the major islands, Karkar and Manam in the north, feature active volcanoes.

The province is divided into six administrative districts: Raicoast, Madang, Karkar, Bogia, Middle Ramu and Upper Ramu. In 1990, Madang's total population was 270,299, approximately 86 percent of which live in small rural villages. Madang town, the provincial capital, had a population of 27,057. Table 4.1 provides an overview of the province's districts, land area, and population density.

Table 4.1
Madang Province: Land and Population Data, 1990

Districts	Area in Square Kilometers	Total Population	Population Density
Rai Coast	2,979	27,147	9.1
Madang	7,020	88,335	22.5
Karkar	436	31,680	72.6
Bogia	5,370	51,265	9.5
Middle Ramu	7,146	41,449	5.8
Upper Ramu	5388	30,423	5.6
Total	28,339	270,299	9.5

Source: Madang Provincial Government (1992: 13)

Papua New Guinea inherited a Westminister-style parliament and institutions from Australia.[1] There are three levels of government: national, provincial and local. At the national level, seven elected officials represent the province of Madang. Provincially, 24 members are elected to the Madang assembly every five years. At the local level, villagers are organized into 15 local government councils (LGC). Of the three levels of government, the local government councils are the most under funded and, consequently, considered the least effective in providing people with services.

Madang town, centrally located in a naturally deep sheltered harbour, is linked by international shipping and air services. It is where the majority of health and social services are based, and the point of departure out of the country for rural cash crop production. An all weather road also links Madang town with six neighbouring provinces. Rural infrastructure is limited. Despite considerable public investment, only three hundred kilometers of all season road, between Madang town and Bogia, has been built and is maintained on a regular basis. The majority of rural communities are forced to rely on rough dry season roads, infrequent shipping, and/or air service to connect them with the provincial capital.

The provincial economy is heavily dependent on subsistence agriculture. The dominance of subsistence activities within the economy is reflected in the province's per capita income figure - in 1983, it was only K381 (AIDAB, 1992: 67). Within the rural sector, people's involvement in the cash economy is focused on the cultivation and processing of agricultural cash crops, in particular, copra, cocoa and coffee. There is also some marketing of surplus garden produce, especially in the vicinity of main population and

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[1] Papua New Guinea's political system, however, has evolved its own mores and distinctive practices. For example, in most of Papua New Guinea there is no genuine party vote. Elections adhere to a 'first past the post' system - whoever scores the most votes on the first count wins. This means that the more candidates there are for an electorate, the greater the chance each candidate has of winning. For instance, the Kerowagi electoral area in Chimbu province attracted 45 candidates in the 1987 national election. The winner received only 7.9 percent of the popular vote - he went to parliament even though more than 90 percent of the voters of Kerwagi chose otherwise. For further information about Papua New Guinea's style of parliamentary democracy see Dorney (1990: 52-82).

administrative centres. Madang town, the province's primary urban centre, has a small industrial base, comprised of tobacco and softdrink manufacturing, a few sawmilling operations, a meat cannery, and a wood chip factory. It is also a popular tourist destination and boasts several hotels. In the late 1980s, the production of sugar commenced in the Ramu valley. It is the only large-scale processing activity that occurs outside of the provincial capital.

Large-scale commercial forest exploitation was initiated in Madang province during the 1970s. Prior to this, commercial forestry development had been limited to a few, small Mission owned and operated sawmills. In 1971, a Japanese consortium (JANT) established a wood-chipping mill based in the Trans-Gogol area. The company's clear-cutting operations have attracted considerable publicity and scientific interest over the past twenty years (see, for example, Davidson, 1983; De'Ath 1980a, 1980b, 1989; Lamb, 1977, 1980, 1990; Saulei, 1984). JANT's initial agreement with the State of Papua New Guinea expired in 1991 and, as of May 1993, negotiations for new timber resources for another 15 years were still on-going (Madang Provincial Government, 1992: 11). Two other companies, Madang Timbers and Taway Timbers, are also engaged in Madang's timber industry. Madang Timbers is a large operation that exports round logs, as well as, processes sawn timber. The company is 17 percent owned by the Madang provincial government through the Madang Development Corporation (Lamb, 1990). Taway Timbers, is a small, locally owned operation which processes sawn timber primarily for local markets. The existing and planned TRP areas within the province are outlined in Table 4.2. Of the province's total land area, approximately 8 percent is already under TRP agreement. A further 16 percent is either in the process of becoming a TRP, or is considered as a potential TRP area. Of this total (677,683 hectares), approximately 13 percent has been actually logged out. The majority of this has been done by JANT's clear-cutting operations.

Table 4.2
Timber Rights Purchase (TRP) Areas, Madang Province, 1992

TRP Area	Gross Area in hectares	Company	Status
Existing TRPs			
Barum	1,550	JANT	logged out
Gogol	52,265	JANT	logged out
Naru	15,800	JANT	logged out
Gum	4,960	JANT	logged out
North Coast	14,990	Mdg Timbers	being logged
South Naru	16,900	JANT	being logged
Kumil	55,940	-	partially logged
Sogeram	56,480	-	intact
Total Existing TRPs	218,885		
Proposed TRPs			
Biges	8,200		
Gomumu	6,000		
Rai Coast	26,128		
North Coast Extension	15,000		
Guam	50,000		
Josephstaal	90,000		
Other Potential TRPs			
Tauta	25,000		
Middle Ramu	35,000		
Saidor	10,000		
Ramu Block	193,470		
Total TRP Area	677,683		

Source: Madang Provincial Government (1992: 10-11)

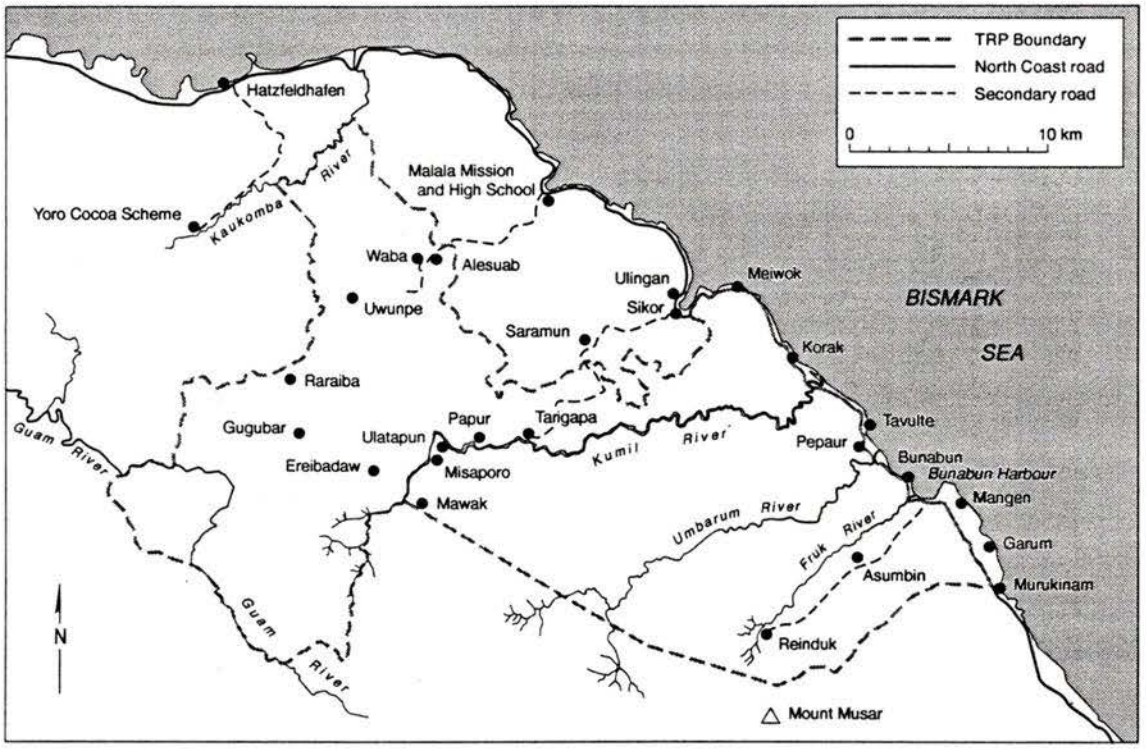

FIGURE 4.2 Kumil Timber Project: timber rights purchase boundary, roads and settlements.

4.2 KUMIL AREA

The Kumil area does not represent a single, traditional tribal territory. It is a distinguishable area as a result of a Timber Rights Purchase (TRP) Agreement that was signed in 1984, between customary landowners and the State. The Kumil area, as defined in the Kumil TRP agreement, covers the Kumil drainage system and several smaller rivers in the vicinity of Ulingan Harbour, on the north coast of Madang province. Ulingan has coordinates of 145° - 25' East and 4° - 30' South. The area is approximately 100 kilometers northwest of Madang town and is accessible by an all season road.

The Kumil area is outlined in Figure 4.2. The gross area is 55,940 hectares (PNG, 1986b). The area is drained by the major Kumil river, and several smaller rivers including the Kuakomba, Umbarum and Fruk, all of which rise in the Adelbert Range. On the coast, where the hills are small and rounded, the rivers develop flood plains. Moving inland, the hills become steeper, with some peaks reaching 800 meters ASL. Here, the rivers tend to occupy deep gorges.

The area experiences a typical maritime climate based on the southwest and Northwest monsoons. The wet season runs from November to April. The dry season, occurs during the months of May to October. Temperatures are more or less uniform throughout the year, ranging from 24°C to 29°C, but are slightly cooler during the wetter months. Annual rainfall is approximately 3,000 mm (Lusco, 1985).

The coastal fringe of the Kumil area consists of recent uplifted limestone coronous and marine sediments. Inland, the parent material is of volcanic origin, mainly basaltic lavas and uplifted volcanic sediments (Lusco, 1985). Latosols and brown soils predominate (King and Ranck,1988). Soils are of variable depth, depending on slope steepness and stability. Along the coast, in many places, soils have been degraded by continuous yearly burning.

Forest in the Kumil area is of the Mixed Lowland forest type[2]. The area also includes considerable expanses of grassland and young regrowth

[2] Mixed Lowland forest throughout Papua New Guinea is characterized by great variations in composition, even within areas with apparent uniform conditions. Johns (1977) notes that the lowland zone has been widely influenced by swidden cultivation, droughts, fire, volcanic

(Piajmans, 1975). Table 4.3 outlines the commercial potential of the Kumil area's Lowland forest[3]. Survey work in this area identified over 30 commercial species with a total expected volume of 877,500 cubic meters (Lusco, 1985: 7-8). The dominant species identified were: Terminalia spp. (11.0 percent of total), Pometia pinnata (10.4 percent), Celtis spp. (8.2 percent), Dysoxylum spp. (8.0 percent), Pterocymbium beccarii (6.0 percent), Spondias dulcis (5.8 percent), Intsia bjuga (5.0 percent), Mastixiodendron spp. (4.2 percent) and Canarium indicum (3.0 percent). These nine dominant species, together, amounted to approximately 60 percent of the area's total commercial volume.

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activity, lightening strikes, earthquakes and landslips. White (1976) believes that these physical and biological disturbances are sufficiently frequent and widespread, to ensure that large areas of Lowland forest are maintained in an advanced stage of secondary forest. The associations of plants making up this forest type remain the most complex and least understood of the earth's vegetation types (Johns, 1977). Few detailed studies have been made in this type of forest, and thus very little is known about its dynamics, especially natural regeneration (Saulei, 1984, 1990). In areas of primary forest, canopy is often dense, allowing little light penetration into the lower layers, resulting in sparse undergrowth. In areas of advanced secondary forest, the canopy surface tends to be uneven. Along valley floors and lower valley sides, the most frequent genera of trees are Pometia, Celtis, Ptercarpus, Ficus, Dracontomelum, Vitex, Sloanea, Cerbera, Alstonia, Maniltoea, Cryptocarya, Guioa, Kingiodendron and Tristiropsis. Pometia pinnata is the most common canopy species. The sub-canopy is dominated by the genera Diospyros, Gnetum, Protium, Pimeliodendron, Myristica, Dendrocnide, Kibara and Horsfieldia. Common species are Gnetum gnemon, Protium macgregorii and Myristica chrysophylla. The composition along well drained hilltops is markedly different from the valley sides and floors. Soils tend to be immature, brown and acidic or in more stable areas, red and yellow latosols. As a result, forest on the ridges tend to be floristically poorer than those along the valley floor. It is dominated by genera such as Dipterocarps, Protium, Instia, Calophyllum and Canarium.

[3] Lusco's (1985) was conducted by Mr. Academia, in cooperation with personnel from the Madang Division of Forests, in November - December, 1984. A cruise check survey, using 0.1 hectare plot samples was done in three locations: vicinity of Tarigapa village; vicinity of Gugubar and Eriebadaw villages (Northwest); and the area south of the Kumil River (South). Non-timber areas include grassland, villages, flood plains, garden areas and second growth forests. Eight areas were classified as steep and rocky . These areas were deemed uncommercial due to difficulties in roadbuilding, and the prominence of smaller diameter trees. This survey (Lusco, 1985), in comparison to the initial survery done by the Madang Division of Forest in 1983-84, represented a significant reduction in the commercial potential of the Kumil area forest. The area of commercial forest was reduced by 6,000 hectares, and the merchentable volumes of commercial forest were reduced from 55 cubic meters per hectare, to an average of 35 cubic meters per hectare. As a result, the expected commercial volume of the Kumil area was reduced from 1,640,000 cubic meters per hectare to 877,580 cubic meters per hectare, a decrease of almost 50 percent.

Table 4.3
Summary of Forest Types and Commercial Volumes
Kumil TRP Area

Forest Type	Hectares	% Total	M^3/Ha	Expected M^3
Non-Timber Area	26,210	48%		
Steep & Rocky Area	3,500	6%		
• Tarigapa Area	1,000		30.66	30,660
• Northwest Area	4,300		33.43	143,750
• South Area	19,500		36.06	703,170
Total Commercial Forest	24,800	46%		877,580
Total Area	54,510	100%		

Source: Lusco (1985: 6)

CULT. DIVERSITY

The Kumil area encompasses 19 villages, speaking nine different languages[4]. Of these nine, only one has more than 2,000 speakers, two have more than a thousand, while four of them have under a hundred speakers.

[4] Distinguishing languages in Papua New Guinea is a difficult task. The method used to distinguish between languages is a common vocabulary word list, consisting usually of 100 or 200 words. Languages are considered distinct when they have less than 20 percent of the word list in common with other languages. Languages are grouped according to Family, Stock, Super Stock, Sub-Phylum and Phylum. Within Papua New Guinea, two types of languages co-exist: Austronesian (Melanesian) languages, which are related to the Malayo-Polynesian family of languages distributed from Madagascar to Indonesia, Philippines, New Zealand and Polynesia; and Non-Austronesian languages which represent a conglomeration of distinct languages spoken by small groups of people. The nine languages spoken in the Kumil area of Madang are all Non-Austronesian languages, and belong to the Trans-New Guinea Phylic group. Two of the languages belong to the Isumrud Stock, while the remaining seven , are of Pihom Stock. At this level, languages rarely display any commonality. Within Stocks, relationships between languages start to become apparent. (Z'graggen, 1975)

Table 4.4, outlines the villages within the Kumil area, the languages spoken, and their number of speakers. This information is based on census work done in the 1970s. The total population of the area in 1990 is likely double this number, ranging between 4,000 and 4,500 people[5]. Today, *Tok Pisin* operates as the lingua franca in this area, and throughout the northern part of the island of New Guinea. Local languages, however, are still spoken within the village, particularly by the older generations. Moreover, they remain important as a means of group identification. Several of the local languages within the Kumil area are similar in vocabulary, indicating considerable inter-mixing between the groups. Pepaur, for example, is similar to Muere and Ulingan[6]. It is also common for some people of one language group to speak one or more of the neighbouring languages. In many instances, people are able to understand a neighbouring language, without being able to speak it. To use Pepaur as an example again, several people are able to understand the Bunabun language, while a few, those who have been adopted into Asumbin clans, are able to speak it. Thus, while these nine languages within the Kumil area are distinct, language groups throughout the area have not been isolated from one another. The similarities between languages, and the presence of villagers who understand and speak neighbouring languages, reflects a history of inter-marriage, trading and other political alliances within the area.

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[5] Population estimates cited in early work in the Kumil TRP area by Lusco (1985) and Renner (1990) are considerably below this estimate. Their estimates were 1,200, and 1,500 - 2,000, respectively. I was unable to attain 1990 census statistics for this area. Assuming the Z'graggen's (1975) numbers are accurate, and assuming this area's population growth is similar to Papua New Guinea's as a whole (2.7 percent, see Table 2.3), and doubles every 13 years, a range of 4,000-4,500 people is a conservative estimate. Moreover, data for Pepaur /Meure, showed a population of 300 (see Table 5.1), an almost three-fold increase over Z'Graggen's figure of 113. A population of 4,500 people for this area also equates to a population density of 8.0 persons per square kilometer, in line with Bogia district's, as well as, the province's population density figures as outlined in Table 4.1.

[6] In the Ulingan language (*tokples*), the word for beetle nut is *pari-wa*, while in Pepaur they have shortened the word to just *pari*. The Sumner Institute of Linguistics (SIL) workers based at Moro, near Malala High School, said that this contracting of words was common between these languages. SIL has a program throughout Papua New Guinea translating the Bible into local languages. In the Kumil area to date, only the Ulingan language has received attention. The two women studying the Ulingan language have been doing this work since 1978.

Table 4.4
Kumil Area Villages, Language Groups and Population, 1975

Language	Total Number of Speakers		Village(1)	Population(2)	% of Speakers in Kumil Area
		1	Asumbin	82	
		2	Bunabun	201	
BUNABUN	498			283	57%
		3	Korak	160	
		4	Tavulte	45	
KORAK	205			205	100%
		5	Gugubar	184	
		6	Waba	106	
		7	Alesuab	76	
		8	Ereibadaw	90	
		9	Misaporo	104	
		10	Ulatapun	159	
		11	Uwunpe	179	
TANI	2,496			898	36%
		12	Meiwok	141	
		13	Papur	68	
		14	Saramun	174	
		15	Terigapa	171	
ULINGAN	1,694			554	33%
PEPAUR	57	16	Pepaur	57	100%
MUERE	56	17	Muere	56	100%
KOWAKI	31	18	Mawak	31	100%
MAWAK	31		Mawak	31	100%
MUSAR	684	19	Reinduk	76	11%
			Total Population	2,191	

Source: Z'graggen (1975: 23-29)

Notes: (1) The Kumil TRP document identifies 3 additional villages in this area: Kirina, Ababigab and Ufien. None of these villages appeared in Z'graggen's data, or on any maps of the area.

(2) The population data represents census work carried out in the early 1970s.

Swidden cultivation forms the economic base within the area. Groups live patrilocally, in patrilineal clans or family-units. On the coast, houses are often grouped together, while in the hinterland, people tend not to live at such close quarters with each other. Houses are predominantly made of forest materials, and usually last anywhere from four to fifteen years, depending on the quality of construction and materials used. Settlements are usually surrounded by gardens. On the coast, forest area has been converted in many places to permanent cash crops, particularly, coconut and cocoa blocks, as well as grassland. Renner (1990) suggests that there is constant migration within the area by clan groups as they are required to build new houses and gardens. This is more likely to occur in the hinterland than on the coast, where people appear settled around roads, water sources and community services, and travel considerable distances to and from their garden sites.

Settlement patterns and group relations within the Kumil area have been strongly influenced by the Missions, the State and the modern economy. There are large settlements at: Mangem plantation (privately owned by the National member of parliament for Bogia District); Bunabun (Luthern church centre, community school and a newly built health centre); Ulingan (Catholic church centre, community school, tradestore and aid post); and Malala (Catholic high school, Grades 7 to 10 with spaces for up to 1,000 students, and tradestore). All four places are located on the northcoast road and function as local focal points for commercial, spiritual, and social activity. The populations in and around these settlements are the largest, and most ethnically diverse in the area.

Infrastructure for the Kumil timber project was built on the coast at Ulingan, at a place referred to locally as Log Point. Ulingan harbour is a good all weather anchorage and was main departure point for roundlogs (Lusco, 1985). A sawmill, workshop, log storage, treatment area and labour housing were all established at Log Point.

Politically, the Kumil area belongs to two different Districts: Madang, and Bogia. The dividing line between the two Districts occurs at the Kumil River. This division manifests itself at all three levels of government: national, provincial and local. Of the two local government councils

operating in the area, Sumgil-bar and Almami, neither are headquartered in the area.

4.3 Kumil Timber Project

The Kumil Timber project was initiated in 1983. It was estimated to generate approximately 36.5 million kina in log sales over its lifetime[7]. Over the past ten years (1983 to 1993), the project was logged by two different contractors, both of whom operated for only a short period of time. In its barest sense, the history of the project can be outlined as follows:

1983	• National Department of Forests initiates a process to purchase the rights to harvest and sell timber from an area they call the Kumil Timber Rights Purchase (TRP) area.
1984	• Clan groups within the Kumil TRP area, including Pepaur, sign a TRP agreement with the National government. • Provincial government assists clan groups within the Kumil TRP area to establish a landowners' company, Ulingan Development Corporation, to oversee timber operations and other commercial activities.
1984-1987	• Two contractors log the Kumil TRP area.
1990	• The landowners' company ceases operations after the National Department of Forests takes away its Timber Permit, and thus its authority to oversee timber operations in the Kumil TRP area. Ulingan Development

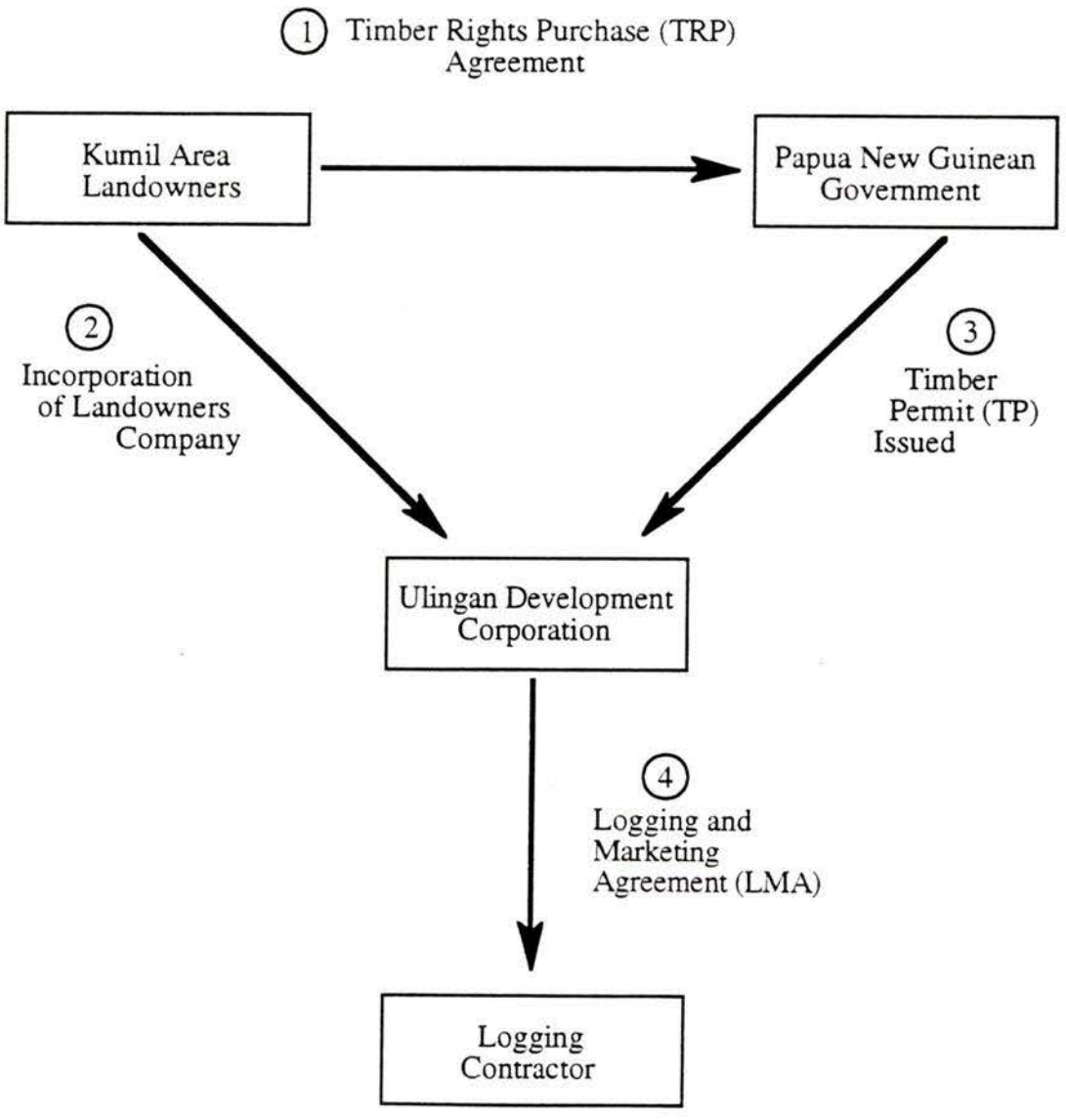
[7] This estimate, K36.5 million, is based on Lusco's (1985) figures. Schedule 3 of the Kumil TRP Agreement (PNG, 1984: 20), calculates the purchase price to be paid to 109 clan groups for their timber rights at K683,090, but it fails to identify either, the net merchentable volume of timber that this estimate is based on, or an average selling price for round logs. Estimates included here were calculated as follows: (1) Gross volume of 877,580 cubic meters was reduced 20 percent for defects (their estimate was based on identified commercial species), and (2) a net merchentable volume of 702,064 cubic meters was multiplied by an average selling price of K52 per cubic meter.

Corporation's income was derived almost solely from the sale of logs.

1993 • Kumil TRP is still in effect, but as of May 1993, no new Timber Permit has been issued by the National Department of Forests to log in the area.

Local people and logging operations in the Kumil TRP area have been subject to four legal documents: Timber Rights Purchase Agreement (TRP), Timber Permit (TP), Logging and Marketing Agreement (LMA) and the incorporation of Ulingan Development Corporation (UDC). These documents provide the basis for the project. Figure 4.3 outlines the framework within which these documents are meshed, and logging occurred in the Kumil area. In Papua New Guinea, large-scale logging is commonly facilitated by the State through a Timber Rights Purchase. The State holds discussions with customary land owning groups (clans), then negotiates the purchase of "timber rights" from them. This results in the signing of a TRP agreement between clan groups and the State. Because the State has neither the capacity nor interest in undertaking logging itself, it finds an organization it believes is capable of logging and managing the designated forest area. The transfer of timber rights between the State and the organization responsible for harvesting the forest resource occurs through the Timber Permit. In many cases, the State has issued Timber Permits directly to logging contractors (Renner, 1990). In the Kumil timber project, however, the State transferred the timber rights back to local clan groups. Kumil area clans were organized into a company (UDC) by the Madang government officials, expressly for the purpose of holding the Kumil Timber Permit. Similar to the State, UDC lacked the capacity to undertake logging in the Kumil area. The size of the annual allowable cut, dictated in the terms of the Timber Permit, forced UDC to hire a contractor to carry out harvesting operations for them. This resulted in the signing of the last legal document, a Logging and Marketing Agreement between UDC and a logging contractor. A brief overview of each of these documents follows.

Figure 4.3
Legal Framework - Kumil Timber Project



4.3.1 Timber Rights Purchase (TRP) Agreement

The TRP agreement transfers "timber rights" within a designated area, from customary land owning groups, to the National government. Timber rights are defined in Forestry Act (1973: 5) as "the rights to fell, cut, remove and dispose of growing or dead trees, whether standing or fallen, and any part of such trees, and any other vegetable growth ... and ... includes the right to remove gravel and other road making materials". The TRP agreement also provides the State with the right to enter land for the purposes of felling, cutting, removing and disposing of the timber, as well as for building infrastructure, such as roads and bridges (Ibid: 6). A TRP agreement is valid only when the State and the clan groups from which it is acquiring rights, enters into a written agreement specifying: the term during which rights are to be exercised, and the sum and manner of payment of the sale price for the rights (Ibid: 6). In short, the agreement is the foundation on which the entire timber project is based. It identifies clan group members (Vendors), demarcates the forest resource according to clan group, estimates the commercial value of the timber resource, and identifies the downpayment and royalty payments that clans (through their designated Agents) are to receive over the course of the timber project. Basic data on the Kumil TRP (PNG, 1984) are as follows:

- Signing by clan groups completed in June 1984;
- 109 clan groups, comprising 22 villages and 1,189 vendors (including men, women and children);
- 70 percent of the vendors signed or made their mark on the document;
- In effect for a twenty year period - 1984 to 2004;
- Total estimated value of the timber royalties to Kumil area clan groups K683,090;
- Each of the 109 clan groups who signed the TRP agreement received one kina as a deposit against future royalties.

In the case of the Kumil TRP, the process was initiated in 1983 and completed in 1984. A very short period of time, given the tasks that had to be done, the size of the area (55,940 hectares), and the large number, and diversity of its clan groups. As a result, many of the TRP's required steps were either done poorly, or in some cases, were missed entirely. The Manual

of Timber Rights Purchase Procedures (PNG, 1979) outlines the steps that should happen prior to the signing of a TRP agreement:

1. A potentially commercially valuable timber area is identified and an estimate, based on surveys, is made of its species mix and merchantable timber per hectare. This makes possible for the State to calculate the commercial value or purchase price of the timber resource.
2. A map is drawn up that defines the boundaries of the forested areas. It also identifies the customary land owning groups within the TRP area and the forest they own.
3. Each clan group within the TRP area is informed about the purpose, details and rules of the timber rights purchase. A payment schedule (deposit and royalty payments) is negotiated. Names of clan members (Vendors), the customary land owning groups (Clans) they belong to, and their representatives (Agents) are collected.
4. An agreement is drawn up by the State, and funds made available for purchase (payment of initial deposit).
5. The agreement is then signed by the Vendors, and payment of the deposit is made and receipted by the clan Agents.
6. The State ratifies the agreement and the Minister for Forests signs the document.

NOT UNCOMMON

Anomalies in the Kumil TRP agreement occurred at almost every step of the process. The timber surveys conducted by the provincial division of forests, and used to calculate the area's gross commercial volume of timber, were done incorrectly[8] . The list of clan groups and clan membership

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8 Mr. B. Bennet of Bennet Forest Surveys Pty Ltd., Rabaul, East New Britain, inspected the Kumil TRP area in late 1983 at the request of the Department of Forests. In a letter written on March 27, 1984 by Mr. Bennet to Lock Otley of Otley and Otley, he notes that the field books of the Department of Forests, Madang, showed log volumes (export quality) that varied between 80 - 100 cubic meters per hectare, to 460 cubic meters per hectare. After inspecting the area on foot and, by helicopter, he estimated an average recoverable volume of 50 -60 cubic meters per hectare. Based on this field work, he contended that the initial Department of Forests numbers were incorrect, and believed that field staff had made errors in their estimations. Bennet's assessment (average of 55 cubic meters per hectare) was used by the Department of Forests in

compiled for the area by provincial forestry officials was incomplete[9]. Moreover, of those customary land owning clans that were identified, no work was done to ascertain the extent or quality of the forest land that they owned. Little, or no information was reportedly provided to the Kumil area clan groups who were included in the TRP agreement (Renner, 1990: 19). The downpayment made to clan Agents for their timber rights was unusually small, amounting to only K109 in total, less than .02 percent of the estimated value of the project's total timber royalties. The rule of thumb in most TRP agreements is a 25 percent downpayment (PNG, 1979: 1). Lastly, the Minister for Forests never signed the TRP agreement[10].

4.3.2 Ulingan Development Corporation (UDC)

UDC was incorporated under the Companies Act in July 1984. Ten shares were issued to three individuals, none of whom were members of a Kumil area clan, nor residents in the TRP area[11]. The purpose of the company was to develop areas for logging projects and to run, supervise,

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calculating the merchentable volume of commercial forest in the Kumil TRP area. Lock Otley, skeptical about the area's estimated commercial volumes, commissioned another forest survey in late 1984 . This survey, conducted by Mr. Academia (Lusco, 1985), further reduced the estimated commercial volume in the Kumil TRP area to an average of 35 cubic meters per hectare (see Table 4.3).

9 The Kumil TRP agreement (PNG, 1984) identifies only 1,189 vendors., approximately 50 percent of the population (2,191) indicated by Z'graggen (1975) for the area during the 1970s. The major discrepancies lie in the population of hinterland villages. The population indicated in the TRP for the six coastal villages (Bunabun, Pepaur, Meure, Tavulte, Korak and Meiwok) shows a 4 percent increase over Z'graggen's total (684 vs 660). In the hinterland, however, the TRP 's population (484) represents only 32 percent of that identified by Z'graggen (1,531). Renner (1990) suggests that these hinterland villages, many lacking road access, were never visited by forestry officials. Moreover, I am personally aware of a discrepancy in the population estimate for the village of Gugubar. I visited the main settlement of Gugubar in 1988. Contrary to the figure of 27 people identified in the TRP document, the main settlement of Gugubar comprised at least ten houses, and the meeting I conducted there was attended by approximately 30 to 35 adult men. The TRP document appears to be a perfect example of what Chambers (1983: 13) terms the spatial basis of rural development tourism, where "visits follow networks of roads".

10 The poor execution of the Kumil TRP agreement, it appears, was attributed to a lack of qualified staff and direction, as well as a lack of time (Adick, personal communication, 1993).

11 One of the shareholders was Mr. Scott Leslie, an ex-kiap (administrator) under the colonial government, who eventually became UDC's first manager. Mr. Leslie is identified as a Papua New Guinea citizen (UDC, 1984-90a). His role within UDC is discussed in Chapter 6. The other two shareholders were identified as surveyors.

manage and promote such projects and ancillary businesses (UDC, 1984). UDC was not transformed into a "landowners' company" until January, 1985. The change in UDC's status was dictated by the National Department of Forests. The department was apparently unprepared to issue a Timber Permit to the company unless company control was transferred to customary land owners in the Kumil TRP area. As Renner (1990: 21) notes, UDC was:

> "... to act as a mediator both between the local people and the timber company, and between the National Department of Forests and the timber company ... Financially, UDC was to be a means for local people to participate in the timber business ... (and) ... in this way, the profits would remain in their place of origin and be invested in local development programmes".

Over a four month period, September to December 1984, the Madang Department of Commerce created 23 Business Groups[12] throughout the Kumil TRP area. A Business Group was established for each village in the area. The initial ten shares held by the founders of the company, along with another 66 shares were distributed amongst these Business Group in accordance with the number of clans in the village[13]. Table 4.5 shows the breakdown of UDC's shares by Business Group and village.

Structurally, UDC comprised four components: (1) clan groups/members, (2) Business Groups, (3) Board of Directors, and (4) management. In theory, the landowners' company was to operate as follows:

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12 A Business Group, like an incorporated company, is a form of organization through which individuals can conduct their commercial activities. A Business Group is a special type organization that was created in Papua New Guinea in order to facilitate rural people's involvement in business -traditional custom is used as the basis for operation and membership is limited to those people bound by the laws of a customary group.

13 The UDC Board of Directors minutes (1984-89a: January, 1985) indicates that Aseirua, the Business Group representing Pepaur, comprised five clans. The TRP document, however, identifies seven Pepaur clans. Land tenure information collected by this study (see Appendix 5) show two clans, comprising a total of 6 sub-clans. See Renner (1990: 22-23) for a discussion about the irregularities between the Business Groups that were created and the TRP data.

Table 4.5
Ulingan Development Corporation
Breakdown by Business Group

Village	Business Group	Number of Clans	Number of Shares
Asumbin	Mabosu	3	4
Bunabun	Bumagi	4	4
Korak	Kumulik	6	6
Tavulte	Omassi	4	4
Gugubar	Kasaku	3	3
Waba	Kamasi	4	4
Alesuab	Wasnip	1	1
Ereibadaw	Bokamu	3	3
Misaporo	Jawanut	3	3
Ulatapun	Bosu	3	3
Uwunpe	Idumyaya	4	5
Meiwok	Mesi	7	8
Papur	Yamapur	2	2
Saramun	Rarip/Mar	2	1
Terigapa	Pasek	2	2
Pepaur	Aseirua	5	5
Meure	Mukon	3	3
Mawak	Taki	3	3
Reinduk	Ipo	3	3
Raraiba	Sasa	1	1
Irebadev	Waduwadu	1	1
Sikor	Kamiawu	7	7
Total		74	76

Source: Renner (1990: 22)
Note: The villages of Raraiba, Irebedev and Sikor were not included in Table 4.4. They also are not included in the Kumil TRP document.

- Village men and women elect leaders to run their Business Groups and represent them in dealings with UDC;
- Business Groups organize activities and undertake projects for the benefit of its village shareholders;
- Business Group representatives attend UDC annual general meetings and vote for company Directors based on the wishes of their shareholders;
- Directors plan the company's activities, how it shall operate, and then supervise its operations to ensure that it works profitably and meets its objectives. They also communicate regularly with the Business Group membership to inform them of the company's activities and progress;
- A manager is appointed by the Board of Directors to implement the Board's plans and ensure the proper and profitable day-to-day operation of the company;
- Shareholders benefit through: (a) dividends paid out of company profits, and (b) commercial and other activities initiated by the company.

UDC Annual General Meetings commenced in November 1984, and were held each year until 1988. Nine men where elected to the UDC Board of Directors at each of these Annual General Meetings. Several of the Board members held their positions for more than one term, but only one man was a Director throughout UDC's existence. Business Group representatives attending the Annual General Meeting were entitled to nominate people to stand for the Board, and then vote for three candidates of their choice. Voting was not done according to the number of shares held by the Business Group. Each Business Group was entitled to one vote. The Board was typically weighted towards the coastal groups, but all areas within the Kumil TRP were always represented. UDC's management, throughout its history, was filled by expatriates. Management's two main tasks were to:

- oversee timber operations of the contractor to ensure compliance with the terms of the Timber Permit and Logging and Marketing Agreement;
- to initiate and manage local development projects with the proceeds arising from timber operations.

These required specialized skills were not available among the local population. The first manager was an ex-administrator within the Madang provincial government. He had been involved in the establishment of the timber project from its conception (see, footnote 11). In 1986, two Canadians (Bill Wells and M.L. Thompson) assumed the role of UDC management.

4.3.3 Timber Permit

The rights to remove forest products and road building materials from a TRP area are granted by the Minister for Forests through Section 10, Chapter 216 of the Forestry Act (PNG, 1973) in the form of a Timber Permit. Permits are usually issued for a period of ten years and specify: maximum and minimum yearly volumes of timber to be harvested, maximum export volumes, prohibited species, minimum sizes of timber that can be cut, sawmills and minimum volumes to be processed, required agricultural developments, roads and bridges, buildings, forest working plans, details of environmental protection, boundaries, rights of customary land owners, royalties, bank guarantees, reports, marketing procedures and management agreements. The Permit holder is obligated to perform according to the specified requirements of the Permit. Failing this, the Secretary for Forests may cancel the Timber Permit.

The Timber for the Kumil TRP, No. 12-17 (PNG, 1986b), was issued to UDC on October 9, 1986. Prior to this, UDC conducted operations under temporary, six month Permits. The maximum and minimum yearly log volumes of Permit No. 12-17 were 75,000 and 40,000 cubic meters respectively[14]. The maximum yearly log volume was 60,000 cubic meters. The Permit specified that no Intsia spp. (kwila) logs were to be exported. As the Permit Holder, UDC was required to establish a sawmill and process a minimum of 10,000 cubic meters of logs per year; develop 150 hectares for agriculture; within the first year, build two roads and one bridge; within three months, construct four houses, an office and an aid post and turn these over

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[14] Under the temporary Timber Permit, UDC was restricted to a maximum log export of 30,000 cubic meters every six months, with no more than 20 percent of the exportable volume (6,000 cubic meters) comprising Instia spp. (UDC, 1984-89).

to the province of Madang; in the same period, construct and office, a house and a tradestore to remain the property of UDC; within three months, submit a five-year forest working plan; within one month, lodge a bank guarantee for K50,125 in favour of the State. UDC was also required to employ sound, creative marketing practices and maintain full financial accounts for periodic inspection. Finally, UDC was required to ensure that environmental precautions, such as harvesting restrictions and promoting re-vegetation, identified in pages 13 to 18 of the Permit, were complied with.

The terms and time schedule specified within Permit No. 12-17 were onerous and well beyond the capacity of UDC to implement. In fact, it was never assumed that the landowners' company would be able to fulfill the Permit's requirements on its own (Renner, 1990: 25). The assumption made by the National Department of Forests was that UDC would hire a logging contractor to manage the construction, harvesting and marketing of the UDC timber resource. The terms which would govern the contractors activities would be defined under a separate management agreement, called a Logging and Marketing Agreement. It is important to note that while performance of the Timber Permit can be passed on through this agreement, the full responsibility for the terms of the Permit, remains with the Permit Holder, UDC.

4.3.4 Logging and Marketing Agreement (LMA)

A Permit Holder is permitted to engage a logging contractor through a LMA, subject to the approval by the Secretary for Forests. UDC engaged an Australian company, Otley and Otley Pty. Ltd. to log the Kumil TRP in mid 1984. Although reference is made in UDC correspondence to a logging contract between UDC and Otley and Otley, no such document could be found. As mentioned above, logging in the Kumil TRP proceeded under a series of six month temporary Permits.

The second contractor, Madang Timbers, was engaged through a LMA signed in January 1987. The agreement was designed by the National Department of Forests, with UDC management having some input. The agreement passed onto Madang Timbers most of the development responsibilities defined in the Timber Permit: volumes, time schedules and

specifications for harvest, road and building construction, guarantees, insurance, marketing, accounting, plans and reports.

It was through the LMA, or in the case of Otley and Otley, the logging contract, that UDC gained access to operating funds for itself. From 1984 to 1986, UDC charged Otley and Otley K7.00 per cubic meter, or a minimum of ten percent of gross log sales. UDC's income during this period amounted to 11.2 percent of log sales. After the signing of the LMA with Madang Timbers, UDC's income was set at a flat 15 percent of gross log proceeds.

4.3.5 The Politics of the Project

A large-scale logging operation is a complex undertaking. The legal framework that was negotiated in the case of the Kumil timber project, only complicated the process. Moreover, the range of players and interests that became involved in its operation, due to its complexity and economic stakes, further confused things. Without going into great detail, it is worth highlighting some of the politics which influenced the project's direction and activities, and ultimately its collapse in 1990.

Renner (1990: 17) reports that the impetus for the timber project stemmed from demands for development by the people in the hinterland area of Tarigapa. The actual initiative for the project, however, rests with a small number of local politicians, UDC's first expatriate manager, and Otley and Otley[15], the Kumil TRP's first logging contractor. In April 1984, several months prior to the formation of UDC or the signing of the Kumil TRP agreement, Otley and Otley received approval from the National Department of Forests to move their logging equipment to Ulingan harbour. There is evidence the move was being arranged as early as January 1984, when correspondence between the Premier of Madang, the Secretary for Forests, Loch Otley (owner of Otley and Otley) and Scott Leslie of Nord Resources (UDC's first manager) expressed support for logging in the Kumil area (UDC, 1984-90). The dry season in the Kumil area, the period of the year when

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15 Otley and Otley Pty Ltd, an Australian company, was established in 1967. Owned and operated by the Otley brothers, the company had been engaged in logging, road building, cattle and coffee activities within Papua New Guinea since the early 1970s.

working in the bush is feasible, begins in May and lasts until November. This factor undoubtedly pushed the Kumil TRP process to a hasty conclusion. Local informants said that by the time the TRP agreement was signed in June 1984, Otley and Otley had been waiting at Ulingan with its equipment for several weeks. They started active logging in August. In an effort to earn cash quickly, Otley and Otley headed for the best and most accessible timber in the area. Their first shipments were primarily Instia spp., a premium valued species. Shortly afterwards, the bottom fell out of the export log market; the price of $55 US per cubic meter at the end of 1984, fell to a low of $35 US by the end of 1985 (UDC Shipping documents, 1984-86). In March 1986, Otley and Otley declared bankruptcy. Over its two year tenure, the company exported at least eight shipments of logs to overseas markets[16]. During this time UDC failed to initiate a single development within the Kumil area; its Board of Directors met only a handful of times.

In April 1986, another logging contractor, Madang Timbers[17], expressed interest in harvesting the Kumil TRP. Over the period May to November of that year, representatives from the National Department of Forests, the Province of Madang, Gasmata Resources (Madang Timbers parent company) and UDC negotiated the terms of a Logging and Marketing Agreement between UDC and Madang Timbers. The LMA was signed on November 7, 1986, and approved by the Secretary for Forests three days later. Madang Timbers, however, maintained that the final agreement was yet to be signed, claiming that its articles of Association required two signatures under the company seal. A second agreement was signed on January 20, 1987, and approved on the 22nd. According to UDC's management, UDC continued to stall: guarantees were not lodged, and various other preliminary requirements were not met. Despite repeated letters and visits by UDC management to Madang Timbers, the company commenced operations in the

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16 Log shipments were sold to buyers in 4 countries - Japan (5), South Korea (1), Taiwan (1) and India (1) (UDC, 1984-90) - and grossed over 1.4 million kina in sales (UDC, 1984-89b).

17 Madang Timbers, formerly Wewak Timbers had operated a sizeable sawmill in Madang since the mid-1970s. In 1986, it was bought by a Singapore company, Gasmata Resources, and renamed. The Director of Gasmata Resources was Eng Chin Ah, a Singaporean businessman.

Kumil area in April. The UDC Board, at the recommendation of its management, issued Madang Timbers with a Notice of Termination in late June, after the company had still failed to remedy several outstanding defaults of the LMA. Thirty days later, on July 27, with the defaults still outstanding, UDC issued a Confirmation of Termination. For several months Madang Timbers refused to acknowledge the termination. In November, 1987 UDC was paid for the logs that been harvested, and a month later Madang Timbers lodged bank guarantees on behalf of UDC and the National Department of Forests. UDC made a claim of K20,000 against its guarantee to pay outstanding royalties and other levies owed to the Department of Forests. Otherwise, UDC had no further dealings with Madang Timbers. In September, 1987, UDC's management completed their one year contract, and departed the country. From this time on, UDC was to operate without a manager.

In September, 1987, a new logging contractor, Northern Lumber was incorporated. The company was financed from Singapore, but had Papua New Guinean citizens on its Board of Directors. In March, 1988, the company began lobbying the UDC Board members. Two months later, the UDC Board (six of the nine members) signed a Memorandum of Understanding to contract Northern Lumber to harvest the Kumil TRP. UDC's Chairman and its company secretary refused to sign the agreement. It was at this point that the National and Provincial Departments of Forests stepped in; neither had been involved in the negotiations between the UDC Board and Northern Lumber. UDC was warned that such an agreement would not be approved by the Secretary for Forests. Moreover, UDC was told that it was in danger of losing its Timber Permit due to non-performance. The Provincial government was against seeing Northern Lumber operate the Kumil TRP; they wanted Madang Timbers to be reinstated. No progress was made during the remaining six months of 1988. In January, 1989, the Secretary for Forests canceled UDC's Timber Permit. Without the Timber Permit, UDC was deprived of its single source of income. It disbanded shortly afterwards. Since June 1987, no logging has occurred in the Kumil area. During April 1993, discussions commenced again, this time between clan groups in the Tarigapa area and two foreign logging companies. Local informants said that plans

were for logging to occur only in a portion of the TRP area, west of the Kumil River.

Kumil area clan groups have only been peripherally involved in the ups and downs of the timber project. The key players have always been outsiders - foreign logging companies, expatriate UDC management, and Provincial and National government officials. A few of the UDC Board members participated in the various negotiations, but they still remained dependent on the other players for advice and support. Moreover, the history of the timber project has been marked by misinformation, poor communication, a great deal of tension, as well as, a concern for personal interests. A selected review of UDC correspondence between January and June 1987 clearly illustrates this:

January 9, 1987	Letter sent from the Deputy Premier and Minister for Forests, Madang, to the chairman of UDC, claiming that LMA between UDC and Madang Timbers is the concern of the Provincial administration, and not of the Manager of UDC. • Demonstrates a lack of understanding of the legal aspects of the LMA, UDC's responsibilities under the Timber Permit, and the role of UDC management in conducting business for the company.
April 1987	Deputy Premier and Minister of Forests, Madang, goes on the radio to announce that the UDC Board and management terminated the contract with Madang Timbers, and that the logging company would be forced to pull out of the area, if UDC does not let them harvest the Kumil TRP. • This served to anger Kumil area clan groups and turn them against UDC's Board and management. UDC, in fact, had not terminated Madang Timbers at this time, it had only suspended the company until they had remedied their defaults with respect to the LMA.
May 1987	At a meeting at Log Point (Ulingan), the Deputy Premier and Forests Minister, Madang instructs the UDC Board to "bend the rules" and allow Madang Timber to continue to operate. • The UDC Board considered this demand, but their lawyer, informed them that "bending" a contract in effect breaks it, with UDC responsible. He refused to represent them in any such arrangement.

June 30, 1987 — Telex and letter sent by the Acting Secretary, Department of Madang to the volunteer agency who recruited the UDC manager stating that the Department of Madang no longer required his services. The Assistant Secretaries of Commerce and Forests are to take over management of UDC until a suitable National person can be appointed.

- Indicates confusion on the part of high-placed Provincial officials about their authority and role with respect to the management of a private company.

Throughout UDC's conflict with Madang Timbers, and afterwards right up to the point when UDC lost its Timber Permit, the National Department of Forests was slow to respond to UDC's requests. One reason for this is the difficulty of communication between the Kumil area (the nearest telephone is in Madang town) and the nation's capital, Port Moresby. A likely greater problem, however, has been the lack of clearly defined roles between Provincial and National forest authorities. Despite the fact that the Province is not party to any of timber project's agreements, it is responsible for much of the forestry and commercial activities associated with the project's operations. Further complicating matters between these two levels of government has been the province's poor record in fulfilling these duties (for, example, the poor survey work that initiated the project).

4.4 Summary

This chapter has described the study's regional context, as well as the structure of the timber project within which the village of Pepaur participated. It has shown that the Kumil timber project, one of the largest in the province of Madang, represented a new initiative by the National Department of Forests because of its decision to establish a landowners' company to oversee logging operations. It has also documented some of the difficulties which led to the project's recent collapse. The project, therefore, offers a valuable opportunity to investigate a forest-dwelling community's involvement in large-scale industrial forestry.

CHAPTER FIVE

PEPAUR VILLAGE

> *These, then, were the main themes in race relations. On the social side, there was friendship between the coastal natives and Maclay, Romilly, and Finsch between 1871 and 1884. Then there were six and a half decades during which the people came to regard most Europeans other than missionaries (for a time) and Allied servicemen of the Second World War with bitterness. On the economic side, Western goods gradually replaced so much of the old material culture that whatever the natives might feel about Eurpeans, they were forced into a symbiotic relationship with them, from which there was no escape."*
>
> Lawrence (1964: 61)

Interpreting villager perceptions about the timber project, and understanding its impact on the village, requires an appreciation of certain features of Pepaur society. The chapter begins by presenting a historical overview of the socio-economic and political changes that have affected Pepaur since colonial contact in the late 1800s. The second part of the chapter describes contemporary Pepaur society. The focus is Pepaur's settlement pattern and population, system of land tenure and political institutions.

5.1 Historical Overview

Pepaur's social and political system is described as a series of interlocking and overlapping political institutions and decision-making forums. Internally, the family group is assumed the most fundamental decision-making level. Families of common ancestral descent - clans - comprise the next level. The largest internal political unit is the village. Externally, two decision-making forums are discussed: (1) government, and (2) missions. Government includes: inter-village relations prior to European contact, a succession of colonial administrations that ruled the Madang area from the turn of the century until the mid 1970s and, most recently, democratically elected local, provincial and national levels of government.

The missions' influence on rural villages in Papua New Guinea has continued unabated since the start of colonization.

Pepaur society prior to colonial contact is described first. This account relies heavily on Morauta's (1973) study of traditional politics in 17 communities around Madang town. Despite many similarities, Pepaur appears to have displayed greater hierarchy and more centralized decision-making than did these societies, with village bigmen playing key roles[1]. Next, an overview of the forces that have pushed and pulled the region's many small, subsistence societies into a modern State and world marketplace are examined.

5.1.1 Pepaur Society Prior to Colonial Contact

Pepaur, prior to colonial contact, appears to have physically moved, and changed demographically, several times. Legend has it that Pepaur once resided with several other groups that currently populate the area between the Dibor and Kumil Rivers. They lived together as one village up until the early 1800s in the area around Masur mountain (just outside of the Kumil TRP area to the southeast). Conflict arose among the groups, and Pepaur, Meure and another group, Inambum, left Masur and settled at Momo mountain, overlooking the Umbarum River. In the mid 1800s these three groups again split; Meure moving closer to the coast where they reside today, and Inambum, towards the mountains, past Reinduk. Sometime in late

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[1] According to Burns et al. (1972), a bigman within Melanesian societies is one who is able to siphon off excess products of those around him, i.e. their production is put at his disposition. He is able to establish leverage over other members of the community by demonstrating his possession of socially valued skills, such as, magical powers, gardening prowess, mastery of oratorical style, bravery in war. He achieves the support of lesser men by giving them informal private assistance. The bigman extends his power further by increasing the number of domains over which he has control, for example, song compositions, dances, capital equipment. In many Melanesian socieities, bigmen were very powerful and remained in office for long periods of time (Ibid: 108). Morauta (1973), recognizies the presence of big men, but believes that they were not synonymous with the political system. She contends that the position was not an office, that "where big men existed they had political significance as politicians, but as politicians acting within the framework of consensus" (Ibid: 147). Burns et al. (1972: 108) suggests that the ideology of egalitarianism, consensual decision making, and freedom of access to political power only "served as an opiate for those lesser men and executives who would never become directors".

1890s, the first German patrol reportedly visited Pepaur at Momo. This historical sketch, was provided to me by Alois Pesam (see Appendix 3). He suggests that Pepaur has been a distinct community for hundreds of years. This is supported by the fact that Pepaur possesses a distinct language. His story, however, is complicated by linguistic information which suggests that Pepaur, like Muere, are part of a different Non-Austronesian language family and stock than their immediate coastal neighbours - Asumbin, Bunabun and Murukinam (Z'graggen, 1975). Based on language, Pepaur, has closer ties with speakers of the Ulingan language (Papur, Meiwok, Sikor, Tarigapa), that inhabit land on the other side of the Kumil River. Pepaur, Muere and Ulingan languages are all identified as belonging to the same language stock (Pihom), and family (Kumilan). It is possible that Pepaur and Meure changed their languages after departing Masur. Morauta (1973: 149) reports that a village in the Madang town area allegedly changed its language to that of another, after much intermarriage with its neighbour. In the late 1800s, the sister of a Pepaur bigman was married to a man from the Tarigapa area. Breaking custom, the Pepaur bigman, who did not want his sister to leave, arranged for the woman and her husband to become part of Pepaur. This marriage, followed by others, is believed to have introduced the Ulingan language to Pepaur and Meure. This could explain the seemingly contradictory information suggested by legend and contemporary linguistic analysis, regarding Pepaur's origins. Regardless of specifics, it seems safe to agree with Morauta (1973: 133) in her assessment that there was considerable fluidity amongst the clans and villages within the coastal area of Madang; between those with a similar language, as well as between ones speaking different languages. In addition to inter-marriage, changes in Pepaur's population demographics and relationship with its neighbours were likely influenced by such things as: fission after dispute, rout in warfare, natural disasters, or annihilation because of disregard of the rules of custom. What follows is a description of how Pepaur's socio-political system functioned prior to colonial contact. It should be pointed out that, for the most part, the sources of this data were men.

In Pepaur, the family group was the institution through which male children acquired rights to land, and in which it was reared. Adoption

occurred, and usually implied a complete transfer of land rights. Property, apart from land, was owned and largely inherited within the elementary family. Household goods, dances, valuables such as pigs teeth and shells, and trees which a family member had planted were all personal property. Morauta (1973: 130) also suggests that knowledge of magic spells was an important item owned by men of communities in Madang area. Moreover, she states that children did not automatically inherit knowledge or property. These things were handed down by the father to sons who were obedient, and solicitous of his welfare.

Informants said that family members did not live together. Adult men usually ate and slept in a communal men's house. Children lived with their mothers in their own house. Most men it seems had only one wife, but multiple wives amongst bigmen was not uncommon. The ideal form of first marriage was that arranged by the parents of both partners. Marriages were rare within the clan, but common both between clans of the same village, and between villages. Unlike many areas within Papua New Guinea, informants said marriage did not involve the payment of brideprice. When a man married, the woman was expected to follow her husband to his clan's land.

A family group's primary economic activity was swidden cultivation. The main crops were taro *Colocasia esculenta*, yam *Dioscorea spp.*, and sweet potato *Ipomoea batatas*. Other cultivated crops included: bananas *Musa spp.*, sugar cane *Saccharum officinarum*, beans *Phaseolus lunatus*, and *Psophocarpus tetragonolobus* and green vegetables *Hibiscus manihot*. Fruit and nut trees were also extremely important as supplementary crops, particularly: breadfruit *Artocarpus altilis* , tahitian chestnut *Canarium indicum*, and tulip *Gnetum gnemon*. Stone axes were used to clear the forest for gardens. The clearing and fencing of a garden area were usually done by groups of men. The crops planted within a garden, however, were owned by a man and his wife. Garden cultivation, the harvesting of garden produce, and the preparation of all food was the responsibility of women. Gardening followed an annual cycle: every year a new area of forest was cleared, burnt and staple crops planted. Old garden sites were revisited for several years after the initial growing season to harvest secondary crops and gather needed bush materials. Hunting for pigs, cassowary, other birds and small mammals,

and fishing in the Umbarum River and nearby streams for fish and crayfish was an important source of protein. The gathering of forest produce for food, medicine, magic-religious ceremonies, building materials, tools and household items was also an important swidden activity. Men and woman worked together at these activities, but with men controlling access to forest resources, and having primary decision-making authority.

Land and forest resources, the basis of traditional Pepaur society, were regulated through the clan. Only male members of the patrilineal descent group (through birth, or through incorporation of some other means, such as adoption) were eligible to use Pepaur land. Similarly, only men were involved in land use decision-making. Land rights could be permanently, or temporarily alienated. Permanent alienation occurred primarily for the purposes of hunting. Land for house building, gardening and gathering, informants suggest, tended to be alienated on a temporary basis. Population density was low, and land for gardening and gathering was easily accessible.

Clans were grouped together in clusters. The village was typically not a compact residential unit, although clans often lived at close quarters. Yawier, Pepaur's head clan today, for instance lived at a site called Wasmorane on the top of Momo Mountain at the time of contact by a German patrol at the turn of century. Hilltops were preferred sites for two reasons: (1) they were well-suited to defense against sudden attack, and (2) had fewer mosquitoes, thus reducing the risk of malaria. Each clan had its own meeting house *(haus bung)*, and slit drum *(garamut)*. The slit drum was used by clans to communicate with one another. The village was commonly linked by ties of patrilineal descent, although there appears to have been many exceptions. Malus Serhun (head of Nomosogun sub-clan), for example, said that his ancestors originally came from the Tavulte area, while Kokemua Namua's (head of a Yawier 2 sub-clan) are reported to have come from the Ulingan area.

Morauta (1973: 127), in describing villages in the Madang town area, suggests that "the making of communal decisions by a council of adult males was the heart of the political process". Information collected from informants in Pepaur suggested a similar political situation, but with some important distinctions, particularly with respect to the issue of hierarchy. The following

synopsis outlines Morauta's findings of village political organization in this area:

> Political organization rested on two male institutions, the men's cult, and individually-owned magic. The men's cult centered on cult, or spirit, houses. Each clan had its own cult house. Young men were initiated into the cult sometime after puberty. They were secluded away from main settlement and given instruction in the rules of hospitality, gift-giving and sexual morality. They were also beaten with sticks and nettles. Importance was placed on obedience to the older generation and chastity. The cult house represented the clan's government council. All adult men were formally of equal standing within the cult house. Everyone had a chance to speak out and decisions were reached by consensus. Discussion would go back and forth among members until unanimity was achieved. No one person could make a decision of his own for the group as a whole. Meetings were held at both clan and village levels. Village meetings were held in the cult house of one clan, usually the one initiating discussion. Topics discussed were gardening, hunting, trading expeditions, warfare, misdemeanors and initiation. The purpose of the cult house, however, was not seen as more than merely addressing specific ends. Its activities were directed at the overall welfare of the clan and village. The second fundamental element to the political structure, magic, determined how decisions of the cult house were carried out and why clans within a village cooperated. Magic, individually-owned, was considered essential for the health and well-being of the village. There was magic for almost all village activities: initiation into the men's cult, hospitality, peace-making, warfare, start each year of new gardens, preparation of soil, harvesting of wild fruits and hunting of wildlife. The important types of magic were distributed between clans in such a way that different clans owned different types of magic vital to the community as a whole. Each clan, therefore, was dependent on the others in its village.

In Pepaur, the cult house was referred to by informants as a meeting house (*haus bung*). Each clan had its own meeting house, but village meetings were held in the *haus bung* of the head clan and village leader. While decisions required the agreement of all male members, all males did not speak with equal voice and authority at these meetings. Village bigmen played the essential roles in decision-making. For example, all key land decisions at the turn of the century have been attributed to one or two individuals[2]. In one case, these bigmen reportedly ceded customary ownership rights to a neighbouring clan group (Asumbin). More often though, they were instrumental in bringing outsiders into Pepaur. Such is the case with Malus Serhun's father (Nomosogun sub-clan), and Mathias Apiak's great grandfather (Ameirpo clan). Melchior Pesam, a descendent of a Pepaur bigman at the turn of the century, said that the key to leadership was making people feel that they were involved in a decision. There is no doubt in his mind that traditional leadership and decision-making was a top-down process, where bigmen reasoned, coerced, and frightened other males into following their personal wishes. Moreover, bigmen are believed to have lived off the efforts of their fellow clan and village members - men and women. Each clan had its bigmen, some clans more than one. While

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[2] There is by no means community consensus about Pepaur's past. The majority of Pepaur's youth appears to know very little about their ancestors. It is the Pesam's contention, apparently supported by a number of other bigmen in the area, that Owara was Pepaur's leader at the turn of the century. This supports Alois's contention that he, as the eldest male descendent of Owara, is Pepaur's legitimate leader. This view of the past is contested by Kokemua Namua, who believes that he should hold this position. He bases his claim on the fact that he is older than Alois, is more knowledgeable than Alois about traditional custom (Alois has not lived in the Pepaur area on a day-to-day basis since he was a youth), and is a descendent of an important Pepaur bigman. In attempting to collect information about Pepaur's clans, system of land tenure and its leadership (past and present), I stumbled headfirst into this conflict. It appeared to me that both Alois and Kokemua were attempting to use me to support their claims to leadership. As best I could, I attempted to steer a middle ground. Kokemua, in his presentation of the past, never denied Owara's position as a leader of Pepaur. He suggested that his ancestor, Inanumar, was also an important leader and bigman. The Pesam's say that Inanumar, or his immediate ancestor, was an outsider who came from the Ulingan area. He was accepted into Pepaur for his prowess in warfare. Overtime, Inanumar's family gained status and became recognized as the head of his own clan within Pepaur. A compromise was reached in the writing of Alois' history of Pepaur (see Appendix 3) by identifying both men, Owara and Inanumar, as Pepaur leaders.

effective decision-making power was centralized in the hands of a few, all clans and their male members had rights to land and forest resources. The social hierarchy remained flat, Lawrence (1964) believes, because the society lacked a concept of profit and reinvestment[3]. The swidden economy primarily produced food that was consumed almost immediately for daily needs, or at feasts. Even storable goods such as pigs and shell and bone ornaments, he suggests, were exchanged for the purpose of strict equivalence and not on the basis of gain. The economy of societies in coastal New Guinea, he states "had no strong internalized forces of change ... maintaining an annually repetitive rhythm" (Lawrence 1964: 11). Lastly, informants stated that different clans and family groups within Pepaur performed different specialized functions within the village, for example: Kokemua Namua's ancestors were responsible for warfare, and Mom Kutut's ancestors were peace-makers and dispute settlers. Other groups were responsible for activities such as taro and other types of garden crops. This specialization also appears to have been associated with chiefdomship (Pesam-Owara lineage within Yawier clan). Little information was collected on the subject of magic, the supposed basis for this specialization. Informants acknowledged that spirits and magic were essential elements of village life. When discussing these topics, however, people always treated them as a source of comedy, reflecting their ancestor's ignorance[4].

It is important to stress the male bias that existed in traditional Pepaur society. The above discussion, assuming the family group as the most elemental decision-making level, hides the community's skewed male-female power relations. Women had access to land and forest resources only

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[3] This is not a view that holds for all Papua New Guinea pre-colonial societies. Research from other parts of the country, for example East New Britain (Epstein, 1968) and Eastern Highlands (Finney, 1973), suggest that societies in these areas were pre-occupied with the accumulation of wealth and had well defined concepts of resource ownership, employment, rewards for labour, accumulation and profit.

[4] Despite the private ridicule people demonstrated towards the importance their ancestors attached to magic and forest spirits, it was apparent that many people still believed in their power. Certain individuals, for example the ex-catechist, who people believe to be crooked and a liar, are not crossed out of respect/fear for temperment and their supposed magical knowledge.

through their husbands; they, themselves, did not possess land rights. Women were also excluded from the meeting house, and thus from the decision-making process that oversaw clan and village affairs.

Outside of the village, the concept of an inter-village grouping also seemed to exist. Alois Pesam, in his recounting of Pepaur history, identified the area between the Dibor and Kumil Rivers as belonging to the Barem people. While this grouping never provided a base for corporate political action, it appears to have offered villages support during times of warfare[5]. In addition, a considerable amount of trade apparently took place between villages. Fish and lime were available on the coast, whereas certain forest products (fruits, vegetables, birds of paradise, pigs), could only be found in the cooler hills. Certain villages also appeared to have craft monopolies. Tavulte, for example, was known throughout the area as the best source of clay cooking pots. By far the most important inter-personal ties linking villages, however, were those created by marriage. It was possible to get a complete picture of the pattern of inter-village marriages, but the links that endure today, suggest that Pepaur intermarried with villages as far away as Tokain (45 kilometers) to the south, and Meiwok (15 kilometers) and Mawak (20 kilometers) to the north and west.

5.1.2 The Influence of Colonialism, the Church and the Modern State

The young State of Papua New Guinea is, today, firmly ensconced in the world capitalist system. The hundred's of more or less self-contained Melanesian subsistence societies that existed on the margins of the world economy in the late 1800s have, during the past 100 years, been melded into a fragile State that is dependent on foreign aid and the export of primary products[6]. Overall, the process has been a lengthy and uneven one.

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[5] These alliances, however, appear to have been temporary. Moreover, being Barem did not prohibit fighting between one or more of the Barem groups. The orginal settlement on Masur scattered as a result of conflict, as did the subsequent one on Momo. Informants also said that Pepaur fought and won a war against Asumbin sometime before colonial contact.

[6] Papua New Guinea's Gross Domestic Product (GDP) in 1978 was K1,200 million, and the national budget K500 million of which almost 40 percent was provided by an Australian grant. Exports were worth about K400 million, the main earners being minerals (gold and copper),

Colonization began in the 1880s. Imperial Germany annexed the northern half of mainland New Guinea and the smaller islands to the north and east in 1884. In the same year, Britain raised its flag in the southern portion of the main island, known as Papua. The Germans quickly established a plantation system in their colony, whereas in Papua, poorer rainfalls and soils discouraged the British, and later their successors, the Australians, from doing the same. After World War I, Australia occupied German New Guinea and administered it separately to Papua, as a Mandated Territory of the League of Nations. Between the world wars there was little progress, either in economic or welfare terms. The plantation system remained the core of the colonial effort, and much of the country still remained outside colonial reach. After 1945, Papua and New Guinea became jointly administered by the Australians under the Trusteeship Agreement of the United Nations. Substantial economic change commenced in the 1950s with the opening up of the populace Highlands and the introduction of coffee there, and with the introduction of cocoa in coastal areas. As agricultural activity expanded, so did commercial and processing activity. Little of this newly generated wealth, however, trickled down to average Papua New Guinean. By the early 1960s, Australia had come under increasing pressure to provide Papua New

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agricultural products (coffee, coconut products, cocoa and tea) and forest products. (Townsend, 1980: 4). As of 1990, Papua New Guinea's reliance on foreign grants and commodity export earnings remain high. Both GDP and the national budget have more than doubled to K3,000 million and K1,300 million respectively. While the Australian grant's percentage of the national budget has fallen, both in absolute and relative terms, it remains substantial (K222 million or 17 percent of the national budget). Commodity exports now exceed K1,000 million, and are expected to increase significantly in the next few years as new mines (gold and copper) and oil fields come on line. (AIDAB, 1992) The fragility of the State is exemplified by the violent dispute that has been waged on the island of Bougainville since 1989. Landowner dissatisfaction over royalties and environmental problems from the Bougainville copper and gold mine quickly developed into a full fledged war between Bougainvillean leaders demanding the creation of their own State, and the national government seeking to keep the island part of Papua New Guinea. The closure of the mine in 1989 also had a major impact on national government revenues. The mine at that time contributed about 35 percent of export earnings, 15 percent of government revenue and 8 percent of GDP (AIDAB, 1992: 35). The conflict has spurred a national government build-up of its military forces. Since 1988, the Australian sponsored Defence Cooperation Program in Papua New Guinea has jumped from A$27 million to A$54 million in 1991 (Dorney, 1990: 321). The move, Australian and Papua New Guinea officials stated "reflected the understanding of both Australia and PNG that an extended and highly trained PNGDF (Papua New Guinea Defence Force) is essential to guarantee the continued economic and political security of PNG" (Ibid: 321).

Guinea's indigenous population with improved services, better education, more economic activity, and political representation. It was also at this time that multinationals first began to focus on Papua New Guinea and its rich mineral and forestry resources. This burgeoning interest was symbolized by the establishment of a large copper mine at Panguna on Bougainville in the mid-1960s. The 1960s also witnessed the forming of indigenous political parties and trade unions, and the voicing of increased political rights and economic opportunities by the small class of educated, Papua New Guinea public servants. In 1972, the first indigenous parliament took office, followed by self-government in December 1973. Twenty-one months later, the Australian government granted Papua New Guinea its Independence[7].

Between 1885 and 1975, the two main agents of change in Madang province and on Pepaur society have been the colonial administrations and the missions. There were seven Administrations (two German, four Australian and one Japanese), and two missions (Catholic and Luthern). Since 1975, democratically elected governments at the provincial and national levels have managed the province's affairs.

Pepaur society has undergone considerable economic, social and political change over this period. Its internal subsistence economy, while not replaced, has been overwhelmed by the cash economy. From a social standpoint, Pepaur has moved itself from the hinterland and settled on the coast, on land that does not belong to them. All the villagers are Catholics, most adults have received a minimum of six years of formal education, and everyone speaks Tok Pisin, the *lingua franca* throughout rural areas of Madang province. Politically, Pepaur maintains its traditional concept of leadership, but also elects a local government council, as well as, provincial and national governments. In order to facilitate discussion about village change within Pepaur, the past 100 years is broken down into three periods: (1) before 1945; (2) 1945 to 1975; and (3) 1975 to the present.

PLURAL SYSTEM

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[7] The brief introductory overview is based on Amershi et al. (1979).

Before 1945: Pepaur society was converted to Catholicism sometime around the World War I. Because they lived on the periphery of the main Catholic settlements in the area at Mugil and Ulingan, and were visited infrequently, the mission's impact was initially limited. It was not until the late 1930s, when Owora's youngest son, Pesam, underwent chatechist training, that the Church had a day-to-day presence within Pepaur. Even then, the village was rarely visited by a European priest. Moreover, Lawrence (1964: 57) suggests that the Catholic church, through its priests and chatechists, made no attempt to change indigenous secular economics or cultural life with the exception of sexual offenses (polygamy and extramarital sexual license), birth control and sorcery. Children did not attend school, nor were there European health facilities available nearby. Pepaur was the language spoken in the village and the language that children learned as they grew up. The major changes brought about by colonial rule during this period were: the abolition of inter-village warfare; the drawing off of adult males to work on the coastal copra plantations; and the introduction of a village headman system.

Informants said that Pepaur's last war occurred in the early 1920s, when Mutar (Nomosogun sub-clan) was attacked and killed by men from a village in the Ulatapun area. His death was avenged by a war party comprising men from Pepaur, Muere and Asumbin who are said to have completely wiped out the perpetrators' settlement. By the late 1930s, the Australian Department of District Services and Native Affairs had reportedly suppressed warfare throughout coastal Madang (Lawrence, 1964: 46).

The first copra plantations on the north coast (outside of the Madang town area) were established at Dylup (1912), Sarang (1914), Walong (1914) and Mugil (1914), about 40 kilometers southeast of Pepaur. In total, these plantations comprised over 2,000 hectares of land (Ibid: 39). Throughout this period, the Administrations' prime interest in the indigenous inhabitants was ensuring that they satisfied the demand for plantation labour. The Germans had impressed adult men into indentured labour, and initiated an annual head tax on all other males. The Australians did away with forced labour in the mid 1930s, but maintained the head tax, which had the effect of ensuring continued indigenous labour in the European owned and run plantations. Pepaur males, like all other coastal groups, took their turns

working on plantations, some working as far afield as East New Britain and Australia. The rewards of plantation work were extremely small from European standards. They were, however, highly valued within the village. For example, an elder informant said that after three years of labour a man was permitted, in payment for completing his contract, to fill up a patrol box full of tradestore goods (such things as: blankets, cloth, knives, pots, plates, axes, mirrors). Upon his return to the village a large celebration was held and the contents of the patrol box were distributed amongst male relatives and important neighbouring bigmen. Until the mid-1930s it was common for a majority of adult males on northcoast to be living away from their villages and working on the plantations. This only changed when the Australian administration gained effective political control over the area and could ensure that no more than one third of adult males were drawn off from a village at any one time (Lawrence, 1964: 47).

Lastly, the administration initiated a headman system into villages. A cooperative older male was chosen by Administration officials to act as village headman, or luluai. This person was given responsibility to maintain order, guard the village census book, report epidemics, and settle minor disputes. The luluai had an assistant, called a tultul, who had to be fluent in Pidgin English (Lawrence, 1964: 43). The system was initiated by the Germans, and adopted by the Australians with minor modifications. It remained in place in the Pepaur area right up until the 1960s. Pepaur's first luluai was Owora, an important bigman in the village at the turn of the century. Both the Germans and Australians, according to Lawrence (Ibid: 43), used these village officials to impress village males for labour. The luluai received ten percent of the head tax collected from the village. In the 1920s, an annual salary replaced this payment system (Ibid: 47).

1945 to 1975: The next thirty year period witnessed significant economic, social and political changes in Pepaur society. A school and aid post were established at Bunabun by the Luthern church; Pepaur moved from the hinterland and settled in one large village on the coast; a language shift from Pepaur, to Tok Pisin was initiated; Pepaur began to cultivate and harvest their own cash crops; and an elected local government council was established. In

addition, it was during this time that Pepaur experienced the extent of the technology controlled by the colonial powers.

The Japanese invaded Madang in December, 1942. Informants said that the Japanese established a small base on the coast at Bunabun. They used the existing village headman system to recruit men from the surrounding villages to build roads and bridges. Villages also supplied the Japanese camp with garden produce. On the whole, elderly informants indicated that they were not ill-treated by the Japanese[8]. Fifteen months later, the Australians retook Madang. They sent patrols throughout the area to recruit labourers to assist their troops fighting in the north. Several men from Pepaur were recruited. One elderly informant talked for hours about his experiences with the Allied forces, in particular the military operations which led to the re-capturing of the North Solomons. Even today, stories about this war - the ships, equipment and fighting - are remembered, and retold within the village.

In 1946, Papua and the Trust Territory (including Madang) were placed under joint Administration, with the capital at Port Moresby. The new Civil Administration had to rebuild the entire Madang area. Madang town had been completely destroyed, and the indigenous population was scattered, especially along the coast, where the villages were deserted. In addition, the Administration was given the task of implementing a new progressive Native policy, which included: war damage compensation, revision of labour laws, the establishment of Native Rural Progress and Cooperative Societies to

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[8] Many of the stories told to me suggest that the Japanese treated the local people fairly. One such story was related by Adam Pesam, concerning a Bunabun man who mistakenly ended up killing two Japanese soldiers with his pig trap. He explained that the Japanese were continually sick (malaria) and hungry. Often, the troops used to steal from their gardens. One night two soldiers were digging up Taro from a garden when it started to rain. Looking for some shelter, they crawled into the Bunabun man's pig trap. They triggered the trap, and a log fell, crushing both of their skulls. The death of the two soldiers threatened serious repercussions for the local communities. The commanding officer demanded that the perpetrator(s) of the crime come forward, or else he would begin killing villagers indiscriminantly. The Bunabun man came forward and admitted that it was his pig trap that had killed the soldiers, and he explained what must have happened. The Japanese commander believed the story, and used the incident as a warning for his troops against this type of activity. The Bunabun man was not punished.

promote indigenous industries and cash crops, and the formation of Native Local Government Councils (Lawrence, 1964: 50).

Throughout Madang, progress towards implementing the new Policy was slow. It was during this time, the late 1940s and early 1950s, that a cargo cult belief came to influence much of the region. Informants stated that the movement in the Pepaur area was centred in the village of Tavulte. The cargo cult was based on an indigenous belief that "European goods (cargo) - ships, aircraft, trade articles, and military equipment - are not man-made, but have to be obtained from a non-human or divine source" (Lawrence, 1964: i). Through a complex of ritual activity, men would be able to obtain cargo from the deity via their ancestors[9]. It was very difficult to get a sense of Pepaur's involvement in this movement as informants always spoke scornfully of the concept, and dismissed it from conversation quickly. Lawrence (1964), in his study of cargo cults in Southern Madang suggests that the movement developed out of indigenous people's dissatisfaction with their status in colonial society; after almost 70 years of contact, the fundamental changes in indigenous culture were negligible. The cargo cult, he contends, resulted from indigenous people interpreting the situation (materially rich Europeans dependent on foreign sources of goods, versus, their lack of access to this cargo) according to traditional values and religious beliefs. If they could learn the correct techniques, they could "open the road of the cargo" and improve their livelihoods (Ibid: 3). This movement does not appear to have

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[9] The Fifth Cargo Belief, which Lawrence (1964: 194) contends gripped Southern Madang province in the early 1950s, required people to adhere to the following instructions:

> "Traditional rituals for agriculture, important artefacts, pig husbandry, and hunting, and the old taboos associated with them, were to be reintroduced; the Kabu Ceremony was to be performed in full, especially table ritual was to be instituted. Small tables were to be set up in private houses and near deity sanctuaries. They were to be covered with cotton cloth and decorated with bottles of flowers. Offerings of food and tobacco were to be placed on them for both the deities and the spirits of the dead, who were to be invoked to send cargo. The invocations and offerings would ensure that the deities handed over presents to the ancestors who, pleased by the ritual, would deliver them to their descendants. At such times, the natives would be told by the spirits during dreams where the goods had been left - in deity sanctuaries or other parts of the bush."

influenced Pepaur, or its neighbours for very long. The rituals were attempted without success, and then people moved onto the other opportunities and changes that were beginning to present themselves.

In the early 1950s, Administration officers coaxed Pepaur to move from the hinterland and settle on the coast. It was also at this time that a rice cooperative was initiated in the Madang region. Villagers were encouraged by the Administration to grow rice and market it through the cooperative. Neither change took hold, however: the super village disbanded, and the rice cooperative collapsed. Garden disputes and sexual jealousy were behind the failure of the settlement, while the rice cooperative lost the support of its local growers by failing to pay them for the rice they had produced. Much of Pepaur returned to the hinterland, and rice production ceased. It was not until the late 1950s, with the arrival of the Luthern mission, that major changes were initiated within the Pepaur area. The Lutherns established a station at Bunabun and built a school and aid post. Over the next few years the majority of the nearby villages (Tavulte, Bunabun, Asumbin) converted to the Luthern church. Pepaur, moved back to the coast, but remained Catholic. All of the local communities, however, came to rely on the Luthern station for health and education services, as well as assistance in developing their own small coconut plantations. Up until this time, only a few male children of Pepaur's bigmen received any schooling, and they were scattered across several Catholic mission schools along the northcoast of Madang. The Bunabun community school was the first opportunity for Pepaur children, boys and girls, to live at home, and attend school. This change was to have profound implications for the village. It introduced *Tok Pisin* to the entire youth of the village, and initiated a process of language shift. Informants, who as children were the first to attend the school, emphasized the pressures they faced to learn *Tok Pisin*[10]. The Luthern teachers strictly forbade the

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[10] Lawrence (1956: 77) reports that, up until the 1950s, the Lutherns, in both their secular and religious teachings, used native languages as much as possible. Why the Luthern community school at Bunabun used Tok Pisin as its language of instruction I was unable to ascertain. In the 1970s, when the school was taken over by the Administration/provincial government, the language of instruction switched to English.

speaking of their local language at school. Moreover, their parents supported this rule. They were concerned that if their children did not learn *Tok Pisin* they would be left behind, and excluded from the changes that were shaping the country. From a village that internally spoke only Pepaur right up until the early 1960s, Pepaur was transformed by 1993 into a community where the majority of its population's first language is *Tok Pisin*[11]. On the economic front, Luthern lay missionaries established their own coconut plantation at Mangem. Informants said that they also promoted and assisted clan and family groups to establish coconut plantations of their own. Up until this time, Pepaur had always laboured on European owned and run plantations. Now they were being offered assistance to cultivate and process their own copra. Three Pepaur men and their extended families took advantage of this opportunity and planted approximately 20 to 25 hectares of coconuts between them. All of this planting occurred on land that belonged to a neighbouring village[12]. At this moment in time, land was still considered plentiful, even on the coast. Moreover, the concept of land having a commercial value was relatively new. Local land owning clans saw no reason not to maintain good relations with their less fortunate neighbours who were forced to live away from their land.

During the 1960s, the colonial Administration appointed village headmen were replaced by an elected councilor system, and local government councils (LGC). This system remains intact today. Pepaur belongs to the Sumgil-bar LGC, which encompasses a substantial area extending from Tavulte, along the coast and inland, half-way to Madang town. The Sumgil-

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[11] Kulick (1992) in his recent study of an isolated East Sepik village suggests that language shift occurs through a community's children. He believes that language shift occurs not only as a result of macrosociological processes, such as the introduction of Christianity, contract labour on plantations, but also due to cultural transformation of "how the villagers view and express the self" (1992: 19). He argues that the villagers thoughts on language, children and self all work to systematically bias their language practices in favour of Tok Pisin.

[12] Kokemua (Yawier 2 sub-clan) and Malus (Nomosogun sub-clan) established small coconut plantations on Muere land. Nowir (Amya sub-clan) planted his coconuts right on the coast on Tavulte land. Four Meure groups also planted coconuts, of which two plantations occured on the coast on Tavulte land. Since the mid-1980s, ownership of one of these four small plantations has also been passed onto a Pepaur man (Anton Pesam), who was adopted by a sonless Meure bigman.

bar LGC is divided up into several council areas. Pepaur is part of the area comprising: Tavulte, Pepaur/Meure, Bunabun, Asumbin and Garum. Each area elects a councilor to represent it on the LGC. In addition, each village within a council area elects its own committee (one person), who works with the councilor, and is responsible for organizing community labour and participation in local projects and events. The LGC's were responsible for levying taxes and undertaking service development within the area. In 1964, National elections for the newly established indigenous House of Assembly were also initiated.

During the mid-1960s, the Administration also initiated a process of land tenure conversion[13]. This process, however, has never been completed. Goava (1984: 50) suggests that, country-wide, the Committees established to oversee this process, lacked adequate resources to adjudicate disputes and complete land surveys. In Pepaur, and similarly throughout the Territory, land was demarcated, but the next steps, registration of communal title, and then conversion to individual title, failed to occur. Moreover, in Pepaur, the demarcation process sparked disputes between villages, and amongst village clans. Informants said that the demarcation process relied almost exclusively on information provided by the newly established LGC's. Village input was not sought. Several clan heads, including the descendants of Owara (Pepaur's head family group) said that the process had never been accepted by them, and therefore was not valid.

1975 to the Present: 1975 marked the end of colonial rule and the emergence of the independent State of Papua New Guinea. This period has continued to witness a transformation in Pepaur's local infrastructure, commercial activities and system of government.

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13 The Land Titles Commission Act came into force in 1962. Its objective was "to introduce throughout the Territory a single system of land holding regulated by the central Government by statute, administered by the Department of Lands of the Central Government, and providing for secure individual registered titles after the pattern of the Australian system" (Murray, 1967:285).

Within two years after Independence, Papua New Guinea's Constitution was amended, and a provincial government system was introduced. The Australian government, during colonial rule, had instituted a system of district level administration, based on only two levels of government - national and local. Dorney (1989: 153) suggests that the concept of provincial-level government, developed out of regional aspirations and pressures for secession. The theory behind decentralization was to improve service delivery at the local level by shifting decision-making authority to local leaders (Ibid: 177). The provinces were to control local government, local courts, health centres, aid posts and primary school education. The new level of government was to be funded by a national government grant, supplemented by locally raised taxes (retail sales, land and head taxes) (Ibid: 167). Villages, such as Pepaur, now had the opportunity to elect a LGC councilor, a provincial member of parliament, as well as, a representative to national parliament. Whatever initial expectations might have been, the three-tiered system of government has proven to be a great disappointment to Pepaur. It appears that Pepaur villagers tolerated the LGC only insofar as it was able to attract money and assistance for agricultural and infrastructure projects. The formation of provincial government, informants said, resulted in reduced resources being channeled to the LGC. The Sumgil-bar LGC now received funding barely adequate to pay its councilors small salaries and seating allowances, and cover administration costs. It was left with little or no money to put towards community projects. From the village's perspective, the introduction of another level of government has reduced the amount of funds available at the village level. The provincial government, people complain, is more concerned with its own comforts, than the needs and aspirations of its rural constituencies. In March 1993, the Madang provincial government was suspended for alleged mismanagement of funds. There has also been considerable talk on the radio, in town and the village about national government plans to do away with the provincial government system altogether. Both the suspension, and rumour of abolition of the Madang provincial government are supported by the men interviewed in Pepaur.

Despite informants complaints about the poor level of service they receive from their governments, a number of programs and projects were initiated. The single most important infrastructure development to occur was the completion of the north coast road, linking Bogia to Madang town. Informants said that the road was completed in the late 1970s. Locally, roads are considered prerequisites for development. In particular, roads are regarded as the first step towards meeting the problem of economical transport of cash crops to market. Prior to this, cash crops and other cargo had to be transported by boat. The north coast road was seen as opening up the area to further economic development. The first such development to be initiated following the completion of the road was cocoa. In the early 1980s, the provincial government, through its department of agriculture and livestock, initiated a program to promote the planting of cocoa. Many Pepaur men took advantage of the program and planted the new hybrid variety of cocoa being promoted. The world price for cocoa at this time was over K2,200 per ton (AIDAB, 1992), and local expectations were that the price would stay high thereby making them all a lot of money. Unlike the coconut trees which were planted near the coast on land belonging to its neighbours, Pepaur men established small cocoa blocks in the hinterland, on their own land. The north coast road had recently been completed, and Pepaur expected that a road would soon be built into the hinterland, giving them easy access to their land and cash crops. By 1990, however, just as these plots were coming into full production, the price of cocoa had fallen to under K900 per ton (AIDAB, 1992). In addition, the road they were hoping for did not materialize as expected, and the care and processing required to produce top quality cocoa was more difficult than they had imagined[14]. As a result, cocoa has failed to generate the financial returns that Pepaur families had envisaged. On the whole, their experience with cocoa has been a bitter disappointment. The other major

[14] While the potential yields of the newer hybrid cocoa are significantly greater than the old clonal variety, it also requires more maintenance (pruning and disease control). With most of Pepaur's cocoa blocks at least an hours walk away, the cocoa never received the on-going attention it required. Moreover, the degree of attention cocoa required was beyond that required by any other crops they cultivated. As a result, most of the cocoa planted, as of 1993, was in poor shape, suffering from too much shade, lack of pruning and disease.

commercial development initiated during this time was the timber project. From villagers' perspective, the timber project differed from the cash crop initiatives, in several ways: (1) it would be dependent on high technology; (2) its effects would be dramatic and occur quickly, and (3) it would make them all immediately rich.

5.2 Contemporary Pepaur Society

The proceeding overview provides a strong basis for arguing that Pepaur has been thoroughly incorporated into the international system. The influence and practice of Christianity is strong; local tradestores carry imported consumer goods [15] and Madang town, accessible by PMV (local buses), is stocked with a wide array of modern household and personal products; most Pepaur families either cultivate their own cash crops, or at least have access to blocks belonging to neighbours or relations, moreover, all local men identify business, or making money, as their number one priority; primary formal education is available to all at a low cost, several village residents have attended high school and even a few have received post-secondary training; villagers participate in electoral politics at the local, provincial and national levels; and people have experienced several innovations for promoting rural development[16]. Despite the social and physical encroachment of the outside world into Pepaur, however, the village

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[15] Each settlement has a tradestore of its own: Pepaur, Perum, Tavulte, Bunabun. At times some communities have more than one - in the late 1980s Pepaur had two. All tradestores tend to be competively priced and stocked with the same basic items: tinned fish, beef and meat; tea, coffee, sugar, cooking oil, hard biskets; soap, soap powder, and bleach; tobacco, sheets of newspaper for rolling cigarettes, coloured string (for making string bags), aspirin, steel wool, hooks, bulbs and batteries. Other, more expensive personal and household items such as clothes, cooking ware, radios, flashlights, tools, are purchased in town, where markups are lower and there is a wider selection.

[16] On the economic side people have participated in cooperatives, Business and Youth Groups, attended workshops on business education (BEST, a local non-government organization ran two, three day workshops in Pepaur village), and received training in improved livestock and gardening techniques (Yangpela Didiman school run by the Luthern church at Amron, just outside of Madang town). From a social perspective, the Catholic church has run several programs, from bible school to guitar lessons, which Pepaur villagers have attended. The Catholic run health centre also makes monthly visits to the village providing treatment and health education.

remains in many respects rooted in its traditional way of life. Village livelihoods remain dependent on traditional methods of swidden cultivation (now mainly carried out by women), and people's consciousness is still dominated by lineage affinities, and to a lesser extent, communal ownership of land. This straddling of two worlds - hanging onto the past, while coveting the material goods of the capitalist economic system - has resulted in a complex conglomeration of ideas, attitudes and behaviour which are degrading the local physical environment and causing social frustration, anxiety and strife. Three aspects of Pepaur society that have been significantly impacted by changes that have taken place over the past 100 years are: (1) settlement pattern and population growth, (2) system of land tenure; (3) village political institutions and leadership.

5.2.1 Pepaur Settlement and Population

Pepaur village is situated on the North Coast road alongside the Umbarum River, in the eastern portion of the Kumil TRP area (See Figure 5.1). Its most immediate neighbours are the villages of Muere (.5 kilometers), Tavulte (1.5 kilometers) and Bunabun (3.5 kilometers). Pepaur's main settlement stands on a small parcel of land that was 'purchased' from a Tavulte clan during the 1980s by Alois Pesam, a Pepaur bigman. Pepaur's customary land is located two hours walk inland from the coast. Prior to World War II, Pepaur people resided in scattered homesteads, and gardened and hunted within their customary territory. Village elders said that they first moved to the coast in the early 1950s. The Australian colonial administration of the period established a large village on the coastline around the Umbarum River by relocating all inland and coastal villages to this area. One large village made it easier for kiaps (administrators) to control local residents, as well as provide them with services. Tension and fighting, however, broke out among the collected clan groups over garden areas and sexual jealousy. Pepaur and other groups, as a result of the conflict, returned to their customary land. People apparently found it difficult living away from the coast and its greater access to services and 'development'. Since the 1950s, Pepaur people have moved back and forth between their land and the coast several times. Movement has always been by foot, using bush paths. At

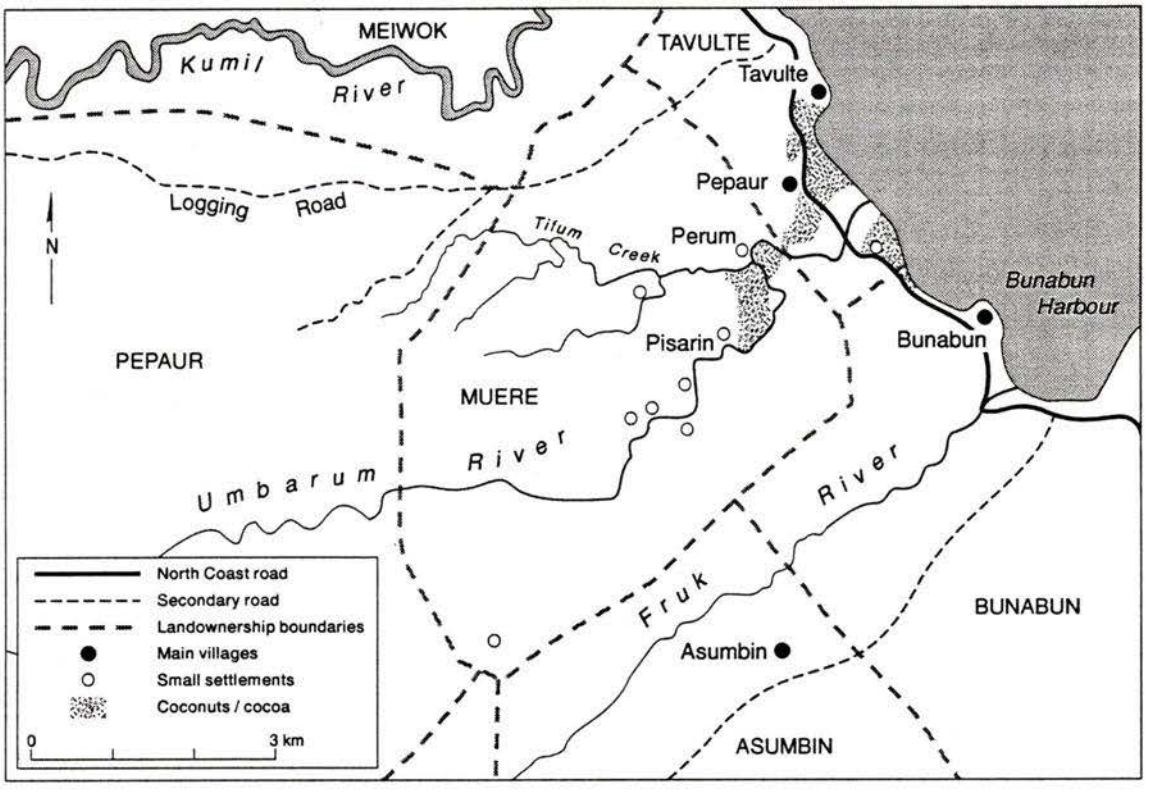

FIGURE 5.1 Pepaur village and surrounding area: landownership boundaries, settlements and cash crops.

times, when the Umbarum River is high enough, people also make bamboo rafts and float down from the hills to the coast. In 1985, as a result of the timber project, a road was built inland along the mountain ridge separating the Kumil and Umbarum Rivers. The road remains in good condition despite limited maintenance. Several people within Pepaur speak about leaving the coast and returning to their land. In theory, Pepaur now has road access to their land. There are several reasons, however, why such a move is unlikely in the near future. Many of the young families have grown up on the coast and stated that they did not want to live in the bush. They were particularly concerned about the availability of education and health services. At present, their children attend a community school at Bunabun, a half hour walk away. In 1993, a new health center was also built at Bunabun. Moving to the hinterland, even with the road access, would make access to these services more difficult. Another difficulty, to be discussed more fully later, concerns the conflict that has arisen between Pepaur and Tavulte over use of the logging road. The initial leg of this road traverses Tavulte land. Since 1990, Tavulte has not allowed Pepaur to use this portion of the road.

Pepaur, while a linguistically distinct group, has a very close relationship with Meure, its closest neighbour. Meure is referred to by Pepaur as 'their little brother'*(liklik bilong mipela)*. Unlike Pepaur and other nearby villages, Meure people do not live in one central location. Meure families live in Pepaur, at Perum (their main settlement), Yakerme and several other small settlements along the Umbarum River. It appears that the lack of a main village has been a factor in their being treated by local groups and outsiders as a part of Pepaur. This relationship, however, likely has deeper roots as well. These two groups are believed to have a common history that stretches back before colonial contact. Today, as a result of inter-marriage, it is difficult to distinguish between the two groups.

Pepaur's main settlement, as of 1993, comprises 22 households, spread out in four settlements alongside the North Coast Road. It has 155 residents, 85 to 95 percent of whom live there on a day-to day-basis. The total population of Muere and Pepaur is approximately 300 people. Table 5.1 outlines the main settlement's population breakdown according to

Table 5.1
Pepaur Population (Main Settlement), 1993

Houses	Family Group	Male	Female	Total Population	Under 15	Over 55	Lineage of Male Head of Household
1	1	3	3	6	4		West Sepik
2	2	6	5	11	6	1	Meure
3	3	1	3	4	2		Meure
4	4	3	4	7	5		Pepaur
5	5	2	5	7	5		Pepaur
6	6	3	6	9	5		Pepaur
	7	2	1	3	1		Pepaur
7	8	3	2	5	3		Pepaur
8	9	4	1	5	3		Pepaur
9	10	4	4	8	6		Pepaur
10	11	5	4	9	7		Ramu Valley, Madang
11	12	6	2	8	6		Manam Island, Madang
12		1	2	3	1	2	Pepaur
13	13	2	3	5	3		Meure
14	14	2	2	4	2		Pepaur
15	15	3	4	7	5		Pepaur
16	16	3	4	7	5		Pepaur
17	17	2	3	5	2	1	Bogia, Madang
18	18	6	6	12	8		Tavulte
19		1		1			Pepaur
20	19	4	3	7	5		Mirap, Madang
	20	1	2	3	1		Pepaur
21		6		6			Pepaur
22		1	3	4	2	2	Meure
23	21	1	2	3	1		Muere
24	22	5	1	6	4		Pepaur
	TOTAL	80	75	**155**	90	6	

Notes:

(i) During our stay in Pepaur, we lived in a vacant village house (#24), belonging to a school teacher (Adam Pesam) and his family. They live at Bunabun community school during the school year and return to the village during school breaks.

(ii) Of the total population, approximately 85 to 90 percent are resident in the village on an day-to-day basis. During the dry season, many families make temporary settlements in the hinterland to be closer to game, clean water and cooler temperatures.

(iii) Houses #6 and #21 each contain two separate families.

household. The population is split almost equally between men and women (51 percent male, and 49 percent female), with a high proportion of residents under the age of 15 (approximately 60 percent). The average number of children per family is 4.5[17]. The majority of Pepaur families (60 percent) are young, with the parents under 30 years of age. These families currently have between one and three children. The majority of parents over 30 years of age have between five and ten children. Women, when asked what they considered to be the ideal family size, said six[18]. Pepaur men and women all believe that the average family size today is larger than it was during the time of their ancestors. Informants said that their grandparents chose to have only one or two children. They attribute the small desired family size in the past to warfare and the need for mobility. Small families were maintained through the ritual use of contraceptives. Parents, today, bear more children largely because the threat of warfare no longer exists. Other factors that have stimulated population growth are improvements in health care and adherence to church doctrine. Since 1975, population has increased approximately threefold.

These changes - establisment of sedentary settlements on the coast and increasing population growth - along with people's refusal to adopt new gardening techniques and the promotion of village cash cropping, have had a visible impact on the local physical environment. Much of the coastal area around Pepaur was once forested. Susan Alois, a woman in her early 20s, remembers the area surrounding Pisarin as being covered with forest when she was a child. Today, this area and others, are dominated by cash crops (coconuts and cocoa) and grassland. Forest land on the coast has become scarce.

In some cases, the transformation of forest to other uses has been been a conscious undertaking. Villagers, for instance, have purposefully cleared

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[17] Average number of children per family has been calculated as follows: (Total population (155) - grandparents (6) - adults (44) - young adults(7)) / Total households (22)).

[18] This number is consistent with several studies of reproductive decision-making conducted in lowland areas of Papua New Guinea (Chowning (1988), West New Britain province; Cotton (1988), Madang province; McDowell (1988), East Sepik province).

and planted blocks of coconut and cocoa trees. In other cases, the transformation appears to have been unintentional; a product of establishing garden sites immediately adjacent to areas of grassland, and in close proximity to each other. It should be pointed out that grassland is not necessarily viewed as degraded land by villagers. Grass is regarded as being the most durable local roofing material. Grassland also provides a habitat for wild pigs and a source of food for cows (a man from Tavulte has a herd of cattle which he grazes in the area between Pepaur and Perum). As a result, large areas of it are burnt each year in order to hunt pigs (informants said it was an easy way to hunt), and replenish the cows food source (apparently it is only the young grass shoots that are edible).

Discussions with informants suggested that Pepaur and Meure's current system of gardening is little changed from the one used by their ancestors. New garden sites are cleared and burnt annually, with all work being done by hand. New techniques to promote soil fertility and soil conservation, such as mulching, composting, crop rotation and agroforestry, have not been adopted for use in subsistence gardens. Both women and men have had access to training and information about these techniques, but have chosen not to use them. However, new techniques have been used when introducing cash crops. Agroforestry, for example, is common; several Pepaur men have planted cocoa trees underneath the shade of coconut trees.

Many informants expressed concern over the steady expansion of grassland in the area and recognized that their gardening techniques were facilitating this process. When asked, why they don't change their gardening techniques and adopt some of the new ideas, I was told: *em i stap long blut bilong mipela* (its in our blood).

5.2.2 System of Land Tenure

In Pepaur, the family remains the institution through which a male child acquires rights to land. As in the past, only men possess such rights. In the event that a man has no male sons, he can either adopt a village male to pass on his land rights to, or, if he has a daughter, he may chose to ask clan leaders to agree to allow his land rights to be passed on to the first born male child of his daughter. Other rules and procedures governing the rights and

liberties of individuals and clans in the use of, and control over Pepaur land, however, have changed. Whereas land rights in the past were regulated through the clan, today, they are for the most part anchored to individuals. Similarly, most land use decisions are made by an individual, or between individuals - the clan, as a decision-making body, appears to be only peripherly involved. In addition, there has been the creation of a growing group of men within the village who are without land rights.

Shift Away from Communal Land Rights: The notions of clan and communal ownership and control over land rights that characterized Pepaur society at the turn of the century have been undermined by new values, changes in settlement patterns, and a loss of traditional knowledge and practices.

The shift in villagers' attitudes towards land gathered speed in the 1950s, as a result of the colonial Administration's new native policy, experience at cultivating and processing their own cash crops, and an increase in the accessibility and diversity of foreign consumer goods. Increasingly, land and forest resources came to be viewed as a means by which they could earn money to purchase foreign goods. The spiritual, recreational and subsistence values persist, but land has now become imbued with a new utility - one that appears to promise material wealth and an improved quality of life. This change in attitudes, along with pressures to adopt capitalist concepts of individualism, re-investment and profit, has affected how village men are choosing to view land. A good example of this new ideology in action is Alois Pesam. A school teacher for over 20 years, he has taught in several parts of the country (Highlands, the Ramu valley, Manam Island, just outside of Madang town), and is currently headmaster of a community school at Busip, about 40 kilometers north of Pepaur past Malala High school. In the early 1970s he married into Tavulte's Ove clan. This, along with the steady income he earns from teaching, enabled him to purchase a small piece of Ove clan's land in the early 1980s. It is on Alois' land that the main settlement of Pepaur is built. He does not possess legal title to this land, since the land has never been surveyed or registered. He 'purchased' it by receiving the approval of all Ove clan bigmen and bigmen from Tavulte's other three

clans, giving cash and pigs to the Ove bigmen, and by holding a number of feasts on their behalf. Since then, Alois has planted two blocks of coconuts, one block of cocoa and built himself a permanent copra dryer. He has also built himself the only permanent, private house in the area, complete with galvanized iron roof and water tank. He has done this with the objective of retiring in a few years. He and his family will have a good house to live in, and the cocoa and copra will provide them with a steady income. Alois indicated that he never would have invested his money in the house and cash crops without the security of owning the land. The procedure of buying and selling land to outsiders, while not frequent, is not uncommon on the coast. Most of the Pepaur men, however, Alois included, shake their heads and say that this is something that would never happen to Pepaur land.

Pepaur livelihoods are dependent upon the land and forest resources of its neighbours. Beginning in the 1960s, Pepaur and its neighbours began to establish permanent settlements along the coast, in close proximity to each other. This, in conjunction with other factors (see discussion on page 98-99), has led to a decline in forest land. Pepaur villagers, as a result, now find themselves unable to secure land from their neighbours for either gardening or cash cropping purposes. Felix Malus, for instance, is one person who is feeling this pressure. He is the second eldest son of Malus Serhun of the Nomosogun sub-clan. He and his wife, along with two other Nomosogun families currently garden on Tavulte land situated about 15 minutes walk from Pepaur, on the other side of the Umbarum River. Malus negotiated the right to use this land for gardening many years ago. Felix said that when Malus dies the right to use this area will taken away from them. When asked where they would garden, he said that they would likely be forced to establish gardens on their own land several hours walk away into the hills.

Local concerns about resource scarcity have even spilled over into gathering activities. In the past, the gathering of wild forest products was not regulated. People were free to gather what they liked, where ever they wished. Family groups are increasingly feeling pressure to control scarce land and forest resources for themselves. Muere men in response to concerns about the loss of local forest land recently met to discuss the issue. They subsequently announced to neighbouring villages that the gathering of

plants, vines, bamboo and other forest products from Muere land necessitated consultation with and approval from the appropriate *papa bilong graun* (owner of the land rights). One Meure man has even started to sell bamboo which has become very scarce near the coast. It is a trend that has developed for both commercial, and subsistence reasons.

The third force behind the erosion of clan and communal control over land is the community's collective loss of traditional knowledge. Considerable environmental, medicinal and custom related knowledge remains, but it is neither preserved in an accessible written form nor available in its entirety from any one individual. This type of knowledge is typically handed down by word of mouth from elders to young people who are respectful and interested in learning it. Moreover, the quantity and quality of knowledge is spread amongst elders in varying degrees. In Pepaur, this knowledge is either not being passed down, or it is trickling down in fragments which are not being pieced together. The majority of young men are not interested in the past, but are concerned about earning money and enjoying themselves. Moreover, their first language has become *Tok Pisin*. Since much of traditional knowledge is bound up with Pepaur's language[19], young people no longer possess the necessary skills to learn from the past, even if they were so inclined. A good example of the impact that the loss of traditional knowledge has had on land rights is the recent initiative by Alois Pesam to educate Pepaur youth about clan membership. Traditionally, the young men of a clan lived together in their own house. Each clan had its own boys' house. Young men would be brought up knowing what clan they belonged to, who their fellow clan members were, and what customs would regulate village life. Today, although young men still tend to live

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19 In developing a list of how Pepaur uses the forest it was older members of the community that I had to rely on for assistance. People under the age of 25 have lived all their lives on the coast, away from their traditional land. As a result young men are not comfortable in the deep forest. In fact, they spend very little time there. Ignorance in the naming of forest products and describing their uses was readily admitted and demonstrated by all youth I had the opportunity to interact with. The information that I was able to collect (see Appendix 4) highlighted the linkage between the local language and traditional knowledge. Less than 50 percent of the forest plants, vines and trees identified had a name in Tok Pisin.

communally in their own house, the house is not attached to a particular clan. At times, residents of the house are even from different villages. Thus, the village has lost an important mechanism for passing on knowledge to its male youth. It has resulted in a situation in which many Pepaur youth are ignorant of their clan affiliation, as well as, their rights to land. This created conflict as groups of local youths were hunting and clearing forest for cash crops in areas claimed by others. Alois attempted to address this conflict by organizing a village gathering to identify Pepaur's clans. The purpose of the meeting was to revitalize the clan concept and ensure that each young male in the village was attached to a clan. Two clans, comprising six sub-clans were identified:

- YAWIER Clan: Yawier 1, Yawier 2, Pepaur and Nomosogun
- AMEIRPO Clan: Ameirpo and Amya.

Appendix 5 outlines the outcome of this exercise. The meeting was successful in the sense that all Pepaur's male youth are now aware of what clan they belong to. However, it has done little to change their attitudes or behaviours or alter village men's commitment to individual control over land rights. Moreover, the process highlighted another conflict - disagreement over the number of Pepaur's sub-clans. Several Pepaur bigmen are unwilling to recognize Amya as a distinct sub-clan, contending that it is part of Yawier 1.

From Pepaur's standpoint, because their land is more remote, the trend towards individual ownership of land and forest resources has not taken hold as effectively as it has amongst the coastal groups. Despite this, almost all Pepaur men refer to themselves as *papa bilong graun* which is often loosely translated in English as 'landowner'. In reality, the term denotes an individual's rights to specific land areas within the territory claimed by Pepaur.

Land Rights Overview: Discussion with local informants revealed the existence of three categories of land rights: (1) natural, (2) permitted ground and (3) without ground. This breakdown was most coherently explained to me by Alois Pesam. It should be stressed that this categorization represents

his conceptualization of how the local system of land tenure works. In general though, other community members, while not familiar with the terms Alois used in describing the system, expressed perspectives in line with his ideas.

Natural land rights, are those rights passed down from father to son(s) through birth. Natural rights can also be passed on to adopted male children/young adults, as long as the decision is accepted by all clan/sub-clan leaders. Approximately 72 percent of Pepaur males (adults and children) possess natural land rights (see Appendix 5). In the past, this category of land rights permitted a man and his family the right to gather, garden and hunt throughout clan land. It also bestowed on the man the right to have input into clan land and forest use decisions. Within the last thirty years - as a result of population growth, permanent settlement on the coast, and government and mission promotion of village cash cropping - land rights have become anchored to individual males. Today, all men who fall under this category possess rights to specific areas of land. Apart from selling the land to outsiders, or allowing outsiders to live and work on this land, the possessor of these land rights has the authority to use it as he wishes. As such, clan members no longer have the right to gather, garden or hunt on Pepaur land without first seeking permission from the man who possess the rights to it. It is a rule which seems to be respected the closer one is to the coast and settlements.

In the past, informants said that Pepaur sometimes accepted outsiders into their community. If a man possessed skills beneficial to the village, he would be given permitted ground. He could garden and hunt as he saw fit in certain designated areas, but he would not have open access to all Pepaur land, nor would he have input in village land decisions. Over time, the man could gain natural land rights status by paying compensation (pigs and feasts) to bigmen of the village. Alois Pesam said that this was how Malus Serhun's father was accepted into Pepaur, and how the Nomosogun sub-clan was established.

More recently, men from other villages and parts of the country have begun to marry Pepaur women. Rather than returning home to their own villages and land with their wives, many have settled in Pepaur. It is a trend

which informants said was on the increase. Within the last 20 years, six adult men have married into the Pepaur and decided to settle here. In the past, when marriages were arranged, the incoming men would have been given permitted ground. Today, with individuals controlling land rights and young adults choosing their own spouses, outsiders are allowed to establish themselves in the village, but they are not automatically given land rights. Moreover, with land increasingly assuming commercial value, Pepaur men appear less willing to redistribute their wealth to outsiders. At present, only two Pepaur men (two percent of the total) have been given permitted ground status. The others fall into a category called outsiders without ground. The men in this situation are forced to rely on the woman's relationship with her parents and brothers to continually ensure that they have access to land and forest for subsistence purposes - often, they work with a man (and his family) who has land rights in his gardens. Informants said that this is currently not proving to be a major issue within the village, but foresee the potential for serious problems in the future when the male children of these men grow up and start having families of their own. Approximately one quarter (25 percent) of the total Pepaur male population fall into this land rights category - outsiders without ground. This trend is not limited to Pepaur alone. Bigmen from neighbouring villages said that they were concerned about this same issue.

A conflict that arose in 1990 between the Pesams (Yawier 1 sub-clan) and Kokemua Namua (Yawier 2 sub-clan), however, demonstrates that the notion of communal ownership has not yet been entirely undermined. Kokemua claims ownership of a large area of land called Irpin. It lies in western portion of Pepaur's territory, close to the Kumil River. As a result of the timber project, a road was built into this area. Kokemua had planned to establish a cocoa plantation on his land. Recently remarried to a woman from Sarang (about 45 kilometers from Pepaur along the north coast road towards Madang town), he wanted to bring some of her relations to Irpin to assist him in this undertaking. The Pesam's objected. They said that Kokemua was opening up Pepaur land to outsiders. Once men from Sarang established themselves at Irpin, it would be extremely difficult to get them to leave. The Pesam's argued that, as Pepaur's head family group, they had a

responsibility to ensure that Pepaur land remained intact for future Pepaur generations. They did not dispute Kokemua's ownership of Irpin, rather they disputed his right to use the land in a way they believed would jeopardize Pepaur's collective future. Kokemua did not pursue the project, but it generated a lot of bad feelings which still persist today.

5.2.3 Village Political Institutions and Leadership

In the past, Pepaur's political institutions, the men's cult and individually owned magic, were the vehicles through which village leaders exercised their authority. Village leaders, or bigmen, attained their positions of power either through selective inheritance, and/or the force of their own personalities. Informants also suggested that personal freedom was limited by custom, superstition and warfare. These forces guided people's consciousness, and limited their physical movement. The process of colonization, with its new relations, ideas and technology, has undermined these traditional institutions and introduced a more complex social, economic and political environment.

The institutional arrangements governing land disputes is a good example of the increased confusion and uncertainty that has resulted at the local level. At the turn of the century, dispute settlement would have been the responsibility of the men's cult - the senior bigman would call the other men within the clan together to discuss the problem and determine a course of action. Today, this responsibility is no longer vested soley within the local community. According to Pius, the LGC councilor for the Pepaur area, the task of settling local land disputes is the responsibility of the LGC councilor. He outlined the following process for resolving conflicts over land: (1) he refers the problem to village elders for settlement; (2) if that fails, then he brings in a land mediator, a locally appointed position within the LGC - currently a man from Bunabun village; and (3) if the dispute persists, then assistance is sought from the government official in Madang town responsible for provincial land matters. Discussion with other informants, however, suggested local resistance to the LGC driven process. Comments ranged from attacks on Pius' personal integrity and lack of faith in the ability of the LGC to fulfill its mandate, to a belief that land disputes were internal

village matters. While almost all informants expressed little confidence or respect for the LGC and the process outlined by Pius, it was also evident that the old political insitutions, such as the men's cult, no longer existed. This is supported by Pepaur's lack of a sanctioned *haus bung* (meeting house), and Alois Pesam's recent tentative efforts to re-educate village youth about their history, clan membership and rights.

The new institutions' lack of success can be attributed to a variety of factors: lack of expertise on the part of village leaders, and high expectations and increased personal freedom on the part of community members. Of the new institutions that have been introduced over the past 100 years - Catholic church, various levels of government (local, provincial and national), cooperatives, business groups, limited companies, and youth groups - none, except for perhaps the church, have functioned well. Expectations have not been met, and confidence in the local leaders involved in these activities has waned. In general, leaders lack the basic planning, research, motivational and administrative skills required to make the new institutions function effectively. Community members, on the other hand, place high expectations on their leaders and expect quick results. They are also not committed to their leaders, or these institutions. The unquestioning discipline which appears to have characterized community life in the past has been replaced by a greater degree of personal freedom. If things are not proceeding as expected, men (both young and old) are not afraid to withdraw their support.

The operation of the village committee, the community component of the Local Government Council (LGC), offers a good illustration of these factors at work. The committee is an elected position. In Pepaur (it includes Meure as well), it represents one individual. The role of the committee person is to assist the councilor in keeping the peace, as well as, undertaking community and local area projects. Because it is not a paid position and does not control any funding, there is very little competition for the office. The current committee person, Anton Pesam, the youngest of the Pesam brothers, grudgingly accepted the position four years ago. Village meetings at Pepaur are supposed to occur on a weekly basis. They provide a forum for announcements, discussion and the assignment of community work for the upcoming week. Since the important village leaders do not attend these

meetings, they do not serve as village decision-making forums. As well, the meetings are generally poorly attended by the community at large. During the four month period of field study, except for a few well attended meetings upon our arrival at the village, the weekly meetings often failed to occur because people could not be bothered to show up. The meetings, when they did occur, took place in the *haus win* (garden house) behind Anton's house, with the men sitting on its shielded, raised floor, while the women arranged themselves on the periphery, wherever they could find some shade.

Infrastructure development is one of the LGC's primary responsibilities. In the 1980s, the provincial government decided to allocate some of its works budget towards constructing a road inland from the northcoast road at Pepaur's main settlement. Road maintenance was being done in the area, and the company, at the request of the area's provincial member, was instructed to begin work on this task. The councilor for the area, Pepaur's committee person, as well as several local bigmen discussed where the road should go and then made their wishes known to the road crew. The terrain in the immediate area is flat, open grassland. Pushing the road through this area should have been a straight forward task. Despite considerable excitement within Pepaur at the prospect of a new road being built, construction never got off the ground. A Meure man refused to allow the road to cross his land. He was upset that he had not been directly sought out and consulted about the road. The committee, the mechanism supposedly charged with organizing this type of activity at the village level, had not only failed to initiate a simple planning process, but once the problem had occurred, it was unable to mediate the dispute and find a compromise. Other village bigmen backed off from the conflict saying that it was not their responsibility. The idea of the road collapsed quickly. People simply accepted the failure, blaming it on their inability to work together[20].

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[20] Brison (1991), in her study of two villages in the East Sepik during the mid 1980s, notes a similar phenomenon. She contends that people tended to adopt a project enthusiastically, seeing it as a possible road to broad improvements in their lifestyles. In order for the project to succeed, villagers believed that everyone in the community had to cooperate. This resulted in leaders/participants putting pressure on their more skeptical neighbours to go along. In turn, the pressure created resentment and dissension within the community. When

5.3 Summary

This chapter has provided a historical overview of Pepaur village. A literature survey, in combination with interviews conducted with informants, has provided an appreciation for Pepaur's system of land tenure. It has been shown that Pepaur, in responding to changes introduced within Papua New Guinea during the last hundred years, no longer lives on its own territory, has contributed to the modification and transformation of the physical environment along the coast and undermined the institutions and ways which regulated village society in the past. The following chapter presents Pepaur informants perceptions of the Kumil timber project - their involvement in the project, as well as the impacts that the project has had on village life.

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leaders/participants realized that they faced considerable opposition, they tended to abandon their project.

CHAPTER SIX

FINDINGS

"Timber projects are surely a very great money earner for the people, the province and the country as a whole (as politicians preach). But before we go on, we have to be very careful. Every move that is made has to be questioned. We have to ask such questions as: Will the timber project benefit the landowners? Who will benefit most? Will there be a reafforestation program carried out to replace the trees that will be removed? Are we going to run into the same problems that other timber-producing areas have faced such as delays in timber royalty payments, log wastage, operations by unlicensed companies and destruction of (the) natural environment? Are small-scale or large-scale industries better? I am not totally against the idea of the timber project, but I am only trying to point out the bad sides of it. Without thinking through all these questions and problems carefully, our so-called leaders, who are hungry for money, will lead us all into destruction. And when we are in it (destruction), it will be too late. By this time the ones who have fooled us will be high above the grass roots, enjoying all the luxeries they have dreamed for, while leaving us struggling behind."

L.A. Heting,
letter to the Post Courier,
November 23, 1987, p.4.

This chapter explores two issues: (1) the nature and extent of villager involvement in the timber project, and (2) the impacts that the project has had on the community. First, Pepaur's initial expectations about the project are described. Next, villager involvement within the Timber Rights Purchase process and the landowners' company (UDC) is reviewed. The extent of logging to occur in Pepaur forest and the financial details of the project are then outlined. This is followed by a presentation of villager views about the positive and negative aspects of the project. Finally, the project's impact on village level social structures is considered.

6.1 Villager Expectations

According to Renner (1990), the impetus for the timber project originated within the Kumil area. While Pepaur was not part of the group that catalyzed the project, once informed, they were both supportive and excited about the idea. Pepaur's interest was rooted in a desire for 'development'. Male informants spoke of development not so much as a process, but as an improved material state, where all communities would have their own road, families would live in permanent houses, men would have their own vehicles and other machines that would make their lives easier. The means to achieve these material changes was through money. Mait Kokemua said:

> "Bigmen of the time saw this (timber project) as a road to get money - that is all they thought about! They heard that people in the Gogol area had received a lot of money since JANT had started cutting their forest. They thought that this was their chance to get money."

Unlike projects in other parts of Papua New Guinea, where participants' understanding of the relationship between means and desired ends has reportedly been unclear (see Brison, 1990: 331), in Pepaur, village men were very aware about what they hoped to gain from the timber project. According to Tur Vengel "... we (Pepaur) were following a dream". In the dream, they exchanged their trees for money, then used the money to bring desired goods and services into their community. Moreover, he said, they were told by the government and forestry officials that the project would generate a lot money - that they were all going to be rich! Unlike the other projects (rice, copra, cattle) they had been involved with in the past, the timber project was going to be the one to finally provide them with the means to change their lives.

Two other factors also played a role in Pepaur's unequivocal support for the timber project: (1) a lack of experience with this type of activity, and (2) the possession of substantial areas of little used forest land. While some logging had taken place close by, to the south and the north, the proposed timber project was a new phenomenon to residents of the Kumil area. In

addition, the neighbouring logging activities were either of too small a scale, as in the case of the Catholic mission operated sawmill operation at Yoro, or too newly initiated, like the North Coast TRP area, to offer relevant information that residents could use to evaluate the costs and benefits of the Kumil timber project. In short, there was nothing in the community's past to temper its hopes regarding the project. It is interesting to note that the Gogol timber project was mentioned as a justification by informants for proceeding with large-scale logging in their forest. In the early 1980s, in certain circles at least, the project had begun to generate misgivings and bad press (see, for example, De'Ath, 1980b). Perhaps the information was not accessible to rural villages, or perhaps Pepaur men ignored what they heard. Either way, it appears that the community entered into this project with very little appreciation for what was going to happen and what might go wrong. In contrast, the second factor is a function of villagers' experience. Village men, since the 1960s, had felt increasingly torn between living on the coast and on their own territory in the hinterland. The timber project was seen as a means by which they could return to their land - it would build the roads, clear the land and provide them with money. In day-to-day terms, village men do not value the diversity of the primary forest. The big trees and dense canopy are viewed, in many respects, as a hurdle to be overcome - both from a subsistence and commercial perspective. In subsistence terms, a substantial proportion of the village's swidden activities, gardening and gathering in particular, rely on areas of cleared and young secondary forest. Gardening, whenever possible, occurs in young secondary rather than mature forest because it is much easier to clear. While gathering still does occur in primary forest areas, this type of environment is no longer as important as in the past. Many trees commonly found here are now either cultivated near the village, such as Canarium indicum (*galip*) and Dracontomelon spp. (*mon*), or their products have been replaced by store bought goods, as in the case of clothes, which before cotton and synthetic fibres were made of bark cloth (*mal*)[1]. From a commercial perspective, villager's conception of how to earn money

[1] Forest use information collected while in Pepaur is outlined in Appendix 4.

off their land was limited to planting cash crops or raising cattle. Both strategies require the removal of primary forest. Village men, primarily concerned about the here and now and getting ahead economically, were, therefore, not overly concerned at the prospect of losing their primary forest.

6.2 Sale of Timber Rights

Pepaur signed the Timber Rights Purchase (TRP) agreement at Tavulte village on July 13, 1983. The document identifies 125 men, women and children as Vendors or owners representing Pepaur. Fifteen of this number, however, are actually from Meure village, bringing Pepaur's total down to 110. The signatures or marks of 95 (86 percent) of the Pepaur's Vendors appear in the document. Seven men were also identified as Agents for the village. The following year, on June 5, the Agents received a deposit on the estimated purchase price of their forest from provincial forestry officials. The Kumil TRP agreement as a whole is dated in effect as of June 5, 1984.

In the top left hand corner of each page of the TRP agreement that contains Vendors' names, appears the following statement, written in English, by the agreement's Interpreter:

> "Signed at ... by the Vendors present at the signing who either signed or made their mark hereto in my presence after this Agreement had been carefully read over to them by me when they all appeared to thoroughly understand the purport and effect thereof".

At the end of the document, the Interpreter has signed a declaration stating:

> "... I truly interpreted the contents of the above paper ... I am certain that the agents and the vendors understood me ... they knew what Timber Rights they were selling and they knew that they were selling them out to the State for a period of twenty (20) years ... I am also certain that the Agents for the Vendors were satisfied with the price they received."

Discussions with Vendors about the TRP agreement, however, suggest that only a few men from Pepaur actually signed the agreement, and that little

information was provided to the villagers about the purpose of the agreement, its details or implications.

Melchior Pesam, the man who from the start assumed a leadership role within Pepaur concerning the timber project, said that he was visited several times by forestry and provincial officials prior to his signing of the TRP agreement. Melchior, in his early 30s at this time, had recently returned to Pepaur, having spent two years at the University of Papua New Guinea. He is the only person within Pepaur or Meure to have attained this level of formal education. He is also a member of Yawier 1 sub-clan, viewed by many people as traditional leaders within Pepaur. Prior to the July 13 signing at Tavulte, Melchior said neither he, nor other villagers were given any details about the proposed timber project, only that they would get roads, money and employment. No attempt was apparently made by government officials or any other group to inform villagers about the project's legal agreements, exactly how much money they could expect to receive from timber sales, how the money from log sales would be distributed. The majority of village men who signed the TRP agreement did not have any contact with government officials prior to July 13. John Ondam, a Muere man, but who is married to Melchior's sister, and lives in Pepaur's main settlement, said that the only village discussion that took place in Pepaur was organized by Melchior. The purpose of the meeting was to let them know that the timber project was going to proceed, and that Pepaur men had to sign a piece of paper to ensure that the village was going to benefit from it. On July 13, 1983, a number of Pepaur men, in small groups or individually, made the half hour walk down to Tavulte to sign the TRP agreement. Vendor names had already been arranged and typed onto sheets of paper. According to informants, the forestry officials did not undertake any village-based genealogical research, nor did they establish Pepaur's collective territorial boundaries. Melchior thinks that the prepared pages of typed Vendor names came from village census records. Men signed or made their mark against their name as requested. They also informed officials as to whom would act as an Agent on their behalf. Seven men were identified as Agents. In Pepaur's case, Agents corresponded to the eldest member of each sub-clan. In several cases, men also signed for other family members and relations. Melchior, for example,

signed for his wife and two children, his eldest brother Alois and his family, as well as, twice for his mother. In total, Melchior signed on behalf of at least 15 people. Informants say that not a single woman or child signed the agreement. This group comprised approximately two thirds of the total number of Pepaur signatories to the agreement. One year later, at a meeting held at Bunabun, a total of seven kina, one kina per Agent, was distributed by forest officials to Melchior Pesam. He, in turn, gave each Agent their share of the deposit. Melchior did not know why the deposit was so low. In fact, he and everyone else from Pepaur at that time was unaware that a monetary value of their share of the proceeds (royalties) of the Kumil area forest resource had even been estimated, that the Forestry Act stipulated they had to be informed of this information in order for the agreement to be valid, or that its schedule of distribution was something to be negotiated between themselves and the State. Melchior said that he was told the one kina deposit was only a symbol for the relationship they had entered into with the State. It was referred to by forestry officials as *sekhan mani* (handshake money).

Mait Kokemua summed up many informants feelings about the signing of the TRP agreement: "*mipela longlong olgeta*" (we were all crazy). After little discussion, and driven by a desire to earn easy money quickly, a few men committed the entire community to a resource extraction activity of a magnitude beyond anything they had ever experienced. Village women were excluded from the discussion entirely because they neither owned land nor use rights. The majority of village men were equally marginalized from the process. Younger men lacked the status to be included, whereas the older men felt they lacked the formal education to deal with this issue. Responsibility, almost right from the start, was handed to one man. While the community itself was partly responsible for not properly exploring the details and implications of the proposed project, it was the role of the forestry department to ensure that this happened. Forestry officials, as educated, salaried staff supposedly familiar with the contents of the TRP agreement, were charged with the task of organizing and effecting the timber rights purchase. In the case of Pepaur, these officials failed to do their job.

6.3 Landowners' Company

Ulingan Development Corporation (UDC) was 100 percent owned by villages in the Kumil area. The landowners' company was in turn issued the Timber Permit, the exclusive right to cut and remove timber and other forest produce from the Kumil TRP area. In theory, UDC provided villages, such as Pepaur, control over timber operations within their territories. The potential that seemed to be offered by this new institution, however, was never realized. In many respects its role from the start was circumscribed by the TRP agreement and the Timber Permit. On top of this, UDC was established too quickly, was based on poor research, and failed to engage its constituency in meaningful dialogue.

UDC's structure and size were both determined without consultation with Kumil area villagers. From the outset, the timber project was designed as a large-scale logging operation - 40,000 cubic meters of annual harvesting for a period of twenty years. The envisaged scale of the operation necessitated a forest area large enough to accommodate this scale of exploitation. The boundaries of the Kumil TRP were established with this in mind. The scale of the harvest requirements, in turn, required the use of heavy equipment, international market connections, considerable financial backing and management expertise, none of which could be provided by a local, or even a Papua New Guinean operation. A foreign logging contractor would have to be brought in to harvest the Kumil TRP to meet the terms laid out in the Timber Permit. In many respects, the important decisions had already been made. The purpose of UDC was to ensure that the project ran smoothly.

The Kumil TRP area comprises many different heterogeneous groups and straddles two different local government councils. As such, there was no single, locally-based institution through which the area's inhabitants might make their concerns and wishes known. The national Department of Forests, based on their experience in the Gogol area of Madang, where the demographic and political situation is similar to that of the Kumil TRP, found that the entire operation suffered when local people were isolated from the project (see, for example, De'Ath, 1980b: 110). In an attempt to address this problem in the Kumil, the Department created a new institution - a landowners' company. UDC was envisioned as a means to unite local people

into a political unit coterminous with the timber development area. In addition, it was viewed as a vehicle through which local villagers could design and implement development activities in accordance with their own local area needs. Similarly, the process of establishing UDC as a landowners' company was a top down process, initiated by bureaucrats outside of the Kumil TRP area. Discussions with Pepaur informants revealed that there was no consultation of any kind prior to its formation. The change from private company to landowners' company, like the TRP process before it, occurred with minimal villager input, and left people confused and unclear about the result.

The first step in the process was the formation of a local group of men to represent the Kumil area villages. This group eventually came to be known as UDC's Board of Directors. Melchior's explanation of how he came to be a member of this group is illustrative of the poor planning that was to mark UDC's start-up, as well as its early years:

> " Timber operations had already started up ... Otley and Otley had established camp and was already cutting trees in an area on the other side of the Kumil River. It was by chance that we (Pepaur) heard about a meeting that was to be held at Ulingan village. We decided to attend, to find out what was happening, and when we could expect to have the contractor move across the Kumil River to our land. Myself and a few others from Pepaur borrowed Alois' car to make the trip. We arrived at the meeting late, but not too late. We were in time for the marking of village *maus men* (representatives). Seven of us were chosen to do this work."

The task of converting UDC into a landowners' company began at the first meeting of the UDC Directors in December 1984, a month after their appointments, and four months after logging operations had commenced. Melchior said that each Director was assigned to represent a portion of the Kumil TRP area. Provincial Commerce officers then requested them to identify the villages within each of their respective areas. Each village within the TRP area would have to be organized into a Business Group. Only through a Business Group could a village become a shareholder in UDC and

receive additional financial and related benefits from the timber project. They were told to collect village information that would permit Commerce officers to establish village Business Groups. The village was required to do three things: (1) choose a name for their group, (2) identify a person(s) to be responsible for the group, and (3) identify at least three different people who could be called on to settle disputes should they arise. The information was collected in time for the next Directors' meeting in the middle of January. Commerce officials used this information to register the village Business Groups. The UDC secretary/accountant, an employee of Coopers and Lybrand, an international consulting and accounting firm with an office in Madang town, then informed the Registrar of Companies of the change in UDC's ownership. In a period of a few weeks UDC was transformed into a landowners' company owned by 22 village Business Groups, holding a total of 77 ordinary shares.

Within Pepaur, the new institutions both heightened people's excitement about the timber project, and stimulated conflict. Excitement was generated at the prospect of receiving increased benefits through UDC from the timber project, as well as, knowing that one of their own, Melchior, was directly involved with the landowners' company. At the same time, conflict erupted in establishing a Business Group to represent the village. Melchior proposed that the Business Group be named after the Yawier clan. This was unsatisfactory to the bigmen of Ameirpo clan. They objected to what this implied - that Yawier was Pepaur's head clan. Because Commerce officials were willing to accept only one Business Group per village, and because both clans did not wish to be excluded from possible UDC benefits, Yawier and Ameirpo were forced to compromise. Thus, Aeisura Business Group was formed. Melchior passed on the required information to the Commerce officials, and Pepaur's first Business Group was legally born. The conflict between Yawier and Ameirpo, however, resulted in Yawier immediately distancing itself from Aeisura Business Group. Within weeks of the compromise decision to establish Aeisura, men from Yawier formed a second group which they called Yawier Business Group. According to Minutes of the group's first meeting, membership was open to all direct or indirect descendants of Owara and its purpose was to develop cash crops (cocoa, coffee

and cardamom) and cattle on Yawier clan land (Yawier Business Group, 1985). Nine men attended the initial meeting, four of whom were from neighbouring villages. In practice, the group's membership was selective - limited to men who a possessed a common lineage, and who either were elders or possessed higher formal education. Melchior, the village's primary source of information about the timber project, along with almost all of the influential Yawier clan bigmen, supported the Yawier Business Group. According to the meetings Minutes, they eventually planned to buy shares in UDC and bypass Aeisura Business Group entirely. Ameirpo clan, meanwhile, lacked both the contacts and educated membership to initiate its own Business Group.

Despite community representation on the UDC Board and the formation of Pepaur Business Groups, villagers were poorly informed about the landowners' company. The following excerpt from the Minutes of Yawier Business Group's (1985: 2) first meeting highlights this:

> "In the general discussion that ensued amongst the members, it was clearly evident that all members were concerned about the current exploitation of timber in the Ulingan Development Corporation. This was generally due to the fact that none of the members in the group, including Melchior Pesam, who is a Director in the Ulingan Development Corporation, is well appraised of the objectives of the Ulingan Development Corporation, and what are the immediate and long term benefits to the people whose lands are subject of this exploitation."

Over the next four and half years this gap was never really closed. The persistence of this state of affairs was a function of two things: (1) UDC's failure to reach out to its shareholders, and (2) barriers within Pepaur that prevented local interest and involvement in UDC's operations.

From the outset, UDC's management lacked commitment to the concept of a landowners' company. UDC's first manager, an Australian, was a key individual behind the initial establishment of UDC as a private company. Despite this, he was the individual entrusted with the responsibility to implement the landowners' company concept within the Kumil area. Review of UDC Board of Directors Minutes (UDC, 1984-89), and

discussions with Melchior Pesam suggest that he was a poor choice for this task. He continued to live in Madang town; spent little time in the Kumil area; and, did little work. His contract was terminated by the Board of Directors in February 1986 with the support of a National Department of Forests' official who promised to secure UDC the services of an expatriate volunteer from the Canadian agency, CUSO. During his 15 month tenure, the Board met infrequently, and when they did meet, it was usually in town. Melchior said that he and the rest of the Directors would find their own way into town the day before the meeting, barbecue and party through much of the night, and then sleep on the floor of the manager's house (rented by UDC). The meeting would be held the following afternoon, usually at the offices of Coopers and Lybrand. The Directors would listen to reports given by the manager and company secretary/ accountant, and collected their fees and seating allowance. During this time, UDC had no formal contact with its shareholders, except for an Annual General Meeting, held in October, 1986. It was a small gathering, however, and in Pepaur's case, no villager apart from Melchior attended. According to Melchior, it was not until the hiring of the new management, a husband and wife team (M.L. Thompson and B. Wells) from Canada, who took over management and accounting duties, that the Board began to play a more active role within the company, and UDC made any attempt to interact with Kumil area landowners. The Canadian couple, recruited by CUSO[2] a Canadian development agency, were employed by UDC for 13 months, from June 1986 to July 1987. From the Board's perspective, the changeover in management yielded immediate results: the management

[2] CUSO is an independent Canadian development organization working in partnership with Third World people to improve their lives both socially and economically. The organization was founded in 1961, as a small agency placing placing university graduates as Third World volunteers (hence, the acronym CUSO - Canadian University Students Overseas). Over the years the organization's role in development has expanded. It still recruits technical advisors, but also provides project funds and administrative support to groups in the Caribbean, Africa, Asia, Latin America and the South Pacific. Because of this, the organization dropped the university affiliation from its title in 1981. It is now known simply as 'CUSO'. In the case of the Kumil timber project, Thompson and Wells were employees of UDC. Salaries and accomodation were paid by UDC, while CUSO provided medical coverage, orientation and language training, and airfares to and from Canada.

clarified Directors' role, powers and responsibilities; two Directors accompanied the manager on a field trip to Port Moresby and Lae to learn more about the timber industry in Papua New Guinea, and look at sawmill equipment and cocoa developments; Directors were involved in negotiations with the State and timber contractor over concerning the Logging and Marketing Agreement; and survey's of two parcels of Kumil area land were completed for cocoa development. In December 1986, UDC also made its first patrol of the Kumil area. Several Pepaur men attended one of the meetings held at Bunabun. The purpose of the meeting was to review the Logging and Marketing Agreement UDC had recently signed with Madang Timbers, as well as explain the concept of the landowners' company (UDC, 1984-89a). In January, 1987, UDC organized a three day workshop in Bogia for Business Group representatives. Two men from Pepaur, one each from Yawier and Ameirpo, attended the workshop. Despite UDC's increased attention towards its shareholders during this time, the conflict between it and Madang Timbers, and the subsequent termination of this contractor, resulted in growing shareholder dissatisfaction with the landowners' company. Shareholders' confusion over the reasons for the contractor's dismissal was fueled by vocal provincial government officials. They blamed UDC for the end to logging activities in the Kumil area. UDC was ineffective at countering this criticism. This issue came to a head in July, just at the end of the Canadian couple's contract with UDC. CUSO committed itself to recruit new management for UDC, but was unable to follow through on its promise. It did, however, provide UDC in early 1988 with the services of a Swiss couple (D.Renner and C. Oertle) for a period of three months. The purpose of the consultancy was to assess the situation and propose a new approach for the future. During this period, a second patrol of the Kumil area was conducted. Several Pepaur men attended a meeting held at Tavulte in February, 1988. At the meeting the Swiss consultants clarified the legal aspects of the Kumil timber project and responded to villagers' expectations and concerns about what had happened to date (UDC, 1984-89a). According to Renner and Oertle (1988), villages within the Kumil TRP area were by this time split over what they wanted to see happen. Some areas wanted Madang Timbers to resume logging operations, while others, such as Pepaur, who had already

experienced logging on their land, expressed an interest in purchasing small mobile sawmills to harvesting their own forests. All landowners, Renner and Oertle (1988) report, expressed mistrust in UDC, and complained that the company had not brought them any of the developments they had been promised. UDC continued to function for another ten months following the consultants departure in April, but Board meetings again became infrequent, and little was accomplished. Discussions with Pepaur men as part of this study, revealed a lot of disappointment and bitterness directed against both UDC, and their Director Melchior Pesam. Kokemua Namua summed up people's sentiments by saying:

> "... we thought UDC was going to bring us a lot of money, as well as other community benefits ... we gave Melchior the responsibility of looking after our interests - he went to University, we thought he had the skills to do this job (Director) ... we asked him many times about what UDC was doing, why we had not seen any results - he never responded ... many people wanted to kill Melchior and the other Directors - especially over the Madang Timbers royalties ... UDC did nothing for us."

UDC's modest initiatives at shareholder outreach were insufficient to address the degree of ignorance that existed at the village level. Moreover, they came too late in the process, and were accompanied by a conflict which alienated the provincial government and derailed logging operations in the TRP area. As a result, the efforts had little impact. To this day, the majority of Pepaur men have no concept of what UDC's objectives were, the agreements and rules that determined its operations, or what role and powers UDC directors, management, business groups and shareholders possessed. In addition, they are unaware of the volume of trees exported from their forest by logging operations, the amount of sales generated by these exports, and how the money was distributed.

From a standpoint of encouraging landowner participation, UDC proved ineffective. Much of this was due to circumstances, as well as a lack of priority and effort on UDC's behalf. There were also barriers at the village level, however, that contributed to the problem. Village level politics, for

instance, restricted who were eligible to participate in the project. Women, excluded from the TRP process, were likewise denied any involvement with UDC. Similarly, the majority of Pepaur men were marginalized from the operations of UDC. Several village men, those who did not have a claim to Pepaur land, whose *asples* (place of origin) was somewhere else in Papua New Guinea, such as Manam Island, the Sepik or Ramu, lacked the right to participate. Men who did possess land rights faced other problems. John Wase, a Meure bigman and the village court clerk for the Pepaur area, said that they lacked the skills and experience to participate. He used as an example some of the financial and written information that was produced by UDC for the annual general meetings. He said that many people could not understand the information because it was written in English. In addition, they were not comfortable with the printed nature of the material itself. Despite a majority of villagers having received formal schooling, Pepaur remains rooted in oral traditions of communication - print material is not a popular or common medium for disseminating information. More importantly, John said that people lacked the necessary context and specialized skills to interpret this information, and there was no one present who could have assisted them in this task.

Thus, it was a lack of expertise, along with a traditional tendency of bigmen to control important aspects of village life, that resulted in one person assuming responsibility for the timber project within Pepaur. This individual, however, did not perform an effective liaison role between UDC and its shareholders. All Pepaur men interviewed said that their Director did not make an effort to keep them informed about what was happening with UDC or the timber project. The Business Group(s), the forum through which this activity should have taken place, was never operational. Little was done by either UDC or government officials to develop this village-level institution. As a result, it lacked roots within the community. As a Business Development officer stated at a UDC meeting, "the sole purpose for establishing the Business Groups had been to hold shares in UDC" (UDC 1984-89a: August 25, 1987). Moreover, its initiation within Pepaur had been a source of conflict from the start. No other institution was created to provide such a forum, nor was an existing village institution adapted for this purpose.

Melchior, in response to the accusation that he had failed in his role as Pepaur Director, said that in the beginning he, as well as the rest of the Directors, lacked the experience to fulfill their Board responsibilities. In fact, they were not even aware of their role, powers or responsibilities. Later on, especially after the LMA with Madang Timbers was terminated, he said that people were not interested in hearing what he had to say. Tur Vengel, suggested another reason behind Melchior's aloofness. He sees Melchior's behaviour as simply a manifestation of his character (*em pasin bilong en*). He did not consult, discuss or involve himself with other villagers about UDC and timber project because it was not in his nature to behave this way.

6.4 Extent of Logging and Distribution of Logging Proceeds

Timber harvesting in the Kumil TRP area occurred over a three year period, between August, 1984 and August, 1987. Otley and Otley, the Australian contractor, began its logging operations on the other side of the Kumil River from Pepaur, in a stand of forest that was close to the north coast road. In March 1985, Otley and Otley moved its equipment across the Kumil River to forest owned by Tavulte, Muere and Pepaur. The move occurred for the following reasons:

- the contractor had logged out the most accessible stand of forest north of the Kumil River;
- Pepaur land had been identified as an accessible commercially forested area in the timber survey completed by UDC in late 1985 (Lusco, 1985);
- the contractor was invited to work in this area by Melchior Pesam.

Otley and Otley built a main road into the hinterland at Tavulte, and for the next ten months, until it declared bankruptcy in February 1986, harvested trees in the Pepaur area. Madang Timbers, the contractor that succeeded Otley and Otley, also operated south of the Kumil River. Table 6.1 outlines the volume and sales value of logs harvested from the Kumil TRP area by the two contractors over the period 1984 to 1987. Several things stand out:

Table 6.1
Logging in the Kumil TRP Area
1984 - 1987

Commercial Timber Volume (1)	
Total Commercially Forested Area in hectares	24,800
Average Cubic Meters per hectare	35.9
Total Volume in cubic meters	877,580
Total Cubic Meters Harvested, 1984-87 (2)	39,208
Harvest as a percentage of the Total Volume	4.5 %
Total Value of Log Exports in Kina (3)	K1,540,002
Logs Harvested from Pepaur Land	
Portion of Log Harvest from Pepaur Forest (4)	20 %
Volume of Harvest in cubic meters (5)	7,840
Value of Harvest in Kina (6)	K327,000

Notes:

(1) Source: Lusco (1985)

(2) Source: Kumil TRP Debit Notes (UDC, 1984-90). This total includes 2,299 cubic meters harvested by Madang Timbers but not exported.

(3) Source: UDC (1984-89b).

(4) Estimate assumes that (a) 80 percent of the logging in the Kumil TRP area commencing in May, 1986 occurred south of the Kumil river, and (b) approximately 1/3 of logging in this area was done in Pepaur forest. These assumptions were then applied against volume information provided in the Kumil TRP Debit Notes (UDC, 1984-90).

(5) Calculated by multiplying 20 percent against the total volume of logs harvested in the Kumil TRP area.

(6) Calculated by multiplying the volume in cubic meters by an average selling price per cubic meter of K41.72. The average selling price was derived by dividing the total value of logs exported (K1,540,002) by the total volume of logs exported in cubic meters (39,208 - 2,299).

- only a small percentage of the overall timber resource was cut;
- the proceeds from log sales were nevertheless substantial, amounting to approximately K1.5 million;
- a significant portion of the logging, approximately 20 percent, occurred in Pepaur's forest.

Table 6.2
Distribution of Gross Log Sales
Kumil Timber Project

		Percentage of Total Gross Log Sales
1	UDC Income	15.0
	Royalties:	
	National Government	2.5
	Provincial Government	5.0
	Landowners	2.5
2	Total Royalties	11.0
3	Export Duty to National Government	10.0
4	Logging Contractor	65.0
	Total Logging Proceeds	100.0

Source: Renner (1990: 20)

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The distribution of gross log sales was defined within the project's underlying agreements - TRP agreement, Timber Permit and LMA. Table 6.2 presents Renner's (1990) assessment of how this was to occur. Royalties, amounting to 11 percent of the gross proceeds, and initially paid to the national Department of Forests, would be distributed between itself (national government), the provincial government and customary land owning clans within the Kumil TRP area. The formula for distributing timber royalties

was 25 percent national government, 50 percent provincial government and 25 percent customary landowners[3]. As a result, proceeds from gross log sales were to be distributed between five parties: logging contractor, national and provincial government, UDC and Kumil area clan groups. The majority of the proceeds, 65 percent, went to the logging contractor to cover operating expenses and provide for profits; the national government's share amounted to 12.75 percent, and comprised two components, the export duty of 10 percent, as well as, a portion of the timber royalties (25 percent of 11 percent); the provincial government was to receive 5.5 percent - half of the timber royalties (50 percent of 11 percent); UDC received an income of 15 percent; and the Kumil area clan groups would be paid their share of the timber royalties, 25 percent of 11 percent, or 2.75 percent. Thus, according to the terms laid out in the project's agreements, customary landowners could expect to directly receive only a small portion of the proceeds generated by the export of logs from their forest. Indirectly, through the activities of their landowners' company, there might also be the opportunity to receive additional payments and other benefits, but this was not assured.

Record keeping for the timber project was UDC's responsibility. Because UDC held the Timber Permit, it was required to maintain records on log harvests (section 9) and exports (sections 15.2 and 16.1.3). It was also charged with the responsibility of ensuring that royalty payments were forwarded to the national Department of Forests. As a result, UDC's financial statements were not limited to its own operations. They also provided financial information about gross log sales, duty payments, contractor fees as well as royalty payments. Table 6.3 provides a summary of UDC's financial statements for the period 1984 to 1989. The UDC financial data reveals that the actual distribution of the project's gross log sales were in line with pattern outlined in Table 6.2. UDC received 11.5 percent of the total

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[3] After October 1987, the formula for distributing timber royalties was changed with the customary landowners' share of total royalties increasing to 75 percent, and the remaining 25 percent going to the provincial government (UDC Board of Directors Minutes, February, 1987).

Table 6.3
Summary of UDC Financial Information
1984 - 1989

(Kina)	
Gross Log Sales	1,540,002
Cost of Sales	
Export Duties	148,062
Forest Industry Council Levy	8,395
Royalties	174,252
Logging Contractor Fees	1,032,860
Total Cost of Sales	1,363,569
UDC Gross Margin from Sale of Logs	176,433
Other Income (Non-Timber)	14,476
Total UDC Income	190,909
UDC Operating Expenditures	
Management Salary and Housing	46,019
Consulting and Accounting	41,804
Directors' Seating Allowance	17,909
Motor Vehicle Operating Costs	14,897
Office Expenses	15,721
Vehicle Depreciation Expense	13,412
Travel and Entertainment	4,799
Survey Costs	4,262
Business Group Education	530
Total UDC Operating Expenditures	159,353
UDC Accumulated Profit	31,556

Source: UDC Financial Statements, 1984 to 1989

proceeds[4]; royalties amounting to 11.3 percent were paid to the national government; the national government collected 9.6 percent of the gross log sales in export duties; and the two logging contractors, between them, earned the remaining 67.5 percent. In addition, a small portion, one half of one percent, was also paid to the Papua New Guinea Forest Industry Council.

Table 6.4
Royalty Distribution - Kumil TRP Landowners

(Kina)	Total Royalty Collected	Landowner Share (25% of Total)	Date of Royalty Distribution to Landowners	Amount of Royalty Payment	Pattern of Distribution
Otley and Otley					
Oct. '84 - Mar '85	K 63,042	K15,761	Nov. '85	K15,761	equal (1)
April - July '85	48,854	12,214			
Aug. '85 - Feb'86	43,606	10,902	Oct. '87	23,116	equal (1)
Sub-Total Royalties	K155,502	K38,877		K38,877	
Madang Timbers					
Feb - June '87	18,750	4,688		-	
Total Royalties	K174,252	K43,565		K38,877	

Sources: UDC Correspondence (1984-90); UDC Board Minutes (1984-89a)
(1) Each clan within the Kumil TRP area, as per the Kumil TRP agreement, received an equal share of the royalty payment.

[4] The 15 percent figure used in Table 6.2 for UDC income is based on the LMA between UDC and Madang Timbers, signed in January 1987. During the period of UDC's relationship with the first contractor a different system was used. Otley and Otley paid UDC a maximum of K7.00 per cubic meter or 10 percent of gross log sales. From 1984 to 1986, UDC income amounted to 11.2 percent of gross log sales. Over the entire period, UDC's income averaged out at 11.3 percent. So, while UDC's income was below the 15 percent identified in Table 6.2, it did adhere to the fluctuating terms actually in effect between UDC and the logging contractors during the period 1984 to 1987.

Assessing the degree to which royalty payments were distributed according to formula, however, is a more difficult task. The problem stems from a lack of accessible records. Because UDC was not responsible for the distribution of royalties to clan groups, it did not specifically track this information. The Madang Division of Forests, the agency which distributed royalties, were unwilling to make their records available[5]. Finally, discussions with Pepaur informants about the number and value of royalty payments they received yielded conflicting information. The number of payments received ranged from one to three; and while many informants could not remember how much money they had received, of those that could, the total monetary value of the payments ranged between one and three hundred kina. As a result, the picture outlined in Table 6.4 regarding the timing, extent and distribution of timber royalties is tentative, based on correspondence between the provincial government and UDC, and the Minutes of UDC Board of Directors' meetings.

According to the Kumil TRP agreement (PNG, 1984), timber royalties were "... to be paid every six months, calculated on the royalty receipt received by the state during the previous six months". Royalties were also to be distributed "on the volume of resource on the area each clan or village has of the total area" (PNG, 1979: 6). In the case of the Kumil TRP, it appears that royalty payments were either made late (Otley and Otley royalties), or were not made at all (Madang Timbers royalties). Moreover, the timber royalties that were paid out to clan agents, were distributed equally amongst the clan group signatories to the TRP agreement, rather than according to the volume of timber that each clan group possessed. The first royalty payment, scheduled to occur in March, 1985 was distributed in November of that year. The total royalty amount of K15,761 was divided equally among the 109 clan

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[5] I visited the provincial Division of Forests in Madang in the company of Melchior Pesam and asked the officer in charge if royalty information concerning the Kumil timber project could be made available to me for the purpose of this research study. Despite having received official permission by the province to conduct research in Madang province, I was denied access to any provincial Division of Forests' files. I was told that such a request would have to made at the national level. Given communication difficulties and limited access to a telephone, I was unable to pursue this any further.

groups which were signatory to the TRP agreement. Each clan received approximately K144. The second royalty payment occurred over a year and half after the logging contractor's bankruptcy. The delay in the second royalty payment was due to the Department of Forests' inability to distribute royalties according to local people's wishes. According to Melchior Pesam, many clan group members, particularly those from the hinterland who lay claim to the majority of the Kumil forest resource, were unhappy with how the first royalty payment was distributed. He said that the equal distribution of royalties at the November, 1985 AGM angered many people - first, because of how small it was, and second, because it was apparent that clan groups from coastal villages, that in many cases did not possess significant areas of forest land, received an unjustifiably large share of what was distributed. In response to this, the Board of Directors and several clan groups made formal requests of the Department of Forests that all future royalty payments must be made according to the volume of logs removed from a clan group's land (UDC, 1984-89a: December, 1986, and February, 1987). The Department of Forests, however, lacked the necessary information to do this. Clan boundaries within the Kumil TRP area had never been ascertained, and there was no system in place that recorded where logs had been harvested. Neither issue was ever resolved, and the second Otley and Otley payment was finally made in October, 1987. The total royalty of K23,116 was again distributed equally among the area's clan groups. According to the UDC Minutes (October, 1987), the number of clans in the Kumil TRP area had increased beyond the initial 109 - the exact number, however, was not indicated. It is unlikely that the second royalty payment amounted to more than K200 per clan. Of the K1.4 million of gross log sales generated by Otley and Otley, 25 percent of the total royalty collected, or K38,877, approximately K250 per clan was distributed to Kumil area clan groups. These royalties were distributed late, and did not adhere to TRP guidelines or local people's wishes, but they were distributed. This was not the case with the royalties generated by Madang Timbers single shipment of logs in June, 1987. These royalties, despite having been paid to the national Department of Forests, have not been distributed and continue to be a cause of conflict within the area. Kumil clan groups also received another royalty payment, one that was not due

them according to the terms of the TRP agreement. In June, 1986, the provincial government distributed K5,000 to UDC's 23 share holding Business Groups. The provincial Division of Commerce opened a bank account for each of the Business Groups and deposited K217 into each of these accounts.

Pepaur customary landowners, with seven clans identified within the Kumil TRP agreement, received approximately K1,750 in royalty payments. The village's Business Group received a further K217. For the approximately K327,000 worth of logs exported from Pepaur forest, the village received K2,000, or less than one percent of their export value[6]. Moreover, the money was disbursed over several payments and had to be allocated amongst Pepaur's approximately 25 land owning families. Each family was in theory eligible to receive a total of K80 - equivalent to the sale of four bags of copra, or one quarter of the annual cost of sending a son or daughter to high school. Pepaur men said that the royalty money they received was spent immediately on food and other household items. The K217 deposited in the Aeisura Business Group account, as of June, 1993 has not yet been spent. In order to withdrawal the money, they need the signature of the commerce officer who established the account for them back in 1987. Pepaur men say that it is not worth the effort given the small amount of money involved.

UDC was the other means by which clan groups were to benefit from the timber project. Over its five year history, the landowners' company earned K176,433 from log exports. A further, K14,476 was earned through interest, and services it provided in the Kumil area such as bookkeeping and coffee buying. In total, UDC had revenues of over K190,000. Table 6.3 reveals that over 80 percent of this was used to cover the company's basic operating

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6 The Barnett Commission of Inquiry (1989) presented many instances of transfer pricing within Papua New Guinea's timber industry. In the case of the Kumil timber project, it appears that transfer pricing was not an issue. The majority of the project's log sales resulting from Otley and Otley operations, were arranged by an independent marketing agent, Lusco Pty of Rabaul. It is unlikely, therefore, that log sales during this period suffered from transfer pricing, i.e. collusion between the logging company and the log purchasers. Thus Pepaur's share of the export value shown above is assumed to be an accurate reflection of the condition of the world log market at this moment in time.

costs. Only a small amount of UDC's income was used in the pursuit of development activities. K4,000 kina, approximately 2 percent of total revenue, was spent on land surveys for cocoa development. The only direct benefits local people received from their company came in the form of a Business Group education course which cost UDC a total of K530. Pepaur benefited financially from UDC in three ways: Director's fees, survey work, and attendance at the Business Group education course. Melchior Pesam, over the course of his tenure on the UDC Board received several thousand kina in fees and seating allowance. It was all used within his immediate family. Of the two pieces of land surveyed for cocoa development, one was situated on Pepaur land, at a place called Purepur, which belonged to Kokemua Namua. There was no follow up to the survey work and no cocoa was ever planted. Finally, two men attended a two and half day training session in Bogia. It was too short in duration and general in nature to be of much practical use. Moreover, neither of Pepaur's Business Groups were functioning organizations.

6.5 Village Perceptions of the Timber Project

Pepaur informants, on the whole, had few positive words to say about their experience with the timber project. Despite this, two things were identified as having benefited the village - the logging road, and Melchior's tenure as a Director of UDC.

6.5.1 Benefits

Several Pepaur informants regarded the logging road which runs inland from the north coast road at Tavulte as a benefit of the timber project. The road runs approximately 15 kilometers along the top of a mountain ridge, ending at a point on the Kumil river close to Tarigapa. It was built in 1985 by Otley and Otley but, since the departure of the second contractor in 1987, it has not been maintained. Despite a lack of attention, the road remains structurally sound. The road transits Tavulte, then Meure land, before crossing the northwest portion of Pepaur's territory. The land in this area is claimed by two of Pepaur's sub-clans - Yawier 1 and Yawier 2. The road,

therefore, provides access to customary land for only a portion of Pepaur's population. Moreover, as mentioned in Chapter 5, land is increasingly viewed as belonging to individual males. Thus, Pepaur men possessing land in close proximity to the road, viewed the road as a benefit, while those who owned land further afield, saw it in a more neutral light. Informants from Nomosogun sub-clan, for example, whose land is in the southern portion of Pepaur territory in the area around the head of the Umbarum River, said that the road was of no use to them - it was still a half day fast walk from any point on the road to reach their land.

From a financial standpoint, the Pepaur man who benefited from the project most significantly was Melchior Pesam, the UDC Director. Fellow villagers were unaware as to exactly how much money Melchior had received over the course of his involvement with UDC, but they all believed that he had done quite well by the relationship. To support their opinion, informants pointed to the 4WD Toyota pick-up truck that Melchior drives - the only vehicle in the village. He has had a vehicle in his possession since UDC disbanded in 1990. Melchior's apparent financial gains from the project, however, especially in light of the limited financial benefits realized by other members of Pepaur and the neighbouring villages, have not been well received within the area.

6.5.2 Complaints and Problems Encountered

Criticism about the timber project focused on a number of economic, environmental and social issues. Informants, in particular men, regarded the timber project primarily in economic terms, as a missed opportunity to earn money. Money issues were always brought up first and comprised the majority of discussion time. Social and environmental issues, on the other hand, often required additional probing before being mentioned by informants.

Lack of Financial Benefits: The main complaint made by Pepaur men about the timber project was its failure to provide them income. All informants expressed disappointment and frustration at not having had their financial expectations met. In particular, men complained about small royalty

payments, UDC's failure to measure up to is promises, failure on the part of the logging contractors to compensate land and tree owners for damages, and a lack of employment opportunities.

All informants were unhappy at the price they had received for their trees. The seven kina they had received as deposit for signing the TRP agreement, followed by the approximately K2,000 in royalty payments, was from their perspective, unsatisfactory. As Mait Kokemua said,

> "... the money received was too small. The men that went to the meetings (annual general meetings) learned what the trees were being sold for overseas - they were being sold for a lot of money, and yet we received only a few hundred kina."

The majority of informants, in fact, did not know exactly how much they were entitled to receive in royalties for their trees. The royalty situation, as mentioned earlier, was complicated by the Department of Forests inability to distribute royalties to landowners according to the TRP guidelines. Even if this problem could have been addressed, Pepaur men would not have been content with the 2.75 percent of gross log sales that they were eligible to receive. Rough sawn, mixed hardwood timber during the late 1980s was retailing in Madang town for upwards of K200 per cubic meter. They received a royalty rate of K4.00 per cubic meter for the logs exported from the Kumil area. Because of organizational and political problems, it actually took several years before Pepaur villagers became aware of their small financial stake in the project.

Much of their anger and frustration with the project was directed at the landowners' company. Many informants were under the impression that it was UDC that was responsible for their small royalty payments, and that it had received money that was rightfully theirs. Furthermore, UDC, they said, had promised to build roads, schools and aid posts in the area, as well as assist them to establish cocoa plantations and other commercial enterprises. None of these things happened. UDC had not kept its promises, and it had wasted money that could have been paid directly to them. As a result, they were no longer willing to support the concept of a landowners' company. Local

attitudes towards the future of a landowners' company in the Pepaur area was summed up by John Wase,

> "... We still need services, such as roads, ... and all landowners want to plant their own cocoa and sell it ... but, they do not want, or need a company such as UDC, to do this agricultural development for them - they can do it themselves."

Almost all Pepaur informants said that they were prepared to permit the start-up of logging operations again on their land, but with two important changes. First, they would not allow UDC or any other landowners' company act on their behalf and take a share of the proceeds in their name. Secondly, they would demand that royalties be paid directly to the *papa bilong graun* (person who possesses land rights) - timber royalties would not flow through the national Department of Forests. Informants were willing to permit renewed logging in their forest under the condition that the logging contractor paid royalties (UDC's share, as well as the entire timber royalty) directly to the man from whose land the trees were taken, at the time that trees were harvested.

Pepaur men also voiced a variety of compensation related complaints. Informants said that they had never been compensated for food and other valued trees that were destroyed by the logging operations. They said that they had told logging crews, comprised mostly of expatriates and Papua New Guineans from outside the Kumil area, that certain trees and areas were not to be touched. They claim their wishes were ignored, and that they lost valued forest resources. Informants also complained that trees were cut and then left to rot in the bush. This was a problem that arose as a result of the logging operations of both contractors. It appears that UDC attempted to address this issue by contracting a small timber company based in Madang, Taway Timbers, to salvage logs along the Tavulte logging road in 1986. The arrangement, however, did not last long. According to UDC Board Minutes (UDC, 1984-89a: May, 1986), the company was found to be harvesting standing trees and their services were terminated. In the case of the second contractor, provincial forestry officials recorded 786 abandoned logs in this area (UDC, 1984-90: July, 1987). None were salvaged, and despite the fact that royalties

were paid on these logs, the money has not been distributed. Informants said that they raised these issues and made compensation demands of both UDC and the logging contractors. In neither case, they said, were their demands addressed.

Informants final financial complaint concerned the lack of employment opportunities offered by the project. They were particularly upset at the logging contractor's tacit policy of not hiring local men in their bush operations. Village men recognized the specialized skills required of some of the tasks, such as equipment operators, but they were quick to point out that there were many bush jobs of a more manual and unskilled nature which should have been reserved for local people. Moreover, they felt that when cutting occurred on their land, they should have received priority for this type of work. Informants claim that not a single person from Pepaur was hired by the first contractor. The second contractor, who shipped logs from nearby Dove Point at Bunabun, did employ some Pepaur men in its ship loading operations. It also employed a few local men its bush operation, but none of them were from Pepaur.

Modification of the Forest Environment: Logging on Pepaur land occurred in primary or advanced secondary forest along a ridge separating the valleys of the Kumil and Umbarum rivers. Informants referred to this area as *bikepela bus* (big bush). UDC records indicate that approximately 40 different species were harvested from Pepaur territory, with the following species predominating: *kwila* (Intsia bijuga), *taun* (Pometia pinnata), *talis* (Terminalia spp.), *galip* (Cannarium indicum), amberoi (Pterocycmbium beccarii), celtis (Celtis spp.), planchonella (Planchonella spp.) and erima (Octomeles sumatrana). Approximately 40 percent of the volume harvested were *kwila* and *taun*.

Selective logging was the harvesting system employed by both contractors in the Kumil TRP area. In theory, only commercially valuable trees of a minimum size are harvested, so as to keep forest disturbance to a minimum. In practice, the use of heavy equipment, such as bulldozers, for road building and log hauling can result in considerable soil damage and loss, as well as damage to residual trees (see, for example, Saulei (1984)). To make

matters worse, the second contractor ignored the minimum tree size requirement. Approximately 40 percent of the trees harvested by Madang Timbers were below the minimum standard of 50 cm diameter[7]. Finally, no reforestation was carried out by the contractors, UDC or Pepaur. The long term biotic and abiotic impacts due to logging in the Kumil area are not known.

From a harvesting standpoint, Saulei (1990: 381) points out that in the case of the slower growing tree species, a minimum period of 50 to 70 years is required for regeneration. Despite limited scientific knowledge of the environmental impact of logging in tropical lowland forest, there has been some research in Papua New Guinea which suggests that these forest areas are more resilient than first predicted. Saulei's study (1984) of JANT's operations in the Gogol area of Madang province, for example, demonstrated that natural re-vegetation after clear-felling was rapid, with the bare ground being completely covered within a few months. More importantly, comparison of different aged study sites revealed that the re-growth's floristic composition after ten years had shifted from primarily small secondary trees to secondary and primary species. He concluded that "the recovery of vegetation after logging seems to be repeating the cycle of the recent history of the area" (Saulei, 1984: 354).

Informants raised two environment related issues concerning the logging operations south of the Kumil River: (1) habitat disruption, and (2) flooding. During logging operations, informants said that the noise and activity of men and machinery drove wildlife away from the area. They said that many of the birds, such as birds of paradise, cockatoos, hornbills and parrots, have since returned. Patrols through this area verified this. Other species, such as the cassowary, a large flightless bird related to the Australian emu, according to informants are now rare in this area. Informants'

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7 According to Timber Permit No. 12-17 (1986: 3), only trees of fifty centimeters or greater at breast height diameter overbark could be cut. Furthermore, Section 6.17.2 of Permit states that undersized trees cannot be cut without prior approval of the Secretary in writing. Examination of the Department of Madang's Royalty assessment, June 1987 for logs harvested by Madang Timbers indicated that approximately 40 percent of all logs cut were under this minimum diameter.

complaints about flooding stemmed from the use of improper logging practices around Tifum creek. Section 6.2 (d) of the Timber Permit No. 12-17 states that "there will be no logging within fifty (50) meters of rivers, streams and watercourses, while section 6.10 holds the Permit holder for any damage to stream banks or alteration of stream flow. According to informants, logging occurred right up to the banks of Tifum creek in several places. The creek, which feeds into the Umbarum River is an important water course in this area. People complain that the creek is now more prone to flooding during the rainy season, and that many downstream gardens planted near the creek have been destroyed. Logging operations also dirtied the creeks water and altered its flow, making it undrinkable downstream (it is Perum's only source of water), and reducing the population of a locally valued source of protein, freshwater shrimp. Only with the end of logging did water quality in the creek and its shrimp population begin to improve.

Increased Social Tensions: In general, informants viewed the timber project as being socially disruptive. Complaints focused on issues related to communication, the inflow of outsiders (loggers), boundary demarcation and unequal distribution of benefits. Effects, in the case of the first two issues appear to have been limited to the short term, while those of the second two, continue to be felt.

(1) Male informants, particularly those on whose land logging occurred, expressed frustration at their inability to communicate with the logging companies about their problems - such things as, compensation for damages, lack of employment and the behaviour of company workers. Under the framework that had been established to oversee logging operations, it was the role of the local Director to listen to people's concerns and raise these issues within UDC. UDC management or its Board would then either address the issue themselves or, as was more likely the case, bring the complaints, possibly with suggestions for solution, to the attention of the logging contractor. However, the process did not seem to work well. In several instances villagers felt it necessary to write letters directly to the logging contractor about their concerns and what action they would take if their concerns went unheeded. This is what happened when Pepaur area villagers

learned of Otley and Otley's plan to move their logging camp from Ulingan harbour to Tavulte. Melchior Pesam said that many people from Tavulte, Pepaur and Muere did not want this to happen. He raised the issue at the UDC Board meeting, and later privately with the manager. Melchior believes that the message was never even communicated to the logging contractor. Ground clearing for the camp commenced, and Melchior, along with some other villagers were forced to address the company directly. Several times they wrote letters to the company stating their refusal to grant them permission to build a camp at Tavulte and threatening that if their wishes were not heeded, they would block the logging road and stop logging operations. Melchior said he hand delivered the letters more than once. The direct action worked, and Otley and Otley decided not to relocate their camp. However, this was not before creating a lot of confusion, anger and resentment on all sides - customary landowners, contractor and within UDC.

(2) Both men and women complained of problems caused by the presence of workmen from the timber companies. Because of company hiring policies, the majority of the company employees were from outside of the Kumil area. From a psychological standpoint, the opening up of their forest to outsiders, was a cause of anxiety. Pepaur has always been very protective of their territory. As a result, several people said that having outsiders and their machinery operating freely on their land made them feel uneasy. Moreover, people reported that the logging camps were disruptive influences. Their arrival had increased the availability and consumption of alcohol in the area and led to an increase in sexual jealousy and violence, both within communities, and between communities and the loggers. Because neither of the logging camps were situated in Pepaur's immediate vicinity, it was shielded to some extent from these problems. However, people were very aware of the problems, as evidenced by their refusal to allow the building of the camp at Tavulte. Despite this, Pepaur informants said they were not immune to the camps presence since Madang Timbers' logging camp at Mangem was close enough to attract young men from the village. Although the camp lasted only a short time, informants believe it negatively influenced their youth. The money, drinking, and partying at the camp initiated, or at least fed, a wildness in the young men and resulted in an increase in general

hooliganism and petty crime. The village felt that it was unable to cope with the problems. After continued incidents, the village court system called on the provincial police to handle the matter. Four Pepaur youth were sent to jail for several months. According to informants, all four men returned to the village with much improved attitudes and the hooliganism and crime has not resurfaced.

One change brought about by the timber operations and referred to by people as having a more sustained impact is the loss of forest boundaries. Land and forest within the Pepaur area has never been surveyed, nor has it ever been marked, other than by naturally occurring elements within the landscape. Several Pepaur men said that the cutting of large trees, stands of trees, and the general altering of the landscape has resulted in a loss of clan and individual boundaries. People joked that they now sometimes found themselves lost on their own land! While this is perhaps an exaggeration of the effect that logging has had in this area, it appears that forest disturbance has made the resolution of land disputes a more difficult task. This has been the case in a recent, unsettled land dispute between men from Meure and Tavulte, in an area harvested by Otley and Otley. Here, mediation by village elders has proven unsuccessful partly because forest boundaries have been lost or altered.

The most serious and lasting effects of the project are rooted in issues around money. The system of royalty payments, for example, was a cause of considerable anger and resentment between Pepaur and some of its coastal neighbours. Pepaur informants were not only upset at the royalty distribution criterion itself (equal distribution amongst all clans listed in the TRP document), but also at the fact that this method of distribution was weighted in favour of villages who possessed little forest area. Korak, for instance, a village which according to Pepaur informants owned little forested land, had used the TRP process to organize themselves into clans that overstated its village size and importance. Seventeen of the 109 clans listed in the TRP Agreement are from Korak - one Korak clan was listed six times, while another appeared three times. This became an issue with the distribution of the first payment, when the Korak agent(s) were repeatedly called up by forestry officers to claim royalty envelopes. Melchior Pesam said

that while he and the other Pepaur men were never sure how much other villages, such as Korak, received, they believed that they had been cheated out of royalties by their neighbours.

The most recent and enduring financial conflict involves the Madang Timbers' royalties and UDC's resources. The second contractor, with its contract to operate in the Kumil area terminated by UDC in July 1987, refused to pay timber royalties on the trees that it had already harvested and exported. In December 1988, UDC, concerned about its responsibility for these as yet unpaid royalties, removed K18,750 from a K50,000 bank guarantee Madang Timbers had lodged in its favour[8] and established a Trust account with the national Department of Forests as beneficiary. As of June 1993, the timber royalties in this account remained intact. According to Melchior Pesam, the Department of Forests is willing to distribute all of the royalties held in this account. The problem, he says, is a lack of agreement within the Kumil area over how this money should be distributed. One man in particular, Iwis Palis from Tavulte, is demanding that he should receive all the royalties resulting from Madang Timbers operations. He claims a large part of the forest land that was cut by Madang Timbers. The issue of what should be done with these royalties has become further confused as a result of Melchior's appropriation of UDC's remaining assets, a vehicle and cash, valued at approximately K25,000. He did this in 1990, after it had become clear that UDC would no longer remain operative. He said in justification of his action, that he was the only person within the area who had the skills to make use of these resources effectively. Disbursed, he said, the money would have been quickly consumed without providing for any sustained benefits. He planned to use the resources to operate a small portable sawmill that he envisioned would provide employment and timber for villages within the area. For a number of reasons, this failed to happen. Rumours surfaced and spread about what Melchior had done and it angered many people. According to a number of Pepaur informants there were even threats made against his life.

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[8] The contractor had lodged the guarantee (one of a number of LMA violations that UDC used to justify the termination of the contract) in an attempt to gain access to the Kumil forest resource again. UDC, however, refused to work with Madang Timbers again.

Iwis Palis' responded by blocking Melchior and Pepaur from using the logging road. With his leadership ability in question as a result of his involvement with UDC, his character hurt by rumours of theft and his access to Pepaur forest blocked by Iwis, he has lacked the support and means necessary to get his plans off the ground. As of July, 1993, the issue remains unresolved and the Tavulte portion of the logging road remains off limits to Pepaur. Informants said that Melchior refuses to negotiate with Iwis about compensation, while Iwis refuses to accept anything less than full payment of the outstanding timber royalties. The conflict threatens to continue to keep inter-village relations tense and make it difficult for Melchior, one of the most talented people in the area, to be involved in local economic activities.

6.6 Other Impacts

The timber project has also had other, more subtle impacts on the village. In particular, it has effected the customary system of land tenure, leadership and political institutions, and shaken people's confidence in their ability to participate in the development process.

6.6.1 Demand for Individual Royalty Payments: Despite a very limited understanding of the project's details, informants unanimously rejected any possibility that they would permit the resumption of logging on their land under the old model. In particular, they were opposed to both the government or UDC, either handling their timber royalties, or playing a coordinating role in local development activities. It is a stance rooted in their dissatisfaction over the timing and amount of royalty payments they received, as well as UDC's ineffectiveness in implementing social and economic development activities. Instead, informants said they wished to deal directly with the logging contractor. Moreover, they said that they wanted timber royalties to be paid directly to the *papa bilong graun* (men with natural land rights - see discussion, Chapter 5, p. 103) immediately following harvesting operations. In many respects Pepaur's continued openness to large-scale logging is surprising, given their negative experience with the Kumil project in the past. Informants, in commenting on this apparent

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contradiction, said that they remained open to large-scale logging because they lacked any other viable options. The small portable sawmill concept, noted by Renner (1990) as an alternative favoured by Pepaur in early 1988, has never been successfully implemented. Informants see no other way to bring money into their community.

Pepaur's demand for individual royalty payments represents a major shift from the distribution mechanism assumed in the TRP agreement. Under the TRP agreement, the clan or sub-clan is acknowledged as the level at which control and transfer over land and forest resources occurs. Clan agents receive royalty payments on behalf of the entire group - how the money is distributed within the clan is not considered part of the TRP process. In the case of Pepaur, today, this assumption is no longer valid. While the notion of collective control over village land still exists, it has taken on a more strategic meaning, for example, limiting outsiders, those without patrilineal ties, access and use to Pepaur land. In day-to-day terms, men have adopted (or at least are espousing) an individual system of land ownership. As explained in Chapter 5, the shift in the conception of and behaviour towards land is part of a process commercialization and sedentary settlement initiated in the 1950s. The timber project is significant within this broader process as a point of coalescence. Whereas, male informants were accepting of royalty distribution at the sub-clan level at the outset of the timber project, their experiences over the past ten years with logging has changed their attitudes. The naive trust that Pepaur men placed in the other parties involved in the project served them poorly. They are unwilling to repeat this in the future. One lesson informants have learnt from their experience with the Kumil project is that in order to benefit from the project, they have to be an active part of it - they cannot afford to trust their royalty payments to others, even within the village.

△ to privatize

The issue of whether an individual system of land ownership is in the best interests of the village has received little scrutiny. First, the decision has excluded the female half of the village's population. Second, amongst the men, the decision has been driven by a narrow interest in economic

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development. Moreover, men are focused on money to the detriment of everything else[9]. Lastly, most men have not considered the wider implications of this decision, for example, how such a decision might affect their collective sense of identity, or the reasonably fair distribution of wealth that currently characterizes the society. In part, this is a function of people's belief that the old ways have very little to offer them today. Young informants, in particular, were of this opinion.

Although informants described an individual system of land tenure as operative within Pepaur, the village is currently not capable of facilitating the type of royalty distribution scheme they would like to see in place. The primary hurdles are: (1) a lack of clearly defined and commonly understand boundaries demarcating land, and (2) lack of an effective local political institution to administer land use/transactions. At present, land in the Pepaur area has neither been surveyed or registered. Because the majority of Pepaur land is difficult to access, and thus not heavily used by its owners, few conflicts have arisen. This situation would undoubtedly change if timber operations were to re-start in the area. Alois Pesam was one person who said he would like to see Pepaur land surveyed and registered. It is his opinion

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[9] An example of this business only mentality is the village's lack of a water system. The local government council built a shallow well for the village in the early 1970s. It lasted only a few years before the pump broke. It has not been fixed. In the late 1980s a bulldozer tore up the above ground section of the well's pipe. Pepaur has been forced to get its water from the Umbarum River, about a 15 minute walk . Drinking water is collected from the seepage that runs down the river's banks. During the rainy season, the river swells its banks; during the dry season the seepage stops, and people are forced to dig holes in the river bed. Thus, water collection is irregular, hard work and, during the dry season, can actually be detrimental to villagers' health. The women who participated in my wife's research project, identified water as their number one village concern. Water collection is a woman's responsibility. Women have very little political power within the village, are overworked and have little access to outside resources. Women have therefore turned to their husbands for help. Despite having raised the issue many times over the years, this problem has never been addressed. The technology and assistance required to build another shallow well (under 14 feet in depth) is readily available; the total cost would amount to approximately K1,500. In discussing the issue with village men, it became apparent that the majority of them had never thought much about this problem. To them, water collection - women's work - was not a priority. Melchior Pesam, for example, has spent thousands of kina (appropriated from UDC) on sawmill equipment, and a prefabricated copra dryer. Channelling some of this money towards addressing the community water problem, however, was never considered.

that clarification and security of land ownership is necessary in order to sustain economic projects. At the same time, he is also committed to reviving institutions from and interest in Pepaur's past (for example, notions of clan, boys' house - see discussion Chapter 5, p. 102). The majority of informants, however, had not put much thought to addressing these issues.

6.6.2 Loss of Confidence in Local Leadership and Political Institutions: The introduction of the timber project subverted existing village level, and local area political institutions. From the beginning, the project established its own institutions and chose not to work through the existing ones. The UDC-Business Group structure, while primarily established as a vehicle to promote economic development within the area, was also regarded by villagers as a source of infrastructure and social development. Expecting tremendous benefits to flow from the timber project, the local government council (LGC) and village committee system lost community support. With few resources to offer, these institutions lost both status and authority within the Kumil area. Because of the scale and sophistication of the project, the more traditional power bases and political institutions within the community also suffered. Men with formal schooling and experience in commercial organizations were considered those most appropriate to take on leadership roles in this context. Similarly, the more traditional political institutions (such as the men's cult), already in a seriously weakened condition, were seen as being ill-equiped to deal oversee the social and economic development activities implemented as a result of the timber project.

Pepaur men invested a lot of trust and high expectations in the timber project, the new institutions that accompanied it, as well as the person they had appointed as their leader to represent them in this venture. In all respects the project has proven to be a complete failure. UDC no longer exists, and the concept of a landowners' company is dead; villagers have lost all confidence and trust in the provincial and national governments; and the skills and experience available within the village has proven inadequate to make the project work to their benefit. The failure of the project, however, has not meant led to a resumption of status in the other institutions. Rather, the general level of confidence and support in the ability of its leaders and

political institutions to improve the quality of village life has been eroded. This is most evident in local leaders inability to settle the conflict between Melchior Pesam (Pepaur) and Iwis Palis (Tavulte) around the issue of unpaid timber royalties and use of the logging road.

6.7 Discussion

This chapter has explored Pepaur's perceptions and understanding of the Kumil timber project - its initiation, implementation and impacts. Table 6.5 summarizes the study's findings with respect to these aspects of the project. From Pepaur's perspective, their introductory experience with large-scale commercial forestry has been overwhelmingly negative. Central to male informants unhappiness with the project has been the fact that few benefits, financial or otherwise, made it down to the village level. Moreover, what little that did, was not fairly distributed. In addition, informants saw the timber operations as being responsible for environmental damage (increase in flooding, decline in water quality and impairment of shrimp habitat), and social strife, both within the village, and between villages. Other, less tangible impacts of the project on the village, included, further undermining of the community's clan-based system of land tenure, and re-enforcing villagers attitude of powerlessness. These negative effects were a function of many things: a timber royalty scheme that provided forest owners with a low share of the gross log proceeds, unscrupulous logging contractors, an under-resourced forest service, and an ineffective landowners' company.

The chapter has focused on Pepaur's involvement with the timber project, in particular, how villagers' were introduced to the venture, the process by which the State acquired timber rights to their forest resources, as well as, their experience within UDC, the landowners' company. It has been shown that Pepaur men (women were excluded at all stages of the project) entered the project holding vague, unrealistic expectations about its costs and benefits. Neither the government (national or provincial), nor any other organization attempted to assist Kumil area villagers in the task of clarifying their expectations, discussing potential project impacts or other possible development options. Next, a few Pepaur men sold the community's timber

rights to the State. The transaction was completed without villagers' understanding the sale agreement's terms and conditions. This, plus other anomalies in the agreement, throws into question the actual legality of the purchase transaction. Finally, there was the establishment of UDC. It represented a new initiative on the part of the national government to foster greater partnership between, itself, and local clan groups, in exploiting customarily owned timber resources. The timber rights that the State had purchased in the Kumil area were given back to local people in the form of the Timber Permit. In theory, UDC, provided villages, such as Pepaur, control over timber operations within their territories. In practice, UDC was never able to establish any real roots within its share holding communities. Local ownership of UDC failed to occur for a number of reasons: the sheer enormity of the task (UDC was attempting to bring together 22 villages, comprising 9 distinct language groups, each with limited past experience in dealing with the outside world and the monetary economy), an initial lack of priority and effort giving to this task by UDC's management, and structural barriers within the villages that inhibited meaningful participation.

institutional problems

Table 6.5
Summary of Findings
Pepaur Involvement in the Kumil Timber Project

PROJECT	KEY ISSUES - PEPAUR	CONTRIBUTING FACTORS
Initiation	Unrealistic expectations	• inexperience • lack of a process to clarify expectations, or discuss options and possible project impacts.
Implementation	Invalid timber rights purchase	• signatories ignorant of the terms and conditions of the agreement • dominated by a few men • unusually low deposit
	Limited local involvement	• landowners' company unable to establish village roots • village barriers to participation
Impacts	Lack of financial benefits	• low royalty payments • failure of landowners' company to channel resources to the local level • failure of logging contractor(s) to employ local labour
	Modified forest environment	• improper logging practices
	Increased social tension	• poor communication and information dissemination • loss of forest ownership boundaries • influx of outsiders • misappropriation of UDC funds
	Movement to an individual system of land ownership	• increasing incorporation into Western monetary economy • response to project's inability to distribute significant financial benefits to the local level
	Local leadership and political institutions undermined	• establishment of new institutions • inability of most formally educated local leaders to successfully manage the project/new institutions

CHAPTER SEVEN

SUMMARY AND CONCLUSIONS

Papua New Guinea, despite experiencing a significant increase over the past ten years in the conversion rate of its forests, still possesses forests covering approximately 70 percent of its land base. Both the national government and land owners believe that the country's remaining forests have the potential to significantly contribute to national, regional and local economic development. This perspective is reflected in Papua New Guinea's Forest policy (PNG, 1991a) and its dual goals of (a) forest conservation, and (b) economic growth, employment creation and increased local participation in forestry development. Achievement of these goals, however, will be possible only through an effective partnership between the State, and its forest-dwelling communities. This will require a shift from the top-to-bottom flows of information and implementation that have characterized Papua New Guinean forestry management and development in the past. Instead, local people must become meaningfully involved in forestry activities as formulators, planners, doers and beneficiaries.

At present, there are few good examples of state/forest-dweller partnership working in practice, either within Papua New Guinea, or elsewhere in South East Asia. In fact, as Lamb (1991: 10) points out in a recent review of commercial timber harvesting projects in the Asia-Pacific region, forestry development has all too often resulted in "the cultural extinction of traditional communities or a collapse of the commercial timber industry at a particular locality". Despite this, Lamb (1991) still finds scope for hope, and believes that it is possible for forest-dwellers and the State to work cooperatively to establish sustainable commercial forest industries. Others, however, are not so optimistic. Baines (1989), for instance, argues that commercial development projects, such as large-scale timber harvesting, undermine communal systems of land tenure and the resource management systems upon which they are built. In the case of Papua New Guinea, he

contends that the national government's promotion of large-scale, capital intensive forest utilization sets in motion a process that destroys the very societies it has committed itself to encourage and support. Thus, in addition to the challenge of finding a balance between forest conservation and use, Papua New Guinea must also concern itself with the issue of cultural conservation - how to encourage rural economic growth without completely destroying the diverse cultural fabric of its forest-dwelling communities.

Working under the assumption that detailed investigation of existing timber projects might provide useful information to assist forestry policy-makers, planners and practitioners in their efforts to foster effective partnership between the state and forest-dwellers within the Papua New Guinean context, this study set out to examine the case of Pepaur village, and its involvement in the Kumil timber project on the north coast of Madang province. The Kumil timber project was deemed an appropriate case for study for a number of reasons:

- comprises a large area of mixed tropical lowland forest that is home to approximately 4,000 subsistence farmers;
- had the potential to be of major economic benefit to villagers - the average villagers income is under K400 per year, whereas the timber project was estimated to generate K36.5 million in log sales over a twenty year period;
- represents one of the earliest attempts by the State to directly involve landowners in the commercial development of their forests through the establishment of a landowners' company.

Specifically, the study set out to gain insight into village social structures, particularly with respect to issues of land tenure and forest use, and how the timber project has impacted on community stability and prosperity. It also focused on Ulingan Development Corporation, the landowners' company, and investigated its role as a vehicle for meaningful villager participation within forestry development.

So far, three of the study's four objectives have been addressed. Chapter 2 provided a historical overview of forest policy and legislation in

Papua New Guinea, while Chapter 4 outlined the process, structure, players and politics involved in the establishment and implementation of the Kumil timber project. Chapter 5 described the institutions that control land and forest ownership and use in Pepaur, as well as the leadership and power dynamics within the village. In Chapter 6, Pepaur villagers' views on the timber project - their participation in the project, as well as the impacts of the project on village life - were presented. This chapter summarizes the study's findings and presents conclusions.

7.1 Summary

1. **The findings of this study are consistent with the conclusions made by the Barnett Inquiry (1989) - that, large-scale timber projects have failed to provide proper economic returns to land owners, altered the physical environment and increased tensions within, and between, communities.**

From an economic standpoint, the project injected a small amount of money into the village - approximately K2,000, less than one percent of the value of logs exported from Pepaur forest. The hoped for jobs and economic spin-offs never materialized, nor were customary land owners ever compensated for the environmental damage to their forest and streams. In social terms, Pepaur has paid a high price for its involvement in the project. Poor communication at all levels (between different levels of government, between the state and UDC, within UDC, between UDC and its share holding clan groups, and within villages), the presence of foreign work crews on their land and the unequal distribution of benefits have combined to cause frustration and anxiety, both within Pepaur, and between Pepaur and its neighbors. Environmentally, the impacts are less conclusive. Apart from illegal logging practices resulting in the felling of under-size trees, and disruption and damage to water courses, the long-term impact on the forest ecosystem is not known. It should be stressed, however, that the selective logging operations occurred in only a small portion of Pepaur's and its neighbors' forests. The majority of Pepaur's forests remain intact. In some

respects, the most positive aspect of the project was the fact that logging was halted at such an early stage. If Ulingan Development Corporation had not terminated the contract of Madang Timbers, the second logging contractor, and then held to its decision, it is likely that the social and environmental impacts would have been worse.

2. The study provides support for the hypothesis that large-scale projects, such as timber operations, can undermine customary systems of land tenure.

This study argues that village-level institutional change needs to be viewed within a broad, historical context. Pepaur, for instance, has over the past hundred years undergone significant socio-economic and political change under the influence of successive colonial administrations, the Catholic and Lutheran missions and, most recently, the Independent State of Papua New Guinea. The result has been Pepaur's increasing incorporation into the Papua New Guinean, and international economic, cultural, religious and political systems. This process of incorporation, with its introduction of new (Western and capitalist) values, attitudes, and practices has undermined Pepaur's traditional communal, clan-based land tenure system. The resulting shift towards an individualized land tenure system has occurred for a number of reasons: sedentary settlement patterns, population increase, unwillingness to adopt new gardening techniques, loss of first language skills and traditional knowledge, and cash crop development. Village men's experience with the timber project represents yet another reason behind this shift. More importantly, the timber project is significant within this broad historical process of incorporation as a point of coalescence. At the outset of the timber project, village men agreed to royalty distribution at the sub-clan level. However, the failure of financial benefits to trickle down to the village level has resulted in male landowners demanding that they be paid timber royalties directly, on an individual basis, immediately following harvesting operations. Their demands are based on dissatisfaction over issues of timing, amount and distribution of royalty payments; the landowners' company, and

its failure to initiate any development activities with the funds it received from logging proceeds; and, leadership and power, whereby one individual was seen to have benefited at the expense of his fellow-villagers. The notion of collective control over land, however, has not been entirely undermined in Pepaur. The dispute between Kokemua Namua and other Pepaur bigmen over Kokemua's right to allow outsiders to settle on his land indicates that, for the time being at least, a land owner's authority over what he chooses to do with his land is not absolute.

The study findings differ from land tenure research conducted in the Highlands of Papua New Guinea (Brown et al., 1990), where the shift to individual land ownership is described as a function of agricultural intensity, and is not regarded as a post-colonial phenomenon. In Pepaur, the shift occurred during post-colonial times, and cannot be explained solely in terms of an increased population and demand for arable land. A key factor behind the erosion of the communal system of land tenure of the past is villager's increasing involvement within the monetary economy - initially through cash cropping, and more recently, with the timber project. In the case of Pepaur, villagers believe that the forest offers them the best means to earn money, that will in turn allow them to access goods and services, which they can then use to improve the quality of community life. In this sense, Pepaur men appear to have adopted an instrumental view of their land and forest; seeing it as a tool or means by which they can achieve development. Narrowly focused on money and economic development, village men have rejected the communal, clan-based system of tenure of the past as being able to help them achieve this goal.

3. The study identified several barriers which effectively precluded authentic local participation within the Kumil timber project.

Broadly formulated, participation, in the context of forestry development within Papua New Guinea, is concerned with forest-dwellers establishing control over factors determining commercial production decisions within their forests. 'Authentic' participation means that non-elite rural forest-

dwellers assume decisional power and are free from manipulation and co-optation (see, for example, the discussion in Goulet (1989)). Within the Kumil timber project, local participation embodied two distinct components: sale of timber rights, and logging operations and post-harvest developments.

The first component, sale of timber rights, marked Kumil landowners' decision to relinquish control over commercial utilization of their forests to the national government. In return for royalty payments and the prospect of other benefits, landowners agreed to sell to the State the legal authority to plan and implement a commercial forestry project using their forest. Project details, such as annual allowable harvest, type of harvesting, extent of local processing and infrastructure developments were not addressed in the TRP agreement. The agreement, however, did acknowledge continued clan ownership of forest land within the Kumil TRP area, and it also guaranteed local peoples' continued unrestricted access and use of areas (except for the purpose of commercial timber cutting) not in timber production[1].

The second component encompassed the project's logging and post-harvest development activities. By organizing Kumil area communities into a landowners' company and awarding it the Timber Permit for the Kumil area, the national government provided local people with a vehicle to oversee, and benefit from, logging operations, as well as a forum to cooperatively identify and implement development projects within their area. The control customary landowners relinquished over their forest by signing the TRP agreement, they appear to have regained through collective ownership of Ulingan Development Corporation (UDC) and possession of the Timber Permit.

Thus, the Kumil timber project seemed to offer local clan groups the means to access outside expertise and technology, and generate a substantial amount of money, without relinquishing control over their forest or the institutions that regulate its use and ownership. Logging operations would be

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[1] The village also can identify areas, and trees and other forest produce for exemption from logging operations. These areas and trees must be clearly marked or in well established garden areas. In the event that these restrictions are transgressed, then compensation must be paid to the customary landowners.

controlled by UDC which was 100 percent owned by Kumil area clan groups, while control over land and subsistence use of the forest remained under the authority of existing village-level institutions. In spite of this framework, the project failed to generate 'authentic participation' by its local populace. The study has shown that the project was driven by decisions made outside of the Kumil area, that the landowners' company was dominated by expatriates and a small group of local bigmen and never managed to establish broader roots within Kumil area communities, and that very few resources ever made it down to village men and women. The study identified two sets of barriers behind the project's failure to meaningfully involve its local forest-dwelling populace: (1) project scale, and (2) village-level institutions.

Project Scale: Rural development experience indicates that micro-levels of activity, where homogeneous values, systems of knowledge and interests are easy to find and mobilize, offers the best conditions for authentic participation (Goulet, 1989).[2] The Kumil timber project, however, was characterized by a diverse mix of values, systems of knowledge and interests.

First, the project brought together a diverse group of communities that had never previously interacted with each other at an inter-village level. This stemmed from the State's decision to establish the Kumil TRP area without consideration of local cultural, economic and political realities. Instead, it was the economics of large-scale industrial forestry that dictated the size of the TRP area, while its boundaries were determined by biophysical considerations. As a result, the project area cuts across traditional tribal boundaries, as well as existing provincial and local government boundaries. In addition, the TRP area included both coastal and hinterland villages that differed dramatically in the extent of forest resources they owned and their

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[2] Under these circumstances, the organizational hierarchy can be kept flat, and the rules of operation relatively simple and informal. As the scale and scope of activity increases, the likelihood of diversity within participant values and interests also increases. Moreover, operational efficiency suffers. At an organizational level, these changes force institutions to standardize their activities into a bureaucratic framework. The levels of hierarchy increase, uniformity is stressed and the rules of operation tend to become imposed from the outside and above.

access to valued government services such as roads, schools and health clinics. While the villagers gathered together within the Kumil TRP area were all swidden agriculturists and operated within a similar system-of-knowledge framework, they lacked common interests. In particular, the timber project attempted to unite villages dominated by differing tribal affiliations. Traditional networks of support and solidarity amongst village bigmen, commonly built up over generations, are strongest within one's tribal group. Pepaur bigmen, for instance, have developed their closest relations with other bigmen from *Barem* villages. Village bigmen's interest in the maintenance and enhancement of these networks superseded their commitment to new government imposed institutions such as UDC. In addition, interests within the Kumil area also differ according to geographic location. The priorities and immediate needs of many of the hinterland villages, for example, differ from those of their coastal neighbors. These groups are primarily interested in infrastructure development to connect themselves to the outside world. The coastal groups, on the other hand, own little forest and already enjoy these services. They are more interested in, and better situated geographically to take advantage of, employment opportunities and spin-off commercial projects.

Secondly, the project attempted to involve forest-dwellers within activities for which they possessed neither the appropriate skills, nor experience. The majority of Pepaur informants, despite achieving a grade six education, lack basic math, reading and writing skills. Moreover, prior to the initiation of the timber project, none of the Pepaur men had ever been involved in a commercial venture larger than processing copra or operating a small tradestore. Western business concepts and activities, such as, Board of Directors, profit and loss, world commodity markets, marketing, finance and accounting, were beyond people's range of experience. Today, the situation is little changed. A few individuals, like Melchior Pesam, because of his university education and direct involvement in UDC have become much more aware of these concepts and ideas. Most Pepaur men, however, have not improved their understanding in this area.

Furthermore, because Pepaur society embodies alternative forms of knowledge to the one that underlies the modern, capitalist society and

scientific/industrial forestry, its members lack the foundation necessary to enable them to acquire the required skills (at least in the short run) to assume decisional control over UDC and large-scale logging operations. Banuri and Marglin (1993), for example, suggest that swidden agriculturalists (non-modern societies) such as Pepaur define and view reality differently than do the government officials, scientists, planners and business people who operate within the world of scientific/industrial forestry (modern society). From their perspective,

> "indigenous and modern communities are not just different political groups aiming to maximize their income or wealth, but embody different systems of knowledge, different ways of understanding, perceiving, experiencing, in sum, of defining reality, which includes the notions of one's relationship not only to the social milieu but also to the natural environment."
>
> (Banuri and Marglin, 1993: 9)

They sketch modern and non-modern systems of knowledge as ideal types, where modernity is characterized by disembeddedness, universalism, individualism, objectivity and instrumentalism, and non-modern systems of knowledge are characterized by embeddedness, locality, community and a lack of separation between subject and object, as well as a non-instrumental approach (Ibid: 1)[3].

Villagers' conception of their farming practices in the face of dwindling forest land on the coast illustrates one facet of how Pepaur's system of knowledge differs from the modern type. Despite expressing concerns about the decrease in forest land for gardening in close proximity to the village, informants appeared unable to consider adopting new gardening practices as a strategy to address the problem. A quick technical analysis (population growth + sedentary settlements + traditional gardening practices = conversion of forest to grass land) prompted me to suggest to informants that they should

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[3] Banuri and Marglin (1993) point out that societies throughout the North and South typically use both modern and non-modern forms of knowledge. See pages 9-20 of their book for an overview of these ideal 'systems of knowledge' types.

consider adopting some simple soil conservation techniques, such as mulching, composting, agroforestry and crop rotation. These techniques would enable families to cultivate areas for successive years, rather than for the single year as is currently the norm, thereby reducing the pressure on the remaining coastal forest. However, people's response to this analysis and suggestion - *"Em i stap long blud bilong mipela"* (it is in our blood) - suggests that their gardening practises possess important social and moral implications beyond the technical dimension that I had considered.[4]

The existence of differing world views (systems of knowledge), therefore, is an additional complication that must be acknowledged and addressed in any effort to transfer skills across societies.

Village-level institutions: This study found that only a small percentage of Pepaur's adult population signed the TRP agreement or attended the meetings organized by UDC. Even fewer individuals had any concept of how the project was structured, what agreements and rules determined its operations, or who had responsibility for project activities, such as royalty payment and distribution, and logging. To some extent this result was a function of government ineptness (TRP signing process), and a lack of priority and effort on UDC's behalf. However, structural barriers at the village level - land tenure system and leadership - were also contributing factors.

It is a misconception to think of Melanesian forest-dweller societies as homogenous or democratic. Within Pepaur, differences in decision-making authority and economic status predated colonial contact. Today, these inequities remain intact. Women, for example, continue to possess little power within patrilineal societies because they are excluded from owning land. Their access to land and forest is determined by their husbands, fathers or brothers. Because women cannot own land, they are also excluded from

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4 According to Banuri and Marglin (1993: 11) the modern system seeks to distinguish between technical, social, moral, political and cosmological dimensions (disembeddedness), whereas non-modern systems tend to be embedded in the social, cultural and moral milieu of their particular community.

participating in commercial forestry or agricultural activities. Men who marry into the community may also find themselves in a similar situation to women, although mechanisms exist for them to eventually assume ownership and use rights (see Appendix 5). As a result, approximately 60 percent of the adults in Pepaur are excluded from any involvement in forestry development because they do not own land. Even if the situation were to change, and women assumed the right to own land in Pepaur, there are still other factors acting to constrain them from participating in development projects. One important constraint is time. Men's work tends to be sporadic in nature (tasks like house construction, forest clearing) which leaves them considerable time and energy for social and leisure pursuits[5]. Women, on the other hand, are responsible for many of the family's day-to-day needs. Their days are spent gardening, preparing food, collecting water and firewood and looking after children which leaves them little time for socializing. Because of their heavy and constant workloads, women lack the time to attend meetings outside of the village, or become informed about complex issues outside of their daily responsibilities.

Another constraint on broad Pepaur involvement within the Kumil timber project is the village's system of leadership. Like many Melanesian societies, bigmen have been the traditional focus of Pepaur's political system. In the past, bigmen were able to gain leverage over those around them and siphon off their excess production by demonstrating their possession of socially-valued skills. One family in particular within Pepaur, the Pesam's, possessed this status. They trace their authority within the village back to their grandfather, who they believe was Pepaur's leader at the time of colonial contact in the late 1800s. Today, they still dominate village affairs, but do so through the possession of contemporary skills gained through

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[5] There was an observable difference in the amount of leisure time enjoyed by men and women in Pepaur . It was, for instance, much more common to see men sitting together, chewing betelnut and smoking, with no work at hand than it was to see women doing the same. By extension, it was seldom difficult for me to strike up a conservation with men at anytime during the day. However, my wife, who was working with village women, found conversation opportunities more limited, and challenging (largely because women were almost always concurrently looking after toddlers, nursing infants and responding to the demands of older children).

formal education and knowledge, and contacts with people and service providers from the outside world. Lineage and some traditional skills are still relevant for bigman status, but increasingly, as the village economy and polity have become dependent on external forces, one's power has become dependent upon one's ability to access and control external resources. Melchior Pesam, based on his lineage and formal education, assumed the role of village representative to the timber project. His election as Director of UDC enhanced his status in the eyes of villagers. However, there did not appear to be an expectation on the part of village men interviewed that it was Melchior's role, as their representative, to solicit their input on issues or keep them informed about the project. Similarly, Melchior felt in no way obliged to play this role. Throughout his tenure with UDC, Melchior functioned as an individual, using his position there as a means to extend his own power base. As a result, Pepaur community was never really connected to the project.

The final constraint on Pepaur's ability to participate in local land use planning, and forest management and community development activities stems from the institutional vacuum that exists at the village level. The old political institutions (men's cult) no longer function. Meanwhile, the newly introduced ones (Local Government Councils) have proven to be ineffective. The timber project undoubtedly exacerbated this situation by its half-hearted attempt to establish new institutions, such as, UDC and village Business Groups, but it was not responsible for the creation of this vacuum. As discussed in Chapter 5, this situation is due to many changes over the past century which have resulted in Pepaur's increasing incorporation into the international system.

7.2 Difficulties in Conducting the Research

Several difficulties encountered in completing the field research component of the study are worth highlighting. First, there was a problem of how and when this study was undertaken. It was initiated by an outsider, and conducted after the project had already failed. Local people did not consider

this study a priority, nor did they recruit me to complete it for them. I chose the topic for study according to my own interests and based on my perceptions of the Kumil timber project and what had transpired since its inception in 1983. There was also little information available about the village of Pepaur prior to the start-up of the timber project. A great deal of time, therefore, was spent explaining to people the value of this type of research (locally and nationally), piecing together a sense of the village prior to the start-up of the project, as well as placing the village within an historical perspective.

Difficulties also arose because of my past work in Papua New Guinea and previous contact with people in the village. Many men assumed that I had come to Pepaur to assist them with starting and running income generating projects. Because village men are very interested in economic development, there were always pressures to play this type of role. I offered advice wherever I could, but always made a conscious effort to remain focused on the task that I had selected for myself. In essence, I made a conscious decision from the start not to pursue male informants' stated priorities. I felt comfortable making this decision for two reasons:

1. Timber rights to Pepaur forest are owned by the national government until the year 2004. The national government, therefore, has the legal authority to re-initiate harvesting operations in the Kumil area. In fact, representatives from two different foreign-owned logging companies toured the Kumil area while I was resident in Pepaur. Improving people's understanding of what happened in the past, I reasoned, might assist them to confront future logging operations.

2. I was conducting the research on behalf of a Papua New Guinean non-government organization, the Melanesian Environment Foundation (MEF), which is involved in providing non-formal education about environment and development. I hoped to provide MEF with useful and accessible information about Pepaur's experience within the Kumil timber project that could be incorporated into their awareness-raising work. To that end, I wrote a report for MEF entitled: *A Story about One Village and its Involvement in a Large Scale Timber Project - A case study of Pepaur and the Kumil timber project on the north coast of Madang province.*

Moreover, I was fortunate in that village men were open and cooperative to the study despite the fact that it was not in line with their economic development priorities.

Third, difficulties arose due to village-level politics. In particular, the research pulled me into two sensitive village issues - struggle over village leadership, and the conflict between Melchior Pesam and other Pepaur and neighboring bigmen over timber royalties and the use of UDC funds. My interest in village decision-making and control over land and forest resources led me headfirst into a conflict between Alois Pesam and Kokemua Namua. It appeared to me that both men were attempting to use me and my research as a means to support their claims to being village leader. I made a conscious effort not to take sides by remaining accessible and interested in hearing all points of view. In the end, while I did assist Alois in writing a short history of Pepaur (see Appendix 3), it reflected a compromise reached between Alois and Kokemua which identified both their grandfathers as Pepaur leaders. The second issue I found more difficult to deal with. A lingering result of the timber project is Tavulte's refusal to allow Pepaur to use the logging road to access their land. One Tavulte man in particular, Iwis Palis, accuses Melchior of stealing timber royalty money. The road blockade is 'payback' for this offense. Iwis' accusation is based on information he received from provincial forestry officials. The accusation, however, did not fit with the person I came to know through my past involvement with UDC. Moreover, Melchior was our principal sponsor in Pepaur. It was an important issue vis-a-vis the timber project that I felt obligated to explore, but at the same time, I did not wish to provide fuel for increased tensions or animosity. The research indicated that the timber royalties had not been spent. I secured evidence to show people that the timber royalties in question remain untouched in a trust account at a Madang town bank and explained to people the steps that needed to be taken if the wished to access they money. However, I also learned that Melchior had appropriated over K10,000 of UDC's funds along with the UDC vehicle. So, while the timber royalties were still intact, Iwis' accusation was also true. I kept quiet about this though. I could not see how bringing this into the open would assist people in resolving their differences,

especially in light of the fact that royalty money remained and was available for distribution.

Lastly, I encountered difficulties in accessing information from provincial government officials. To a great extent, this can be attributed to the limited time spent cultivating contacts at the national department of forests before entering the field (I only met with one forestry department official during my four days in Port Moresby). I also made the incorrect assumption that provincial forestry departments were still under provincial jurisdiction. Luckily, UDC's files contained a great deal of information about the Kumil timber project. As a result, the provincial Assistant Secretary (AS) for Forests refusal to allow me (actually, it was a request made by Melchior Pesam) access to their information about the project caused me little hardship. His refusal, however, only accentuated the political tension that currently surrounds logging in Madang province.

7.3 Conclusions

Based on the findings of this study, the potential for landowner's companies to act as vehicles for meaningful villager participation within Papua New Guinea's forestry industry seems slim. While the landowner company/large-scale forestry concept might appear attractive in theory - offering local clan groups the means to access outside expertise and technology and generate capital without relinquishing control over their land and forest - in practice, there are many barriers which effectively deter local people from assuming decisional control over large-scale forestry activities and prevent the equitable distribution of benefits. In the case of the Kumil timber project, the study found that the majority of villagers were in a poor position to either influence, or financially benefit from, logging activities.

Some of the problems identified by the study, such as, unrealistic expectations on the part of local villagers, failure by the forest service to develop a locally acceptable royalty distribution mechanism, and the delineation of project boundaries according to biophysical considerations (see

Table 6.5) are straight-forward issues that in theory should not be difficult to address. At a minimum, all proposed timber projects should:

- **conduct a pre-implementation awareness program** with forest owning clan groups. The program should be developed and conducted by a third party, such as a non-government organization, that does not have a direct financial stake in the prospective logging operations. At the very least, such a program would assist people through an analysis of the trade-offs inherent in this type of undertaking (gains and loses), as well as clarify the responsibilities that flow from the agreements (TRP agreement, Timber Permit and Logging and Marketing Agreements) that underpin the project. Those communities unwilling, or unable to complete the program would be deemed unprepared to proceed with the timber project.

- **ensure that TRP boundaries adhere to existing local communties' cultural and political realities**. In the case of the Kumil timber project, this would have resulted in the formation of at least two distinct TRP areas - one to the south of the Kumil River (Pepaur), the other northwest of the Kumil River. Establishing landowners' companies on top of TRP's that respect local cultural and political relationships, should in turn facilitate organizational stability and communication.

- **develop a royalty distribution process based on local community wishes and characteristics**. Development of the process should include a number of basic steps:
  (1) identify clan group territories within the TRP area. Territory boundaries to be mapped, and agreed upon by all local people in the TRP area;
  (2) conduct a forest inventory (volume, species and accessibility of merchantable timber) by clan group territory. This information will provide the basis for calculating the potential economic value of the timber resource by clan territory;
  (3) determine local clan group land and forest tenure system, and develop a list of customary land owners by territory; and
  (4) hold discussions with local clan groups to discuss the value of the timber resource and royalty distribution options, i.e. paid out only to those forest owning clan groups at time of harvest, or paid out to all clan groups based upon an estimate of each group's possession of merchantable timber within the area.

Other problems identified by this study, however, are more difficult to address. In turn, they will also likely limit the ability to implement the above-mentioned recommendations. In particular, these problems are associated with the issues of project scale and village-level institutions discussed earlier. The wide gap that currently exists between clan groups, such as Pepaur, and the requirements of large-scale industrial forestry in terms of world view, skills and experience cannot be quickly bridged, even assuming that villagers wished to do so. Similarly, the existence of inequitable power structures within the village, the continuing loss of local language skills and traditional knowledge, and the atmosphere of powerlessness created by repeated failures to bring money and other services - water system, roads - into the community, cannot be quickly addressed. These issues are difficult and time-consuming to gain an appreciation for, let alone respond to.

Moreover, these problems will be addressed only if there exists a willingness on the part of those in authority at different levels of Papua New Guinean society to share power, and work towards more equitable power structures[6]. At the village level, for instance, it would mean involving all community members in land use decisions - men and women. There is no indication, however, that either adequate time or political will exists to address these issues. Time is constrained by the capitalist economic system which rewards production efficiency and profit maximization. Contractors with the technological expertise to conduct logging on a large-scale are forced to operate under this agenda. Political will, on the other hand is constrained by the fact that the privileged individuals, groups and classes in dominant control within any level of society are seldom willing to relinquish their power. The history of rural development in the South is in fact littered with

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[6] Power structure can be defined as the rules, institutions, and assumptions that determine both who is allowed to participate in decisions, and in whose interest decisions are made (Lappe and Schurman, 1990). The concept applies to political and economic affairs, as well as social and cultural life. These structures also operate at different levels. They include international finance and trade, and extend downward to the level of national governments, on through the village, and ultimately, to relationships within families.

failed policies, programs and activities which attest to the existence and efficacy of these constraints (see, for example, Blair and Olpadwala (1988)).

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APPENDIX 1

Research Questions and Data Collection Guide

Research Questions

1 Village Political Institutions:
   a) What system is in place to control land allocation, use and transfer?
   b) Through what vehicles do leaders exercise their authority within the village?

2 Forest Use:
   a) How is the forest being used from a subsistence standpoint?
   b) How is the forest being used from a commercial standpoint?
   c) Valued trees and plants? Type of forest environment where they are found?

3 Timber Project:
   a) How did the timber project mesh with the existing village political institutions and forest use patterns?
   b) To what extent did the landowners' company provide villagers with political power over logging operations in their area? What problems, if any, where encountered?
   c) How, if at all, has the timber project impacted village life?

Guide to Data Collection

	Data Collection Categories
Village Information	
Informant Profiles	• age • family information (wife, children, parents) • village (i.e. Pepaur, Meure, Tavulte) • clan/sub-clan (i.e. Yawier, Nomosogun) • formal education attained • special skills - traditional or contemporary • means of earning money • language's spoken • church
General Community Information	• local services and infrastructure • location of settlement • historical perspective
Land tenure system	• landowner • types of ownership and use rights • historical perspective • examples to illustrate conflicts and opposing viewpoints
Village leadership and political institutions	• leaders • basis of authority • institutions through which decision-making occurs • historical perspective • examples of how decisions are made re: community issues
Subsistence Agriculture	• system and techniques • garden locations • decision-making • importance to family sustenance • visible impacts on forest environment

	Data Collection Categories
Cash Cropping	• crops, extent, location of cultivation • decision-making • importance to family
Trees and Plants	• past and present • forest environment location
Timber Project	
Commercial timber exploitation in PNG	• framework
TRP Agreement	• terms • signatories • signing process • explanation/awareness-raising that accompanied the signing process • landowners' perceptions - terms, process, expectations
Landowners' Company	• structure and purpose • activities • landowners' perceptions - concept, operation
Logging Operations	• forest resource • location, type and extent of logging • politics • financial aspects • landowners' perceptions - benefits, problems

APPENDIX 2

RESEARCH INFORMANTS

Name	Sex	Age	Village	Sub-Clan	Other Information
KEY INFORMANTS					
Melchior Pesam	M	40	Pepaur	Yawier 1	• former UDC Director, 2 years University of PNG
Anton Pesam	M	35	Pepaur/Muere	Yawier 1/ Mormo	• LGC committee, grade 10 education
Alois Pesam	M	50	Pepaur	Yawier 1	• community school headmaster
Tur Vengel	M	34	Pepaur	Amya	• grade six education
Johanes Kokemua	M	55	Pepaur	Yawier 2	• no formal education
Mait Kokemua	M	34	Pepaur	Yawier 2	• grade six education
Punuru Apiak	M	40	Pepaur	Ameirpo	• vocation school training
John Wase	M	35	Muere	Mukuwir 1	• village court clerk, grade ten education
Malus Surhun	M	75	Pepaur	Nomosogun	• ex-catechist
John Ondam	M	39	Muere	Morentitum	• church leader, grade nine education
Pius	M	45	Tavulte	Ove	• LGC councillor, ex-Catholic catechist
Joesph Leo	M	30	Pepaur/Muere	Yawier 1/ Momo	• church leader, grade ten education
Bernard Paipei	M	45	Tavulte	Simindum 1	• ex- community school teacher, assistant to the area's ex-provincial member of parliament
SECONDARY INFORMANTS					
Lawrence	M	30	Pepaur	Yawier 1	• grade six education
Felix Malus	M	25	Pepaur	Nomosogun	• grade six education
Raymond Sowu	M	25	Pepaur	Ameirpo	• grade six education
Lucy Pesam	F	34	Pepaur	Yawier 1	• grade ten education
Ludwina Pesam	F	30	Pepaur	Yawier 1	• vocational school training
Vincent Ondam	M	25	Muere	Momo	• grade eight education
Susan Pesam	F	22	Pepaur	Ameirpo	• grade ten education
Naiwus Wuluk	M	75	Muere	Mukuwir 2	• ex-colonial luluai
Alphonse	M	45	Muere	Momo	
Kendiwok Pesam	F	70	Pepaur	Yawier 1	• no formal education
Clements	M	40	Pepaur	Nomosogun	• vocational school training
Adam Pesam	M	45	Pepaur	Yawier 1	• community school teacher
Gabriel Owet	M	65	Asumbin		

APPENDIX 3

HISTORICAL SKETCH OF PEPAUR

Written by Alois Pesam, Pepaur

Alois Pesam wrote this story during a school break in April 1993, based on discussions he had with local bigmen in November and December 1992. Alois is in his early 50s, and is currently a headmaster at Busip community school. Recording Pepaur's history, he said, is a project he has wanted to do for a long time. This desire stems from from a concern that Pepaur know little about their ancestral past. At a more personal level, it is also likely that he views this as an opportunity to solidify his, as well as his family's status within the community. As noted in Chapter 5, overall leadership within Pepaur is an unresolved issue.

The format and content of the story that follows is entirely of Alois' construction. Myself, and others, however, did assist him in the editing task. His first draft, for example, included several contradictory dates, and identified one man, Alois' grandfather, as Pepaur's leader at the turn of the century. I pointed out inconsistencies in the history's chronology. With the assistance of Alois' second eldest brother, Adam, and his mother, Kendawok, this issue was addressed. It is interesting to note that Alois does not acknowledge Kendawok as a source of information. However, throughout much of this particular discussion, both Alois and Adam relied exclusively on her memories of the past as the basis for making changes to what Alois had written. The final draft also acknowledges two men, not one, as representing Pepaur's leadership at the turn of the century. Alois made this adjustment in the face of an objection voiced by Kokemua Namua who contends that it is he, and not Alois, who should be Pepuar's leader today.

STORI BILONG PEPAUR LAIN
Alois Pesam i Raitim

As tingting bilong raitim dispela stori, em long:

- traim long painimaut stretpela stori bilong ol tumbuna bilong Pepaur;
- traim long givim save long ol yangpela manmeri bilong Pepaur komyuniti;
- strongim belisi namel long ol manmeri bilong Pepaur na ol arapela manmeri bilong Barem so ol i ken wok bung wantaim.

TOK I GO PAS

Lain bilong Pepaur, em i wanpela bilong ol lain husat istap insait long hap graun bilong ol Barem pipel long ples nambis bilong Bunabun. Ol Barem pipel o wanpisin i karamampim ples namel long tupela bikpela wara, Dibor wara long Saut, na Kumil wara long Wes. Dispela hap graun bilong ol Barem pipel i stap olsem 100 kilomita samting long Not sait long Madang taun long Madang provins.

Bunabun, Murukanam, Muere na sampela lain moa i bin stap bung wantaim long Masur maunten ikam inap long 1800 A.D. Tumbuna stori i tok olsem, taim ol dispela lain i bin stap long Masur, ol i bin bungim planti hevi namel long ol yet. Long dispela as, ol i bin bruk na lusim Masur, na stap

A HISTORY OF PEPAUR
Written by Alois Pesam

This history was written for the following reasons:

- to find out the true story of Pepaur's past;
- to educate Pepaur youth;
- to strengthen relations between Pepaur and its neighbours so that all people of the Barem area can work together.

INTRODUCTION

Pepaur is one many groups of people known collectively as Barem, who inhabit the coastal area around Bunabun. The Barem people, or people of common language, inhabit the area between the Dibor River in the South and the Kumil River in the West. The Barem area is situated approximately 100 kilometers on the north side of Madang town, in the province of Madang.

Prior to the 1880s, Bunabun, Murukanam, Meure, as well as several other groups lived together at Masur Mountain. Legend has it that many disputes arose between these groups. Because of this constant conflict, the groups decided to split up. They all left Masur, and moved to the areas where they each currently live.

nabaut long ol ples we yumi stap nau.

Long dispela liklik buk mi bai raitim stori bilong Pepaur (Umbang) na Muere (Mukon).

SAPTA 1

Taim ol hevi ibin kamap namel long ol Barem pipel long Masur, sampela lain ibin kam sindaun klustu long Momo maunten. Momo, em i wanpela liklik maunten istap insait long wanpela kil aninit ol bikepela maunten ol i kolim "Adelbert Range". Tupela lain bilong Pepaur na Inambum i bin kam pas long Momo. Bihain taim liklik, Muere i bin bihainim dispela tupela lain na kamap long Momo. Yumi no klia tumas, tasol i luk olsem dispela tripela lain i bin kamap long Momo sampela taim long yia 1800 igo inap long 1850.

Taim ol tripela lain ibin stap bung wantaim long Momo, wankain hevi ibin kamap long bipo taim ol bin stap long Masur, olsem hevi bilong graun natu long sait bilong sindaun bilong ol pipel. Lain bilong Muere i bin lusim Momo na ibin wokim wanpela ples long hap ol i kolim Meraserev. Lain bilong Inambum ibin lusim Momo tu. Dispela lain ibin wokim ples long het bilong wara Fruk klustu we ol lain Reinduk istap nau. Lain bilong Pepaur tasol i bin stap long Momo taim tupela arapela lain ibin go pinis. Dispela bruk namel long ol tripela lain i bin kamap bipo ol

This little book explains the history of Pepaur (Umbang) and Muere (Mukon).

CHAPTER 1

As a result of the conflict that arose between the Barem people living at Masur, some of the groups moved to the area around Momo Mountain. Momo is a small mountain ridge within the Adelbert Mountain Range. The first two groups to settle at Momo were Pepaur and Inambum. Shortly afterwards, Meure joined them. It is not clear exactly when these three groups settled at Momo, but it appears that it occured sometime between 1800 and 1850.

These three groups, however, where unable to live together. The same kinds of disputes that drove them from Masur occured at Momo: conflicts over land and other problems. Muere left Momo and settled at Meraserev. Inambum left Mom as well. They moved to an area near the head of the Fruk River (or Mangem River), currently inhabited by Reinduk. Pepaur remained at Momo. The split between the three groups occured before Europeans arrived at Momo in 1884. This was the year in which the first German patrol made contact with Pepaur.

waitskin ibin kamap long Momo long yia 1884. Long dispela yia ol Yaman plismasta ibin kamap long ples bilong Pepaur long Momo na ol ibin sindaun, stori na mekim pren wantaim ol.

SAPTA 2

Taim ol Yaman ibin kamap long Momo na bungim lain bilong Pepaur long 1884, yumi no klia tumas husat ibin stap lida stret bilong ples. I luk olsem tupela bikman ibin stap long dispela taim, Owora na narapela man, Inanumar. Tupela ibin kirapim haus lain bilong Yawier, long ples ol i kolim Wasmorane antap long het tru bilong Momo. Dispela em i stat tru bilong Pepaur ples. Em i namba wan taim ol lain bilong Pepaur ibin sindaun olgeta long wanpela hap. Taim ol Yaman ibin lukim Pepaur pastaim, ol ibin bungim em long dispela ples Wasmorane. Long dispela taim ol Yaman plismasta ibin givim ol lida bilong Pepaur planti presen, olsem sotgun, ain naip na tamiok, bis, sol, na laplap. Ol manmeri bilong Pepaur ibin hamamas long yusim tupela tul long kisim ples bilong ston tamiok bilong ol tumbuna.

Bihain dispela taim ol manmeri bilong Pepaur na Muere ibin stat long lainim sampela pasin bilong ol waitskin. Kwiktaim ol Katolik sios ibin kam mekim ol manmeri bilong dispela hap kamap Kristen.

CHAPTER 2

In 1884, when the German's first made contact with Pepaur at Momo, it is unclear who held the postion of leader at Pepaur. It appears that Pepaur had two important bigmen, Owara and Inanumar. These two men were responsible for the start of Yawier clan at the place known as Wasmorane, at the top of Momo Mountain. This was the real beginning of Pepaur. It was the first time that all Pepaur people came together to live in one location. It was also at Wasmorane that the Germans first made contact with Pepaur. The Germans distributed many gifts to Pepaur's bigmen, such as shotguns, iron knives and axes, beads, salt and clothing. Pepaur was especially happy to receive the iron knives and axes. They replaced the stone tools that were used.

Following this initial meeting, the people of Pepaur and Muere began to learn European customs. The Catholic church very quickly moved into the area and converted the people to Christianity.

Ol yanpela manmeri bilong Pepaur, Muere na ol hap graun bilong Barem, nau yu ken lukim, olsem yupela bin ikam long wanpela pipel, tasol ol tumbuna bilong yumi ibin brukbruk na wokim ol ples nabaut namel long Dibor na Kumil wara.

So, all you young men and women of Pepaur, Muere and other groups within the Barem area, see for yourself - we started off as one people, but because of our ancestors, we have split up into smaller groups and established our own settlements.

TOK TENKYU

Mi Alois Pesam husat i bin raitim dispela stori i givim bikpela tok tenkyu igo long ol bikman husat ibin givim mi gutpela stia long mekim dispela stori kamap gut.

Nem	Ples
Someyang	Asumbin
H. Malus	Pepaur
T. Morke	Muere
Lapa Wase	Muere
J. Kokemua	Pepaur
P.A. Mom	Pepaur
Sambor	Asumbin
M. Pesam	Pepaur

ACKNOWLEDGEMENTS

I, Alois Pesam, would like to thank those bigmen who provided me with helpful information that enabled me to write this history.

Name	Village
Someyang	Asumbin
H. Malus	Pepaur
T. Morke	Muere
Lapa Wase	Muere
J. Kokemua	Pepaur
P.A. Mom	Pepaur
Sambor	Asumbin
M. Pesam	Pepaur

TOK SAVE LONG OL MANMERI HUSAT BAI RITIM DISPELA STORI

Ol manmeri bilong Pepaur na arapela lain, dispela stori mi bin raitim em i nabawan kain tok save i kamap long pepa long histori bilong Pepaur. Mi gat bikpela bilip olsem dispela kain pepa bai inap long helvim yumi long save long stori bilong ol manmeri bilong

NOTICE TO ALL PEOPLE THAT READ THIS HISTORY

People of Pepaur and other villages, this is the first time that a history of Pepaur has been recorded on paper. I believe that having a written record of our history will help us better understand our past. I also believe that this information can assist all people of the Barem speaking area to live and work

Pepaur. Natu, mi bilip dispela stori i ken strongim yumi ol manmeri bilong Barem wanpisin long wok bung wantaim na sindaun isi.

Taim yu ritim dispela pepa, sapos yu tingim sampela tok mi bin raitim hia ino stret tumas o yu gat sampela tok helvim, plis, toksave long mi long tingting bilong yu. Mi bai hamamas long kisim tingting bilong yu long stori bilong Pepaur na ol Barem pipel olsem bihain, mi ken wokim dispela stori igo mobeta.

A.M. Pesam
School Teacher

together in harmony.

If you feel this paper contains errors, or if you have suggestions, I encourage you to pass these ideas on to me. Your feedback will allow me to make improvements to the story.

Alois Pesam
School Teacher

APPENDIX 4

PEPAUR FOREST USE

The following table provides an overview of commercial and subsistence use of trees, plants and grasses found within the Pepaur area. While the table does includes some 'cultivated' trees and plants, for the most part, it focuses on products that are collected from the forest in their wild state. Whenever possible, flora has been identified in four languages: Pepaur (the local language, *Tok Ples*), the local lingua franca (Melanesian Pidgin, *Tok Pisin*), common English, and the language of western science. Apart from grouping commercially-valued timber trees at the beginning of the table, the information has not been organized according to any particular format.

Of the existing forest flora, it is primarily the wood from trees which possesses commercial value. However, there are also some non-timber forest products, such as *buai,* which now possess both a subsistence and commercial value. Within Pepaur, these forest products tend to be cultivated rather than collected from the wild.

UDC records were used to identify the types of trees harvested by the timber project. Information concerning the commercial uses of these timbers was taken from a Ministry of Forests publication *The Utilization of Papua New Guinea Timbers* by Eddowes (n.d.). All other information was gathered through interviews with Pepaur men and women. In general, discussions involved an elder man or woman, and a younger, middle-aged person to assist in translation. I would identify uses and ask my informants to name the forest products that they used to accomplish these tasks, i.e. which trees are used to build the floor posts of houses? I developed my list of questions based on the categories of use provided by Peekle (1984) and Powell (1976). I then followed up with people while out walking in the forest - asking them to point out the flora, cross-checking their information with others to ensure that the names and uses I collected were consistent, sometimes bringing back branches and leaves to check back with the elders as well. I found that many youth (under 25) had limited knowledge of the names of forest products and

how they were used. Many of the middle-aged men were also not well informed in this regard and readily admitted their ignorance. According to informants, only a select few elder Pepaur men and women were regarded as knowledgeable sources about the forest and its uses: Malus Serhun, Kendiawok Pesam, Pius, and Kokemua Namua.

Most of the forest products identified as having subsistence use are still in use today. Having said this, it was apparent that in many instances store bought goods have replaced forest products in satisfying local needs. This transition has occurred with respect to such items as *bilum* (string bag) rope, plates, medicines, and clothing.

The table headings 'Old Garden' and 'Big Bush' are intended to describe different types of forest. 'Old Garden' refers to forest dominated by pioneer/emergent species (forest areas which are part of gardening cycle, or have been logged), while 'Big Bush' refers to primary/old secondary forest areas (forest areas that have been minimally disturbed by humans except for hunting or gathering). An important point to note is that villagers appear to rely predominantly on areas of 'Old Garden' to meet the majority of their day-to-day needs. Over my five month stay in Pepaur, people spent most of their time preparing gardens, gardening, making copra, at the river fishing, washing or collecting water, or in the village - seldom did people visit areas of 'Big Bush'. It is 'Old Garden' areas which provide them with their food and much of their building materials. While 'Big Bush' areas do still provide valuable forest products, such as house posts, slit drums and tool handles, the demand for these items is infrequent and relatively small. House posts, for example, can last upwards of 20 years, whereas the other parts of a bush material house (roof, frame, walls) last between five and seven years before succumbing to insects and the elements. From an economic standpoint, therefore, it is 'Old Garden', and not 'Big Bush' areas which posses the greatest subsistence value in the eyes of local villagers. Similarly, while 'Big Bush' trees possesses a monetary value to villagers in the form of royalty payments, villagers see this as only the initial step towards cash crop development. From Pepaur's perspective, forest land increases in commercial value once it has been cleared, i.e. once it is no longer in a 'Big Bush' state.

Tok Ples	Tok Pisin	Common English	Scientific	Commercial Use Timber / Other (*)	Part	Subsistence Use	New	Culti-vated	Still in Use	Big Bush	Old Garden
n/a		Spondias	Spondias Dulcis	Shingles						¥	
Varev	Ton	Taun	Pometia Pinnata	Flooring, tools, boat bldg							
					Fruit	Food			¥	¥	
						House: wall/roof frame					
Soahu	Talis	Terminalia	Terminalia spp.	Flooring, boat bldg							
n/a		Amberoi	Pterocymbium Beccarii	Blockboard	Nut	Food			¥	¥	
Ohun	Garamut	Kwila	Intsia Bijuga	Flooring, tools, heavy const'n, furniture							
					Wood	House: floor posts			¥	¥	
					Wood	Slit Drum - communication			¥		
n/a		Dysoxylum	Dysoxylum spp.	Tools, veneer, sporting goods, boat bldg						¥	
n/a		Celtis	Celtis spp.	Heavy Const'n						¥	
n/a		Antiaris	Antiaris Toxicaria	Blockboard, boxes						¥	
n/a		Albizia	Albizia Falcataria	Match splints, shingles						¥	
n/a		Litsea	Litsea spp.	Mouldings, blockboard, boxes						¥	
Sima	Nar	N.G. Rosewood	Pterocarpus Indicus	Furniture, carving, veneer, boat bldg							
					Branch	Garden Fencing			¥	¥	
					Sap	Varnish (bowls etc.)			¥		
					Wood	House: floor posts			¥		
					Wood	Hand drum (music/celebrations)			¥		
Soawu	Galip	Grey Canarium	Canarium Indicum	Veneer							
				(*) Nut sold in local markets	Nut	Food		¥	¥	¥	
Irpin		Maniltoa	Maniltoa spp.	Flooring, tools							
					Wood	Tools (Digging Sticks, etc.)		¥	¥	¥	
n/a		Planchonella	Planchonella spp.	Furniture, dowels, moulding, boxes, boats						¥	
Mona	Mon	N.G. Walnut	Dracontomelon spp.	Furniture, carving, veneer, boat bldg							
					Fruit	Food		¥	¥	¥	
n/a		Basswood	Endospermum Medullosum	Blockboard						¥	
Popov	Fikus	Fig/Banyan	Ficus spp.	Boxes						¥	
					Wood	Tools (axe handles, etc.)			¥		
					Fruit	Attraction to birds and animals			¥		
n/a		Watergum	Syzygium spp.	Tools, boat bldg						¥	
n/a		Pencil Cedar	Palaquium spp.	Carving, dowels, boat bldg						¥	
Owe		Erima	Octomeles sumatrana	Shingles, blockboard						¥	
					Wood	Canoe			¥		
Saev	Malas	Malas	Homalium foetidum	Heavy constr'n, tools, boat bldg						¥	
					Wood	Tools (digging sticks)			¥		
Yahavem	Pul	Vitex	Vitex Cofassus	Heavy constr'n, flooring, carving, boat bldg							
				Housing - floor posts	Wood	House: floor posts			¥	¥	
					Wood	Paddles			¥		
Arin	Tulip		Gnetum gnemon	(*) Leaf sold at local markets				¥	¥	¥	
					Leaf	Food (cooked)			¥		
					Bark (inside)	Bilum string (carrying bag)			¥		
					Wood	House: frame			¥		
Ah	Kunai		Imperata Conferta		Grass	House: roofing			¥		¥
					Grass	Cattle fodder (young shoots)			¥		
					Grass	Hunting area (burn - pigs, mamut)			¥		
Newanta	Kokonas	Coconut	Cocos Nucifera	(*) Nut sold green/dry in local markets				¥	¥		
				(*) Meat of Nut processed into copra					¥		
					Nut	Food (meat - raw/cooked)			¥		
					Nut	Water (drink/diarrhea)			¥		
					Leaf ribs	Brooms			¥		
Mooniv	Saksak	Sago Palm	Metroxylum spp.		Frond	House: roof (woven)		¥	¥		
					Panicle	Fishing pole			¥		
					Stem (inside)	Food			¥		
					Stem	Food: rotting trunk attracts insects			¥		
					Leaf	Torch (bunched & burnt)			¥		
Munrwasi	Wild Saksak	Sago Palm	Metroxylum spp.		Stem	House: flooring			¥	¥	
					Stem	Food: rotting trunk attracts insects			¥		
	Mangas		Hibiscus tileaceus		Wood	House: frame			¥		¥
					Wood	Hand drum (music/celebrations)			¥		
	Yati	Teak	Tectona Grandis		Wood	House: house posts	¥		¥		
Efirev					Wood	House: house posts			¥	¥	
					Bark	Fish poison (beat & put in water)					
Nabor					Wood	House: house posts				¥	

Tok Ples	Tok Pisin	Common English	Scientific	Commercial Use Timber / Other (*)	Part	Subsistence Use	New	Culti-vated	Still In Use	Big Bush	Old Garden
Mera	Makas		Hibiscus filaceus		Wood	House: frame			¥		¥
					Bark (inside)	Bilum string (carrying bag)			¥		
Oron					Wood	House: frame			¥		¥
Saru					Wood	House: frame			¥		¥
Pinum					Wood	House: frame			¥		¥
Upo					Wood	House: frame			¥		¥
Mataitum			Macaranga spp.		Wood	House: frame			¥		¥
Maraten	Limbum	Palm	Areca jobiensis		Seeds	Kernal is chewed (subst. buai)					
					Stem	House: flooring					
Awhomor	Limbum	Palm	Kentiopsis archontophenix		Stem	House: flooring		¥	¥	¥	
					Flower sheath	Mats/Carrying Basket			¥		
Oujev	Wail Limbum	Toddy Palm	Caryota spp.		Stem	House: flooring			¥	¥	
					Stem	Bows, spears (hunting)			¥		
Pari	Buai	Betel Nut	Areca catechu	(*) Seeds sold at roadside/house/markets				¥	¥		
					Seeds	Kernal is chewed			¥		
					Stem	House: flooring			¥		
					Stem	Pouch (small items, i.e. bruce)			¥		
Ofi	Daka	Betel pepper	Piper Betle	(*) Syncarp/leaf sold roadside/market				¥	¥		
					Syncarp	Chewed with buai (& lime)			¥		
					Leaf	Chewed with buai (& lime)			¥		
					Leaf	Cover sores			¥		
Tiretir	Pitpit	Wild Sugarcane	Saccharum spontaneum		Stalk	Fencing (garden)			¥		¥
					Grass	Torch (bunched & burnt)			¥		
					Stalk	House: Rafter to attach kunai (roof)			¥		
					Stalk	House: walls (woven)			¥		
Sopor					Leaf	Ornamental (red)		¥	¥		
					Seeds	Necklaces			¥		
Poha	Kapiak	Breadfruit	Artocarpus spp.	(*) Seeds roasted and sold at local markets					¥	¥	¥
					Fruit	Food (A. leeuwenii only)			¥		
					Seed	Food			¥		
					Sap	Glue (i.e fasten skin to kundu)			¥		
					Sap	Medincine (apply to burns)			¥		
					Bark	Clothing (tapa cloth)			¥		
					Wood	Food: rotting trunk attracts insects			¥		
Wam					Leaf	Food (cooked)			¥		¥
Wapa					Leaf	Food (cooked)			¥		¥
Nopo					Leaf	Food (cooked)			¥		¥
					Seed	Food (cooked)			¥		
Orhun					Vine	Rope (fencing)			¥		¥
Atir					Vine	Rope (fencing)			¥		¥
					Vine	Decoration (armbands, spears)			¥		
Apir					Wood	Bowl (carved)			¥	¥	
					Sap	Medicine (apply to burn)			¥		
Penapeheave					Wood	Tool handles, digging sticks			¥	¥	
Eratine					Wood	Tool handles, digging sticks			¥	¥	
Wame					Wood	Tool handles, digging sticks			¥	¥	
Inanum					Leaf (tree)	Smell (burnt/rubbed on body)		¥	¥		
					Wood	Tool handles, digging sticks			¥		
Sesare					Leaf (shrub)	Smell (burnt/rubbed on body)		¥	¥		
Amo					Flower	Food (kids eat like sugar)			¥		¥
Napiwer	Popo	Papaya	Carica papaya		Fruit	Food (raw/cooked)		¥	¥		¥
					Fruit	Medicinal (apply skin/ringworm)					
	Wail Yam	Wild Yam	Dioscorea spp.		Tuber	Food (cooked)			¥	¥	¥
	Wail Mami	Wild Mami	Dioscorea spp.			Food (cooked)			¥	¥	¥
Efin	Wail Mango	Mango	Mangifera minor		Fruit	Food (raw)			¥	¥	
					Leaf	Body paint (&water/lime - yellow)			¥		
Asi	Mango	Mango	Mangifera indica	(*) Fruit sold at local markets			¥	¥	¥		
					Fruit	Food (raw)			¥		
Tohahun					Fruit (vine)	Food			¥		¥
Moru					Fruit	Food			¥		¥
Muer					Leaf (tree)	Fish Poison (bark, pound & put in water)					
Napuwearsus					Fruit (tree)	Food (like popo/large seeds)			¥	¥	
Pitakren					Seed (shrub)	Food (raw)			¥		¥
Tiepom					Fruit (shrub)	Food (cook/like kapiak)			¥		¥
Ahmanman		Orlean	Bixa orellana		Fruit	Body paint (applied direct - red)		¥	¥		

Tok Ples	Tok Pisin	Common English	Scientific	Commercial Use Timber / Other (*)	Part	Subsistence Use	New	Culti-vated	Still in Use	Big Bush	Old Garden
Tinch						Fish Poison (bark, pound & put in water)					
Haut			Barringtonasiatica		Seeds	Fish poison (scrapped/reef pools)					
Vaowo					Wood	Hand drum (music/celebrations)			¥	¥	
					Wood	Canoe			¥		
Hate	Manbu	Bamboo	Bambusa spp.	(*) Stems sold to coastal villagers					¥	¥	¥
Woav					Stem	Cooking - food/lime (when green)			¥		
Emar					Stem	House: walls (woven)			¥		
					Stem	Water container (emair especially)			¥		
					Stem	Fencing (garden)			¥		
					Stem	Rope for bow (emair only)			¥		
					Leaf	Torch (bunched and burnt)			¥		
Masuwa	Mal	Tapa cloth			Bark (inside)	Clothing (male)				¥	
Maunanin	Mal	Tapa cloth			Bark (inside)	Clothing (male)				¥	
Sipo					Bark/leaf	Medicine (sores, washing body)			¥		
Esocesam	Palmen	Palm	Cycas rumphii		Seed	Medicine (scraped/juice on sores)			¥		
Mumum					Leaf	Medicine (crush/drink for colds)			¥		
Tete Papuom Otor			Euodota hortensis		Leaf (shrub)	Medicine (strong smell for colds)			¥		
					Leaf	Medicine (drink to abort child)					
Sosopor					Bark	Medicine (drink for snake bite)		¥	¥		¥
					Wood	Firewood			¥		
Waurasirev					Grass	Medicine (apply stomach/diarrhoea)			¥		¥
Emew	Kawawar	Ginger	Zingiber officinale		Root	Medicine (cook/drink for colds)		¥	¥		
					Root	Medicine (cook/drink stomach ache)			¥		
					Root	Yellow dye (rub on bilum string)			¥		
Huaw	Skin Diwai				Bark	Ritual (eat/spit to drive away spirits)			¥	¥	
Hahi Wapow	Salat		Dendrocnide spp.		Leaf	Medicine (hit skin for pain)		¥	¥	¥	
Opum											
Huen	Kanda	Rattan	Calamus spp.		Stem (vine)	House: rope to fasten timber			¥	¥	¥
Irut						Fencing (rope)			¥	¥	¥
Ofu	Kanda	Rattan	Calamus spp.		Stem (vine)	Strong rope (bow string, traps)			¥	¥	
	Gorgor		Alpinia spp.		Leaf (plant)	Smell (burnt/rubbed on body)		¥	¥		
Episev Soa	Bruce	Tobacco	Nicotiana tabacum	(*) Leaf sold in local markets				¥	¥		
					Leaf (plant)	Medicine (crush/put in ear for earache)			¥		
					Leaf	Medicine (green/crush/water for sores)			¥		
					Leaf	Smoked			¥		
Kondem	Balbal	Coral Tree	Erythrina veriegata		Bark	Medicine (beat/boil for sores)			¥		
Eraip	Tanget				Leaf (plant)	Medicine (crush/water for sores)		¥	¥		¥
	Poru				Leaf (vine)	Medicine (crush/boil/water for sores)			¥		
Urip	Gorgor		Alpinia spp.		Leaf (plant)	Medicine (crush/boil/water for sores)			¥		¥
Ofun Erev					Bud (plant)	Medicine (boil/water for colds)			¥		
Maemar					Vine	Bilum String (twist inside/carrying bag)			¥		
Whaen					Bark (tree)	Bilum String (twist inside/carrying bag)		¥	¥	¥	
Maul					Stem (plant)	Bilum String (twist/carrying bag)			¥		¥
Sarem	Karuka	Pandanus	Pandanus spp.		Leaf (plant)	Bilum String (twist/carrying bag)					¥
Saur					Stem(vine)	Red Dye (cook/mix lime for bilum string)			¥		¥
Ahta					Grass	Green dye (rub on bilum string)			¥		¥
Horu					Wood	Canoe			¥	¥	

APPENDIX 5

PEPAUR LAND TENURE

The following Table identifies all Pepaur males - adults and children. Pepaur is comprised of two clans (Yawier and Ameirpo), which further breaks down into six sub-clans (Yawier 1, Yawier 2, Pepaur, Nomosogun; Ameirpo and Amya). Each sub-clan has one adult male who is recognized as a leader. These individuals appear in bold in the Table. Father and son relationships are identified by using the first names of fathers as surnames for their sons, for example: Anton Pesam (13) is the father of Eri Anton (14) and Adolph Anton (15). The names used here, for the most part, are Christian names. Everyone in Pepaur has at least two names - a local name, and a Christian name. Sirap Melchior's (10) first name, for example, is also Mark. In some cases, some men, particularly younger ones, often make use of several names. The task was further complicated by the fact that villagers do not like to use the names of their in-laws. Instead, they refer to them as *tambu bilong mi*. Of Pepaur's total male population of 86, approximately 40 percent (35) are under the age of 15. 22 males, or 26 percent of the total male population currently do not possess any land rights within Pepaur.

Only men posses land rights in Pepaur. In general, these rights include authority over hunting, gathering, gardening and commercial development. In some instances, land rights can be passed down through a woman. Such is the case of Kokomun Ote (73) within the Ameirpo sub-clan. Her father, Ote Punuru, died in the late 1980s. Since he had no sons, his dying wish was that his land rights should be split between Clements Ote (65), a young Muere man who he adopted, and the first born son of his daughter Kokomun. Several of Pepaur's bigmen (the Pesam's and Kokemua Namua) have agreed to abide with this wish. The clan head of Ameirpo (Mathias Apiak), however, has not. The conflict is apparently still unresolved.

The table identifies three categories of land rights: natural, permitted ground and without ground. This breakdown was explained to me by Alois

Pesam. It should be emphasized that this categorization is his conceptualization of how the system of land tenure works in Pepaur. These categories were cross-checked with other community members, and in general, while they were not familiar with the terms Alois used in describing the system, their perspectives were in line with his conceptualization. See Chapter 5 (p. 103) for a discription of Pepaur's land rights categories.

PEPAUR LAND TENURE

CLAN/ Sub-clan		NAME	TYPE OF LAND RIGHTS			
			Natural	Adopted	Outsider Permitted Ground	Outsider Without Ground
YAWIER						
Yawier 1	1	**Alois Pesam**	•			
	2	Merik Alois	•			
	3	Alois Jr.	•			
	4	Adam Pesam	•			
	5	Samual Adam	•			
	6	Pesam Adam	•			
	7	Mom Adam	•			
	8	Ben Adam	•			
	9	Melchior Pesam	•			
	10	Sirap Melchior	•			
	11	Kosmas Melchior	•			
	12	Damien Melchior	•			
	13	Anton Pesam	•			
	14	Eri Anton	•			
	15	Adolph Anton	•			
	16	Akua Katkir	•			
	17	Joseph Leo			•	
	18	Saimar Leo			•	
	19	Lawrence (Bogia)				•
	20	Joseph (Ramu)				•
Yawier 2	21	**Kokemua Namua**	•			
	22	Mait Kokemua	•			
	23	son of Mait	•			
	24	Joesph Kokemua	•			
	25	Kiok (Sarang)		•		
	26	son of Kiok		•		
	27	Kal (E. Sepik)				•
	28	1st son of Kal				•
	29	2nd son of Kal				•
	30	3rd son of Kal				•
	31	4th son of Kal				•
Pepaur	32	**Mom Kutut**	•			
	33	Peter Mom	•			
	34	Sim Mom	•			
	35	Imsum Mom	•			
	36	Piem Saimar	•			

PEPAUR LAND TENURE

CLAN/ Sub-clan		NAME	TYPE OF LAND RIGHTS			
			Natural	Adopted	Outsider Permitted Ground	Outsider Without Ground
Pepaur cont'd	37	Alexius Piem	•			
	38	Lawrence Piem	•			
	39	Lucas Piem	•			
	40	Lucas Jr.	•			
	41	Saimar Piem	•			
Nomosogun	42	**Malus Surhun**	•			
	43	Mopa Malus	•			
	44	1st son Mopa	•			
	45	2nd son Mopa	•			
	46	Felix Malus	•			
	47	Jerry Felix	•			
	48	Israel Felix	•			
	49	Jacob Malus	•			
	50	Clements (Manam)				•
	51	1st son Clements				•
	52	2nd son Clements				•
	53	3rd son Clements				•
	54	4th son Clements				•
	55	5th son Clements				•
	56	Ignasius (Ramu)				•
	57	1st son Ignasius				•
	58	2nd son Ignasius				•
	59	3rd son Ignasius				•
	60	4th son Ignasius				•
AMEIRPO						
Ameirpo	61	**Mathias Apiak**	•			
	62	1st son Mathias	•			
	63	2nd son Mathias	•			
	64	3rd son Mathias	•			
	65	Clements Ote		•		
	66	Martin Tuvi	•			
	67	Arop Martin	•			
	68	Akema Martin	•			
	69	Nicholas Tuvi	•			
	70	1st son Nicholas	•			
	71	2nd son Nicholas	•			
	72	Kalengos Suwak	•			

PEPAUR LAND TENURE

CLAN/ Sub-clan		NAME	TYPE OF LAND RIGHTS			
			Natural	Adopted	Outsider Permitted Ground	Outsider Without Ground
Ameirp cont'd	73	Kokomun Ote (F)	•			
	74	Raymon Sowu	•			
	75	Rudolph Sowu	•			
	76	Pesam Sowu	•			
Amya	77	**Francis Nowir**	•			
	78	Kavas Nowir	•			
	79	Ipo Nowir	•			
	80	Tur Vengel		•		
	81	Pesam Martin		•		
	82	Kampokon		•		
	83	Philip (Mirap)				•
	84	1st son Philip				•
	85	2nd son Philip				•
	86	3rd son Philip				•
		Percentage of Total	65%	7%	2%	26%

VITA

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Rodgie McLagen Fellowship, Canadian Steamships Company	1981-83
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John Fellowes Memorial Prize in Business Administration	1981
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Price Scholarship, Bishop's University	1978-81

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