



Political ecology of forest conservation in Laos : A case study of Phou Phanang National Reserve Forest in Lao People's Democratic Republic

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**Political Ecology of Forest Conservation in
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Reserve Forest in Lao People's Democratic
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TABLE OF CONTENTS

ABSTRACT	V
PREFACE AND ACKNOWLEDGEMENT	VII
ACRONYMS	IX
CHAPTER 1 FOREST AND THE PROBLEMATISATION OF FOREST MANAGEMENT	1
1.1 INTRODUCTION.....	1
1.2 DEVELOPMENT OF FOREST MANAGEMENT, AN OVERVIEW	2
1.3 RESEARCH QUESTIONS	6
1.4 SCOPE AND METHODS OF THE RESEARCH.....	7
1.5 OUTLINE OF THE RESEARCH.....	10
CHAPTER 2 RESEARCH FRAMEWORK	12
2.1 CONSERVATION AND DEVELOPMENT, KEY ISSUES.....	12
<i>2.1.1 Forest Conservation: Evolving Discourses of Conservation and Development</i>	<i>13</i>
<i>2.1.2 State Control of Resources: Territorialisation and Mapping</i>	<i>18</i>
<i>2.1.3 Collective Action and Community based Natural Resource Management.....</i>	<i>23</i>
2.2 RESEARCH APPROACH AND CONCEPTUAL FRAMEWORK.....	26
<i>2.2.1 Economy and Politics of Forest Conservation.....</i>	<i>27</i>
<i>2.2.2 Political Ecology of Forest Management.....</i>	<i>28</i>
2.3 RESEARCH METHODS.....	31
<i>2.3.1 Historical Analysis</i>	<i>31</i>
<i>2.3.2 Stakeholder Analysis</i>	<i>32</i>
<i>2.3.3 Institutional Analysis</i>	<i>33</i>
<i>2.3.4 Spatial Analysis.....</i>	<i>33</i>
2.4 LIMITATION OF THE RESEARCH	34

CHAPTER 3 REVIEWING HISTORICAL NOTION OF FOREST AND ITS MANAGEMENT	37
3.1 HISTORICAL REVIEW OF FOREST AND FOREST POLICES IN LAOS	37
3.1.1 <i>Pre-colonial Period: Rich Forests, Overlapping Domain</i>	<i>37</i>
3.1.2 <i>Colonial Period: Introduction of Systematic Forest Administration.....</i>	<i>38</i>
3.1.3 <i>Independence and War: Forest as Refuge, Battlefield, Open Access Territory</i>	<i>42</i>
3.1.4 <i>Emergence of the Socialist State: Nationalisation of Resources</i>	<i>44</i>
3.1.5 <i>Integration to the Market Economy.....</i>	<i>48</i>
3.2 DEFINITION OF FOREST	52
3.2.1 <i>Forest Classification: From Species to Forest Cover</i>	<i>52</i>
3.2.2 <i>Legal Definition of Forest.....</i>	<i>55</i>
3.2.3 <i>Local Definition of Forest: Distinction, Variability, and Compatibility with State Policy.....</i>	<i>59</i>
3.3 RHETORIC OF DEGRADING FOREST: SHIFTING CULTIVATION AND LOGGING	63
3.3.1 <i>Shifting Cultivation: Source of Forest Destruction?</i>	<i>63</i>
3.3.2 <i>Logging: Underlying Cause of Forest Degradation?</i>	<i>66</i>
3.4 FOREST CONSERVATION: NEW DISCOURSE.....	68
CHAPTER 4 FOREST CONSERVATION AND POLITICS OF PROTECTED AREAS.....	74
4.1 FOREST CONSERVATION	74
4.1.1 <i>Protected Areas</i>	<i>74</i>
4.1.2 <i>Buffer Zone and Integrated Conservation and Development Approach.....</i>	<i>75</i>
4.2 PROTECTED AREAS IN LAOS	78
4.2.1 <i>Protected Areas System</i>	<i>78</i>
4.2.2 <i>Stakeholders in Protected Areas Management</i>	<i>82</i>
4.2.3 <i>Stakes in Protected Areas Management.....</i>	<i>83</i>
4.3 POLITICAL ECOLOGY OF PHOU PHANANG NATIONAL RESERVE FOREST	84
4.3.1 <i>Phou Phanang National Reserve Forest</i>	<i>84</i>
4.3.2 <i>Village Histories and Movement of People in Phou Phanang</i>	<i>87</i>

4.3.3 Forestry in Phou Phanang	89
4.3.4 Political Ecology of Forest Management in Phou Phanang	90
4.4 INSTITUTIONAL MISLINKAGE AND CREATION OF OPEN ACCESS	92
4.4.1 Local Institutions	92
4.4.2 Ignoring the Boundary	94
4.4.3 Missing Linkages	95
CHAPTER 5 LAND AND FOREST USE CHANGE IN ANG NHAI VILLAGE	97
5.1 ANG NHAI VILLAGE	97
5.1.1 History of Ang Nhai	97
5.1.2 Resource Use History	98
5.2 LAND AND FOREST COVER CHANGE	101
5.2.1 Forest Degradation	102
5.2.2 Deforestation	103
5.2.3 Forest Regeneration	103
5.2.4 Forest Fragmentation and Diversification in Ambiguous Land	104
5.3 LAND USE CHANGE AND HOUSEHOLD ECONOMY	105
5.3.1 Market and Land Use Intensification	105
5.3.2 Sources of Household Income and Agriculture Production	106
5.4 DYNAMIC CHANGES OF RESOURCES AND RESOURCE TENURE	109
CHAPTER 6 COLLABORATIVE MANAGEMENT OF PROTECTED AREAS	111
6.1 DECENTRALISATION	111
6.1.1 Decentralisation: Theoretical Background	111
6.1.2 Decentralisation in Lao Context	113
6.2 DECENTRALISED FOREST MANAGEMENT IN LAOS	115
6.2.1 Land and Forest Allocation	115
6.2.2 Decentralised Forest Management through “Village Forestry” and JFM	117

6.3 COLLECTIVE ACTIONS AND FOREST MANAGEMENT	119
<i>6.3.1 Collective Actions for Resource Conservation</i>	<i>119</i>
<i>6.3.2 Towards a Collaborative Resource Management</i>	<i>122</i>
6.4 INSTITUTIONAL LINKAGES	124
<i>6.4.1. Upwardly Accountable Decentralisation</i>	<i>124</i>
<i>6.4.2 Institutional Linkage in Phou Phanang</i>	<i>125</i>
6.5 BEYOND THE IMPASSE	127
CHAPTER 7 POLITICAL ECOLOGY OF FOREST CONSERVATION IN LAOS.....	129
7.1 DEFINING SPACE.....	129
7.2 POLITICAL ECOLOGY OF PROTECTED AREAS IN LAOS.....	130
7.3 IMPLICATIONS OF THE RESEARCH	131
REFERENCE	134

List of Figures and Tables

Figures

- Figure 1.1 Map of Laos**
- Figure 1.2 Export Trade 1972 -1992**
- Figure 1.3 Export Trade 1994 - 1999**
- Figure 2.1 Territorialisation**
- Figure 2.2 Political Ecology Framework**
- Figure 2.3 Nested Scales of Resource Management**
- Figure 3.1 Forest Area in Laos: 1930**
- Figure 3.2 Population Migration**
- Figure 3.3 Biogeographic Units in Laos**
- Figure 4.1 Protected Areas in Laos**
- Figure 4.2 Stakeholders in Protected Areas Management**
- Figure 4.3 Villages in Phou Phanang National Reserve Forest**
- Figure 4.4 Forest Cover and Land Use in Phou Phanang**
- Figure 4.5 Stakeholders in Phou Phanang**
- Figure 4.6 Villages in National Reserve Forest**
- Figure 5.1 Ang Nhai Village**
- Figure 5.2 Village Population**
- Figure 5.3 Land and Forest Cover Map**
- Figure 5.4 Land and Forest Cover Change**
- Figure 5.5 Sources of Household Incomes**
- Figure 6.1 Eight Steps of Land and Forest Allocation**
- Figure 6.2 Typologies of Collective Resource Management**
- Figure 6.3 Institutional Linkages**

Tables

- Table 1.1 Forest and Land Areas 1989 and 1992**
- Table 3.1 Forest Area in French Indochina**
- Table 3.2 Forests Classification in French Indochina**
- Table 3.3 Timber Export 1966-1974**
- Table 3.4 Thai, Lao Customs Data**
- Table 3.5 State Forest Enterprise**
- Table 3.6 Provincial Forestry Enterprise**
- Table 3.7 Land Use Map 1972/1973**
- Table 3.8 Forest Areas 1980**
- Table 3.9 Forest Areas 1982 - 1989**
- Table 3.10 Ecological Zones and Conservation Area Selected by Jule Vidal**
- Table 3.11 IUCN Category of Protected Area**
- Table 3.12 List of National Reserve Forest in Laos**
- Table 4.1 Timeline of Forest Management Policy**
- Table 4.2 Size of Protected Areas**
- Table 4.3 Biodiversity Significance of the Protected Areas in Laos**
- Table 4.4 Overall Management Score of Protected Areas**
- Table 4.5 Management Priority and Progress Scores**
- Table 4.6 Villages in Phou Phanang**
- Table 4.7 Types of New Villages**
- Table 4.8 Villages in Phou Phanang and LFA**
- Table 5.1 Land and Forest Use History in Ang Nhai**
- Table 5.2 Land and Forest Changes**
- Table 5.3 Land and Forest Changes: 1952-1981, 1981-1998, 1998-2000**
- Table 5.4 Numbers of Farming Households**
- Table 5.5 Average Household Income**
- Table 5.6 Household Rice Production**
- Table 6.1 List of Organisations involved in LFA**

Table 6.2 Criteria for Partnership
Table 6.3 Stakeholders in Phou Phanang
Table 6.4 Institutional Mislinkage

ABSTRACT

Access to forest and the use resources has long been contested locally given its rapid deterioration that bears significant impact on the global environment. The Lao People's Democratic Republic (Laos) is a landlocked country located in mainland Southeast Asia, which has been long known for its bountiful forest and forest products. However, disruption caused by war, coupled with political insecurity and economic transition in the last five decades, has inflicted rapid deterioration of the once rich forest.

Since the early 1990s, as Western assistance began to return to Laos, forest management rapidly became institutionalised. A new notion of scientific forest management was introduced, together with the notion of demarcating areas as national reserves for biodiversity conservation. Throughout the 1990s, the government developed legislations strengthening state control over natural resources.

However, as forest was newly categorized, conflicting claims over scarce resources began to emerge. While forest reserves designated by the state contained areas of forest for protection, local people continued to access and use forest resources on a *de facto* basis. While state policy spells out boundary as a fixed, definitive line that is detached from the surrounding landscape, local communities continued to hold on to their own sense of boundary, which is indefinite, flexible and often an extension of the surrounding landscape. While current forest management in Laos encourages local participation in forest management it has not fully reconciled the perception gaps.

The current research examines the political ecology of forest management in Laos, by reviewing how the definition of "forest" evolved over the course of five decades in Laos. In particular, I will review how state definition of forest evolved by reviewing the history of forest management in Laos and examine measures that were employed by the state to standardise the management of forest resources, also referred to as a process of state simplification.

In the meantime, the current study also focuses on local definition of "forest" and how local people perceive the new forest management policy through a case study in a protected area located in northwest Vientiane Municipality. The political ecology analysis of protected forest area looks into the history of resource use and the institutional linkages that shape forest management in protected areas. This approach allows us to understand the constraints of the current conservation policy which tends to undermine not

only the local perception of forest and their customary ways of resource management by isolating villages that shared resources in the past, but also undermines their capacity to make decisions over resource use.

PREFACE AND ACKNOWLEDGEMENT

Years have passed since a yearning for grounded fieldwork and real life learning experience in the field of “development” had led me to the mountains and valleys of Laos. What awaited me in Laos nearly 7 years ago was a world full of vivid colours and smells beyond what conventional textbooks and readers on development could explain as a state of the poor developing countries. Since then, I have devoted much of my time in the field filled with dilemmas of economic development.

My understanding of the country’s rapidly transforming landscape and its effect on rural lives were developed through my experiences of working with the Faculty of Forestry at the National University of Laos (NUOL) which began in November 1999. The opportunity to work with the faculty through a community-based natural resource management research project funded by the International Development Research Centre (IDRC) of Canada had been an ideal occasion to develop my understanding of the natural resource management issues in Laos, but also essential to understanding the politics that was shaping the country’s resource management.

While facilitating research trainings for the academic faculty members of the university, I had benefitted from communications with resourceful academics that partook in the project including Phil Hirsch, Peter Vandergeest, Penny Vanesterik, Chusak Wittayapak and Jefferson Fox who are leading scholars on the issues of political ecology and natural resource management in the mainland Southeast Asia. I am also greatly indebted to Stephen Tyler who is the programme officer on Community-based Natural Resource Management program at IDRC, who allowed me to work on the project for two phases continuously.

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Yayoi Fujita

ACRONYMS

ADB	Asian Development Bank
ADS	Agriculture and Development Service Group
BPKP	<i>Bolisat Pathanā Khet Phou Doi</i> (Highland Development Company)
CBNRM	Community Based Natural Resource Management
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPAWM	Centre for Protected Areas and Watershed Management
DAFI	Development, Agriculture and Forestry Industry
DAFO	District Agriculture and Forestry Office
DANIDA	Danish International Development Agency
DFRC	Division of Forest Resource Conservation
DoF	Department of Forestry
FAO	Food and Agriculture Organisation of United Nations
FINIDA	Finland International Development Agency
GEF	Global Environmental Fund
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
ICDA	Integrated Conservation and Development Approach
ICDP	Integrated Conservation and Development Programme
IDRC	International Development Research Centre
IUCN	The World Conservation Union
Lao PDR	Lao People's Democratic Republic
LSFP	Lao-Swedish Forest Program
MAF	Ministry of Agriculture and Forestry
MMSEA	Mountainous Mainland Southeast Asia
MRC	Mekong River Commission
NBCA	National Biodiversity Conservation Area
NGO	Non-Governmental Organisation
NOFIP	National Office of Forest Inventory Programme
PA	Protected Area
PAFO	Provincial Agriculture and Forestry Office
PFE	Provincial Forestry Enterprise
RFD	Royal Forestry Department
RLG	Royal Lao Government
SFE	State Forest Enterprise
SOE	State Owned Enterprise
TFAP	Tropical Forest Action Plan
USAID	United States Agency for International Development
UNDP	United National Development Programme
UNIDO	United Nations Industrial Development Organisation
WB	World Bank
WCS	Wildlife Conservation Society
WWF	World Wildlife Fund

CHAPTER 1 FOREST AND THE PROBLEMATISATION OF FOREST MANAGEMENT

1.1 INTRODUCTION

"...Nature has her lovers, and those alone who have tasted them know the joys she gives. I candidly confess that I have never been more happy than when amidst this grand and beautiful tropical scenery in the profound solitude of these dense forests, the stillness only broken by the song of birds and the cries of wild animals; and even if destined here to meet my death, I would not change my lot for all the joys and pleasures of the civilised world (Mouhot 1862, p278)."

As account of the French explorer, Henri Mouhot, travelling through the northern part of Laos during the late 19th century tells us, the forest in Laos had been known for its richness for centuries. Forests had not only provided wealth of products to the lords that ruled the countryside of Laos, but also provided buffer against the neighbouring kingdoms. However, the significance of forest began to change as Laos became incorporated into the local political and economic dynamics.

During the long years of war in Indochina between the 1950s and 1970s, forest also offered refugee and economic wealth to the warring forces. In the aftermath of war, extraction of natural resources, particularly timber, was the primary source of wealth. State control of forest resources and extraction of natural wood accelerated during the 1980s, as Laos became integrated into the regional economy. Meanwhile, increasing global concern over the tropical forest degradation instigated a need to strengthen forest conservation in Laos. Since the late 1980s, sustainable use and management of forest resources has become a key agenda in the government policy.

The main objective of the current thesis is to review the development of forest management and conservation policy in Laos. Forest management was rapidly institutionalised in the 1990s reflecting the global concern on tropical forestry. In order to understand how forest management institution developed in Laos, it is necessary to understand the factors and events that promoted the development of forest management. It also is necessary to understand why forest resources have been exploited, by whom and

how. These questions will help to develop a clear understanding on the economy of forest resource, and how government policy was shaped regulating the resource use practice in Laos.

In addition to the development of state policy, the current research will further explore narratives and meanings of forest management and conservation, and how these narratives and meanings developed over the course of history influencing the institutional development.

The current study reviews a case of national reserve forest or protected area in central Laos, Phou Phanang National Reserve Forest (Phou Phanang), in order to understand how the management of natural resources in the area developed over time, and how this affect the local resource use practices. The case study aims to illustrate the compatibility of formal institution with the local institution that regulate access and use of forest resources.

The current study also examines factors that affected resource use change, and the problems pertaining to overlapping resource boundary and resource tenure in a village located in Phou Phanang. The dynamic aspect of resource use change is studied by combining spatial analysis with historical analysis. Historical understanding of resource use change in a village elucidates the missing linkage between formal and informal institutions that inhibit “sustainable” forest management today.

Finally, this thesis aims to understand the source of collective action in forest management by examining the decentralised forest management practices in Laos. In particular, I review the extent of decentralisation through the Land and Forest Allocation policy, and through internationally supported forest management projects such as “Village Forestry” and Joint Forest Management.

1.2 DEVELOPMENT OF FOREST MANAGEMENT, AN OVERVIEW

Riches of the forest in Laos, a landlocked country in the mountainous Southeast Asia (Figure 1.1), had been long known prior to the French intervention in the Indochina. Chinese courts received riches from the forests of Laos as tribute, predating European arrival to the region. Tributary trade flourished particularly during the period between the 15th and 17th centuries, as different types of aromatic woods, tree resins, and wildlife products were traded widely across the world (Reid 1988; Donovan 2002). In particular, forest products from Laos such as eaglewood, sappanwood, sandalwood, benzoin, cardamom, and rattan

were highly prized in China as well as in the Middle East (Osborne 2001; Donovan 2002).

Accounts of early French explorers including Mouhot (1862) and Neis (1884) who had travelled across Laos vividly describes the richness of forest and abundance of natural resources, that often mesmerised them but also inhibited their expedition. Izikovitch (1979) who conducted the first ethnographic study in northwest Laos in 1936 also wrote how forest was relatively dense, and covered the upland areas unlike in other parts of French Indochina. Given Laos's sparse population and lack of transportation routes, the colonial administration did not encourage timber extraction in Laos¹. Tin was by far the most attractive resource that was extracted from Laos by the colonial administration (Robequain 1955). Meanwhile, teak forests in northern Laos remained under the control of the royal household.

Commercial timber extraction in Laos did not prosper until the mid 20th century. Commercial logging began to spur particularly during the 1960s as international organisations and bilateral agencies began to support the development of forest industry (USAID 1970). Unregulated logging particularly became rampant, as the military forces of the Royal Lao Government (RLG) operated timber extraction along the Mekong River. Timber trade declined briefly following the establishment of the social government in 1975, particularly as the Thai government sanctioned trade activities. However, timber became the principle engine for the national economic growth in the early 1980s. Forest was nationalised and timber production was promoted through state and provincial forest enterprises (Persson 1983). This was also supported by the international and bilateral assistances including the Asian Development Bank (ADB), the former socialist countries in the Eastern Europe, as well as countries such as Sweden, and Australia (Burley 1982).

As shown in Figure 1.2, export production of timber and wood increased significantly following the liberalisation of the market in 1986. This was due to increasing integration in the regional market, which was facilitated by improved regional political stability and the economic policy change in Laos. Volume of timber export also increased in the late 1980s as logging was banned in Thailand (Leungaramsri and Noel 1992). Timber and wood export continued to increase up to the mid 1990s accruing more than 50 percent of the national economy (Figure 1.3)². However, since 1995, the share of export earnings from timber and

¹ Most of the valuable timber species were extracted from Cambodia and Cochin-China (Southern Vietnam).

² Logging was regulated in Laos in 1991; however, illegal logging continued. While the incidence of illegal logging is difficult to assess,

wood began to decline as other industries including garment factories and motorbike assembly factories began to increase export production.

The notion of environmental protection and conservation was particularly heightened during the First National Forestry Conference, which was convened in Vientiane in 1989. The Conference became a turning point for forest management in Laos, as the importance of forest resources to the national economy and to the local communities were emphasised (MAF 1989). During the Conference, the Ministry of Agriculture and Forestry particularly called for a need to protect natural environment of the country, particularly through state control of logging and shifting cultivation in the upland areas. Following the Conference, Laos signed an international agreement on tropical forest conservation. This had led to an organisational restructuring and rapid development of new legislations and rules on natural resource management.

The new forest management emphasised on scientific forest management. This was encouraged following the first national forestry survey or the First Nationwide Forest Reconnaissance Survey conducted in 1989, which was carried out by the National Forest Inventory Programme Office (NOFIP) under the Ministry of Agriculture and Forestry with the assistance of the Swedish International Development Agency (Sida)³. The Survey used aerial photos from 1982 and 1989, and classified forest cover and land use types in order to compare the changes that occurred between the two time periods (Manivong and Sandewall 1992).

As a result, the Survey introduced a whole new forest classification system in Laos based on forest cover and land use⁴. The Survey also reported changes in forest area based on the new classification system. According to Manivong and Sandewall (1992), an area of forest classified as “Current Forest”⁵ decreased from 49 percent to 47 percent of total land area between 1982 and 1989 (Table 1.1). The Survey also

the report by Tropical Rainforest Programme in 2000 attest the falsification of timber exports in Laos by comparing the official export-import records in Laos and in Thailand. The report claims that the Asian economic crisis in the late 1990s did not slow down timber export from Laos, but instead encouraged Thai industries to stockpile whatever wood they can collect.

³ The French had also conducted a forest survey of Indochina in 1930, however, due to inaccessibility survey in Laos it was far from complete. During the 1960s, the US in collaboration with Canadian experts and Lao foresters had also conducted forest survey in three regions, Vientiane, Savannakhet and Pakse. National inventory and survey was inhibited due to wartime disruption.

⁴ The French had introduced a forest classification system across the Indochina in 1930 (Figure 3.1); however, this was essentially based on volumes of commercial tree stand. As the rugged terrain inhibited commercial route from Vietnam and Cambodia to Laos, timber from Laos was little exploited by the French colonialist.

⁵ “Current Forest” is defined any area of forest with crown density more than 20 percent, however, forest plantation is excluded from this category.

indicated regional differences in forest cover and land use changes. The rate of deforestation in the northern region was 5.4 percent (Current Forest), which was faster compared to the central (4.8 percent) and southern region (2 percent). Finally, the Survey had a significant impact on forest management, as it was used to define and delineate resource boundaries on a map. In particular, the results of the survey had helped to identify conservation forests across the country (Berkmüller et al. 1995).

Thus, the decade following the First Forestry Conference in Laos had been a period of rapid institutionalisation of forest management. A strong emphasis was placed on the “sustainable management” of forest resources that assured continued use of forest resources, but also that protected biodiversity of the natural environment. This was a significant transition from the state control of forestry that focused on maximum utilisation of natural forest resources without sustainable yield management.

After 1989, new legislations were issued and organisational structure of the forest management was reformed to implement the new forest conservation policy. The Ministry of Agriculture and Forestry was authorised as the executive organisation in natural resource management. The organisational restructuring also strengthened the Department of Forestry, which was reorganised to implement conservation and sustainable forest management throughout the country. Science, Technology and Environmental Organisation (STENO, which was transformed into Science, Technology and Environmental Agency or STEA) was also established under the Prime Minister’s Office to coordinate national agencies on environmental protection.

Increased government efforts to conserve forest resources concurred with rapid development and economic growth in Laos. While correlation between economic growth and environmental conservation is often discussed using an “inverted-U curve,” where improved economic growth leads to a decline of environmental degradation, the case of Laos indicates that economic growth is not the primary factor that reduces environmental degradation. Reduction of environmental degradation requires an institutional and social development that regulates detrimental effects on natural environment. However, this requires an understanding of how institutional and social development takes place at formal and informal levels, what are the sources of institutional and social development, and what means are employed to regulate detrimental use of resources.

It particularly becomes pertinent to examine the institutional development process by considering the transition of property regime: from open access property with weak formal institution in the colonial period, to a period of open access with no effective institution during the period of war, to introduction of state property regime with weak formal institution, and finally to state property and community property regime in co-existence with one another. Following the transformation of property regime in Laos allow us to see the dynamic process of institutional change. This also highlights that importance of factors other than economic and demographic changes that affect the outlook of property regime.

1.3 RESEARCH QUESTIONS

There are three main questions that are addressed in the current research:

- (1) How did forest management and conservation policy develop in Laos? What measures were employed by the government to address forest problems? Why?
- (2) What are the implication of conservation policy on local resource access and use? How do local people define resources and manage them? How are they affected by the designation of national reserve forests?
- (3) What institutional linkages are necessary for effective co-management of resources? What factors are missing in the current management of national reserve forests?

The first question aims to address the historical development of forest management and conservation policy in Laos. This will require an understanding on the political economy of forest resource and how this had shaped policies or formal institution that regulates forest resource use. Political economy focuses on the power structure and analyses interrelationship between economic process and political structure (Blaikie 1985 Peluso 1992; Keonuchan 2000).

In the current thesis, I will consider how political economy of forest resources affected its management. While changes in resource management institution are generally relegated to demographic and economic changes, the current thesis also delves into political changes and social factors that affected how resources

and access to resources are defined.

The second research question considers the implication of state policy or formal institution on forest resource management to the local resource access and use. In many cases, conservation policy implemented by the state instigates conflicts as it restricts customary resource access by force and by legal sanctions (Peluso 1992; Colchester 1994; Vandergeest 1996; Wittayapak 1996; Sato 2000). In the case of Laos, the conservation policy initiated by the state did not lead to violent conflict. However, legislations (Prime Minister Decree No. 164, Forest Law) proscribe local access and use of forest resources in the newly defined protected areas. While boundaries are arbitrary allowing local residents in the national reserve forest to continue their access and use of resources on daily basis, this has created a territory of ambiguity, in terms of tenure relations and spatial relations. The gap between local perception and legal definition of forest remains, and this is often at the basis of misunderstanding, conflict and mismanagement of resources in the national reserve forest.

Finally, the last question addresses the issue of effective resource management: in particular, the notion of collaborative resource management or sharing management responsibilities between different stakeholders. While the last decade of forest management had supported the co-existence of state controlled forest and community based resource management, management responsibilities and benefits have not been shared equally between the state authorities and local resource users. This requires review of decentralisation process that had been undertaken in Laos. Furthermore, it is also essential to consider how collective efforts to manage resources at the village level can be scaled-up to develop a collaborative resource management practice in areas such as the national reserve forest.

1.4 SCOPE AND METHODS OF THE RESEARCH

The scope of the current research is to review the development of forest management and conservation policy in Laos since the early 1900s to understand the factors that affected institutional development of forest management. The current study particularly sheds focus in the last decade of institutional development by reviewing the development of forest resource management policy that had led to the creation of the protected areas in Laos. The scope of institutionalisation requires understanding of both

formal and informal institutions. Formal institution includes legislations and rules, as well as organisational structure that are established by the state authorities. On the other hand, informal institution is a code of conduct which is not written but mutually respected by a group of people. In the current study, local customary resource use practices that are unwritten but are adhered to is considered as the informal institution on forest resource management. As has been pointed out by North (1990), institutional change is a dynamic process which requires understanding of both forms of institutions and their interactions vis-à-vis actors or stakeholders.

Interaction between formal and informal institution is examined in the current thesis through a case study of national reserve forest (Phou Phanang) which is a protected area of forest designated under the Prime Minister Decree No. 164 in 1993 in order to conserve biodiversity and cultural heritage. I will also look into the situation of resource use in a village located in the national reserve forest (Ang Nhai Village). These case studies illustrates the changes in property regime, or how formal and informal institutions on forest management transformed over the course of last five decades. The village case study in particular highlights the difference between state definition of forest and local perceptions of forest, as well as customary resource management practices that are distinguished from that underlined by legislation.

The current research essentially takes political economy and political ecology approaches to understand the institutional development of forest management and conservation in Laos. While economic approaches have been undertaken by scholars to understand the problem of resource degradation and development of property regime, the case of Laos indicates that property regime was affected by multiple factors. For instance, political relations between different levels of stakeholders had significant impact on the outlook of forest management and conservation. Historical dimension also bears impact on how resource management policy is defined and justified by the state. Furthermore, in the case of Laos, long period of war and disruption had incurred a significant impact on population movement across the country and hence affected how the resources are used by different groups of people.

While political economy approach is used essentially to understand the structural foundation of forest management, political ecology approach is used to understand the historical dynamics of stakeholders and their interacting relationship with natural resources. It also focuses on the development of discourses and

narratives that influenced the outlook of development and resource management (Blaikie and Brookfield 1987; Escobar 1996; Bryant and Bailey 1997; Forsyth 2003). The political ecology approach allows a comprehensive understanding of resource management and its problems, particularly in the Third World context, as problems of resource management and use are not only regulated by the market, but shaped by varying factors emanating from its historical and political construct.

In order to conduct historical and structural analysis, I have referred to varying secondary resources that were often scattered. References include the accounts of the early French explorers, official records, project reports, policy papers, legislations and maps. These references were not only reviewed to understand the evolving structure of forest management in Laos, but also to understand how forest was perceived in each time period, what values were associated with forests, as well as how forest conservation was defined and implemented. One of the main focuses in the current thesis is to understand how national reserve forest or *pā saguan haengxāt*⁶ was created by the government policy vis-à-vis interaction with the global interest to conserve the tropical forest⁷.

Given the limitation of access to consistent set of secondary references, oral history of resource users had been particularly important in reconstructing the process of resource change. Oral histories were collected from both formal and informal interviews with stakeholders including villagers, local resource managers, central government officers, and private investors that related to Phou Phanang's resource use. Oral histories not only provide an account of events, but also reflect the individual's relative identity in the historical setting.

In order to examine the interacting relationship between different groups of stakeholders involved in the management of protected area, I have applied stakeholder analysis. Stakeholder analysis is a way to assess groups of resource users, and their different interests over resources. It is also a practical approach more often used by development practitioners to better design the management of resources (Grimble and Chan 1995). The stakeholder analysis, which was conducted for the case for Phou Phanang in the current

⁶ With regards to the Lao terms used in the thesis, I refer to the romanisation used in the *Historical Dictionary of Laos* by Stuart-Fox (2001). However, as to the name of the places, I refer to the more commonly used spelling.

⁷ This is literally translated into "national reserve forest." However, different organisations and forestry experts interchangeably use "national biodiversity conservation area (NBCA)" or "protected area," as the main purpose of designating *pā saguan haengxāt* is for biodiversity conservation.

research is based on a review of secondary data including project reports and policy papers, and interviews with different members of the Department of Forestry, staffs from Provincial and District Agriculture and Forestry Offices (PAFO, DAFO).

Stakeholder analysis identifies stakeholders in forest management, as well as their interest or stakes in the resources. Daoroung (2000) who studied the interacting relationship between different levels of actors that were involved in forest management in the southern province of Laos claims that international organisations had a significant impact on influencing forest management policies (Daoroung 2000). This brings our attention to the global – national – local linkage in forest resource management.

In addition to the stakeholder analysis, I have incorporated institutional analysis to understand the linkages between stakeholders and the strength of linkages. Institutional analysis is referred to by Ostrom (1998) as an analysis that focuses on “how rules, physical and material conditions and community attributes shape action arenas and incentives faced by individuals, and hence how these conditions combine to determine outcomes (p68).” The analysis defined by Ostrom (1998) focuses its analysis of “action arena” or social space where individuals and different entities interact and exchange information as well as services and good with one another.

Institutional analysis can be conducted in a “participatory” manner involving the stakeholders themselves to analyse the relationship between them. For instance, tools such as Venn diagrams, network diagrams, decision-tree, and flow-charts can be used to analyse the nature of relationship among the stakeholders. Other tools include organizational analysis, actor-network analysis and so forth (Environment Entitlement Research Team 1997). In the current thesis, I have applied the institutional analysis based on the field interviews to understand the formal and informal linkages between different levels of stakeholders in managing Phou Phanang National Reserve Forest.

1.5 OUTLINE OF THE RESEARCH

In the following chapter (Chapter 2), I will first discuss the key issues in forest management and explore the context of forest management and conservation in Laos. The Chapter 3 reviews the forest management and conservation policy in Laos since the French colonial intervention, which takes us back

to the early 1900s. I will particularly examine how definition of “forest” evolved over the course of history and what actions were taken (or not taken) by the state as well as the external agencies to manage forest and land resources in Laos. Then, Chapter 4 investigates the history of protected areas in Laos, and the institutional linkage of its stakeholders. In particular, a case of Phou Phanang located in central Laos will be closely examined.

Chapter 5 offers an in-depth review of dynamic resource use change in a village located in Phou Phanang, and highlights the issue of overlapping resource boundaries and complex resource tenure from historical and socio-economic perspective. The village study offers the dynamic aspect of resource use change, which calls our attention to the local history of resource use and management. Then, in Chapter 6, I explore the notion of collective action for better forest management. In particular, I will review the decentralised forest management, which is being promoted through the government’s new policy, the Land and Forest Allocation, and through externally supported forest management projects such as “Village Forestry” and Joint-Forest Management (JFM). Finally, the last chapter of the thesis provides a synthesis of ideas to facilitate a kind of forest management practice in national reserve forest such as Phou Phanang that can be based on the existing foundations of local resource management.

CHAPTER 2 RESEARCH FRAMEWORK

Efforts to conserve forest or to improve the management of forest resources are defined and shaped in correspondence with development, and socio-economic changes. Forest resource signifies both forest land and natural resources found on forest land. Conventionally, population growth, economic changes and technology are considered as the main factors that affect forest land and resource use. These factors affect resource use not only directly, but also affecting institutions that regulate resource use. Institutions include both formal institutions which is often defined and implemented by the state authorities and informal institutions which is often defined and adhered to by members of local community. While the formal institution may be legible to the state authorities, the informal institution on the other hand is often unwritten and illegible in the eyes of the state. Understanding how conservation policies evolved over the course of history will thus require a comprehensive understanding of how formal and informal institution on resource management had interacted with one another.

In this chapter I will elaborate on the research framework. In the following section, I will first discuss the key issues in conservation and development, which will be considered throughout the current thesis. This will be followed by a presentation of conceptual framework, and the main methods of analysis used in the current study. Finally, I will share some of the limitation faced in this study in the final section of this chapter.

2.1 CONSERVATION AND DEVELOPMENT, KEY ISSUES

There are three key issues in forest conservation and management that will be discussed throughout the current thesis. The issues include evolving definition of conservation and development, state control of forest resources and community based resource management. Conservation is an effort to secure the wide use of resources and to guarantee the continuity of supply while maintaining and possibly enhancing the quality, value and diversity of the resources (Allanby 1993, quoted in Elliot 1996). Conservation is also a set of institution or rules of conduct that regulate how resources are used and managed by human beings. Conservation requires an object in need of careful use: for example, a certain type of natural resource or a

whole system of natural resources. It also requires knowledge and understanding of the condition of natural resource or a system of natural resources, and access to technology that encourages conservation of the resources.

The decision to conserve resource and how, is affected by the importance of resources to the society. It is often when the resource becomes scarce, and its absolute and relative value increases that an act of conservation is undertaken or called for by a group of people in the society. While the problem of resource scarcity has been discussed extensively by social scientists including the economists, there still remains a question of who defines “conservation” and how. Understanding the definition of conservation requires a historical review of discourses on conservation and development. This is because the definition of conservation has also changed historically given the changing outlook of the resources to the society.

In the following section, I will first review discourses on conservation and development: how they developed and how they affect or shape forest management practices. This will be followed by a discussion on the state control of forest and resources. In particular, I will consider questions: How is conservation justified and implemented by the state? What measures are employed to exercise state control of resources?

Then, the final part of this chapter will discuss the community and its resource management practices. Many scholars have challenged the “tragedy of the commons” elucidated by Hardin (1968) and instead brought attention to the strength and effectiveness of community to mitigate the problem of resource degradation. Yet, recent studies on common properties and collective action raise questions about the diversity of community, as well as non-economic factors such as leadership and trust that affect the outlook of community resource management and collective action.

2.1.1 Forest Conservation: Evolving Discourses of Conservation and Development

Forest conservation in its narrow sense is a state intervention to regulate human access and use of forest in order to protect forest ecology and its resources from further deterioration. Based on the narrow definition, state is the central agent that defines the rule of conduct that regulates the access to resources. Studies indicate that state control of forest resources particularly in tropical zones where influence of

colonial forestry had been strong evolved from species and labour control, towards territorial control of forest resources through use of scientific forest management or forest management based on vegetation (Peluso 1992; Vandergeest 1996; Bryant 1997; Leungaramsri 2002). It has often been the case, where community's own practices to conserve forest resources under informal institution are undermined in the state led conservation policies (Peluso 1992; Ganjanapan 1996; Wittayapak 1996). Worse yet, Fairhead and Leach (1996) claims that forest policies can "misread" the local landscape and marginalise the local communities.

Beyond the economy of forest resource use, conservation policies are shaped by the global politics as well as the mainstream perception on what is defined as "nature." Colchester (1994) views that mankind's distinction from nature is an idea rooted in the Western civilization. Nature was considered "wild and untamed," and was thus often feared. It was then considered a mankind's role to tame and conquer the wild nature through development. Elliot (1996) also note that the Western forest management developed from a stage of unregulated exploitation of forest towards a stage of protective custody of forest, and finally to a stage of forest conservation.

Leungaramsri's (2002) study on conservation policy in Thailand claims that forest was traditionally perceived as disorderly and uncivilised realm. It was also related to supra-natural and spiritual beliefs, and was adhered to as a place beyond human control. According to Leungaramsri (2000), "...the premodern Thai *pā* (forest) signified a landscape which was 'savage' and 'untamed,' peripheral to the centre of human power, a sacred and enchanted place made distant from human beings by feelings of fear, mysticism, and reverence." This notion of *pā* was rapidly transformed as economic value of hardwood tree, particularly teak, increased.

Eliot (1996) identifies four main paradigms of modern forest conservation that is at the foundation of global as well as national policies on forest conservation today. These paradigms include resource conservation, human welfare ecology, environmental preservation and eco-centrism or "deep ecology."

The first paradigm, resource conservation, is a technical and scientific approach to conservation that calls for prudent use of resources by classifying forests and distinguishing management plans under the guidance of trained professional foresters. The idea is particularly represented by an American forester,

Gifford Pinchot who opposed unregulated exploitation of forest resources and called for management of forest by trained foresters for the good of “the greatest numbers of people for the longest time (Peluso 1992, p7-8).”

On the other hand, the second paradigm, “human welfare ecology” appeals to social rights and welfare of protecting environment through public choice. Proponents of human welfare ecology claim for equitable access to resources, and bring attention to the recreational and ascetic values of natural resources. This paradigm calls for a wider notion of conservation for the public compared to the first paradigm.

The third paradigm emphasises on the preservation of selected biological species based on scientific choice. For example, the paradigm encourages creation of natural reserves and protected areas to preserve endangered species and biodiversity of the ecosystem. This paradigm is somewhat similar to the first paradigm; however, it particularly prioritises the protection of endangered species that bear scientific value to the humankind. Lastly, the fourth paradigm, eco-centrism or “deep ecology” goes further in prioritising preservation of species and biodiversity irrespective to human welfare. It rules out all kind of human activities that affect the consequence of the environment.

Except for the last paradigm or the “deep ecology” paradigm, which places natural environment in isolation from human intervention, the remaining three paradigms recognise the need for human involvement to regulate and to improve the quality of forest. However, priority of conservation differs in the three paradigms, as well as who implements the conservation, and how.

The importance of ascetic and recreational value of nature appreciated in the Western society in the late 19th century following the industrial revolution. It was during this period that nature’s value as a place of refuge to seek solace from the ills of civilisation emerged (Colchester 1994). Recreational value of the nature also increased, for example hunting, which led to creation of hunting reserves and regulating hunting activities. Meanwhile, careful management of forest or scientific forestry became an imperative during the 19th century as the Western societies experienced forest degradation and shortage of wood supplies. Sustainable forest yield management was introduced by the Germans during the early 19th century, which soon became a model of forestry not only applied in Europe and in America but also in the Third World countries (Bryant 1997; Scott 1998).

The Western model of forestry or scientific forestry had borne a significant impact on the forest management in the Third World countries as the colonial expansion occurred. Colonial government applied scientific forestry that classified forest areas based on vegetation and tree stand, and outlined ways to manage different areas of forest and its resources by enforcing laws and regulations that often limited local people's access to forest and undermined local people's knowledge of resources. For example, Fairhead and Leach (1994) accounts that colonial forestry in Guinea, prioritised forest conservation to stop expansion of savannahs, however, this came in conflict with local people's practice to retain a regular cycle of fallow by burning the forest. Colonial forestry also prioritised controlling of species and forest labour as the colonial interest was focused on the extraction of commercially valuable natural resources (Peluso 1992).

It was not until the 20th century that notion of creating wildlife sanctuaries and national park for the protection of ecological value became the mainstream notion of conservation. The notion involved delineation of "protected areas" or national parks and wildlife sanctuaries that restricted all human activities within the designated boundary including encroachment, conversion into non-forest land, logging, hunting and so forth. This is referred to as the "fencing and fining" approach, where area of forest was secluded and blocked from the surrounding landscape and placed under the control of forest management authorities (Wells and Brandon 1996). The approach had been less than successful in the Third World countries with weak institutional foundation. National agencies often had difficulties to enforce strict forest management as it inflicted conflicts with local resource users particularly when economic value of the resources were high, and there was increasing population pressure in areas outside of the national parks. The approach also turned local residents who traditionally accessed and used forest resources into "squatters" on state land. These people were often blamed as the culprit of environmental degradation (Colchester 1994). Furthermore, they were not only excluded from accessing resources, but relocated.

By the beginning of the 1980s, growing numbers of environmental organisations called for a linkage between environmental protection and economic development. The importance of involving local people in the management process was emphasised during the World Congress on National Parks held in Bali,

Indonesia in 1982. Increased focus on achieving a balance between conservation and development had led to the idea of “buffer zone” management. “Buffer zone” is described as an area of land immediately adjacent to and often surrounding areas of high conservation value. Buffer zone management was introduced in order to distinguish areas with local economic value from areas with high conservation value or “core areas and to allow continued but regulated use of forest resources by local residents in the “buffer zones.” The long-term goal of identifying buffer zone is to decrease local dependence on forest resource by developing alternative economic opportunities for the local residents.

Integrated conservation and development projects (ICDPs) quickly proliferated as the mainstream approach to manage” protected areas” during the late 1980s. While protected areas were initially envisaged to protect biological diversity, increased attention was paid to recognise the multiple use of protected areas and allowing controlled human use of resources in protected areas by applying “buffer zone” management. ICDPs aimed to promote “environmentally sound economic activities in or near natural habitats (Southgate 1998, p xii).” For example, it encouraged natural resource management outside of protected areas, provided social services to the local residents, developed eco-tourism, developed infrastructures and market access, and provided direct employment opportunities for the local residents. However, Wells and Brandon (1992) who evaluated 19 protected areas around the world concluded that most ICDPs were far from successful, as they were highly dependent on external funding and technical support. The weak institutional capacity of the local authorities also inhibited effective forest management outside of buffer zones (Wells and Brandon 1992, p10).

Furthermore, Neuman (1991) critically refers to cases of buffer zone management in Africa and claims that buffer zone extends state authority to control local resources by underwriting customary rights and local resource management practices. Sato (2000) who reviewed a case of nature reserve in Thailand refers to Scott (1992) and also claims that designation of nature reserve is a form of state simplification or a process that makes forest management “legible” to the society by using simplified classification and administrative procedures. Sato (2000) also stresses that national parks and wildlife sanctuaries often confiscate local lands and undermines local people’s resource access in the name of “conservation.” Leungaramsri (2002) further reviews the historical development of forest conservation in Thailand and

illustrates how rhetoric of “conservation” was manipulated by the state vis-à-vis national interest in the economic value of the resources.

Thus, we see that the mainstream definition of forest conservation had evolved in the last century, from that focusing on the control of species to protection of ecosystem, and from technical approach that excluded local residents, to a more people inclusive conservation represented by buffer zone management and ICDPs. Discourses on forest conservation were not only shaped in the global arena but also shaped in each country reflecting the national interest. In the case of the Third World countries, colonial control of forest resources had laid the foundation for its forest resource management. Introduction of scientific forestry had particularly facilitated the development of new notion of forest as economic resource, and led the development of institutions that allowed the state to control forest resources.

The increasing global concern over tropical deforestation in the last decades had also affected the conservation policy of the Third World countries as “protected areas” were introduced by international environmental organisations, which distinguished resource boundary and restricted human access to resources. However, the notion of “protected area” and how it should be managed had also been subject to transformation vis-à-vis changes in development paradigm. Increased recognition of “sustainable development” and “participatory development” through out the 1970s and 1980s had led to the notion of balancing conservation with economic needs of the local residents in protected areas, and involving local residents in resource management as an active caretaker or “environmental steward.” These paradigms are also adopted by the national government, and affects local resource users as they are incorporated into the state forest management and conservation policy.

2.1.2 State Control of Resources: Territorialisation and Mapping

As we have seen, conservation in a narrow sense is a set of institution that calls for prudent use of resources today in order to avoid environmental degradation in the future, and to improve the quality of the environment. However, as we have seen, the notion of conservation has developed over the course of history. In the case of the Third World countries, colonialism and emergence of modern nation state had a significant impact on the development of state forest management. Scientific forestry, which was

developed in the West, was particularly incorporated into state resource management policy, as the economic value of forest resources increased. This required the modern state to strengthen its control over resources access and how resources were used.

The process by which the state gains increasing control of resource management by demarcating resource boundaries and enforcing a control over resource access and use is referred to as state “territorialisation” of resources (Vandergeest and Peluso 1995; Vandergeest 1996a). State “territorialisation” is distinguished into two types including external and internal territorialisation. Winichakul (1994) carefully observed the development of the modern nation-state in Thailand and illustrated how the concept of territoriality became an important part of the state governance. The external territoriality was particularly facilitated by the introduction of the Western mapping technology during the late 19th century. The mapping technology, however, was not only used to distinguish the modern state’s external territoriality, but also applied within the country to define clear resource boundaries. This is referred to as the “internal territorialisation.” The notion of clear, distinguished boundary was a significant disjuncture from the pre-colonial sense of boundary, which was often elusive and overlapping with one another. Internal territorialisation not only distinguished territorial space and resources, but was also accompanied by set of restrictions on activities conducted in each space (Figure 2.1). The act of territorialisation is defined by Peluso and Vandergeest (1995, p 388) as an act of “excluding or including people within particular geographic boundaries, and about controlling what people do and their access to natural resources within those boundaries.”

By the early 20th century, notion of territoriality was distinguished from the pre-colonial political relations in Southeast Asia where boundaries of the kingdom overlapped and local lords paid multiple tributes to neighbouring overlords, resembling what Stuart-Fox (1996) calls *mandala* like political space. This was essentially due to increasing colonial expansion in the region, and also due to emerging sense of modern statehood. As state boundaries were formalised, administrative boundaries were distinguished. This was also accompanied by increased institutionalisation of state administration: for example, development of legislations and laws, and tax systems. According to Scott (1998), such efforts by the state to develop institutions which regulate people and resources are a form of state simplification. It is an act to

make the management process legible to the state. For instance, development of uniform map visualises the state's claim over territory and resources. The legibility of the state claim is further strengthened by the development of legislations and institutions that define how resources are accessed and used.

Understanding the process of internal territorialisation requires reviewing of modern state history and how institutional development had taken place. Vandergeest (1996) had reviewed the process of territorialisation in Thailand and distinguished internal territorialisation into three steps. The first stage of territorialisation began in Thailand during the late 19th century. The Royal Forestry Department (RFD) was established to regulate the British monopoly over teak as increased economic value of hardwood instigated competitive use of resource. In order to resolve conflicts, all unoccupied forestland was placed under the jurisdiction of RFD.

Vandergeest (1996) claims that the second stage of territorialisation emerged in the 1930s, as the state exercised its territorial control by designating areas of reserve forest. This stage particularly emphasised on the control of resource access and use. Finally, the third stage of territorialisation occurred as scientific classification of forest was reintroduced and applied throughout the country. This is distinguished as a stage of "functional territorialisation" as forests were reclassified, and its functions were prescribed by the state.

The process of internal territorialisation is thus understood as a process by which the state designs nation's space, and fix people's activities within the territorial space. In Southeast Asia, territorialisation process reflects the development of modern states, and changing economic and political importance of the forest. For example, Leungaramsri (2002) illustrates the development of conservation policy in Thailand as a product of socio-economic transformation linked to the modernisation of the country. Emerging economic importance of natural resources provoked a new meaning of conservation, and assigned new functions to the landscape through institutionalisation of forest management.

Scholars also note the influence of mapping technology and scientific classification introduced by the West on how the state developed its territoriality and gained control over resources. The study by Fox (2002) in Cambodia which examines the development of modern nation state and its concept of space claims that the introduction of the new mapping technology was so powerful that it overwhelmed the

customary claims for resources, and invigorated the process of nationalising territorial claim over space rapidly at the end of the 20th century.

It is also important to note that mapping technology, which provided a tool for the state authorities to make a legitimate claim over resources in the past, has become increasingly accessible to wider reaches of the society. Unlike in the late 19th century, the modern mapping technology (or geomatics) is now cheaper, user-friendly, and versatile compared to mapping of the colonial period. Mapping is no longer a technology limited to national research institutions and government agencies, but increasingly used by grass-root organisations and rural villagers to distinguish their customary resource boundary (Poole 1995).

When the customary resource mapping is linked with the process to legitimatise local people's rights over resource, the process is particularly referred to as "counter-mapping" where the main objective of the mapping is to counter the state dominated control of resources (Momberge et al. 1996). Such "counter-mapping" or community mapping increasingly gained precedence during the 1980s, as participatory resource management became widely recognised. Counter maps are created by collecting information on community's access to resources. These often captured initially as sketch map, and are geo-referenced to existing topographic maps using geographic information system (GIS). The process of developing counter maps is explained by Fox (1998) as a process to relate groups of individuals to landscape, and their history to the landscape using spatial technology.

Counter mapping is perceived as an effective tool to document local people's customary ties with resources (Peluso 1995). Mapping allows local people to visualise their claim, and provide them with a tool to communicate and negotiate with government agencies and others over their claim of resources. Counter mapping thus legitimatise local people's claim over resources in ways that can be communicated to the authorities. It particularly allows people to understand "why we are where we are (Fox 1998, p4)." Momberg et al. (1996) also stresses that the importance of counter mapping as a process that strengthens local people's ability to "communicate their perception of land rights and resource management systems with the government and contribute to the process of resolving conflicts (p4)" by involving local people in the mapping process.

While the idea of counter-mapping or mapping by the communities gained a wide currency among

development organisations and policy makers in the last two decades, it is not without concerns. In particular, mapping tends to fix or freeze communities' resource boundaries and confines communities' access to defined space (Peluso 1995; Walker and Peters 2001). Peluso (1995) warns that fixing boundaries loses the flexibility of customary resource use and access. She claims that customary resource use practices are dynamic and variable. It is also adaptive, and allows adjustments according to the prevailing situation. While counter mapping can be effectively used to claim customary access to resources, maps should be flexible so that local people can renegotiate the terms of resource use and change the maps accordingly whenever the need occurred. Unless, otherwise, mapping will "freeze" community's ability to access and use resources as the state territorialisation had imposed restrictions upon them.

Furthermore, Walker and Peters (2001) who reviewed cases in Malawi points out the need to focus non-territorial resource rights such as rights to collect fruits and other tree products. Their research also contends that customary resource rights over non-territorial resources are also subject to change. Thus, it must be understood that what is included in the map and how territorial boundaries are delineated, whether it is a map drawn by the state agency or the villagers, is a representation of prevailing circumstances, which also reflect power relations between the state and local people, and their interests over resources.

Thus, the development of state control of resources can be explained through a process of territorialisation. Formal institutions on forest conservation developed reflecting the economic and political importance of the forest. Colonial interest in natural resource extraction had a significant impact on the foundations of state resource management in Southeast Asia. The emerging modern states adopted new mapping technologies and scientific forestry to develop a systematic forest management that was essentially legible to the state. Scott (1998) argues that state simplification tend to force situation into a uniform unit of measurements often failing to capture the complexities and diversities experienced by the local people. This has often been at the source of resource conflicts particularly as local people were well equipped to define and justify their claim for resources in manners that were legible to the state (Scott 1998; Sato 2000). However, as we have seen, use of modern mapping technology, particularly GIS, had facilitated community counter mapping, which equips the local people with a tool to define and negotiate their legitimate claim for resources. This now brings our attention to collective action and community

based resource management.

2.1.3 Collective Action and Community based Natural Resource Management

During the 1980s, increasing numbers of researchers and conservationist began to take interest in community based resource management (Fisher 1995). This occurred in a response to growing global awareness of environmental degradation. Scholars began to re-examine the “tragedy of the commons” portrayed by Hardin (1968), a scenario of resource degradation aggravated by Malthusian notion of population pressure, from the perspective of property rights. For example, Grima and Berkes (1989) claim that resource degradation emerges when the limits to access and the right to use are underspecified or not enforced and there are demands on the ecosystem that conflict with sustainability or the interest of other users. Thus, the “tragedy” was reframed into a problem of open-access property, where users were unspecified, and their demands for resources exceeded supply, and caused existing resource management to breakdown (Bromley 1992).

While state intervention to correct the market misallocation and minimising the externalities were considered imperative to solve open-access resource problem, technical approach to management was often costly and ineffective. This was largely due to the uncertainty of the future condition of resources, and high transaction costs to enforce conservational use of resources. Neither was privatization of resources always successful to halt resource degradation, as present value of resources was often undervalued against the future due to general uncertainty over resource use (Ruge 1992; Rose 1994; Baland and Plateau 1996). In contrast, studies on community resource management practices began to elucidate strength of collective action in the communities to manage resources.

By the late 1990s, studies of the “commons” began to encompass varying field of studies including anthropology, geography, sociology, political science, management science and economics (Baland and Plateau 1996; Dietz et al. 2002). Increasing numbers of natural scientists from agriculture and forestry, as well as policy makers also gave recognition to the importance of community’s knowledge, its historical ties with resources, and its ability to organise itself to manage resources. It was pointed out that closely knit communities deeply rooted to land are often committed to principles of sustainability and that they display

remarkable resilience in the face of fluctuating markets and socio-political change (Cabarle 1991).

Generally, community is referred to as a group of people with common interest, or an interacting population of organisms (individuals) living in a common location (Korten 1986, p2). Proponents of community-based natural resource management (CBNRM) contend that communities are more capable than the state or private individual to control and maintain the quality of resources, and allocate benefits equitably among its members. It is further argued that CBNRM incurs less financial resources and is more efficient compared to government management of natural resources (Korten 1986; Grima and Berkes 1989; Cabarle 1991; Uphoff 1998).

Among numbers of studies that focus on the common property regime and collective action, McKean's (1992) study on Japanese *iriai* or traditional common lands best illustrates a successful case of common property resource management by the local community. Based on her historical study of traditional common lands in Japan, McKean (1992) illustrated how community or socio-geographic unit of people that share common knowledge and value can collectively workout a solution both equitably and efficiently based on their past experiences and their knowledge of ecosystem. Baland and Plateau (1996) who had reviewed case studies on collective resource management, also observed following commonalities among successful cases of collective resource management. These are 1) small user groups, 2) users live in proximity to resources, 3) users are free to set-up their own resource management rules, 4) resource boundary is clearly defined and users have high level of dependence on resources, 5) simple and clear rules and ways of monitoring, 6) schemes of punishments are well established, 7) costs of monitoring are low, 8) cost of conflict resolution is low, 9) crucial resource management decisions are made publicly, and 10) record keeping and ensuring accountability of resource management.

Meanwhile, other scholars began to take a critical view of "community" and its diversity (Hirsch et al. 1996; Rocheleau and Edmunds 1997; Leach et al. 1997; Enters and Anderson 1999; Li 2002). For example, Leach et al. (1997) claims that community-based initiatives often treat "community" as a passive recipient consisting of individuals who are culturally united into "moral communities (p10)." However, in reality, individuals, households, and varying social groups hold divergent social aims and possess different capabilities to access resource.

Furthermore, there are gendered differences to resource use, as well as gendered inequalities in resource tenure that affect use and access of resource by men and women in the community (Rocheleau and Edmunds 1997). Study conducted by Rocheleau and Edmunds (1997) in Africa illustrated how community consisted of people whose rights and claims over same unit of resources were diverse and changing dynamically over time. The research had also shed a light to the multiplicity of community, and how community resource access and tenure cannot be simplified.

Tubtim who studied the community backswamp in Southern Laos (2001) also suggests that the ways the resources are accessed by different users are also depend on the natural propensity of the resource. She contends that the relationship between human-environment change dynamically and the kind of relationship is particularly complicated in the Third World or developing countries where legal institutions are not firmly established. This often makes it difficult to distinguish resource tenure based on the modern or the Western notion of property with a clear distinguished spatial boundary and exclusive ownership that is legally justified. Instead, Tubtim (2001) calls for careful observation of resource and its setting, seasonality of resource and history of how different villagers actually access and use different types of resources.

More fundamental question regarding community-based natural resource management is asked by Li (2002) as she questions the existence of “indigenous, forest-dependent, conservation-oriented community” portrayed by the proponents of CBNRM. She critically reviewed how resource management practices in uplands of Indonesia and in Philippines were incorporated into state forest management policies under CBNRM. She contends that CBNRM is an act of simplification or a cliché, which realigns upland citizens to the central state by fixing them into a specified territory and bringing their resource use practice under central legislation. CBNRM is thus, captured as a discourse, and a rhetoric used by the state to justify its control of resources, and how these resources are used by the local people.

While the community-based resource management bears potential for effective resource management, it is no panacea to halt resource degradation. Community is heterogeneous and variable, the members’ interest in resource, as well as outlook of resources themselves can change over the course of history. Thus, the key issue becomes how to foster collective action that can maintain sustainable use of resources. Knox

et al. (2002) claims:

“(m)otivation to cooperate depends not only on quantifiable economic costs and benefits, but also on factors such as time involved and social tensions or gratification from participation. Where there are sufficient incentives but governance mechanisms are lacking, local leaders or external community organizers can play an instrumental role in developing local mechanisms. This assistance can be seen as reducing the transaction costs of organizing. To be sustainable over time, however, these governance mechanisms must be institutionalized and not dependent on the actions of a single person (p21).”

This signifies that fostering collective actions requires developing incentive mechanism, which is not only economic but socially meaningful. The pursuit of collective action is also dependent on leadership and organizational capacity of the community, as well as development of mutual trust among those that collaborate in resource management.

2.2 RESEARCH APPROACH AND CONCEPTUAL FRAMEWORK

In this section, I will explain the two main research approaches applied in the current study to understand the development of forest management and conservation in Laos. The first research approach is the political economy of forest conservation, which considers the development of formal institutions to manage forest resources vis-à-vis the economy of forest resources. The approach will be used to understand changes in the economic value of resources, and how this affect state policies that regulate and control access and use of resources. The approach provides an insight into structural relations between different levels of stakeholders, and their access to resources.

The second approach which I will be using in the current thesis is the political ecology approach. This approach takes a comprehensive perspective to understand how discourses on forest management and conservation developed vis-à-vis interactions between different stakeholders over the course of history. The approach also allows consideration of resource management practices from a dynamic perspective.

2.2.1 Economy and Politics of Forest Conservation

The need to seek conservational use and management of tropical forest gained increasing global recognition during the 1980s. This had led to a shift towards understanding “people” side of the resource problem, which looks into the propensity of natural resources beyond its significance as mere economic commodities: in other words, seeking to understand the existence of management regimes, system and mechanism. Bromely (1986) claims that “group as a whole has some abiding interest in survival, in cohesion, in the benefits and costs attendant to a particular use regime, and in economizing on perceived scarcities (p3).” This had led social scientists from different fields of studies to not only seek the population’s effect on resources, but to seek the human conventions that regulate access to and use of resources.

Assessment of environmental value has become an important issue in the field of economics as degradation and problem of resource scarcity is considered not only as a result of population increase, but as a consequence of resource misallocation. The evaluation of environmental value remains a difficult task; neither the ecological value of the environment nor the future risk is unknown. The propensity of the natural resources also bear problems of excluding users and incurring costs of enforcing conservational use of resources. Environment is also considered as income elastic good, and thus when the level of economic income increases it affects social awareness to conserve resource use.

Increasingly, the problem of degradation became studied from property rights perspective. Bromely (1991) defines property rights as “a structure of rights and duties characterizing the relationship of individuals to one another with respect to that particular environmental resource (p22).” Property regimes or a set of institutions on property are categorised into four types considering the way resources are allocated⁸. These include open access property, state property, private property and common property. Resource degradation is a prevalent phenomenon particularly in open access property and unregulated common property (Baland and Plateau 1996).

While property rights school argue private property regime as the most efficient way to manage resource as it internalises externalities, it fails to consider the imperfectness of the market, as well as its

⁸ Bromley uses the term “property regime” to signify a whole institution of social relations between benefit streams over property, right holders and duty bearers.

effect on social equity (Bromley 1992; Baland and Plateau 1996). Neither is the state control of resources or state property regime successful in curbing the natural resource degradation as extractive resource use are sometimes encouraged by the government, particularly in the Third World countries.

While the notion of distinguishing property rights regime helps to understand the social relationship between people and the environment, often this relationship overlaps with one another in real life situation. For instance, the creation of national conservation area or state property regime comes in conflict with existing common property regime. This problem is particularly likened by Bromley as the problem of “wasted” commons where customary property rights structures are undermined and illegitimatised by new property regime such as the creation of state conservation forest.

Munasinghe and McNeely (1995) point out that decision to create conservation areas is highly dependent on the political structure of the concerned country. It is also dependent on whether the idea of conservation is acceptable to the local communities. In other words, it is necessary to consider whether the local communities adopt the new policy or resist it. This brings our attention to the political economy of forest resource management or how forest resource management institutions are affected by the political structure that governs resource access and control.

Essential to the analysis through the political economy approach is the notion of power structure and how this affects the control of resources (Keonuchan 2000). However, it is not only about how the resources is controlled in the prevailing structure, but also understanding how the problem was structured through the political and economic process (Blaikie 1985). Thus, the kind of structural approach to understand the resource management requires considering scales of power between different levels of resource managers and users, and their historical relationship to control the access and use of resources, as well as their conflicting interest over the access to resources.

2.2.2 Political Ecology of Forest Management

Locally grounded analysis of environmental problems in developing countries increasingly gained recognition in the 1980s (Blaikie and Brookfield 1987; Peluso 1992; Bryant 1997a,b). This was due to growing disenchantment towards technical and mainstream approaches to environmental problem that

neglected social aspects particularly in the Third World countries. It also provoked a popular sub-discipline referred to as political ecology which addressed the issue of social inequity and power relation between different levels of resource users and managers that determined resource access and control. Attention was particularly focused on rural poverty and problems of resource use in the Third World countries.

Political ecology is distinguished from “cultural ecology” and “human ecology,” which sees environment as not only a natural phenomenon but also a “human-cultural construct (Rambo 1991, p 3)” and vies to the different values of natural resources assigned by different cultures and the society. While the holistic framework that links human-environment from multiple dimensions is at the premises of political ecology, it is distinguished from both cultural and human ecology as it provides extended analysis of power relations between different resource users and managers, and their competing control over access and use of resources.

At the same time, political ecology is distinguished from studies on the political economy of environment which principally analyses economic process and political actions undertaken by the state to control environmental resources. Political ecology approach particularly challenges the mainstream thinking that blames rural poverty as a primary cause of environmental degradation by questioning the origins of poverty, and variability of class, race and gender among those who are categorised as the “poor” and their access and use of resources thereby focusing on the question of social equity (Poffenberger 1990; Broad 1994; Bryant 1997 b; Jodha 2003) which Leach et al. (1997) refers to as “environmental entitlements”⁹.

While works by Blakie and Brookfield (1987) had broken the ground for political ecology studies by bringing attention to the “nested scales” of human-environmental relationship, post-structuralists elicit a more dynamic nature of human-environmental relationship, emphasising on the interactive development of discourse and narratives on resource management and development (Peet and Watts 1996). An increasing attention is placed on the historical analysis, emphasising the need not only to review state

⁹ Environmental entitlement is defined as “alternative sets of utilities derived from environmental goods and services over which social actors have legitimate effective command and which are instrumental in achieving well-being (Leach et al. 1997, p16).

development of resource control but how development of environmental discourse had shaped the way, by elucidating “everyday resistance” and struggle of local people to claim their rights to resources (Peluso 1992; Bryant 1997; Leungaramsri 2002).

The main argument of the post-structuralist political ecologists is what counts as an appropriate forest management changes over the course of history. For instance, Jarosz (1996) reviews colonial and postcolonial forest management in Madagascar, and examines how deforestation is defined based on what is considered to be “rational” or “irrational” forms of resource use by the ruling force. What is considered “rational” (i.e. coffee cash cropping, irrigate rice cultivation, forest conservation and so forth) or “irrational” (i.e. shifting cultivation) by the ruling authority does not necessary reflect the rationality or the cultural grounds of the local people. Peet and Watts (1996) contends that “environment” in itself is an active constituent of imagination or “environmental imaginary (p37)” which people think, talk and define its significance.

One of the key themes dealt in the political ecology of the 1990s is the issue of tropical forest change. Some of the more frequently addressed issues are: integration of local resources into the global economy, state control of local resources, and local resistance to the state control of resources (Peluso 1992; Peluso, Vandergeest et al. 1995; Wittayapak 1996; Bryant 1997; Leungaramsri 2002). For instance, in Rich Forests, Poor People: Resource Control and Resistance in Java, Peluso (1992) reviews state forestry in Java, and illustrates historical struggles over access and use of forest in Java. She points out that environmental resource degradation is prominent in areas where interests between state and local people clash. Resource degradation is thus considered by Peluso (1992) as “culmination of complex interactions between shifting interests (p4).” It is also summarised as a symptom of resource scarcity, resulting from conflict over territorial control, redefinition of resource access and use, appropriation and distribution of economic surplus gained from forest extraction. Historical analysis of forest management by Bryant (1997) also indicates the complexity of state resource control, but he also notes the influence of changing perceptions of stakeholders with regards to what makes appropriate forest management in the face of economic and social change.

The main conceptual framework of political ecology is illustrated in Figure 2.2. Political ecology

approach considers interactions between state – community – market that had shaped the resource use and management practices. While it considers demographic aspects and technology, as well as institutional effect on resource use and management, it also considers the historical relationship between the different factors (Peluso et al. 1995; Batterbury and Bebbington 1999). It also considers macro – micro linkage by considering the effects of global factors on the local resource use and management practices. Furthermore, the political ecology approach also examines the discourse used by different stakeholders that had shaped the resource management institution.

Another important aspect in political ecology is the notion of scale. While one of the significant strength of political ecology is that it takes into account historical scale of interacting relationship, it also concerns spatial scale of environment-social interaction (Batterbury and Bebbington 1999; Geores 2003). Spatial scale implies both political and physical space. Forsyth (2003) particularly claims the need to investigate how physical space is defined, justified and controlled over time; what tools and logics or “scientific knowledge” is incorporated to define and control the physical space. This turns our attention to the nested scale of institution which is illustrated in Figure 2.3. Institutional changes in different levels of political scale bear impact on one another. Political ecology approach thus considers the nested scale of interaction.

2.3 RESEARCH METHODS

The current research has incorporated several methods of analysis to understand the evolution of forest management and conservation in Laos. These include historical analysis, spatial analysis, stakeholder analysis and institutional analysis. I will now discuss each methods of analysis in detail.

2.3.1 Historical Analysis

Historical analysis was used to review the political economy of the forest management in Laos, and to understand the evolving meaning of forest conservation in Laos (Chapter 3). It was also applied in the case studies for Phou Phanang (Chapter 4) and for Ang Nhai Village (Chapter 5), in order to understand the settlement and resource use histories of the local people, and the resource management practices. In order

to understand the political economic development of forest management required review of historical documents available in different languages including Lao, French, English and Japanese, which were physically scattered in different places. On the other hand, settlement and resource use histories were mostly depended on the oral history.

The biggest challenge in the historical understanding of resource management in Laos was the scarcity of written record. It is true that the French had established a systematic archive system for its administrative documents during the period of colonial intervention and this was also adopted by the Royal Lao Government. However, the political uncertainties had disrupted the continuity of archival system. Records on forest and other resource management during the 1960s and 1970s are essentially dependent on project reports and papers produced with the support of USAID.

The period of forest management history during the 1970s and 1980s are derived as much as possible from consultancy reports, academic papers that focuses on the agricultural changes of Laos, and the government policy papers as well as legislations. The amount of reports that deals on forest management issues in Laos increased significantly after 1990. These reports were reviewed as well as government policy papers, and legislations on resource management to understand the more recent development of forest management in Laos.

2.3.2 Stakeholder Analysis

In the current study, stakeholder analysis was applied to identify the key agencies and people (actors or stakeholders) involved in forest management and conservation in Laos. Stakeholder is defined as “all those who affect, and or are affected by the policies, decisions, and actions of the system; they can be individuals, communities, social groups or institutions of any size, aggregation or level in society (Grimble 1995, p114).” Stake holder analysis allows identifying actors’ respective interest over resource access and use. It also considers social impact of the project or policy among different stakeholders. While stakeholder analysis was initially designed as a methodology to help design development project and policies, it also offers an analytical framework to better understand the interacting relationship between different stakeholders in resource management.

In Chapter 4, I use the stakeholder analysis to illustrate the different levels of agencies and their interacting relationship in the development of national reserve forest. I will also focus on the management structure of Phou Phanang as a case study to distinguish the actors and their roles in the management, as well as their conflicting interest in the resources. In Chapter 5, stakeholder analysis is used at the village level to identify the key agents in resource management.

2.3.3 Institutional Analysis

Institutional analysis examines the institutional arrangement of resource management. It is defined as an approach that focuses on "how rules, physical and material conditions and community attributes shape action arenas and incentives faced by individuals, and hence how these conditions combine to determine outcomes (Ostrom 1998, p68)." Action arena is referred to as a social space in which stakeholders or actors influence one another vis-à-vis sets of rules. Therefore, the main focus of the institutional analysis lies in understanding the structures of nested scales of rules and incentive mechanism over resource use and management.

In the current thesis, I will consider the linkages between stakeholders under the national reserve forest system in Chapter 4. This will provide an analysis on the formal institution to manage resources in the national reserve forest. I will further compare the difference between formal and informal institutions in Chapter 5. This is essential to understand how the formal institution that delineates resource boundary affects local institution to manage resources, particularly at the village level. In Chapter 6, I will consider the institutional linkage through the current government efforts to decentralised forest management, and how this affect the collective efforts of local people and authorities to manage forest in a sustainable manner.

2.3.4 Spatial Analysis

Spatial analysis is used in Chapter 5 to consider the actual changes of the resources in Ang Nhai Village. This is done so by using the interpretation of aerial photos and by recounting the oral history of resource use in the village. The spatial analysis not only provides actual changes of forest and land use in the village

over the course of 50 years, but also illustrates discrepancies between customary resource boundary and the institutional resource boundary imposed by the state. It is also used to illustrate how the state notion of space differs from the customary notion of space, and how it is used by the local people.

2.4 LIMITATION OF THE RESEARCH

In conducting the current research, there had been some limitation, or rather a gendered reality that had to be faced as I conducted interviews at different levels of the society, and became involved in “forestry” circle. Forestry, as a professional field, is predominantly male dominated subject in Laos, as it is in other countries around the world (Molnar 1997). For instance, at the Faculty of Forestry in the National University, where I was located most of the time, there were 1,057 students during the year 2003 of which 197 were female students (18 percent). For the year 2004, the total number of students enrolled at the faculty increased to 1,241. However, the percentage of female students continues to be the same at 18 percent (231 students). In terms of academic faculty, out of 56 lecturers only nine are female, of which two have higher academic degree in natural sciences from academic institutions abroad (as of April 2004).

While female students at the Faculty of Forestry are all eligible to study the same subject as their male students, they are sometimes assigned “physically less challenging” in the field exercises. Upon graduating, female students compete with their male students for placement in local government offices. However, few female students are given responsibilities in the field working shoulder-to-shoulder with their male colleagues while most female students assigned to the local offices are assigned secretarial jobs.

Entering the forestry offices for interviews of my own research thus meant that I needed to take into account of my own gender as well as my age, and my nationality. While my interviewees, who were mostly senior males, honoured my presence, answers and responses to my questions were often formal. This meant that some questions required other informal means of communications and observations to balance the formal responses during the interview. Furthermore, in the field I was often told that forest was “dark, scary, full of dangers” and that being a female and a foreigner I should not dare venture into the forest myself alone, that I needed a guiding male, “who can walk behind me for protection.”

Another side of gendered reality emerged during the village fieldwork as women who attended group

interviews often remained silent and disappeared from the meeting places. Women often shied away when questions were asked directly in a formal meeting or sometimes appeared disinterested. Only a few women were very outspoken in a group. Most others spoke little and often sought confirmation of male members when they talked. This also meant that I had to switch my main interview session to a more informal level of interviews, often cooking with them, chatting with them on random occasions such as bathing at the river, washing clothes, or going to the field with them. In those occasions, women freely expressed their thoughts on varying issues from day-to-day activities, market price of agricultural products, household issues, to village politics.

It was thus apparent that information obtained through group interviews at the village illustrated a formal view of the village, often reflecting gendered realities and village politics. Politics particularly came into play during these formal interviews as villagers also used the opportunity of formal interview to negotiate assistances from my colleagues and me.

These realities that I encountered in both formal and informal settings made me ponder on the principle essence of field-based research. While the conventional research approach brushes aside the social relations between the researcher and the people one interacts during the process of the research, I began to take note of the situation and focused more on the informal occasions of interviews, as well as observations.

Walcott (1995) refers to fieldwork as “a form of inquiry in which one is immersed personally in the ongoing social activities of some individual or group for the purposes of research (p65).” Purpose of the research being to understand the complex reality buried in the everyday affair. This is essentially an aspect that I began to note during my work. Fieldwork thus did not only begin in the “field” but rather I was engaged in it through the everyday practice. Formal and informal settings as I had experienced are both inseparable realities of the field. Integration of the “informal” realities into my research had been the biggest challenge in my own work.

The importance of the informal realities had become apparent, as I immersed myself to the daily circumstances in the field, by developing a language skill, and by grappling with every day reality that attested my own biases. Participatory observation thus became integral to the current research in order to

understand local practices and politics on resource use and management, as well as the biases and politics of development organisations and professionals that affected resource management projects and programs in Laos. Referring to Walcott (1995), the greatest challenge of the fieldwork had been “to be attentive to and be able to acquire ordinary everyday information, rather than letting our assumptions fill in the gaps or using a questionnaire as likely to elicit socially correct responses as honest ones (p81).”

CHAPTER 3 REVIEWING HISTORICAL NOTION OF FOREST AND ITS MANAGEMENT

In this chapter I will review how forest management and conservation evolved in Laos since the early 20th century. I will particularly examine the development of institutions regulating forest resource use in Laos since the 1930s. In the process, I will also review the key debates on forest degradation and conservation in Laos. The main aim of this chapter is to illustrate the political economy of the forest management and conservation, in particular, to identify the key factors that affected the institutional development of forest management in Laos.

3.1 HISTORICAL REVIEW OF FOREST AND FOREST POLICES IN LAOS

3.1.1 Pre-colonial Period: Rich Forests, Overlapping Domain

Early records of settlement in Laos can be traced back to periods under Khmer influence in the 5th century. Since then records indicate dynamic movement of ethnic groups across the region. During the 11th century, the ethnic Tai minorities began to gradually descend southwards from present day southwest China and northern Vietnam as a result of incursions by the Mongols and the Hans. Tai minorities gradually established principalities or *muang* in the lowland plains ruled by a lord (*chau muang*) throughout the period between the 11th and the 13th century. It was in the 14th century that the King Fa Ngum unified the neighbouring *muang* and created Lan Xang Kingdom in the area of present-day northern Laos (Ministry of Information and Culture 2000; Stuart-Fox 2001).

Laos first appeared in the European accounts in the 16th century as country renown for its riches in forest products such as benzoin, lac, ivory, musk, bee's wax and so forth. It was only in the late 17th century that Laos was clearly marked on the Western map. The account of a Jesuit missionary, Father de Marini (1663), and his correspondences with Father Leira who stayed in Laos during the period between 1642 and 1647, was one of the first account that painted a picture of prosperous kingdom of Laos. In his account, Father de Marini (1663) portraits the king in Laos as an absolute leader over both religious and political affairs who also had absolute power over numerous *muang* ruled by the local lords. This included king's right to claim and distribute land to its local lords, control trade of forest products by imposing

duties on forest products and controlling adult labour by subjugating people to *corvée* labour.

According to Kitahara (1990), who studied the historical property relations in Thailand, which was also based on *muang*, developed from one that was relatively communal managed by *chau muang* to that of more feudal where *chau muang*, and at a later stage where *chau xivit* (king) gained exclusive and absolute power over land, which allowed the king to allocate the land to their vassals. In the meantime, both *chau muang* and *chau xivit* respected individuals' claim over agricultural land as long as they continued to occupy the same land.

Study by Winichakul (1994) on Thailand also indicates that expansion of territorial claim over land and forest was less of a concern to the kings in the pre-colonial period. Instead, controlling labour and non-timber forest products preoccupied the kings more so than territorial control¹⁰. Meanwhile, local lords ruled their *muang* semi-autonomously. They were on the margin of not just one king, but instead under the influence of regional overlords' power interchangeably (Winichakul 1994; Fox 2002). The *muang* territorially overlapped with one another and were subject to multiple-sovereignty¹¹. Laos in the pre-colonial period thus represented a kind of '*mandala*' with multiple centres, and spheres of political influence (Stuart-Fox 1996).

3.1.2 Colonial Period: Introduction of Systematic Forest Administration

The territoriality of the state began to take significance since the late 19th century in the mainland Southeast Asia as the colonial authorities laid their foundation. The intervention by the French and the British in the mainland Southeast Asia had significantly affected the boundaries of Laos. The French sought a commercial route through Laos that led to the southern China (Osborne 2001). Laos was also considered as a strategic buffer for French colonies in the present day Vietnam against the encroaching British forces that were based in Burma (Breazeale 2002).

Laos, too was faced with politically precarious situation as it was incessantly being attacked by the

¹⁰ Collection of forest products from Laos were particularly traded through network of merchants in Laos and in neighbouring Thailand, who then sold them to Chinese and Muslim traders for high price (Reid 1988; Smuckarn and Breazeale 1988; Stuart-Fox 2001; Donnovan 2002).

¹¹ Tributes were paid in kinds including gold, silver and forest products such as animal skins, saphan wood, ivory, honey, bee wax, and so forth.

neighbouring kingdoms that sought to expand their territorial control. Furthermore, disintegration of monarchic rule within Laos had also allowed the French and the Siamese to compete over Lao territory in the late 19th century.

In 1893, following the Siam Treaty, the three Lao kingdoms were placed under the French protectorate (Pavie 1903; Breazeale 2002)¹². In 1899, the French officially unified the three kingdoms and positioned a Resident Governor (*Résident Supérieur*) in Northern Laos (Luangprabang). While the French acknowledged continued reign of monarchy in Luangprabang, the French colonial government gained a direct control over the central and southern Laos located east of the Mekong (Le Bar and Suddard 1960; Whitaker, Barth et al. 1971; Evans 1988). The French colonial boundary was further expanded in 1904 and 1907, as it won additional territorial claim against Siam in areas west of the Mekong in Xayaburi and Champassak (Stuart-Fox 1996). The modern state boundary of Laos was therefore defined in the early 20th century through colonial intervention.

In addition to boundary, the colonial government instituted administrative structure that distinguished the national territory into administrative units. In Laos, the French divided the country into eight administrative provinces which were further divided into counties, districts and villages. Introduction of new administrative units replaced the multiple centred political structure formerly ruled by *chau muang*. In addition, the French also banned *corvée* labour, and introduced a new head tax system that incurred work service and monetary payment of tax. The introduction of the new administrative system weakened the absolute power of the king and *chau muang*. Local villages were also incorporated into the national administration system.

With regards to the forest resource management, the French established *Service Générale des Forêts de l'Indochine* in 1900 which was later transformed into *Service des Eaux et Forêts* based in Hanoi that supervised forest management in all of Indochina. In each of the French colony, Local Forestry Office (*Service Forestier Local*) was established and placed under the supervision of the Resident Governor. The Local Offices were headed by *Conservateur* (Conservation Officer), and managed by several *Inspecteur*

¹² The French had employed military force in 1893 to reach French-Siam Treaty. This had placed Laos as a French protectorate for the period between 1893 and 1941. However, the French did not legally unify Laos, and failed to consign to an agreement to protect Kingdom of Luangprabang until 1941 (Iijima 1999; Breazeale 2002).

(Inspectors). Forest officers were assigned not only to inspect forest, but also responsible to collect logging taxes, which served as the basis of financial resources for forestry administration in Indochina. In each colony of the French Indochina, forest areas were divided into three administrative levels including *circonscription*, *cantonnement*, and *division*. At the division level, forest was managed by *gàrde général* (general guard) or local forest managers. According to Agaardd (1943), there were total of 26 divisions in Cambodia, 30 divisions in Tonkin (northern Vietnam), 31 divisions in Cochinchina (southern Vietnam), and 33 divisions in Annam (central Vietnam).

Information on the forest management of Laos, however, is incomplete. This was due to a number of reasons. The first main reason was the Laos' topographic condition which was mountainous, and the lack of communication means to promote development. While rich forest resources in Laos was known to the colonial administration, the difficulty of transportation had placed Laos in disadvantage compared with other colonies including Cambodia and Vietnam. The colonial interest in timber was concentrated in Tonkin, Annam and Cambodia where there was access to commercial ports. In Laos, trade of non-timber forest products including bamboo, rattan, resin, benzoin, lac, cardamom were relatively more lucrative compared to timber (Tate 1979)¹³.

The first forest regulation of the French Indochina was issued in 1929. This was then formalized into Resident Governor's Decree on Forestry in 1930 (Agaard 1943; Itsumi 1941). The first forest survey in Indochina was also conducted in 1930, which produced the first forest map of Indochina at a scale of 1:1,000,000 (Figure 3.1). Based on the survey, forests in the French Indochina were classified into six categories according to the volume of commercially valuable tree stand (Table 3.1). As we will discuss in the later section, only the First, Second and Fourth Class forests were considered 'forest' by the colonial administration.

Among the French Indochina, Laos marked the highest forest cover of more than 80 percent (Table 3.2). However, 1930 forest map and Table 3.2 indicates that most of the First Class forest is located in Cambodia, Tonkin (present day northern Vietnam), and Annam (present day central Vietnam). Forest in

¹³ A private company, *Compagnie de l'Est-Asiatique Française*, was established to extract key products such as benzoin, lac and cardamom in Laos. However, the actual volumes of non-timber forest products traded outside of the country are little accounted.

Laos is predominantly classified as the “Second Class” forest with tree stand between 150 and 300 cubic metres per hectare of which one fourth is estimated as being commercially valuable. In another words, while forest in Laos was considered extensive, its economic value was assessed relatively low.

Prevalence of shifting cultivation was raised as the reason for the low economic value of forest in Laos. For example, Itsumi (1943) who reviewed the potentials of economic resources in the French Indochina for the Japanese Imperial Government during the World War II relegates poor conditions of forests in Laos to the predominance of shifting cultivation by the local people. However, his information is essentially based on the accounts of Agaard (1943) and Robequain (1939) that carefully claim incompleteness of information on the forest of Laos. Meanwhile, Izikovitch (1979) who had travelled northwest Laos between 1936 and 1938 to conduct an anthropological study on Lamet people provides a different view. He claims that land and forest use practices in northern Laos is relatively more stable compared to Annam where demand on forest was higher due to both shifting cultivation and commercial logging¹⁴.

The colonial intervention in Laos had thus brought a new notion of boundary and management. It also imposed tax and labour duties to local people. While the ideas of defining boundaries and placing administrative system had been an effort by the colonial government to simplify the colonial management, local people continued to move from village to village during an outbreak of war, plague, family dispute or to evade tax duties (Izikovitch 1979; Iijima 1999). As the forest in Laos was deemed economically little significant for the colonial government, the French did not make significant effort to strengthen its management and institutional structure¹⁵. It also did not intervene in the teak trade conducted by the royal households in northern Laos. It was only in areas such as the Boloven Plateau that was espied for high agricultural productivity that the colonial government exercised a control over local resource access (Le Bar and Suddard 1960).

¹⁴ Izikovitch (1979) note that shifting cultivation was the mainstay of upland population in Laos, however, cultivation cycles were often extensive between 12 to 15 years which allowed forests to regenerate. He also notes that the upland hills of northern Laos was unlike in Annam where population pressure on upland swidden was high and the hills were covered with grass such as *imperata*.

¹⁵ The French colonial government assigned forests in central and southern Laos as hunting reserves where they regulated hunting activities of the local people. Meanwhile, local access and use of forest resources and forest land was generally recognised (Sayer1983).

3.1.3 Independence and War: Forest as Refuge, Battlefield, Open Access Territory

Laos announced its independence in 1946 as the Japanese briefly occupied the French Indochina during the World War II. The king of Luangprabang claimed sovereignty in August 1946 and a new constitutional monarchy was established (Le Bar and Suddard 1960). This no longer made Laos a political hinterland of the French Indochina but a sovereign state with a modern territorial boundary. The new independent Lao was established on the administrative foundation established during the colonial period.

Presidential Legislation No. 142 was issued and created the National Service of Water, Forest, Livestock and Fishery in order to manage land and forest resources of the country¹⁶. This was followed by development of laws and rules to control natural resources in the country. For instance, in 1950, the RLG issued a Royal Order that designated 17 forest reserves under government administration. The Order restricted access and use of forest products in areas designated as the forest reserves (Ordonnace Royal No.3)¹⁷. This was followed by the issuance of a Royal Order on forestry in 1951 that legitimised RLG's role to manage forests and land throughout the country (Ordonnace Royal No.79, No. 89).

Under the Royal Order, all forest and forestland, excluding the royal domain in Xayaburi and Luangprabang, became subject of the government control. The Order also distinguished stumpage rates for timber species, which were classified in to four categories: luxury wood, first class wood, second class wood, and third class wood (United States Agency for International Development Mission to Laos 1970; Persson 1983).

The occurrence of war in Indochina, however, brought political and economic changes that affected resource management policy in Laos. Laos began to receive economic and technical assistances from international and bilateral donors in the West. This was particularly accentuated during the period between 1960 and 1970 as the US government avidly provided assistance for rural economic development in Laos (Brown and Zasloff 1986). Forestry was considered potential industry in Laos, and received significant assistance from international development agencies. This had boosted the production of lumber from

¹⁶ Areas of forest ruled by the royal family in Xayaburi and Luangprabang remained under the direct management of the royal households.

¹⁷ Here forest reserve signifies forests reserved for future commercial use. This is slightly different notion compared to the present day notion of forest reserve, which is protected for conservation purpose.

38,000 cubic metres in 1962 to 91,000 cubic metres in 1968 (United States Agency for International Development Mission 1969). Concurrently, timber export surged and this had increased the revenue of the RLG Forestry Service by ten folds.

In 1966, an economic survey was conducted by the United States Agency for International Development (USAID) in order to increase lumber production that met the surging demand of the US military forces based in Thailand (United States Agency for International Development Mission to Laos 1970). This was followed by a joint forest inventory in 1967 conducted by a team of forestry experts from the US, Canada and Laos. The survey was conducted in Vientiane, Savannakhet and Pakse where RLG held control¹⁸.

While the war-boasted economy increased the economic value of timber, the war had also inhibited the institutional development of forest management. The country was divided into areas controlled by RLG and the revolutionary force (*Patheth Lao*) that occupied rural areas (Deuve 1984). Meanwhile, forest along the Mekong was widely exploited by logging operations that involved members of the RLG and the military. Between 1966 and 1974, volume of timber export had increased by eight-folds (Table 3.3). According to Chandrasekharan (1978), 60 percent of Lao timber export was sold to Thailand. However, the actual volume of timber export was uncertain as significant amount of timber were transferred illegally. The significance of illegal export of timber can be confirmed by the difference between trade figures recorded in Thailand and Laos (Table 3.4).

The war also affected the physical outlook of forest. As the war progressed, forest areas became the target of heavy bombing¹⁹. Forests in the northeast and eastern Laos along the Vietnamese border were particularly affected by bombing (Handicap International 1997; Southammakhot 2000). The bombing also instigated a massive movement of people from the northeast Laos, particularly from the present day Houaphanh and Xieng Khouang Provinces bordering Vietnam (Figure 3.2). As the migrants descended south, they moved into areas of unoccupied land (Whitaker et al. 1971; Ishizawa and Sakurai 1979; Brown

¹⁸ The survey estimated that 5,000,000 hectares were annually exploitable, while the war limited the use to 610,000 hectares (United States Agency for International Development Mission to Laos 1969).

¹⁹ Areas south of Laos, along the Vietnamese border had been the most seriously bombed area (Handicap International 1997). The U.S. forces intensively bombed the area to disturb transportation of military supply.

and Zasloff 1986; Goudineau 1997; Sisouphanthong and Taillard 2000; Fujita 2001). This led to widespread forest degradation as refugees established makeshift villages in the upland areas and conducted shifting cultivation.

The first movement of refugees occurred in 1954 where local residents in the northern provinces such as Phonsaly, Houakhong (present Luang Namtha and Bokeo), northern Luangprabang, Houaphan migrated southwest into southern Luangprabang and Xieng Khouang. Close to 130,000 refugees migrated westwards from Xamneua in Houaphan Province by 1962. A decade later in 1973, close to 730,000 refugees was removed from their original villages (Whitaker et al. 1971; Brown and Zasloff 1986). Thus, the dynamic movement of people had a significant impact on the upland landscape²⁰. However, as it will be illustrated in Chapter 5, forest degradation in the upland area was not only aggravated by the population movement, but also due to shortage of rice production in the lowland areas.

It is also important to note that forest degradation was instigated by the increased economic value placed on timber. Lack of institutional and organisational structure to implement forest management practices that regulate extractive use of timber had aggravated the widespread degradation particularly in the lowland areas.

3.1.4 Emergence of the Socialist State: Nationalisation of Resources

After thirty years of war, a new socialist government, the People's Democratic Republic of Laos (Lao PDR) was established in 1975. This marked an end to assistance from the Western donors (Evans 1988) and a mass fleet of refugees from Laos²¹. An economic blockade was imposed by Thailand following the revolution, and this had significantly staggered the national economy. The country's economic activities were further constrained as the government controlled all commercial activities (Chanda 1982; Brown and Zasloff 1986; Evans 1988).

One of the first policy reform announced by the new socialist government was an agricultural reform.

²⁰ Population movement during the war has been complex. Other movements are accounted for northern provinces bordering Thailand (Goudineau et al. 1997; Sisouphanthong and Taillard 2000).

²¹ Chadrasekharan (1978) who conducted a study on post-war forestry in Laos for the FAO reports that lack of professional forestry staff at the forest service was aggravated after the fleet of population.

The main thrust of agricultural reform in Laos was centred on the collectivisation of agricultural production through establishment of cooperative labour units (Brown and Zasloff 1986; Evans 1988; Bourdet 1995). This was due to the state of agricultural production in Laos, which was essentially subsistence-based. Unlike in other socialist countries, “land reform” or redistribution of land was not prioritised by the new government as feudal land relations in Laos were limited²². Ideologically, agricultural collectivisation was perceived as a way to modernise the economic production, and to transform agricultural production from subsistence to cash crop economy. The collectivisation drive thus did not incur confiscation of private land or agricultural capitals; instead, it was based on the existing mutual labour exchange system (Evans 1995).

Forest and its resources were placed under the state control after 1975. All forest in Laos was placed under the control of the Directorate of Forestry, which was responsible to the Secretary of State for Forestry and Hydraulics under the Ministry of Agriculture, Forestry, Irrigation and Agricultural Collectives (Chandrasekharan 1978). Under the Directorate, five departments were established. This included Administration, Inventory, Harvesting, Afforestation and Protection. The Directorate made central policy decisions, while Provincial Offices in thirteen administrative provinces implemented the forest policy. Five main focus of post-war forest management were, 1) to delineate national forest reserves that safeguard future timber production, 2) to improve utilisation of forest resources including the secondary species which was previously unused, 3) to prepare management and use plans for forest reserves, 4) to implement scientific researches on plantation forestry, and 5) to conduct feasibility studies for industrial development in forestry (Chandrasekharan 1978). The central focus of the post-war forestry was thus placed on the maximum utilisation of timber and export of timber.

In order to boost timber production, nine state-owned forestry enterprises (SFEs) were established in Vientiane, Xayabouri, Khammouan, Savannakhet, and Champassak provinces. Each SFE managed on average 20,000 to 30,000 ha of forest (Table 3.5). In addition to SFEs, provincial forestry enterprises (PFEs) were also established in 13 provinces covering a total of 4,815,000 ha or nearly 21 percent of the

²² A few wealthy families possessed agricultural land in the Vientiane Plain; however, this was naturally redistributed in the post-war years, as the families fled the country (Brown and Zasloff 1986; Evans 1988; Stuart-Fox 2001). In the meantime, urban land and other properties of the former regime were confiscated and nationalized by the new government.

national land area (Table 3.6). Commercial logging during this period received technical assistances from Laos's political allies in the Eastern bloc²³. However, non-allied countries such as Sweden also provided assistances to wood production. Swedish International Development Agency (Sida), in particular provided financial and technical support for two SFEs including SFE No.1 (Muang Mai) and SFE No.3 (Thabok) in present day Bolikhamxay Province. General timber and wood production, however, remained low until the mid 1980s due to shortage of equipment, and low timber prices in the international market (Burley 1982; Brown and Zasloff 1986). Timber extraction promoted by SFEs and PFEs were also inefficient as it was not based on sustainable yield management. This had resulted in the widespread degradation of forest resources across the country.

Meanwhile, increasing attention was placed on controlling the upland shifting cultivation practices. Shifting cultivation was particularly blamed for the environmental degradation in the upland areas. The government refuted shifting cultivation as being a primitive production technology that involves '*kān tat mai xaxai*' or clearing trees (*kān tat mai*) in a haphazard manner (*xaxāi*). Shifting cultivation in the upland was blamed as a source of drought, flood and landslide (1979).

Upland population in war-inflicted areas particularly became the target of displacement. War inflicted zones were particularly feared for insurgency and remained under strict military surveillance²⁴. Upland population were also resettled to lowland villages. This was for security reasons, as well as to transform upland people's ideologically "backward" agricultural practice. While shifting cultivation was conducted by lowland population, particularly as they were hard-hit by low agricultural production in the post-war years, their shifting cultivation practices were little mentioned in the government policies (Ireson and Ireson 1991).

The post-war period is thus characterized by efforts of the new socialist regime to assert its control over land and forest. In 1979, the government issued decrees on forest management (Decree No. 66) and forest conservation (Decree No. 74) that centralized forest management under the state²⁵. Decree No.74 in

²³ More than 60 percent of external assistance provided to Laos during the 1980s were provided by the former USSR (Brown and Zasloff 1986)

²⁴ There was a concerted campaign against insurgent Hmongs in Phou Bia (Xiengkhouang Province) during the 1977 and 1980. The government forced these insurgent communities to resettle in the lowland areas along the roadside (Goudineau 1997).

²⁵ Department of Forestry Service consisted Administrative Division, Survey Division, Harvesting Division, Plantation Division and

particular stipulated responsibility of the central government to make plans for national land and forest use (Chapter 1, Article 1). Under the Decree, all decisions regarding forest use and management required a consensus at the high ministerial level including the National Planning Committee, Ministry of Public Affairs and Transportation, Ministry of Finance, Ministry of Industry and Commerce, Ministry of Internal Affairs, Ministry of Defence. Other legislations that were developed during this period also legitimatised the national control of forest, and encouraged collectivised production.

State control of forest and land was justified on two fronts. The first is the economic significance of timber. State control of forest resources was justified as a way to reconstruct the national economy. The increased economic importance of timber had resulted in transferring the central authority from the Ministry of Agriculture, Forestry, Irrigation and Agricultural Collectives to the Ministry of Industry, Forestry and Handicraft in the early 1980s.

Meanwhile, the state control of forest and land was also justified from ideological perspective. In particular, the new government claimed shifting cultivation as the “backward” form of agricultural production and displaced upland population blaming its negative effect on the environment.

While state control of forest and land was strengthened from the growing economic importance of timber and ideological notion, institutional foundation of forest management remained weak. Legislation was issued to legitimatise the state control of forest and land, however, organisational structure of forest management remained uncertain. While the economic exploitation of timber was prioritised, there was a lack of institutions that regulated sustainable timber production. This was particularly the problem with SFEs and PFEs. Areas of forest were allocated to SFEs and PFEs without definite boundary. Neither were there clear rules and management plan that assured sustainable production. As a result, this had promoted widespread forest degradation across the country, as the case of Ang Nhai in Chapter 5 represents. In the meantime, upland shifting cultivation practices were blamed as the cause of environmental degradation. Transformation of “backward” agricultural production was ideologically supported by the government. This had led to the displacement of upland population into lowland areas, and conversion of their

Protection Division. According to Persson (1983) Department of Forestry Service was placed under the supervision of the Ministry of Industry, Handicraft and Forestry during the brief period of 1983 and 1984. Later, Department of Forestry was established, and administered tasks including forest survey, protection, plantation, education and forestry.

livelihood basis.

3.1.5 Integration to the Market Economy

A significant change in economic policy was introduced to Laos in the mid 1980s, as the government introduced the Second Five Year National Plan (1986-1990) and announced a transition from the centrally planned economy to the market economy. This is known as the *Chinthanākan Mai* (New Vision) or the New Economic Mechanism (NEM). Between 1984 and 1987, the Lao government gradually relaxed its control on domestic trade and abolished the centrally controlled agricultural pricing system. This was replaced by the market system, where private sector activities were promoted. Agricultural collectives and state-owned enterprises were also dismantled.

The problem of forest degradation increasingly became focused as a national problem during the 1980s. While displacement of upland communities began in the early 1980s, sedentarisation of upland communities and intensive agriculture in the lowlands were promoted. Shifting cultivation was not only blamed for its detrimental effect on the environment, but also from its effect on the economy. For example, the Deputy Director of the Ministry of Agriculture, Forestry, Irrigation and Agricultural Cooperatives, Khamouan Buppa (1987) raised an example of Nam Ngum reservoir in Vientiane province where decreasing water level was caused by shifting cultivation, and how this affects the production of electricity and hence the national economy.

Considering the economic importance of timber, the need to protect forest was called forth by the central government. In 1986, the National Assembly issued an Order No.4 on Forest Activities for the period between 1986 and 1987, based on the review of 10 years forest management practices. In the Order, shifting cultivation was blamed as the principle cause of forest destruction accounting more than 300,000 hectares of forest loss every year. It emphasised the need to control expansion of shifting cultivation practices.

Awareness towards forest conservation was also stirred in Laos during the late 1980s due to increased global interest on tropical forest conservation. Bilateral and multilateral assistance to Laos from the Western countries increased significantly during the late 1980s. The international assistances in forest

management increased as the First Nationwide Reconnaissance Survey conducted in 1989 by the Department of Forestry highlighted the problem of forest degradation. The Survey used aerial photos from 1982 and 1989 and classified forest and land based on new scientific criteria for the first time in Laos. The classified forest cover and land use maps were compared to assess the forest cover and land use changes.

The result of the Survey indicated that areas classified as “Current Forest” decreased from 11.6 million hectare (49 percent of total land) in 1982 to 11.2 million hectares (47.2 percent of total land) in 1989. The result also indicated regional discrepancy indicating that forest areas were rapidly degrading in northern Laos (Manivong and Sandewall 1992). The Survey also highlighted regional differences; relatively low forest cover between 20 to 30 percent in the north and more than 50 percent in the south. As was shown in Chapter 1, Table 1.1 indicates loss of forest area in all three regions, with slightly higher rate of forest loss in both central and north compared to the south²⁶.

The Survey was the first to classify forest and land according to scientific classification categories, and that indicated variability of shifting cultivation practices in each region. It also elucidated changing conditions of shifting cultivation practices and its problems, such as adoption of “untraditional” shifting cultivation with shorter fallow period (IUCN 1989, Fujisaka 1991). Unlike the traditional shifting cultivation with fallow period more than 10 years, the untraditional shifting cultivation practices were considered detrimental to the environment (IUCN 1989).

The environmental concerns of donor organisations as well as the Lao government culminated during the First Forestry Conference held in Vientiane. The conference was a landmark event that marked the central role of the Ministry of Agriculture and Forestry in natural resource management. In the conference, the government called for a prudent use of forest resources, which goes hand-in-hand with the protection of forest resources (Ministry of Agriculture and Forestry 1990; Tsechalicha and Gilmour 2000; Ministry of Agriculture and Forestry of Lao PDR and Ministry of Agriculture and Rural Development of SR Vietnam u.d.). During the conference, the government also presented the national strategy that called for sustainable use and management of forest. More specifically, it called for an institutional development, and

²⁶ Northern region includes Bokeo, Luang Namtha, Phongsaly, Houaphanh, Xayaboury, Luangprabang provinces. Central region includes Xiengkhouang, Vientiane Province, Vientiane Municipality, Bolikhamxay, Khammouane provinces. Southern region includes Savanakheth, Saravane, Champassak, Attapeu, Xekong provinces.

reorganisation of national agencies. In order to control the spread of forest destruction, the government also announced the elimination of shifting cultivation practices in the upland areas by relocating 1.5 million upland people by 2000 (MAF 1990).

The notion of “sustainable” forest management practices was particularly supported by the international organisations including UNDP and FAO. The international organisation also urged Laos’s ratification to the Tropical Forestry Action Plan (TFAP) which promoted protection of forest resources. By acceding to the TFAP, the role of the Department of Forestry, and the Ministry of Agriculture and Forestry was cemented as the executive agencies that administered forest management in Laos. In the meantime, Science, Technology and Environment Organisation (STENO) under the Prime Minister’s Office was assigned to coordinate between high government offices with regards to environmental issues.

The state apparatus to control forest resource was further strengthened during the period of 1990s through series of development. First, introduction of the new forest cover and land use classification based on the results of the Reconnaissance Survey in 1989 coupled with modern mapping technologies equipped the Ministry of Agriculture and Forestry to centralize information regarding forest resource management. The mapping technology also allowed the Department of Forestry and its line offices to delineate areas of forest for biodiversity conservation, and commercial timber production.

Secondly, support of bilateral and international assistance legitimised the central role of the Ministry of Agriculture and Forestry, and established a principle framework for forest management in Laos. Following the ratification to TFAP, the Ministry of Agriculture and Forestry became the executive agency that promoted environmental protection in Laos. It also led to restructuring of the Department of Forestry. Not only was it structurally reorganised, but also conceptually, increased attention was placed on conservation and sustainable forest use. Increased foreign technical assistances on wildlife surveys allowed the Department of Forestry to take a central role in identifying ecological and conservation values of forest for biodiversity protection (Berkmüller et al. 1995; Chape 1996; Duckworth et al. 1999; Robichaud et al. 2001; Southammakot et al. 2001). Thus, the period 1990s is characterised by the development of “biodiversity conservation.”

Thirdly, influx of the Western bilateral aids and other international assistance in the 1990s also

supported the Ministry of Agriculture and Forestry to develop legislations on forest management. This included logging ban in 1991 (PM Order No.67) as well as government order on logging in 1994 (PM Order No.16) that regulated logging rights to three parastatal companies (Article 1), regulated areas for logging (Article 7) and volumes of logging (Article 8). Furthermore, the government designated 18 national reserve forests or *pā saguan hengxāt* through the issuance of PM Decree No.164 in 1993. In addition to the government legislations, national laws including Forest Law (1996), Land Law (1997), Water and Water Resources Law (1997) were rapidly developed during the 1990s. Forest Law (1996) and Land Law (1997) in particular, underlined legal definition of land and forest, prescribing and proscribing ways by which land and forest category should be used and managed²⁷.

Lastly, the notion of distinguished village boundary was introduced coupled with land zoning and land use planning. The land and forest classification was introduced in the mid 1990s initially as *gān bēng dīn bēng pā* in 1993 and 1994 (PM Order No. 169, 186)²⁸. This new policy initially recognised village based resource management, but was reframed and focused on regulating shifting cultivation practices of rural communities. The process was elaborated into eight-step approach by the Ministry of Agriculture and Forestry in 1996 including a series of activities beginning from village meeting, boundary demarcation, land use zoning, land use planning and allocating legal land titles to individual households in the rural areas (MAF No.0822).

Thus, the period of 1990s was distinguished from other periods in history, as “forest” increasingly became defined as a space using scientific classification system. Forests were classified and mapped, and forest management plans also developed as international organisations began to support the notion of sustainable development and biodiversity conservation. With technical and financial support from

²⁷ Following Forest Law (1996), forests are distinguished into five categories including, *pā pongkan* (protection forest), *pā saguan* (conservation forest), *pā pharit* (production forest), *pā feunfu* (regeneration forest) and *pā xutxom* (degraded forest). Protection forest is an area of forest protected for national security reason, for watershed protection, and for environmental reason. Conservation forest or reserve forest is an area protected for bio-diversity. Production forest can be allocated to organizations and individuals to improve their economic income. Regeneration forest can also be divided and allocated to individuals, however, for forest regeneration. Degraded forest is also allocated to individuals and can be used for replanting trees or used as grazing land. Land Law (1997) on the other hand distinguishes eight types of land including agricultural land, forest land, construction land, industrial land, communication and transportation land, cultural land, land for protection of national security as well as land areas nearby water and water source.

²⁸ Increased government effort to mobilize private and community efforts to manage land and forest was further coupled with land titling project which began in 1997 implemented by the Ministry of Finance with assistance from the World Bank (Lao Consulting Group 2002). While land use planning and land allocation continued in the rural areas under the guidance of the Ministry of Agriculture and Forestry, *gān bēng dīn bēng pā* increasingly became known as *gān mōp dīn mōp pā* (Land and Forest Allocation) towards the late 1990s indicating a greater emphasis towards land registration and titling.

international organisations, the Ministry of Agriculture and Forestry was particularly equipped to rapidly develop forest management institutions during the 1990s that regulated access to forest and use of forest resources.

3.2 DEFINITION OF FOREST

Here in this section, I will review more closely how the definition of “forest” or *pā mai* developed. Geores (2003) contends that resource conflicts emerged as “the authoritative aspect of the resource definition is separated from the allocative aspect (material object), and state rules are imposed on how indigenous people are operating (p79).” Forests are unlike other common-pool resources such as grazing land, fish or irrigation that can be easily defined by the groups of users. It offers multiple values to different levels of resource users. For example, a study conducted by Fairhead and Leach (1996) in Guinea elucidated how the authoritative definition of forest created by the state undermined the local definition of forest. Their study further pointed out the limitations of functionalist perspective of resource management, which merely captured a glimpse of reality. Their study also brought attention to how the local people perceived resource change, and what actions they have taken.

In the following section, I will examine how the definition of forest evolved since the colonial period. The authoritative definition or state definition of forest is examined from two points of view. The first is through the development of classification system that distinguished types of forests and how each type of forest should be managed. Secondly, I will consider the meaning of forest from legal perspective, by reviewing the definition of forest and how this has changed over the course of history. Following the review of state definition of forest, I will bring attention to the local perceptions on forest that are distinguished from the state definition of forest.

3.2.1 Forest Classification: From Species to Forest Cover

The Forest Survey conducted by the French colonial government in 1930 was the first classification of forest applied in Laos that distinguished forests into three main categories according to the volume of tree stand. This includes *forêt riche* (rich forest), *forêt moyenne* (middle forest), and *forêt pauvre* (poor forest).

Classification was based on existing volumes of commercially valuable trees. For example, rich forest included more than 100 cubic metres of first class tree species, while middle forest included approximately between 38 and 78 cubic metres of first class tree species. The last category, poor forest included any kind of industrial wood between 100 and 150 cubic metres. The Survey indicates that more than 60 percent of forest in Laos is middle forest while only 2 percent is considered rich forest.

In 1952, forest species in Laos were classified into four broad categories (luxury wood, first class wood, second class wood, third class wood) according to the commercial value. Major species exploited in Laos were broad-leafed species include *Dalbergia*, *Lagerstroemia*, *Dipterocarpus*, *Hopea*, *Shorea*, *Pterocarpus* (Chandraksekharan 1978; Persson 1983). However, it was not until 1958 that forests were distinguished on the ecological basis. Jules Vidal, a French botanist, was one of the first to conduct a comprehensive study on vegetation of Laos. He distinguished Laos into six ecological regions, which became the basis of ecological zoning (Vidal 1958; Sayer 1982; Rundel 1992).

Using Vidal's ecological zones, major forest types in Laos was translated into English terminology referring to Smitinand's classification of flora in Thailand (1966, 1968, 1970) which was used by the Thai Forest Department (United States Agency for International Development Mission to Laos 1969; Persson 1983). These included Dry Evergreen Forests (Lower Dry Evergreen Forests, Upper Dry Evergreen Forests), Dry Dipterocarp Forests (Scrub Dipterocarp Forests, High Dipterocarp Forests), Mixed Deciduous Forests²⁹, and Coniferous Forest. Of the six forest types, Dry Evergreen Forest is the most important in terms of commercial value as species such as *Dipterocarpus* and *Hopea* were predominant species in the forest³⁰.

In 1973, the first land use map was prepared by the Mekong River Committee. The map was prepared using Landsat images and aerial photos from 1972 and 1973. It distinguished forest and land into 10 types (8 types of forest categories and 2 non-forest categories). This was the first effort to apply scientific forest

²⁹ This is further characterised into three types 1) upper mixed deciduous forest that developed in sandstone formation and characterised by the presence of bamboo, 2) lower moist mixed deciduous forest, a degraded stage of the dry evergreen forest following logging or cutting, and burning for agriculture, and 3) lower dry mixed deciduous forest on laterite soils and with dominant species belonging either to the dry ever green forest or to the dry Dipterocarp forest (Chandraksekharan 1978).

³⁰ Dry Dipterocarp Forest often occupies lowland and upper hill with poor lateritic soil on dry slopes and exposed ridges (Chandraksekharan 1978). Mixed Deciduous Forest in the lowland is characterised by bamboo. In northern Laos, teak (*Tectona grandis*) also appears in the Moist Upper Mixed Deciduous Forest.

classification across the country in Laos. According to Table 3.7, dense forest account 5.4 million hectare (23 percent), while secondary forest including degraded dense forest, open deciduous forest and degraded open deciduous forest account 10.3 million hectare (43 percent). Table 3.7 indicates that forest accounts 64 percent (15.7 million hectares) of land area.

Meanwhile, FAO also made a crude estimate of forest in 1980 (Table 3.8). Forest was divided into six categories including Closed Broad-Leafed Forest (Productive, Unproductive), Fallow, Mixed Forest (Grassland Mosaic), Bush Land, Productive Bamboo, and Closed Coniferous Forest (Productive and Unproductive). Table 3.8, dense forest or “Closed Forest” accounts 7.7 million hectares or close to 40 percent of land area. According to Table 3.8, total area of forest was estimated at 19 million hectare, which is larger than 15.7 million hectares accounted by the Mekong River Committee.

In 1989, nationwide forest survey was conducted by the National Office of Forest Inventory Project (NOFIP), which was based on interpretation of aerial photos with ground truthing. The project was supported by Sida. Aerial photos from 1982 and 1989 were interpreted and classified into six main land use groups, which were modified from FAO’s classification in 1987 (Manivong and Sandewall 1992).

Following the interpretation of aerial photos, ground-truthing was conducted to verify the accuracy of forest and land classification. This was the first comprehensive forest survey that distinguished forest cover and land use based on scientific categories. It was also the first forest survey that conducted ground truthing throughout the country. The classification includes the following: Current Forest, Potential Forest, Other Wooded Areas, Permanent Agricultural Land, Areas with Other Land Use and Water Body. Also, each group was further subdivided into forest types and land use classes.

“Current Forest” is defined as areas suitable for forest production and having a tree cover with a crown density of at least 20 percent. Forest plantation is excluded from the group, while the group is subdivided into dense and open forests based on crown density and standing tree structure. Meanwhile, previous forest areas with lower than 20 percent crown cover is classified as “Potential Forest.” This is usually an area of secondary forest where people used for logging and shifting cultivation. The currently used swidden is also included in this group. Area with potential crown cover below 20 percent is classified as “Other Wooded Area.” This is an area often covered by shrubs and is considered unsuitable for forest production.

“Permanent Agricultural Land” includes areas cultivated for crops, fruit trees as well as used for grazing. Lastly, “Areas with Other Land Use” includes areas of land, which is neither covered by forest, nor used for agricultural production.

The result of the Survey indicates that dense forest or “Current Forest” accounts a little over 11 million hectare (47 percent) in 1989 (Table 3.9). This is significantly lower than the earlier estimates provided by the Mekong River Committee and FAO. Table 3.9 also indicates 4 percent loss of dense forest (469,000 hectare), while areas of secondary or degraded forest (Potential Forest) accounts approximately 9 million hectare (38 percent), which increased by 4.6 percent (394,999 hectare) between 1982 and 1989. In the meantime, permanent agricultural land increased by 19 percent (141,000 hectare) between 1982 and 1989.

What is apparent from the comparison of different estimates of forest areas as shown in Table 3.2, Table 3.7, Table 3.8, and Table 3.9 is not so much that area of forest diminished as often claimed in policy papers and reports discussing environmental problems in Laos (Domoto 1997; Tsechalicha and Gilmour 2000). Instead, the area of forest not only fluctuated physically but also due to how forest was classified. In the period of French colonial intervention, forest was classified on the basis of commercially valuable tree stand. It was not until the late 1980s that the scientific classification was applied throughout the country by the national agency to distinguish areas of forest and land. The functional distinction of forest and the idea of “sustainable” management or protection of biologically precious forest was particularly supported by the interests of the international organisations.

3.2.2 Legal Definition of Forest

The legal definition of forest in Laos also developed in parallel with the state interest to control resources. One of the first legal statutes that distinguished legal status of forest was the decree issued in 1939 that declared all central and southern Laos as hunting reserves (Sayer 1982). The decree imposed restriction on hunting by limiting the seasonality of hunting and the use of hunting gears. However, the decree did not define boundaries of hunting reserve, nor was it strictly enforced, which meant the customary access and use of resources were little affected by the decree.

Following the independence, all forest areas were placed under the management of RLG with the

exception of areas of teak forest managed by the royal households in northern Laos. RLG adopted the colonial forest management, and declared 17 forest reserves for future commercial use that restricted timber extraction (Agaard 1943). In addition, areas of forest were distinguished as protected forest which allowed commercial logging but required stumpage fee.

Forest became national property following the political transition in 1975. In the early years of the new socialist regime, extraction of forest resources were prioritised as means to develop the national economy. However, legal distinction of forest did not develop during this period. The notion of forest as legally defined and bounded space was only adopted gradually in the 1980s as the economic situation of the country gradually turned towards market economy³¹.

Following the fourth Party Congress in 1987, the government introduced a new forest classification system, which divided forest into area for environmental protection (*pā ponkan saphāp singwetlōm*) and an area for utilization (*pā nam xai*). All together, 70,000,000 ha were allocated as *pā ponkan saphāp singwetlōm* for the purpose of protecting water source and wildlife habitat, for recreational and for scientific purpose. On the other hand, *pā nam xai* was distinguished into three types. First type is an area for commercial timber extraction, which is allocated to forest enterprises and government offices (2,000,000 ha). Second type is an area allocated for extraction of commercial non-timber forest products including benzoin, cardamom, pine oil, bamboo, rattan and other tree resins (2,000,000 ha). The last type includes area allocated for firewood collection (1,000,000 ha). In addition to distinguishing the forest into two broad categories, the forestry plans of 1987 called for a need to regulate access and use of forest and its resources (Ministry of Agriculture, Forestry, Irrigation, and Agricultural Collective 1987).

One of the earliest legal definitions of forest was stipulated in the Property Law, which was issued in 1990. In the Property Law, forest was defined as a natural resource including land, water, forest and wildlife. These natural resources belonged to the national community represented by the state. It meant that the state had the ultimate right to control, use and transfer the use rights to natural resources. The Constitution promulgated in 1991 also refers to the central role of the state to protect varying property

³¹ In 1975, the Mekong River Committee suggested protection of eight areas for conservation. FAO and UNDP also proposed protection of Phou Khao Khouay in 1975, but the new government did not accept this.

system. Both the Property Law and the Constitution recognised the variable nature of resources and their tenure. They also defined the central role of the state to allocate and manage resources.

In 1992, Land Decree was issued which recognised the rights of the Lao citizen to inherit, lease, sell or transfer land. While the Land Law later overwrote this decree in 1997, the Decree provided the basic framework on property rights.

In 1993, the Prime Minister Decree No. 164 designated 18 areas of *pā saguan hēngxāt* or national reserve forest. *Pā saguan hēngxāt* was defined as areas of forest intact from human intervention such as logging, mining, shifting cultivation, hunting and encroachment. The Decree was also the first legislation to delineate spatial boundary for biodiversity conservation in Laos. Varying English terms has been used to distinguish *pā saguan hēngxāt* from more general *pā sanguan*, which is referred to as a conservation forest. Berkmüller et al. (1995) uses “National Biodiversity Conservation Area (NBCA)” and “Protected Area” interchangeably as an English equivalent of *pā saguan hēngxāt* considering the fact that these areas of forests were designated primarily to protect biodiversity. Southammokhot (2000) on the other hand, carefully uses the term “national reserve forest” for *pā saguan hēngxāt* which offers the highest protection status in the country, but is not equivalent to “national park” following IUCN’s category of protected areas, which requires strict management (Southammokhot 2000). The Decree No.164 not only defines *pā saguan hēngxāt* but also delineates the spatial location of each reserve forest, and prescribes activities that are prohibited within the reserve forest. However, the Decree does not explain how each *pā saguan hēngxāt* should be managed.

The definition of forest was further elaborated in 1994 in the Prime Minister Decree No.169 on Management on Forest and Forest Land. Forest or *pā mai* was defined as “biological natural resource including natural plants that are important for the protection of environment, watershed, land, wildlife animals and for the daily livelihood of all people (Section 1, Article 2; translated by author).” The same decree also defines forest land or *thī dīn pā mai* as “every plots of land that is managed by the Ministry of Agriculture and Forestry, which is covered by forest or land that is not under use or designated as permanent agricultural land (Section 1, Article 2; translation by author).” Furthermore, Section 1 of the Decree defines *xapphanyākōn pā mai* or forest resources as “natural resources that is closely related to

forest such as land, water, tree, wildlife, aquatic animals, and so forth that is found on the surface of forest land, excluding underground resources. (Section 1, Article 3; translation by author).”

Forest is divided into five categories under the Decree No. 169. These include *pā pongkan* (protection forest), *pā saguan* (conservation forest), *pā pharit* (production forest), *pā feunfu* (regeneration forest) and *pā xutxom* or *din poklōn* (degraded forest or barren land). The Forest Law 1996 adopted these categories and elaborated them. For each forest type, Section 2 of Forest Law describes how each forest category should be managed. All logging are strictly prohibited in both protection and conservation forests. Meanwhile, use of forest and forest land are based on official approval in production and regeneration forest. Local people’s access and use were permitted in degraded forest only if it was sustainable and was in accordance with the government policies. As such, Decree No. 169 is one of the first legislation in Laos that recognises forest management and use by community, family and private entities (Section 4). In particular, families were legally entitled to manage and use degraded forest or barren land upon registration. Following the registration, families received formal rights to use, transfer and inherit the plot. The procedure outlined in the Decree was further elaborated as the Land and Forest Allocation Policy, which was explained in the earlier section.

In 1996, the Forest Law was promulgated. The Law distinguished forest into five categories, adopting the categories defined under the Decree No. 169. It also specified the definition of forest, forest resources, and forest land. Forest is defined as, “natural resource which provides value for the nation, including natural plant and tree species, as well as those species that were planted that is essential for the environmental protection and livelihood of the human (Section 1, Article2, translation by author).” Forest resources defined in Article 3 includes both living and non-living resources including land, plant and tree species, water, aquatic animal, and wildlife that exist on forest land. With regards to forest land, Article 4 of the Forest Law defines it as “all land that has forest or without forest but is designated as forest by the government (translation by author).” Section 1 of the Forest Law further stipulates rights of private individuals and entities to use forest and forest land, the government goals to protect and regenerate forest, rights of private individual and entities to benefit from protection and management of forest and forest land, and finally responsibilities of private individuals and entities to protect forest and forest land.

The Forest Law also distinguishes *pā sanguan* into three zones including Totally Restricted Zone (*khēt vanghēm det khāt*), Managed Use Zone (*khēt khum khong kăn nam xai*) and Corridor Zone (*khēt xouam tō*). The Law prohibits (Article 42) activities including logging, collection of non-timber forest products and encroachment in Totally Restricted Zone. Extraction of resources from this zone will require special official approval from the local authority as well as the Ministry of Agriculture and Forestry. In the meantime, Managed Used Area is an equivalent of a buffer zone, where daily use of forest resources by local people is permitted. However, the Law does not make a clear distinction between *pā sanguan* (conservation forest) and *pā sanguan hēngxāt* (national reserve forest), nor does it elaborate how customary resource access and use of resources are permitted in different types of forests.

The definition of *pā sanguan hēngxāt* was elaborated in the new rule legislated by the Ministry of Agriculture and Forestry (0524/DoF) in 2001. The Rule on the Management of National Reserve Forest, Aquatic Resources and Wildlife defines *pā sanguan hēngxāt* as forest and forest land with ecological characteristic and biodiversity, as well as areas with cultural and aesthetic value worthy of protection. The Rule also provides definition of other terminologies to clarify the different zones within *pā sanguan hēngxāt* and how it should be managed.

3.2.3 Local Definition of Forest: Distinction, Variability, and Compatibility with State Policy

We have seen that the state definition of forest in Laos changed over the course of a century as new classification system was introduced. The meaning of the forest was legally defined as forest gained importance and forest management was institutionalised by the government. However, the legal definition of forest often undermined local perception of forest and land, which is often more dynamic and connected to the landscape.

Fairhead and Leach's (1994) study in Guinea contend that patches of forests are not relics of the past land use, but part of the present-day landscape for local inhabitants with a meaning on their own. Understanding local people's relationships with the land, their attitude towards the land and their claims for forest are thus essential for developing "people" centred forest conservation (Fairhead and Leach 1994). Based on intensive fieldwork in northeast Thailand, Fujita (2000) also contends that local people perceive

and classify natural resources from different perspectives. The first perspective raised by Fujita (2000) is a zero or one-dimensional perspective based on individual farmer's own experience within the environment, which is a continuous landscape. The second perspective is a two-dimensional perspective, which relates the farmer to land through tenure relationship or other social relationship. Under the second perspective, resources are perceived as having clear boundaries, which can be segregated and distinguished from the surrounding environment.

In the case of Laos, Ireson (1997) who studied women's role in forestry recognised two local distinctions of forests in the lowland village, which did not fall into legal categories of forest. These are *pā dong* and *pā khok*. *Pā dong* refers to an old forest growth with large trees and wildlife, while *pā khok* is a second growth forest or swidden fallow with only small trees, bushes and few wildlife (p19). Study by Namura (1998) also illustrates that upland villagers conducting shifting cultivation in Laos have distinctive ways of classifying their swidden and fallow land according to the years of fallow and vegetation³². His study also distinguished customary tenure and access to resources for each local category of land and forest. The study by Thongmanivong and Fujita (2002) also points out customary classification of forest and land often includes *pā lao* or swidden fallow, *pā saksit* or sacred forest, *pā xā* or crematory forest in addition to *pā dong*³³. The study by Thongmanivong and Fujita (2002) further illustrates the extensiveness of the customary resource boundary and the flexibility of customary resource tenure within the customary boundary, as well as the dynamic nature of local resource use and management. It also contend that village territory is cognitively recognised by the members of the village using natural landmarks and that it is not a definitive and static boundary on a map.

The kind of landscape management practiced by the rural farmers in Laos is best illustrated by Pravongviengkham (1997) as he arbitrarily distinguishes village areas into core zone and outer zone. Core zone is defined as farming plots near residential area where farmers often plant rice, maize, chillies and

³² *Pā saksit* and *pā xā* are found in most rural villages in Laos (Akasaka u.d.; Namura 1999; Thongmanivong and Fujita 2002). The area is usually small and is commonly managed by the village. Food foraging and resource use are allowed while logging, encroaching and swidden cultivation are prohibited by the village rule. These are the only categories of local forests that are legally recognised under the Forest Law.

³³ *Pā lao* can be further distinguished into *pā lao kae* (old swidden fallow) and *pā lao òn* (young swidden fallow) depending on the years of fallow and vegetation.

other crops. Outer zone is defined as “ill-identified” zone of the village where former fields are rested in fallow. It is “ill-identified” in a sense of clear and definitive sense of boundary and fixed resource tenure. While land tenure and resource access in the “core zone” is often specific to individual, land tenure and resource access in “outer zone” is inclusive and flexible³⁴. It is subject to change, and its claim can be negotiated among the users (Pravongviengkham 2000; Thongmanivong and Fujita 2002).

While customary resource use practice and resource tenure in Laos largely remained intact until the 1980s, this began to change as more rigid boundary was imposed including the delineation of national forest reserves, which imposed a definitive boundary on a map. Areas of forest confined by the new government policy became state property, which legally restricted local people’s access to forest and use of resources. The notion of defined and exclusive resource boundary was further reinforced during the mid 1990s as the government implemented the Land and Forest Allocation, which distinguished each village boundary. While the Land and Forest Allocation recognised both community and individual ownership of forest and land, which was considerably a progressive notion in Southeast Asia where the state often did not relinquish its power to control forest to the local people, it also imposed fixed resource boundary and resource tenure contrary to the local relations with upland forest and land resources.

Namura (1998) who reviewed the impact of the Land and Forest Allocation on rural households in an upland area contends that land types such as residential land, vegetable garden, orchard, paddy fields that are often located in the “core zone” in the lowland area as well as communal forest land (for production purpose) and *pā xā* are less problematic to identify and apply management through the Land and Forest Allocation. This is because there is already a relatively clear sense of ownership for these forest and lands, and villagers usually have a distinguished set of use rules for use and management of such lands.

On the other hand, Namura (1998) contends that swidden fields, as well as conservation forest (*pā sagan*) and protection forest (*pā pongkan*) are more difficult to distinguish under the new government policy. Swidden fields (*hai*) in particular are difficult to distinguish as they include areas currently under cultivation, as well as swidden fallow including *pā lao ōn* (young fallow usually less than 5 years) and *pā*

³⁴ However, resource access such as fishing and collection of wild food from paddy fields are often inclusive. Paddy fields often become common pool resource during the dry season allowing villagers to graze their cattle without fencing.

lao kae (old fallow usually more than 5 years)³⁵. While *pā lao* is perceived as a “resting” field by the local villagers, *pā lao ōn* is classified under the Forest Law as *pā feunfu* or regeneration forest that prohibits individual ownership or its conversion into non-forest land. *Pā lao kae*, which is an older fallow is classified either into *pā pongkan* or *pā saguan* under the Forest Law depending on its importance to the watershed. In either case, the new classification prohibits logging, encroachment, as well as swidden cultivation in forest once the area is classified into *pā pongkan* as well as *pā saguan*.

The Land and Forest Allocation thus reinforces new legal classification of forest and land underlined by the Forest Law. By conforming village land into specific forest and land zone, the Land and Forest Allocation freezes the territorial boundary of the resources as well as resource tenure. In particular, the Land and Forest Allocation impose restriction on the expansion of areas under shifting cultivation areas. There is a strong emphasis on forest protection by prohibiting local people’s use and access to forest.

Meanwhile, the effects of Land and Forest Allocation on rural households are not without concern. By limiting the area of forest and fallow accessed by villagers swidden-fallow cycle is shortened without alternative. For instance, the Land and Forest Allocation recognises access to three swidden plots per family which means that the government allows continuation of shifting cultivation on three year cycle instead of five to fifteen years cycle. The three year rotational cycle for shifting cultivation often aggravates household agricultural production and environmental degradation as soil fertility is quickly lost. It not only results in low agricultural production but also soil degradation and land erosion. Furthermore, some households become more dependent on cash income from non-timber forest products and wildlife trade, which then incurs loss of both plant and animal species from forest areas that are intended for protection (State Planning Committee 2000).

Jones (2000) who reviewed Sida’s support to the Land and Forest Allocation in Luangprabang, Savannakhet and Salavan Provinces questions rigidity of the Land and Forest Allocation that curtails local people’s knowledge of resources and their management practices. He also questions the undue focus of the government policy on “allocation” which imposes fixed land use practices at village level and at household

³⁵ Distinction between young and old fallow not only depends on the years of fallow but also on the vegetation of the fallow.

level in contrast to the dynamic forest and land use practices that were allowed in the “outer zone” of the village.

The government’s concern on fixing or freezing forest and land use practices is also apparent in how the Land and Forest Allocation became to be known in Lao language. The policy was initially referred to as *gān beng dīn beng pā* (land and forest classification), which focused on zoning. By the late 1990s this had changed to be referred more as *gān mop dīn mop pā* (Land and Forest Allocation) which focused more on allocation of land titles.

3.3 RHETORIC OF DEGRADING FOREST: SHIFTING CULTIVATION AND LOGGING

The review of forest policy and definition of forest in Laos highlighted how state definition of forest evolved as its emphasis shifted from controlling commercial species of trees, towards controlling of “forest” as space whereby its access and use are defined by scientific classification and by formal institutions on forest management. Underlying these processes of defining forest and developing conservation policy is the question of how forest degradation is defined and problematised in the eye of the state. I will now turn to the two major issues in forest management: shifting cultivation and logging.

3.3.1 *Shifting Cultivation: Source of Forest Destruction?*

Shifting cultivation is otherwise known as swidden cultivation or slash-and-burn cultivation, and is commonly defined as a temporary conversion of primary or secondary forest into agricultural land for production of subsistence crops (Brown and Shrekenberg 1998). It is considered as a primitive form of agricultural practice and is often blamed as a main cause of forest degradation coupled with increased population which results in loss of forest cover that leads to soil erosion and landslides, as well as shortening of fallow period.

According to a report by IUCN (1989), traditional shifting cultivation leaves deep root system intact from burning and tills only the top soil for cultivation to produce shallow rooting crops such as rice and maize under a relatively long period of fallow (five to fifteen year cycle). While traditional shifting cultivation is relatively sustainable and well adapted to the humid tropics, this practice can become

unsustainable when the fallow period is shortened and there is a rapid loss of soil nutrients.

The work by Inoue (1995) also distinguishes shifting cultivation into two types: traditional and untraditional. Based on his observation of the Dayak people in East Kalimantan, he argues that shifting cultivation becomes unsustainable only in the case of “untraditional” practice. He contends that the break between traditional and untraditional occurs not only due to population increase, but also due to integration of local people’s livelihood into market economy, and changes in the local agricultural production system.

On the other hand, a study conducted by Fox et al. (2000) in northern Vietnam points out that traditional shifting cultivators are able to manage their swidden-based landscape regardless of the rapid population increase. The study confirms that in spite of population increase shifting cultivation conducted by Tai ethnic minority in northern Vietnam only diversified and fragmented forest cover rather than denuding forest areas in the upland areas (Fox et al. 2000). Both studies by Inoue (1995) and Fox et al. (2000) suggest the importance of understanding how local people adjusted their forest and land use over the course of history.

In Laos, shifting cultivation is referred to as *hai*. The practice of shifting cultivation varies by climatic and topographic setting, as well as by vegetation (Pravongviengkham 1997). Various ethnic groups of Laos practice different types of shifting cultivation, which essentially produces 20 to 40 percent of the total rice production (glutinous rice) in Laos. Few studies conducted in Laos recognise the difference between traditional shifting cultivation with long fallow period and untraditional shifting cultivation practices with short fallow and continuous cropping (IUCN 1989; Souvanthong 1995; Roder 1997). In spite of the variability, shifting cultivation practices are often stereotyped as being the root cause of forest degradation (Domoto 1997). This has been reflected in the government policy to halt shifting cultivation (*kān yut thikān thang pā het hai*).

The upland people have been particularly subject to government policies to ‘stabilise’ shifting cultivation practices. Shifting cultivation is often linked to the political distinction of ethnic groups introduced after 1975: Lao Sung (highlanders), Lao Theung (midland, or hill dwellers) and Lao Lum (lowlanders). Carol and Randal Ireson (1991) observes that the blame of forest degradation is often cast upon Lao Sung (including Hmong-Hmien ethno-linguistic group and Tibet-Burman ethno-linguistic

group) and Lao Theung (predominantly Mon-Khmer ethno-linguistic group), while shifting cultivation are also conducted by the Lao Lum (Tai-Kadai ethnolinguistic group) communities. Roder (1995) also argues the inadequacy of farming typology based on political-ethnic identity rather than socio-economic indicators. Based on his survey in Luangprabang and Oudomxay, Roder (1995) claims that current discrepancies and choices of land use is based essentially on forced resettlement and lack of economic opportunities rather than cultural preference. For example, a total of 6,700 families were displaced prior to 1977, and additional 10,760 families were displaced between 1977 and 1980 (FAO/UNEP 1981) in order to transform “primitive” agricultural practice in the uplands. Study by Phanvilay (1996) and Hirsch et al. (1996) also illustrate the variability of resource use practices by different ethnic groups, which is also affected by the history of war, and government policy rather than their cultural preference. An extensive study on shifting cultivation practices conducted by Pravongviengkham (1997) in northern Laos also illustrates diverse local responses in the face of changing economy and government policy.

In 1986 during the Fourth Communist Party Congress, the government announced its aim to eliminate shifting cultivation practices by 2000. The public campaign encouraged resettlement of more than 277,000 upland households across the country (Souvanthong 1995). Goals of the campaign were to be achieved through integration of upland agriculture with agroforestry techniques, improvement of upland agricultural productivity and transformation of shifting cultivation into a permanent agriculture including cash cropping as well as livestock grazing. Shifting cultivation stabilisation became a leading government policy in the 1990s as it became linked to the issue of rural poverty. Shifting cultivation is now not only associated with primitive and backward agricultural technology, and deforestation but it is recognised as a source of rural poverty. In its effort to ‘eradicate poverty’ and to step away from the Least Developing Country (LDC) status by the year 2020, the Ministry of Agriculture and Forestry proposes to eliminate shifting cultivation practices in Laos by 2010.

Meanwhile, critiques claim that shifting cultivation stabilisation programs only adds household labour requirement while offering little foreseeable benefits to the upland households (Fisher 1996). The same point is refuted by other studies conducted at the farm level. Studies conducted by Fujisaka (1991) and Roder (1997) on shifting cultivation in northern Laos, both claim that new alternative techniques are often

too costly for local farmers to apply. Furthermore, terracing and agroforestry techniques introduced by shifting cultivation stabilisation programs do not provide short-term foreseeable benefits to farmers. Keonuchan (2000) who conducted a study in northern Laos on farmers' responses to new agricultural technology also concludes that adoption of new agricultural practice in the upland area is dependent on varying factors including farmers' own understanding of the natural environment, market factors as well as government policy on land tenure. His study points out farmers that adopt new agricultural techniques are often farmers with sufficient labour and capital, while poor farmers on the other hand, can not risk the subsistence needs. This brings us to question the effect of state forest and land management particularly on poor households. It is apprehended that fixing resource boundaries and imposing inflexible use of resources places economically poor households into disadvantage and does not improve community's resource management practices.

3.3.2 Logging: Underlying Cause of Forest Degradation?

As have been studied in the earlier section of this paper, commercial logging in Laos surged in the late 1960s when the international agencies including the United States Agency for International Development (USAID) and United Nations Industrial Development Organisation (UNIDO) supported the development of forest industry in Laos. However, the war inhibited the development of institutional foundation to manage forest resources. On the other hand, the war boosted economy fostered widespread unregulated logging.

In a report prepared by USAID in 1970, it was estimated that more than three forth of lumber production in Laos was illegally traded to Thailand, and were further exported to other counties including Europe, the US and Japan. Following the war, commercial logging was temporary hampered by the political transition. While forestry was considered a key industry in the post-war Laos, its development was significantly inhibited by the shortages of equipments, low timber price in the international market and economic blockade by Thailand. Meanwhile, the government established state forestry enterprises (SFEs) to utilize the best remaining forests in Laos. As had been noted earlier in this chapter, SFEs received technical and financial assistances from countries including Vietnam, the former Soviet Union,

Czechoslovakia, East Germany as well as international donors such as Asian Development Bank (Burley 1982, Person 1983). In addition to SFEs, each province also established provincial forestry enterprise and conducted logging activities. Consequently, logging by both SFEs and PFEs throughout the 1980s resulted in widespread forest degradation.

A logging ban was issued in 1991, as the government limited annual allowable harvest to 600,000 cubic metres (PM Decree 67). The new legislation stipulated the role of the Ministry of Agriculture and Forestry to estimate potential timber production for each province. The Ministry of Commerce and Tourism, and the Prime Minister's Office are responsible to issue annual logging quota for each province. In addition to the provincial logging quota, industrial logging quotas are separately issued by the Prime Minister's Office in areas where the government had development plans such as the hydropower project. These industrial logging quotas were allocated to three parastatal companies including the Agriculture and Development Service (ADS) based in the northern Laos, *Bolisat Pathana Khet Phoudoi* (BPKP) based in the central Laos and the Development, Agriculture and Forest Industry (DAFI) based in the southern Laos³⁶.

It has been criticised that allocation of quota is hardly based on sustainable yields estimates but instead based on the estimation of the Ministry of Finance's estimate of potential income earned from royalties and taxes, together with the operational demands of parastatal companies. The allocation is further affected by bargaining powers of local politicians and timber merchants to issue 'additionally approved quota.' In some instances, additional quota is allocated to finance development of infrastructures such as road, and electricity. The report by Tropical Rainforest Programme (Anonymous 2000) addresses other 'questionable' logging practices such as logging scams operated jointly by saw mills, villagers, and local authority, as well as personal logging arrangements between government officials and villagers. On top of that, the report points out the extensive logging to repay war-time debts and development aid from China and Vietnam.

Logging thus, remains a sensitive issue in Laos. While institutional development had taken place to regulate commercial logging activities particularly during the 1990s, commercial logging is often beyond

³⁶ BPKP was reorganised under the jurisdiction of the Ministry of Finance in 2000.

the control of the Ministry of Agriculture and Forestry. While the Ministry of Agriculture and Forestry provides the estimate of allowable cut based on sustainable yields management, the issuance of quota is affected by the economic and political decisions made by other government agencies including the Ministry of Finance and the Prime Minister's Office. In some instances, villagers exchange their timber for rural development (i.e. road construction, electricity etc.). As logging remains a lucrative trade that quickly brings high cash income, it continues to involve varying levels of stakeholders from the central government office, local authorities, villagers and merchants.

An effort was made by a forest management project supported by the World Bank and the Finland International Development Agency to decentralise the management of production forest to local villages, by sharing profits accruing from sustainable forest management practices between local authorities and the villages (Litz 2000). While the project, the Forest Management and Conservation Project (FOMACOP) was initially envisaged as 10 years plan to devise transparency in forest management system, the project was forestalled by the central authority, as they found the project's benefit sharing scheme in conflict with the central authority's interest to control forest and its resources. This denotes the politics of timber and how this can affect the forest management practices.

3.4 FOREST CONSERVATION: NEW DISCOURSE

As we have learned in the earlier section of this chapter, the idea of delineating forest boundary was first introduced in Laos through the intervention of the French colonial government. Though its influence was limited, the French had introduced the idea of delineating reserve forests. However, the importance of forest conservation from the perspective of "ecological protection" or "biodiversity preservation" did not emerge until the 1970s.

Prior to the 1970s, forest reserves signified areas of forest reserved for future use. The need to develop national parks and wildlife sanctuaries was first recommended by the USAID in the Forestry Sector Evaluation Report (United States Agency for International Development Mission to Laos 1970). In 1975, the Mekong River Committee identified potential conservation areas in Laos. Also in the same year, a joint proposal was prepared by UNDP and FAO to develop a forest conservation plan in Phou Khao Khouay

outside of the capital Vientiane. However, due to the precarious political situation neither of these approaches was implemented.

In 1983, an assessment was conducted by a FAO consultant to develop national parks and conservation areas in Laos (Sayer 1983). The report prepared by Sayer (1983) claims the need for conservation or 'the wise use of nature' in order to "ensure continuity of long-term resource use in Laos." Instead of species conservation, he suggests "ecosystem conservation" by protecting representative areas of all the major forest types (Sayer 1983, p14). This had led to the creation of the first national conservation forest in Laos in 1984, which aimed to protect ecological habitat and biodiversity³⁷.

Sayer (1983) also suggested the need to identify and create national parks and conservation areas in major ecological zones, and thereby regulating human access and the use of forest resources in each area³⁸. Sayer (1983) distinguished six ecological zones based on the forest classification of Jules Vidal (Table 3.10). Key conservation areas were identified in each ecological zone, which were selected by the 1) size of undisturbed natural vegetation, 2) variety of local ecological types, 3) numbers of species of animals and plants, 4) viable populations of large mammals, and 5) landscapes of outstanding natural beauty.

In his report (1983), Sayer also suggested the Lao government to acknowledge international definition of forest classification and applying conservation measures. For example, he stressed the need to distinguish between "National Parks" and "Nature Reserves." While "National Park" is a forest with national significance, and features outstanding environmental characteristics for scientific research, "Nature Reserve" is defined as a supplementary area of forest for protection, which is often smaller in size compared to the "National Park."

The idea of delineating conservation forests based on scientific classification of forest developed in the late 1980s as IUCN in collaboration with the Department of Forestry conducted a study on national protected areas system. Salter and Phanthavong (1989) define protected area as a "territory with legally defined boundaries, established to afford protection to certain characteristics of particular value or interest (p3)." The study conducted by IUCN identified 68 sites across Laos including non-forest areas such as

³⁷ Houay Yang Reserve Forest covering 800 hectares was established in the outskirt of the urban capital of Vientiane.

³⁸ Sayer (1983) claimed that the size of conservation area should be greater than 50,000 ha.

wetlands, as well as areas that are known for historical and cultural significance. Subsequently, the study selected 11 forest areas and 2 wetlands with high conservation significance and 16 other sites of moderate importance. The sites were selected on the basis of its size, completeness of original forest cover, representativeness of the ecology, regional importance, and the degree of threat on existing plants and wildlife species (Salter and Phanthavong 1989).

In order to prioritise areas for conservation, Salter and Phanthavong (1989) employed “biogeographic/ecological approach” that distinguished land area according to distribution of plant and animal species. Laos is divided into two biogeographic zones (Figure 3.3): South Indochina and Annam (Unit 5) and Indochina (Unit B). The unit is further divided into Annam Trung Son Mountain Chain (Subunit 5b), Tropical Lowland Plains (Subunit 10a), Hilly Sub-tropical Sector (Subunit 10b), and Montane Temperate Sector (Subunit 10c).

In theory, biogeographic/ecological approach calls for management of 5 to 10 percent of each subunit, as well as each habitat within the subunit. For areas with high species diversity and highly localized environment, the conservation requirement increased up to 10 to 20 percent of each subunit. This meant that in Laos, an area between 1,200,000 ha and 4,800,000 ha were estimated as an appropriate range of conservation area. In the report, Salter and Phanthong (1989) further recommended the need to develop management objective for 11 conservation sites following IUCN’s protected areas management categories (Table 3.11).

Forest conservation in Laos regained international attention in the early 1990s. Financial and technical assistances from organisations such as UNDP, Sida, ADB and the World Bank began to replace the post-war bilateral aid from the Eastern-bloc countries (Suzuki 1992). A significant turning point of forest conservation came as the Tropical Forest Action Plan (TFAP) was introduced³⁹. TFAP in Laos essentially promoted “sustainable development” principle and provoked the government to institutionalise forest management. The government adopted TFAP on 17 September 1991, which further led to the development

³⁹ TFAP was the first global framework and principles on tropical forest management developed jointly by FAO, the World Bank and the World Resource Institutes (WRI) in 1985 (Kashio 1994). It particularly encouraged “multi-disciplinary sectoral planning approach (Kashio 1994, p2)” at the national level in tropical countries.

of the National Forest Action Plan (NFAP)⁴⁰. The Plan reflected national strategy on forestry, which was developed following the First National Conference on Forestry in 1989. The major tasks outlined in the national strategy included assessment of forest status and policy formulation on conservation, afforestation, and wood production as well as organisational development and restructuring of central state agencies in order to implement forest management programs, development of extension services in the upland areas and human resource capacity development or training of resource managers.

The signing of TFAP provoked a significant organisational restructuring, particularly at the Department of Forestry. Centre for Protected Areas and Watershed Management (CPAWM) was created within the Department of Forestry to develop national plans for forest conservation. Institutional development also occurred as 18 *pā saquan hēngxāt* or 'national conservation forests' were established under the Prime Minister Decree No. 164 (Table 3.12)⁴¹. Following the designation of 18 sites, CPAWM began to conduct wildlife surveys and management planning supported by international organisations and environmental NGOs. Table 3.12 illustrates that all *pā saquan hēngxāt* in Laos which began to take shape in the 1990s was linked to external assistance. Donor supports can be broadly categorised into four types. These are: 1) protected areas management supported by international organisation, 2) comprehensive forest management program supported by bilateral and international organisation, 3) wildlife survey and conservation project, and 4) financial support for conservation activities i.e. environmental awareness programs at local primary schools.

The first category includes protected areas management projects that were technical supported by IUCN and financed by the Danish International Development Agency (DANIDA). The primary focus was placed on forest classification and identifying core conservation areas. Buffer zone management was also introduced by the projects. While similar in its list of activities with the first category, the second category includes a more comprehensive forest management programs including Lao-Swedish Forest Program

⁴⁰ All together, there are six main components to NFAP including: 1) organisational development and donor coordination, 2) institutional strengthening and development of legal framework for improved forest management, 3) development of sustainable alternatives to shifting cultivation practices, 4) improved watershed protection, 5) developing sustainable forest production practices, and 6) promoting forest plantation (Forster 1995).

⁴¹ In order to distinguish these forests from more general "conservation forest," Berkmüller et al. (1995) adopted the English term "National Biodiversity Conservation Area (NBCA)." Report by Robichaud et al. (2001) articulates that *pā saquan hēngxāt* is part of what is legally defined by the Forest Law as "conservation forest" or *pā saquan* (Article 18). A set of regulation is being developed by the Department of Forestry to supersede Prime Minister Decree No. 164.

(LSFP) which is technically and financially supported by Sida, and the Forest Management and Conservation Program (FOMACOP), financially supported by the World Bank and the Global Environmental Fund (GEF), and technically supported by the Finish International Development Agency (FINIDA). Under these programs, emphasis was placed not only on forest conservation, but also on sustainable forest use and rural development. Management planning process also involved local communities from the early stages.

The third category includes a series of wildlife survey and conservation projects initiated by international environmental NGOs such as WWF and WCS. In addition to conducting technical surveys on wildlife animals in *pā saguan hēngxāt*, extensive efforts were placed on training local foresters to conduct participatory surveys and developing conservation plans in collaboration with local people. Finally, the last category includes projects with financial support from international donors that support conservation activities in *pā saguan hēngxāt*. For example, Phou Phanang which is one of the smallest *pā saguan hēngxāt* established in 1993 received total of USD 22,330 from Canada Fund in 1997 to promote participatory management and conservation (Vientiane Times 8-11 March, 1997). The money was provided directly to CPAWM in order to develop management plans and activities. There were no technical services provided by foreign advisors.

What the review of forest conservation policy in Laos indicates is that the idea to conserve forest on the basis of scientific forest management, which was accompanied by delineating physical space, is relatively new to Laos. The process developed in the last decades was significantly driven by international agencies that were concerned on the issues of tropical forest degradation.

Financial and technical support provided by international organisations and bilateral agencies during the 1990s had prompted the development of protected areas system in Laos, which delineated a definite forest boundary based on scientific classification. Legally, the definition of protected area was cemented, as an area prohibiting local people's resource access. However, management status of each protected area remained uncertain as different donors applied different techniques, and supported protected area. There was generally a lack of uniformity, and a lack of overarching management framework developed by the central government authority, the Department of Forestry.

Southammkhot (2000) claims that the weak institutional basis of the Department of Forestry is due to the limited financial resources and technical skills. While rapid institutional development occurred during the 1990s, forest conservation was highly dependent on external resources: both technical and financial. For example, the Department of Forestry allocated 1.5 million US dollars for management of *pā saguan hēngxāt* in 1996 while, 15 million US dollars were provided by the international donors between 1996 and 1997. In terms of human resources, only 3 out 253 staffs at the Department of Forestry who were assigned to manage *pā saguan hēngxāt* in 1998 had post-graduate training. This not only elucidates the fact that the forest conservation in Laos was largely facilitated by the external agencies, but also the newness of the concept of “conservation” and fundamental organisational weakness of the Department of Forestry.

CHAPTER 4 FOREST CONSERVATION AND POLITICS OF PROTECTED AREAS

“Protected areas are the greatest legacy that humanity can leave for future generations to ensure that our descendants have access to nature and to the material and non-materials benefits and ecological services that they provide... (Miller and Sheppard 2002, p5)”

4.1 FOREST CONSERVATION

4.1.1 *Protected Areas*

Forest conservation emerges in the midst of resource scarcity, it is an effort to secure lasting use and supply of forest resources while maintaining and possibly enhancing its quality, value and diversity. Conservation is a human institution that regulates access and use of resources. Designation of conservation forests and natural reserves, however, is likened as an act of simplification, whereby the state formally define the boundary of the resources in order to regulate its access and use or making it legible in the eyes of the state. The problem of simplification is that it is “always far more static and schematic than the actual social phenomena they presume to typify (Scott 1998, p46).” In another words, zoning forest areas into uniform units by designating conservation areas undermines complexities and diversities of resource use experienced in the everyday lives of the local people.

In this chapter, I will discuss how the notion protected forest or creating a national conservation forest was introduced in Laos, and how this affects the local resource use and management. Furthermore, I will illustrate the conflicts among stakeholders in protected forest management.

In colonial forestry, “protected areas” meant areas of forest preventing human activities such as burning, hunting, logging and collection of forest products. An emphasis was particularly placed on species control. Today, a “protected area” is referred to as a national park or wildlife reserve. Protected area of today encompasses territoriality of resources and regulating access and use of resources within the designated area. As the opening quote of this chapter by Miller and Sheppard (2002) illustrates, protected areas are aimed to conserve material, and non-material value as well as ecological value of the concerned forest area for not only the present generation but for the future generations. It’s definition is also

internationally distinguished as organisations such as IUCN developed definitions of different types of protected area (Table 3.11) ranging between strictly regulated protected area where human access is prohibited (categories I to III) and multiple-use forest (category IV to VIII) where human access to forest and use of forest resources are permitted under certain condition. This global definition of protected areas is applied in tropical countries as national parks and wildlife reserves were established to protect wildlife animals that were becoming extinct due to over exploitation. Usually, this had led to application of “fence and fine” approach where local people’s access and use of resources in protected areas are prohibited on the premises that local people who rely on the use of forest resources instigate forest degradation.

Changes were introduced to the protected areas management as the notion of sustainable development and local people’s stewardship in local resource management gained currency among the global environmentalists and development workers during the 1980s. Leading international organisations began to proclaim the importance of “sustainable development” that balanced economic and environmental needs and development that improved “the quality of human life while living within the carrying capacity of supporting ecosystem (Caring for Earth 1991).”

Meanwhile, the importance of biodiversity conservation with local participation heightened towards the 1990s. During the Rio Environmental Summit in 1992, it was particularly pointed out that biodiversity conservation should reflect the importance of local development needs as well as the institutional capacity of the countries in which protected areas were established. The kind of revisionist approach to biodiversity conservation thus encouraged a balance between economic and ecological needs of the local communities. This had encouraged approaches such as the Integrated Conservation and Development Approach (ICDA) in protected areas by creating buffer zones and incorporating local people’s development needs.

In the following section, I will elaborate on the notion of buffer zone and its management through ICDA as this is also essential part of protected areas management in Laos today.

4.1.2 Buffer Zone and Integrated Conservation and Development Approach

Buffer zone delineation and management became the principle approach that incorporated local people to the management of protected area since the 1980s. Buffer zones are generally conceived as a narrow

strip of land next to biologically important national parks and wildlife reserves or “core zones.” Buffer zones not only lie proximate to “core zones,” but it is conceived as an area where local resource use practices are permitted conditionally in order to relieve pressure on the “core zones.” For example, in a buffer zone, hunting, fishing, collection of wild products and fallen timber are allowed while burning of the forest, logging and conversion of forest into permanent non-forest land is prohibited.

As had been mentioned in the previous section, ICDA became an increasingly a popular approach to buffer zone management. This include activities such as land and forest surveying, land titling, as well as promotion of agroforestry, forestry, hunting, fishing, commercial use of non-timber forest products and so forth. The essential aspect of ICDA is that it involves local resource managers and resources users in the process of developing a resource management plan (Neuman 1991, Wells 1992). The main aim of ICDA is to encourage conservation of biologically precious resources in the protected area by zoning it and regulating local people’s access and use of resources. At the same time, ICDA also offers community services to those local residents in the protected area by allowing them to continue use and access of resources on regulated basis, as well as providing development services that are deemed necessary by the local people. This may mean development of social infrastructures such as schools, clinics, and roads as well as creating alternative economic opportunities for local people through development of ecotourism or through promotion of commercial production of non-timber forest products. The underlying principle of ICDA is thus local people’s attitudes and behaviour towards environmental conservation will change if development services and direct benefits are allocated to them (Abbot and Thomas 2001).

While ICDA gained a wide currency among the global environmental agencies as such as IUCN, WWF and the World Bank, it is important to reflect upon the underlying assumptions, particularly with regards to rural communities and people’s behaviours. First assumption is that livelihood basis of people residing in buffer zone is perceived to be subsistence oriented, and that their livelihood is essentially dependent on forest resources. Second fundamental assumption is that given an economic alternative, the local people will adopt and transform their livelihood and “wisely” manage the natural resources for sustainable goals (Wells and Brandon 1992). In other words, the earlier proponents of ICDA assumed that people residing in the buffer zones are environmentally benign people who are subsistence farmers, and are often

self-motivated to take the role of “environmental steward.”

However, Colchester (1994) criticises that the assumption of environmentally benign local people and transferring management responsibility to the local people as an environmental steward is a “contentious” notion. Wells and Brandon (1992) also point out that the reality is far more complex, meaning that the communities within protected areas are diverse and their interests vary widely. Furthermore, people’s demands for well-being also change over period of time vis-à-vis social and economic factors.

This then brings us back to the notion of state simplification of forest which had been discussed by Scott (1998) where local resource uses practice, though varying in reality, is undermined and confined to uniformity: in this case, by creating a “buffer zone.” Neuman (1991) in particular, contends that buffer zone is a spatial extension of state authority and that buffer zone management guidelines call for “the geographical expansion of park authority to monitor and regulate the daily lives of local community members and to force compliance through systems of rewards and punishments (p565).” The state thus defines the territorial boundary of the forest and classifies resources, and furthermore, defines how the forest and its resources should be used by the people. In other words, the process is likened to the state territorialisation of forest where state defines the space and how resources within the spaces should be used and managed by the people.

While intuitively simple and appealing, the reality of buffer zone management proposed by international environmental organisations is complex in practice. Following their review of protected areas around the world, Wells and Brandon (1992) point out the main difficulty of managing buffer zone based on the complexity of the local stakeholders’ interests and difficulty of re-allocating economic benefits and costs accruing from buffer zone management to the local people. For instance, revenue from tourism in the national parks often accrues to the central park authority instead of local communities. Lack of tangible economic benefits becomes a disincentive for local communities as well as individuals in the community to participate in forest conservation. The problem of inequitable distribution of the benefits accruing from buffer zone management is often caused as a result of power relation. Meanwhile, setting management priority of protected area is another concern for ICDA. While consideration of local people’s economic need is an important part of ICDA, the principle priority of creating a buffer zone in protected area is for

conservation of ecologically precious environment (Wells and Brandon 1992). Balancing the local development needs and the needs to conserve the environment thus becomes a significant challenge.

Now, I will turn to the protected areas management in Laos. In particular, I will review how global agenda on tropical forest conservation and the intervention by the international organisations had been shaping the forest conservation policy in Laos. I will also examine the main stakeholders in protected areas management and their competing interest over natural resource management.

4.2 PROTECTED AREAS IN LAOS

4.2.1 Protected Areas System

As indicated in Table 4.1, the first set of 18 *pā saguan hēngxāt* was declared under the Prime Minister's Decree 164 (Figure 4.1). *Pā saguan hēngxāt* literally means "national reserve forest" in Lao language while English documents often use "protected areas" and "national biodiversity conservation areas (NBCAs)" interchangeably⁴². The numbers of protected areas were increased in 1995 and 1996, adding two new sites (i.e. Xe Xap and Dong Phou Vieng). All together, there are 20 *pā saguan hēngxāt* covering close to 14 percent of land in Laos.

Under the Decree No. 164, *pā saguan hēngxāt* is defined as an area serving the following purposes: protection and preservation natural resources, wildlife species, and water sources; protection of biodiversity and aversion of further resource depletion; and preservation of the natural landscape. The Decree further prohibited human activities in *pā saguan hēngxāt* including logging, collection of non-timber forest products, hunting, mining, converting forest into permanent agricultural or non-forest land, exhorting historical and cultural objects, using poisonous and destructive substance in the forest that affected plants as well as animal species, and finally, burning of the forest.

While *pā saguan hēngxāt* has the highest protection status among forests in Laos, Berkmüller (1999) points out that these areas are equivalent to "Resource Reserves" and "Multiple Use Management Areas" following IUCN's categories of protected area. While the Decree No. 164 prohibits human activities

⁴² *Pā* means forest, *saguan* means to conserve and *haengxāt* means national. Therefore, *pā saguan haengxāt* literally means 'conservation forest.'

within the boundaries of *pā saguan hēngxāt*, the government has not strictly enforced a control of human access and use in *pā saguan hēngxāt* to the level of “National Parks” and “National Reserves.” Berkmüller (1999) claims that protected areas were purposely called *pā saguan hēngxāt* in Lao language, which literally means “national reserve forest,” in order to distinguish it from the ordinary conservation forest or *pā saguan*.

Pā saguan is an official forest category which is defined in the Article 18 of the Forest Law as “forest and forest land that are delineated to conserve wildlife species, plant species and others that bear historical, cultural, environmental value as well as value for tourism, and scientific research (translation by the author).” The Forest Law further stipulates the need to distinguish *pā saguan* into three distinctive zones (Article 42) in order to protect the biodiversity and ascetic value of the natural resources. These include Totally Restricted Zone (or Absolutely Prohibited Zone), Controlled Use Zone (or Management Zone) and Corridor Zone (Linking Zone). Resource access and use is most strictly restricted in the Totally Restricted Zone, while Controlled Use Zone allows limited access and use of resources. Meanwhile, access to and use of resources in Corridor Zone is restricted essentially to secure passages between habitats for the wildlife animals. What the notion of zoning implies is that different management strategies are necessary for each forest area.

The main problem in the current legislation is that neither the Decree No. 164 nor the Forest Law does not make a clear distinction between *pā saguan hēngxā*, which is a national reserve forest, and other *pā saguan* or conservation forests that are declared by the provincial and district agricultural offices, and the villages. While the notion of zoning *pā saguan* as stipulated in Article 42 of the Forest Law resembles buffer zone management in protected areas suggested by Berkmüller et al. (1995), it is not clear whether same approach is applied at all levels in other *pā saguan*.

The meaning of *pā saguan hēngxāt* was only recently defined by the Ministerial regulation on the Management of National Reserve Forest, Aquatic Resources and Wildlife Animals (No. 0524 DoF). According to the new regulation it is defined as an area of forest or forest land with distinctive characteristic in terms of ecology and biodiversity that requires careful management (Article 4). The Ministry of Agriculture and Forestry may propose to create national reserve forest to the Prime Minister’s

Office. Any changes in the management of national reserve forest following its approval can be made by the Provincial Agriculture and Forestry Office; however, it needs to be approved by the Ministry of Agriculture and Forestry as well as the Prime Minister's Office.

Besides the ambiguity of *pā sagan hēngxāt* in terms of its legal definition and how it should be managed, the report by Robichaud et al. (2001) points out the ambiguity of its actual size in terms of territory (Table 4.2). While the Decree No. 164 located each protected area on the map, the size of the actual protected area differs depending on the source of information. Between the figures recorded on the Decree No. 164, recommended areas proposed by Berkmüller et al. in 1995 and the more recent Fact Sheets on National Biodiversity Conservation Area provided by the Division of Forest and Resource Conservation (DFRC), the size of protected area range between 12 to 14 percent of the country. What is obvious from this is that in addition to the definition of *pā sagan*, the size of protected area remains uncertain, more so, protected areas' boundary is actually elusive instead of being definitive as believed.

In an effort to facilitate a development of national protected areas management system, international agencies had ranked protected areas according to their ecological priorities. The first of such efforts was conducted by Berkmüller et al. (1995), which ranked existing protected areas on the basis of forest cover (i.e. extent, quality, significance in terms of biogeographical representation). The ranking introduced by Berkmüller et al. (1995), however, did not consider the significance of the protected area as a habitat for the wildlife species. Meanwhile, Ling (1999) conducted ranking using existing information on bird and mammal species in Laos. Robichaud et al. (2001), however, contend that both these rankings still lack a regional and international context. For example, relative rarity of species and habitats of the region are not considered in these two rankings.

In the Review of National Protected Area System in Lao PDR, Robichaud et al. (2001) suggest taking account of the two previous rankings by Ling and Berkmüller, as well as a more recent eco-region analysis conducted by WWF. Instead of ranking, Robichaud et al. (2001) categorised protected areas into three groups based on their overall biodiversity significance. A protected area was considered bearing the highest biodiversity value if the results of all three rankings marked the highest and vice versa. Table 4.3 indicates the biodiversity significance of all *pā sagan hēngxāt* in Laos. In Table 4.3, some *pā sagan*

haengxāt that were similar in its origin and located in the proximity were grouped together. Robichaud et al. (2001) further suggests that protected areas' management value in Laos should also include additional criteria such as the watershed value and ecotourism potential.

According to Robichaud et al. (2001), watershed value takes into account of the topographic location and physical conditions of the watershed (i.e. steep slopes or forest lands that forms a headwater for streams) as well as factors such as the presence of agricultural dam and irrigation in the downstream. Ecotourism potential is assessed on the basis of *pā sagan hēngxāt*'s ascetic beauty, accessibility, existing plans for ecotourism and ecological sensitivity. Furthermore, Robichaud et al. (2001) suggests considering different pressures on *pā sagan hēngxāt*. Pressures include poaching and wildlife trade in protected areas, as well as subsistence demand on resource use. This means that areas with high pressure on the environment require immediate attention or is considered high management priority.

By ranking *pā sagan hēngxāt* on the basis of biodiversity value, watershed value, ecotourism potential and pressures on existing environment, Robichaud et al. (2001) derived an overall management priority scores for each *pā sagan hēngxāt* in Laos (Table 4.4). However, the management priority score derived by Robichaud et al. (2001) does not include index indicating livelihood value of the protected area and its resources to the local communities.

The result of Table 4.4 was then compared with the scores on management progress in each site (Table 4.5). Management progress was assessed following 12 criteria developed by the World Commission on Protected Areas (WCPAs). The criteria of the WCPAs can be divided into three main segments including legal and management aspects and the degree of stakeholder involvement. The result of the scores is used as a reference to indicate the current management status of each protected area.

What is apparent from Table 4.5 is that management progress does not exceed more than 50 percent in all *pā sagan hēngxāt* in Laos, which signifies the generally weak or limited institutional capacity. It is also evident from Table 4.5 that high priority protected areas are not adequately managed. For example, protected areas such as Nakai Nam Theun (NNT), Nam Et and Phou Louy (NET-PLY), Nam Ha (NHA), and Phou Hinphoun (PHP) are all ranked as high priority protected areas, however, its management progress index for these sites indicate an average of 36 percent. The result is striking as the four high

priority sites were among the better funded protected areas that received assistances from international organisations including the World Bank, Global Environmental Fund, FINIDA, IUCN, DANIDA, WCS, and UNESCO. This indicates a fundamental gap in management theory and practice. The gap has become particularly evident in the years following the completion of internationally supported projects.

4.2.2 Stakeholders in Protected Areas Management

Following the First Forestry Conference in 1989, the Ministry of Agriculture and Forestry became the executive authority on issues regarding natural resource management in Laos. With regards to forest management, the Department of Forestry became the central agency. The Department was reorganised in the early 1990s including three national offices, and four programs (Forster 1995).

The newly established *pā saguan hēngxāi* was placed under the management of the new national office, the Centre of Protected Areas and Watershed Management (CPAWM). Up until the mid 1999 when the Department was once again restructured, CPAWM played a central role in developing forest conservation policy and coordinating conservation programs funded by different international organisations including IUCN, WWF, WCS, as well as donor agencies such as the World Bank, the Swedish International Development Agency (Sida) and the Danish International Development Agency (DANIDA).

As we have seen in the previous section, IUCN and Sida played a significant role in developing the protected areas system in Laos. Table 4.1 also indicate that between 1986 and 2001, international organisations such as IUCN, Sida, WCS, and the World Bank had worked with the Department of Forestry developing the concept of protected area, conducting an assessment, surveying the ecological potentials, and designing framework for protected areas management system.

Approaches used by international organisations can be distinguished into three major types. First is the integrated conservation and development approach (ICDA). The approach includes activities providing social services to the communities as well as developing alternative economic opportunities through the development of ecotourism and commercial production of non-timber forest products. The second approach introduced by the international organisations was the participatory forest management. This refers to collaborative or joint resource management practice where local villagers share the management

responsibility with local authorities such as DAFO. However, unlike the first approach, while villagers are encouraged to work with local authorities to protect forest areas, the second approach does not incorporate development needs of the local communities in forest management. Finally, the last approach is an effort to create public awareness on wildlife and forest conservation. This has been facilitated essentially through public campaigns as well as promotion of environmental education in primary and secondary schools, as well as in villages located in national reserve forests.

4.2.3 Stakes in Protected Areas Management

Figure 4.2 illustrates the relationship between main stakeholders involved in protected areas management. During the early 1990s, the Department of Forestry particularly played a central role in forest management. This was particularly facilitated by the support of international agencies that initiated forest conservation programmes. Prior to the organisational restructuring of the Department of Forestry in 1999, Centre of Protected Area and Watershed Management (CPAWM) played a central role particularly in the management of protected areas. It was also in the interest of the central government to establish a protected areas management system in Laos that met the conditions of international agreement, particularly the Tropical Forest Action Plan. International projects supported the development of management frameworks for the national reserve forests were coordinated through CPAWM until the late 1999.

Following the organisational restructuring within the Department of Forestry in 1999, a new office of the Division of Forest Resource and Conservation (DFRC) was created replacing CPAWM. It was also during the late 1990s that management responsibility of protected area was formally transferred from the central authority to the provincial authority, namely Provincial Agriculture and Forestry Office (PAFO). This concurred during a time when internationally supported forest conservation programmes were also shifting its locus towards strengthening local institutions. The transformation in effect, weakened the central role of the Department of Forestry. Termination of international aid programs to the Department of Forestry by 2000 exacerbated the debilitation of the central role of the Department of Forestry in forest conservation.

While the locus of forest conservation had shifted to provincial and district level by the late 1990s,

forest conservation came in conflict with provincial government's decisions on development and resource management. Timber extraction continued to offer wealth at both formal and informal level. This made it difficult for PAFO to develop and initiate a firm forest conservation policy based on technical grounds. For instance, PAFO's decision to conserve forest areas were often affected by decisions made by the Provincial Governor's Office and higher government agencies such as the Prime Minister's Office and the Ministry of Finance. Interest over forest management also differed among departments within PAFO.

Timber was not only lucrative source of wealth for the central and local authorities, but also to the communities and to local households. For instance, communities exchanged timber for construction of basic infrastructures such as road and electricity. Households, on the other hand, continued to engage in logging without being severely penalised by their local authorities.

In the following section I will now examine the case of Phou Phanang National Reserve Forest located in northwest Vientiane. This is to understand the historical implication of resource use in northwest Vientiane and the political process in which Phou Phanang was created. In so doing, I will illustrate the stakes of different levels of policy makers in Phou Phanang.

4.3 POLITICAL ECOLOGY OF PHOU PHANANG NATIONAL RESERVE FOREST

4.3.1 Phou Phanang National Reserve Forest

Phou Phanang is one of the smallest national reserve forest located northeast of Vientiane (Figure 4.3). It lies between Vientiane Municipality and Vientiane Province covering total of 70,000 hectare including two mountain ranges: Phou Phanang and Phou Phadeng⁴³. More than 40 percent of Phou Phanang is upper mixed deciduous forest. According to the forest inventory conducted in 1992, more than 30 percent of Phou Phanang's forest is classified as unstocked forest or areas of forest with less than 20 percent crown density (Figure 4.4).

Decision to include Phou Phanang among the national reserve forest was highly political as experts from IUCN did not recognise the ecological significance of Phou Phanang. By the time Phou Phanang was

⁴³ According to the Protected Areas Fact Sheets, Phou Phanang's total area has decreased to 58,000 hectares.

designated as the national reserve forest, its forests were vastly degraded with large areas of unstocked forest and bamboo growth as had been indicated in Figure 4.4. Phou Phanang's importance as wildlife habitat was also considerably low. Phou Phanang instead served historical significance as it housed a revolutionary hero during the war. As I will briefly review the history of human settlements in the following section, it became the battlefield and also a frontier in which wartime migrants temporarily settled during the 1970s. Furthermore, given its proximity to the international border, Phou Phanang was also considered significant from the national security perspective.

Phou Phanang was placed under the management of Centre for Protected Areas and Watershed Management (CAPWM) at the Department of Forestry (Figure 4.5) in the early 1990s. The new forest boundary was announced to local villages in 1995 through the District Agriculture and Forestry Offices (DAFOs) in five administrative districts including Sikhotabong, Naxaythong and Sangthong Districts in Vientiane Municipality and Phonhong and Hinheup Districts in Vientiane Province. In the process, contour line of 200 metres above sea level was arbitrarily used as the protected area which prohibited human intervention, particularly logging and shifting cultivation. The state and village boundary was further reinforced as the Land and Forest Allocation was implemented in villages surrounding Phou Phanang. The Land and Forest Allocation delineated formal village boundary and classified areas of forest and land within a village. As a result, areas of forests in Phou Phanang were carved out from villages surrounding Phou Phanang.

While Phou Phanang remained largely unattractive to major environmental organisations that supported protected areas management in Laos, CPAWM received a grant from the Canada Fund in 1996⁴⁴. Between 1997 and 1999, CPAWM received a grant of 22,320 US dollars to conduct forest management activities in Phou Phanang (Vientiane Times 8-11 March 1997). In collaboration with a Lao NGO, Participatory Development Training Centre (PADETC), CPAWM proposed to conduct two trainings including training on rapid rural appraisal for DAFO staffs in Hinheup District and training on agricultural production techniques for village farmers in four villages of Hinheup District in northern Phou Phanang

⁴⁴ Table 4.3 and 4.4 also indicate that Phou Phanang is ranked among the lowest priority protected area.

(Centre for Protected Areas and Watershed Management 1998a, b, c, d). However, the results of trainings do not clearly indicate any improvement in local forest management. Nor did it result in the development of a practical management plan.

In 2000, obscurity of the management was once again stirred as the responsibility to patrol and monitor forest boundary was transferred from PAFO to local military unit. While PAFO continued to provide technical services (i.e. conducting forest surveys, advising villagers to protect forest etc.), local military unit now regularly patrolled Phou Phanang for monitoring.

Thus, it can be said that objective of managing Phou Phanang have remained unclear throughout the decade. While the management responsibility was transferred from CPAWM to local authorities in 1999 (Figure 4.5), neither CPAWM nor PAFOs produced management plan for Phou Phanang. Local authorities also were incapable of developing or initiating forest conservation given the lack of financial resources or the human resources.

In spite of its designation as the country's highest standard conservation forest, Phou Phanang was never managed with rigor. There was a fundamental lack of interest, and a binding framework that brought local authorities together to discuss the ways in which Phou Phanang could be managed. Meanwhile, the boundary of Phou Phanang was reinforced through another government policy, the Land and Forest Allocation. The Land and Forest Allocation conducted in villages surrounding Phou Phanang carved out areas of national reserve forest from village territory prohibiting local people's access to and use of resources. It also distinguished village boundaries that were customarily overlapping with one another. Furthermore, the Land and Forest Allocation introduced land zoning and allocated individual land plots with the aim to regulate shifting cultivation practices in the villages.

The delineation of boundary and patrolling by the local military units, however, did not facilitate local people's collective efforts to manage conservation forest in Phou Phanang. The problem of encroachment, poaching and logging persist in Phou Phanang. The problem is intricately linked to the historical pattern population movement and resource use in Phou Phanang, which results in a complex resource access and use situation in local villages. In the following section, I will briefly review the history of human settlement in Phou Phanang.

4.3.2 Village Histories and Movement of People in Phou Phanang

Based on the field interviews in villages surrounding Phou Phanang, it was found that significant population movement occurred in areas of Phou Phanang during the Indochina War. Underground liberation movement was based in areas of southern Phou Phanang along the Mekong during the early 1950s. By 1957, the liberation movement led by *Neo Lao Hak Xāt* (NLHX) consolidated areas west of Phou Phanang in present day Sangthong District and conducted their anti-government operations (Deuve 1984). Meanwhile, on the eastern side of the Phou Phanang in present day Naxaythong and Phonhong Districts along the National Route 13 North, the Royal Lao Government (RLG) forces, with the assistance of the US military, held their military bases.

Up to the early years of 1960s, the RLG forces controlled areas along the National Route 13 up to Vang Vieng, which lies north of Phou Phanang, while areas west of the National Route 13 in northwest Vientiane was occupied by the NLHX. By the mid 1960s, NLHX and the neutralist forces gained their foothold in Phonhong District, which forced the RLG to recede south towards the capital. In the meantime, expansion of NLHX controlled areas had instigated two main movements of people in the stretches of Phou Phanang. First movement was a movement out from villages located in Phou Phanang towards areas controlled by RLG. Villagers in northern Phou Phanang in present day Hinheup District in particular had fled from their villages to settle in Phonhong District as the NLHX encroached into their villages. Second movement of people occurred concurrently as the villagers in northern Phou Phanang fled out from their villages. This was the movement of people who arrived from north eastern part of Laos (i.e. present day Xiengkhouang and Houaphanh provinces) that were resettled by NLHX.

Areas of Phou Phanang quickly became a refuge for an influx of migrants arriving from the northern part of the country. Out of 51 villages that were adjacent or straddling Phou Phanang, 19 villages (47 percent) were established after 1960s (Table 4.6)⁴⁵. These 19 villages can be further distinguished into three general types (Table 4.7). The first type is a group of new villages established by wartime migrants from Houaphan and Xieng Khouang Provinces. These migrants arrived to areas of Phou Phanang between

⁴⁵ 40 villages in Phou Phanang were interviewed between August and December 2002.

1960 and 1970. Based on the oral history of villages, many of the migrants arrived to Phou Phanang during the late 1960s when the US led offensive became intense in the borders of Vietnam. According to the migrants, they gradually descended southwest in groups establishing makeshift villages. When the migrants reached the northern part of the Vientiane province, they were resettled to areas of northern Phou Phanang under the guidance of NLHX.

The second type is relatively a new village with mix of migrants. Village is mixed in a sense of ethnic groups, as well as origin of migrants. Among the migrants were those who fled the scourges of war in the northeast, as well as those who fought during the war as part of NLHX. The village size tend to be larger compared to other groups with an average population above 700.

Finally, the third type of villages is those that were re-established as a result of a development construction and also due to post-1975 government policy on collective agriculture. During the period of the 1980s, three agricultural dams were constructed in Naxaythong District to improve paddy rice production in the Vientiane Plain. This had caused villages located in the eastern side of Phou Phanang to be resettled as their villages were inundated by agricultural dams. Also included among the third type are villages that were newly established to promote collective agriculture, particularly for livestock production. The villagers from Naxaythong District on the eastern side of Phou Phanang were encouraged to engage in livestock production in new villages in the western side of Phou Phanang during the period of 1980s when the government supported development of collective agricultural production.

The village settlement history thus indicate that population movement in northwest Vientiane have particularly been dynamic over the last three decades. The current distribution of villages in Phou Phanang is a relic of dynamic population movement that occurred during and after the war. War had a significant impact on demographic changes in areas of Phou Phanang, however, post-war population movement was also instigated by the government policy to develop agriculture and forestry production. Construction of agricultural dams and promotion of agricultural collectives relocated villagers in Phou Phanang. Widespread logging through the state forestry enterprise also brought new labourers into the area.

The movement of people persists today as new migrants continue to arrive in Phou Phanang. New migrants are particularly found along villages located on the national route in the west of Phou Phanang.

Majority of new migrants arrived from the northern part of the country, and were relatives of the villages. The new migrants were often in search of agricultural land and economic opportunities. This is possibly due to shortage of arable land, as well as increased government pressure against shifting cultivation practices that limit households' access to swidden and fallow land in their original villages. At the same time, migrants were also lured to the peri-urban areas by the different range of economic opportunities it offered.

However, the influx of new migrants in Phou Phanang is creating new tensions over resource use as these new migrants encroach into areas of Phou Phanang. The problem is particularly prominent in the central part of Phou Phanang. Villages in the western Phou Phanang, who are older settlers in the area particularly blame influx of migrants (Hmong) conducting shifting cultivation in the eastern Phou Phanang as the central cause of forest degradation. While the problem has been raised to the district offices, encroachment and logging continues to persist in Phou Phanang. Phou Phanang thus remains an open-access property without any effective means (i.e. formal and informal institutions) of regulating new and old resource users.

4.3.3 Forestry in Phou Phanang

As had been noted in the previous chapter, war-boosted economy had encouraged commercial logging in areas along the Mekong. In Phou Phanang, species including *Mai Dū* (*Pterocarpus macrocarpus*), *Mai Khamphī* (*Dalbergia cultrate*), *Mai Kenghin* (*Hopea ferrea*), and *Mai Te Khā* (*Azelia xyclocarpa*) were particularly extracted for export since the 1960s. Logging in Phou Phanang was conducted in natural forest, as elsewhere in Laos, without consideration of sustainable yield management.

Following 1975, the area of forest in Phou Phanang was placed under the management of the newly established State Forest Enterprise (SFE) No.9, which was directed by the Ministry of Industry, Handicraft and Forestry. The areas operated under SFE No.9 covered 420,000 hectares. According to Persson (1983), SFE No.9 had the planned capacity to produce 29,900 cubic meters of wood per year. SFE No. 9 was one of the few SFEs that were equipped with modern logging gears as it received financial support from ADB (Persson 1983).

Logging under the SFE No.9 was particularly widespread between 1982 and 1985 when a logging concession was given to a Japanese furniture company, *Otsuka Kagu*. The area in which SFE No.9 operated remained undistinguished. This meant that there was no clear boundary between SFE No.9's forest and that of the local villages. For the matter, SFE No.9 did not shun local people's access to forest. Instead, SFE No.9 possessed unyielding power to extract commercially valuable timber from any parts of the area across Phou Phanang.

Without management plan, logging operations by SFE No.9 incurred high wastage and led to widespread forest degradation. This continued until the early 1990s when the government dismantled state enterprises, and restricted logging rights to three parastatal companies (Thapa 1998). Control of logging was also imposed by the state in 1993 as Phou Phanang was designated as the *pā saguan hēngxāt* restricting all forms of human intervention including logging.

During the interview, it became clear that logging remained as a problem in Phou Phanang even since its designation as the national reserve forest. As is true in other places across Laos, logging remains a sensitive issue involving different stakeholders including the villagers, local and central government officials, and timber merchants. The problem of logging in Phou Phanang is likened to the questionable logging practices in Laos raised by a report written by the Tropical Rainforest Programme (2000). For instance, the report raises an intricately planned scam organised by saw mill operators, as well as local officials and villagers. While saw mill operators seek villagers in advance to cut certain species, they also report the incidence of "fallen tree" to DAFO and PAFO. The idea is to seek an official approval to remove "fallen trees" out of the forest. The report also raises the problem of special logging quota issued by different government agencies and different levels of authorities that facilitate logging beyond the annually approved volume. Villagers can organise themselves to sell trees for "household construction purposes," which are generally reserved for household use or exchange timber for development of basic infrastructure such as road and electricity.

4.3.4 Political Ecology of Forest Management in Phou Phanang

The case of Phou Phanang illustrates an example of political factors that affect the development of

protected area. Phou Phanang had not been listed among the list of national reserve forests for its environmental features. Experts of IUCN had even suggested of demoting Phou Phanang from national conservation area to a provincial conservation area, given its already degraded status (Berkmüller et al. 1995). The Lao government on the other hand insisted the inclusion of Phou Phanang as the original 18 national reserve forest, recognising its historical significance and also considering its importance from national security perspective.

Following 1993, Phou Phanang was carved out from village territory as the state property. While many villages surrounding Phou Phanang had accessed and used resources in Phou Phanang, and it was recognised as part of their customary boundary, villages surrounding Phou Phanang were now lying adjacent to the national reserve forest. While official classification of villages surrounding national reserve forests can include those “straddling” the areas of national reserve, villages in Phou Phanang were all classified as “adjacent” rather than “straddle” villages (Figure 4.6). This was a result of the fact that the protected area boundary was drawn on the basis of contour line following the designation of Phou Phanang as the national reserve forest. The imposition of arbitrary boundary simplified territorial claim of the state that undermined the customary resource access and use. It particularly failed to capture the overlapping and dynamic nature of customary resource boundaries.

Neither was customary resource management practices considered in the development of protected area in Phou Phanang. It was thus, the delineation of state boundary, which was then reinforced by delineation of individual village boundary through the Land and Forest Allocation procedures that was most prominent part of managing Phou Phanang. Formally, the area prohibited human encroachment without providing any binding institutional framework. Rules were never rigidly enforced given the weak institutional foundation of Phou Phanang’s managers. Meanwhile, shortage of agricultural land and timber outside of Phou Phanang continued to attract outsiders as well as local villagers to the management vacuum.

The review of historical patterns of human settlement illustrated that combination of factors shaped the landscape and resource use practices in Phou Phanang. These factors include war, government policy, economic integration and population movement. Not only was the population movement rampant during

the wartime, but also it has been a continuous phenomenon which was affected by the post-war government policy on shifting cultivation, forest management and agricultural production. In particular, the government policy on collective agriculture and forestry production during the 1980s had a significant impact on how land and forest resources were used. Population movement remains a continuous phenomenon, and continues to complicate resource access and use in areas of national reserve forest.

In the final section of this chapter, I will now consider the institutional linkages in the management of Phou Phanang and highlight the missing link between the formal and the local institution of forest management.

4.4 INSTITUTIONAL MISLINKAGE AND CREATION OF OPEN ACCESS

4.4.1 *Local Institutions*

In the past, villagers accessed forest and used resources without any legislative restriction imposed by the state. However, this did not mean that access and use of resources was completely free, but was based on mutual respect of informal rules between neighbouring villages. As have been figuratively distinguished by Pravongviengkham (1997b), the village property in Laos can be generally distinguished into two zones: core zone and outer zone. While more exclusive resource tenure had developed in the core zone near the residential area and the paddy fields, resource tenure in the outer zone has been generally inclusive and flexible, often shared with the neighbouring villages.

In the case of Phou Phanang, neighbouring villagers' access to forest resources for the purpose of *tham mā hā kin* had been traditionally permitted. For example, villagers were allowed to collect forest product for consumption purpose. Access to fallow land for the use of cultivation was negotiable. While the person who cultivated the swidden had the right to harvest products of their labour, access to natural products from the fallow land was generally open.

During the interviews in older villages of Phou Phanang, villages explained their customary village boundary, which was far more extensive than the newly imposed boundary. Also, village boundary was not an absolute line, but instead a descriptive one using natural landmarks such as trees, shrubs, streams, and mountain ridges. Within their villages, villagers had their own ways of distinguishing different types

of forest. The most common distinction included: dense or rich forest (*pā dong dip*), shrub (*pā khok*), degraded forest (*pā lao*), and sacred forest (*pā xā*). These distinctions were made on the basis of physical appearance of the forest, and also according to how the forest was used. For example, sacred forest was an area of forest where villagers restrained resource use. Villagers generally believed that extraction of resources from the sacred forest would bring bad fortune. In villages that had sacred forest, offerings were made every year to respect the guardian spirit.

Meanwhile, some villages reserved areas of forest for watershed protection and for future use (*pā dong dip*). *Pā khok* on the other hand was used mostly for cattle grazing, particularly during the rainy season when the villagers engaged in lowland paddy production. *Pā lao* is a swidden fallow, which can be claimed temporary by an individual for agricultural production. However, once its user abandons the land, the land once again became a common property and can be claimed by other users.

In the relatively old villages of Phou Phanang, senior members of the village recalled that Phou Phanang had once been a rich forest with abundant resources. They pointed out that over the course of last three decades, both commercially valuable trees and wildlife declined or disappeared from the forest. Tree species such as *Mai Dū* (*Pterocarpus macrocarpus*), *Mai Khamphī* (*Dalbergia cultrate*), *Mai Kenghin* (*Hopea ferrea*), and *Mai Te Khā* (*Azelia xylocarpa*) were listed by villagers as now being scarce. Tigers, elephants, deer, and monkey were among the list of wildlife now hardly found in Phou Phanang. Non-timber forest products such as rattan were also becoming rare.

The villagers noted war, logging and encroachment as being the main reasons for forest degradation and decline of wildlife in Phou Phanang. War had instigated population movement and hence opening of forest in Phou Phanang. Logging was also unregulated during the period of war. Commercially valuable tree species were logged without significant restriction. Logging involved many parties including state enterprise, private companies, as well as individuals.

War had been a significant event that had changed the forest and land use in Phou Phanang according to the oral history of the villagers. Villagers' themselves recall the stark poverty and difficulty of living during the period of war. Agricultural production in lowland was often below the level of self-sufficiency. As a result, lowland villagers were dependent on Phou Phanang's forest for survival. In one of the village

in Phou Phanang, a woman recalled her life during the war:

“We were poor back then. Very poor. I had to enter the forest, climb the mountains to the swidden field up there (Phou Phanang). There was not enough rice in the lowlands. Day after day, I had to wake up early in the morning and walk up the mountains. Life then was much more difficult than today. But the refugees in the highlands were much poorer than us. They often came for us to ask for rice. We traded them with whatever game that they brought from the mountains.”

Life was insecure and villagers were dependent on forest resources for survival. War also obscured the existing pattern of resource management in villages. Influx of new migrants in the mountainous area made lowland villagers fearful of outer reaches of village boundary. This had restrained villagers' access to resources near the “core zone.”

Then, the end of war in 1975 incurred another turn in resource use. Massive fleet of refugees from Phou Phanang meant that many of the makeshift villages in the upland areas were abandoned. Those that remained were also resettled to new villages. Phou Phanang was placed under the military surveillance to patrol political insurgency. While residents in the surrounding villages of entered Phou Phanang for *tham mā hā kin*, they also feared forest for insurgency.

Political tension and fear to enter forest gradually eased in the 1980s as the government promoted commercial logging through the state forest enterprise. Widespread logging by the SFE No.9 was accompanied by development of road and easier access to forest. It also brought new resources users to Phou Phanang. No longer were the villagers in Phou Phanang afraid to enter the forest, but they also became engaged in resource extraction.

4.4.2 Ignoring the Boundary

Villagers' access to forest began to change as logging was banned in 1991. Access to Phou Phanang was also restricted as the government designated Phou Phanang as one of the 18 national reserve forest. This made Phou Phanang a state property. Under the jurisdiction of the Prime Minister Decree No.164 and

the Forest Law which was promulgated in 1996, local villagers no longer held the right to access and use resources in Phou Phanang. New village boundaries were delineated through the Land and Forest Allocation, which curbed out state property from the customary village boundary.

By 2000, 27 villages surrounding Phou Phanang completed village boundary demarcation, and land zoning (Table 4.8)⁴⁶. Despite the development of new formal resource boundary, local communities continue to perceive their access to resources from a different perspective. Villagers in the surrounding villages of Phou Phanang continue to access resources beyond their formal village boundary on daily basis. While villagers recognised the “formal” village boundary, it did not hurt them to continue their resource use practices beyond their formal village boundary. Neither did it hurt the village organisation to oversee resource use practices by their village members in areas now incorporated into the state property. The village as a community also lost collective interest to “protect” community resources, as much of its forests which they shared with neighbouring villages in the past were now incorporated into state property.

Despite the effort to incorporate Phou Phanang under the state property regime, Phou Phanang largely remained an open-access property. While community institution had been effective prior to war, this had broken down with the significant transformation of the landscape that was incurred by the wartime demographic movement and the government intervention on agriculture and forestry production that followed after the war. The aim of introducing the national reserve forest was to resolve the problem of open-access by bringing the forest areas under the state supervision.

4.4.3 Missing Linkages

This chapter reviewed how the formal institution of protected areas management developed in Laos. In the process, it elucidated the main stakeholders and their interacting relations. Taking a case of Phou Phanang, it was illustrated that institutional capacity to manage the new national reserve forest remained weak. This was due to the weak organisational capacity of the Department of Forestry and its line agencies at provincial and district level to mobilise financial and human resources. The problem however, is also

⁴⁶ In most cases, this includes development of village map that indicate village boundary as well as land and forest zones within the village. In these villages where land and forest classification have been completed, villages also have management plans. However, degree to which the management plans are actually implemented depends on village to village.

grounded in the politics of developing protected areas.

As has been illustrated in the earlier sections of this chapter, the very idea of forest conservation for protection of the biodiversity was introduced to Laos by international organisations and donor during the period of heightening global environmental concerns. In particular, signing of the Tropical Forestry Action Plan (TFAP) in 1990 had triggered a decade of rapid institutional development on forest management in Laos. Forest management structure was re-organised following the signing of TFAP and the new notion of protected areas management was introduced and developed in Laos through the involvement of international environmental agencies as such as IUCN. International organisations supported national offices such as CPAWM during the early 1990s by introducing scientific forest management that distinguished areas of forest into units. However, these units essentially remained “legible” in the eye of the state.

Based on the systemic assessment of national reserve forests facilitated by the international organisations, it became apparent that areas such as Phou Phanang bore the least conservational value. This also meant that international support was concentrated on high priority national reserve forests while little or no financial and technical resources were spared for the management of protected areas such as Phou Phanang. It thus meant that protected areas such as Phou Phanang were left for the local authorities to apply what they interpreted as the proper way of “protecting” the forest. However, given the limited resources, local authorities merely reinforced arbitrary resource boundary underlined by the Prime Minister Decree in 1993 without discussion on the objective of “protecting” Phou Phanang, and how local resource use and management practices can be incorporated to promote collective efforts to manage environmentally precarious forest areas in Phou Phanang.

CHAPTER 5 LAND AND FOREST USE CHANGE IN ANG NHAI VILLAGE

5.1 ANG NHAI VILLAGE

Here in this chapter, I will take a close look at land and forest use changes in Ang Nhai Village, which is a village located in south of Phou Phanang. Ang Nhai Village was incorporated into the national reserve forest in 1993. This had significantly affected the size of the village. The case of Ang Nhai reflects what Sato (2000) calls an issue of “ambiguous land,” where *de jure* and *de facto* land tenure overlaps. As had been noted in the previous chapter, overlapping territory has become a management vacuum and an open-access property.

This chapter aims to examine the physical changes of forest and land in a customary village boundary. By incorporating spatial analysis with oral history, the current chapter aims to assess the actual changes in forest and land, but also understanding what factors had caused the changes in village landscape and resources use. Oral history had been particularly important to understand villagers’ changing relations with resources and how they adapted to the changes.

5.1.1 History of Ang Nhai

Ang Nhai Village (hereafter Ang Nhai) is located in Sikhotabong District, approximately 30 kilometres northwest of the urban centre of Vientiane (Figure 5.1). It ranges in elevation from 180 - 460 meters above sea level and receives an average monthly rainfall of 76.2 mm. According to older members of the village, the village originated approximately two hundred years ago. Ang Nhai was first established by families of Tai Yuan ethnic group (Tai-Kadai language group) that migrated from the area of Kengtao in present day Xayaburi Province, north west of Ang Nhai, as a result of the Chinese (Ho) invasion⁴⁷. The village name “Ang Nhai” comes from the shape of round and “big (*nhai*) river basin (*ang*)” of the Mekong, which was source of abundant aquatic resources including the highly prized giant Mekong catfish (*pā buk*).

Based on the village interview, there were approximately 30 households totalling 195 inhabitants in

⁴⁷ A map created during the Pavie Mission in the late 1880’s includes the location of Ang Nhai (Pavie 1903). An account of a Frenchman, Neis (1884) provides a vivid account of Chinese Ho invasion in northeast Laos that resulted in a significant displacement of population.

1960. Over the next ten years, during the time of the Indochina War, the village population more than doubled to 520 (Figure 5.2). This was primarily due to a large influx of migrants escaping wartime disruption and US bombings in the north eastern areas of Laos including Houaphan and Xieng Khouang Provinces. These refugees settled in the highlands of Phou Phanang mountain ranges establishing a makeshift village and conducting shifting cultivation (Table 5.1). Villagers recalled that migrants occasionally came to the village to exchange wildlife animals for rice and other food items.

A second, notable shift in population occurred between the early and mid 1970's. During this period, the village population decreased to approximately 40 households as both migrants, as well as long-time village residents fled across the Mekong to Thailand fearing political persecution and oppression. Migrants that remained in Laos were also resettled to nearby villages following the political transition in 1975. Upland settlements and swidden fields were abandoned as the migrants were displaced. In the meantime, Ang Nhai villagers continued to conduct shifting cultivation in the highlands of Phou Phanang as rice production from the lowland paddy field was insufficient.

A third transition in population occurred in Ang Nhai as the refugees began to repatriate from Thailand during the 1980s. Approximately 10 former village members who migrated to Thailand returned to Ang Nhai, as they were not granted political asylum. By 1990, population in Ang Nhai became stable with average annual growth rate of approximately 1 percent between 1997 and 2000, lower than national average of 2.4 percent (ADB 2002). Today, there are 130 households (617 people) in the village with which more than 80 percent of households are engaged in farming.

5.1.2 Resource Use History

During the initial stages of fieldwork in Ang Nhai, sketch maps were drawn together with a group of villagers⁴⁸. These maps and three-dimensional map of Ang Nhai Village were used to identify the customary village boundary⁴⁹. A group of village elders and members of the village organisation⁵⁰

⁴⁸ Preliminary data collection was conducted in the 23-25 February 2001 together with teachers at the National University of Laos.

⁴⁹ 3D or three-dimensional map was prepared prior to the fieldwork by a teacher at the Faculty of Forestry. This was used during the fieldwork conducted during 2-4 March 2001 and 11-13 May 2001.

⁵⁰ Village organisation includes village leader and vice leader, village foresters, village women's union, village fisheries association and forest staff.

identified customary village boundary of Ang Nhai which extended into areas now designated as the national reserve forest or protected area⁵¹. While formal boundary of the village was not drawn until 2000, villagers accessed and used resources on the basis of the customary boundary. However, villagers' access to resources had been constrained during the period of war and the period immediately following the war. This was due to the influx of migrants that settled in the mountainous area of Phou Phanang. The fear of insurgency had limited the villagers' access to areas near by the residential areas.

Using land and forest cover maps produced by the team of researchers at the Faculty of Forestry from years 1952, 1981, and 1998 together with the most recent aerial photograph from 1998, several members of the village organisation consisting village head, village forester and village elders were further interviewed in a group⁵². The aerial photograph from 1952 was based on the US Mission during the French-Indochina War. The 1981 aerial photograph was produced by the USSR and finally, the 1998 was produced by the National Geographic Department in Laos with financial and technical support from the Japan International Cooperation Agency (Thongmanivong and Fujita forthcoming). Through the interview, it was understood that villagers had their own distinction of land and forest within their customary village territory which included residential land (*bān*), paddy field (*nā*), swidden (*hai*), young swidden fallow (*pā lao ōn*), old swidden fallow (*pā lao kae*), garden (*suan*), bush (*pā khok*), dense forest (*pā dong*), and sacred forest (*pā xā*).

It was also understood that villagers had their own rules that allocated land. For example, households in the village can occupy and reserve (*chapchong*) lowland paddy field (*nā*), small forest or shrub (*pā* or *pā khok*), swidden field, and swidden fallow in addition to their residential land and house garden (*suan khua*). Although no formal certificate was issued for privately used lands or for the areas occupied by villagers, these lands were semi-privately owned as they were able to transfer, inherit and sell lands between

⁵¹ In his doctoral thesis, Sawathvong (2003) also measured customary village boundary using systematic point sampling. The result also indicated that customary village boundary exceeded the officially recorded boundary.

⁵² This was conducted during July 2001 together with 3 students and 2 teachers from the Faculty of Forestry. Land and forest cover maps were produced by GIS specialist using aerial photographs 1952, 1981 and 1998. The aerial photograph in 1952 was produced during the French Indochina war by the US military mission. Three decades later, the former USSR produced aerial photographs of the country in 1981. This was later used by the Sida supported National Reconnaissance Survey between 1989 and 1992 to estimate the land and forest cover of the country. Between 1997 and 1998, JICA supported the National Geography Office to produce the most recent aerial photographs of the country.

households⁵³.

Customary resource tenure of the village is better understood by distinguishing village territory into several zones. Pravongviengkham (1997b) distinguished village territory into core and outer zones to differentiate land use pattern in an upland village. In the case of Ang Nhai Village, I will arbitrarily distinguish the village territory into three zones including core zones, middle zone and outer zone. The main land use in the core zone includes residential land, paddy field, and garden. This zone spreads along the main road to Vientiane. While no formal land certificates had been issued for these land plots prior to the Land and Forest Allocation, these plots were privately claimed and could be transferred, inherited or sold. The situation is similar to what Evans (1995) observed in the post-war period:

"(t)he most important resource in the village is paddy land, which grows the annual staple crop of glutinous rice. ...Rights to paddy land in these communities are governed by the following rules: The person who clears the land has proprietarial rights over it. Rights are transmitted by sale, freely, or by way of inheritance. It is not an absolute right: prolonged lack of use, gauged according to the type of land use, frees it from all rights. Only continued cultivation and work maintains proprietarial rights (Evans 1995, p35-36)."

The middle zone is distinguished as an area where swidden and its fallow are found. Households that conducted swidden cultivation held exclusive rights to reap the fruit of their own labour. However, use of natural resources from swidden and fallow are generally open to all members of the village as well as to the members of neighbouring villages. The ownership of the swidden is similar to the paddy in that person who clears the land and cultivates holds the priority to claim the rights for the land. Again, like in the case of paddy, the longer the swidden remains abandoned and unused after its last use, the household's rights to claim the land diminishes. This allows new households in the village to reoccupy and cultivate the land with consent from the village authority.

Often, resource use in the middle zone is shared with neighbouring villages. If a member of

⁵³ While land use was exclusive, other resources on the land were open access for members of the village. For example, catching aquatic resource in the paddy field was allowed for everyone in the village. Another example is cattle grazing. Any member of the village can graze their cattle in the paddy field during the dry season following the harvest.

neighbouring village wanted to use land and timber in Ang Nhai, they can seek consent from Ang Nhai's village leader. Meanwhile, use of other forest products required no formal permission. However, following the implementation of the Land and Forest Allocation, part of these forests within the new village boundary became exclusive to Ang Nhai villagers and thus became a village common property. Furthermore, parts of *pā khok* as well as *pā lao* were allocated to individual households and were privatised while parts of *pā lao* were incorporated into the state forest, Phou Phanang.

Pā xā is also located in the middle zone, in an area relatively near the core zone. Throughout the five decades, *pā xā* in Ang Nhai is the only forest area where its general size and location, as well as resource management regime had not changed significantly. Many villagers continue to restrain resource extraction in *pā xā* on moral basis, as they believe and fear that actions disturbing deceased members of relatives as well as spiritual guardians of the village will bring them bad luck.

Lastly, outer zone consists of areas including *pā dong chong*, and *pā lao*. These are areas along the outer most village boundary. Most of these forests are commonly accessed and used by Ang Nhai villagers and neighbouring villagers without severe restrictions. While areas of forests in Ang Nhai including *pā dong chong* were under the influence of SFE No.9's logging operation during the 1980s, villagers' access to these forests was not restricted. Villagers' access to *pā dong* was restricted after the designation of Phou Phanang as a protected area which drew a line through a former village territory separating state property and village property.

5.2 LAND AND FOREST COVER CHANGE

In this section, I will now turn to the actual changes in forest cover and land use in Ang Nhai's customary territory. The main aim of this section is to assess the extent of physical changes of forest and land in the customary village territory and reflect it to the village oral history. The study had used the customary village territory identified during a group interview as a unit of analysis. Spatial analysis using interpretation of the aerial photographs and satellite image classification was conducted by a group of teachers at the Faculty of Forestry of the National University of Laos that were part of Land and Forest Cover Change Studies in the Mountainous Mainland Southeast Asia funded by the Rockefeller Brothers'

Fund.

The result of spatial analysis indicates a significant reduction of dense forest in Ang Nhai with notable increases in both degraded forest and shrub land over the 48-year period (Figure 5.3, Figure 5.4). In 2000, patches of dense forest were no longer discernible from the satellite imagery (Figure 5.3 D and Table 5.2). Forest changes are categorised into three general trends—forest degradation, deforestation and forest regeneration. Deforestation is defined as “the transfer of forest land to non-forest uses” including the conversion of forest land to shifting cultivation land, permanent agricultural land, mining land, human settlements and other infrastructure developments (Rao 1989). In the meantime, forest degradation is defined as a reduction in forest quality. On the other hand, forest regeneration is defined as improvement of forest cover and quality of forest through natural regeneration as well as through conscious human efforts. By distinguishing deforestation from degradation, the mechanism of forest deterioration is more specifically understood. In the meantime, by distinguishing regeneration which is often considered as a part of degradation, the current study aims to understand the dynamic patterns of resource use change.

5.2.1 Forest Degradation

The result of the spatial analysis indicated that primary forest in customary village territory of Ang Nhai decreased from approximately 2,450 hectares in 1952 to 1,470 hectares in 1981 (Table 5.2). During the same period, the amount of area in degraded forest and shrub increased. Interpretation of the aerial photos also indicated that forest areas in Ang Nhai, particularly in the upland areas became increasingly fragmented into smaller forest patches in the last two decades (Figure 5.3 B, C). Secondly, a substantial incidence of forest degradation is observed as relatively rich forest areas covering almost 90 % of the village land in 1952 became significantly deteriorated and covered only 10 % of village land by 1998. All together, a total of 860 hectares of dense forest deteriorated between 1981 and 1998. This coincides with villagers’ historical accounts of widespread commercial logging by the state forestry enterprise.

While direct comparison can not be made, results of the 1998 aerial photograph interpretation and the 2000 satellite image classification also indicates a continuing trend of forest degradation in Ang Nhai despite its designation as a national reserve forest in 1993. These findings are supported by the villagers’

accounts of persistent logging in Phou Phanang conducted by both villagers and by outsiders, as well as problems of encroachment by neighbouring villagers.

5.2.2 Deforestation

The spatial analysis also illustrates a trend of deforestation distinct from forest degradation mentioned above. In comparison to forest degradation, which is defined as a reduction in forest quality, the amount of area experiencing deforestation in Ang Nhai in the last five decades is relatively small. Table 5.2 indicates that approximately 60 % of deforestation (69.6 hectares) between 1952 and 1981 was caused by shifting cultivation (*hai*). This is attributed to the rapid population increase with the arrival of wartime migrants from north eastern Laos. While Ang Nhai villagers had long conducted shifting cultivation in Phou Phanang to supplement their low rice production in the lowland paddy field, migrants also occupied the upland areas and conducted shifting cultivation extensively until the late 1970's.

Following the political transition in 1975, the government announced a severe restriction on shifting cultivation in the upland areas. However, villagers in Ang Nhai continued to practice swidden cultivation in Phou Phanang in order to supplement insufficient and unstable rice production in the lowland paddy fields. The situation changed significantly between 1981 and 1998, during the economic transition from planned to market economy. Close to 70 % of deforestation (112.9 hectares) during the period represents conversion of forest land into permanent agricultural land, including paddy fields (*nā*) and cash crop land (Table 5.3). This coincides with villagers' accounts of land use change in the lowland areas. During the 1980s, agricultural land use gradually intensified in the lowland areas with the development of two irrigation canals. This had allowed households to engage in dry season paddy rice cultivation as well as cash crop production including tobacco, eggplant, tomatoes, and long beans. These products were initially produced for agricultural markets in Thailand, followed by the domestic market when the Lao government lifted its control over agricultural commodity market in the mid 1980's.

5.2.3 Forest Regeneration

Lastly, the spatial analysis indicated a trend of forest regeneration in Phou Phanang. Table 5.3 indicates

that between 1981 and 1998 agricultural land and shrub land reconverted into forest. For example, 354 hectares of shrub land were converted into forest, which exceeds the total area that was deforested during the same time period. A probable explanation for this phenomenon, based on the oral history of the villagers, is that during this period many of the migrants who arrived from the north eastern provinces and settled in the upland areas of Ang Nhai fled to Thailand, abandoning their makeshift settlements and swidden fields in the upland areas of Phou Phanang. Abandoned fields were left intact to regenerate, as lowland households became increasingly engaged in cash crop production. The move away from shifting cultivation in the upland was clear in the case of Ang Nhai as the government encouraged resettlement of remaining refugees in the highlands, and intensified land use in the lowlands.

5.2.4 Forest Fragmentation and Diversification in Ambiguous Land

These three trends -degradation, deforestation, regeneration- indicate that forest in Ang Nhai which is now incorporated as the protected area, Phou Phanang, had significantly degraded and fragmented in the last five decades. During the field interview, villagers explained that forest degradation and deforestation were induced mainly by war and the big population movement that was instigated by the war. In addition, unregulated commercial logging activities that started in the 1960s and resumed after the war under the State Forestry Enterprise (SFE) No.9 during the 1980s further aggravated widespread forest degradation as it had done so throughout Sangthong District as noted by Thapa (1998).

The result of spatial analysis also indicates that logging and encroachment continue to affect forest in areas now incorporated into the protected area. Figure 5.3 D indicates that forest in northern part of Ang Nhai which is now incorporated into the protected area is degraded and fragmented. However, the result of spatial analysis also indicates that forest in Phou Phanang is not only deteriorating but also regenerating. The analysis detected areas regenerating into forest from agricultural land and from shrub land.

Again, based on the oral history forest regeneration can be explained as a result of population movement after the war, as a large numbers of wartime migrant abandoned their makeshift villages after 1975 when the new socialist regime came to power. Also, it was not only the migrants that abandoned the upland areas, Ang Nhai villagers themselves gradually abandoned their upland swidden fields as they

began to intensify the use of lowland agricultural land for cash crop production and paddy rice production during the 1980s. This was due to development of irrigation canals and promotion of collective agricultural production in the lowland area. The intensified use of lowland had reduced household's reliance on forest land and transformed household livelihood basis from subsistence production to commercial cash cropping. However, forest degradation was widespread between 1980 and 1990, particularly due to the expansion of commercial logging activities across Phou Phanang.

In the following section, I will further examine the household economy in Ang Nhai to understand the household responses to the socioeconomic changes, the impact of the formal forest management institution on household access to resources.

5.3 LAND USE CHANGE AND HOUSEHOLD ECONOMY

5.3.1 Market and Land Use Intensification

Recent studies confirm household responsiveness to market can induce intensive land use and avoid environmental degradation. For example, a study conducted in northeast Thailand by Kono, Sijapati et al. (1994) shows that increased demand for cash crop production not only promoted intensification of land use but also helped to diversify household income. Diversification of household income in particular was beneficial in reducing the household dependence on forest land. Sikor (2001) also observed in northwest Vietnam that forest recovered as a result of farmers' response to agricultural market and adoption of new technology to intensify land use, more so than government policy to decentralise forest management.

Spatial analysis for Ang Nhai Village indicated that agricultural land had increased between 1981 and 1998. The trend of agricultural land intensification since the 1980s was also confirmed from the oral history of the villagers. Two factors appear important for the intensified use of agricultural land in the lowland area. During the 1980s, the government promoted collective agricultural production through development of agricultural cooperatives or work units⁵⁴. Table 5.2 indicates that areas of lowland paddy rice field expanded between 1981 and 1998 from 27.7 hectare to 67.7 hectare.

⁵⁴ In Ang Nhai, work units were formed to develop a new lowland paddy field in the village. In exchange, they received government support to construct two irrigation canals.

The second factor that had promoted agricultural land intensification in the lowland was the integration of village economy to the regional markets and increased cash crop production. While Ang Nhai villagers had been engaged in commercial cash cropping since the pre-war period, increased integration to the local market during the 1980s had boosted cash cropping⁵⁵. Commercial agricultural production in the 1980s includes tobacco and tomato, which was first produced for markets in Thailand. When the domestic agricultural market was liberalised in 1986, commercial agricultural production increased and became an important part of household economy⁵⁶.

Table 5.2 indicates that garden area increased significantly between 1981 and 1998 from approximately 23 hectare to 105 hectare. Increased commercial agricultural production also meant that household dependence on upland cultivation declined. While shifting cultivation had been an important part of subsistence agricultural production during the war, and the period immediately following the war, increased access to lowland paddy field and construction of irrigation canal had improved the rice sufficiency of households in Ang Nhai.

Majority of the household had little time to conduct shifting cultivation in the upland areas which required more labour compared to lowland paddy field. Instead, households began to concentrate on lowland paddy field cultivation and cash cropping, even if it meant renting a plot from other members of the village. In particular, land poor households or households that had limited access to productive paddy field began to focus on cash crop production, and began to purchase rice. Thus, prior to the implementation of the Land and Forest Allocation, socio-economic changes had affected the upland and land use practices of villagers in Ang Nhai.

5.3.2 Sources of Household Income and Agriculture Production

Figure 5.5 is a result of household survey that indicates income discrepancies between four household classes. It also illustrates different source of income for each household class. With regards to crop,

⁵⁵ While there was no road that reached to Vientiane, they produced vegetables and sold them at Kaoriao, the centre of canton, using boat. Commercial cash cropping was temporary halted during the wartime.

⁵⁶ While teak plantation was widely promoted throughout the country in the 1980's (Roder, Keoboulapha et al. 1995) and again during the Land and Forest Allocation, majority of households in Ang Nhai indicated a stronger preference for perennial cash crops.

tobacco is the most popular cash crop produced by all classes of household in Ang Nhai. Table 5.4 indicates that 46 households out of 55 households interviewed (78%) were engaged in tobacco production. Tobaccos are produced on contract basis, and farmers are responsible to grow and dry tobacco leaves in the village before selling the dried tobacco leaves to a company in Vientiane at a rate of 7,000 kip (73 cent, based on 2001 rate of 1 USD = 9,500 kip) per kilogram.

Table 5.4 and Table 5.5 also indicate that the highest income class have the most diverse source of income. For example, Table 5.5 illustrates that household class above 20 million kip per year (2,105 USD based on 2001 rate of 1 USD = 9,500 kip) not only conducted swidden, but also wet and dry season paddy rice, and other cash crops including eggplants and tobacco. In addition, 40 percent of the income is from raising large livestock (e.g. pig, cattle). Numbers of households in this group also specialize in petty trade within the village and earned income from other non-agricultural labour opportunities such as logging and driving trucks.

Households from income class between 10 and 20 million kip (1,052 – 2,105 USD) per year also earned more than 30 percent of their income from cash crop cultivation (e.g. tobacco and tomato) as well as from agricultural (e.g. working on other people's cash crop fields) and non-agricultural labour within the village. Income earning from livestock production only accounted 11 percent of the total average household income. According to Table 5.6, households in group principally conducted wet season paddy rice cultivation, which was also supplemented more by swidden rice than dry season paddy rice cultivation.

Households in income class between 5 and 10 million kip (526-1,052 USD) per year predominantly produced wet season paddy rice, supplemented by more by dry season paddy and slightly less by swidden rice production. For this group of households, eggplant is an important cash crop that supports more than 25 percent of their average household income. Other sources of household income include both agriculture and non-agriculture income as in the previous two classes.

Lastly, households below an average annual income of 5 million kip predominantly engaged in wet season paddy rice cultivation supplemented by dry season paddy production. Surprisingly, swidden rice cultivation is marginal for this group. More than 40 percent of household income depends on eggplant

production. Table 5.6 indicates that household in low income classes are substantially dependent on wet season rice production and marginally dependent on swidden rice production.

In sum, the result of household survey indicates that cash crop production accounted more than 30 percent of household income for all except for income class over 20 million kip per year. Household in this income class tended to be better off as they were able to diversify their source of household income. On the other hand, households in the lowest income class relied more than 50 percent of their household income on cash cropping. Interestingly, Table 5.6 also indicates that household classes above annual earning of more than 10 million kip engaged in swidden cultivation, as well as wet and dry season paddy rice cultivation. Swidden production accounted more than 20 percent of their rice production for household classes above 10 million kip per year. This is contrary to a popular belief that poor people are dependent on swidden cultivation. In Ang Nhai, relatively better off households continue to engage in shifting cultivation. This can be explained as a result of combination of factors unique to villages such as Ang Nhai with access to lowland agricultural land, whose economy was quickly becoming integrated into the local market.

As had been explained in the earlier section, economic benefit of cash crop production gradually shifted villagers' attention towards the intensive use of agricultural land in the lowland. In particular, household with limited labour and capital began to rent unused agricultural land which was occupied by some member of the village (or land that is under *chap chong*) in order to produce cash crops. Households then began to purchase rice from their cash proceeds instead of engaging in shifting cultivation to supplement their rice shortage.

Secondly, government effort to allocate land by issuing land title to individuals made farmers responsible to pay tax in cash. While farmers were eligible to register swidden plots and gain legal title, it was limited to three plots which meant that farmers had shorter fallow cycle. The shorter fallow cycle incurred problems such as soil depletion and infestation of weed. This also incurred more labour but with less production. While the productivity of swidden plots declined, farmers who registered their swidden plots now were required to pay taxes. In Ang Nhai, relatively wealthy households who not only have excess capital but also labour continued to retain their swidden and continued its use. In the meantime, the

relatively poor households often failed to register their swidden plots formally for it offered little benefit to them.

5.4 DYNAMIC CHANGES OF RESOURCES AND RESOURCE TENURE

The review of customary resource boundary in Ang Nhai elucidates a significant difference between newly imposed state boundary and that of the village based on their customary notion. The result of spatial analysis also indicates that forest degradation and fragmentation became widespread particularly in the course of the last two decades. The factors of forest degradation were varying and dynamic during the course of history. Based on oral history, it was understood that a significant population movement affected the use of resources both during and after the war. The fleet of refugees across the Mekong during the mid 1970s had left the upland areas of Phou Phanang abandoned. The areas of upland in Ang Nhai were cleared of people, as the new government attempted to concentrate population in the lowland areas. Remaining migrants were resettled to new villages adjacent to Ang Nhai.

Forest degradation was further aggravated during the 1980s, particularly as economic interest over timber had expanded logging operation of SFE No.9 throughout Phou Phanang. While new and old, private and state resources users co-existed, no new rules were established that called to regulate the use of resources in Phou Phanang. This had created open-access situation in Phou Phanang and rapidly degraded forest area.

Meanwhile, villagers' dependence on forest land began to decrease in the mid 1980s, as Ang Nhai's villagers became involved in cash cropping. This was partially instigated by the increased economic integration of the village economy to the local markets. As a result of intensification of agricultural land use in the lowland, forest areas Ang Nhai recovered between 1981 and 1998. This was clear from the results of spatial analysis. While the increased use of agricultural land in the lowland contributed to the regeneration of forest in Phou Phanang, this did not resolve the problem of open-access in Phou Phanang. Even after the designation of Phou Phanang as part of the national reserve forest, villagers as well as outsiders continue to access Phou Phanang for collection of non-timber forest products (i.e. mushrooms, bamboos, etc.) and logging.

While the Ang Nhai villagers acknowledged Phou Phanang's boundary, which officially minimised their village area from the original 2,690 to 729 hectares, their sense of customary boundary remained. However, they no longer held the responsibility to manage resources over the customary village land which was now part of the state property. Resource conflicts beyond the official village boundary now others' problem. The creation of Phou Phanang, which was intended to resolve the problem of open-access, excluded overlapping village territories, and disintegrated neighbouring villages that used to collectively use and access resources in Phou Phanang. As a result, it had created a management vacuum where nobody held the responsibility of resource management while both new and old resource users continued to extract resources without being penalised for their actions.

The case of Ang Nhai suggests an important notion in forest conservation. Where forest is close to villages with people who have had long relationship with its use and its management, conservation must take into their historical relations with the resources. Efforts to develop conservation strategy must also not isolate villages that had shared resource use and access. Instead, the new collaborative efforts to manage resources should be based on the old institutions.

Finally, while intensive use of agricultural land in the lowland in combination with increased integration of the village economy to the local market had relieved pressure off the upland areas in Ang Nhai, it is still insufficient to say that promotion of cash cropping and intensive agricultural land use had ensured forest conservation. It is also premature to conclude that the land zoning and titling of agricultural land through the application of Land and Forest Allocation had motivated villagers' towards "sustainable" land use practice as forests in areas beyond official village boundary continue to degrade.

CHAPTER 6 COLLABORATIVE MANAGEMENT OF PROTECTED AREAS

6.1 DECENTRALISATION

As had been reviewed in Chapter 3, forest management in Laos evolved through a series of stages over the course of history: From a customary and open access forest resource use to a consolidation of state controlled forest resource and towards community based forest management. Chapter 4 elucidated the development of national reserve forest in Laos, and pointed out the missing linkage between the formal institution and the local institution that inhibit “sustainable” management of forest. The missing linkage between state policy to protect forest and local practices were further elucidated in a case study of Ang Nhai Village presented in Chapter 5. The case study elucidated the extensive notion of village boundary and different factors that had been affecting forest and land use in the outer reaches of village boundary. The case study also concluded that although allocation of agricultural lands to households and intensification of agricultural lands in the lowlands areas relieved pressures from the upland areas in Phou Phanang, it was still insufficient to promote collective efforts in the village to protect forests in Phou Phanang.

In this chapter, I will now turn to the issue of decentralised resource management and collective action. This is to understand what mechanism is necessary to facilitate collective efforts to sustainably manage forest resources. I will begin this chapter by examining the notion of decentralisation and decentralised forest management through review of government policy on the Focal Site development, and the Land and Forest Allocation. These two policies encourage decentralised management of resources at the village level. In this chapter, I will also review village based forest management which was encouraged through internationally supported project: Village Forestry and Joint Forest Management. Finally, I will consider how collective efforts can help to better manage forest resources and what institutional linkage is necessary to facilitate a collaborative resource management in protected area.

6.1.1 Decentralisation: Theoretical Background

Community based natural resource management (CBNRM) gained a wide international recognition in

the 1980s as many researchers and resource managers became weary and disenchanted by continued degradation of resource under the state centred forest management (Fisher 1995; Borrini-Feyerabend 1996). This was because stakeholders with stronger political power can manipulate the existing institution and to make a claim over resource access and use, even if it means undermining the needs of those people with less political power. State delineation of forest boundary often displaced rural population and fostered strong anti-government sentiment if not apathy (Peluso, Vandergeest et al. 1995; Wittayapak 1996; Campbell, Namarundwe et al. 2001).

Any act in which the central government formally cedes powers to other actors and institutions at lower levels in the political hierarchy is referred to as decentralisation (Dupar et al. 2003, p3). Decentralisation is a notion of public administration, and can be further distinguished in terms of how power is transferred between the political hierarchies (Ribot 2003; Dupar et al. 2003). By defining power as a capacity or authority to contribute in decision-making, Fisher (1999) suggests the need to distinguish “decentralisation,” which is relocation of administrative function away from the centre, and “devolution,” which is an actual transfer of power away from the central location. Fisher (1999) further contends that decentralisation of administrative functions require devolution of power to the local authorities so that their participation in the decision-making process is truly meaningful⁵⁷.

Dupar et al. (2003) further elaborates decentralisation by distinguishing it into five sub-categories based on how the power is transferred from the central state to the local entities and also by the degree of political representation. For instance, any transfer of power and resources to authorities that are downwardly accountable to local populations is considered as “political or democratic decentralisation.” This form of decentralisation recognises democratic representation and decision making by local authorities whose actions are accountable to the state.

The second form of decentralisation is known as “deconcentration” or administrative decentralisation. Here, the decentralisation occurs as administrative responsibilities are transferred from the central government office to the local branches of the central government office. This form of decentralisation is

⁵⁷ Fisher’s (1999) argument reflects those of the development practioners in the field of natural resource management which calls for a meaningful level of local participation, particularly recognising their ability to make decision.

not necessary accompanied by transfer of political power to the local authorities, which means that political power to make decisions or fiscal budget still rests at the central level.

“Fiscal decentralisation” is the third form of decentralisation, which includes transfers of budgetary or revenue generating powers to the local authorities. However, again, as in “deconcentration,” the political power to make decision remains with the central government. The forth type of decentralisation is referred to as the “privatisation,” which is a permanent transfer of power to any non-state entity, which includes individual, corporation or NGO. Under privatisation, the private or non-state entity is accountable to make political decisions independently. The last form of decentralisation is referred to as “co-management.” “Co-management” is considered as the fifth form of decentralisation, which combines aspects of both “deconcentration” and “privatisation.”

Ribot (2003) who reviewed decentralisation of natural resource management using the same framework contends that decentralisation is not about dismantling the central government or downsizing the state. He claims that decentralisation is a political process that supports central and local government mutually through transfer of power and through development of a political process that represent varying interests. However, this notion of decentralisation rests on the basic assumption that both social justice and political democracy are given. While transfer of power and development of publicly accountable process may be achieved in a society that has well established grounds for social justice and political freedom, the same may not be easily applied in developing countries where institutional grounds for social justice and democracy remain weak.

6.1.2 Decentralisation in Lao Context

Much throughout its history, communities in Laos have remained semi-autonomous in spite of the colonial intervention, war and the collectivisation of agricultural production. Pravongviengkham (1997a) contends that villages in Laos were exceptionally self-sustaining compared to other countries in Southeast Asia, with loose connection to larger political and social unit.

It was not until 1990 that the status of village as an administrative unit was legally stipulated in the Constitution. This was further elaborated in the Prime Minister’s Decree No.102 on the Organization and

the Administration of the Village, which was issued in 1993.

The Decree No. 102 stipulates that any area with more than 20 households can form an administrative village in Laos (Section 1, Article 2). A village is administered by a village organisation or *kana chattang bān* which is headed by chief of the village. Members of the village organisation include deputy village chiefs, and leaders of mass organisations in the village (i.e. youth group, elder group, women's group). The chief of the village is elected by vote, and is accountable to the district authority. Notion of village or *bān*, which was only loosely linked to the larger political and social unit in the past, became more formal and standardised.

The new administrative village increasingly became integrated into the central political system as development projects and government policies extended its reaches to the rural villages. Since the early 1990s, rural development has been facilitated through the development of Focal Sites. In 1994, the government announced the Focal Site Strategy, which aimed to concentrate development efforts in selected rural areas across the country. The aim was to integrate administrative villages to the development in the Focal Site.

According to a government document, a focal site is defined:

“...rural areas in which government concentrates its development efforts to remove the constraints of poverty from target populations within the focal site. Specific focal sites offices are established to coordinate the delivery of development services by different line agencies in the focal sites. Focal sites are to act as learning and growing centres in which to develop new methods and approaches and from which successful experiences will be replicated to extend the impact of rural development efforts to other areas (Lao PDR 1998).”

‘Focal sites’ were thus introduced to reduce redundancy and dissipation of international aid programs, and to decentralise rural development projects under the local administration. It also aimed to increase food and commodity production, create employment opportunities, and develop conditions for improved living standards (Pravongviengkham 2000, p76).

The Focal Site development approach transfers resources to the district administration. However, selection of the Focal Site is dependent on the central government decision as well as development interest of international donors. The district administration is also financially dependent on the central authority, particularly the former State Planning Committee or the Committee of Planning and Coordination under the Prime Minister's Office, as well as the international donors. In sum, the approach deconcentrates administrative responsibilities to the district administration, making district administration accountable to provincial and state government offices without allocation of financial and political independence.

In the following section, I will examine decentralisation in forest management through the Land and Forest Allocation Policy.

6.2 DECENTRALISED FOREST MANAGEMENT IN LAOS

6.2.1 *Land and Forest Allocation*

As had been examined in Chapter 3, simplification of resource management in Laos developed during the 1990s with the support of international agencies. Forest and land were classified and categorised into manageable units and its access and use became legally prescribed through government decrees and laws.

Concurrently in the early 1990s, a separate movement occurred, led by a group of international NGOs in Laos, promoting the recognition of local communities' rights to access and use resources (Hirsch et al. 1996; Akasaka u.d.). The movement had led to a development of legislation that recognised villagers' claim for legitimate territorial boundary and their rights to manage land and resources.

Instructions on Land and Forest Allocation for Management and Use (Land and Forest Allocation), which was earlier known as *nanyobāi kām bēng dīn bēng pā* (or land and forest zoning policy) recognised the legal rights of the village to manage forest land, and individual rights to access and use agricultural land and degraded forest. The policy was considered one of the most progressive in Southeast Asia as it recognised communal rights to territory.

Meanwhile, the same legislation also aimed to control resource use practices by the local community, by delineating village boundary and zoning village land. Land and Forest Allocation comprises eight steps as illustrated in Figure 6.1. The District Agriculture and Forestry Office (DAFO) plays a central role in the

implementation of the Land and Forest Allocation. According to the eight steps, DAFO collects information on village resource boundary and resource use practices together with village organisation. Based on the information, village boundary is delineated and forest and land categories that correspond to legal definition of forest and land are identified within the village for further development of the management plan. Management plan is also standardised consisting sets of rules that regulate resource access and use in each forest and land categories. Finally, the Land and Forest Allocation is completed by developing extension services and following up on the actual resource management practices.

By placing DAFO at the centre of the process, the Land and Forest Allocation deconcentrate administrative responsibilities to the local administrative unit. However, the district offices are dependent on financial and technical resources from the higher line agencies and from development projects in order to implement the Land and Forest Allocation. Usually, a budget of approximately 100 US dollars is allocated per village to conduct village boundary delineation, land use classification and management planning. DAFO who receives the budget takes on average, a week to complete the six step process together with village organisation.

Meanwhile, the Land and Forest Allocation involve villagers in a series of levels. Not all villagers become in all of the eight steps. Instead it is the Village Organisation consisting village's administrative and political leaders that become involved in the process. DAFO consults Village Organisation during the second and sixth step. During the second step of the Land and Forest Allocation, representatives of Village Organisation from neighbouring villages are called for a meeting to decide the official village boundary. Village data collection during the third step and field measurement during the fifth step usually involve village forestry volunteers and DAFO. Other members of the village may attend fourth and sixth step of the Land and Forest Allocation, however, management decisions are made by Village Organisation and DAFO.

Through the Land and Forest Allocation, the Lao government particularly aimed to protect forest areas and eliminate slash-and-burn agricultural practices. The shift of policy focus occurred during the late 1990s, as the policy became known as *nanyobāi kǎn mōp dīn mōp pā*, which means allocation of land and

forest⁵⁸.

By 2001, close to 70,000 villages were announced to have completed the Land and Forest Allocation in Laos (19-22 January 2001 Vientiane Times). Official documents assert that the Land and Forest Allocation helped to eliminate shifting cultivation practices and eradicate rural poverty. However, the true impact of the Land and Forest Allocation is yet to be studied⁵⁹. The case of Ang Nhay Village in Chapter 5 illustrated that economic integration to the local market and intensification of lowland use had been the driving force that relieved the pressure off from the uplands. The effect of the Land and Forest Allocation on collective forest management, on the other hand remains questionable as villagers continue to access forest in Phou Phanang.

6.2.2 Decentralised Forest Management through "Village Forestry" and JFM

"Village Forestry" began in 1995 as a sub-programme of FOMACOP, supported by the World Bank, the Finland International Development Agency (FINIDA), and the Global Environmental Facility (GEF). It was initiated as a 10 year program, focusing on village based sustainable forest management in the state production forest areas in two provinces in the central Laos. It provided trainings to the district foresters as well as the villagers and aimed to develop an active "partnership" between the local authorities and the villagers.

What had been unique about the approach was that it provided series of training at the village level including trainings on forest management, village organisation skills and administrative management skills. Successive trainings facilitated participatory development of resource management plan where villagers incorporated their knowledge of their local resources. Under the "Village Forestry," villagers are

⁵⁸ Prior to 1996, the Land and Forest Allocation was referred to as *kān bēng dīn bēng pā* as significant efforts were concentrated on village boundary demarcation and land use zoning based on customary resource use practices of each village. It was considered a progressive forest management policy that recognised community rights to manage resources. Following the issuance of the Instruction, the Land and Forest Allocation in 1996, the policy became more commonly known as *kān mōp dīn mōp pā*. This occurred as the policy focus began to emphasise the allocation aspect, in particular allocation of agricultural land plots to individuals.

⁵⁹ Meanwhile, the Land and Forest Allocation has also been supported and facilitated by numbers of international agencies and organisations working on rural development. Table 6.1 indicates the list of key international NGOs, bilateral agencies and international organisations that had worked with the Department of Forestry (Ministry of Agriculture and Forestry) and the Department of Land (Ministry of Finance). Objectives, approach, and length of intervention by the international organisation differs from one organisation to the other; however, they all accredit local participation in resource management planning.

able to cut trees according to their management plan, which had been approved by both the District Agriculture and Forestry Office and the district governor.

The revenue that accrued from the sales of timber was divided among the local forest management authorities and the village (Litz 2000; Fujita et al. forthcoming). For instance, villages usually claimed close to 43 percent of the gross profit while the rest were divided to PAFO and DAFO. The profit that accrued to the village was pooled as a community fund and deposited in a bank. The money was used by the villagers on the basis of collective decision. In most instances, the money was used for development of rural infrastructure such as building schools, roads and irrigations. Decisions to use the community fund only required a formal approval by the District Governor.

Joint Forest Management (JFM) is also a forest management project that emphasised on community involvement. The project began in 1994 supported by the Swedish International Development Agency (Sida). It was part of a Lao-Swedish Forest Programme (LSFP) that was based in Savannakhet Province in the central Laos.

As had been the case with "Village Forestry," JFM was also based in villages that shared boundaries with state production forest. The approach used by JFM was similar to "Village Forestry." JFM employed two models of sustainable forest management that mobilised local people (Manivong and Muraille 1997; Makarabhirom and Raintree 1999). The first model developed JFM association in the village and gave full rights to use and manage resources in a given area. This model is very much similar to "Village Forestry," as it also facilitated villagers to develop their forest management plan. Villagers were allowed to cut trees in the production forest according to the management plan. After the sales of timber, the proceeds were shared between the JFM association (70 percent) and the village (30 percent). As in the case of "Village Forestry," villagers that participated in JFM made collective decisions regarding the use of profit.

On the other hand, the second model employed by JFM did not develop JFM association but instead mobilised local villagers as forest labours in the state production forest. Under the second model, financial profit accrued to individual and not to the community.

In sum, both "Village Forestry" and JFM attempted to decentralise management of the production forest which is part of state property. Both projects heavily involved district authorities (i.e. DAFO,

District Governor's Office) and the villagers in developing resource management plan. The process required training of specialised skills including forest inventory and survey, and accounting at village levels. Through the project, linkage between district authorities and the village strengthened. Village organisations that were involved in both projects became accountable to sustainable forest management practices. Collective effort to maintain production forest was further rewarded by the proceeds accruing from sales of timber. The kind of forest management not only transferred administrative responsibility to local authorities and to the village, but also facilitated financial decentralisation, particularly at the village level⁶⁰. Reallocation of financial benefit to the village had been one of the significant benefits to the villages that participated in "Village Forestry" and Joint Forest Management (Fujita et al. forthcoming).

However, funding for the projects ceased in 2000 and 2001 respectively. While villages continued to manage their village forests according to the management plans, they were not implemented accordingly. Plans were often disapproved by district and provincial authorities. In cases where village plans were approved, they were not receiving the financial proceeds from the sales of timber (Fujita et al. forthcoming). This made villagers weary of sustaining the once effective village based forest management.

Implication of the Land and Forest Allocation and projects such as "Village Forestry" and Joint Forest Management is that decentralisation in Laos at the current juncture only transfer management responsibility to the local villages or deconcentrates administrative tasks. While cases of "Village Forestry" and JFM indicated ability of villages to organise themselves in the collective interest to manage production forest, its continuity was also subject to intervention by the international organisation and the government's interest over production forest.

6.3 COLLECTIVE ACTIONS AND FOREST MANAGEMENT

6.3.1 *Collective Actions for Resource Conservation*

It is true that traditional societies have extensive knowledge on surrounding environment and have developed complex relationship with nature. However, to believe that traditional societies or people who

⁶⁰ However, village organisations were not completely independent in making resource management decisions, as forest management plans and plans to use community fund required approval from the District Governor.

live closely with nature and derive direct consumptive benefits is a naïve and contentious (Colchester 1994). Many factors motivate human use of nature. Some societies are more responsive to forest conservation when faced with a problem of resource scarcity while others remain indifferent.

Success of community's ability to manage natural resource is conditional. It is often claimed that communities that are relatively small and self-cohesive with a strong sense of shared identity and shared resource boundary are more likely to engage in collective efforts to conserve their local resources (McKean 1992). Also, resources at stake are neither too much in abundance nor near depletion in most successful cases of community-based resource management⁶¹.

Baland and Plateau (1996) offers four typologies of collective actions for controlling resource access and initiating conservation strategy. Four typologies are represented in Figure 6.2 as each quadrant represents the degree on flexibility with regards to resource access, and efforts towards conservation. For example, a community with flexible access to natural resources but without any consistent efforts to conserve the existing natural stock is distinguished as Type I (Quadrant I), a community with restricted access to resources without conservation is categorised as Type II (Quadrant II), a community with restricted access to natural resources with conscious efforts to conserve resource stock is considered as Type III (Quadrant III), and finally a community with flexible access to resources with conscious efforts to conserve the existing resource stock is considered as Type IV (Quadrant IV).

According to Baland and Plateau (1996), Type I occurs under the condition where population pressure on resource is limited and resource is abundant. In addition, low technology and productivity, as well as subsistence based livelihood is raised as general conditions of Type I resource use. Here, accesses to resources by non-community members are also allowed easily through mutual consent.

Type II situation emerges when numbers of resource users and their actual use of resources increase beyond the endowed resource capacity. As numbers of resources users become crowded or volumes of extraction increases, resource become scarce and competition over resource use increases. It is not necessary a neither or nor situation, but can occur as a result of both increased competition and reduction in

⁶¹ It should also be noted that other critical reviews on community-based natural resource management points out the variability of the community and its diverse interest (Brosius and Tsing 1998; Campbell et al. 2001; Varughese and Ostrom 2001; Li 2002).

the environmental capital stock. The problem can be approached by controlling the resource access and by re-distributing benefits and costs among the resource users. This is a matter of regulating the flow of environmental resources. On the other hand, if it is a problem of declining resource stock, the problem requires not only improved sharing of resources but also conservation efforts to improve the quality and volume of existing environmental stock.

According to Baland and Plateau (1996), communities are naturally inclined to regulate access of outsiders more so than restricting their own resource use. However, different accounts of resource use practices around the world indicate that societies can learn from past experience and adopt measures to regulate resource use and improve the existing resource stock (McKean 1992; Shigetomi 1996)⁶². For example, Shigetomi's (1996) study in northeast Thailand illustrates a case where local villagers enclosed a resource in the village and develop a rule to regulate its members' resource use and access. He contends that while resource access and use was open to all members when resources were abundant, a new form of management emerged as villagers realised the increasing scarcity of the resource stock, which was accompanied by increased economic value of the resource. The speed to adopt new ways to improve the existing environment vary significantly as awareness on human pressure to natural resource grows only slowly and requires concrete and visible experience for communities to realise the need for and benefit of effective resource management (McKean 199; Baland and Plateau 1996).

Lastly, a kind of collective resource management classified as Type IV is where conservation occurs while access to resource remains flexible and unregulated. However, it is often difficult to ensure protection of environmental stock without any formal or informal rules that regulate resource access. Baland and Plateau (1996) contends that Type IV is rarely possible unless resource extraction is morally constrained by community members and the cost of management is internalised by community members.

The ideal model of conservation is thus to move communities that are faced with resource scarcity and resource conflict, towards Quadrant III, where resource access is regulated and collective efforts to conserve resources are facilitated. While this simple typology of collective action is useful in

⁶² Baland and Plateau (1996) also contend that while many of Type II are hunter-gatherer societies, Type III tend to be agriculturalist who are more conducive to resource management.

distinguishing different situations of resource management, it fails to take into account of the community's linkages with larger economy and political framework.

Decisions to manage resources are frequently influenced by government policies and economies pertaining to certain types of resource. For example, as Chapter 4 indicated, villages in tropical countries lying proximate to forests are often included into conservation projects regardless to their own will. Conservation is not only internally driven but is externally driven by government policies, as well as international agreements as well as interventions by the international organisations.

The case of "Village Forestry" and JFM exemplifies that external intervention created new incentive for local resource users to manage forest in sustainable manner. In particular, it developed a new formal institution that allowed the local resources users to act in collective interest to manage forest resources and benefit from the financial proceeds of collective forest management. Under the new forest management, village organisation became both upwardly accountable to district authorities and downwardly accountable to the members of the village. However, this form of decentralised forest management was only possible during the project intervention period when the central and provincial authorities' decision making power was counter-balanced by the international organisations that offered both financial and technical resources.

6.3.2 Towards a Collaborative Resource Management

In this section, I will now examine the notion of collaborative resource management which views at resource management practice involving more than one stakeholder group. Collaborative management is also referred to as co-management, participatory management, joint management, shared management, multiple-stakeholder management, and so forth⁶³. More importantly, it is also a notion that suggests foresters as well as resource managers to consider a "shared" sense of resource management together with the local people.

Borrini-Feyerabend (1996) describes collaborative resource management as "a partnership by which

⁶³ The notion of collaborative resource management was inspired by varying subjects as such as sustainable development, biodiversity conservation, protection of indigenous people's rights, decentralized development planning, and public participation.

various stakeholders agree on sharing among themselves the management functions, rights and responsibilities for a territory or set of resources under protected status (p3).” What she means by stakeholders including resource users as well as different agencies, local administration, and other interest groups that “possess a direct, significant and specific stake (p8)” in the use and management of natural resource. However, not all potential stakeholders are equally interested in conservation nor are do they bear same role in resource management. Stakeholders’ interests differ from one another, and their stakes in resources are affected by the existing power relations that affect stockholders’ ability to negotiate and claim their rights over resource use.

Borrini-Feyerabend (1996) further describes that collaborative resource management is a situation where “some or all of the relevant stakeholders...are involved in a substantial way in management activities (p12)”. What collaborative resource management calls for is a kind of cooperation or “partnership” between stakeholders that recognise each other’s role, rights and responsibilities (Table 6.2).

In order to develop a meaningful partnership, Borrini-Feyerabend (1996) stresses the importance of developing a mutual trust among stakeholders, which increases all stakeholders’ commitment. This calls for a transparent and fair system of resource management that appropriates tangible benefits commensurate to the management effort.

In order for a co-management scheme to be effective, Fisher (1995) raises three key components. First component is to integrate local people’s rural development needs and the needs to protect resource. This requires careful identification of stakeholders, and how benefits of managing resources can be shared among the stakeholders. Such effort requires an atmosphere in which stakeholders can communicate with one another and negotiate their terms of involvement.

The second component raised by Fisher is the recognition of local people’s rights over resource use in the conservation area. This also requires an active dialogue between local resource users and resource managers to legitimatise customary resource use rights.

The third component is the aspect of local participation. In particular, Fisher (1995) emphasises the need to develop a meaningful level of local participation in the decision making process. This is particularly important as local people are often mobilised to join “participatory” activities organised by

government offices and development projects, but they are often without the power to make an important decisions regarding the resource use and management.

The three components suggested by Fisher (1995) coincide with the notion of securing “environmental entitlement” to local resource users. Environmental entitlement is described as “alternative sets of utilities derived from environmental goods and services over which social actors have legitimate, effective command and which are instrumental in achieving well-being (Leach, Mearns et al. 1997)”. Under the state-led forest conservation, environmental entitlement of the local resource users are often undermined as their access to resources are denied on legal basis or sometimes by being displaced. The three components also imply the need to decentralise forest management to the local communities, and allow the local communities decide the course of resource management together with other stakeholders.

For a collaborative resource management, a formal recognition of local people’s customary rights to resource use is an essential step. A legitimate recognition of local people’s rights must include recognition of local people’s ability to claim for and gain actual benefits from the resources. However, the actual ability of the communities to claim their rights and gain any benefits from resource management differs from community to community, given their historical background, the communities’ social and political status, their institutional linkages with other stakeholders, and access to information. Thus, recognition of local people’s rights must also go hand in hand with other efforts to allow local people to make political decisions and to negotiate the terms of their rights over resource use and management.

In the next section of this chapter, I will now turn to the management of protected area in Laos. I will review the institutional linkages and examining the underlying constraints that inhibit collaborative resource management in the protected area.

6.4 INSTITUTIONAL LINKAGES

6.4.1. *Upwardly Accountable Decentralisation*

At the global scale, forest policies in Laos have been influenced significantly by the intervention of donors, bilateral and international agencies as well as international non-government organisations (Figure 6.3). As have been reviewed in the earlier chapters, international agencies such as the FAO and the UNDP

had been instrumental in shaping the forest policy in Laos.

At the national level, forest conservation policy was drawn by national agencies such as the Ministry of Agriculture and Forestry and the Science, Technology and Environmental Agency. The Department of Forestry's role as an executive office that provided technical expertise was particularly strengthened during the period of the early 1990s as it received financial and technical inputs from international organisations. However, ironically, lack of coordination among the international organisations meant that international organisations were more concerned to initiate "their" forest conservation projects.

Increasingly DAFO became the focal point of international support during the late 1990s as the locus of international assistance shifted and the central government policy became geared towards decentralisation. However, decentralisation was only partial, as the administrative responsibilities were transferred to the district offices. Meanwhile, resources available to the district offices remained low. Local offices such as DAFO also remained upwardly accountable to its higher line agencies with limited capacity to represent the local people's interest. While DAFO is responsible to submit management plans to the provincial authority, political and financial powers to make important decisions over resource use rest with higher government agencies at the provincial and central government level. As the case of "Village Forestry" and JFM illustrated, decentralisation of forest management remains a sensitive issue as timber continue to offer lucrative financial revenue.

6.4.2 Institutional Linkage in Phou Phanang

Stakeholders of Phou Phanang include villagers, local resource managers from PAFOs and DAFOs, Department of Forestry, as well as private logging companies and the Ministry of Defence (Table 6.3). As was illustrated in Chapter 4, villagers in Phou Phanang are diverse in terms of their ethnicity and their settlement history. This means that their stakes over resources also differ from one village to the other. Chapter 4 illustrated that while older villages had relatively more access to paddy field in the lowland areas, new migrant villages on the other hand, had limited access to productive agricultural land. This resulted in encroachment and shifting cultivation in areas of Phou Phanang.

While local villagers are among the central stakeholder in the management of Phou Phanang, there had

been little or no involvement of local villagers in the management planning process during the last decade of its management. As had been explained in Chapter 4, forest boundary in Phou Phanang was delineated arbitrarily by the Department of Forestry based on the newly introduced scientific classification of forest during the early 1990s. The new boundary was announced to villages surrounding Phou Phanang through district officers without due considerations to the customary village boundary of each village. This resulted in the creation of “ambiguous land.”

The new village and forest boundaries were further reinforced through the implementation of the Land and Forest Allocation. While the Land and Forest Allocation decentralised forest and land management to the village level, it also isolated villages that had traditionally shared resources. Concurrently, customary resource use and management practices were not fully reflected in the resource management plans developed by the villages. As the case of Ang Nhai in Chapter 5 indicated, the Land and Forest Allocation on its own did not offer foreseeable benefits to improve forest and land use in the village through collective effort.

The case of Phou Phanang elucidates missing linkage between state and local institutions (Table 6.4). Traditionally, access to resources in Phou Phanang was regulated flexibly between the neighbouring villages on the basis of customary resource management practice. Villagers recognised the overlapping nature of village boundary and shared the use of resources based on unwritten rules. Resources particularly in areas of “outer zone” were accessed by all villagers as well as non-villagers with some restriction. For example, villagers can cultivate swidden in “outer zone” and reap the product of their labour, but the land can be used by other villagers in other times. Such traditional resource management practice resembles a case of collective actions classified as Type I in Figure 6.2.

While the war and state policies on agriculture and forestry had opened Phou Phanang to new resources users and created an open-access situation in Phou Phanang, the new boundary and resource management introduced in 1993 did not replace or reinforce any existing institution. Instead, the new national reserve forest legally excluded local villagers’ access to the forest. Phou Phanang became state property, and the delineation of village boundary that followed isolated villages. As the customary notion of boundary was neither definitive nor exclusive, it was difficult for many villagers to accept the legal terms of state

property.

Meanwhile, the new protected areas management failed to offer a cohesive management plan that linked different levels of new and old stakeholders. This meant that even if the villagers ignored the new boundary, they were hardly penalised. As a result a management vacuum was created, where neither the formal or informal institution functioned to regulate extractive resource use practices in Phou Phanang. Transient management administration and lack of clarity in its management objective also meant that Phou Phanang's stakeholders neither felt obligated nor trusted one another to cooperate in forest conservation.

6.5 BEYOND THE IMPASSE

In order to breakthrough the current impasse of forest management, there are several aspects that need to be considered. First and foremost is the clarification of management objective. While biodiversity value of Phou Phanang is considerably low in comparison to other national reserve forest, it serves as an important watershed for Vientiane Plain, which lies to the east of Phou Phanang. Phou Phanang's management must look beyond its boundary and consider the protection of watershed. Other management objectives also need to be identified including habitat protection area and recreational area. Instead of fencing the national reserve forest, the management of Phou Phanang should centre on specific management sites.

It is also essential to develop stronger ties between local resource authorities and villagers in order to develop a mutual partnership for forest conservation. Given the limited resources of the local authorities to enforce and monitor resource access and use, facilitating local initiatives is essential for the management of Phou Phanang. This will require an active dialogue between local resource users and authorities. It will also require departing from the notion of fixed boundary, but instead opening the boundary and encouraging collective forest management in areas surrounding Phou Phanang's core conservation areas.

Thirdly, the new resource management institution must be based on existing institutions. Instead of creating new rules that does not suit the local condition, the new way of managing resources should be based on the existing institution and local people's practices of resource management. This calls for recognition of local knowledge and enabling local villagers to negotiate the terms of their customary

practice.

Lastly, accountability of resource managers at local and central government offices needs to be improved. This is to ensure that customary resource tenure are not obscured by state claims over resources, and that long-term resource tenure of villages are safeguarded as long as villagers themselves are committed to collaborative forest management. This requires facilitating decentralised decision making and allowing representation of local interests over resource management, whereby local resource users can negotiate the terms of resource use, and their claims for resources. In order to facilitate collective efforts in forest management, it is also important to identify tangible benefits and devise a fair mechanism to reallocate the benefits among the stakeholders.

CHAPTER 7 POLITICAL ECOLOGY OF FOREST CONSERVATION IN LAOS

7.1 DEFINING SPACE

The current study explored the problem pertaining to forest management in Laos. In particular, it focused on the political ecology of creating conservation forests in Laos. Through historical review of forest policy in Laos, Chapter 3 examined the process of simplification, of applying a standardised forest management system and making forest in the eyes of the state.

The role of the state in forest management had generally been weak in Laos. This was due to Laos's geopolitical position, and due to the long history of war that inhibited the development of the modern state system. The new socialist government was also less concerned with territorial control of forest. Instead, the focus of the new socialist state rested upon the extraction of timber and control of labour. This was facilitated by development of state forestry enterprises throughout the country.

The sense of territorial control became important since the late 1980s as forest and land became defined both spatially and legally. This was largely supported by the influx of international assistances that provided technical and financial means to institutionalise resource management in Laos. Introduction of modern mapping and forest inventory techniques were particularly instrumental in redefining forest as a unit or a standardised "space." Forests were categorised according to the scientific classification. The new rush to institutionalise forest management in Laos also brought the new notion of developing protected areas for conservation of the biological diversity.

As we have seen in Chapters 3 and 4, protected areas management system was provoked by the international environmental organisation and adopted by the Lao government in the early 1990s. The development of legislations and legal statutes that regulated the use and management of forest in Laos further reinforced the definition of managing forest as "space" than "commodity."

Thus, development of mapping techniques and legislations shaped how forests were managed and used. Forests were distinguished into legible units in the eyes of the state. However, the village case study in Chapter 5 elucidated that the new definition of forest was not as legible to local authorities or to villagers residing in the protected areas whose perception on resources access and use differed significantly from

that of the state.

Chapter 5 also illustrated that while villagers recognised the official boundary of Phou Phanang, they continue to perceive their village boundary based on their sense of customary village territory. What this implies is that there exist two sense of spatial territory overlapping one another. One is the Phou Phanang as the *pā saguan hengxāt*, which is an official territory acknowledged by all stakeholders but not necessary valued or respected to the same degree. The second notion is local people's perception of Phou Phanang as an extension of their village landscape. Unlike the first notion, the second notion is fuzzy in terms of its boundary, as well as who access resources and how. However, it had been adaptive and allowed local resource users to negotiate the terms of access and use on the basis of consensus.

7.2 POLITICAL ECOLOGY OF PROTECTED AREAS IN LAOS

The current study employed political ecology approach to understand how forest became defined as political space by reviewing the historical development of forest management policy in Laos since the colonial period. In particular, I have examined how "forest" was defined by the state, and what measures were employed by the state to exercise its control over natural resources.

The political ecology approach also takes in account of the nested scale of interaction. In the development of forest management institution, international organisations such as FAO, UNDP and the World Bank bore a significant impact on the development of resource management policy in Laos. The national environmental policy was particularly shaped by technical and financial support from the international organisations.

At the same time, government efforts to decentralise administrative tasks to the local authorities had also facilitated community based management of natural resources. The confluence of national and international interest had thus led to a development of a legal process that recognised village boundary, and allocated rights to the villagers to manage their resources. This was devised into the Land and Forest Allocation in 1996, entailing eight standardised steps.

As had been described in Chapter 4, decision to include Phou Phanang as one of the national protected area was a matter of political decision. While international organisation such as IUCN saw little

importance of Phou Phanang, it held historical and cultural value to the state. Phou Phanang also served as a watershed for the Vientiane Plain. However, the main objective of “protecting” Phou Phanang was never clarified among its stakeholders. Ironically, this led to the creation of management vacuum, where no formal and informal institution functions effectively to regulate extractive resource use practices.

Case study of Phou Phanang indicated that while local authorities are advantaged with the knowledge of local situation, their capacity to reflect local situation into “sustainable” forest management practice remains weak. This is not only due to the shortage of financial and human resources at the district offices, but also due to the lack of communications between the district office and the village. A conscious effort is also necessary in order to develop new resource management practice on the basis of the existing knowledge and local institutions.

At the village level, incentives to “protect” Phou Phanang remain low. While there has not been a violent resistance against the imposition of protected areas boundary, general response of the villagers are to simply “ignore” the boundary on day-to-day basis. The study of Ang Nhai Village in Chapter 5 also indicated that economic integration to the local market and land use intensification in the lowland can relieve pressure off the upland areas and encourage forest regeneration; however, these efforts do not promise collective forest management practice. As concluded in Chapter 6, collective efforts to manage forest require development of management skills and institution at the local community. It is also important to create tangible benefit, and devise a mechanism to share the benefit among the community members.

7.3 IMPLICATIONS OF THE RESEARCH

The study of forest management from political ecology perspective has thus revealed the complex reality pertaining to resource and its management. The problem of forest conservation not only emerges as a problem of resource scarcity. Neither is it a matter of reallocating resources. It requires consideration of historical aspect of resource use and management. It must also examine the interacting relationship between different levels of stakeholders.

In Laos, forest management has been influenced by both external and internal politics. International

organisations that provided financial and technical support significantly influenced the development of scientific framework to manage forest in a “sustainable” manner. Both international organisations and the Lao government supported decentralised forest management for different reasons. International organisations supported decentralised forest management as a way to include local participation in the natural resource management. The Lao government promoted decentralised forest management to deconcentrate administrative responsibilities to the local authorities, but also as to standardise the resource management practice.

There are namely five implications of the current research. The first implication is the importance of defining the stakeholders at the beginning of resource management, and developing an active dialogue between them. This is essential for deciding the main conservation goal, and how it will be achieved. Developing a dialogue is also essential in order to develop a mutually trusting relationship between the stakeholders. In particular, development of stronger ties between the district authorities and the village deemed essential in the case of Phou Phanang.

Secondly, villages that traditionally shared resource boundaries need not be isolated through the boundary delineation. Village boundaries were particularly reinforced through the Land and Forest Allocation in the case of Phou Phanang. Instead, neighbouring villages should be able to share resources, as well as benefits of managing the commonly held resources on the basis of mutual agreement. This will require protected area’s management authority to take customary resource use practice into full consideration rather than imposing a new management structure.

The third implication is the importance of recognising customary resource use rights. As resource use is a dynamic process influenced by varying factors, it is particularly important to allow local resource users to be able to negotiate the terms of resource use and management according to their needs. Without the legitimate recognition of customary resource use rights, local resource users will loose incentives to manage resources in a “sustainable” manner.

Lastly, it is also important to consider conservation beyond the boundary of national reserve forest. The current forest conservation is focused on “protecting” the forest defined by the state. Meanwhile, villagers perceive Phou Phanang as contiguous part of their landscape. This signifies the importance of considering

forest conservation from a wider perspective, and giving attention to the villagers' economic needs as well as their historical relations with the resources. It is also important to encourage collective efforts to manage forest resources outside of Phou Phanang. Forging the linkage between the state and local institutions thus become essential for improved resource management in Phou Phanang.

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Figures

Figure 1.1 Map of Laos

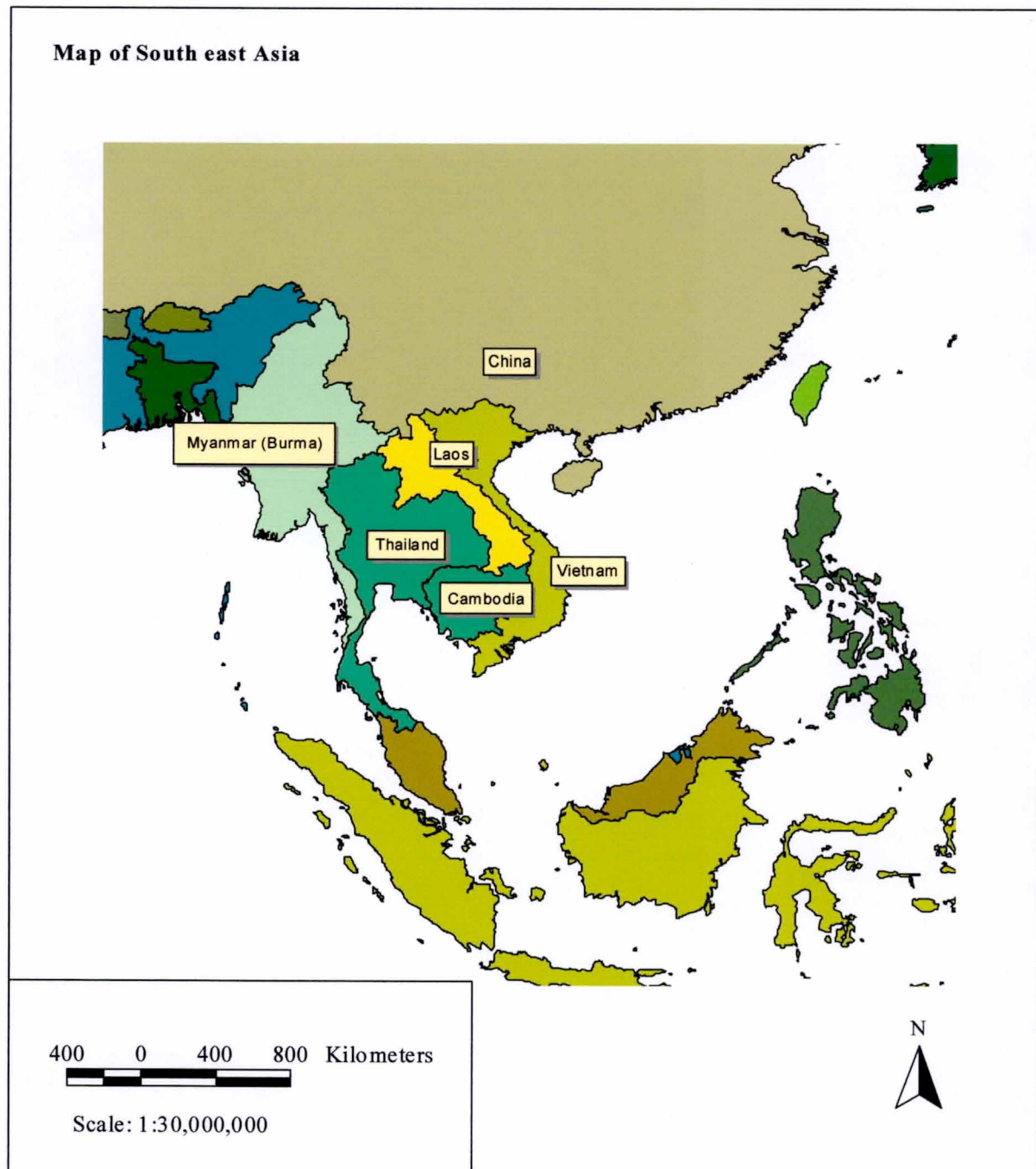


Figure 1.2 Export Trade 1972-1992

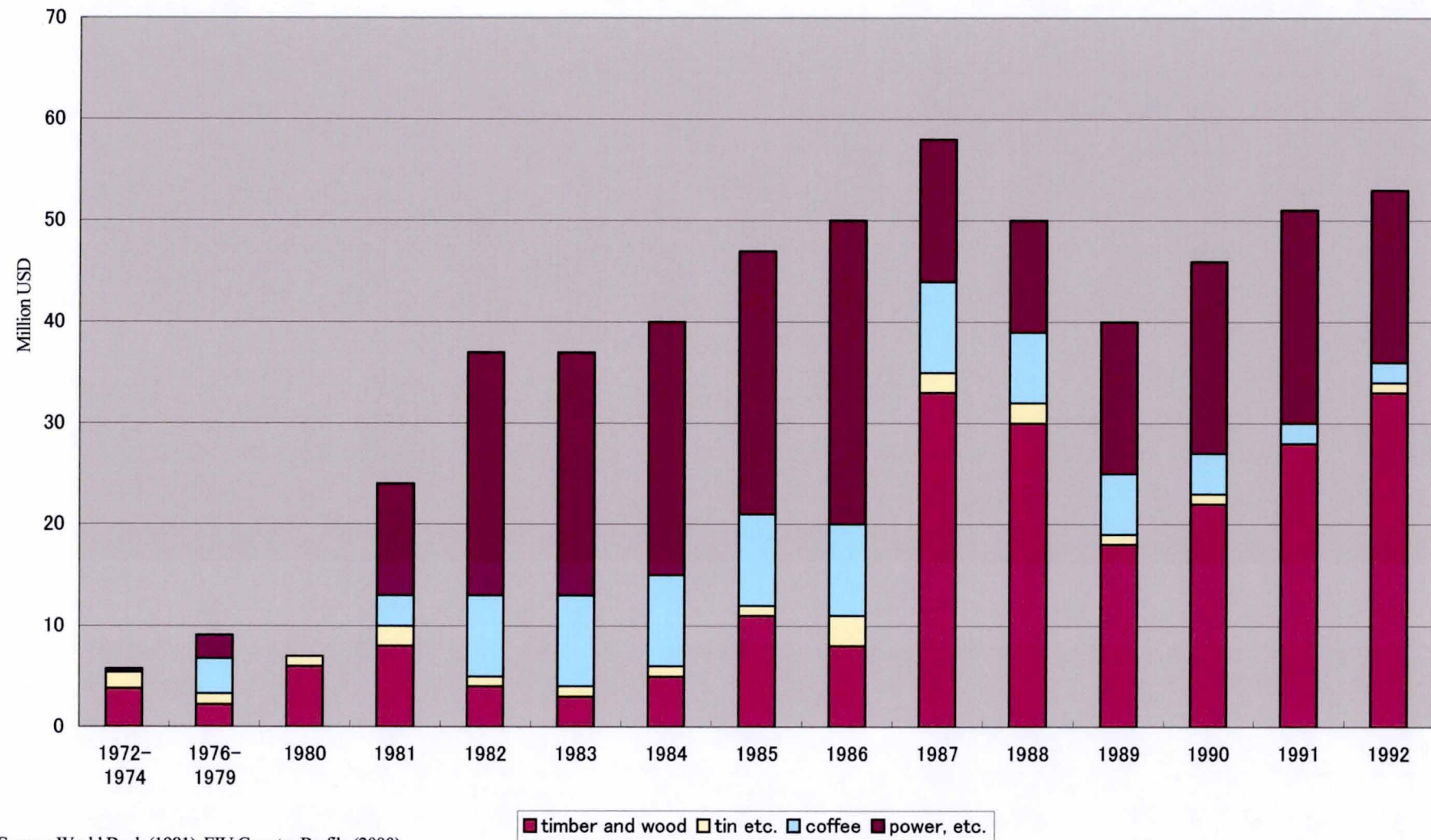
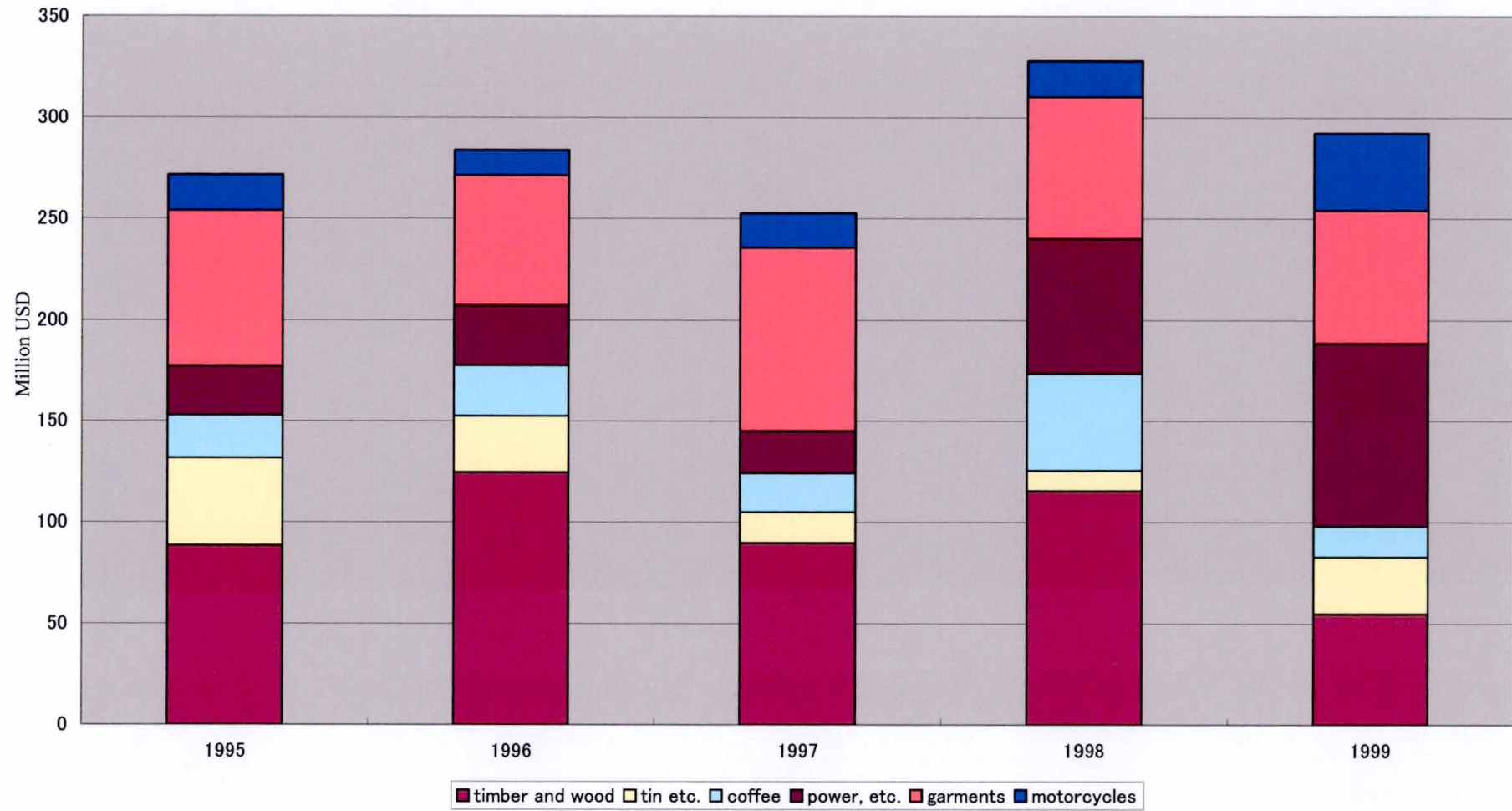


Figure 1.3 Export Trade 1995-1999



Source: Bank of Laos (2001)

Figure 2.1 Territorialisation

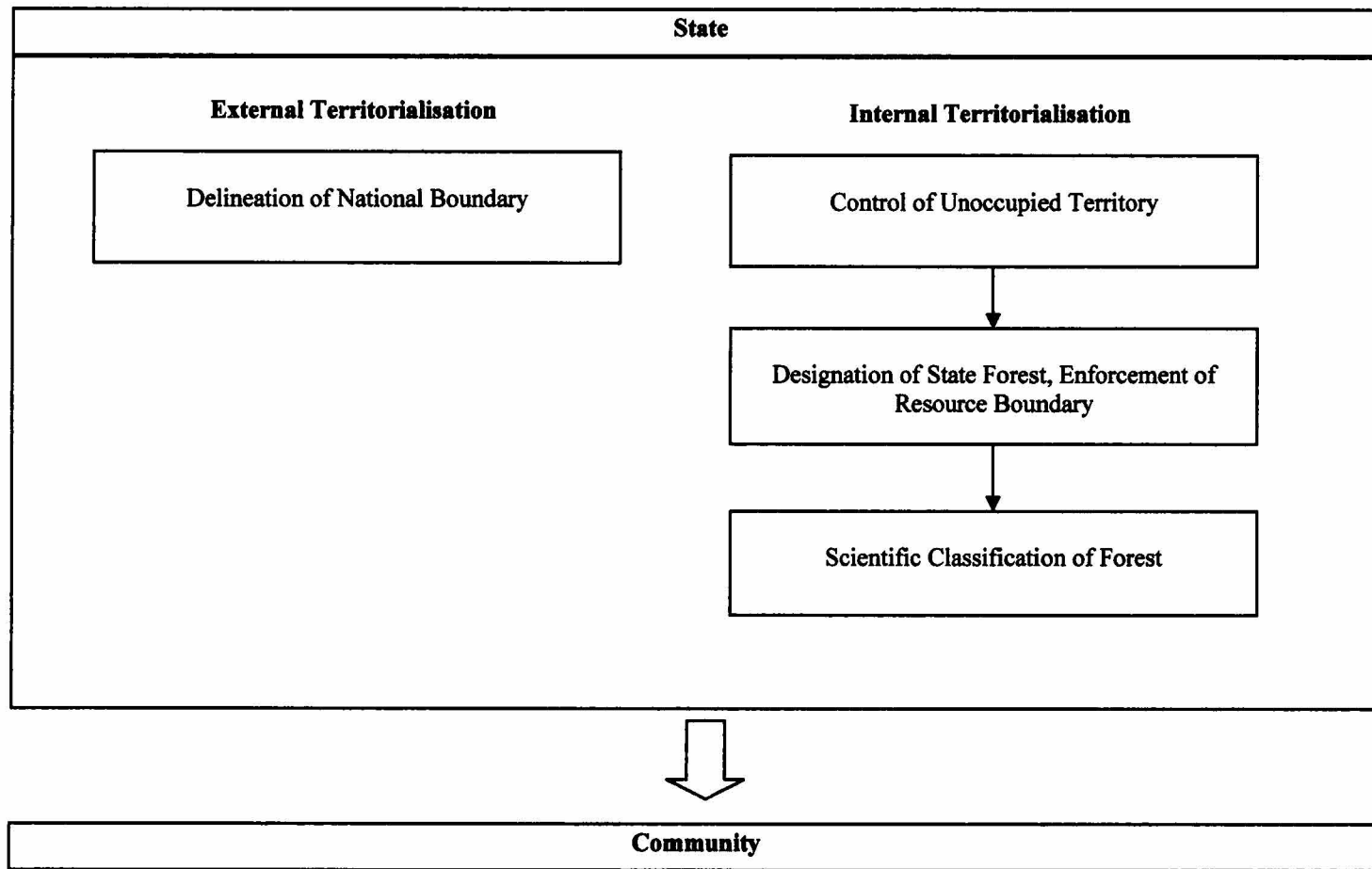


Figure 2.2 Political Ecology Framework

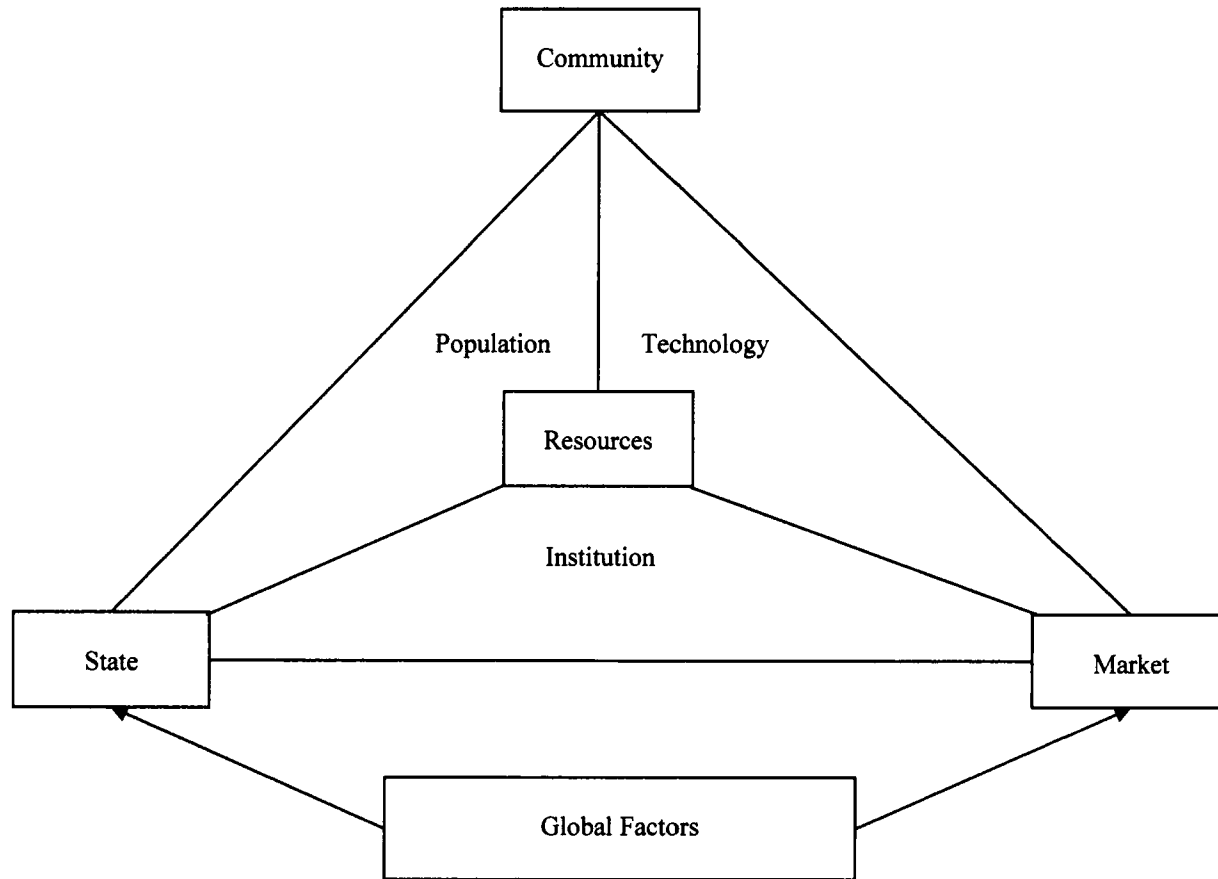


Figure 2.3 Nested Scales of Resource Management

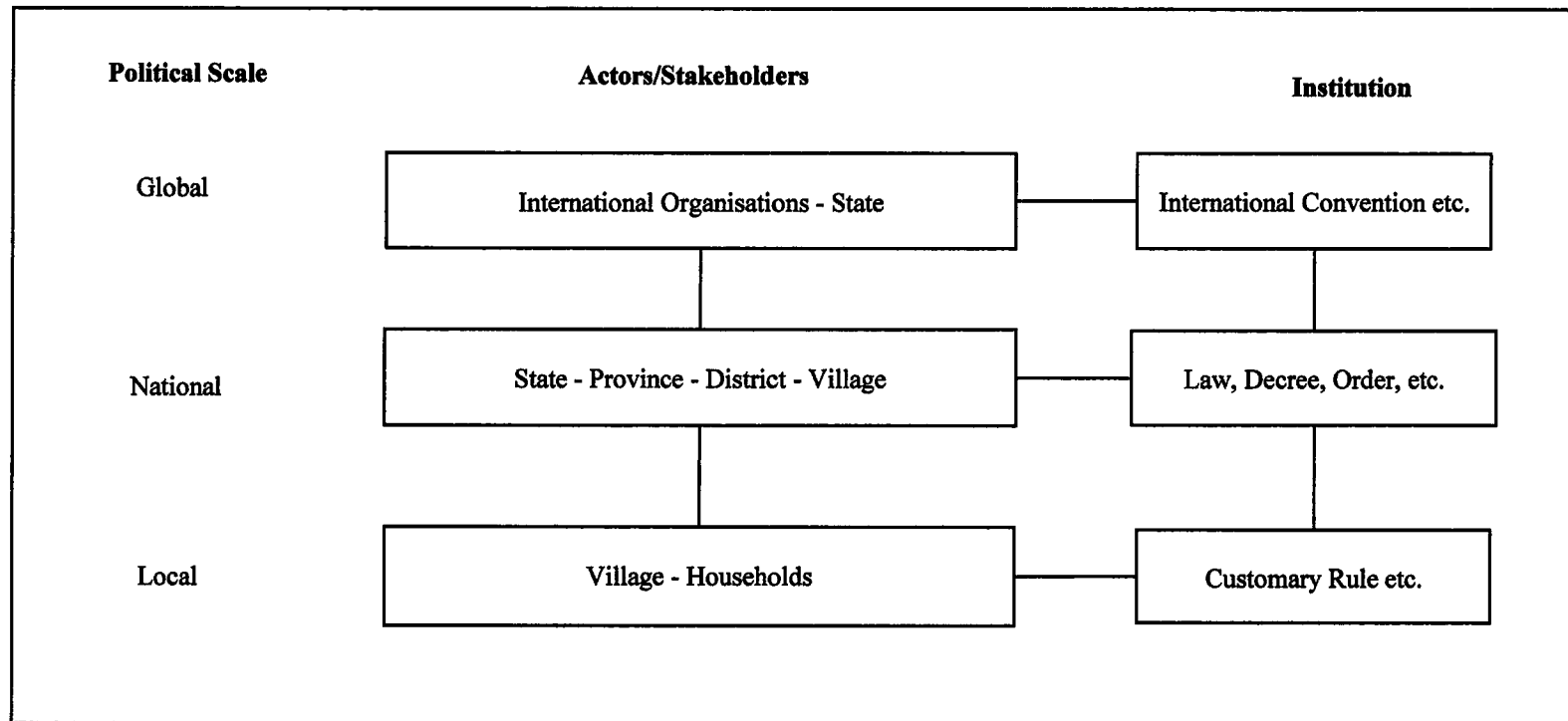


Figure 3.1 Forest Area in Laos: 1930

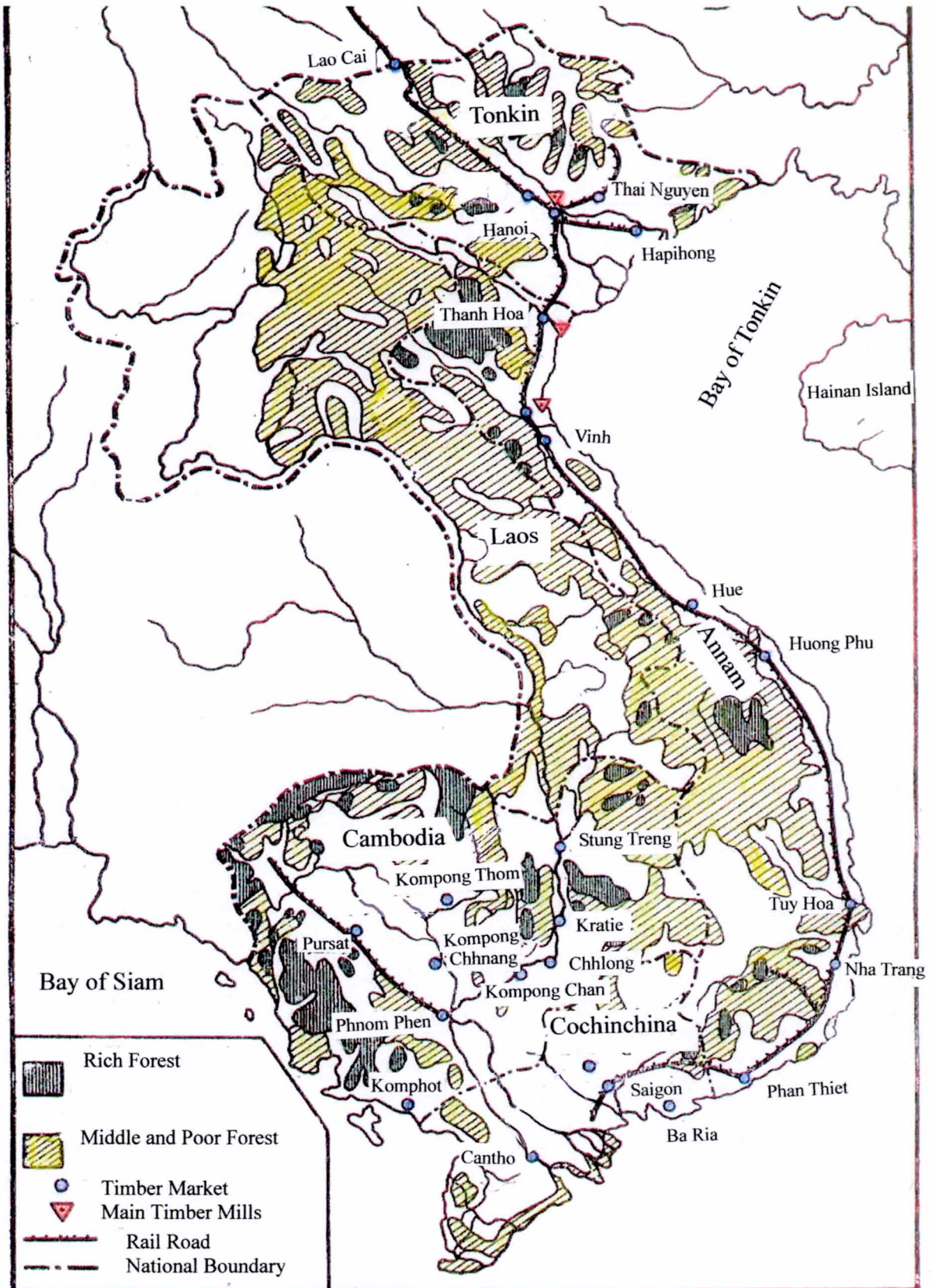


Figure 3.2 Population Migration

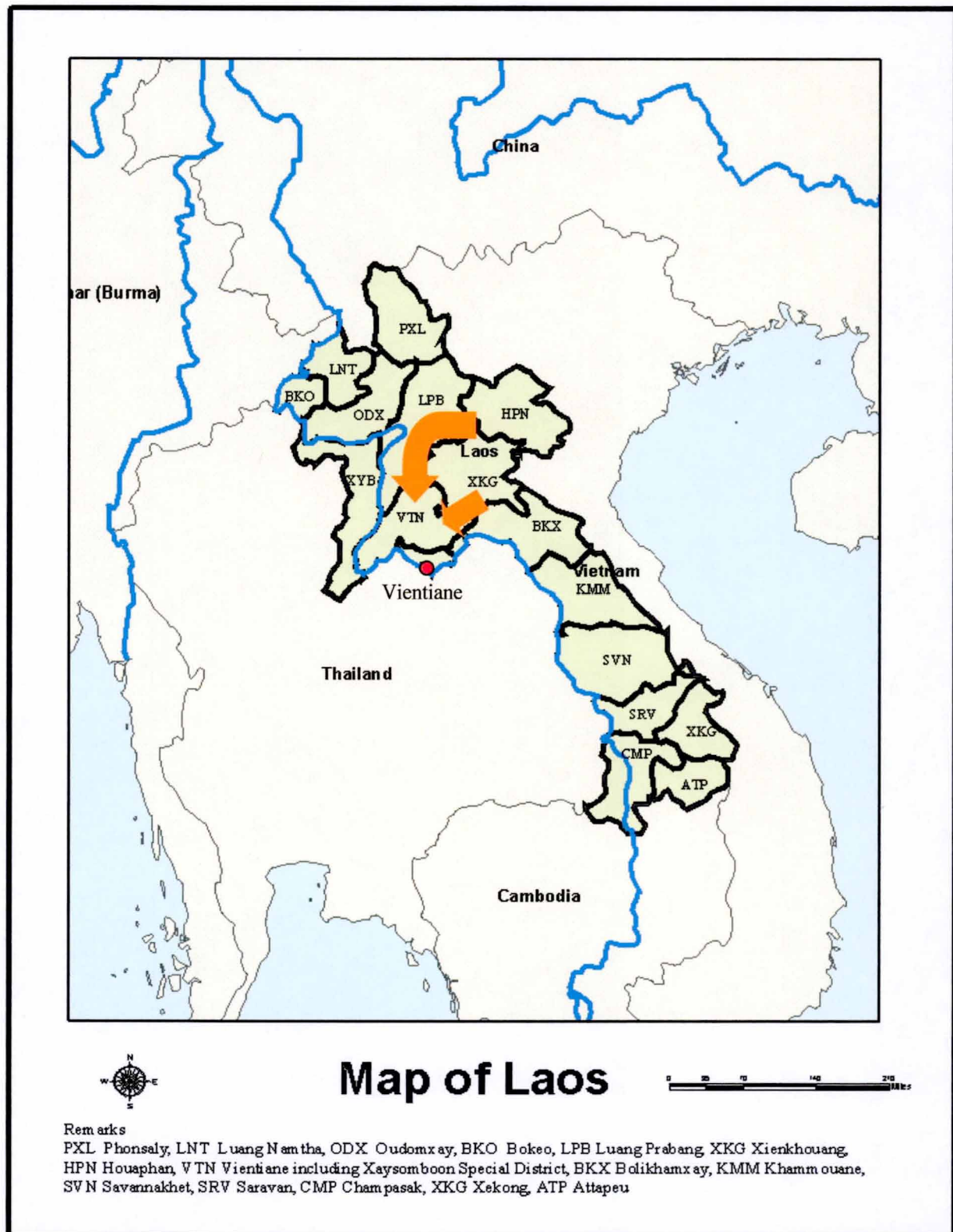
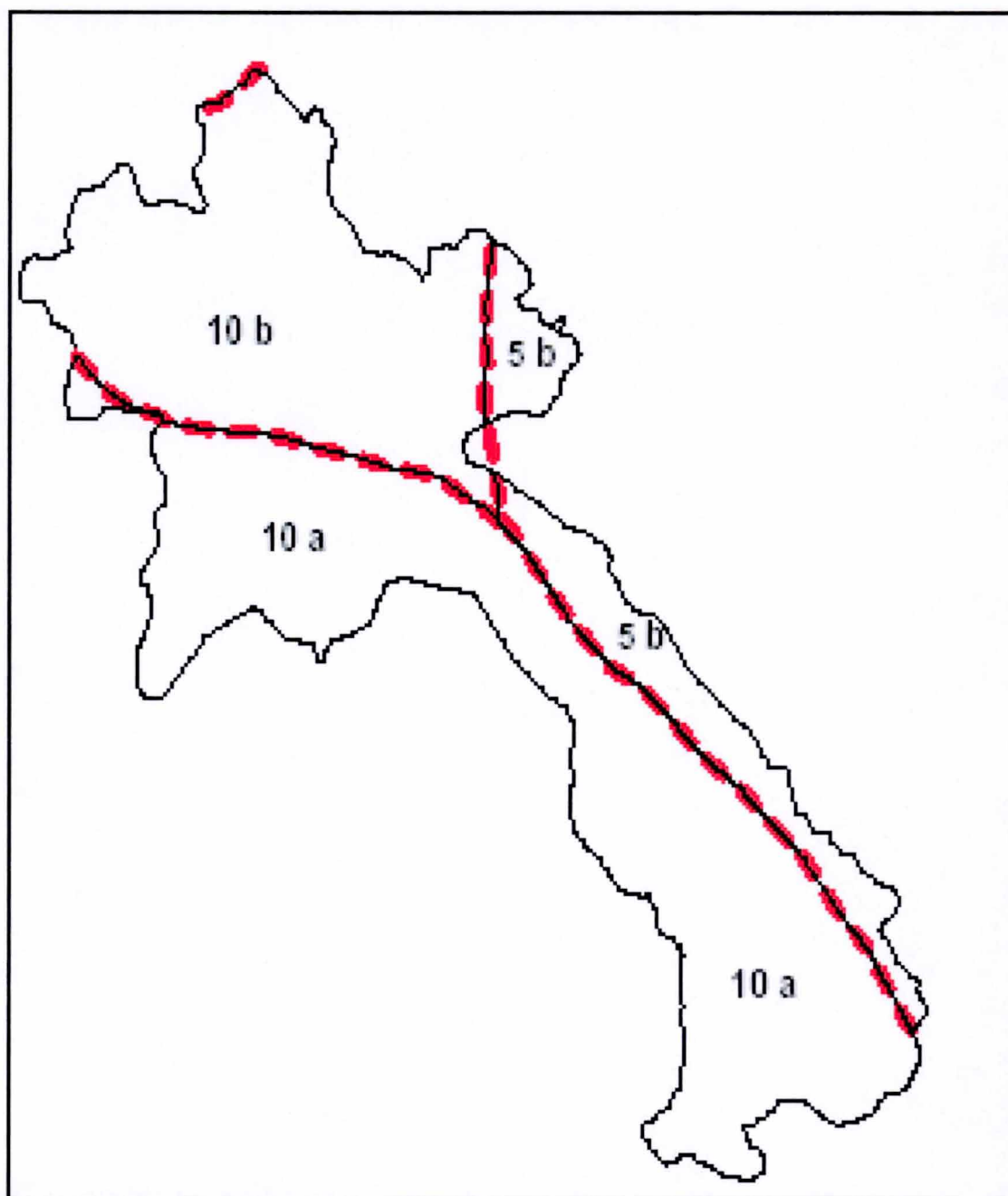


Figure 3.3 Biogeographic Units in Laos



Source: Berkmüller (1999)

Figure 4.1 Protected Areas in Laos

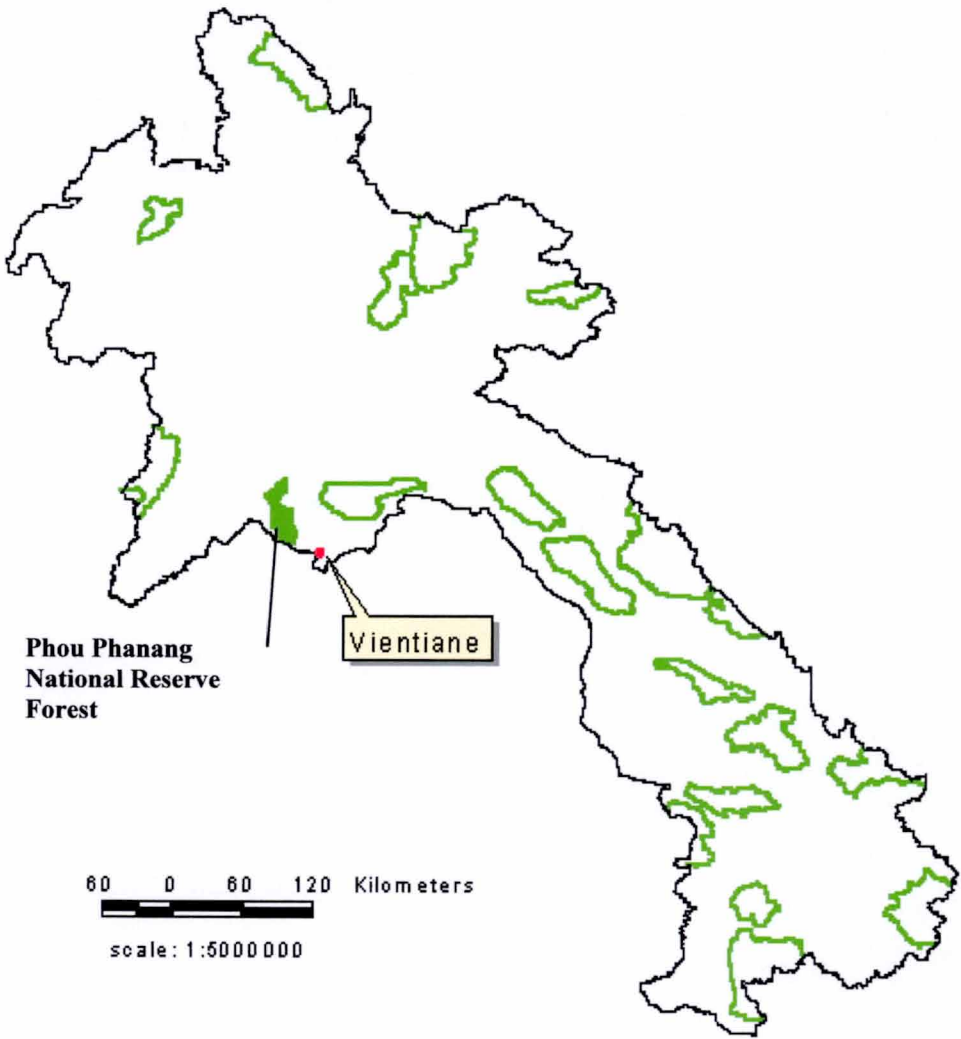
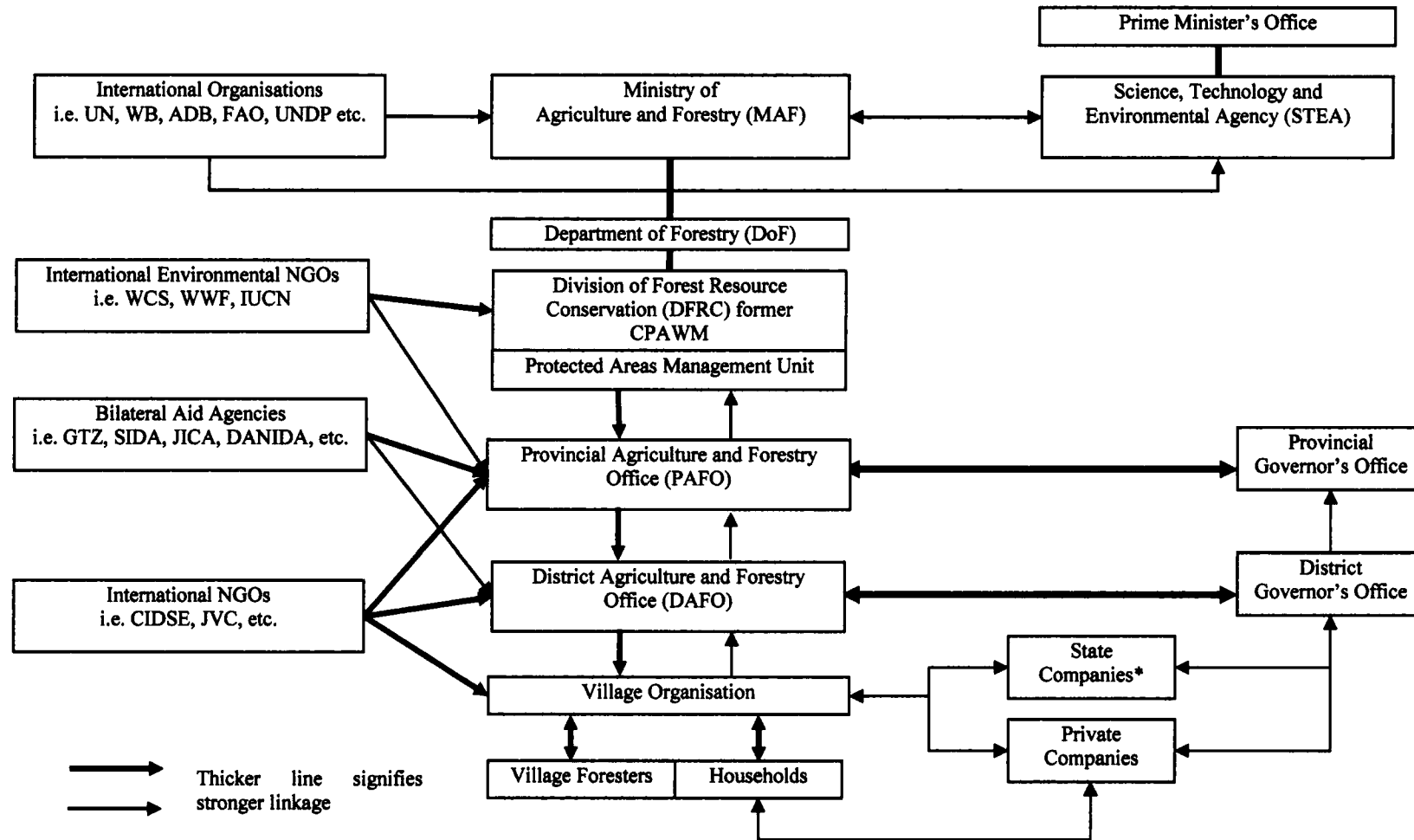


Figure 4.2 Stakeholders in Protected Areas Management



* State companies such as electricity and road construction companies.

Figure 4.3 Phou Phanang National Reserve Forest

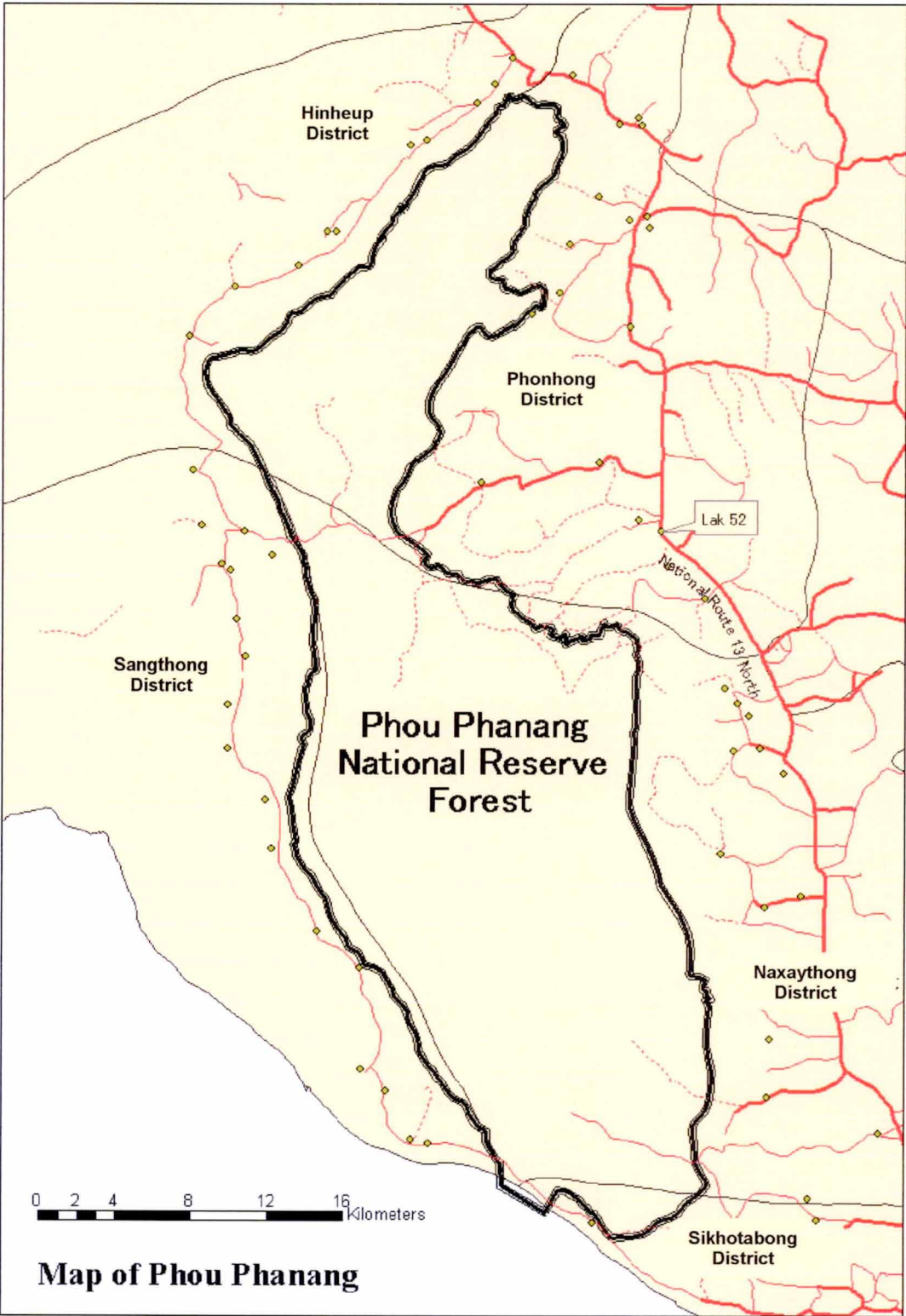
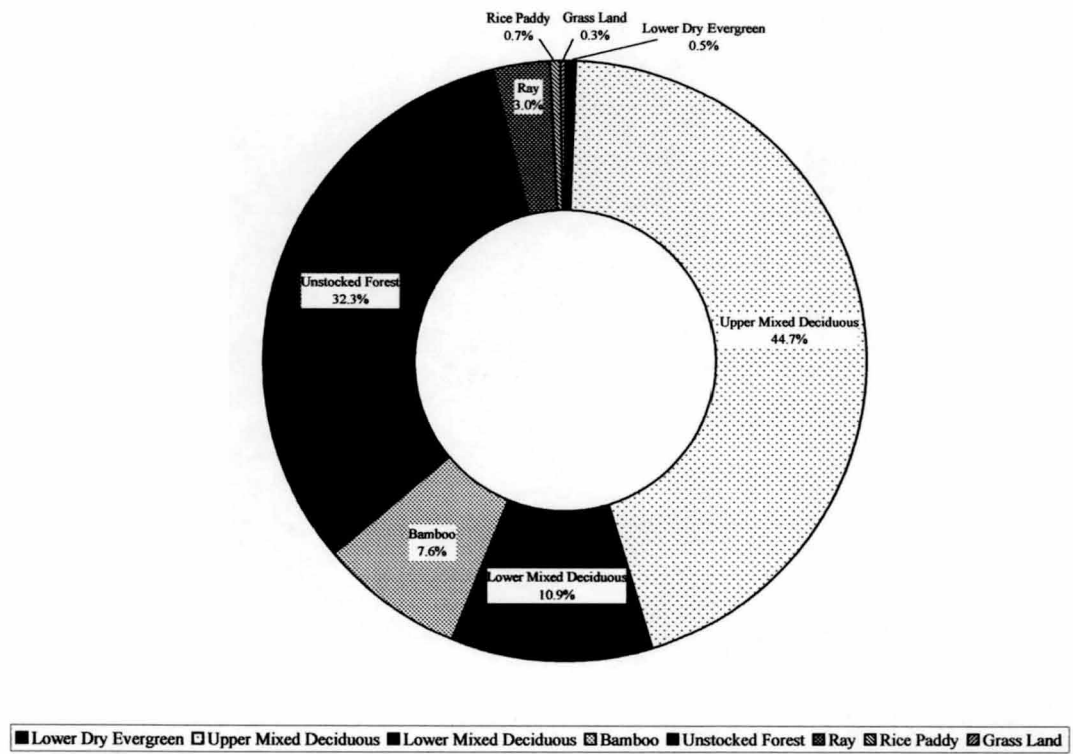


Figure 4.4 Forest Cover and Land Use in Phou Phanang



Source: NOFIP (1992)

Figure 4.5 Stakeholders in Phou Phanang

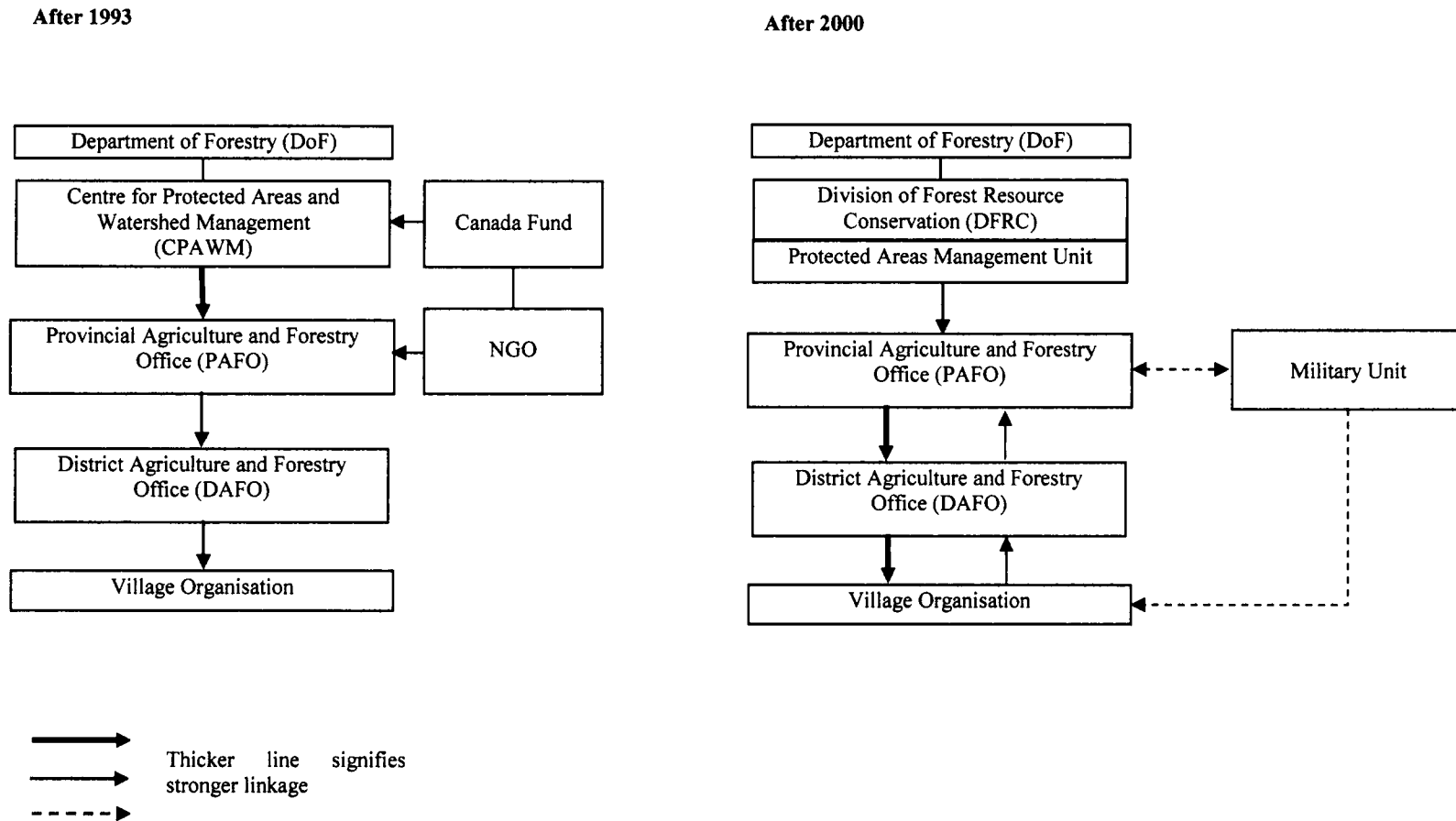
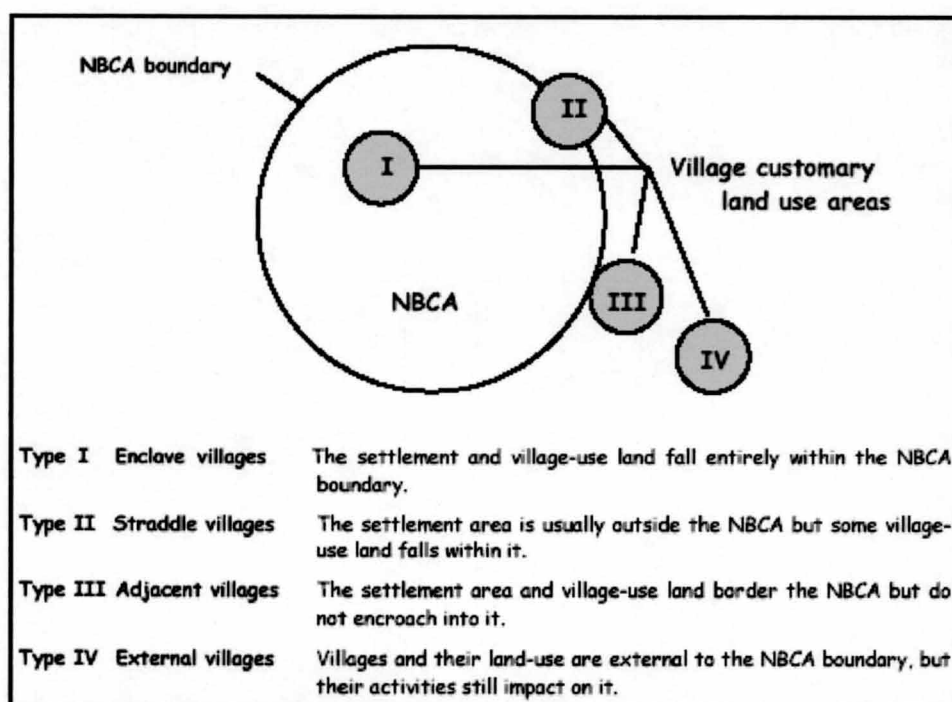


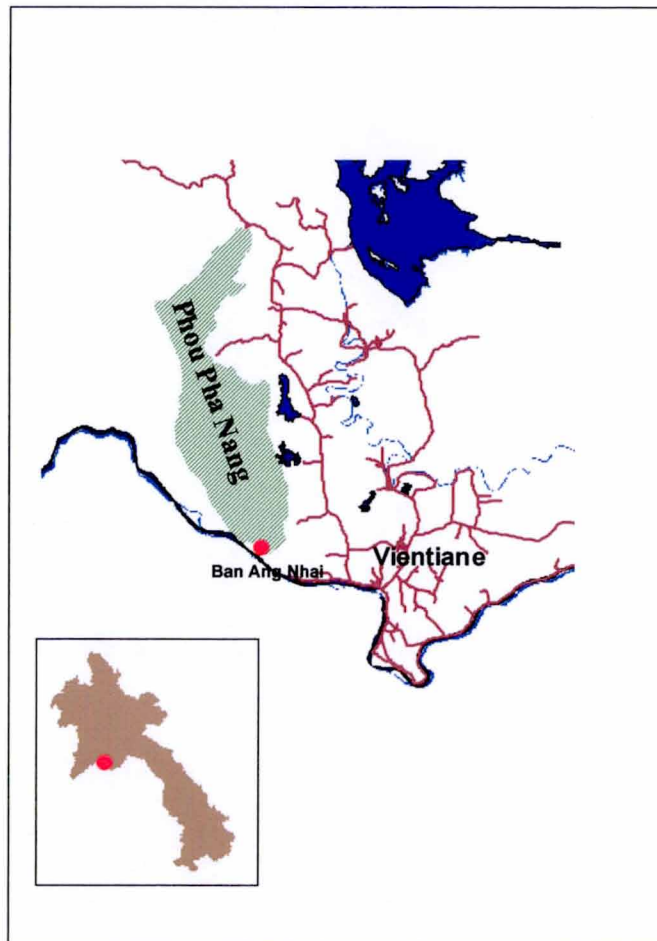
Figure 4.6 Villages in National Reserve Forest



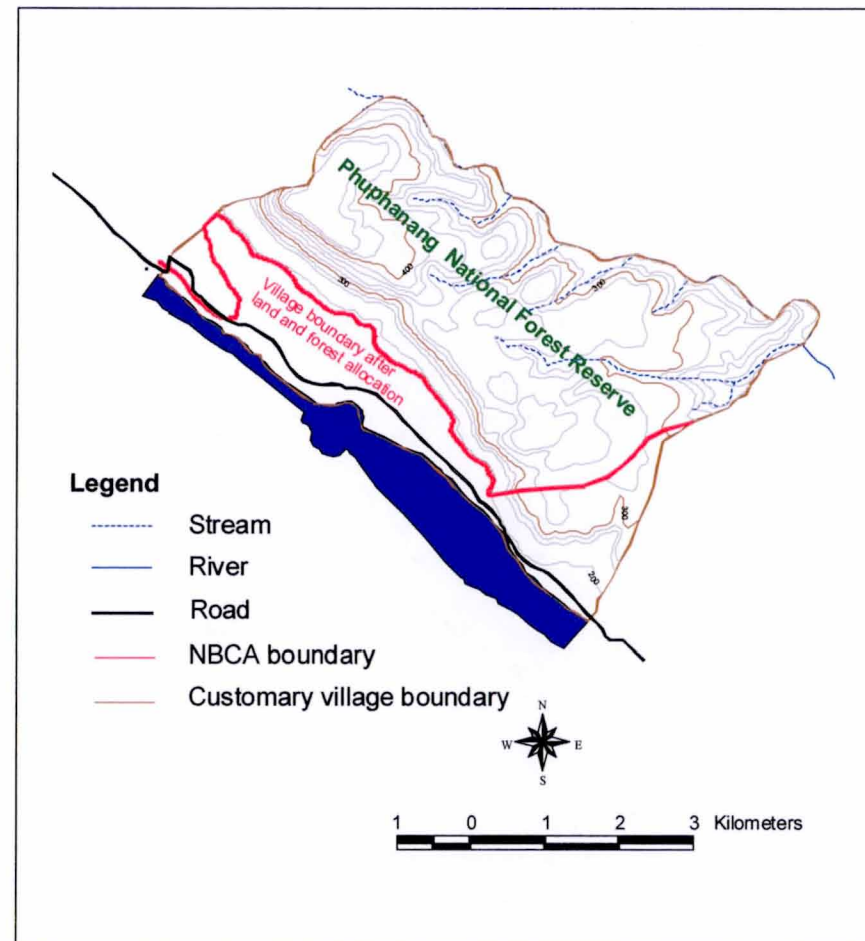
Source: Southammakhot et al. (2001)

Figure 5.1 Ang Nhai Village

Location of the study area

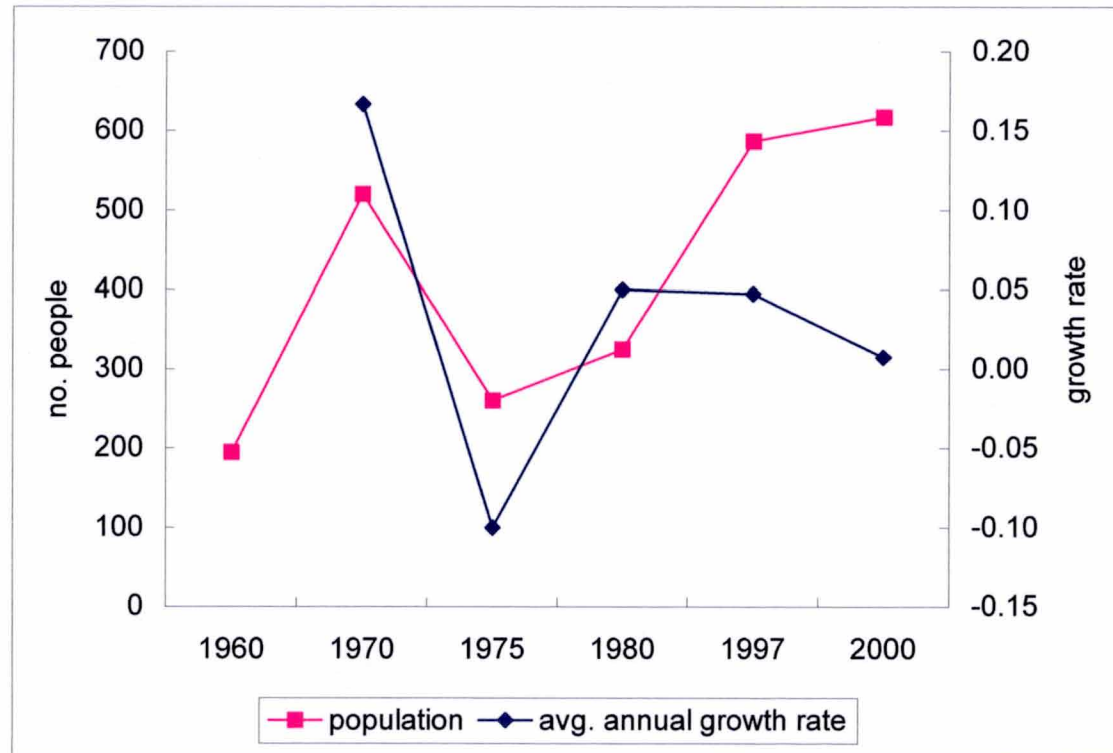


Village boundary



Source: Thongmanivong and Fujita (forthcoming)

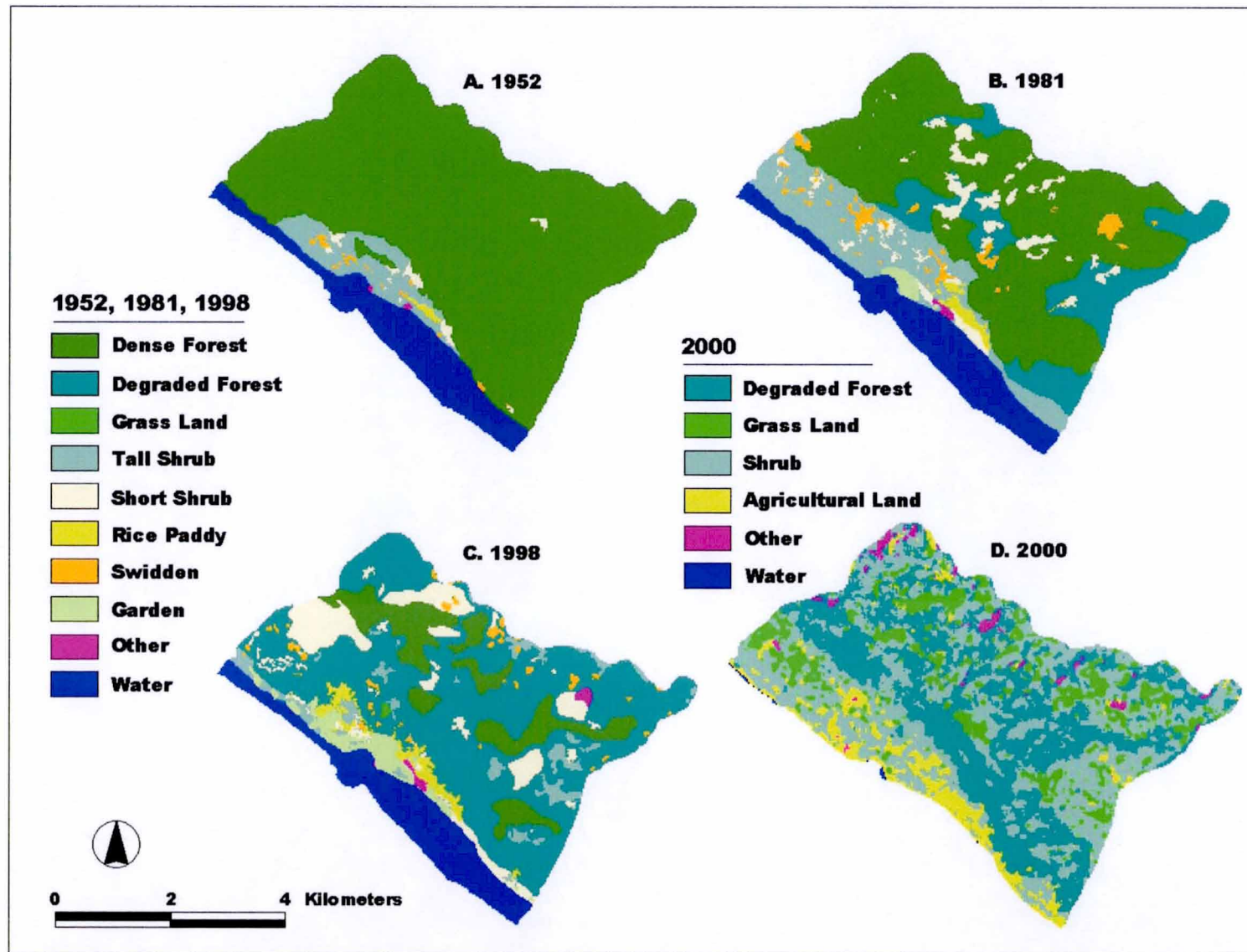
Figure 5.2 Village Population



Years	Numbers of households	Population
1960	30	195
1970	80	520
1975	40	260
1980	50	325
1997	114	587
2000	130	617

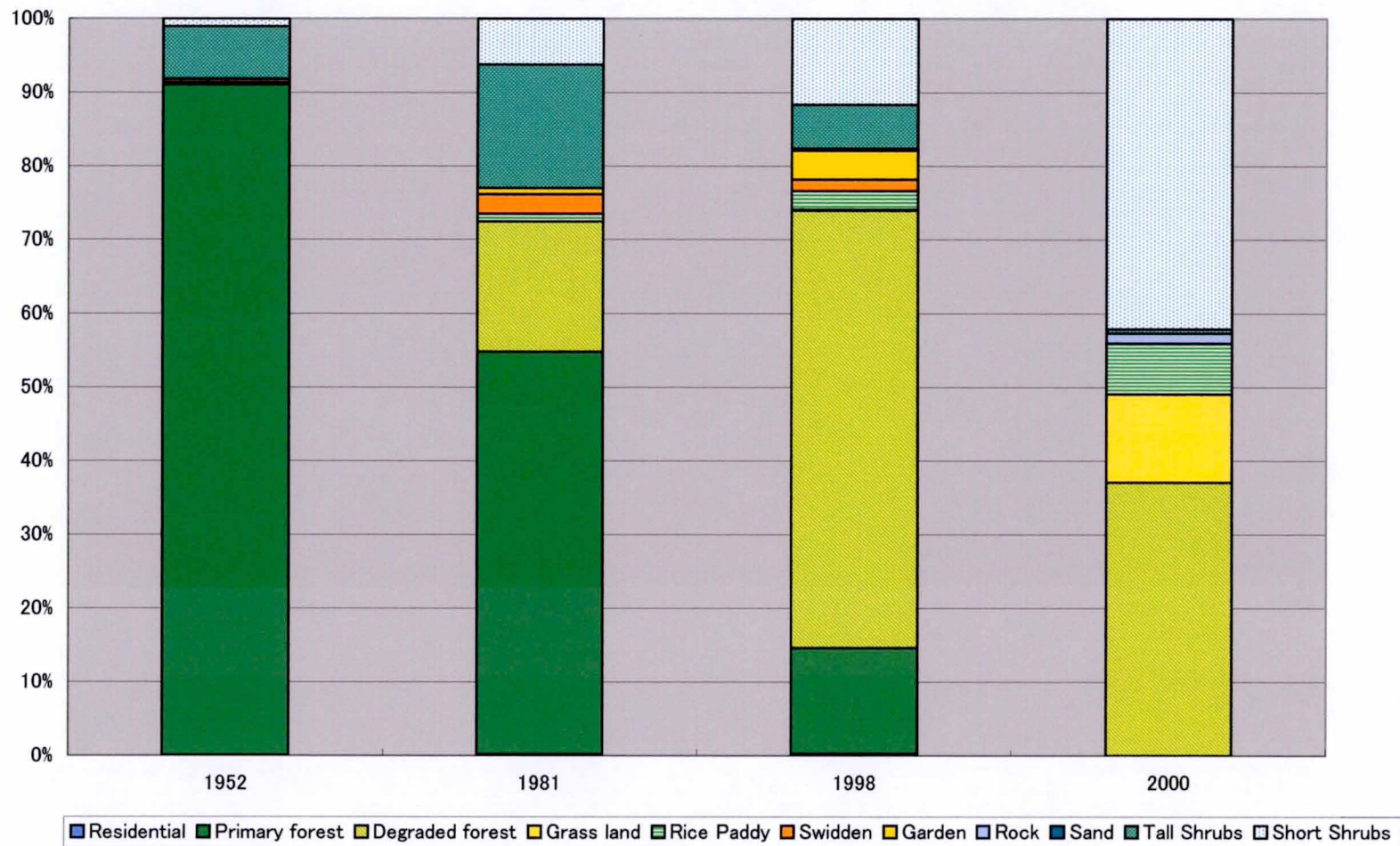
Source: Fieldwork (2000, 2001)

Figure 5.3 Land and Forest Cover Map



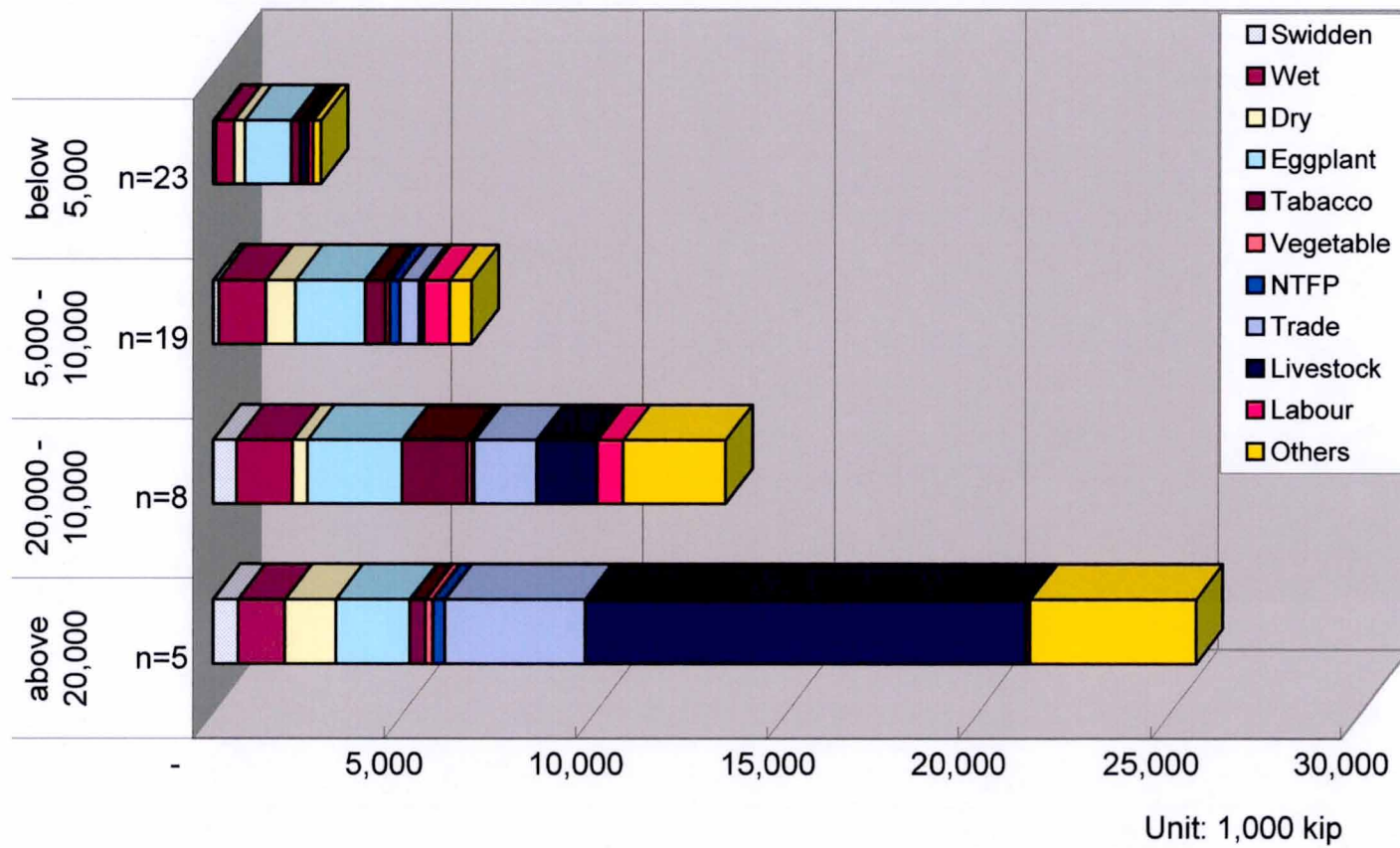
Source: Thongmanivong and Fujita (forthcoming)

Figure 5.4 Land and Forest Cover Change



Source: Fieldwork (2000, 2001)

Figure 5.5 Sources of Household Income



Source: Fieldwork (2001, 2002)

Figure 6.1 Eight Steps of Land and Forest Allocation

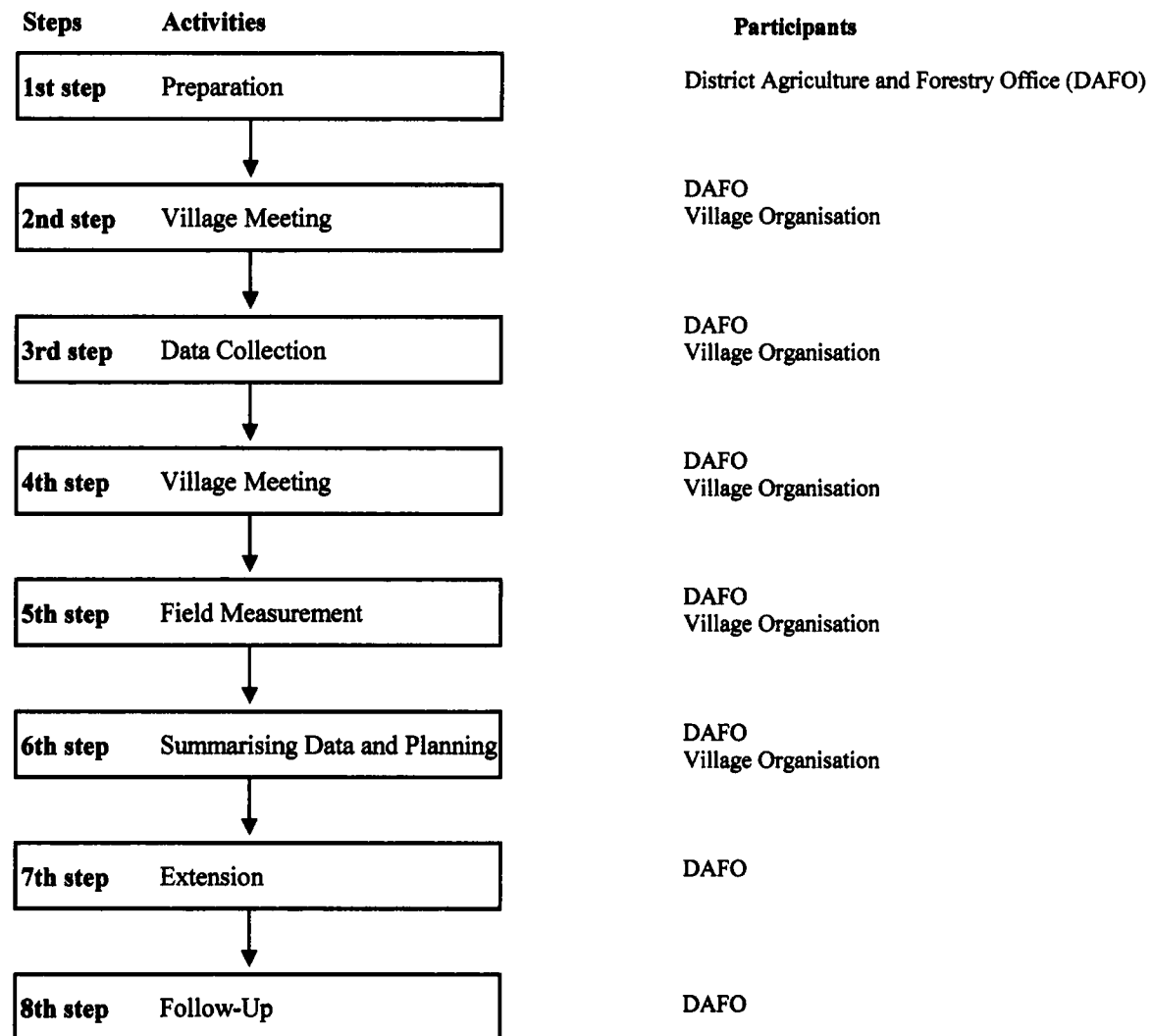


Figure 6.2 Typologies of Collective Resource Management

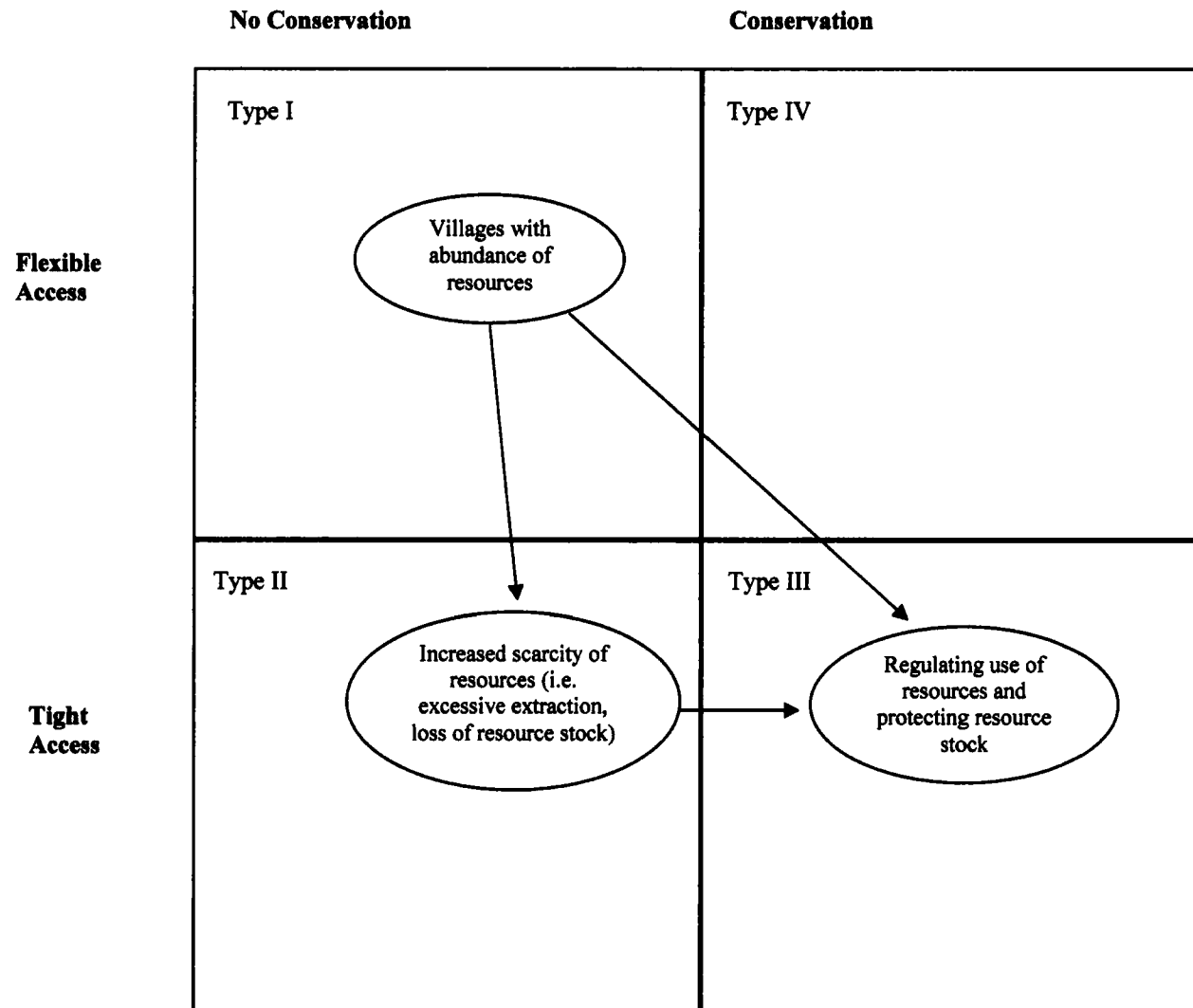
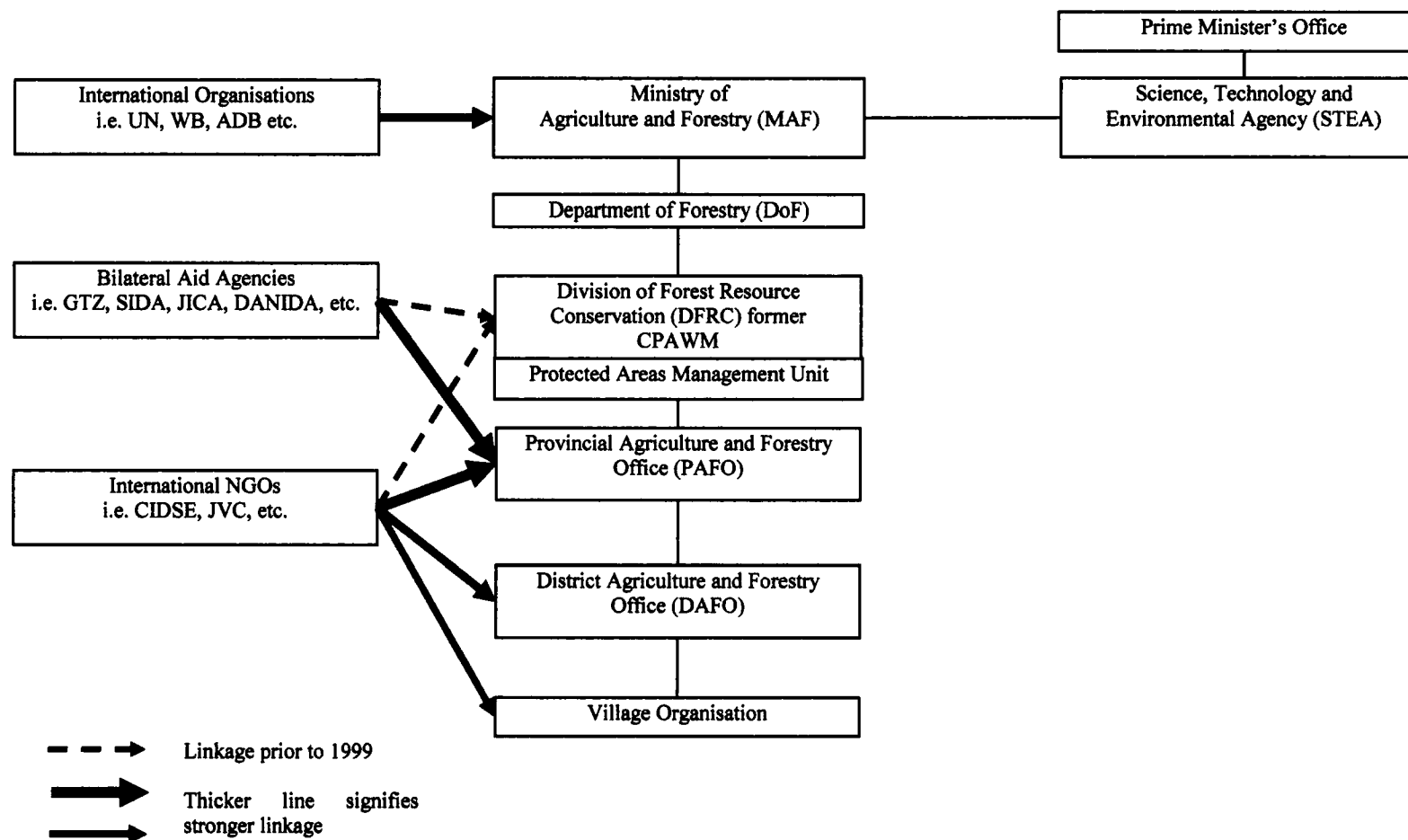


Figure 6.3 Institutional Linkages



Tables

Table 1.1 Forest and Land Areas 1989 and 1992

Unit 1,000 ha

Northern	1982		1989		Percentage of Forest Loss
Current Forest	3,765	38%	3,562	36%	-5.4%
Potential Forest	5,330	54%	5,519	56%	3.5%
Other Wooded Areas	251	3%	262	3%	4.4%
Permanent Agriculture Land	51	1%	57	1%	11.8%
Other Non-Forest Land	422	4%	419	4%	-0.7%
Total	9,819	100%	9,819	100%	
Central					
Current Forest	3,926	54%	3,739	52%	-4.8%
Potential Forest	1,869	26%	2,010	28%	7.5%
Other Wooded Areas	645	9%	593	8%	-8.1%
Permanent Agriculture Land	234	3%	296	4%	26.5%
Other Non-Forest Land	553	8%	589	8%	6.5%
Total	7,227	100%	7,227	100%	
Southern					
Current Forest	3,945	60%	3,866	58%	-2.0%
Potential Forest	1,354	20%	1,418	21%	4.7%
Other Wooded Areas	648	10%	588	9%	-9.3%
Permanent Agriculture Land	423	6%	496	7%	17.3%
Other Non-Forest Land	259	4%	261	4%	0.8%
Total	6,629	100%	6,629	100%	

Source: (Manivong and Sandewall 1992)

Table 3.1 Forest Area in French Indochina

Unit: square kilometres

Region	Forest Area	Total Area	Percentage
Tonkin	6,943	11,570	60%
Annan	6,500	14,760	44%
Cochinchina	818	6,470	13%
Cambodia	7,824	18,100	43%
Laos	20,346	23,140	88%

Source: Forest Survey in 1930 (Agaard 1939)

Table 3.2 Forest Classification in French Indochina

Region	Rich	Middle	Poor	Total
Tonkin	1,000	3,440	2,503	6,943
Annan	1,440	3,507	1,553	6,500
Cochinchina	135	267	416	818
Cambodia	2,933	3,587	1,304	7,824
Laos	442	13,397	6,507	20,346

Source: Forest Survey in 1930 (Agaard 1939)

Table 3.3 Timber Export 1966- 1974

Year	Timber (m3)
1966	28,800
1967	32,200
1968	38,400
1969	32,200
1971	41,200
1973	86,00
1974	165,00
1975*	16,500
1976	17,860

Source: Chandrasekharan (1974)

Table 3.4 Thai, Laos Customs Data

Unit: 1,000 cubic metres

Data	1973	1974
Laos custom data	86	165.5
Thai custom data	183.3	268.9
Thai forest Dept. data	252.3	300.8

Source: Chandrasekharan (1974)

Table 3.5 State Forestry Enterprise

SFE	Area (ha)	Planned Production for 1983 (ha)	Planned Export Production (cubic metre)	Province	External assistance
No. 1	530,000	15,000		Vientiane	SIDA
No. 2	nf	8,000	800	Savannakhet	Vietnam
No. 3	420,000	29,000	550	Vientiane	SIDA
No. 4	460,000	3,000	400	Khammouane	USSR
No. 5	nf	3,000	1,000	Khammouane	Bulgaria
No. 6	nf	4,000	400	Sayabouri	Czechoslovakia
No. 7	nf	2,000	500	Savannakhet	IBRD (World Bank)
No. 8	nf	3,000	400	Champassak	ADB
No. 9	420,000	29,900	1,000	Vientiane	
Total	1,830,000	96,900	5,050		

Source: Persson (1983)

Table 3.6 Provincial Forestry Enterprise

Province	Area (ha)	Planned Production for 1983 (cubic metre)
Phongsaly	650,000	700
Xamneua	700,000	800
Luang Namtha	230,000	8,000
Oudomxai	400,000	1,200
Luang Prabang	600,000	500
Sayabouri	250,000	10,000
Xieng Khouang	200,000	4,000
Vientiane	320,000	15,000
Vientiane City	45,000	15,000
Khammouane	420,000	15,000
Savannakhet	250,000	17,000
Saravan	300,000	10,000
Champassak	150,000	30,000
Attapeu	300000	3,000
Total	4,815,000	130,200

Source: Persson (1983)

Table 3.7 Land Use Map 1972/1973

Land, Forest Types	1,000 ha	%
Dense Forest	5,380	23%
Degraded Dense Forest	8,000	34%
Open Deciduous Forest	1,940	8%
Degraded Open Deciduous Forest	310	1%
Woody Vegetation Periodically Inundated	165	1%
Open Mosaic Vegetation	5,235	22%
Woody and Scrubby Vegetation	310	1%
Savanna and Bush	850	4%
Mainly Cropland	1,350	6%
Water	140	1%
Total	23,680	100%
Forest/Non-forest	1,000 ha	%
Forest	15,630	66%
Non-forest	8,050	34%

Source: Mekong River Committee (1973)

Table 3.8 Forest Areas 1980

Land, Forest Types	1,000 ha	%
Closed Forest (Broad-leaved)		
Productive	2,800	15%
Unproductive	4,680	24%
Closed Forest (Coniferous)		
Productive	100	1%
Unproductive	150	1%
Fallow	5,000	26%
Mixed Forest (Grassland mosaic)	5,215	27%
Bushland	735	4%
Productive Bamboo	600	3%
Total	19,280	100%
Forest/Non-Forest	1,000 ha	%
Forest	13,545	70%
Non-forest	5,735	30%

Source: FAO (1980)

Table 3.9 Forest Areas 1982 – 1989

Unit: 1,000 ha

Categories	1982		1989		Forest Loss 1982-89
Current Forest	11,636	49%	11,167	47%	-4.0%
Potential Forest	8,553	36%	8,947	38%	4.6%
Other Wooded Areas	1,544	7%	1,443	6%	-6.5%
Permanent Agriculture					
Land	708	3%	849	4%	19.9%
Other Non-Forest Land	1,234	5%	1,269	5%	2.8%
Total	23,675	100%	23,675	100%	

Source: Manivong and Sandewall (1992)

Table 3.10 Ecological Zones and Conservation Area Selected by Jule Vidal

Categories	Climatic Regions
Lowlands	Mekong valley and its tributaries in southern Laos low elevation areas in northern Laos lower western slopes of Annamite range
Montane Highlands	mountainous areas of northern Laos (1,000 - 2,000m) local high rainfall regions of the Annamite range (1,000 - 2,000m) mountain region (above 2,000m)

Source: Adopted from Rundel (1999)

Table 3.11 IUCN Category of Protected Area

Categories	Type	Objective
I	Scientific Reserve	Protect nature and maintain natural processes in an undisturbed state. Emphasise scientific study, environmental monitoring and education, and maintenance of genetic resources in a dynamic and evolutionary state.
II	National Park	Protect Relatively large natural and scenic areas of national or international significance of scientific, educational and recreational use.
III	Natural Monument/Landmark	Preserve nationally significant natural features and maintain their unique characteristic.
IV	Managed Nature Reserve/Wildlife Sanctuary	Protect nationally significant species groups of species, biotic communities, or physical features of the environment when these require specific human manipulation for their perpetuation.
V	Protected Landscape	Maintain nationally significant natural landscapes characteristic of the harmonious interaction of people and land while providing opportunities for public recreation and tourism within the normal life style and economic activity of these areas.
VI	Resource Reserve	Protect natural resources for future use and prevent or contain development that could affect resources pending the establishment of management objectives based on appropriate knowledge and planning
VII	Natural Biotic Area/Anthropological Reserve	Allow societies to live in harmony with the environment, undisturbed by modern technology.
VIII	Multiple Use Management Area/Managed Resource Area	Sustain production of water, timber, wildlife, pasture and outdoor recreation. Conservation of nature oriented to supporting economic activities (although specific zones can also be designed within these areas to achieve specific conservation objectives).

Source: International Union for Conservation of Nature and Natural Resources (IUCN 1985)

Table 3.12 List of National Reserve Forest in Laos

Name	Year	Area (ha)	Provinces	Districts	Villages	Staffs	Donor Support	Management
Phou Daen Din	1993	222,000	Phongsaly	5			20 EU Forest Conservation	1999-2004
Nam Ha	1993	222,400	Luang Namtha	5	43	7	WCS	1995-?
Nam Et	1993	170,000	Houaphan	3	18	1	DANIDA, IUCN	1999-2001
Phou Louy	1993	150,000	Luang Prabang and Houaphan	3	19	2	DANIDA, IUCN	1999-2001
Nam Xam	1993	70,000	Houaphan	5	23	4		
Nam Phui	1993	191,200	Sayaburi	3	45	18	LSFP	1993-2000
Phou Phanang	1993	70,000	Vientiane	4	92		Canada Fund	1996-1999
Phou Khao Khouay	1993	200,000	Vientiane, Bolikhamxay, Xaysomboun	6	76	89	LSFP, ADB	1993-2000
Nam Kading	1993	169,000	Bolikhamxay	4	72	0		1996-2000
Phou Hin Phoun	1993	150,000	Khammouane	5	109	23	FOMACOP	1996-2000
Nakai Nam Theun	1993	353,200	Khammouane, Bolikhamxay	4	36	13	World Bank	1996-2000
Hin Nam No	1993	82,000	Khammouane	1	42	4	WWF	1999-2000
Phou Xang He	1993	109,900	Savannakhet	5	87	14	LSFP	1994-2000
Dong Phou Vieng	1993	197,000	Savannakhet	3	60	15	FOMACOP	1996-2000
Xe Sap	1995	136,897	Saravanh, Xekong	4	59	20	FOMACOP	1996-2000
Xe Bang Nouan	1993	150,000	Saravanh, Savannakhet	6	89	9	LSFP	1993-2000
Phou Xiang Thong	1993	120,000	Champasak, Saravanh	3	78	8	BCP, GAA	1996-2000
Dong Hua Sao	1993	110,000	Champasak	3	78	8	BCP, GAA	1996-2000
Dong Ampham	1993	200,000	Attapeu, Xekong	3	14	5	WWF	1999-2000
Xe Pian	1993	240,000	Attapeu, Champassak	3	62	16	FOMACOP	1996-2000

Source: Department of Forestry (2000)

Table 4.1 Timeline of Forest Management Policy

Years	Events
1986	Priority sites for protected areas are selected
1988-1991	Reconnaissance survey and identification of protected areas (PA)
1989	First national forestry conference
1990	Preparation of the Tropical Forestry Action Plan
1992	Protected areas assessment
1993	Delineation of the protected areas
1994	Wildlife and habitat surveys Staff training in Nam Ha
1995	Addition of Xe Xap to the PAs
1996	Addition of Dong Phou Vieng to PAs Promulgation of the Forest Law
1996-1998	Trans-boundary conservation meetings in Laos and in Vietnam
1999	Termination of donor initiatives in 11 PAs Second Southeast Asia Regional Forum of the World Commission on Protected Areas was held in Laos
2000	NBCA management workshop was held in Vientiane <i>Manager's Guide to protected Area Management</i> completed The first ecotourism venture begins in Nam Ha
2001	Draft of regulations on PAs completed

Source: adopted from Robichaud et al. (2001)

Table 4.2 Size of Protected Areas

Protected Areas	Decree 164	Berkmüller et al. (1995)	Draft Fact Sheet
Dong Amphan (DAP)	2,000	1,975	1,699
Dong Houasao(DHS)	1,100	910	947
Dong Phouvieng (DPV)*	n/a	n/a	1,745 ¹
Hin Namno (HNN)	820	865	750
Nam Et (NET)	1,700	1,915	2,144
Nam Ha (NHA)	690	445	1,118
Nam Kading (NKD)	1,690	1,740	1,442
Nakai Nam Theun (NNT)	3,532	3,710	3,058
Nam Phouy (NPY)	1,912	1,150	1,516
Nam Xam (NXM)	700	580	651
Phou Din Daeng (PDD)	2,200	1,310	1,592
Phou Hinhoun (PHP)	1,500	1,580	2,029
Phou Khao Khouay (PKK)	2,000	1,390	1,608
Phou Louy (PLY)	1,500	1,465	1,302
Phou Phanang (PPN)	700		580
Phou Xanghe (PXH)	1,099	1,060	993
Phou Xiengthong (PXT)	1,200	995	879
Xe Bannouan (XBN)	1,500	1,260	1,084
Xe Pian (XPN)	2,400	2,665	2,173
Xe Xap (XXP)*	n/a	n/a	1,283
Total	28,243	25,015	28,593

Source: adopted from Roubichaud et al. (2001)

* These two national reserve forests were identified after the promulgation of Decree No. 164 and publication of report by Berkmüller et al. (1995).

Table 4.3 Biodiversity Significance of the Protected Areas in Laos

Highest	High	Moderate
Hin Namno – Phou Hinphoun Nakai NamTheun Xe Pian Xe Xap Nam Ha Phou Dindeng Nam Et – Phou Louy	Dong Ampham Dong Houasao Dong Phouvieng Nam Kading Nam Pouy Phou Xanghe	Nam Xam Phou Khao Khouay Phou Phanang Phou Xiengthong Xe Bannouan

Source: Robichaud et al. (2001)

Table 4.4 Overall Management Score of Protected Areas

Protected Areas	Biodiversity Value	Watershed Value	Economic Value	Pressure Level	Management Priority Score
Hin Namno (HNN)	Highest	Low	Low	High	9
Nakai Nam Theun (NNT)	Highest	High	High	High	13
Phou Hinphoun (PHP)	Highest	Low	High	High	11
Xe Pian (XPN)	Highest	High	High	Mid	12
Xe Xap (XXP)	Highest	Mid	Low	Mid	9
Nam Et - Phou Louy (NET)	Highest-High	High	Mid	High	11
Nam Ha (NHA)	Highest-High	High	High	Mid	11
Phou Din Daeng (PDD)	Highest-High	Mid	Mid	High	10
Dong Ampham (DAP)	High	High	Low	High	9
Dong Houasao(DHS)	High	Mid	High	High	10
Dong Phouvieng (DPV)	High	Mid	Low	Mid	7
Nam Kading (NKD)	High	Mid	Low	Low	6
Nam Phouy (NPY)	High	Mid	Low	Mid	7
Nam Xam (NXM)	High	High	Mid	Mid	9
Phou Xanghe (PXH)	High	Low	Low	High	7
Phou Khao Khouay (PKK)	Moderate	Mid	High	Mid	8
Phou Phanang (PPN)	Moderate	Mid	Low	Mid	6
Phou Xiengthong (PXT)	Moderate	Low	Low	Mid	5
Xe Bannouan (XBN)	Moderate	Mid	Low	High	7

Source: adopted from Robichaud et al. (2001)

Table 4.5 Management Priority and Progress Scores

Protected Areas	Management Priority Score	Management Progress Index
Nakai Nam Theun	13	0.36
Xe Pian	12	0.60
Phou Hinhoun	11	0.39
Nam Et - Phou Louy	11	0.33
Nam Ha	11	0.36
Phou Din Daeng	10	0.44
Dong Houasao	10	0.14
Hin Namno	9	0.22
Xe Xap	9	0.36
Dong Amphan	9	0.44
Nam Xam	9	0.28
Phou Khao Khouay	8	0.60
Dong Phouvieng	7	0.28
Nam Phouy	7	0.42
Phou Xanghe	7	0.17
Xe Bannouan	7	0.31
Nam Kading	6	0.17
Phou Phanang	6	0.14
Phou Xiengthong	5	0.47

Source: Robichaud et al. (2001)

Table 4.6 Villages in Phou Phanang

Village Settlement History	No. of Villages	%
Well over 100 years	21	53
In the last three decades	5	13
In the last decade	14	35

Source: Fieldwork (1999-2000)

Table 4.7 Types of New Villages

New Villages	Average Pop	Average HH
Type 1	435	72
Type 2	788	128
Type 3	467	79

Source: Fieldwork (1999-2000)

Table 4.8 Villages in Phou Phanang and LFA

Years	1992	1993	1995	1996	1997	1998	1999	2000
No. villages	1	2	1	3	4	4	8	4

Total Number of villages that had completed LFA by 2000 27 villages

Total Number of villages that had not completed LFA by 2000 13 villages

Source: Fieldwork (1999-2000)

Table 5.1 Land and Forest Use History in Ang Nhai Village

Period	Events	Land and Forest Use
1960s	War, Migration of Refugees	Upland shifting cultivation by both Ang Nhai villagers and refugees, Commercial logging in the lowlands
1970s	War, Migration of Refugees, New Socialist State	Upland shifting cultivation, Resettlement of Refugees, Stopping shifting cultivation
1980s	Nationalisation of Forest Resources through SFEs*	Resume commercial logging
1990s	New Economic Mechanism, Designation of National Reserve Forests	Logging ban, Delineation of state forest boundary
2000	Land and Forest Allocation	Village boundary delineation

Remarks

* State Forest Enterprise. In the case of Ang Nhai, it was incorporated under the SFE No.9.

Table 5.2 Land and Forest Changes

Unit: ha

CLASS	1952	1981	1998	2000
Residential	1.5	4.9	7.2	0
Primary forest	2,445.7	1468.5	386.38	0
Degraded forest	0.0	474.1	1,593.6	1,001.0
Grass land	0.0	0.0	3.2	323.0
Rice Paddy	7.20	27.7	67.7	187.1 ^a
Swidden	12.1	70.3	42.3	
Garden	0.0	22.7	105.0	
Rock	0.0	0.0	7.7	36.5
Sand	1.1	0.0	0.4	0.2
Tall Shrubs	192.2	451.4	161.2	14.4
Short Shrubs	27.1	167.0	311.9	1,135.1

^a For Satellite image, rice paddy, swidden and garden were compiled as agricultural land.

Source: Fieldwork (2000, 2001)

Table 5.3 Land and Forest Changes: 1952-1981, 1981-1998, 1998-2000

	1952-1981		1981 to 1998		1998 to 2000	
	Area (ha)	%	Area (ha)	%	Area (ha)	%
Areas Deforested						
forest to swidden (hai)	69.6	60	42.6	26	11.5 ^a	3
forest to paddy (na)	21.5	19	33.5	21	288.3 ^b	87
forest to garden	20.6	18	79.3	49		0
forest to others	4.4	4	8.1	5	30.2 ^c	9
	116.1	100 %	163.6	100	330.1	100
Areas Degraded						
to shrubs	463.4	49	378.9	30	899.7	77
to degraded forest	474.7	51	866.4	70	256.0	22
to others				0	13.4	1
	938.1	100	1,245.3	100	1,169.0	100
Areas Regenerated						
agricultural land to forest	11.6	42	53.7	13	104.2	48
shrubs, degraded to forest	15.0	54	354.4	87	109.2	50
others to forest	1.3	5		0	4.6	2
	27.9	100	408.1	100	218.0	100

^a Forest to agricultural land. ^b Forest to grass. ^c Forest to others.

Source: Fieldwork (2000, 2001)

Table 5.4 Numbers of Farming Households

Types of crops	Eggplants	Tobacco	Vegetables	NTFP	Trade	Livestock	Labour	Others
Farming households	25	46	14	5	19	9	18	21
percentage	42	78	24	8	32	15	31	36

Source: Fieldwork (2001, 2002)

Table 5.5 Average Household Income

Unit: 1,000 kip

HH income	HH	Swidden	Wet	Dry	Eggplant	Tobacco	Vegetable	NTFP	Trade	Livestock	Labour	Others*	Total
above 20,000	n=5	658	1,220	1,332	1,935	400	200	320	3,660	11,530	100	4,300	25,655
20,000 - 10,000	n=8	613	1,453	394	2,475	1,713	125	50	1,644	1,581	675	2,663	13,384
5,000 - 10,000	n=19	136	1,240	759	1,829	532	105	279	507	119	674	572	6,752
below 5,000	n=23	57	479	277	1,211	232	30	113	-	72	130	207	2,809

Source: Fieldwork (2001, 2002)

* Others include income from logging

Table 5.6 Household Rice Production

HH income	HH	Swidden	Wet	Dry
above 20,000	n=5	20 %	38 %	41 %
20,000 - 10,000	n=8	24 %	59 %	16 %
5,000 - 10,000	n=19	6 %	58 %	35 %
below 5,000	n=23	7 %	58 %	34 %

Source: Fieldwork (2001, 2002)

Table 6.1 List of Organisations involved in LFA

Organisations	Projects	Duration
International Centre for Development and Solidarity (CIDSE)	Community Forestry Project, Savannakhet Province (central Laos)	1996-1999
Japan International Volunteer Center (JVC)	Community Forestry Project, Khammouane Province (central Laos)	1992-1996
Lao-Swedish Forestry Programme (SIDA)	Joint Forest Management Savannakhet Province (central Laos)	1993-2001
Forest Rehabilitation, Afforestation and Conservation Project (JICA)	Participatory Watershed Managemen Vientiane Province (central Laos)	1996-2003
Nam Ngum Watershed Management and Conservation Project (GTZ)	Sustainable Participatory Watershed Management Xiengkhouang Province (northern Laos)	1995-2002
Forest Management and Conservation Programme (World Bank/FINIDA)	Village Forestry Savannakhet, Khammouane Province (central Laos)	1996-2000
Land Titling Project (World Bank/AusAID)	Urban/Peri-urban Land Titling	1996-present

Table 6.2 Criteria for Partnership

Criteria for Partnership
A protected territory (or set of resources) and its boundaries
A range of functions and sustainable use it can provide
Recognition of stakeholders in the protected area
Clarifying functions and responsibilities assumed by each stakeholder
Recognising specific benefits and rights granted to each stakeholder
An agreed set of management priorities and management plan
Procedures for dealing with conflicts and negotiating collective decisions about all of the above points
Procedures enforce decisions
Specific rules for monitoring, evaluating, and reviewing the partnership agreement and the relative management plan

Source : adopted from Boririni-Feyerabend (1996)

Table 6.3 Stakeholders in Phou Phanang

Criteria	Village Organisation	District Resource Managers	Provincial Resource Managers	Ministry of Agriculture and Forestry	Ministry of Defence	Private Companies
Existing rights to land or natural resources	xxx			x	x	
Continuity of relationship with the resources (e.g. residents versus visitors and tourists)	xxx	x	x	x		
Unique knowledge and skills for the management of the resources at stake	xxx	x		x		
Impact from losses and damage incurred to the environment	xxx	x	x			
Historical and cultural relations with the resources at stake	xxx	x	x	x		
Degree of economic and social reliance on resources	xxx	x	x	x		
Degree of efforts and interest in management	x	x		x	x	
Equity in the access to the resource and the distribution of benefits from their use				x		
Compatibility of the interests and activities of the stakeholder with national conservation and development policies		x	x	x		
Present or potential impact of the activities of the stakeholder on the resource base	x	xx			xx	xxx

Remark

xxx indicates level of high interest, xx regular interest, and x low interest

Table 6.4 Institutional Mislinkage

Criteria	Phou Phanang's Situation
Clear Demarcation of protected territory (or set of resources) and its boundaries	Forest boundary and village boundaries are formally distinguished but is not fully enforced.
Definition of function and services	A range of functions of national reserve forests are not clearly articulated. Benefits of sustainable forest management are not fully identified.
Recognition of stakeholders in the protected area	Stakeholders involved in management of national reserve forests and their roles are not clearly identified and shared.
Clarifying roles and responsibilities of stakeholders	Functions of each stakeholder are not clearly discussed and shared among the stakeholders.
Recognition of specific benefits and rights granted to each stakeholder	Benefits accruing to each stakeholder are not identified. Rights are not fully recognised.
An agreed set of management priorities and management plan	Village based resource management outside national reserve forest is developed. However, this is not shared between neighbouring villages and is not integrated to the main objectives of forest conservation in national reserve forest.
Procedures for dealing with conflicts and negotiating collective decisions about all of the above points	Procedures were developed but some issues such as logging cannot be addressed by the existing procedures.
Procedures to enforce decisions	Procedures for delineating village boundary and village based resource use planning were developed but there is no system to monitor the enforcement of resource management practice.
Specific rules for monitoring, evaluating, and reviewing the partnership agreement and the relative management plan	While Military of Defence was included in the management to monitor the national reserve forest, procedures are not clarified and thus cannot evaluate the situation.