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Forestry-Based Livelihoods in Central Vietnam: An Examination of the *Acacia* Commodity Chain: A Case from Thua Thien Hue Province, Vietnam

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Forestry-Based Livelihoods in Central Vietnam: An Examination of the *Acacia* Commodity Chain

~A Case from Thua Thien Hue Province, Vietnam~

By

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ABSTRACT

Forestry-based livelihoods in remote Vietnamese communities have been influenced in recent years by forest land allocation schemes, changes to property rights, and forest management devolution initiatives. Examples include the Five Million Hectare Reforestation Program, Project 327, and official "Red Books" that grant long-term land use rights and access rights to villagers. Major challenges to forestry-based livelihoods include disputes over land tenure, conflict between different levels of government, illegal logging practices and harvesting of NTFPs, and competition over land for natural versus plantation forests. As a result, forest degradation and rural poverty continue to be debilitating obstacles to development in Central Vietnam that must be addressed if sustainable livelihoods are to be achieved. Forestry-based livelihoods are one of many strategies being promoted by the Vietnamese government to combat environmental degradation and rural poverty.

The goal of this research is to investigate why *Acacia* trees are being grown by upland villagers in Central Vietnam, what benefits and challenges are associated with growing tree crops, and how land tenure and access rights can be strengthened to improve the livelihoods of rural villagers. I explore these issues by utilizing a commodity chain framework to examine the increasingly widespread planting of *Acacia,* a tree crop to which many villagers are turning as a primary source of income. A timber commodity chain is used to examine how timber is extracted from villages, transported and processed at sawmills, then brought to urban centres to be sold as finished products. The commodity chain analysis is used to analyze the processes and costs associated with

planting the tree crop and the market opportunities derived from the crop at different stages in the commodity chain.

Primary data collection methods include a villager livelihood questionnaire conducted with 58 households in mid-2008; 34 additional key informant semi-structured interviews with middlemen, processors, retailers, government officials, and other stakeholders involved in *Acacia* cultivation; participant observation; and other visually-based participatory research methods such as transect walks.

Results from the study prove that within Central Vietnam most rural upland villagers do not have secure land tenure, yet they grow *Acacia* trees as part of their long-term livelihood strategies for a variety of benefits, apart from earning income. These benefits include maintaining soil integrity, using tree logs as building materials, and harvesting NTFPs. Furthermore, the flow of *Acacia* products through the commodity chain is unregulated and subject to erratic price fluctuations. Nevertheless, *Acacia* cultivation is enticing to rural villagers and many are willing to cease growing staple foods and devote their lands to commercial forestry because of the potential profits and additional benefits listed above that the *Acacia* tree crops provide. The study highlights the importance of forestry resources to rural upland villagers within the last two decades and outlines the processes and challenges that occur at each stage in the *Acacia* commodity chain.

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I would like to thank Dr. Derek Armitage and Dr. Steffanie Scott for the knowledge and experience that they contributed to my research. They ensured the development of a feasible research study and the feedback that they offered motivated me to always critically analyze my study from different perspectives. Both provided invaluable constructive criticism, and I thank them so much for the time and effort that they devoted while revising my research.

Thanks to the many villagers and commune officials of Hong Ha and Xuan Loc communes as well as the middlemen, processors, retailers, *Acacia* tree growers, and district and provincial government officials who agreed to be interviewed for the research study. Their willingness to share both their opinions and experiences with me was essential to this study. Their hospitality and cooperation were much appreciated and provided me with a wonderful learning experience that I will always treasure.

I am indebted to the Vietnamese interpreters, Mr. Nguyen Thanh Tuan, Mr. Le Van Hai, and Mr. Nguyen Van Dung, who not only drove me by motorbike to the research sites and interpreted information from the interviews, but also supported me with useful insight and warmhearted humour while in the field. I am proud to call them my friends. Dr. Le Van An and the staff from CARD (Centre for Agricultural Forestry Research and Development) at Hue University of Agriculture and Forestry also deserve recognition for the guidance, cartographic assistance, and general feedback that they provided me with.

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1 INTRODUCTION

1.1 Forestry Based Livelihoods and Commodity Chain Analyses

This research examines the relationships among forestry-based livelihoods and institutional change in the uplands of Central Vietnam. Specific attention is directed to on-going forest land allocation, privatization of land holdings, and increased planting of the three tree crops, *Acacia mangium, Acacia auriculiformis,* and an *Acacia* hybrid of the two species. Several questions initially guided the research: (1) What are the primary ramifications of *Doi Moi* ('renovation') and market reforms on rural livelihoods and forest resources in upland communities? (2) How are specific stakeholders (e.g. ethnic minorities, other small farmers) within upland communities responding to devolution of forest management responsibilities, changes in property rights, and forest land allocation schemes? and (3) To what extent are livelihood strategies employed by upland farmers economically and ecologically sustainable?

To millions of the world's underprivileged and isolated individuals who reside in rural regions of the Global South, forestry resources offer a hedge against destitution and poverty while also symbolizing prosperity and hope for future generations (Scherr, 2004). Central Vietnam is an ideal region to study because it has high rates of rural poverty and also because many upland farmers are turning to plantation forestry to earn their income. The cultivation and processing of forestry resources in Central Vietnam is analyzed in order to provide an in-depth examination of the factors constituting sustainable livelihoods for the rural populace of upland Central Vietnam who depend upon forests and forestry products. Issues of access to and control over these forestry resources are

addressed, along with a better understanding of who gains from current property rights and how marginalized groups have dealt with economic reforms and accessibility changes to natural resources.

Across much of rural Vietnam, there is an urgent need to address issues of land access and tree crop cultivation because recent economic and ecological changes have left many wondering what ramifications these changes will have for the future. Within the last two decades, the introduction of foreign tree crop species to forestry plantations, an increase in natural forest degradation, and a state government shift from socialist policies to free market approaches have all impacted the livelihoods of upland villagers to varying degrees. It is the aim of this research to better understand how the livelihoods of upland villagers who depend upon forestry resources have been affected and to recommend strategies that may enhance forestry-based livelihoods across rural Vietnam.

To explore these questions, I undertake a commodity chain analysis of the increasingly widespread plantation of several *Acacia* species. According to Potts (2006:2), "...commodity chain analysis has its basis in theoretical political economy and focuses on the role of power relations and supply chain structure in determining market outcomes. More formally, [commodity chain analysis] refers to the systematic study of commodity chains and seeks to explain the spatial organization of production, trade, and consumption of the globalized world economy." Timber commodity chain analyses are popular with researchers who desire to trace the vertical and horizontal distribution of profits among different actors based within a forested region. A commodity chain is the best form of analysis to undertake in this study because it effectively investigates the impact and distribution of commercial timber profits (Oosterveer & Bush, 2007).

The commodity chain analysis in this study helps reveal why individuals are planting *Acacia* species, the benefits the tree crops provide to individual land users, the ramifications for the land allocation process and property rights, and the long-term implications for the livelihoods of upland farmers. With regards to the land allocation process, a commodity chain analysis is advantageous to utilize in the study because it illustrates how much income an average villager can earn from the sale of a standard hectare of *Acacia* trees. Armed with this information, government officials may then make better decisions in regards to overall forestry policy and to the minimum number of hectares individual households should be granted, thereby facilitating the distribution of government-owned lands to local commune households.

I chose to conduct interviews with key informants because the responses with regards to land tenure may remind government officials how important proper land allocation and boundary delineation mechanisms are to the protection and conservation of forests and forestry products. This is because it is already clear that many individuals have lost access to their traditional lands in the uplands of Central Vietnam as a direct consequence of government initiatives to increase forest cover and ban harmful forestry practices (CPR Research, 2007). The loss of access to traditional lands has resulted in mounting pressure on upland forest resources from 'illegal' logging, unregulated cultivation within forested areas, and harvesting of non-timber forest products. In response, government processes of forest land allocation are being tested in Thua Thien Hue Province by officials to offer rural populations greater access to natural resources in an effort to alleviate poverty, increase economic activity, and protect local forests.

I selected case studies based on two remote rural communes in upland Central Vietnam: 1) Hong Ha Commune and 2) Xuan Loc Commune. Well over half of the residents from both communes rely heavily on forestry resources and have embraced government programs that support *Acacia* cultivation. As such, the communes are excellent research sites in which to investigate the promotion of tree crops, market, and institutional reforms.

1.2 Research Goal and Objectives

The general goal of the research is to understand why three *Acacia* tree species are increasingly being grown by rural villagers in Central Vietnam, how the benefits of the production, sale, and distribution of *Acacia* products are apportioned amongst stakeholders involved in the commodity chain, and how land allocation processes and property rights can be strengthened by government institutions so as to improve the livelihoods of rural villagers.

The specific objectives of the research are as follows:

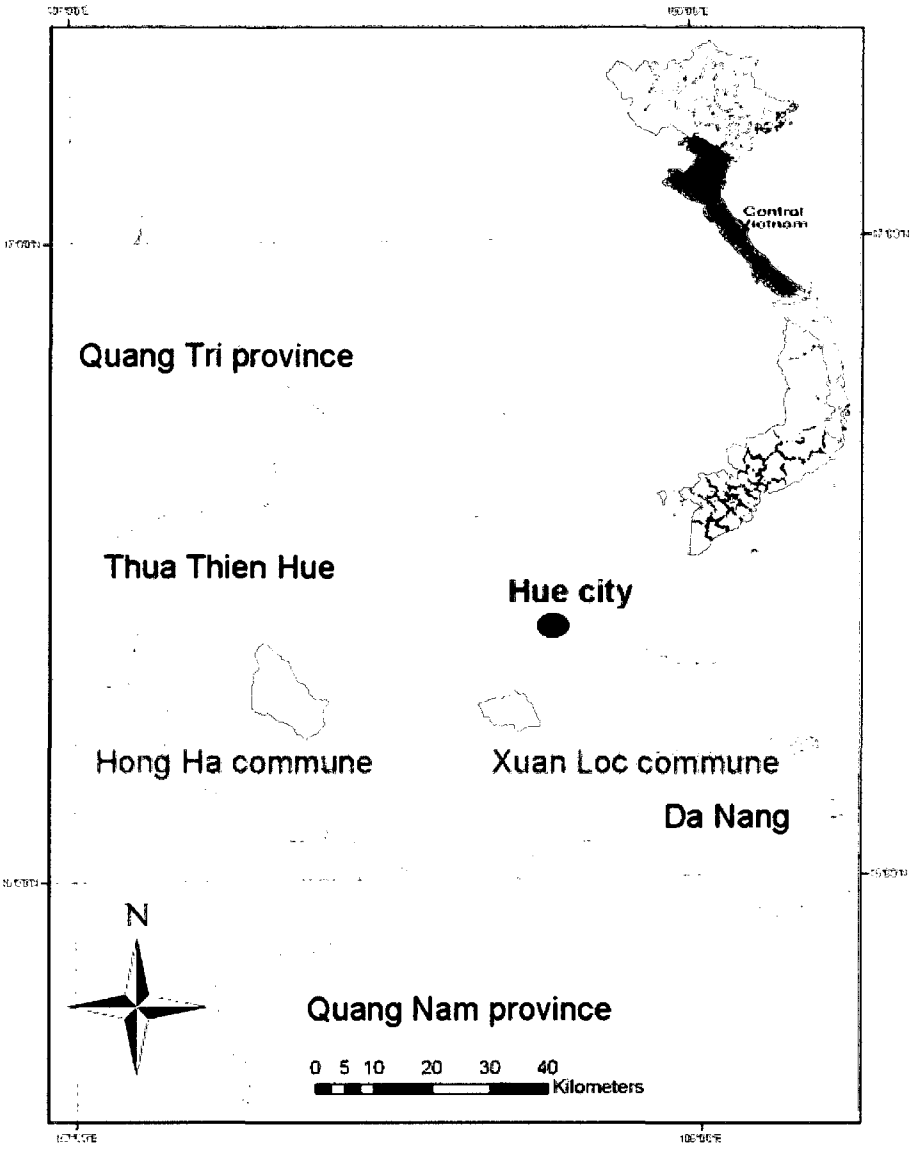
1. To describe the commodities (e.g., their physical characteristics, history, farmer suitability, etc.)
2. To develop a conceptual and empirical description of the commodity chain associated with *Acacia*, and to trace the connections and linkages between production and consumption of the commodities
3. To analyze the processes and costs associated with planting the tree crops and the market benefits (e.g., price) associated with the crops at different points in the commodity chain

4. To examine the ownership conditions under which *Acacia* species grow and assess the implications of the commodity chain for the tree crops on property rights and farmer livelihoods
5. To reflect broadly on the relationship between *Acacia* as a commodity and the relationship to changing policies associated with *Doi Moi*, and suggest strategies for governments and donors to improve forest-based resource and sustainable livelihoods

1.3 Research Background

Poverty and deforestation in rural Central Vietnam (Figure 1) remain serious issues, involve a diverse range of stakeholders, and require significant attention and focus to understand (Thang et al., 2007). As deforestation continues to occur in certain parts of Vietnam and its fragile interconnected ecosystems experience degradation, the need for sustainable livelihoods and environmental stewardship becomes increasingly clear. Vietnam lost approximately 35% of its forests between 1968 and 1990 as the total percentage of the country's land area covered by forests dwindled from 43% in 1943 to just 28% by 1990 (World Development Indicators database, 2009). By 2004, Vietnam's total land area covered by forests had again risen to 37% due in large part to reforestation programs implemented by the state government (World Development Indicators database, 2009).

Figure 1 The location of Hong Ha and Xuan Loc Commune within Central Vietnam



Source: CARD Office at the Hue University of Agriculture and Forestry, 2009

Successful protection of local ecosystems and natural resources in Vietnam requires implementation of economic and management practices that address the needs and concerns of small farmers and land users while prioritizing environmental stewardship (Painter, 2005). Poverty remains a serious problem across Vietnam where approximately 90% of the nation's poor reside in rural areas with restricted access to natural resource

bases and agricultural lands (Sunderlin & Ba, 2005). An estimated 13 million people in Vietnam rely directly upon forestry resources for their livelihoods (World Development Indicators database, 2009). Furthermore, agriculture, forestry, hunting, and fishing combined account for only 20% of the country's entire GDP despite employing tens of millions of people (World Development Indicators database, 2009). To compound this issue, the government is tasked with the responsibility of providing land and employment opportunities to a labour force that grows by 1.5 million workers annually (World Development Indicators database, 2009). At present, limited research has been conducted in Vietnam that uses a commodity chain analysis approach to understand the connections between forest change, property rights, and villager livelihoods (CPR Research, 1997).

I undertook research activities across five of the nine districts that comprise Thua Thien Hue Province, Central Vietnam. I conducted a total of 92 interviews in A Luoi District, Phu Loc District, Nam Dong District, Huong Tra District, and Hue District. Most of the interviews were carried out in the districts of A Luoi and Phu Loc where villagers growing *Acacia* could be readily found and interviewed. However, interviews also had to be conducted in the more urbanized locations within the districts of Nam Dong, Huong Tra, and Hue where the more difficult to access middlemen, processors and retailers reside, and where government officials who do business associated with *Acacia* products are located.

Approximately 48% of Thua Thien Hue Province is classified as forest, although the characteristics of this forest vary considerably in terms of productivity, tree cover extent, and level of biodiversity (CPR Research, 2007). Within Thua Thien Hue Province, A

Luoi District is a largely mountainous region with approximately 70% of the district covered in forests. The research that I conducted in A Luoi District was completed primarily in the commune of Hong Ha while Xuan Loc Commune was the focal point for my research in Phu Loc District. Both communes are described in greater detail in the following sections. Poverty levels within Thua Thien Hue Province are similar to national levels in terms of both poverty incidence and density, and have not been affected by swift changes to economic and social conditions that have improved the standard of living for residents of major urban centres within Vietnam (Sunderlin & Ba, 2005).

Slightly less than 50% of Thua Thien Hue Province is classified as forest. These forest lands have witnessed significant changes in recent years as they have been and continue to be subjected to unique and differing stages of degradation or rehabilitation (CPR Research, 2007). Events that have affected these forests either positively or negatively include the destruction exacted during the Vietnam War (1954-1975), the conversion of natural forests to plantation forests during the 1980s, the intensification of agricultural inputs and subsequent reclamation of less productive agricultural land to forest land, and the implementation of government-funded reforestation programs in the 1990s (Sunderlin & Ba, 2005). In this context, key questions remain about the choices of small farmers in Hong Ha and Xuan Loc communes specifically with regard to how allocated land should be used, how livelihoods can be enhanced, and how pressure exerted on natural forests can be reduced (CPR Research, 2007).

Natural forests can best be described as forest lands that are predominantly occupied by native flora and fauna species that are self-sustaining and whose dynamics would not be greatly affected if human activity were to cease within the system (Mitchell, 2002).

The formation of these forests and the processes that occur within them are not interrupted by human activity with enough frequency or magnitude to impact their natural composition or features of internal habitats (Mitchell, 2002). They are typically home to several hundreds or even thousands of unique species and support biodiversity in the form of long-established ecological patterns. The extent and integrity of natural forests are widely considered by environmentalists as being the true indicators of the health of the planet (Mitchell, 2002).

Plantation forests are forest lands that are deliberately planted by humans and comprised of mono-specific and/or introduced tree species for the exclusive purpose of commercial timber, pulpwood, or fuelwood production (Mitchell, 2002). Although they are typically not as critical as natural forests in the support of habitats for biodiversity protection, they have an important role worldwide in relieving pressure on natural forests for commercial timber, pulpwood, and fuelwood demands (Mitchell, 2002). If managed carefully, plantation forests may also play important roles in sustaining the integrity of soil fertility, storing harmful carbon emissions, and safeguarding watersheds. The increase in popularity of plantation forests since the early 1980s has served to raise the total area of forest cover across the globe (Mitchell, 2002).

Natural and plantation forests in Vietnam are greatly influenced by the Forest Protection and Development Law (2004). It is the goal of this law to simultaneously protect and manage the biodiversity found in natural forests from degradation and ensure that farmers receive fair payment from the harvest and sale of timber from plantation forests that are under their control (CPR Research, 2007). Degraded forests can be defined as forests that exhibit a significant (30% or more) reduction in biological

productivity and timber yields, usually due to human interference. They have the potential to be restored to full capacity if left undisturbed and assisted with financial or technical investment (Lee & Jetz, 2008). In Vietnam, plantation forests were managed as common lands prior to 2004. Since 2004, these lands have been managed by the state government through state-administered forest plantation programs. Within Thua Thien Hue Province, the state controls plantation forests through either the Bo River Watershed Management Board or the Huong River Watershed Management Board (CPR Research, 2007).

The introduction of the Land Law in 1993 (and subsequent revision in 2003) has resulted in the allocation and transfer of agricultural land access formerly held by government authorities to individual households in upland rural communes. This law only applies to agricultural lands and therefore benefits the upland farmers of Central Vietnam tremendously because they are heavily engaged in agricultural activities. Common lands and bodies of water are still managed directly by local authorities, such as commune chairmen, as common pool resources (CPR Research, 2007). Access to common lands or water areas for aquaculture or other resource-based livelihood activities is only granted by entering into a contract with local authorities. Practices that affect access to resources in these communes remain greatly influenced by customary rights and local connections or relationships among commune residents (CPR Research, 2007).

Rural communes throughout Vietnam are directly managed by individual households, a local commune government, state ministries and departments, and a watershed management board run jointly by the district and provincial governments. All agricultural land and forest lands are under the jurisdiction of the Ministry of Resources

and Environment and the National Department of Forestry within the Ministry of Agriculture and Rural Development (CPR Research, 2007). These two ministries ultimately finalize all decisions related to the access and use of natural resources in rural communes. Legal regulations in these communes are subject to the Land Law and the Forest Protection and Development Law as well as customary rights (CPR Research, 2007). As a result of so many parties being involved in the allocation and use of forest lands, conflict inevitably occurs between communities and government authorities concerning issues of conservation versus subsistence or commercial use of forest resources (CPR Research, 2007).

Soon after fieldwork was underway for the research project, it became apparent that several local and international non-governmental organizations were conducting research projects and providing development advisory services in and around Central Vietnam. The mid-city size and close proximity of Hue City to abundant forestry lands and the Tam Giang Lagoon make it an ideal location for development organizations and government ministries alike to operate small branch offices (CPR Research, 2007). These offices can be found mostly in downtown Hue and vary dramatically between large international NGO branch offices employing dozens of individuals working on several different development projects, and small state-funded forestry offices with three or four staff members focusing on a single issue (CPR Research, 2007). Some of the major organizations and partnerships that can be found in Hue include the World Wide Fund for Nature and their Green Corridor Project, the Global Environmental Facility, Tropenbos International, and SNV Netherlands Development Organisation.

1.4 General Description of the Research Study Sites

Vietnam is home to upwards of 86 million people, with over two thirds of the population residing in the countryside. Many of these individuals depend on their land for their livelihoods and are engaged in activities such as aquaculture, forestry, and agriculture for at least some portion of their annual income (Tyler, 2006). There are over 2,000 administrative 'communes' or officially recognized groupings of villages in Vietnam today, with the poorest of them averaging an income that is less than US$0.50 (roughly 9000 Vietnamese Dong) per person per day. One US dollar equaled approximately 17,500 Vietnamese Dong (hereafter referred to as VND) during the course of the research. In addition to severe poverty, these communes also face pressing challenges such as chronic food shortages and a complete lack of food security, coupled with overstressed healthcare centres that are only able to provide basic medical and support services to local populations (Tyler, 2006).

Kinh Vietnamese are the majority ethnic group in Vietnam and form roughly 86% of the country's population, meaning that 74,000,000 of the country's 86,000,000 inhabitants designate themselves as Kinh Vietnamese. In addition, there are 53 official ethnic minorities throughout Vietnam that constitute the remaining 12,000,000 people. Most ethnic minority groups reside in rural mountainous or upland regions along the borders with Laos, China, and Cambodia (Yoshizumi, 2007). Prior to the unification of North and South Vietnam, the overwhelming majority of these ethnic groups sustained their livelihoods through simple hunting and gathering activities coupled with rotating shifting cultivation agricultural endeavors.

However, in the years following the reunification of Vietnam, ethnic minorities of the upland regions were subject to strict new government policies that outlawed slash-and-burn techniques and aimed to forcefully change villagers' livelihoods from shifting cultivation to permanently-based agriculture (Yoshizumi, 2007). Even today many villagers are struggling to conform to stringent agricultural techniques that are endorsed by local and national government policies. As a result, small-scale producers often adopt a diverse livelihood strategy, relying on forestry resources for firewood, building materials, furniture, non-timber forestry products such as medicine, etc. while supplementing their livelihoods by generating additional profits from agriculture and livestock (Yoshizumi, 2007).

Hong Ha Commune and Xuan Loc Commune are excellent communities to investigate and compare as part of the study because the majority of villagers in both communes engage in *Acacia* cultivation as part of their livelihoods. However, the communes exhibit marked differences from one another such as annual household incomes, ethnic composition, proximity to large processing plants, and land accessibility. Villagers from these communes sell their *Acacia* trees to timber traders referred to in available literature, and by the local population, as 'middlemen'. Despite the term being gender-biased it reflects the fact that the vast majority of timber traders in Vietnam are male, although the presence of female timber traders must not be ignored (Nguyen, 2006). For these reasons I have chosen to use the term 'middlemen' to refer to all timber traders encountered during the research.

1.4.1 Hong Ha Commune

In Vietnam, a province is sub-divided into districts according to the population distribution and density of each province. In turn, every district consists of several communes. Each commune typically contains no more than a dozen villages (CPR Research, 2007). Hong Ha Commune in Central Vietnam is one of 21 communes in A Luoi District of Thua Thien Hue Province. In total, there are 149 communes within the province (CPR Research, 2007). The commune is situated approximately 45 kilometres southwest of Hue City in the mountains dividing Vietnam from Laos in the west (Tyler, 2006). Designated by the national government as one of the poorest communes in A Luoi District and indeed nationwide, Hong Ha Commune is a very wet mountainous area that is home to several ethnic minorities. In 2008, the commune was comprised of 305 households with an estimated 1,434 inhabitants from various ethnic groups (Government of Vietnam, 2005, in Tyler, 2006). Due to the high birth rate experienced throughout the commune and the maturing population, these numbers have jumped since 1998 when there were approximately 230 households and 1,150 residents in the commune. With regards to the ethnic composition of the commune, the most recent data from 2002 (Table 1) indicates that just over 47% of the population identifies themselves ethnically as Katu, 28% as Paco/Pahy, 16% as Ta Oi, 7% as Kinh (Lowland Vietnamese), and the remaining 2% as Bru-Van Kieu or another ethnicity (Government of Vietnam, 2005, in Tyler, 2006).

Table 1 Ethnic composition of Hong Ha Commune, 2002

Ethnicity	Population	Number of households	Percentage (%)
Katu	569	117	46.83
Ta Oi (Paco and Pahy)	566	79	46.48
Bru-Van Kieu	3	1	0.25
Kinh	77	22	6.34
Total	1215	218	100

Source: 2002 statistical data from the Hong Ha Commune People's Committee

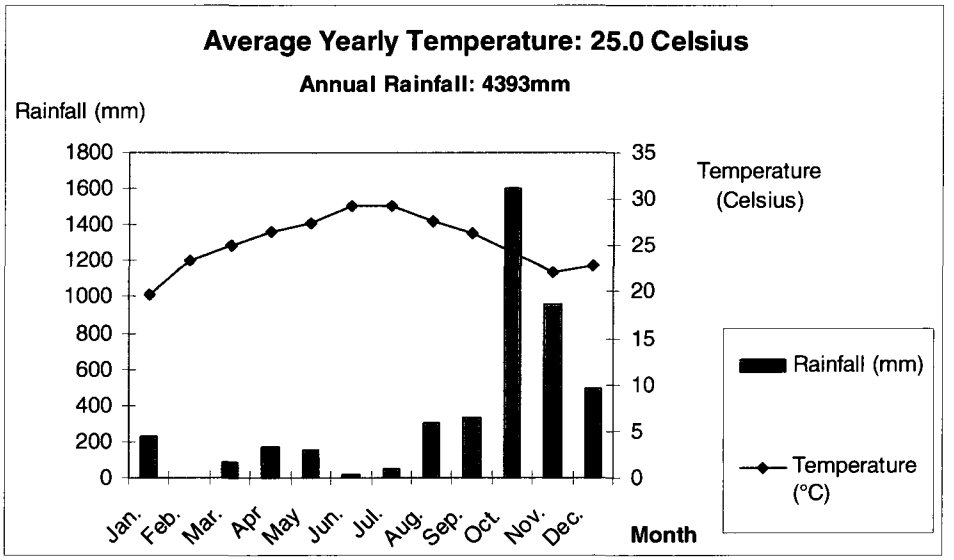
Hong Ha Commune stretches across 14,100 hectares and consists of the five sparsely populated villages of Arom, Pah Ring, Pahy, Can Som, and Kon Tom. All five villages are comprised of a unique and varying blend of villagers hailing from one of the ethnic minorities listed above. Of the 14,100 hectares, approximately 11,000 hectares are classified as forest lands, 2,700 hectares are designated as barren hills, and 400 hectares are used for agricultural activities (Government of Vietnam, 2005, in Tyler, 2006).

Agriculture within the commune is dedicated primarily to the cultivation of wet rice, cassava, and various vegetables. Roughly 25% of villagers base their livelihoods on the cultivation and sale of these goods to nearby settlements, both small and large in size (Government of Vietnam, 2005, in Tyler, 2006). Commune officials believe that nearly 50% of the villagers in the commune derive their livelihood mainly from the production and sale of *Acacia* species, although it is difficult to know the exact numbers as slightly

more than 70% of villagers in the commune are engaged in *Acacia* cultivation. The remaining 25% of villagers earn their income primarily from the sale of cash crops such as coffee, peanuts, and tropical fruits to nearby urban centres such as Hue City or Da Nang or from other activities (Government of Vietnam, 2005, in Tyler, 2006).

The natural forests of Hong Ha Commune are protected and jointly managed by the Ministry of Resources and the Environment, the Ministry of Agriculture and Rural Development, the A Luoi District Watershed Management Board, and the local commune government within Thua Thien Hue Province (Government of Vietnam, 2005, in Tyler, 2006). The total annual rainfall that Hong Ha Commune receives ranges between 4200-4500mm and the average air temperature during the year is 25.0°C (Figure 2).

Figure 2 Average air temperature and annual rainfall in Hong Ha Commune, 2007



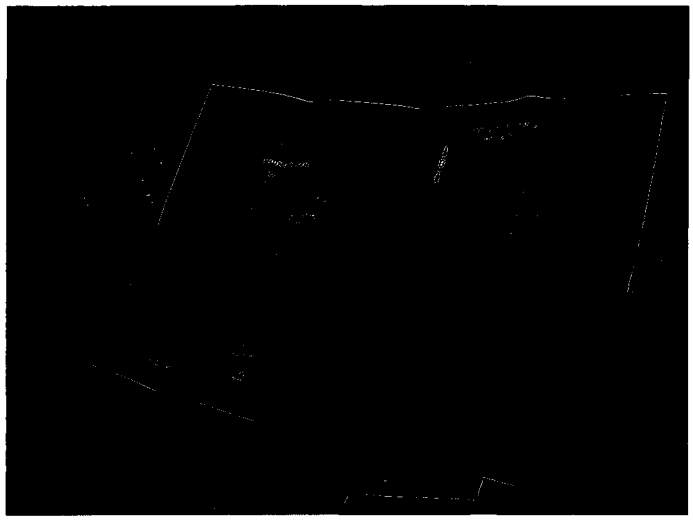
Source: A Luoi Meteorological Station, 2007

Hong Ha Commune was settled prior to the Vietnam War in 1954, but population levels were extremely low until the end of the war in 1975 as very few households were located within its boundaries (Government of Vietnam, 2005, in Tyler, 2006). It was

during this same year that the national government introduced its resettlement program which required villagers to migrate from one commune to another. Dozens of households from various communes were required to migrate to Hong Ha Commune. From 1975 to the mid 1980s, the population of Hong Ha multiplied several times over, yet the overall population density still remains relatively low to this day when compared to other rural communes (Government of Vietnam, 2005, in Tyler, 2006). Due to the close proximity of Hong Ha Commune to the Bo River, floods occur in the mountainous commune every year, adversely affecting food supplies and other income generating activities practiced in Hong Ha Commune such as the collection of medicines, resins, and other non-timber forestry products. The commune's high level of annual rainfall exacerbates the situation (Government of Vietnam, 2005, in Tyler, 2006).

Land ownership is a contentious issue in the commune and land disputes between households are frequent. Because of its remote location and the presence of so many ethnic minorities, officials in Hong Ha Commune are only in the initial stages of issuing *so do* or "Red Books" to local residents (Ninh et al., 2001). Red Books (Photo 1) were first issued to villagers in 1993 after the new Land Law was passed and land-use rights could be transferred to households. In 1993, Red Books were household-specific, meaning that each household was granted a number of hectares that could be farmed (Ninh et al., 2001). However, no clear land boundaries were outlined. Currently, Red Books are plot-specific and have been since 1994 when plot information, maps, and land transactions became standard information included in all Red Books (Ninh et al., 2001).

Photo 1 A villager's red book



Hong Ha Commune and District government officials including the chairman, vice-chairman, head officer of the A Luoi District Watershed Management Board, and representatives of the A Luoi District People's Committee have been working with staff from the Center for Agricultural and Forestry Research and Development (CARD) department of the Hue University of Agriculture and Forestry (HUAF) for nearly two decades. Regularly scheduled meetings between these stakeholders have been taking place for two years (CPR Research, 2007). The meetings are a forum for stakeholders to gather and discuss solutions to pressing economic and environmental issues while sharing information and social capital between all parties involved in local matters. The meetings to date have been considered successful as the goals and policies of active projects are constantly being revised and improved upon to benefit the community (CPR Research, 2007).

In addition to the *Acacia* projects currently being supported in Hong Ha Commune by CARD, other active projects seek to assist villagers in agricultural activities such as wet rice cultivation as well as livestock and aquaculture endeavors (JICA, 2008). These

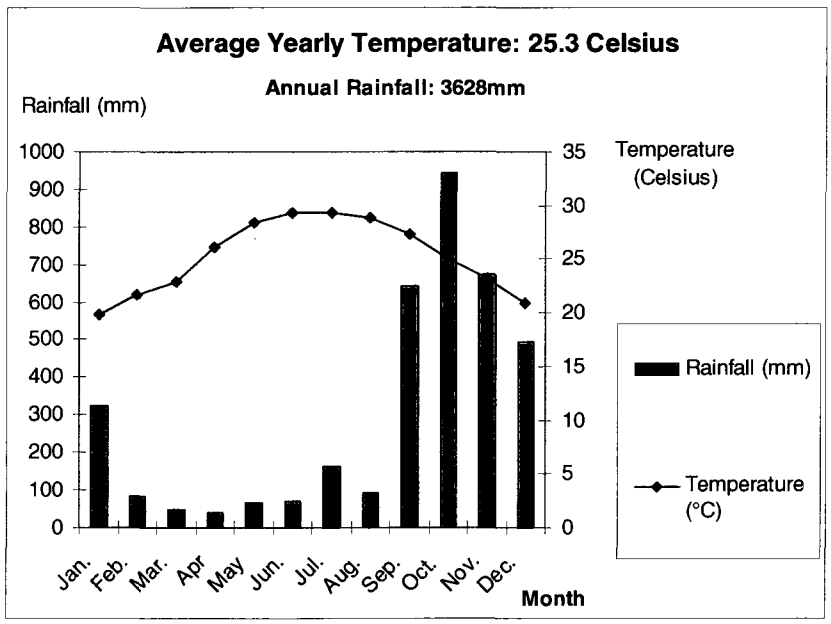
projects are financially supported mostly by international development agencies, for instance, the Japan International Cooperation Agency (JICA, 2008). The range and scope of projects has helped researchers and government officials gain insight into how villagers manage their natural resources and how various stakeholders interact with one another.

1.4.2 Xuan Loc Commune

Xuan Loc Commune is a grouping of seven upland villages in a mostly hilly area of Phu Loc District, Thua Thien Hue Province. Xuan Loc Commune covers an area of 4,236 ha in total and is located roughly 50 kilometres south of Hue City (Le, 2008). To the north of Xuan Loc Commune is the commune of Duong Hoa in Huong Thuy District, to the west and the south are large mountains such as Truoi Mountain and to the east lie the communes of Loc An, Loc Son, and Loc Bon with the South China Sea stretching far beyond them (Le, 2008). The commune is highly accessible because it is served by Provincial Road No. 14 which leads to the very busy National Road No. 1A. National Road No. 1A links Ho Cho Minh City in the south of the country with Hanoi in the north. Xuan Loc Commune is especially vulnerable to harsh climatic conditions experienced throughout much of Central Vietnam as it is situated in a transitional zone between the flat coastal region to the east and the towering Truong Son mountain range to the west. It is generally regarded as a region with unfavourable climatic conditions compared to other regions of Vietnam that adversely affect villagers' livelihoods, overall commune development, and crop growth (Le, 2008).

During the dry season from April to August, temperatures can reach a high of 39-40 °C, resulting in extremely high water evaporation rates and debilitating water shortages. During these months many types of crops such as wet rice, cassava, peanuts, fruits, and vegetables are lost to the extreme heat and the risk of forest fires is greatly exacerbated (Ngoan, 1995). Conversely, during the rainy season from September to March severe thunderstorms often cause flooding of crops, roads, bridges, and homes while high winds exact considerable damage on local forestry resources. Villagers are typically required to devote considerable time and effort to reconstruction projects during the beginning of each dry season (Ngoan, 1995). Total annual rainfall in the commune is between 3300-3700mm and the average air temperature recorded during the year is 25.3°C (Figure 3).

Figure 3 Average air temperature and annual rainfall in Xuan Loc Commune, 1994



Source: Nam Dong Meteorological Station, 1994

Xuan Loc Commune is home to an estimated 502 households with 2,511 inhabitants spread out amongst the seven villages of the commune (Interviewee #90, 2008). The first

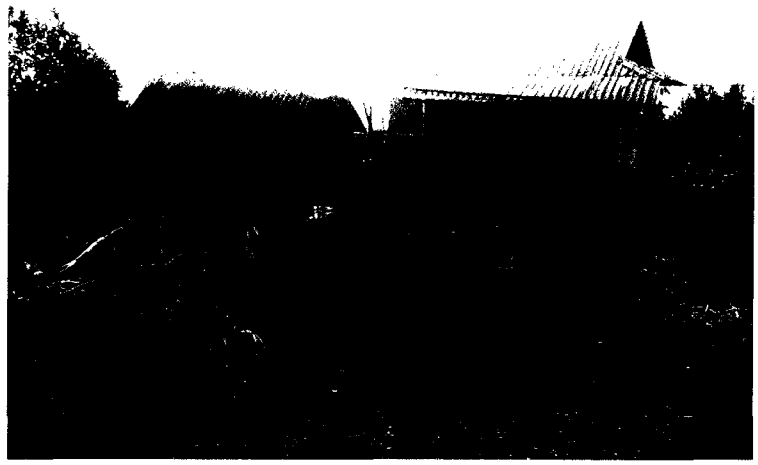
six hamlets are home to approximately 420 households and 2,000 Kinh residents (Interviewee #90, 2008). The seventh village is known as Phuoc Loc and is occupied almost entirely by an ethnic minority known as the Bru-Van Kieu, accounting for the remaining 82 households (with approximately 500 individuals). Virtually all villagers residing in the first six hamlets are Kinh Vietnamese, while Phuoc Loc is home to the entire Bru-Van Kieu population within the commune (Ngoan, 1995). In lieu of official names these villages are referred to as Hamlets One through Six and Phuoc Loc Hamlet (Ngoan, 1995).

The commune was founded in 1975 as part of the national government's Resettlement Program (Ngoan, 1995). Prior to that time the site of the commune was largely covered in natural forests. Many of the villagers who migrated to Xuan Loc were Kinh wet rice farmers living in nearby coastal communities such as Loc An, Vinh Hung, Vinh My, and Loc Son and were not given a choice in the matter of relocation (Le, 2008). However, it is important to note that the relocated villagers were not homogenous in their financial backgrounds or political views and these differences caused tension in the initial years of the commune's development (Ngoan, 1995). The government took steps to ensure that villagers who were members of the Communist Party received a Red Book as well as those villagers who could afford the processing costs associated with filing an application for a Red Book (Ninh et al., 2001). The Red Books are intended to outline clear land boundaries to all villagers so that confusion as to who may access specific plots of land is minimized (Ninh et al., 2001). However, several land disputes and multiple claims to plots of land are still on-going within the commune.

In 1983, the Bru-Van Kieu traveled several hundred kilometres south into the region from the province of Quang Tri where they had traditionally relied on shifting cultivation for subsistence. However, upon arrival in Xuan Loc Commune the government granted them fixed parcels of land and encouraged them to practice long-term sedentary forms of agriculture that have at best met with modest success (Ngoan, 1995). Currently, it is difficult to gauge the success of the Bru-Van Kieu's resettlement as well as their exact numbers. The village has recently been relocated two kilometres away from its original location due to the construction of a new dam which, when complete, will flood the area where the original village was founded (Interviewee #90, 2008).

Furthermore, the Van Kieu are wary of outsiders so an accurate census has not been undertaken for several years. Government housing was provided to the villagers in the form of stylized raised housing in the traditional Bru-Van Kieu custom. However, virtually all villagers (Photo 2) opted to erect their own houses alongside the government housing provided because the latter was raised too high from the ground and was built with concrete rather than the standard materials such as bamboo and timber (Interviewee #90, 2008).

Photo 2 A standard Bru-Van Kieu residence in Xuan Loc Commune



1.5 Organization of the Thesis

I have structured the thesis into six chapters. Chapter One briefly explained forestry-based livelihoods and commodity chain analyses, stated the general goal and the specific objectives of the research, and provided background information concerning the two primary research sites studied. The second chapter consists of an eight part literature review that examines the causes of deforestation and poverty in Central Vietnam, the role of commodity chain analyses, and interconnected issues of sustainability, devolution, and transitions in forestry management. Chapter Three details the methodology of the research including the approach, data collection methods, and challenges and constraints encountered in the research process. Chapter Four explores the origins of *Acacia* species and their introduction to Vietnam then presents the two case studies and discusses the results of the 58 interviews with rural upland villagers in the first stage of the *Acacia* commodity chain in Central Vietnam. The results of the 34 additional interviews with

key informants operating within the second and third stages of the *Acacia* commodity chain, such as middlemen, processors, and retailers, are analyzed and discussed in the fifth chapter. The final chapter highlights the key conclusions of the research and proposes a number of recommendations for various stakeholders who depend on forestry resources for their livelihoods.

2 FOREST SECTOR DEVOLUTION, POVERTY REDUCTION, AND FORESTRY-BASED LIVELIHOODS: A REVIEW OF THE LITERATURE

2.1 Understanding of Sustainability

Sustainability is a complex notion (Van Bueren & De Jong, 2007). Rather than broadly examining the complexities of sustainability thinking and seeking to develop intricate connections between its economic, social and ecological components, the driving focus of this research centres on issues of land access and allocation, and changing farmer production systems with regards to forestry-based livelihoods in selected upland Vietnamese communities. This aspect of sustainability is important because of the close links among livelihood strategies and ecosystem change in association with resource use, harvesting of forest resources and population growth (Douglas, 2006).

2.2 Forestry Based Livelihoods

In many parts of Southeast Asia, changes in forestry-based livelihood strategies are occurring in part because of the widespread commodification and privatization of physical, human, financial, social, natural, and knowledge capital associated with globalization initiatives (Liverman, 2004). In Vietnam, economic reforms have granted many with new economic opportunities associated with forestry-based livelihoods. There are also additional benefits available to upland farmers who harvest non-timber forestry products, but that is outside the scope of this research. However, the benefits from plantation forests have not been equally distributed and incomes have polarized as the gap between the poorest and richest citizens residing within rural upland communes has increased (Le & Scott, 2008). Furthermore, initial economic reforms in Vietnam have

negatively affected common property resources, raised the debts of upland farmers, and contributed to the degradation of natural resources including mangrove forests. The poor are most likely to suffer from harmful economic reforms because they have limited education and few alternative sources of income to pursue (Le & Scott, 2008).

Forestry-based livelihood strategies in the uplands of Central Vietnam are similar in many respects to forestry-based livelihood strategies employed in other parts of the country (CPR Research, 2007). Understanding these conditions and processes is important as forestry resources offer sustainable livelihoods to many of these villagers. As development experts and rural stakeholders in upland Vietnam continue to search for ways to simultaneously improve the health of rural communities and fragile ecosystems alike, they are increasingly favouring devolution programs that ultimately grant land access to villagers that are interested in pursuing forestry-based livelihoods (CPR Research, 2007). Devolution in this context is defined as the conditional transfer of powers from the central government of a state to subnational levels such as provincial and local governments (Inoue & Balooni, 2007). It is important to note that all powers devolved may be temporary and that the state retains the right to overrule decisions in all matters.

Land devolution programs transfer authority away from state governments to grant upland communities with greater economic opportunities and new livelihoods, and facilitate the shift from state-based to private land ownership systems (CPR Research, 2007). These programs do this by simultaneously allocating land to individuals and by transferring forest resources to communities. Recent research indicates that political and economic settings are key variables in determining the success of forestry-based

livelihoods and concludes that in many cases devolution has not created a level playing field for the local population (Sikor & Nguyen, 2007). Despite various devolution initiatives, local actors continue to experience differential access to productive resources for their livelihoods (Sikor & Nguyen, 2007). Devolution programs in rural Vietnam can be improved upon because it has been found that land fragmentation is widespread in these areas and has led to negative impacts on crop productivity as well as increased family labour use and other financial expenses (Van Hung et al., 2007). Furthermore, studies suggest that land fragmentation is low among rural households with high agricultural abilities. As such, these studies advocate that programs designed to enhance forestry-based livelihoods and training systems be revised and extended to remote rural communities so that land consolidation may occur (Van Hung et al., 2007).

In the uplands of Central Vietnam, forest devolution generally, and the process of forest land allocation specifically, have the potential to create long-term livelihood effects among rural poor. Broad political and economic processes directly influence the nature and distribution of benefits created through changes in forest entitlements and endowments among regional households (Sikor & Nguyen, 2007). In many cases it has been found that the "poorest of the poor" remain unable to generate benefits even after devolution occurs. Sikor and Nguyen (2007) assert that two issues dominate the international forestry agenda. The first is the role that forests play in the livelihoods of rural poor and the contributions that they offer. The second deals with the distribution of control over forests, from national governments to local governments and individual stakeholders (e.g., small farmers). Positive changes to the livelihoods of upland farmers

are the driving force for many devolution programs, yet evidence suggests that the ability of these programs to foster positive changes is highly variable (Sikor & Nguyen, 2007).

Understanding the institutional conditions and economic incentives confronting farmers and rural producers is key to determining the success of devolution programs in terms of livelihood outcomes and protection of forest ecosystems (Sikor & Nguyen, 2007). In Vietnam, for example, a significant change has been the recognition of the private sector in the Land Law (1993; and its revision in 2003) which established individual use rights and the potential allocation to individuals of parts of the agricultural land base. However, forest land has belonged to the state since 1975 and is managed mostly by state enterprises (CPR Research, 2007).

With the changes to the Land Law, provincial policies have been modified and as a result, large areas (potentially over two thirds of the total area of Thua Thien Hue Province where the research took place) may be allocated to communities or individuals (CPR Research, 2007). In the uplands, processes of forest land allocation from state-control to local control is expected to enhance opportunities for key groups (ethnic minorities, small farmers) to access land and natural resources. However, this requires careful negotiation between forest users to ensure there is a plan for forest protection as well as opportunities for sustainable livelihoods (CPR Research, 2007).

2.3 The Causes of Deforestation

Although extensive research has been conducted into economic changes caused by the global integration of world markets, little remains known about the environmental effects on local communities found throughout rural Southeast Asia (Douglas, 2006).

The large-scale migration of millions of workers eager to seek out promising new economic opportunities has placed sensitive forest lands at high risk of deforestation due to inappropriate land management strategies that lack any long-term ecological focus (Douglas, 2006). Use and care for the land is also undermined by frequent land dispossession and displacement of workers in addition to shifting agricultural activities practiced by migrating workers that favour the plantation of cash crops which reduce soil fertility and counter any previous soil conservation measures put in place by local residents. Throughout much of rural Vietnam, natural forests are being replaced by plantation forests (Douglas, 2006). Furthermore, despite the fact that the advantages of forest conservation are well known, migrating workers are under enormous pressure to engage in deforestation activities in order to provide their families with the greatest income possible (Douglas, 2006).

Lee and Jetz (2008) use projected climate change models based on current data to assert that regions typically at-risk for extreme climate change such as Southeast Asia and the IndoMalayan territories, will likely witness sustained deforestation and negative environmental impacts in the long-term. They note that biodiversity-rich countries in Southeast Asia like Sri Lanka and the Philippines often have the greatest need for conservation initiatives but lack the governance quality to put such programs into motion (Lee & Jetz, 2008). Another major finding of the study is that the primary forests of developing nations in tropical regions act as irreplaceable carbon sinks at present and that their importance will only increase well into the future. Their continued protection is essential to lowering future conservation risks and can only be achieved if a focused

international effort is put forth to understand and prevent global climate change (Lee & Jetz, 2008).

De Koninck's (1999) study concerning deforestation in Vietnam examines a variety of factors that are attributed to forest cover loss between the 1960s and 1990s including but not limited to the role of minority peoples, the devastation of the Vietnam War, and socialist government policies. Even in the late 1990s, De Koninck highlights the need for conservation by noting that Southeast Asia in its entirety saw its forest cover fall from 66% of total land area in the late 1960s to 49% by 1990 (De Koninck, 1999). De Koninck (1999) noted that out of the eight Southeast Asian nations included in his data collection, Vietnam was the country that witnessed the most deforestation during this timeframe as its total forested area dwindled more than any other country included in the dataset. As a consequence of the loss of this forest cover, disputes between farmers have greatly increased as they vie for control of scarce forest lands to support their livelihoods (De Koninck, 1999).

Deforestation in Southeast Asia has not occurred due to a single factor. Rather, there are a host of economic, political, and ecological causal forces at work (Rudel, 2006). Five influential agents of change - road builders, community forest managers, urban consumers, park advocates, and corporate concession holders - have different effects on large forests in rural tropical regions (Rudel, 2006). The differing effects on forests that result from the actions of these agents of change lead to important implications for conservation efforts. Case study-based research across Southeast Asia indicates that as forests become degraded, new roads have fewer negative impacts on forests, community forest managers become more effective, urban consumers initiate tree-plating programs,

parks become unfeasible as a means of forest conservation, and corporate loggers move on to harvest other forests (Rudel, 2006).

The irreplaceable topsoil losses brought on by deforestation have further been blamed on several socio-economic factors including war, explosive population growth, inefficient management policies that favour economic growth, extremely high population densities, and an unsustainable reliance on forests for energy sources. De Koninck (1999) believes that the key to successful forestry management in Vietnam is the inclusion and participation of all minority peoples in cooperative policy formulation.

The forested upland regions of Vietnam are increasingly being subjected to agricultural exploitation because much of the lowland regions have already been converted to agricultural use, yet Vietnam's burgeoning population requires additional food sources. Much of this holds true throughout the Central uplands of Vietnam where large areas of forest have succumbed to slash-and-burn agriculture frequently blamed on the unsustainable agricultural practices implemented by upland ethnic minority peoples (Schultze-Kraft et al., 2008). Slash-and-burn agriculture has been outlawed by the Vietnamese government but constantly monitoring forests is a costly and difficult endeavour. Furthermore, ethnic minorities are given liberties in many cases in order to raise their average standard of living (Schultze-Kraft et al., 2008).

The primary cause for deforestation in upland Vietnam cannot be destructive agricultural practices, as traditional swiddening with long fallow periods, seasonal migration, and extensive cultivation periods have been practiced for many generations without permanent environmental damage (Schultze-Kraft et al., 2008). Rather, the root causes of the problem are cited as being excessive population pressure that forces fallow

periods to be shortened and inappropriate government policies that demand minority ethnic peoples to settle in permanent residences. In addition, large areas are becoming 'barren' as their biodiversity disappears and they are leached of their nutrients while they absorb up to 50% less carbon than old-growth forests (Schultze-Kraft et al., 2008).

Vietnam's Five Million Hectare Reforestation Program (5MHRP) (Government of Vietnam, 2001, in Sandewall et al., 2005) was conceived in 1995 and put into practice in 1998 with the primary purpose of raising Vietnam's total natural forest cover from 9.3 million ha (roughly 28% of the country's terrestrial area) to 14.3 million ha (approximately 43% of Vietnam's total land area) in 2010, reflecting levels not seen since 1940 (Sandewall et al., 2005). The government enacted the program with enthusiasm and also stipulated that in addition to biodiversity protection, the program also had to spur employment, combat hunger, and lower poverty levels (Sandewall et al., 2005).

Through the use of two case studies, Sandewall et al. (2005) note that while the 5MHRP is a laudable project, its plausibility remains questionable because much of the land that is planned to be reforested by 2010 is currently providing villagers with much needed food supplies. Preliminary studies indicate that the farmers of these regions are resistant to the notion of giving up their food security in exchange for forest conservation. The government has countered this argument by claiming that additional forests will provide villages with benefits from non timber forestry products such as bamboo, rattan, medicines, essential oils, resins, and spices which will offset any losses that the villagers experience. The study highlights the need for up to date information, inter-sector planning, and strategic approaches with regards to successful large-scale reforestation endeavors, not just in a Vietnamese context but for all nations (Sandewall et al., 2005).

2.4 *Doi Moi* and Poverty Alleviation in Vietnam

Since economic reforms known as *Doi Moi* were introduced in Vietnam in 1986, living conditions have greatly improved in rural areas through the promotion of privatization schemes, the allowance of 20 and 50-year agricultural land use rights, and the abolishment of agricultural and forestry monopolies supported by commune cooperatives (Hall, 2004). Many rural households that rely on mangrove forests for their livelihoods have acquired electricity, stronger building materials, mobile phones, and other luxuries but there is growing concern that private land ownership may actually result in land fragmentation and polarized social stratification (Le, 2008).

The reason behind this fear is that while *Doi Moi* has unquestionably unlocked economic opportunities for wealthy families, poorer households especially those headed by females or with few males in the family, have been left behind as they lack the political strength, capital, and management skills necessary in order to ensure equal access to mangrove forests (Le, 2008). Advocates of community forestry are also concerned that a lack of secure land rights will precipitate mass migration of households because families that use their properties as collateral for loans run the risk of being unable to repay their debts (Hall, 2004).

Market incentives brought about by the privatization of natural resources and the prospect of higher incomes have also enticed villagers to harvest larger areas of mangrove forests than in the past, ultimately resulting in their degradation (Le, 2008). It has been suggested that the most appropriate strategies to protect mangrove forests in rural Vietnamese communes would incorporate certain aspects of private ownership, community-based comanagement, and state control that address the specific needs and

complexities of each commune (Le, 2008).

Research by Turner and Nguyen (2005) indicates that environmental degradation in Vietnam is largely a by-product of widespread poverty and chronic food shortages caused by inadequate economic policy. The historical emphasis on state ownership of the means of production, agricultural entities organized into state farms and collectives, and development centred on the establishment of large heavy industry and mega projects diminished the powers of rural communities and left them extremely vulnerable to deforestation and land degradation (Sikor & Nguyen, 2007). The transition to market-oriented approaches in Vietnam led to initially high rates of unemployment and accelerated environmental abuse as many were left to fend for themselves once the social safety nets provided by the centrally-planned regime were usurped and replaced with the uncertainties of a market-based economy (Turner & Nguyen, 2005).

The introduction of capitalism to Southeast Asia has greatly affected agrarian change and smallholder commodity production. Literature examining the effects of capitalism to the Asia Pacific region indicates that subsistence farming is on the decline as farmers increasingly turn to cash crops such as *Acacia* trees for higher incomes, villagers and uplanders are taking full advantage of new market opportunities, and rural communities are accepting and embracing globalization (Hall, 2004). Hall (2004) argues that the major challenges to the success of free-market initiatives and forest conservation in Southeast Asia that are not being adequately addressed are the uncertainties and disputes surrounding land ownership. Sikor and Nguyen (2007) further believe that the critical conditions necessary to ensure that forests remain intact in Vietnam are the provision of employment opportunities to rural populations, the creation of a level playing-field

between rural and urban entrepreneurs, and greater access to wealth and land by small rural producers and farmers.

Vietnam remains among the 30 poorest nations in the world despite government efforts to minimize poverty in rural areas through income diversification tactics (Trung et al., 2006). Diversification from rice and cassava cultivation into higher-value crops such as coffee and tropical fruits now accounts for approximately 25% of crop income growth in Thua Thien Hue Province but has come at the price of widespread deforestation and soil loss (Trung et al., 2006). Although the average income of upland farmers has risen due to higher yields and more profitable crops, these reforms have also been cited as a primary factor in the widening income gap between rich and poor rural households. Various levels of the Vietnamese government now find themselves providing these rural communities with input and transportation subsidies, low-interest micro-loans, and technical expertise that exacerbate deforestation while simultaneously enforcing restrictive logging bans to preserve existing forests (Trung et al., 2006).

Sunderlin (2006) assesses the potential of poverty alleviation through community forestry, and notes that current community-based forestry programs in Cambodia, Vietnam, and Laos have met with poor results concerning poverty alleviation despite the high hopes placed upon them (Sunderlin, 2006). Sunderlin (2006) indicates that the timber industries in these three countries have historically been controlled by the military, government, and foreign companies with little empowerment given to villagers who engage in day-to-day logging activities. Under these conditions, it was only a matter of time before logging restrictions were imposed in response to unsustainable logging practices and extraction rates (Sunderlin, 2006).

Significant progress has been made in rural Vietnam since the embrace of community-based management endeavors in 2004 when the recognition of communities and their rights to access and use forest lands and forestry resources occurred (Sunderlin, 2006). The drawback to this achievement is that a significant portion of Vietnam's intact forests continue to be idle as they are controlled by state forest enterprises which have been slow in devolving millions of hectares of forest lands to local communities. This land should but has not yet been allocated to the millions of rural upland farmers seeking additional land to expand their *Acacia* cultivation operations. However, Sunderlin (2006:394) concludes his article by citing that community-based forest management has so far halved the national Vietnamese rate of poverty from 58% in 1993 to 29% in 2002 and is well on its way to becoming "one of the greatest success stories in economic development". Care must also be taken to ensure that changes in local land-use systems, management practices, ownership conditions, and institutional arrangements stemming from the economic reforms of *Doi Moi* do not lead to accelerated natural resource degradation and over-exploitation (Le & Scott, 2008).

Living standards studies reveal that although millions of Vietnamese worked their way out of poverty from 1993-2003, most live just above the poverty line and are at a high risk of plunging back into poverty due to economic shocks (Constantine, 2003). The vulnerability of rural farmers in Central Vietnam has greatly increased over the past decade as the farmers are experiencing greater exposure to global markets and the risks that these markets bring such as sudden price decreases for coffee and timber products. This vulnerability can only be reduced if rural farmers are given predictable and low-cost access to timely, accurate, and relevant local and global market information (Constantine,

2003). Furthermore, the government of Vietnam can support the livelihoods of rural farmers by making available to them information and technologies that encourage diversification of crop production and marketing strategies.

Social capital is defined as the intangible network of relationships between individuals, communities, and entities that have some level of value within a society (Constantine, 2003). Development experts agree that studying social capital is one way to learn how a society functions and that social capital is imperative for societies to progress economically and for sustainable development to occur. Social capital can increase the effectiveness of development projects and it promotes inclusion, transparency, and accountability in such projects (Constantine, 2003).

In rural Vietnam, Australian government aid workers have found that there are few mechanisms in place that support the creation of social capital. In remote locations, business dealings are typically conducted informally and the quality of services available to the poor is generally inadequate. Ethnic minorities have the lowest levels of social capital because the areas in which they live experience slow economic growth and feature isolated villages composed of individuals from different ethnic groups that do not exchange information on a regular basis (Constantine, 2003). Evidence from past research has shown that the presence of social capital has led to more trusting and profitable relationships between the rural farmers of Central Vietnam and the middlemen with whom they conduct business (Constantine, 2003).

2.5 Land Ownership and Tree Harvesting Rights in Vietnam

Property rights are among the most influential institutions that determine how households will interact with natural resources (Pradhan & Meinzen-Dick, 2002). Property rights affect who may use certain resources, and in what ways, and they also create incentives for farmers who invest in and rely on their resource base for their livelihoods. These rights do not solely examine ownership, they also determine who may access, withdraw, or exploit a particular resource. Several approaches to understanding property rights mistakenly regard them as neatly bundled, unitary, and static, rather than diverse and changing (Pradhan & Meinzen-Dick, 2002). However, these approaches are imperfect, as are all property rights regimes, because they do not explore different bundles of property rights or overlapping claims to properties that typically exist in reality. Their inflexible nature also fails to adapt to the unique uncertainties which are often found in dealings with natural resources across various locations (Pradhan & Meinzen-Dick, 2002).

Property rights seek to resolve claims over resources and explore the relationships between different claimants over the same plot of land. These claims and relationships are shaped by changes caused by knowledge, ecological, social, political, legal, and livelihood uncertainties (Pradhan & Meinzen-Dick, 2002). Dealing with such uncertainties is best accomplished by recognizing the complexity of rules and the multiplicity of legal systems rather than searching for clearly defined rules within an overarching legal system. Often times when allocating or managing resource bases, there is no "right" law or institution. Rather, resource allocation is a complex and messy

process that must be painstakingly developed in order to address knowledge, ecological, social, political, legal, and livelihood uncertainties (Pradhan & Meinzen-Dick, 2002).

The notion of land tenure security as a means for development and poverty reduction has captured the attention of governments and development agencies throughout the developing world over the past several years (Van Gelder & Reerink, 2009). The hope is that mass titling programs will provide families with legal protection against forced removal from their ancestral lands by the state or corporate entities. Once these land titling programs have granted secure land tenure to individual households, it is then assumed that the economic productivity of the land will be greatly enhanced as villagers increase their willingness to invest in their land and their housing and improve their access to credit from banks (Van Gelder & Reerink, 2009). There is very little empirical evidence available that supports this theory, yet land titling programs continue to be implemented in several developing countries such as Indonesia, Vietnam, and Peru. The debate over the success of land titling programs is on-going as their intended effects such as increased access to credit have yet to fully materialize (Van Gelder & Reerink, 2009).

As a consequence, land titling programs have been criticized for actually causing more difficulties than benefits to households. For example, land titling programs have complicated community life and disrupted social networks across Indonesia and have also forced poor residents there to pay for the costs associated with the acquisition of formal land rights, such as registration fees and taxes (Van Gelder & Reerink, 2009). The average land titling strategy categorizes all property with registered title as being legal, while all other property that is unregistered is placed in an "extra-legal" category. However, studies indicate that there is a very fine line between these two categories

within developing countries and the distinction is more blurred than it is clear (Van Gelder & Reerink, 2009). Findings suggest that the perceived tenure security of residents who hold formal land titles is higher than that of informal residents, yet titling programs worldwide have been denounced for oversimplifying complex problems (Van Gelder & Reerink, 2009). Some of these problems include the unclear distinction between common property and open access resources, property and access rights that vary for different forestry resources on the same plot of land, and overlapping land claims (Pradhan & Meinzen-Dick, 2002).

Indigenous land ownership within the developing world has historically been oversimplified and misrepresented by Western colonial powers as basic communal land ownership (Tanner, 2007). Communal land ownership is typically viewed by development experts as an obstacle to economic development, and these experts advocate a shift to individual tenure. Yet the debate over communal versus private ownership has not been resolved as incomplete concepts and complicated conflicts have been used to frame various arguments (Tanner, 2007). A popular theoretical model based on the oversimplification and misrepresentation of common property lands has been implemented throughout the developing countries of Asia in recent years and it mistakenly assumes that all tenure systems can be reduced to communal property rights. This model is effective in understanding a single part of a complex situation, but it fails to fully explain how that system functions because it distorts reality and is unable to analyze to what degree ecological sustainability is occurring (Tanner, 2007).

More than two decades after the introduction of the *Doi Moi* economic reforms, market institutions have become firmly embedded in rural parts of Vietnam. Each

household is free to sell its production output to private enterprises, trade land, and sell labour on the private market (Van den Broeck et al., 2009). However, the state retains a very prominent role in economic life as it frequently intervenes in land distribution, insists that farmers grow sufficient supplies of rice, controls the inputs to agriculture, and influences a large portion of regional organizational activities. On paper, the Land Law permits households to sell, rent, mortgage, or trade their lands with others, but many upland farmers do not have the basic right to choose what crop they will grow on their plot of land (Van den Broeck et al., 2009).

Studies that investigate the effects of the Vietnamese move towards the privatization of agricultural land examine tenure security and transfer rights almost exclusively, while the importance of user rights is largely neglected (Van den Broeck et al., 2009). Authorities are often involved in farmers' crop choice decisions and more than half of upland farmers are restricted by the state in what type of crop they can grow, suggesting that market reforms have not been implemented in their entirety. The state imposes restrictions so that production quotas are met, sufficient food supplies are secured, and export targets are achieved (Van den Broeck et al., 2009). It has been found that crop choice restrictions affect the supply of household labour, but have virtually no effect on income derived from cultivation. Furthermore, studies indicate that restricted households are provided with higher quality inputs by the state than other households (Van den Broeck et al., 2009).

There can be no doubt that land and market reforms have dramatically increased agricultural productivity throughout Vietnam since the late 1970s (Nguyen et al., 2009). Systems of agricultural production shifted from commune-based public ownership to

individual private property rights over land and farm assets. This led to the formation of competitive domestic markets and granted households a degree of decision-making across a wide variety of agricultural activities (Nguyen et al., 2009). However, measures of agricultural output in Vietnam clearly show that productivity has slowed considerably since 2000, suggesting that further land and market reforms are necessary. Data compiled from farmers across the country indicate that smallholder producers on land-fragmented farms rarely have clear property rights or land use certificates, have poor access to land extension services, and produce less per unit of cultivated land when compared with large less land-fragmented producers (Nguyen et al., 2009).

Land titling is just one of many solutions being implemented in Vietnam to address issues of population growth and growing market demands. These occurrences have caused farmers to simultaneously secure access to additional plots of land and to increase their usage of inputs in an effort to raise agricultural productivity (Zeller et al., 2009). Since 1993, poverty has decreased nationwide but environmental degradation such as soil erosion, decreased soil fertility, and landslides have intensified during the same time period. Possession of a formal land title spurs many farmers to practice soil conservation measures, but the possibility of land expropriation worries farmers and fosters uncertainty and tenure insecurity. Zeller et al. (2009) strongly advocate the issuance of land titles but believe that it is not an adequate deterrent to stop erosion-prone cultivation practices from occurring. They conclude that further interdisciplinary research into land titling programs is required and that any efforts to promote sustainable land use in Vietnam must first be accepted and supported by local authorities.

As was outlined in Chapter One, Red Books are highly prized among rural Vietnamese families yet they do not necessarily guarantee that lands will not be expropriated by the government at any time. Red Books grant villagers with the rights to harvest resources from plots of land, usually for 20 or 50 years at a time with the opportunity to renew land rights on expiry, but they do not extend land ownership rights over these lands to the villagers themselves (Van Den Broeck et al., 2007). As such, Red Books do not equate to full land ownership. All land in Vietnam remains the property of the people but the state government is the representative owner (Sowerwine, 2004).

Villagers are rarely invited to participate in discussions with district and local government officials when forest land rights are being allocated to specific households. Most villagers are handed a Red Book once plot sizes and locations are determined yet they are given no explanation as to how their plots were selected or what information is contained within the Red Book itself (Sowerwine, 2004). The state government desires the villagers to cultivate and invest in the plots of land they are issued, but most ethnic minority households choose to continue practicing swidden agricultural as is customary for them (Van Den Broeck et al., 2007).

Furthermore, while upland villagers have obtained titles to specific forest land parcels, the content and meaning of Red Books remain unclear. This problem is compounded by the fact that many villagers in upland communes are illiterate and unfamiliar with processes of land allocation and tenure rights (Van Den Broeck et al., 2007). It has also been found that customary tenure arrangements embraced by ethnic minority groups are not recognized or encouraged by the state government yet these agreements greatly affect the socio-economic and ecological foundations of rural

communes (Sowerwine, 2004). Land titling efforts that include the issuance of Red Books have not resolved land ownership disputes in several communes due to multiple and often overlapping spatial and temporal land claims. Although formal land rights are designed to have positive effects on land productivity, Red Books have in many cases been detrimental and precipitated negative changes to productivity throughout the uplands of Central Vietnam (Van Den Broeck et al., 2007).

A villager may apply for a Red Book by filling out a registration form explaining why he or she wishes to access additional land and incurring a cost of almost US$3 [VND 50,000] for the purchase of the form and administrative costs. The form is then passed on to the chairman of the commune and submitted to the provincial government for review by a Land Registration Committee (Ninh et al., 2001). Red Books are issued to villagers once government officials determine that no land conflicts exist between neighbours and after land surveyors measure the exact boundaries of the plot being transferred. They are a sign of prestige and are sought after by villagers in the hopes that family lands will be available for future generations (Ninh et al., 2001).

Very few villagers in rural communes such as Hong Ha and Xuan Loc own a Red Book due to land disputes between neighbours and a lack of government manpower in processing applications. In theory, applications should take 55 hours to complete, but due to manpower shortages years can pass by before an application is reviewed. To date, only 11 million Red Books have been issued to households throughout Vietnam for access to agricultural and forest lands (Ninh et al., 2001).

The importance of a Red Book and the subsequent benefits that it offers to villagers are illustrated by an NGO called SNV Netherlands Development Organisation on their

"Forest Products" website by a villager called Mrs. Cao Thi Thu Xuan in Phu Loc District who said that:

> *"I am very happy with my red-book (land right certificate). Now I am sure that when I plant trees and crops, I will be the one who can harvest them. In the first year I have planted Cassava and Acacia trees. After I harvest the cassava to feed my family, I will plant Hopea odorata [an indigenous species]. The Acacia can be harvested after six years, and I will sell the trees to the paper mill nearby. When I am old and my children are grown up, we will harvest the Hopea odorata trees to have money to build a house for them."* (SNV World, 2008)

As was outlined in the introduction by Ninh et al. (2001), the above quote proves that Red Books extend harvest rights to villagers yet many remain unaware that they do not hold ownership over these lands that may be expropriated by the government at any time.

Throughout all of Vietnam, there are eight major stakeholder groups that hold tenure over forests. These groups include individual households, commune governments, communal people's committees, management boards for protection forests, management boards for special-use forests, state-owned companies, joint-venture companies, and the armed forces (Yasmi et al., 2008). The highest quality forests are primarily given to state-owned companies and members of the armed forces while lower quality and degraded forests are managed by local individual households. The provincial government has a prominent role in deciding how forestry resources are to be allocated and used by local households. Timber logging and cultivation of forest lands is not possible without legal permission from state authorities (Yasmi et al., 2008). Households that wish to harvest timber from forests must first apply for permission from state-elected commune officials, the local communal people's committee, and regional forest management boards. A one-time resources tax must also be paid once permission has been granted to harvest timber (Yasmi et al., 2008).

The debate over the relative advantages of private property and common property concerning the efficiency, equity, and sustainability of natural resource use patterns has been ongoing for centuries within legal and economic institutions. For much of the 20th century, private property was generally regarded by scholars in both professions as having a better environmental and economic track record than common property (Ostrom, 2000). However, current research being completed across rural landscapes suggests that private property is not necessarily superior to common property. The benefits of private property versus common property remain a contested issue in legal scholarship to this day (Ostrom, 2000). Private property is intended to resolve claims and various obligations of different actors, but it typically leads to the exclusion or alienation of individuals who wish to harvest resources. However, questions remain pertaining to the regulation of land use, ecological sustainability, and the ability of owners to keep illegal users away from their property (Ostrom, 2000).

There is also ambiguity that exists between property regimes that are common property and open access. Under a common property regime, members who belong to a distinct and officially recognized group can exert the legal right to prevent non-members from using a resource that belongs to the group (Ostrom, 2000). However, if the land is considered to be open access, no individual has the legal right to exclude anyone from accessing a resource. When anyone can access and harvest a resource within a clearly defined area then there is no incentive to protect that resource or to invest in improvements (Ostrom, 2000). A lack of rules and laws governing a resource's usage will inevitably lead to misuse and depletion. However, the establishment of new global markets for products from land that is common property can progress so rapidly that the

capacity of local institutions to respond can be overwhelmed and unregulated resource exploitation may ensue (Armitage, 2008).

Additional drivers of degradation to the commons include both the planned and spontaneous movement of people from overpopulated areas to so-called 'frontier' lands to relieve pressure on overexploited resources or for similar economic and humanitarian reasons (Armitage, 2008). Furthermore, the commodification of natural resources linked to globalization and state-level government policies that promote exploitation of natural capital stocks are two broad drivers to land and resource degradation. Lastly, processes of degradation are frequently accelerated by outsiders who tend to believe that the resources located on commons are inefficiently harvested or otherwise used. As a result, the ecological integrity of these lands is often impacted in a negative fashion while a reduction in species levels occurs simultaneously (Armitage, 2008).

Absolute control of forests by state governments is still practiced in several Southeast Asian nations despite the drawbacks of such management strategies that have been highlighted by development experts and multilateral organizations alike (Schwarzmeier & Neef, 2001). Forest lands throughout the region are managed without the participation of forest-dependent households while forest reserves and national parks are not subject to consistent legal frameworks. The relationship between land tenure and tree tenure may be contentious in traditional societies because land rights and tree rights are viewed completely separate (Schwarzmeier & Neef, 2001). In cases from rural uplands, rights may even overlap, for example, when a user group is entitled to collect fruits from trees, a separate user group owns the rights to harvest the timber of the trees, while a third user group or individual owns the land where the trees are situated.

In rural Vietnam, landholders are permitted to harvest trees only if they have first acquired rights from the commune government to access the forested lands in question (Schwarzmeier & Neef, 2001). Whether or not the landholder planted the trees is irrelevant because the land belongs to the state and is managed by the entire commune. Rights to access land for the purpose of harvesting resources change hands according to who is in possession of a Red Book for the plot of land in question (Schwarzmeier & Neef, 2001). As such, forests are widely accepted by the indigenous groups from the uplands of Central Vietnam as being common property resources with use rights that are similar for every individual residing within the community. Ethnic minorities function with uncertain property rights and with no legal basis to their lands. They are constantly living with the threat of displacement and relocation from their lands (Schwarzmeier & Neef, 2001).

2.6 Transitions in Forestry in Southeast Asia

Salemink (2006) notes that Vietnam is a unique country to study with regards to indigenous and human rights because of the country's conflict-ridden history and the more recent activities from transnational entities. Traditionally well known collective group rights fostered by the nation's communist government were displaced subsequent to 1989 by individual rights that prioritized local interests and aspirations (Salemink, 2006). Transitional changes stemming from forest land allocation have unquestionably granted villagers with clearer legal rights to forests yet illegal logging still occurs due to unequal land access and a weakened state government that experiences inadequate law enforcement (Salemink, 2006).

In his article examining the rise of neoliberalism in Asian nations and transitional changes to national governance structures that impact commodity trading and markets, Gellert (2007) asserts that the limits to manufacturing and service-based growth ought to be finally identified. He highlights the critical roles that natural resources and raw materials play in regional economies. Gellert (2007) highlights the unique stances and attitudes that state and inter-state governments adopt in trade liberalization agreements that deal with Asian timber exports. This is because these paradigms often shape political alliances and determine the level of protection given to a nation's natural resource base.

Throughout the four sections of his article, Gellert (2007) points out that the spread of globalization to Asia during the 1990s has resulted in two major transitional changes to regional timber markets. The first change has been that overarching free trade agreements have been largely replaced in favour of participatory multilateral agreements that attempt to protect a large number of stakeholders while distributing profits more equally amongst them. The second major change has been that the embrace of neoliberal policies has led to the regression of several Asian countries to suppliers of cheap primary goods, roles that these countries had initially strived to overcome (Gellert, 2007). Gellert (2007:256) concludes that the transition from managed to free Asian timber markets has resulted in the under-regulation of markets that are in dire need of restructuring in order to allocate profits more equitably to primary parties involved in timber activities.

Meyfroidt and Lambin (2008) examine the causes for significant reforestation that occurred in Vietnam during the 1990s by utilizing census and geographic data collected across the entire country. They focus their study on Central Vietnam and find that there

is no single cause that can be attributed to the widespread replanting of forests in Vietnam during the 1990s, but rather there is a range of economic and political actions that are responsible for the transition to reforestation (Meyfroidt & Lambin, 2008). Actions include but are not limited to the introduction of Red Books in 1993, intensified agriculture, and rigid forest management policies. These occurrences materialized for the most part in response to the integration of timber markets across the country, rapid economic growth, and a decrease in the availability of land for villagers (Meyfroidt & Lambin, 2008).

Meyfroidt and Lambin (2008) assert that land scarcity as well as population growth in the uplands of Vietnam were the driving forces for the intensification of agriculture and the improved management policies that were applied to Vietnamese forests. During the transition, farmers applied higher quality inputs to their fields and utilized them more efficiently, raising productivity as a result. This occurrence also permitted farmers to abandon less suitable plots of land that they had been cultivating, allowing forests to grow over these lands once more (Meyfroidt & Lambin, 2008). However, the authors note that trouble remains in the uplands of Central Vietnam despite the recent increase in overall forest cover. This is because the harvesting of natural forests in Vietnam continues while much of the region's natural forests have already been replaced by plantation forests. Furthermore, the population density of communes continues to increase and the danger of converting forest lands into pasturelands for livestock remains ever-present (Meyfroidt & Lambin, 2008).

2.7 Devolution and Reallocation Changes to Forestry Markets

The devolution of natural resource management, particularly with regards to forestry, became extremely popular at the outset of the 21st century in response to accelerated forest degradation. Nagendra and Gokhale (2008) strongly believe that successful forest management is especially difficult in the densely populated countries of South Asia where local religious, caste, and ethnic-based strategies of forest management often clash with those of top-down state-run agencies. In their analysis they support the argument that state-initiated forest management practices in India and Nepal invariably end with mixed results at best because they are narrowly focused and inflexible as managers adopt a "one size fits all" approach over a large region (Nagendra & Gokhale, 2008). Throughout their study, the authors advocate the careful consideration of local biophysical, economic, cultural, and social conditions during management policy formulation as these conditions tend to differ significantly between and even among regions (Nagendra & Gokhale, 2008).

With the use of specific examples, Nagendra and Gokhale (2008) prove that beginning in the late 1940s and early 1950s, India and Nepal both experienced a shift in forest management from traditional approaches to state control which abruptly modified, restricted, or outright denied forestry resource access and harvest rights to some while others were given full access. The ensuing nationalization of forests meant that large areas of forests became public property and their previously limited-access resources had become open-access virtually overnight (Nagendra & Gokhale, 2008). In what is known as the Tragedy of the Commons, the lands had little to no protection against unabated deforestation as the forestry departments of both India and Nepal were not capable of

monitoring or protecting them. Nagendra and Gokhale further note that while efforts have been made by the Indian and Nepalese governments since the mid 1970s to engage local communities and have them participate in forest management policies, the models of community involvement they use are typically standardized and inadequate, resulting in continued deforestation (Nagendra & Gokhale, 2008).

Inequality and poverty continue to be serious issues in developing countries despite large-scale government efforts involved with the devolution of forestry resources. Forests are commonly studied in literature concerning natural resource devolution because of their inevitably close relationship to other important resources such as clean water and air yet all across Southeast Asia unanswered questions still remain over ownership and access to forestry resources (Soto & Larson, 2008). In many cases the devolution of forestry resources in Southeast Asia has been slow and only marginally successful as local governments often lack the motivation to engage in forest-related initiatives (Soto & Larson, 2008). This occurs despite research suggesting that in most cases, local actors exhibit higher levels of environmental stewardship than local and provincial government officials because they possess intimate knowledge of the resources they rely upon for their livelihoods and take great care in conserving those resources (Sick, 2008).

Because local users reside in the same vicinity as the resources that they rely upon for their livelihoods, they are in the position to immediately notice any changes in resource conditions. This results in increased efficiency and reduced transaction costs associated with monitoring and sanctioning local resources (Sick, 2008). However, local knowledge is frequently disregarded by provincial and state governmental bodies as

"unscientific" and unverifiable so it is omitted from devolution schemes designed to sustainably and equitably manage forestry resources (Wyatt & Hirsch, 2004). This practice diminishes the influence of local governments and community groups and stalls negotiations between them and provincial and state officials. The creation and maintenance of functional social networks within a community that foster devolution activities can only occur once a legitimate representational structure is developed within that community that voices the concerns of its residents (Wyatt & Hirsch, 2004).

Indonesia is an anomalous country that has witnessed significant power transfers from the central government to regional governments due to secessionist threats by several wealthy provinces. These provinces were experiencing rapid deforestation because of inappropriate management policies developed by the national government without the participation and input of local governments (Soto & Larson, 2008). However, the rapid pace and manner in which these powers were transferred caused such chaos and lack of accountability that in reality, unsustainable logging practices intensified and the situation escalated. This happened in part because policymaking and policy reform in Southeast Asia are continuous learning processes that are only successful once past mistakes have been identified and rectified (Carter, 2008). Policymakers are required to make difficult decisions with incomplete information, often in less than ideal economic, political, and institutional situations (Carter, 2008).

A solitary process such as democratic devolution cannot be relied upon to single-handedly resolve complex issues encompassing local resource rights, common property regimes, good governance, community-based resource management, and poverty alleviation (Soto & Larson, 2008). If policies pertaining to forestry conservation and

land allocation are to be successful, research must play an essential role in policy reform and implementation (Carter, 2008). A number of studies conducted worldwide have already indicated that the application of new research to existing policies has advanced social learning, fostered adaptive management, and promoted inclusive decision-making within communities (Carter, 2008). With respect to Southeast Asia and Vietnam, additional research studying policy formulation may strengthen land tenure and improve access to government institutions, provide producers with short-term benefits, maintain the integrity of social capital, develop information networks and connections, and sustain local innovation (Carter, 2008).

In their study regarding the devolution of forestry resources, Inoue and Balooni (2007) investigate the impacts that decentralized forest management (DFM) has enacted upon selected nations located in South and Southeast Asia. They begin with an analysis of the historical command and control approach to forestry adopted in countries such as Indonesia, India, and the Philippines which had frequently viewed local communities as obstacles to the commercial management of forests (Inoue & Balooni, 2007). Massive losses to overall forest cover were often the result of this type of management practice, which created the opportunity for the rise in popularity of social forestry programs. The authors concur that although 11% of the world's forests are currently managed through social forestry programs with that number expected to increase to 40% by 2050, DFM is not without its drawbacks and limitations (Inoue & Balooni, 2007).

DFM emerged because of the inadequacy of state policies to accommodate customary forest use patterns and preserve the fragile relationships between timber-dependent communities and their forests. It has been illustrated through the use of

several case studies that the benefits of DFM are minimal in many situations and in reality are often outweighed by the limitations of devolution initiatives. Some of these limitations include a lack of cooperation among local, regional, national, and international stakeholders and the application of DFM to selected types of forests (Inoue & Balooni, 2007). Despite such limitations, small scale success stories have been achieved in communities that have witnessed additional employment opportunities, improved climates, and the increased availability of water for irrigation. However, Inoue and Balooni (2007) admit that DFM is still in its infancy and it is too early to give definitive answers as to how successful such initiatives have been on a large scale.

Throughout the 1980s, institutional reforms were purported to have been carried out by several Asian governments across a range of various sectors and industries in response to the demise of socialist economies and general fiscal catastrophes. These institutional changes were driven by the need for devolution in an effort to increase efficiency and equitably distribute benefits across different sectors such as environmental management, education, healthcare, and development (Ribot et al., 2006). Through the use of six case studies, Ribot et al. (2006) argue that particularly in Indonesia in Asia as well as in other developing countries in Africa and Latin America, there has been considerable government opposition to forestry-related devolution experiments. This is because decision-making powers are still held primarily by central government officials who are reluctant to relinquish control over resources. In spite of official policy and legislation, these central governments often fabricate obstructions to block decentralized institutions and choices (Ribot et al., 2006).

The outcomes of reform efforts are contingent upon location, scale, and historical period (Fernando & Batterbury, 2006). Reform processes must be tailored to local contexts, and must include the participation of key stakeholders within a community. Effective devolution of forestry resources for timber cultivation can only begin once a government has implemented "downwardly accountable institutions" at each governmental level and has ensured that mechanisms are in place that allow the general public to access all relevant information (Fernando & Batterbury, 2006). Information sharing provides the general population with the opportunity to understand what they can demand of local authorities and what they can be held accountable for (Ribot et al., 2006).

Furthermore, it is through the creation of "broad coalitions" that involve a diversity of stakeholders from various sectors of society and government that an institutional forum may serve to advance and streamline democratic devolution. These coalitions effectively combat the counterproductive tendency of national governments to resist devolution, even when it appears to be the most desirable course of action to take (Ribot et al., 2006). Coalitions also offer accountability in the case of political devolution and community-based resource management (Fernando & Batterbury, 2006). Accountability is important because it places responsibility on decision-makers and promotes careful implementation of policies. However, accountability criteria have often been omitted from devolution initiatives in the past (Fernando & Batterbury, 2006).

2.8 The Role of Commodity Chain Analyses

Hopkins and Wallerstein (1982) were the first two scholars to coin the term 'commodity chain', which they described as 'a network of labor and production processes whose end result is a finished commodity' (in Bair, 2008:347). However, this early form of commodity chain referred generally to the matrix of relationships linked through interlocking systems of production, distribution and exchange. It did not examine the linear sequence of value-adding activities for a certain good or service as is the case with today's commodity chain analyses (Bair, 2008). One of the primary purposes of commodity chains is to illustrate that the geography and organization of any commodity chain is influenced by political power, and also by the cyclical shifts of expansion and contraction that are inherent in the world economy. Hopkins and Wallerstein recognized the presence of transaction costs in shaping the connections between various stages in a commodity chain, but to them this was only one factor of many affecting the organization and spatial structure of a chain (Bair, 2008).

The focus of the commodity chain concept was reoriented in the early 1990s when Gereffi (1994) proposed a framework that would aid researchers studying *global* commodity chains (in Bair, 2008). The framework treated these commodity chains as products of economic globalization. Gereffi (1994) suggested that the internationalization of production was becoming highly integrated across globalized coordination systems and that these systems could be classified under producer-driven and buyer-driven commodity chains (in Bair, 2008). Analysis of these global commodity chains highlighted integrated yet geographically displaced systems of production and distribution which have emerged since the end of the Second World War.

The global commodity chain framework examined the activities of important economic actors within industries to understand their roles in shaping the overall configuration of the chains in which they operate (Bair, 2008). Governance structure is a key concept in discerning how powerful stakeholders in a commodity chain manage to exert their influence over other actors. Governance structure encompasses the power and authority relationships that shape the flow and allocation of human, financial, and material resources within a commodity chain and are manifested for example through impersonal contractual ties and monitoring devices (Bair, 2008).

Before a product can be delivered to consumers, it must exchange hands at several different levels. Together, these levels or stages combine to form the global value, or commodity, chain (Kundu & Chopra, 2009). Most agricultural goods that are traded throughout the world are produced in the developing world while their consumption historically takes place in the developed regions of North America, Europe, and Japan. A distinct characteristic of several global commodity chains is the highly unequal distribution of profits or 'rents' that accrue to actors along these chains, most notably the meager sums that are earned by farmers (Kundu & Chopra, 2009). Coffee is an excellent example of such a good as its trade is dominated by an oligopoly of multi-national and trans-national companies. These companies secure large volumes of coffee from wholesalers at low prices then proceed to brand and sell the final product to consumers for several times the cost paid to farmers (Kundu & Chopra, 2009).

Most of the global commodity chains for agricultural products heavily favour multi-national and trans-national companies in the consuming markets of developed countries, leaving the lower end of the value chain in producing countries with very little market

control and virtually no means of value addition (Kundu & Chopra, 2009). The coffee crisis of 2000 – when an abundance of global coffee supply caused by an influx of new producing countries such as Vietnam caused a sudden drop in prices paid to coffee producers – highlighted the unequal distribution of rents along the commodity chain and spurred producers in developing nations to try and secure higher returns for their goods. Although initially successful, control of the coffee markets remains in the hands of large companies while producers are mostly unaffected by any increases in rents that occur along the global commodity chain for coffee (Kundu & Chopra, 2009).

Despite the success of global commodity chains in analyzing unequal economic exchange among various actors, recent research that utilizes a global commodity chain approach focuses primarily on the processing aspect of the chain and neglects the initial growing and harvesting stages (Smith & Ciccantell, 2009). However, it is important to remind researchers that commodities cannot exist without locally based extractive and productive systems. Raw materials, and the producers who harvest them, are essential to the continued functioning of the modern world-economy. The role of the individuals who transport these heavy and often bulky materials from remote agricultural regions to the urbanized locations where processing and consumption occur also must be explored (Smith & Ciccantell, 2009). Issues such as environmental degradation, marginalization of ethnic minorities, conflict over resource access, and efforts to equally distribute the benefits of extraction for local populations greatly affect the strategies of global companies, yet they are given little attention by researchers and remain poorly understood (Smith & Ciccantell, 2009).

The creation of global commodity chains requires that raw materials and processing networks be linked together across regions, but this process typically impacts a variety of stakeholder groups in a negative fashion and can be ecologically costly. Actions taken by states and companies that often cause harm to indigenous groups include expropriating and re-distributing forest lands to maximize production, relocating fishing villages to construct port facilities, and forcefully altering traditional livelihoods practiced by indigenous families (Smith & Ciccantell, 2009). In the past, government development policies and firm strategies have operated directly against the interests and concerns of indigenous groups. These impacted groups respond by formally contesting the loss of access to land and natural resources on which they depend but success is rare (Smith & Ciccantell, 2009). The result thus far has been the steady impoverishment and environmental degradation of many rural areas in the developing world that have become raw material and labour-supplying peripheries (Smith & Ciccantell, 2009).

Commodity chain analyses are relevant to livelihood studies involving forestry-based resources because they highlight who benefits from changes in access to and control over natural resources and specifically how those benefits are derived (Nguyen, 2006). In order to combat forest loss in Vietnam, property rights began shifting dramatically in the mid 1990s to establish clearly defined land boundaries in the hopes of simultaneously encouraging autonomy and capital accumulation while also promoting forest conservation (Phuc, 2005). These efforts have largely met with mixed results as unequal benefit sharing has occurred throughout timber commodity chains (Phuc, 2005). Strategies to promote more environmentally and socially equitable production networks include finding new ways for producers to retain control over successful farming

practices, developing social connections among stakeholders that share information and capital flows in the space of place, and gaining the support of local government officials when creating global governance mechanisms in local, regional, and global markets (Oosterveer & Bush, 2007).

Not surprisingly, it has been found that middlemen benefit the most from recent changes in forest land allocation because they are able to control the timber market and are required to invest fewer resources relative to other actors in the timber commodity chain (Nguyen, 2006). On the other hand, villagers tend to benefit the least as they experience restricted access to forest lands, are susceptible to exorbitant fines, taxes, and payoffs, are required to devote extensive periods of time to resource extraction, and may succumb to personal injury when felling trees or hauling logs (Phuc, 2005). Information and commodity flows in a commodity chain have also been found to play important roles in the distribution of benefits (Oosterveer & Bush, 2007). Retailers, processors, and middlemen tend to have well established information and commodity flows whereas they are less clear through local trade networks down to producers and villagers (Oosterveer & Bush, 2007).

The importance of sustainable forest management initiatives gradually increased across Asia throughout the 1990s and into the 21st century as the pressing need for certification standards within the forestry sector was identified and addressed (Stringer, 2006). Within Malaysia and Indonesia, forest certification is viewed as an integral part of production-consumption links and the standard that it offers forms the basis of value creation and competition in today's timber markets (Stringer, 2006).

Commodity chains continue to operate as one of the primary frameworks for identifying and investigating economic effects associated with a specific product or service within a clearly defined industry such as forestry. Yet they are frequently cited as being incomplete analyses because they typically neglect horizontal links within a chain and do not sufficiently address power relationships developed by stakeholders beyond the realm of the commodity chain (Stringer, 2006). Commodity chains are difficult to completely map out because they are constantly experiencing changes in their operation as production and consumption links are affected by a host of institutional, legal, and economic factors. Commodity chain analyses of the forestry sectors in Malaysia and Indonesia have thus far been instrumental in helping researchers identify important changes to the economic and political dimensions of the industry that would otherwise have gone unnoticed (Stringer, 2006). The *Acacia* commodity chain in Central Vietnam is fairly obscure and unexplored because *Acacia* species have been grown and traded in the region for fewer than two decades. In addition, it can be difficult to identify and locate all of the stakeholders who play a role within the *Acacia* commodity chain because the industry is evolving on an annual basis and few studies exist concerning the subject within the region.

Domestic timber markets in developing Asian countries are growing at an unprecedented rate and could still provide employment opportunities for hundreds of millions of additional small-scale agroforestry workers if they are managed properly. The careful mapping out and monitoring of forestry resource commodity chains in these countries is likely to ensure that cost structures are lowered, socially responsible markets are developed, and strategic business arrangements are devised between the various

stakeholders involved such as farmers and processors (Scherr, 2004). It is the task of forest market institutions to minimize inefficiencies in these commodity chains by educating and training stakeholders at all stages in timber-related activities, dispensing business services to small-scale farmers, and investing into local forestry enterprises so that no voids in the chain for timber products exist (Scherr, 2004).

Published studies that investigate forest resource commodity chains in Asia have found that while economic opportunities from agroforestry have increased for hundreds of millions of small-scale farmers, the benefits that farmers receive from agroforestry activities have not yet been maximized. Poverty alleviation and ecological preservation would occur at a more rapid pace if public funds, overseas development programs, and NGOs coordinated their efforts to improve the efficiency and effectiveness of forestry markets (Scherr, 2004). At present, much of the wood derived from Asian timber markets is exported and processed in developed nations such as Japan and South Korea with only small quantities of timber supplying domestic markets. However, uninterrupted development of forestry institutions, services, and market infrastructure is certain to raise the proportion of timber that remains within domestic markets, effectively lowering a nation's reliance on foreign markets and ensuring that benefits remain within that nation in the process (Scherr, 2004).

Turner's (2007) study of Hmong women in Lao Cai Province in northern Vietnam examines textile production and trade activities that connect Hmong minority women's livelihoods with local, national, and global trade networks. There are three commodity chains that operate within the province for the three major types of textile products created by Hmong women. In the first commodity chain, Hmong clothing is sold locally

to tourists. For the second type of commodity chain, industrially made textiles and braid are sold across the border to Chinese traders. In the last type of commodity chain, wall hangings and cushion covers are sold to vendors in overseas markets such as France and the United States (Turner, 2007). Hmong women are content to create and sell products in one of the three commodity chains at their own pace. They do not want to rely entirely upon the textile trade for their livelihoods for fear that they will be under pressure to produce goods within a certain timeframe, become dependant on outside markets and institutions, and lose their traditional way of life that revolves around agriculture (Turner, 2007). Turner (2007) posits that opportunities to Hmong women that exist in the textile trade allow the women to flexibly diversify their livelihoods and become engaged in the trade only at times when it is to their benefit.

3 METHODOLOGY AND METHODS

3.1 Approach to the Research

3.1.1 Overview

Subsequent to a thorough review of available literature concerning forestry-based livelihoods in Southeast Asia, and Vietnam in particular, I made the decision to address the general goal and the specific objectives of the research using a case study-based approach. I arrived at the decision to use such an approach because the analysis of case study frameworks permits researchers to effectively develop and focus research questions, uncover insight into different perspectives, identify key stakeholders, and choose data collection methods as the research progresses (Yin, 2003). As they are compared against one another, case studies also allow variables to be examined both spatially and temporally. Furthermore, case study-based research provides researchers with a conceptual "theory" of the topic being researched, allowing them to construct a more detailed "blueprint" that determines what key questions will be asked and which methods can best address those questions (Yin, 2003). However, a distinct disadvantage to a case study-based approach is the slow pace at which data is collected and stored from participants and the logistical challenges encountered once in the field (Yin, 2003).

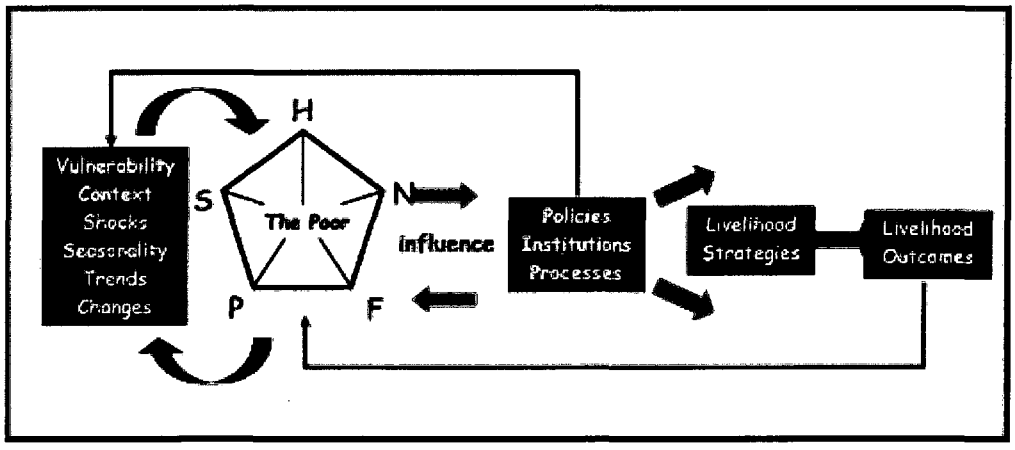
The case studies of the rural communes are important because a comparison of conditions between the communes highlights how critical issues such as government funding, age, gender, annual household income, ethnic group, secure land tenure, and proximity to sawmills affect villagers' decisions about whether or not to become involved in *Acacia* cultivation. They also reveal how prices for *Acacia* trees offered by

middlemen to villagers vary among the villages in each commune. Within the context of a case study-based approach, I used the sustainable livelihoods framework to develop and guide the primary questions of the research. Once the goal of the study became more focused, the commodity chain analysis framework was adopted to address the objectives of the research carried out in the two case studies.

3.1.2 The Sustainable Livelihoods Framework

I utilized the sustainable livelihoods approach as a broad organizing framework for the research. The sustainable livelihoods framework (Figure 4) provides a holistic perspective with regards to ecological issues as well as socio-economic and political considerations (Carney, 1998). This framework highlights the vulnerability of individuals with regards to potentially damaging trends, shocks, and cultural changes. As an analytical tool, the sustainable livelihoods framework helps to draw attention to interconnected issues of vulnerability, health, financial ability, and food security of farmers and communities in the upland regions of Central Vietnam (Carney, 1998).

Figure 4 The sustainable livelihoods framework



Source: DFID, 1999

When regarding sustainable livelihoods from these perspectives, it is important to keep several outcomes of sustainable livelihoods research in mind. First, deforestation in Southeast Asia has long been blamed on the marginalized poor, despite evidence of economic and political upheaval being the root causes (Robbins, 2004). Second, conflicts about control and access over resources result from complex issues regarding race, gender, and class. Third, upland forestry conservation efforts have been failure prone and can be detrimental to the environments they are designed to protect due to poor planning and execution (Robbins, 2004). Fourth, political and social struggles are closely connected to issues of livelihood and environmental protection.

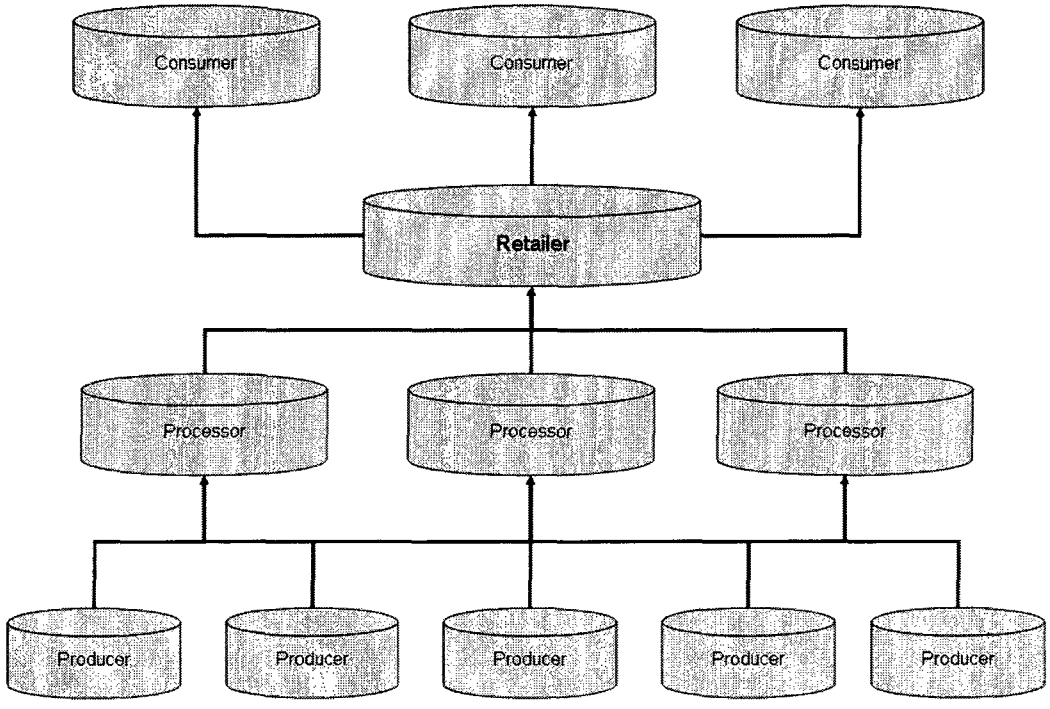
The sustainable livelihoods framework is one of several ways possible in which to list and arrange issues concerning poverty (Carney, 1998). However, in order to be helpful it must be altered and adapted to take into consideration local priorities and situations when studying individual communities (Carney, 1998). By using the sustainable livelihood framework as a guide, the complex relationships among farmer choices concerning resource use and access barriers to land and resources can be evaluated in terms of farmer vulnerability (Carney, 1998). It is within this context that I undertook the commodity chain analysis of the three *Acacia* species.

3.1.3 The Commodity Chain Analysis Framework

As mentioned previously in this chapter, a commodity chain analysis framework is used in conjunction with a sustainable livelihoods framework to organize the findings that address the specific objectives of the research. A standard commodity chain (Figure 5) is essentially the sequential interconnected paths and stages that products must travel

through on their journey from production to end use (Scherr, 2004). Each commodity chain is unique to a certain product (Scherr, 2004). By examining the horizontal and vertical links within the industry of a certain product, global commodity chains enable researchers to examine input-output mechanisms of specific commodities as well as the organizational frameworks that preside over them. Commodity chains also highlight in detail how products, services, and resources are bound together in value-adding sequence and how economic actions and decisions function within specific commodity chains (Stringer, 2006).

Figure 5 A standard timber commodity chain



Understanding the relationship in the uplands of Central Vietnam among changing property rights (e.g., forest land allocation), farmer livelihoods, and forestry-based

resources is a key challenge to the research that the timber commodity chain helps to address. One strategy to facilitate understanding of these relationships and their implications is to analyze farmer choices and patterns with regards to the commodities that they grow and sell. Commodity chain analyses examine precisely how products make their way from the initial stage of extraction to stages of conversion, exchange, transport, distribution, and end use (Ribot, 1997). Commodity chains are comprised of complex labour networks and production activities that are necessary in order to create a marketable commodity (Bair, 2008). Key issues related to the production and use of a commodity such as the role of property, mechanisms affecting resource efficiency, and the nature of markets are at the heart of commodity chain analyses (Ribot, 1997). The commodity chain for the three *Acacia* species in Central Vietnam has been organized by stakeholder because of the unique perspectives, livelihoods, and financial data offered by each actor in the commodity chain.

However, no analysis is perfect and therefore the limitations of commodity chains must be recognized and discussed. One such criticism is that commodity chains devote excessive attention to the processing aspect of the chain while neglecting the growing, harvesting, and transportation stages (Smith & Ciccantell, 2009). The roles of individuals who harvest and transport raw materials from remote agricultural locations to urban centres where processing and consumption occur are essential to the entire chain yet they are poorly understood by researchers (Smith & Ciccantell, 2009). Furthermore, commodity chains do not expressly examine issues such as ecological degradation, poverty among ethnic minorities, conflict over resources, and the distribution of benefits (Smith & Ciccantell, 2009).

3.1.4 Research Site Selection

I conducted primary research activities in two distinct locations for comparative purposes: Hong Ha Commune and Xuan Loc Commune. The communes of Hong Ha and Xuan Loc were chosen as the two case studies for the four month research project for a number of reasons. Both communes are located in rural upland regions with poverty levels reflective of the national average found throughout Vietnamese communes. Furthermore, the majority of villagers from both communes rely heavily on *Acacia* cultivation for extensive benefits, most notably income generation. This is largely because of their participation in the national government's Five Million Hectare Reforestation Program and Project 327. However, the communes are located approximately 100 kilometres apart from one another so interaction between villagers, and other stakeholders, from the two communes is minimal.

Environmental conditions, ethnic composition, infrastructure development, and the histories of the two communes also differ enormously. These occurrences allow for a wider range of incomes and other benefits from *Acacia* cultivation to be observed and recorded. As a result, interview responses from the 58 villagers residing in the 13 villages of Hong Ha and Xuan Loc communes outline marked contrasts and unique local experiences. This is advantageous because the purpose of multiple case studies is to include all perspectives from research study sites that are relevant to the research (Schultze-Kraft et al., 2008). The collection of data from two or more case studies ensures that generalizations are accurate and reliable (Yin, 2003). Both of the upland case studies in Vietnam focus on how rural communities have adapted to land reforms in

recent years, how the current environmental and economic situations have transformed livelihood strategies, and what the implications are for forestry resources.

Initially, I selected three case study sites to be included as part of the first stage of the *Acacia* commodity chain analysis. However, the third commune chosen (Phu Vinh Commune) was similar to Xuan Loc Commune in terms of ethnic composition, poverty levels, and primary uses of *Acacia* trees by villagers. Furthermore, *Acacia* cultivation was found to be practised by fewer than half of the residents in the commune due to the success of agriculture and livestock endeavours. Lastly, there was no significant presence of any large ethnic groups in the commune other than Kinh Vietnamese. Preliminary interviews with villagers produced near identical responses to those interviews conducted in Xuan Loc Commune. As a result, I chose to remove the commune from the case study portion of the research. Interviews were also conducted with second and third stage actors involved in the commodity chain in Loc Vinh Commune, Huong Ho Commune, and Hue City. However, they are not included as part of the case study portion of the research because these stakeholders could only be found in one of the areas listed above. As a result, no comparison between them is possible or necessary.

3.2 Research Methods

3.2.1 Summary of Research Methods

With the five research objectives of the study driving the research, I used several data collection methods to examine the relationship among decisions to plant *Acacia*, property rights, and forest-based resources. Specifically, data collection methods drew on

standard social science data collection approaches as well as rapid rural appraisal where feasible (Purcell et al., 2004). Key methods include a short livelihood questionnaire and semi-structured interviews with key informants, participant observation, visually-based participatory research methods including transect walks, and 'mapping' the commodity flow of *Acacia* commodities. The methods and data sources that I used to address the key objectives and questions of the research are summarized below (Table 2).

Table 2 Summary of research objectives and key questions

Research Objectives	Key Questions	Data Sources	Data Method(s)
1. Describe *Acacia* Species	Where did they come from? How suitable are they to Vietnam?	58 local farmers across the two communes	Informal interviews, Passive observation
2. Develop a conceptual & empirical description of the *Acacia* commodity chain and trace connections between production & consumption	Who is involved with handling the timber resource from the point of extraction to the final market? What barriers do local farmers face when harvesting and selling the resource? Why is planting of *Acacia* becoming more lucrative?	58 farmers from the communes, several processors, retailers, middlemen & other stakeholders operating between the city of Hue and the two communes	Second set of structured & semi-structured interviews, Participant observation. Commodity flow map
3. Analyze the market costs and benefits of *Acacia* throughout the commodity chain	How do the tree crops benefit individual land owners and processors/middlemen? Who is actually reaping the greatest benefits?	58 local farmers from the communes, middlemen, processors, retailers, literature review on available economic information	Participant observation, Literature analysis, Commodity flow map

4. Examine *Acacia* ownership conditions and implications on property rights & farmer livelihoods	How do land allocation processes and property rights function in Central Vietnam? What are the long-term impacts on upland farmers? Do individual property rights to forest lands guarantee benefits?	58 local farmers from the communes, government officials, literature review, on-going research program in Central Vietnam concerning common property and livelihoods	Structured & semi-structured key informant interviews, Transect walks
5. Investigate the impacts of *Doi Moi* on *Acacia* cultivation & recommend strategies to preserve forests & improve sustainable livelihoods	How can forestry resources simultaneously be protected and used to enhance livelihoods economically? What is the future of *Acacia* in Vietnam?	Officials from local, district, & state government agencies	Census information, Government reports, Organizational records

I completed all of the fieldwork between early August and early December of 2008 with the assistance of several staff members from the Centre for Agricultural Research and Development (CARD) and student researchers from the Hue University of Agriculture and Forestry (HUAF). All interviews took place in various communes located throughout Thua Thien Hue Province in Central Vietnam.

The information that I gathered from interviews with villagers, middlemen, processors, and retail store employees was stored digitally then used as the basis for the preparation of tables and figures that allowed for visual interpretation of the data, and to illustrate recent trends and connections among institutional, economic, and ecological variables. I also undertook a number of informal transect walks in order to verify and/or triangulate observations. Qualitative research during the study adopted a critical perspective whereby local opinions, incomes, and trading relationships were brought to light. A range of secondary sources such as census data, NGO data, and other related studies were also used. I utilized Microsoft Excel and Microsoft Powerpoint to store and

present the research data. Photos taken at the research sites were included for all cartographic and visual purposes.

3.2.2 Rapid Rural Appraisal & Informal Transect Walks

Rapid rural appraisal (RRA) is a systematic yet semi-structured process completed in the field by a multidisciplinary group aimed at acquiring new data on, and conjectures about, rural life (Mitchell, 2002). First conceived in the late 1970s, RRA addressed development experts' concerns of formal survey simplification and skewed field visit results. RRA produced immediate results because it focused on two key characteristics: 1) the collection of approximate rather than precise data; and 2) an emphasis on information collection from diverse sources using several means of data gathering. These measures in turn reduced study costs, allowed studies to be conducted in shorter time periods, and provided locals with a sense of empowerment (Mitchell, 2002). Developed and used predominantly in developing countries, RRA was an excellent tool to employ in the study as it produced an abundance of valuable results from rural Central Vietnam (Stevenson, 2007). I made use of several RRA methods such as direct observation, semi-structured interviews, and transect walks while in the field. These methods have benefited researchers and communities alike by providing key decision makers involved in environmental issues with timely and locally specific information (Stevenson, 2007).

Rapid rural appraisal is a sensible method to employ in the field because it establishes procedures and guidelines to be adhered to when conducting fieldwork (Wilde & Vainio-Mattila, 1995). Above all, RRA ensures that when collecting field data researchers do not overlook the role of silent participants, view themselves as teachers, or

interrupt explanations given by local stakeholders. Facilitators of RRA are also taught to encourage discussion and debate, carefully observe and record all applicable information, and reach tentative agreements with villagers as to what methods, timelines, locations, and other resources will be included in a particular study (Wilde & Vainio-Mattila, 1995). RRA is not used to provide locals with answers to ecological issues but rather to grant them with a greater understanding of the ecosystems they rely upon. This is possible by asking such critical questions as what types of environmental and social changes are occurring, who is benefiting from these changes, and who the primary actors in mitigation efforts are (Schaap & Nandi, 2005).

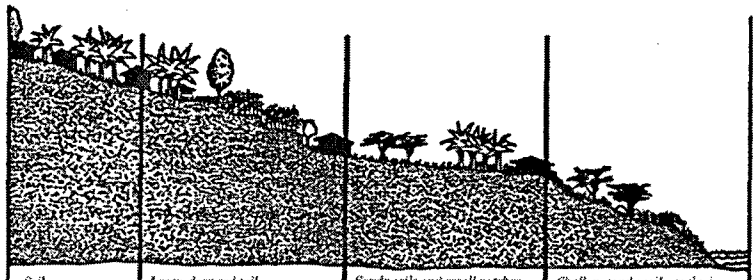
RRA remains a relevant and valuable tool to researchers because it eliminates factual inconsistencies by providing accurate and up to date information with minimized assumptions and opinions (Wilde & Vainio-Mattila, 1995). Widespread usage of RRA has increasingly involved rural communities in goal setting and outcome monitoring of environmental issues. It has also granted locals with greater decision-making powers and diminished the importance of outsider experts. The usage of RRA has proven that overall, locals are more knowledgeable than outsiders generally believe and that trust between locals and outsiders is essential for positive results (Schaap & Nandi, 2005). In addition, much knowledge can be gained when different organizations share relevant experiences, training expertise, and field camps to all interested participants (Schaap & Nandi, 2005).

A transect walk is an RRA tool used by researchers in the field to collect and analyze information concerning the major issues within a community. It scopes out environmental affairs and surveys environment types, changes to the environment, land-

use management, vegetation, human settlements, and other crucial issues (CIDA, 2005). The information is recorded through direct observation and conversations with members of a community. Transects are typically straight paths taken by a researcher through a particular community in order to study and observe the ecological, production, and social aspects of that community (CIDA, 2005). During a transect walk, researchers should ask questions and identify and discuss important matters. A successful transect walk illustrates what barriers a community faces, how those barriers are being addressed, and what must still be done within the community so that livelihoods can be improved (CIDA, 2005).

Several transect walks are usually needed to build a complete picture of a community and to capture the different perspectives of various members residing within that community (CIDA, 2005). In both Hong Ha and Xuan Loc communes, I completed informal transect walks throughout the course of the research. Commune officials and villagers of differing criteria acted as guides during the transect walks after I had interviewed them. These transect walks allowed me to view *Acacia* plantation forests firsthand and to construct transect summaries for each of the communes. Transect summaries enable researchers to identify the soil type, land use, land tenure, problems, and opportunities present in each region (Figure 6). The summaries also aid researchers in understanding the paradigms from stakeholders of various backgrounds with regards to their gender, age, income, and ethnic group. The results from the transect walks conducted in Hong Ha Commune and Xuan Loc Commune are categorized and highlighted in section 4.2.1

Figure 6 Sample transect summaries



Soil	Loose, deep red soil	Sandy soils and small patches of red soils	Shallow sandy soils, rocky in most parts
Water	About 3/4 of households have shallow wells area also has 5 dams and one spring	A river infested with bilharzia. 2 poorly maintained dams	Water in Kilindiloni river salty. River Kathama has bilharzia, roof catchment in progress
Vegetation	All natural vegetation cleared to give way to settlement	High proportion of natural vegetation, mainly acacia lantana, canola grasses	Natural vegetation consisting of acacia, shrubs and grass.
Social-economic Indicators	1/2 of household heads in wage employment, majority have mabati roofs, brick or stone walls	1/2 of household-corrupted iron roofs. 1/2 grass thatched, brick walls	Mainly grass thatched houses
Food Crops	Maize, beans, pigeon peas, bananas	Maize, beans, a lot gore pigeon millets, fruits, bananas	Maize, beans, peas, bananas, fruits
Cash Crops	Coffee	Coffee	Coffee
Achievements (last 5 years)	Soil conservation, tree planting, water development - wells, roof catchment	Soil conservation, water development - dams	Some soil and water conservation
Forestry / Agroforestry	Widespread agroforestry with grevillea, eucalyptus, mangoes and pawpaws	Minimal tree planting, but mangoes and pawpaws planted	Very little tree planting
Resources Management	A lot terracing, embankments reinforced with multi-purpose grasses	A lot of bench terracing	Limited soil conservation
Problems	Inadequate water, education and health facilities, famine and lack of dip facilities	Water, famine, inadequate education and health facilities	Water, transport and food
Opportunities	Rehabilitation 3 dams, 1 spring. External assistance-tools market	Water development - Dam, well, roof catchment. Government assistance	Water development - dams, roof catchment. External assistance

Source: CIDA, 2005

It is important to note that there is a similar approach to environmental and resource management called participatory rural appraisal (PRA) that was developed in the mid 1990s and focuses intensely on the role of local knowledge systems (Schaap & Nandi, 2005). At present, PRA has for the most part surpassed RRA practices to become the more popular approach favoured among researchers in the field. PRA focuses on working alongside rather than working for rural poor and it allows researchers to incorporate broader studies of technical, social, economic, and political factors into their models (Schaap & Nandi, 2005). However, PRA is not designed to resolve all issues

encountered and must be painstakingly tailored to local communities (Schaap & Nandi, 2005).

Because much of the preparation for the fieldwork involved in the study was done in Canada without the input of the study's Vietnamese participants, I believe that the approach I used in my research was more akin to RRA than to PRA. For example, the questions for the two types of surveys were finalized prior to the first completed interview. Furthermore, facilitators of PRA are expected to only initiate the processes of investigation, learning, and analysis, and leave it up to rural people to complete these processes (Schaap & Nandi, 2005). This is not the path that I took because I had specific goals and objectives for my research as well as criteria that could only be understood by targeting selected individuals for interviews. Lastly, satellite imagery, workshops, and census information are major methods employed for PRA yet I use them minimally for my research (Schapp & Nandi, 2005).

3.2.3 Villager Interviews

The first type of interview included in this study was created to examine the livelihoods of upland villagers residing in both Hong Ha and Xuan Loc communes. In order to avoid repetition of responses, I decided to address four criteria so as to achieve a fair representation of sentiments and opinions from the local population. To ensure that villagers from all walks of life were included in the assessment, the interviewees were selected based on their ethnicity, gender, age, and annual household income. Locating villagers with such diverse backgrounds was done primarily by word of mouth or by meeting and communicating with commune officials who possessed intimate knowledge

of local areas. The standard villager interview took roughly 50 minutes to complete and was divided into two sections (Appendix 1). The first section consisted of 19 structured questions and the second section contained nine semi-structured questions (Appendix 1). An informal third section was added on occasion for the inclusion of any additional observations that I felt were relevant to the research as well as any helpful suggestions or comments offered by interviewees. Each of the open-ended interviews consisted of targeted questions regarding such important topics as household demographics, land allocation and property rights, the decision to plant *Acacia* species, the costs and benefits associated with the three *Acacia* tree crops, and the relative importance of other crops also grown by villagers.

Before the research began, I administered a small number of test interviews with selected villagers in order to determine the most efficient manner in which data collection should take place. For the first type of interview (Appendix 1), four villagers of varying backgrounds were presented with the questionnaire translated into Vietnamese and were free to fill out the responses at their own pace, and to ask me (through the use of a local interpreter) any queries or concerns. I recorded all of the information within the space provided on individual questionnaires. For the second method (Appendix 2), an interpreter was given one copy of the interview in English and the interpreter worked through each question one by one with careful communication between me and a different group of four villagers being interviewed. I then recorded all of the information into notebooks. The latter method was quickly deemed to be considerably more efficient and successful than the former and I approved it as the primary manner in which all villager interviews were to be carried out in the future for both Hong Ha and Xuan Loc

Commune. The interviews began once the Ethics Review Board gave its consent. I completed the villager interviews between early August and early November of 2008.

3.2.4 Middlemen, Processor, and Retailer Interviews

The second type of interview conducted contained solely semi-structured questions and was designed to broadly examine the livelihoods and various activities of a number of key stakeholders in the *Acacia* commodity chain including middlemen, processors, carpenters, retail shop employees, *Acacia* tree growers, sawmill employees, government officials, and others. I carried out these interviews between late July and early December of 2008 primarily at locations throughout Hue City, Hong Ha Commune, and Xuan Loc Commune, with additional interviews being done in the port city of Chan May, Phu Vinh Commune, and Huong Ho Commune. As mentioned above, the reason for interviews being done in the latter three locations is because small to mid-sized processors, large factories and sawmills, as well as important government officials in relevant ministries and departments related to the study objectives could only be found in these locations.

The standard interview (Appendix 3), administered to middlemen, processors, and retailers in particular, is comprised of ten semi-structured questions that cover several important issues such as: 1) From where and for how much is *Acacia* purchased; 2) To whom and for how much is it resold; 3) How big a role the commodity plays in the local economy; and 4) What resources *Acacia* stakeholders are required to invest before they can begin trading. Interviews were approximately 20 to 60 minutes in length, depending on how busy the interviewee was, how much they had to say, and how easily the information in the questions could be relayed.

3.2.5 Document Review & Guided Field Visits

The literature review focused extensively on broad issues of sustainability, deforestation, commodity chains, devolution, and land allocation in South and Southeast Asia, as well as poverty alleviation and political shifts in Vietnam. It is a critical component to the study because it guides the four main research questions and identifies key actors within timber commodity chains specifically. Despite limited literature available linking issues of forest change, property rights, and villager livelihoods through commodity chain analyses, the literature review outlines important terms and concepts necessary in understanding all aspects of the timber trade in Southeast Asia. Additional documents available from the CARD office at the HUAF, in particular the proposal entitled "Governance and Management of Common Pool Resources in Vietnam", were instrumental in providing me with background information concerning the histories and current conditions of the research sites within Central Vietnam. Census information that I collected from documents at the Hue Library and online from Vietnamese government websites provided statistical data for the study.

During the course of the research, I was invited to join and accompany staff members from the CARD office at HUAF on several guided field visits to Hong Ha Commune, Xuan Loc Commune, Phu Vinh Commune, Loc Vinh Commune, and other areas of interest. The initial purpose of these visits was to meet with commune officials and familiarize myself with the research sites and their inhabitants. Positive working relationships with commune officials and villagers were soon developed, facilitating the process of interviewing individuals residing in each commune. Extensive background information and statistical figures were revealed during informal meetings with commune

officials. Subsequent visits to these areas permitted me, CARD staff members, and commune officials to discuss any new developments that had taken place since previous meetings. The visits also allowed me to witness conditions in these areas firsthand and to take photographs that would later be used to illustrate the stages in the *Acacia* commodity chain.

3.3 Research Implementation and Challenges

Once the approach to the research was finalized and the data collection methods were chosen, the research questions were developed and the structured and semi-structured portions of the informant interviews were created. I spent a total of four months and one week in Central Vietnam from late July of 2008 to early December of the same year. During this time, I conducted 92 interviews related to all aspects of *Acacia* cultivation throughout various communes and districts located within Thua Thien Hue Province (Appendix 4). In order to obtain a representative sample of the villagers according to the ethnic composition of the communes, interviewees were chosen based on their ethnicity, age, gender, and annual income. Of the 38 villagers interviewed in Hong Ha Commune, 17 identified themselves as Katu, eight as Paco, five as Pahy, five as Kinh, while the remainder indicated two ethnicities (Table 3).

Table 3 The proportion of interviewed villagers identified by ethnicity in Hong Ha Commune, 2008

Ethnicity	Number of villagers	Percentage (%)
Katu	17	44.74
Paco	8	21.05
Pahy	5	13.16
Kinh	5	13.16
Katu/Paco	2	5.26
Pahy/Paco	1	2.63
Total	38	100

Interviews were conducted utilizing the aid of one of three local Vietnamese interpreters. Interviewees ranged from specialized *Acacia* tree growers in remote rural communes to retail store employees selling finished *Acacia* furniture products in urban centres, to district government officials who passed by-laws concerning *Acacia* production and transportation. Much of the data collected has been collated into figures and tables to facilitate understanding of the patterns and trends from answers garnered by respondents. Several photos have also been included to illustrate the various locations, people, and instruments involved with the production, transportation, and sale of *Acacia* trees and their products.

I encountered a number of acute and unexpected challenges over the course of the fieldwork. Even with the aid of one of three interpreters hired to assist in carrying out

interviews, language barriers and difficulties associated with translation proved to be major obstacles during interviews with key informants. For example, certain Vietnamese terms such as *cua, steyr,* and *rua* used to refer to agricultural crops, weight measurements, tree-cutting tools, etc. have no counterpart in the English language and so it became problematic at times to understand the information being relayed to me by the interviewee. As such, most of the information that I recorded had to be carefully paraphrased by the interpreters. Precise quotes from interviewees were extremely rare and so very few could be included in the thesis as a result. Regardless of these challenges, the services of these research assistants cannot be overstated and proved invaluable to the completion of the research.

Locating and interviewing all of the various stakeholders in the first, second, and third stages of the *Acacia* commodity chain proved to be another challenge. In regards to the villager interviews completed in Hong Ha and Xuan Loc communes, villagers of differing criteria such as annual income, ethnic group, age, and gender had to be first located then interviewed as part of the study so that conditions and prices within the two communes could be compared. Discussions with commune officials and knowledgeable villagers proved to be essential in seeking out villagers who satisfied these different criteria.

Furthermore, because of their forced relocation two years prior and the loss of their traditional lands, the Bru Van-Kieu villagers of Phuoc Loc village in Xuan Loc Commune operate within a tightly knit society that is suspicious of outsiders. As a result, Bru Van-Kieu villagers in Xuan Loc Commune are highly protective of their new lands and had initial reservations of participating in the study. When approached by me to

participate in the study, the Bru Van-Kieu villagers reported that they were not responsible for any *Acacia* forest plantations, despite *Acacia* plantations clearly thriving throughout the commune. This obstacle was overcome when I returned to the village several days later and engaged the villagers in friendly general conversation. Once I had earned their trust, I cordially explained the purpose of the research study and the role of the Centre for Agricultural Forestry Research and Development. The villagers then agreed to participate in the study.

Of the remaining actors interviewed from the *Acacia* commodity chain, the middlemen proved to be the most challenging to locate and interview. There are relatively few of them compared with villagers and processors, and they are usually busy traveling from one location to another. Very few middlemen operate simultaneously in one area. The first middleman interviewed was fortuitously encountered idling along the main road in Hong Ha Commune while taking a break from loading a villager's *Acacia* trees located adjacent to a road. Another middleman interviewed was found refueling his truck at a gas station. A visit to the large processing plant of Chaiyo-AA in Chan May Port quickly resolved this issue as queues of middlemen waiting to offload their trucks with cargoes of *Acacia* trees were encountered. However, not all middlemen were willing to give their consent to participate in the study because *Acacia* trading is a very secretive and profitable trade to many of them. Several prefer to keep unknown information such as their profits and the prices that they offer to villagers for *Acacia* trees. This obstacle was generally overcome by offering financial compensation to middlemen in exchange for information. Most middlemen had no issues with answering

survey questions once they had learned that I was willing to pay them VND 10,000-20,000 per interview, depending on the length of the interview.

Further challenges that I experienced included the creation of the structured and semi-structured questions for interviews with key informants because they had to be meticulously developed in order to capture essential information related to the topic. Care was also taken to ensure that representatives from each of the major stakeholder groups who influence various aspects of the research topic were given the opportunity to express their perspectives and opinions. Furthermore, interviews and informal meetings could only be carried out during times and at locations that were convenient and satisfactory to both myself and the participants involved. Lastly, unfavourable weather conditions during the monsoon season made it difficult for me to access remote locations and conduct interviews with stakeholders due to the slippery road conditions and/or flooding of major roadways.

4 THE FIRST STAGE OF THE *ACACIA* COMMODITY CHAIN IN CENTRAL VIETNAM

This chapter explains the general history and uses of *Acacia mangium*, *Acacia auriculiformis*, and the hybrid *Acacia*, and examines the first stage in the *Acacia* commodity chain of Central Vietnam that is dominated entirely by rural upland villagers. The question of how and why villagers grow the three tree species is addressed as well as the roles that gender, age, ethnic group, and household income play in *Acacia* cultivation. All aspects of *Acacia*-based villager livelihoods are investigated such as issues of land access and security, incentive programs offered by the government, and opportunities and challenges to which upland villagers are subjected.

4.1 The Past and Present of *Acacia* Cultivation in Central Vietnam

In the first half of this chapter, the origins of the three *Acacia* species and their introduction to Vietnam are investigated. Primary information sources include available literature pertaining to the three *Acacia* species and interviews conducted with commune officials in Hong Ha and Xuan Loc communes. The second half of the chapter examines villagers' perspectives of the ownership conditions under which the three species are grown as well as the problems and benefits that villagers are subjected to from *Acacia* cultivation. Emphasis is placed upon the 58 interviews conducted with villagers from both Hong Ha and Xuan Loc communes, the results of discussions with commune officials from Hong Ha and Xuan Loc, as well as guided field visits and informal transect walks completed within the two main study sites.

4.1.1 Background Description of *Acacia* Species

There are more than 1,300 documented species of *Acacia* that are native to the tropical and sub-tropical regions (Carron & Aken, 1992). Approximately 960 of these species are endemic to the Australian continent with Africa, Southeast Asia, and both North and South America accounting for the remaining 340 *Acacia* species (Carron & Aken, 1992). *Acacia* species have earned their reputation as extremely hardy and enduring trees because various species can be found flourishing in several areas with inhospitable climates, such as the Sinai Valley deserts in North Africa, the windswept plains of Central Patagonia in Argentina, and the exceedingly hot and humid ecosystems of Southeast Asia (Carron & Aken, 1992).

It is not unusual for *Acacia* trees to grow up to 30 or even 40 metres tall on favourable sites and they typically produce round pointed-shaped leaves, as well as thorns for protection and numerous pods for reseeding. They require very little care and supervision after they are planted and are notorious for spreading rapidly after being introduced to a new environment (Carron & Aken, 1992). *Acacia* species are renowned for their exceptional abilities to flourish on steep terrain, retain a high level of polish during the woodworking production process, and emit a pleasant scent that is sought-after in several Southeast Asian nations for ornamental decorations during important cultural ceremonies (Carron & Aken, 1992).

Acacia mangium is one of the two main species of *Acacia* that the government of Vietnam encouraged villagers to grow beginning in the 1990s. It is believed to have originated in the Northeastern region of Queensland in Australia as well as the western portion of the island of New Guinea and the easternmost islands of the Maluku Island

chain in Indonesia (Boland, 1989). *Acacia auriculiformis* is the second type of *Acacia* tree that the government included in its reforestation programs. *Acacia auriculiformis* is indigenous to the southern half of the island of New Guinea and several offshore islands that belong to Papua New Guinea, as well as the state of Queensland and the Northern Territory in Australia (Boland, 1989).

Acacia mangium and *Acacia auriculiformis* are multipurpose trees planted primarily for fuelwood generation, pulp material for paper, erosion control, and shade. Due to their fast rate of growth, ability to grow in soils with varying pH values, resistance to pests and diseases, and tolerance to dry conditions, these *Acacia* species are also planted to rehabilitate degraded lands (Boland, 1989). In warm and wet tropical climatic conditions such as those found throughout Vietnam, *Acacia* seedlings from both species can sprout into saplings 25cm in height within three or four months of growth. They have been introduced to numerous tropical countries located in Africa, South and Southeast Asia, and Latin America as part of joint international development programs and have resulted in much lauded success (Boland, 1989).

4.1.2 The Introduction of *Acacia* to Vietnam and Southeast Asia

The widespread planting of particular types of *Acacia* has taken place throughout humid tropical zones found near the equator in order to revitalize seriously degraded forest lands and to provide individuals with livelihood opportunities (Boland, 1989). Commercial tree plantations have become so popular worldwide that they account for the majority of wood production in countries such as Chile, New Zealand, and Brazil (Hall, 2002). *Acacia* species have come to dominate the landscape of plantations throughout

Southeast Asia not just because of their ability to grow extremely quickly and adapt to local climatic conditions, but also because of the enormous global demand for paper products that began in the 1980s and carried on through the 1990s (Hall, 2002). Many villagers turned to plantation forests during these decades because there was a global supply shortage of wood products and large profits could be earned by those willing to invest their own capital into plantation forests (Hall, 2002). Commercial plantations are composed of thousands, or, in some cases, millions of trees of the same species, all of which are bred for rapid growth, uniformity, and high yields. The trees are grown among even-aged plots and require occasional care with respect to fertilization, pesticide use, and soil preparation (Hall, 2002).

Commercial *Acacia* plantations also appeal to rural villagers across Southeast Asia because logs and woodchips are tangible and sturdy raw materials that do not deteriorate or depreciate rapidly over time as does wet rice, shrimp, coffee, and other perishable goods. This permits enterprising villagers to monitor price fluctuations in wood products and choose when to harvest and sell their trees (Hall, 2004). The option to sell or stockpile their goods gives villagers a sense of empowerment and also provides them with the freedom to seek out middlemen who offer the highest prices for their products. Furthermore, *Acacia* farming is enticing to many because scientists are hard at work breeding hardier and higher yielding *Acacia* species through genetic engineering programs. Several of these faster growing and higher yielding varieties of *Acacia* have already been introduced to commercial plantations in parts of Malaysia and Indonesia (Boland, 1989). As a result, the operators of many of these plantations favour *Acacia* species over indigenous species because of the higher profit margins that they can earn

with the latter (Boland, 1989).

Furthermore, *Acacia* plantations have flourished across Southeast Asia in nations such as the Philippines as central tenets of government reforestation strategies. Millions of hectares of plantation forests have been planted throughout Southeast Asia, yet the viability and long-term success of these plantations remains questionable in several nations (Van Noordwijk et al., 2003). Conflict over land rights, insufficient attention to technical details, a lack of clear management objectives, and government corruption are just some of the reasons cited for the failure of reforestation programs in Southeast Asia. Despite all of these challenges, the popularity of *Acacia mangium, Acacia auriculiformis,* and a hybrid species of the two has exploded over the last 15 years in Vietnam as the warm climate and abundant rainfall make for ideal growing conditions. Villagers from both north and south Vietnam plant *Acacia* for a variety of reasons, including but not limited to, erosion control, shade, medicine, wind-protection, shelter and building materials, firewood, furniture, and other industrial wood products (Carron & Aken, 1992). Development experts generally consider *Acacia* species to be boom crops in Vietnam because of ubiquitous government policies and funding that promote the establishment of rural *Acacia* plantations (Van Noordwijk et al., 2003).

During the 1980s, the majority of villagers in both Hong Ha Commune and Xuan Loc Commune utilized their fields as pastureland for animals and grew staple crops such as wet rice, cassava, fruits, and vegetables where the soil was fertile enough to do so (Le, 2008). Tobacco was a main source of income for villagers in Xuan Loc Commune while the villagers of Hong Ha Commune earned most of their income by selling their excess crops and meat products to the coastal fishing villages located several kilometres to the

east (Interviewees #89 & 90, 2008). The annual income for an average household was very low as the steep uplands in both communes was not suitable for growing many types of crops and only produced meager harvests (Le, 2008). It was not until the early 1990s that the Vietnamese Government collaborated with development agencies such as the World Bank and SNV Netherlands Development Organisation to create and implement projects specifically aimed at assisting Vietnam's large and impoverished rural upland population. The potential benefits that sustainable forestry activities could bring to the countryside were quickly identified and rural villagers were encouraged by the government and agencies to plant various species of tropical timber (CPR Research, 2007).

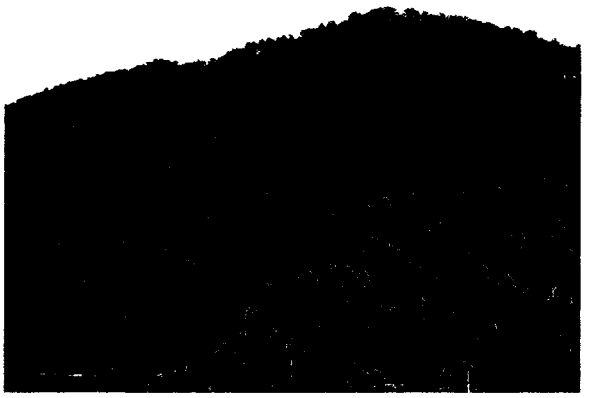
Prior to the 1990s, the harvesting of forestry resources in Hong Ha Commune was a fairly nondescript and straightforward process that merely supplemented the incomes of rural Vietnamese families (Koh, 2007). Natural forests were young and sparse as the countryside was still recovering from the devastating bombing operations that occurred during the Vietnam War and the average villager was engaged in agricultural activities encouraged but rarely sponsored by the government. As such, timber harvesting remained largely neglected and undocumented until the early 1990s (Koh, 2007). It was in 1992 that the Vietnamese state government began encouraging villagers to plant *Eucalyptus* trees in the region. The IDRC (International Development Research Centre) also started a collaborative project with the commune in 1998 to educate villagers on the benefits of plantation forests and the potential income that could be generated by selling timber (CPR Research, 2007).

By 1995, *Acacia* trees could be found growing throughout rural communities and the national government commenced several projects that granted land and funds to villagers seeking to get involved in *Acacia* cultivation (Koh, 2007). The success of these programs was so rapid and unexpected that by 1996 conflict arose over unclear rights to collect profits from the sale of the three *Acacia* species since the land still technically belonged to the government (Yasmi et al., 2008). The three levels of government in Vietnam scrambled to enact new laws that would permit villagers to receive profits and Red Books (or Green Books in the rare case of households assuming management of forest lands that had previously belonged to state forest enterprises or protection forest management boards) that clearly outlined the boundaries of villagers' plots of land as well as access rights (Koh, 2007).

Information collected from the villager interviews indicates that the three *Acacia* species are highly regarded as reliable sources of inexpensive medium-grade timber (Interviewees # 5, 11, & 18, 2008). In order to generate income, this timber can be utilized for the dual purposes of furniture/building material production as well as pulp production for paper. For subsistence purposes, *Acacia* is planted primarily to supply firewood for cooking needs and to maintain the soil quality of villagers' lands (Interviewees # 5, 11, & 18, 2008). Villagers throughout Central Vietnam have observed that *Acacia mangium* is a fairly weak softwood that grows more quickly than *Acacia auriculiformis* and is therefore ideal for pulp production, while *Acacia auriculiformis* grows slower and yields a stronger type of wood that can be fashioned into furniture or used in the building frames of new structures (Interviewees # 5, 11, & 18, 2008).

Acacia mangium and *Acacia auriculiformis* became the trees of choice for villagers after it became apparent that they require little care, grow more quickly than *Eucalyptus* species, and grow exceptionally well on steep terrain where few other crops are suitable (Photo 3). However, a third type of *Acacia* tree that is a naturally occurring hybrid between the two species was first discovered by Australian researchers in Malaysia in 1972 with subsequent discoveries of the species in Vietnam, Thailand, and Papua New Guinea later in the year (Viet Cuong et al., 2008). As of 2008, researchers were still experimenting with artificial *Acacia* hybrid clones with various combinations given labels such as Aa32Am7 and Am7Aa32. As such, no scientific name has been applied to the third type of *Acacia* tree included in the study and is simply referred to by researchers and villagers alike as the *Acacia* hybrid (Viet Cuong et al., 2008).

Photo 3 Numerous *Acacia* trees growing on the steep uplands of Hong Ha Commune



The *Acacia* hybrid has gained enormous popularity with Vietnamese villagers because it flourishes on flat or steep lands in hot and humid climates and grows at a rate almost double that of its parent two *Acacia* species. Japanese and Vietnamese foresters have found that when compared with *Acacia mangium* and *Acacia auriculiformis*

specimens, *Acacia* hybrid trees grow 36.3% to 41.6% larger in diameter, 20.0% to 25.3% taller in height, and yield 6.1% to 12.8% longer wood fibers (Viet Cuong et al., 2008). However, it has been observed by villagers that *Acacia* hybrid trees are just as susceptible to wind and rain while growing on steep hill slopes as *Acacia mangium* and *Acacia Auriculiformis* (Interviewees # 13 & 17, 2008).

As mentioned previously, *Acacia* can attribute its rapid and unprecedented success in Hong Ha and Xuan Loc communes in part because it requires little care, is able to propagate in new areas with little human involvement, and flourishes on steep mountain slopes where little else can be grown (Carron & Aken, 1992). However, the primary reason for its quick adoption as the tree of choice is because of the rate of growth of the standard *Acacia* hybrid tree. Although *Acacia mangium* and *Acacia auriculiformis* are both endemic to northern Australia, the origins of the hybrid species of the two can be found in the Malaysian state of Sabah on the island of Borneo (Carron & Aken, 1992). In 1989, researchers noted its impressive silvicultural properties in a tropical region when compared to the original two species of *Acacia* and recognized its potential for timber and pulp production in neighbouring nations (Carron & Aken, 1992).

Prior to 1989, most *Acacia* research focused on species flourishing in the temperate regions of southern Australia. Little was known of the hybrid *Acacia* when it was introduced into Vietnam a few short years later, including how well it would grow in upland regions and if the quality of the wood could be retained (Carron & Aken, 1992). It was not long before researchers and villagers realized that hybrid *Acacia* trees could grow up to 30 metres tall within four years and create self-pollinated forests in areas that had been barren for extensive periods of time. This meant that the traditionally idle steep

lands could be used for timber production while the scarce flatlands in Hong Ha and Xuan Loc communes could be dedicated to the cultivation of important staple crops such as wet rice and cassava. As such, it is very common to see transitions across landscapes in these communes as *Acacia* plantations on steep lands give way to natural forests, cleared barren lands, or rice paddies and cassava fields at lower and flatter elevations.

4.1.3 Conservation and Management Policy in Central Vietnam

A major cause of deforestation in Vietnam has been the complex and problematic forest conservation and management policy that the government has implemented in upland regions. At the outset of the 1990s, the national government of Vietnam embarked upon a massive initiative to rejuvenate and protect forest cover throughout the country (Yoshizumi, 2007). Money was funneled into several nationwide programs such as "Program 661", also called the Five Million Hectare Reforestation Program, the UN World Food Program Reforestation Effort, and "Project 327" (Sandewall et al., 2005). In addition to granting institutional funding aimed at land and forest management, the government created its first official Forestry Law in 1991, which was later replaced by the Forest Protection and Development Law in 2004, the Land Law in 1993, along with several regulatory policies that gave farmers greater access to land and forestry resources (Yoshizumi, 2007).

The government's management efforts met with mixed results as sufficient attention was not given to related issues of biodiversity and food security. As a consequence, once utilized these policies simultaneously shrank the total area of land available for agriculture and increased the land that was to be used for economic purposes such as the

planting of rubber and *Acacia* trees (Purcell et al., 2004). Ultimately, the people of Hong Ha experienced falling levels of food output as plots of land were increasingly utilized as plantation forests (Purcell et al., 2004).

Several districts in Central Vietnam have experienced mass rejuvenation of forests that had remained severely degraded since the beginning of the Vietnam War. It was not long before forests, classified as either natural or plantation forests, accounted for more than half of the total land area throughout many districts and individual communes (Purcell et al., 2004). As a result, officials were suddenly tasked with creating departments and administrative units capable of effectively managing these forests and ensuring that their long-term viability was not threatened. Over 82% of A Luoi District is believed to be forested as officials estimate that 101,857 ha are covered by forests out of a total land area of 122,954 ha for the entire district (CPR Research, 2007). Of the 101,857 ha of forest lands, only 11,675 ha are registered as plantation forests meaning that the remaining 90,182 ha are natural forest lands. The forests of A Luoi District are protected through regulations and laws such as the Forest Protection and Development Law of 1994 and are enforced by state enterprises (CPR Research, 2007).

Before villagers can legally engage in *Acacia* cultivation, they must apply for a Red Book in order to obtain officially recognized legal tenure (Ninh et al., 2001). However, the application process can be so time-consuming and difficult with all of the delays involved and the unclear property rights that exist to this day that many villagers choose to harvest their lands informally (Interviewee #89, 2008). A meeting with the former vice-chairman of Hong Ha Commune revealed that he was aware of the villagers' unauthorized logging activities of natural forests but had little power to stop them due to

the immense size of Hong Ha Commune and the lack of capacity to monitor commune lands (Interviewee #89, 2008). Conversations with villagers confirmed that they harvest timber informally without obtaining permission because enforcement is lax and penalties, which are light, are rarely incurred. Salemink (2006) also noted that law enforcement in rural areas of Vietnam is in need of desperate funding as illegal timber harvesting activities regularly occur with no consequences to offenders.

From 1993 to 1995, the Vietnamese government invested heavily in *Acacia* cultivation and earmarked substantial sums of money that were loaned to villagers willing to grow *Acacia* species. At first, rural villagers in Con Sam Village in Hong Ha Commune who were encouraged by the government to plant *Acacia* trees were reluctant to do so because they were not sure what the trees were to be used for and also because the government would still own the land that the villagers were cultivating (Interviewees #3-7, 2008). However, it was not long before villagers were informed and convinced of the potential income and other benefits such as erosion control and soil fertility that could be accrued from the growth and sale of high quality timber (Interviewees #3-7, 2008). In 1996, competition over land and funds from eager companies seeking to get involved in the *Acacia* business spurred pioneering rural villagers to quickly start planting the *Acacia* species themselves before the best available opportunities were exhausted. Regional forests were soon regarded as valuable investments because *Acacia* trees matured rapidly and could be sold for cash income only a few years after planting (CPR Research, 2007). As a result, traveling through the countryside of Central Vietnam in 2008 illustrated that plantation forests are gradually replacing natural forests in much of Hong Ha and Xuan Loc communes.

A meeting with a worker employed by the A Luoi District Watershed Management Board revealed that these management boards can be found in each of the provinces of Central Vietnam and are comprised of two main agencies to deal with forestry issues (Interviewee #91. 2008). The first is a prestigious ranger service that deals with administrative and policy issues and the second is a network of forestry stations that deal with the day to day concerns of local residents while monitoring natural forests. A forestry management board typically operates dozens of stations depending on the size and total population of the province in question. The workers at these stations are tasked with protecting government-owned natural and plantation forests from threats as the lands are transferred to local families (Interviewee #91, 2008).

The worker at the A Luoi District Watershed Management Board station indicated that the daily responsibilities of a worker includes monitoring and halting illegal logging, hunting, and cultivation practices, distributing government-owned plots of land to local villagers, preventing forest fires, and related tasks. There are five stations in the vicinity of Hong Ha Commune which lie along the Bo River that manage a total forested area of 9,400 ha, 90% of which is classified as natural forest lands and the remaining ten percent as plantation forests. The employees at these stations are currently in the process of transferring a 2,000 ha plot of government-owned land in Hong Ha Commune to villagers and companies who intend to grow *Acacia* trees (CPR Research, 2007). Parcels of land usually between 10-20 hectares in size are designated for *Acacia* cultivation and are then granted to villagers or companies along with a Red Book to outline the boundaries of each plot of land (Interviewee #91, 2008).

The degradation of forests in Hong Ha Commune continues today because rights to access and harvest timber remain unclear and poorly enforced due to the understaffing of these stations (Sikor & Nguyen, 2007). In addition, station personnel have been unable to halt the degradation of local forests in the past because they have no authority to jail or fine those who carry out destructive logging practices (Interviewee #91, 2008). Furthermore, many locals are currently required to rent the land that they cultivate from the government so they lack the basic right of withdrawal. This makes it extremely difficult for station personnel to alleviate conflict between villagers and to prevent individuals from illegally harvesting *Acacia* that does not belong to them (Interviewee #91, 2008).

Furthermore, due to the overall increase in annual incomes the average rural family in Hong Ha Commune is seeking out a higher standard of living with the benefits that forestry resources provide them with (Interviewees #3-7, 2008). Motorbikes, television sets, and cell phones are no longer luxury goods that once only the wealthiest of families could afford (Interviewees #3-7, 2008). As a result, villagers are gradually willing to invest their own money into *Acacia* cultivation even if the government owns the *Acacia* lands they work and only allows villagers to work the land temporarily (Interviewees #3-7, 2008). Villagers understand from information divulged at community workshops and through new national projects that in general the more forests they plant the more benefits they are likely to receive (Interviewees #3-7, 2008).

However, the issue of land security is far from resolved. This is partly because the Vietnamese Government can and occasionally has reallocated land from one group of villagers to another without providing a reason for the transfer of lands. This may occur

regardless of whether or not a villager is in possession of a Red Book (Sowerwine, 2004). The owner of a medium-sized *Acacia* processing plant in Long Ho Ha Village, Huong Ho Commune, Huong Tra District, informed me that two villagers from the commune who regularly supplied him with *Acacia* trees had had their lands suddenly expropriated and reallocated to other villagers by the government without warning (Interviewee #66, 2008). The first villager had been granted a Red Book and had been growing tree crops for six years on his lands while the second villager did not possess a Red Book but had been engaged in the same practice for more than seven years (Interviewee #66, 2008).

Much of the success derived from *Acacia* cultivation is attributed to the ease with which it can be planted and grown; however, its symbiosis with other indigenous plant species must also be noted. It is common and actually beneficial for villagers who cultivate *Acacia* plantation forests to grow traditional agricultural crops such as wet rice and cassava on the same plot of land used for *Acacia* cultivation because the additional roots serve to maintain soil nutrient content and prevent soil erosion (Interviewee #18, 2008). Those who grow *Acacia* species casually and do not earn income from the selling of them to middlemen also tend to plant the trees for these reasons. Villagers who primarily grow agricultural crops have also been known to plant *Acacia* trees as camouflage to conceal their crops so as to avoid documentation for their crops sought by government inspectors (Interviewee #13, 2008). *Acacia* has further flourished because the Forest Protection and Development Law of 2004 states that because lands are no longer controlled solely by the state government, forest management is the responsibility of the collective and thus it is the duty of all citizens to keep national forests intact. For the most part, rural villagers have been receptive to the notion although unclear land

boundaries permit villagers to occasionally venture out into lands that they do not have access rights to and harvest *Acacia* trees that do not belong to them (CPR Research, 2007).

With regards to natural forests, Japanese researchers estimate that illegal logging activities have nearly tripled in Hong Ha Commune since 2005 despite deepened government protection and conservation efforts (Yoshizumi, 2007). Although a significant portion of the natural forests in Hong Ha Commune are officially protected and monitored by the government against illegal logging, in reality large areas are still in great danger of being deforested in the near future for the purpose of metal collection (De Koninck, 1999). The newest threat to these forests lies in the ground beneath them where valuable metal fragments from bombs, mines, and other explosive ordinances introduced to the region during the Vietnam War can be found (Interviewee #16, 2008). In years past, villagers have deliberately set forest fires in order to clear the land of trees so that they may then collect and sell the metal shards to outsiders who are willing to pay for the materials (Interviewee #16, 2008). Two villagers interviewed who admitted they had recently engaged in this activity were aware that the practice was highly destructive. However, they claimed it was sometimes necessary in order to earn desperately needed additional income during the monsoon months when there are fewer economic opportunities available to them (Interviewees #16 & 41, 2008).

4.2 The *Acacia* Commodity Chain and its Production & Consumption Links

Objectives two, three, and four of the research are addressed in this section of the chapter in regards to the first stage of the *Acacia* commodity chain. The section 1) develops a conceptual and empirical description of *Acacia* trees during their growth in rural upland communes, 2) examines the benefits and costs to villagers associated with the planting of *Acacia* tree crops, 3) investigates the ownership conditions under which *Acacia* species are grown and the implications for property rights and farmer livelihoods, and 4) examines how changing policies have affected forestry-based livelihoods. The section begins by explaining why so many villagers in Central Vietnam are growing *Acacia* trees and the various challenges associated with the harvesting and selling of this resource. Information for this section is derived almost entirely from the villager interviews conducted in Hong Ha and Xuan Loc communes.

4.2.1 The Upland Villagers

Forming the backbone of the *Acacia* commodity chain in Central Vietnam are the numerous rural villagers residing in sparsely populated upland communes far removed from major urban centres. Commune officials in Hong Ha and Xuan Loc communes conveyed that villagers rely on their land for their livelihoods and grow agricultural staples for their families as well as several high-value crops other than tree crops to supplement their income, such as coffee, tea, peanuts, cashews, pepper, soybeans, and sugar cane (Interviewees #62 & 89, 2008). Life can be difficult for these villagers as the average annual income earned by an upland rural Vietnamese household is between US$180-250 per person, which is below the national average (Government of Vietnam,

2005, in Tyler, 2006). The Vietnamese government has established the poverty line at US$1 per person per day [VND 17,500], which works out to US$365 annually (CPR Research, 2007). Consequently, poverty incidence is generally regarded as being more prevalent and serious in rural mountainous communes than in lagoon or lowland communes (CPR Research, 2007).

Rural upland villagers endure prolonged hardships while growing *Acacia* trees, yet they earn a low annual income and often encounter great difficulty securing the funds necessary to begin planting *Acacia* trees (Interviewees #28-30, 2008). Land is a limited and scarce resource for these villagers so the decision to devote a parcel of land to *Acacia* cultivation for five or more years attests to the risks that these villagers are willing to undertake. Furthermore, land boundaries remain poorly established or non-existent in many communes while property rights are consistently violated with little to no consequences from local governments so rural villagers have little control over the lands that they have been given access (Interviewees #28-30, 2008). The 38 interviews conducted with rural villagers in Hong Ha Commune and the additional 20 villagers interviewed in Xuan Loc Commune provide detailed insight into the daily life of an average rural villager and their reasoning for becoming involved with *Acacia* cultivation. The transect summaries for Hong Ha and Xuan Loc communes highlight the similarities and differences between the two communes in terms of soil type, land use, land tenure, problems, and opportunities (Figure 7).

Figure 7 Transect summaries for Hong Ha and Xuan Loc communes

	Hong Ha Commune	Xuan Loc Commune
Soil	dark soil in fertile flatlands, sandy land along riverbanks, cleared areas susceptible to erosion	light brown soil in fertile flatlands, rocky hillsides, lowlands prone to flooding
Land use	*Acacia* plantation forests, natural forests, wet rice, cassava, rubber plantation forests, peanuts, pastureland for water buffalo	*Acacia* plantation forests, natural forests, wet rice, tobacco, coffee, tea, pastureland for water buffalo
Secure land tenure	no	no
Problems	deforestation, loss of natural forests, *Acacia* disease & pests, lack of infrastructure	deforestation, loss of natural forests, storm damage, trampling of *Acacia* by livestock
Opportunities	use cleared lands for *Acacia* cultivation, expand road network, improve protection & monitoring of forestry resources	expansion of nearby pulp & paper mills, improve irrigation dams to reduce impact of floods, erect fences to halt wandering livestock from trampling *Acacia* saplings

Although upland farmers typically earn less annual income than households that rely on aquaculture as their primary source of income, upland farmers are able to invest their money into their lands and they are afforded a degree of protection against typhoons that regularly strike along the Vietnamese coastline during the monsoon season (Trung et al., 2006). Typhoons can exact extensive damage upon communes with the high winds and floods that they produce. Furthermore, prices for upland commodities do not fluctuate as much as prices for coastal goods such as shrimp and squid (Trung et al., 2006). As a result, livelihoods based on farming activities are generally accepted as being more predictable and stable than those centered on aquaculture.

In general, upland communities also tend to have larger family sizes than lowland communities (Yoshizumi, 2007). For the average upland household, this simultaneously eliminates labour expenses and increases their chances that they will be granted more land with which to expand their cultivation activities in order to generate more income. Despite the fact that in recent years overall productivity and disposable incomes have increased more so in lowland Vietnamese communities than in their upland counterparts, the standard of living for all rural areas throughout Vietnam is gradually rising (Yoshizumi, 2007). New dwellings are being constructed with better building materials, primary and secondary schools are more accessible to children than they were a decade ago, and more than 70% of all rural families own at least one motorbike (Yoshizumi, 2007). Before the analyses of Hong Ha Commune and Xuan Loc Commune commenced, it was imperative that their unique histories were recognized and understood.

4.2.1.1 Hong Ha Commune

4.2.1.1.1 An Overview of Hong Ha Commune

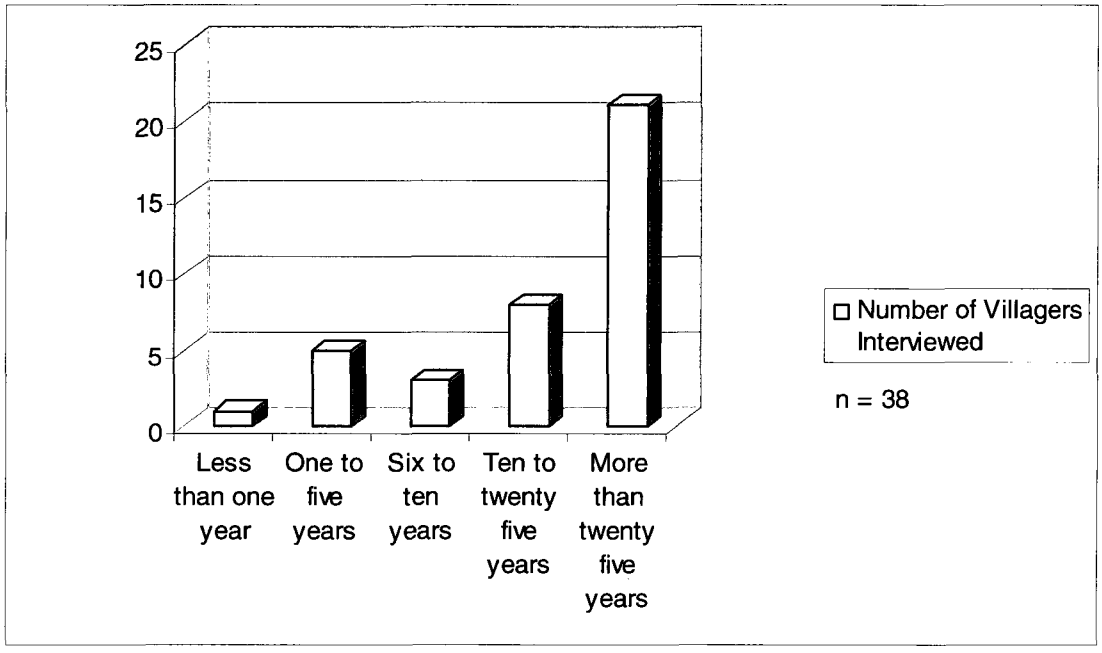
The upland regions of Central Vietnam experienced little forest degradation prior to 1954 due to the low population densities of ethnic minorities living there (Meyfroidt & Lambin, 2008). Extended fallow periods allowed the forests to rejuvenate over time and remain relatively unscathed from human activities (Meyfroidt & Lambin, 2008). However, since 1954 two primary causes have resulted in tremendous deforestation in Hong Ha Commune and the surrounding areas. The first and largest of these was the Vietnam War which took place from 1954 to 1975 and devastated much of the natural forests in and around Central Vietnam. Hong Ha Commune in particular suffered heavily

in 1972 and 1973 from conventional bombing as well as Agent Orange and napalm bombs which were used by American forces in the region (Yoshizumi, 2007).

The second cause of intensified stress on forestry resources from a larger population also stems from the Vietnamese War. Despite finite agricultural land, families from urban centres fled to rural areas such as Hong Ha Commune amidst the chaos in an attempt to avoid the conflict. Furthermore, the Vietnamese government's policy to resettle ethnic minorities that began in 1975 ensured that the population of Hong Ha Commune would increase over the coming years as families were relocated along National Road No. 49 which acts as the primary roadway through the commune. As many as 2.5 million Vietnamese may have been relocated between 1954 and 1975 to frontier regions such as Hong Ha Commune as part of the government's resettlement program (Trung et al., 2006). As a result, the forests that surround Hong Ha Commune were degraded in the 1970s and 1980s because of shorter fallow periods of 10-15 years versus the traditional 20 years and a larger population that extracted trees to be used as firewood (Yoshizumi, 2007). These shortened fallow periods typically contribute to the degradation of forests (Schultze-Kraft et al., 2008).

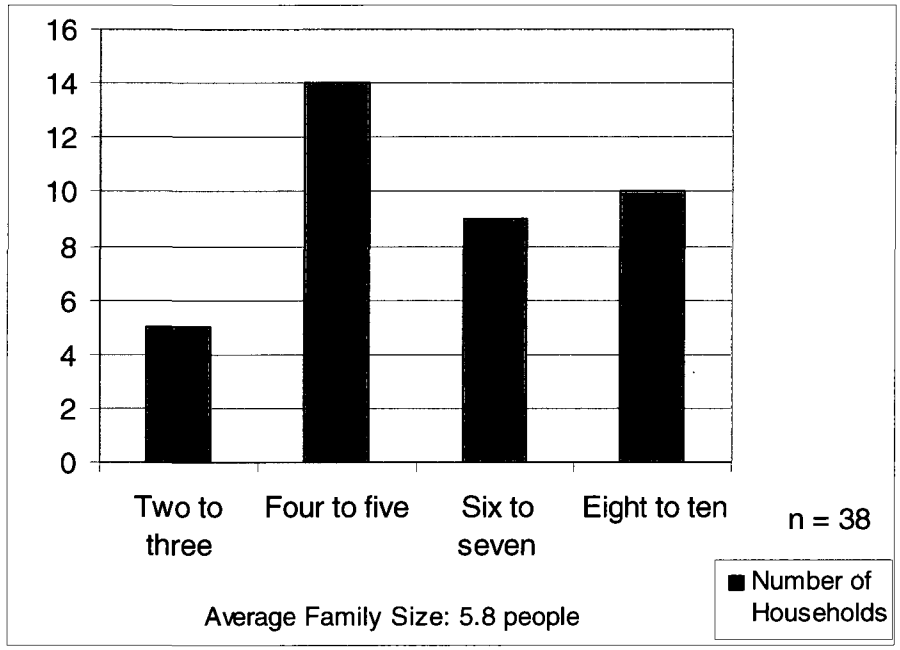
Mass migration to the commune has gradually decreased since the government resettlement programs from 1954 to 1975 to the point where migration numbers were negligible in 2008 (Government of Vietnam, 2005, in Tyler, 2006). More than half of those interviewed have been residents of the commune for more than 25 years, and nearly 80% of interviewees have lived in the commune for 20 years or more (Figure 8).

Figure 8 Length of residency of villagers interviewed in Hong Ha Commune, 2008



However, the population of Hong Ha Commune continues to grow at a rapid rate due to large family sizes that average five or six children per family and can often reach eight or more per family (Figure 9). Depending on their accessibility to land, large families from ethnic minorities in Hong Ha Commune generally tend to plant and manage more hectares of *Acacia* plantation forests than smaller families because they are able to avoid costly labour expenses (Interviewees #3-7, 2008). However, the exception to this generalization is the wealthiest household in Hong Ha Commune. A 70 year-old Kinh Vietnamese male holds title to 30 hectares of *Acacia* plantation forests along with his wife and because they are the only two individuals living in their household, they have no choice but to hire workers to assist in the operation of their plantation forests (Interviewee #11, 2008).

Figure 9 Family size of villagers interviewed in Hong Ha Commune, 2008



Slightly less than half of Thua Thien Hue Province is covered by either natural or plantation forests, but approximately 80% of A Luoi District within the province is classified as natural forest land (CPR Research, 2007). Estimates suggest that roughly 60 ha of natural forest lands can be found in Can Som village alone (Interviewee #89, 2008). Under the Forest Protection and Development Law of 2004, these indigenous forests cannot be cut down. However, there are loopholes that have been cleverly uncovered and exploited by individuals from ethnic minorities in the region. The district government can and occasionally has given permission for ethnic minorities to clear natural forests and replace them with plantation forests (Interviewee #89, 2008).

Villagers have been known to plant *Acacia* trees as a way of staking a claim to a tract of land and as a result they are viewed by households within the commune as a very important status symbol (Interviewees #46-48, 2008). A visit to a small shop that

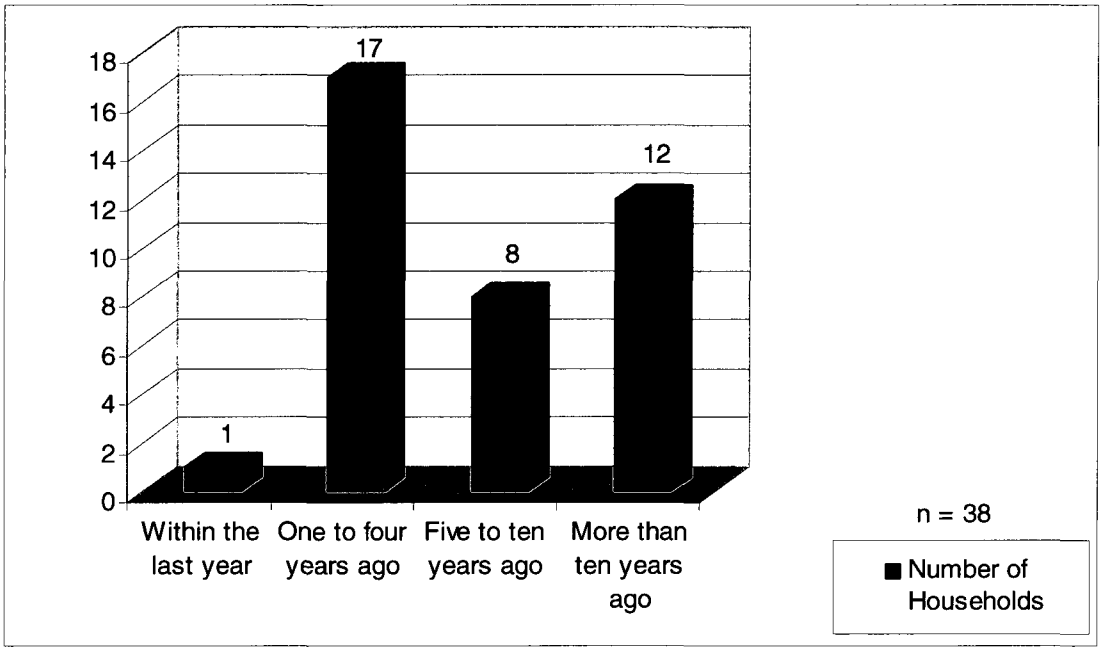
produced and sold wine in Hong Ha Commune exposed how truly valuable the *Acacia* hybrid species of trees is to villagers working there. Merely a few years after the introduction of the tree species into the commune, *Acacia* hybrid trees could be seen growing in every available location in front of the shop and along the property lines with adjacent shops (Interviewee #46, 2008). In addition, 50 or so one and a half foot long bundles each containing approximately twenty small *Acacia* branches were lined up along the side of the shop. The *Acacia* trees near the fringe of the property were growing among native shrubs and small trees and were in various stages of their growth cycle (Interviewee #46, 2008).

A discussion with the shopkeeper revealed that she planted all of the *Acacia* trees by herself in order to enhance her supply of firewood needed to operate the kiln for wine-making and that she was so pleased with the result that she planned to seed even more trees in the near future. As evidenced by a patch of tree stumps, she stated that she had originally cut down entire *Acacia* trees to use as firewood but soon realized that it was considerably more efficient and sensible to strip off the lower branches of the trees instead (Interviewee #46, 2008). The branches were sized perfectly for her kiln and were replenished on the trees even quicker than she had thought possible. The shopkeeper confided to me that her strategy to divide her *Acacia* trees into four separate groups and to cycle through and harvest small branches from one group while allowing the other three groups to re-grow their branches was working extremely well. This tactic sufficiently met the constant firewood demands for her business to operate successfully (Interviewee #46, 2008). The entire operation appeared to be quite profitable and environmentally sound.

4.2.1.1.2 Government Programs and Laws in Hong Ha Commune

Hong Ha Commune was chosen in the mid 1990s to be an integral part of Vietnam's Five Million Hectare Reforestation Program. The villagers of Hong Ha who were selected to take part in the program were fortunate enough to gain a head start compared to villagers in their own commune as well as other communes with regards to the growth and sale of *Acacia* trees to be sent later to national processing plants (Sandewall et al., 2005). As such, several of the prominent villagers of Hong Ha Commune have considerable experience in growing *Acacia* trees as they have been engaging in the practice for ten years or longer (Figure 9). Many interviewed villagers who were not included in the pilot project had no choice but to spend years saving the finances required to invest in *Acacia* cultivation and could only begin planting within the last one to four years (Figure 10). Several interviewed villagers told stories in which they chose to make sacrifices in the form of delaying much needed roof repairs or reluctantly shying away from expensive medicines when they had fallen ill in a forceful effort to save the money for land, seedling, and fertilizer expenses required for *Acacia* cultivation (Interviewees #38, 44, & 47, 2008).

Figure 10 How recently villagers began planting *Acacia* in Hong Ha Commune, 2008



Project 327 has been lauded by commune officials as a harbinger of positive change that has encouraged villagers to safeguard their lands against unsustainable practices while wisely expending their profits derived from forestry activities (Interviewee #89, 2008). However, disagreement is evident between villagers and the state government as to who should reap the financial rewards stemming from the project. At present, profits from timber sales are divided through Project 327 so that villagers receive 70% while the A Luoi District Watershed Management Board is given the remaining 30% (Interviewee #91, 2008). After several years under this arrangement when the government is repaid the loan used to pay for the seeds, fertilizers, and other expenses, the lands and profits are then to be transferred entirely to the villagers.

A common criticism from the villagers is that the government receives too much of the profits from Project 327 and retains control of the land for too long as it is the

villagers who work the land and locate middlemen entirely on their own to sell their timber products (Interviewees #45-47, 2008). Local villagers are now reluctant to borrow money from the government and several stated that they were saving as much of their profits as they could in order to invest their own money into timber activities in the future so that they could claim 100% of the profits. However, it is important to note that individuals of ethnic minorities are given some special privileges by the government such as higher profit margins or free fertilizers (Interviewees #38, 40, & 41, 2008).

Project 327 pays more to villagers in the commune than similar government projects located in other parts of Vietnam. This is because the government is making a concerted effort to raise the standard of living for the ethnic minorities in Hong Ha Commune, who have in the past been more vulnerable to property rights changes and economic shocks than Kinh Vietnamese (JICA, 2008). Development experts from both SNV and JICA are concerned that *Acacia* support projects in Hong Ha Commune financially over-compensate villagers and cause them to plant excess quantities of *Acacia* trees. This contributes to the unprecedented loss of natural forests and reduced food security in the process (JICA, 2008). The critics suggest that a quota should be placed upon *Acacia* horticulture while there are still vacant lands left in the commune and that villagers should be encouraged to resume growing a greater proportion of their own food crops (JICA, 2008).

Conflict stemming from *Acacia* cultivation is ever present in Hong Ha Commune as residents and the different levels of government alike regularly engage in bitter disputes over serious social and ecological matters (Interviewee #89, 2008). Several of the residents in Hong Ha were born in Laos and migrated to the region throughout the past

twenty years with little education in order to seek out a higher standard of living for themselves and for their families. Naturally, these residents are unfamiliar with local and national Vietnamese laws and have trouble understanding and abiding by them, often leading to confrontation with other ethnic groups in the area (Interviewees #10 & 43, 2008). As an example, these villagers retain their ancestral beliefs that land can be claimed once it has been cleared and settled and that government attempts to stop them from engaging in this practice are unnecessary and unfounded. If one is caught by the local government clearing another household's lands, they typically assert that they are unaware of the local laws and are not assessed a fine or other penalty (Interviewees #10 & 43, 2008).

Furthermore, a clause exists in local laws wherein it is illegal to construct a new house on unclaimed lands unless a family intends to live there for more than five years. Because there is little unclaimed land left in Hong Ha, the clause was originally implemented to strengthen residents' permanency. However, it has backfired because land boundaries remain unclear and poorly enforced so families that have mobility, most notably newlyweds, are free to settle on new lands to plant *Acacia* as they see fit (Interviewees #10 & 43, 2008).

The local commune government also experiences its fair share of conflict as they frequently appeal to the district and provincial levels of government for additional funding and program support for the commune in an effort to raise the standard of living for the average villager (Interviewee #89, 2008). In the past, villagers have banded together on more than one occasion to openly harvest natural forests and violate local laws because they are aware that they have power in numbers and the commune

government can do little to stop all of them at once (Interviewee #89, 2008). Two large areas of protection forests have been harvested in this way with very little resistance from local authorities (Interviewee #89, 2008).

Despite this practice, virtually all of the villagers interviewed in the commune stated that they were genuinely concerned with the overall well-being of their community's forests and believed that they were doing their part to keep natural and plantation forests healthy (Interviewees # 5, 18, & 26, 2008). Villagers are also cognizant of the district government's intentions to relinquish greater control over forestry lands to the individual households in the commune on the condition that forestry resources are not depleted or otherwise mismanaged. However, the state, provincial, and district governments still have considerable authority over forestry management decisions (Sikor & Phuc, 2006).

Since devolution initiatives began in the 1990s, the A Luoi District Watershed Management Board has assumed control over large parcels of land in the commune from state enterprises such as The Ministry of Resources and Environment and the Ministry of Agriculture and Rural Development (CPR Research, 2007). The goal is to hand over control of these lands to villagers in the near future for the near exclusive purpose of *Acacia* cultivation. The vision is that villagers will be able to achieve sustainable livelihoods by growing and exporting *Acacia* timber for overseas furniture and pulp and paper markets (CPR Research, 2007). However, the validity of this strategy has been questioned by Gellert (2007) who claims that poorer nations should not excessively supply global markets with raw materials or they run the risk of becoming entrapped in prolonged poverty. Hong Ha Commune officials have abandoned their earlier promotion of rubber and *Eucalyptus* tree plantations in favour of faster growing *Acacia* species and

within the last five years alone have converted 159 ha of rubber forests into *Acacia* forest lands (Interviewee #89, 2008). Over the same period, an additional 139 ha of steep barren hills have successfully been adapted to *Acacia* forests with the help of local government funding (Interviewee #89, 2008).

Prior to 1992, very few villagers were aware of an existing government assistance program that provided a small sum of funds, seeds, and fertilizers to villagers for the purpose of *Acacia* cultivation (Interviewee #91, 2008). Fewer still took advantage of the government incentive plan. Between 1992 and 1995, the A Luoi District Watershed Management Board aided villagers with planting 22 ha of *Acacia* forests in Hong Ha Commune as part of a carefully tailored pilot project for the region and meticulously allocated land to a group of pre-selected households (Interviewee #91, 2008). Villagers gradually became informed of the potential income and other benefits that could be accrued from *Acacia* forests along with the government assistance that was available. With sufficient funding in place, the board collected 30% of the profits from sold *Acacia* trees and the villagers received the remaining 70% (Interviewee #91, 2008).

Villagers involved with the project continue to plant *Acacia* trees at present and they are being encouraged to reinvest their profits into their plantation forests after obtaining a Red Book. All holders of a Red Book are strongly encouraged by the state government to reinvest their incomes into state-owned land (Ninh et al., 2001). However, the issue of land degradation is ever-present. Zeller et al. (2009) indicate that formal land titles provide the necessary incentive for farmers to being practicing soil conservation measures, but they do not believe that it is a sufficient deterrence to completely halt erosion-prone cultivation activities from occurring.

The test project in Hong Ha Commune was so successful that the decision was made to introduce *Acacia* to the commune on a large scale and to implement projects that would facilitate this process (Interviewee #91, 2008). The board is also responsible for selling *Acacia* seeds to villagers as well as fertilizers that have been approved by the district government. Furthermore, the board carefully monitors who the most productive villagers are and advises the A Luoi Land Registration Committee whether or not additional lands should be granted to selected villagers (Interviewee #91, 2008). Since 2007, land has been allocated to individual households in all five villages of Hong Ha Commune based on population size, ethnicity, household income, forest health, and *Acacia* production. From early 2007 to mid 2008, 60 ha of land alone had been transferred from the A Luoi District Government to the commune government for the village of Pah Ring, the most populous village in the commune (Interviewee #91, 2008).

A recurring problem for the board is developing a way to prevent slash and burn activities which occur in remote heavily forested areas of the commune that are difficult if not impossible to constantly patrol. To complicate matters, a massive hydroelectric power project has commenced in the immediate vicinity of the commune and is scheduled for completion in early 2010 (Interviewee #91, 2008). The project will occupy hundreds of hectares of land along the eastern border of the commune that had previously belonged to inhabitants of Arom village. Naturally, residents from all five villages have been attempting to secure access to additional lands as there is the concern throughout the commune that land suitable for *Acacia* plantations will not be available in the immediate future (Interviewee #91, 2008). With so much financial incentive being provided to villagers by the government and NGOs along with free seedlings and fertilizers in certain

cases, *Acacia* cultivation has become lucrative and appealing to local residents. As a consequence, several local projects developed by the Japan International Cooperation Agency that financially support villagers through wet rice and cassava cultivation initiatives have experienced difficulties attracting interested participants (JICA, 2008).

4.2.1.1.3 *Acacia* Cultivation and Sales in Hong Ha Commune

Upwards of 70% of the households in Hong Ha Commune are believed to be involved with *Acacia* cultivation (Interviewee #89, 2008). This is due in large part to a rush by villagers to plant plantation forests because unlike natural forests, plantation forests can be legally accessed and harvested and offer the potential for villagers to earn legitimate incomes from timber trading (Interviewee #89, 2008). However, due to land disputes and a lack of government capacity, obtaining a Red Book remains a very difficult and lengthy process that few villagers in the commune have fully completed (Interviewee #89, 2008). Fewer than 25% of the 38 villagers interviewed in Hong Ha Commune (9 villagers) have secured more than five hectares of land (Table 4). The bulk of villagers belonging to an ethnic minority in the commune dedicate anywhere from one to two hectares to *Acacia* production; however, it is not uncommon for the ethnic Kinh households to hold five to ten hectares of *Acacia* within their families (Interviewee #89, 2008). The right to accept more lands for cultivation purposes is conditional on several key factors including but not limited to ethnic background, number of able-bodied males in a household, and intended use of *Acacia* trees.

Table 4 Land access among interviewed villagers in Hong Ha Commune, 2008

Total hectares of land accessed	Number of households
One to two hectares	8
Two to five hectares	21
More than five hectares	9
Total	38

Virtually non-existent in Hong Ha Commune in the early 1990s, *Acacia* cultivation is now practiced extensively throughout the commune. An elderly resident of the village of Arom in Hong Ha Commune spoke at length of life in the commune during the early 1990s, when *Acacia* trees were so rare that most middlemen were unaware of their existence (Interviewee #43, 2008). He went on to explain that it was not until the late 1990s that middlemen began to purchase entire hectares of *Acacia* trees from villagers but not until 2002 and 2003 that prices offered by middlemen to villagers for the trees began to skyrocket (Interviewee #43, 2008). Once word spread of the high prices at which *Acacia* trees could be sold to middlemen and the rapid growth rate of the hybrid *Acacia* tree in particular, it was not long before *Acacia* cultivation exploded in popularity within Hong Ha Commune (Interviewee #43, 2008).

Indeed, 95% or 36 of the 38 villagers who were interviewed in Hong Ha Commune indicated that they allocate a minimum of 21% of their total land area for *Acacia* (Table

5). As is also illustrated in Table 5, the majority of those villagers interviewed, at 70% or 27 of the 38 villagers, allocate more than 61% of their lands to the growing of the hybrid *Acacia* trees or the less desirable and slower maturing *Acacia mangium* and *Acacia auriculiformis* species (Table 5). The slight majority of those interviewed access between two and five hectares of land in total with all villagers interviewed accessing a minimum of 0.2 hectares of land and a maximum of 30 hectares (Table 4).

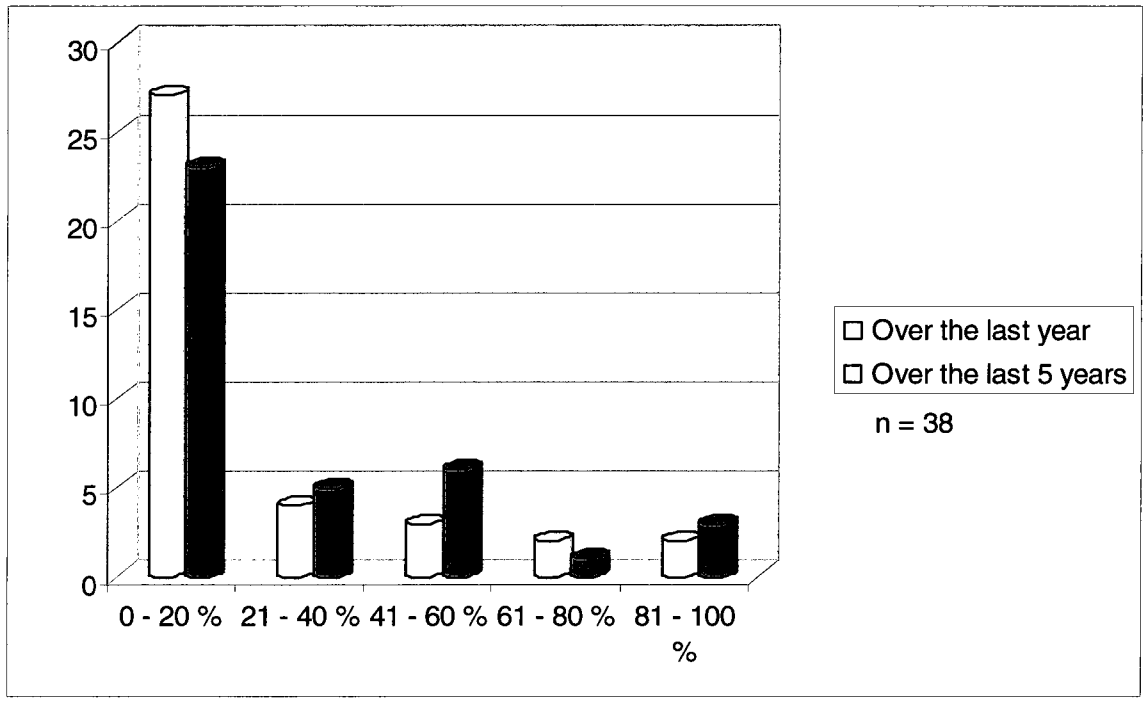
Table 5 Percentage of total household land under *Acacia* cultivation in Hong Ha Commune as of 2008

Percentage of household land	Number of households
0 – 20%	2
21 – 40%	3
41 – 60%	6
61 – 80%	14
81 – 100%	13
Total	38

Despite such large areas of land in Hong Ha Commune being utilized for *Acacia* cultivation, average household income derived from the practice remains small (Figure 11). One would expect average annual household incomes from *Acacia* cultivation to be

fairly low due to two reasons. The first reason is that a large portion of villagers in the commune have only begun to plant *Acacia* trees within the last four years, and because middlemen prefer to purchase trees that are no younger than five years old these villagers have not yet had the option to sell any of their *Acacia* trees except at extremely low prices (Figure 10).

Figure 11 Comparison of total household income derived from *Acacia* between the past year and the past five years in Hong Ha Commune, 2008



The second reason also stems from the first as seasoned *Acacia* growers divulged that they ideally choose to sell their trees once every five to seven years if possible. This is because the growth of *Acacia* trees slows after this time and their increase in value becomes only marginal due to small increases in the height and density of the trees (Interviewees #2 & 4, 2008). Furthermore, the risk of losing valuable *Acacia* trees to

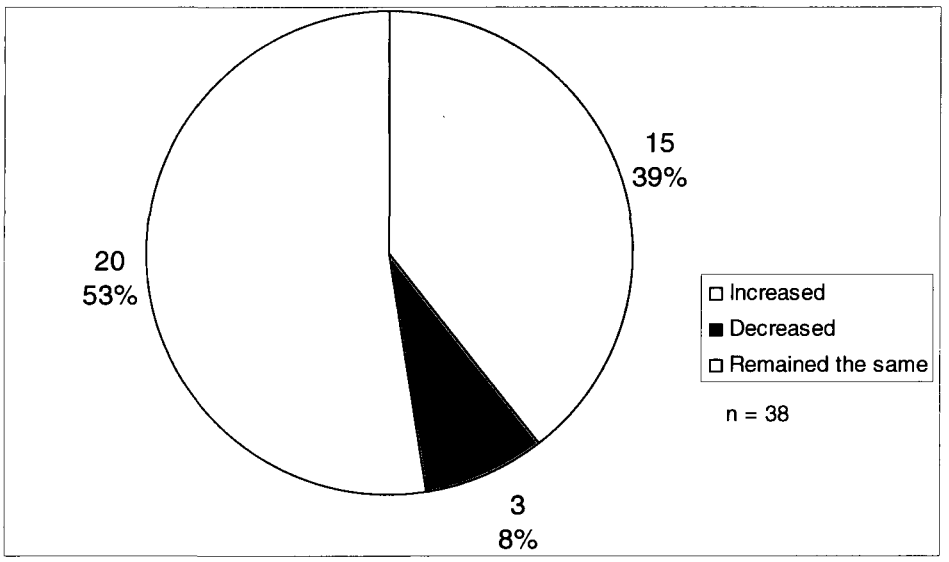
storm damage or pests and diseases increases the longer a villager waits to sell them, so in certain cases it may be more profitable in the long run for villagers to sell their trees before they fully mature (Interviewees #2 & 4, 2008). As a consequence of these selling intervals, in one year a villager may earn up to 95% of their income from sold *Acacia* trees yet in the four, five, or six year gap in between sales the villager will have earned 0% of their income from *Acacia* trading (Interviewees #16-18, 2008). As a result of so many villagers beginning to grow *Acacia* trees recently, total annual household incomes earned from *Acacia* sales from 2003-2008 remain overwhelmingly in the 0-20% category (Figure 11).

In-depth conversations with several villagers revealed that they had plans to sell large quantities of *Acacia* trees, 90% or more of the trees they had planted, to middlemen in the near future (Interviewees #16-18, 2008). In most cases, this would increase the percentage of their annual total household incomes derived from *Acacia* sales from 0% to well over 50%. However, they are patiently waiting for their trees to mature so that they can fetch the maximum price offered by middlemen, and in the meantime the trees are to be used for subsistence purposes such as for firewood and building materials for homes (Interviewees #16-18, 2008). Because these villagers have only recently begun planting *Acacia* trees, they have never before interacted with middlemen and are concerned that they may not receive a fair price for their trees. This is because they lack any sort of selling information, and unlike other villagers in the commune, they do not have a well-established trading relationship with middlemen (Interviewees #16-18, 2008). Despite these uncertainties, the villagers expressed their satisfaction with the decision to become engaged in *Acacia* cultivation because the trees grow quickly and yield high quality

timber that can be used to construct the outer walls, window sills, and doors of their homes (Interviewees #16-18, 2008).

With respect to the issue of access to land, slightly more than 50% of the villagers interviewed in the commune, or 20 of the 38, believe that the ability to acquire access to additional land for the purpose of *Acacia* cultivation has remained unchanged within recent years (Figure 12). This is because large areas of land have yet to be allocated by the A Luoi District Watershed Management Board to commune farmers. However, almost 40% (15 villagers) of those interviewed believe that they have better access to land than ever before, and less than 10% (3 villagers) feel that they are not able to secure additional land without great difficulties (Figure 12). Due to the low number of Red Books issued to farmers in recent years, this finding reveals that as was found in the literature review in Ninh et al., (2001), villagers are frustrated with the slow land allocation process and are quite willing to access new lands without permission for the purpose of *Acacia* cultivation. These lands are almost certainly natural forests which occupy most of the commune that are not regularly patrolled against unauthorized tree crop cultivation (Interviewee #89, 2008). Clearly, devolution efforts have made very slow progress thus far in Hong Ha Commune, resulting in the prospect of villagers securing new lands without first acquiring proper land titles (Meyfroidt & Lambin, 2008).

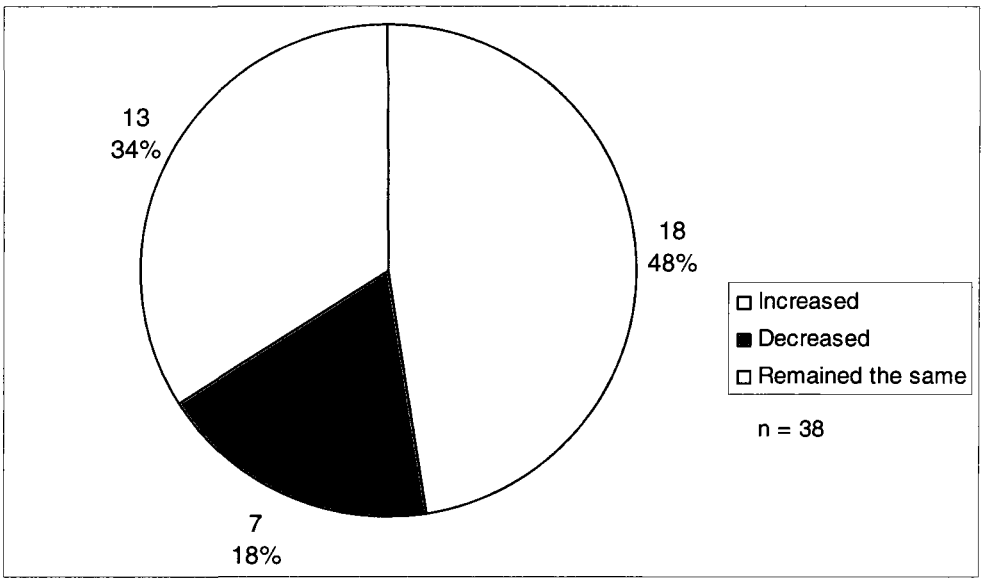
Figure 12 Changing land accessibility for cultivation purposes in Hong Ha Commune, 2008



A high percentage of villagers in Hong Ha Commune believe that the overall health of their lands has risen during the past 4 years. This is due to a variety of factors such as the conversion of barren and steep lands to *Acacia* plantation forests, increase in soil fertility associated with *Acacia* cultivation, and intensive application of natural fertilizers such as leaves, roots, and other organic matter to *Acacia* lands. A full 48% of interviewees (18 villagers) thought that the health and productive capacity of the lands in Hong Ha Commune were improving, mostly due to fertilizer application, 34% (13 villagers) believed that there was very little positive change or no change at all, and 18% (7 villagers) felt that health and productive conditions of local lands were deteriorating (Figure 13). These numbers depended heavily on the availability and affordability of fertilizers to the residents of Hong Ha Commune. Three of the seven villagers interviewed who believed that the health of their commune had decreased over the past four years did not apply any fertilizers to their lands and all seven viewed the conversion

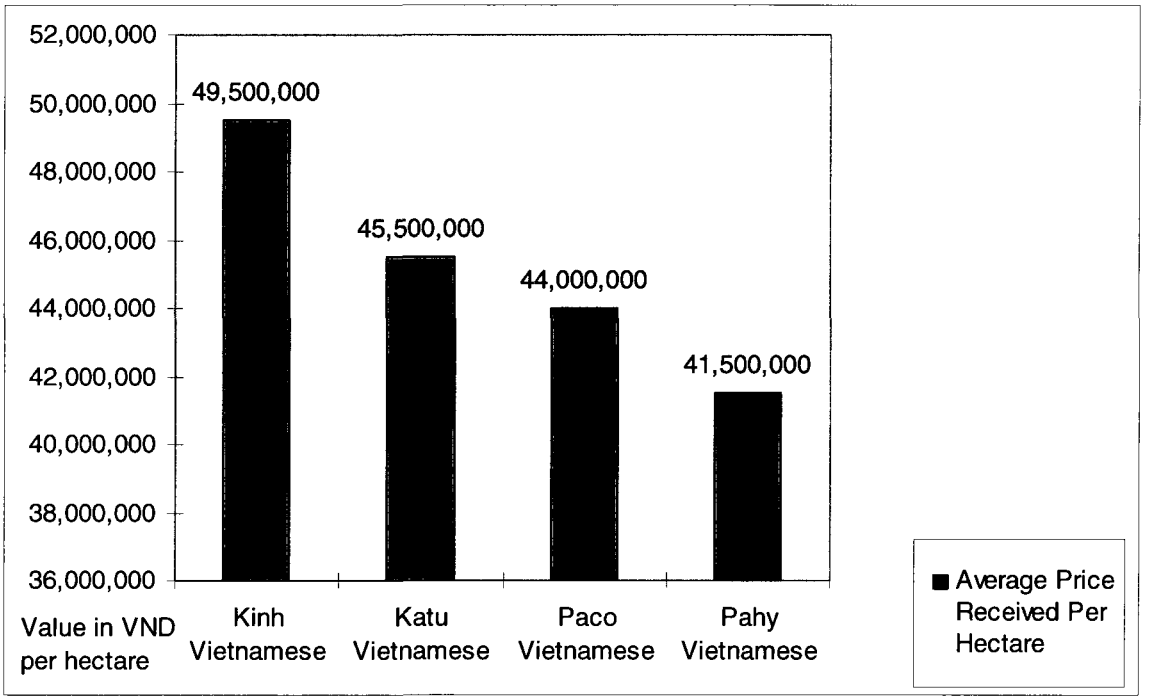
of natural forests to plantations forests as a negative impact on the environment (Interviewees #2, 6, & 9).

Figure 13 Changes to the overall health of cultivation land in Hong Ha Commune, 2008



Income earned by villagers from the sale of *Acacia* trees to middlemen varies enormously within Hong Ha Commune and there seems to be very little consensus on what a fair price is for a standard hectare of six or seven year old *Acacia* trees. Of the four ethnic groups present in Hong Ha Commune that were included in the research program, it was clear that the population of each ethnic group played a major role in determining prices offered by middlemen. In general, the greater the presence of an ethnic group within the commune, the higher the price members of that ethnic group will receive for their *Acacia* trees. This is largely due to the stronger influence and bargaining position that accrues to the largest of the ethnic minority groups. The exception to this finding is Kinh Vietnamese, who are the smallest ethnic group in Hong Ha Commune included in the study yet they receive the highest prices for their trees (Figure 14).

Figure 14 Differences in prices (per hectare) received from middlemen by the ethnic groups present in Hong Ha Commune, 2008



The domination of upper level positions in the *Acacia* commodity chain such as middlemen, processors, and retailers by Kinh Vietnamese and their admitted preference to buy *Acacia* trees from Kinh villagers is the most commonly cited reason for the price discrepancy (Interviewees #61, 68, & 85, 2008). Interviews with Kinh middlemen who operated in Hong Ha Commune also revealed that they paid less money to villagers from an ethnic minority group, mainly because these buyers accepted lower prices with little or no protest (Interviewees #59, 76, & 77, 2008). As such, Kinh Vietnamese typically earn several million more VND per hectare than other ethnic groups. Katu Vietnamese receive the second highest prices for their hectares of *Acacia*, followed by Paco Vietnamese, and Pahy Vietnamese (Figure 14). Prices paid between ethnic groups for a standard hectare of six or seven year-old *Acacia* trees can range from a high of US$3,000

[VND 52,000,000] for Kinh Vietnamese to a low of US$1,900 [VND 33,000,000] for Pahy Vietnamese (Interviewees #59, 76, & 77, 2008).

The annual income and gender of an inhabitant also affect the price that they will likely be offered by middlemen. Interviewed middlemen reported that they generally pay male farmers up to 5-10% more for their *Acacia* trees than women farmers, depending on the bargaining skills of each farmer (Interviewees #59, 76, & 77, 2008). This is because male farmers tend to be more assertive and drive harder bargains than female farmers. As such, the interviewed middlemen prefer to trade with female *Acacia* farmers because they can attain higher profit margins by paying out smaller sums of money for the same number of hectares of *Acacia* trees (Interviewees #59, 76, & 77, 2008).

Wealthy villagers or those customers with well established trading relationships with middlemen and high annual incomes also receive several million more VND per hectare than poor villagers or those who do not regularly sell their trees. This is consistent with the findings of Le & Scott (2008) who assert that income polarization is occurring in Central Vietnam. As mentioned previously, villagers who have access to *Acacia* trees adjacent to roads are also charged 25-30% less by middlemen in order to remove and transport their trees (Interviewees #59, 76, & 77, 2008). While villagers in every age category ranging in age from 25 to 71 years old were also interviewed in Hong Ha Commune to compare prices that they received for *Acacia* trees, absolutely no differences in price determined by age were identified. Of the four criteria utilized to select interviewees, ethnic group was determined as having the largest impact on prices received for forestry resources, followed by gender.

As mentioned above, age has no effect on prices offered by middlemen to villagers. In contrast, personal circumstance does and many villagers are in dire need of money so they are forced to sell their *Acacia* trees after only one or two years of growth at extremely low prices. One such interviewee was a 28 year-old Katu Vietnamese woman in Arom village who had recently sold her only hectare of 20 month old *Acacia* trees for US$460 [VND 8,000,000] because she desperately needed to fix the leaking roof on her house (Interviewee #44, 2008). Another 37 year-old Pahy Vietnamese woman in Pahy village was extremely ill and had sold her *Acacia* saplings to middlemen to be used as pulp for paper material because she needed money to buy medicine. The saplings covered 1.4 hectares and had been sold for a mere US$115 [VND 2,000,000] per hectare or US$160 [VND 2,800,000] in total (Interviewee #38, 2008).

4.2.1.1.4 The Benefits and Challenges of *Acacia* Cultivation in Hong Ha Commune

Villagers are subject to a number of extensive benefits from *Acacia* cultivation other than selling the trees outright to middlemen. The 38 interviewees of Hong Ha Commune were asked to list all of the benefits they felt *Acacia* trees gave them and many indicated four or five advantages immediately. The seven most popular benefits outlined by the villagers in order of importance are maintaining soil integrity, selling or using tree logs as firewood, selling or using tree logs as furniture and building materials, selling the tree logs as pulp for paper material, improving agroforestry, acquiring seedlings to plant elsewhere, and harvesting non-timber forestry products such as medicine (Table 6). Of the 38 villagers interviewed in Hong Ha Commune, 84% or 32 villagers, cited "maintaining soil integrity" as a benefit of *Acacia* cultivation (Table 6). Despite this

being the most frequently indicated benefit, during the interviews villagers admitted that prior to planting *Acacia* trees they were unaware that the soil quality of their lands would be improved by tree cropping (Interviewees # 21 & 22, 2008).

Table 6 The benefits from *Acacia* cultivation in Hong Ha Commune as indicated by interviewed villagers

Benefit	Number of times indicated
Maintaining Soil Integrity	32
Selling/using logs as firewood	22
Selling/using logs as furniture/building material	22
Selling logs as pulp/paper material	12
Improved Agroforestry	8
Acquiring *Acacia* seedlings to plant elsewhere	7
Harvesting non-timber forestry products	4

In reality, the villagers had begun planting *Acacia* species for the second and third most popular benefits indicated, selling for income to others or using *Acacia* logs themselves for the purposes of firewood and/or furniture and building materials (Interviewees #21 & 22, 2008). Both of these benefits were indicated by 22 of the 38 villagers, or roughly 58% of those interviewed (Table 6). The fourth and fifth most common benefits of selling the trees as raw material for the pulp and paper factories in

Chan May and improving agroforestry, played secondary roles in villager livelihoods yet were still indicated by 32% (12 villagers) and 21% (8 villagers) of respondents, respectively (Table 6). Villagers who sold trees to middlemen heading to Chan May usually only did so very rarely and out of necessity for much needed income (Interviewees #21 & 22, 2008). With respect to agroforestry, eight villagers believed that their wet rice and/or cassava crops grew healthier and quicker when planted among *Acacia* trees (Interviewees #40 & 41, 2008). The sixth and seventh benefits of *Acacia* seedling acquisition and the harvesting of NTFPs, were typically indicated nonchalantly by villagers during individual interviews and were only indicated by 18% (7 villagers) and 11% (4 villagers) of respondents, respectively (Table 6).

As noted above, there are many potential benefits (ie. improved incomes) associated with growing *Acacia* trees. However, there are also risks and problems commonly encountered by *Acacia* growers that have them questioning the stability of an *Acacia*-based livelihood. Of the 38 villagers interviewed in Hong Ha Commune, eight problems were frequently cited by villagers as ever-present dangers to their plantation lands. The eight most common problems in order of their severity are: unclear land tenure or the acquisition of additional land, a lack of reliable and up-to-date sales information, securing capital, storm damage, disease and pest outbreaks, price fluctuations, low quality inputs, and the trampling of *Acacia* saplings by livestock (Table 7). Although issues of land access are being addressed by the government through devolution initiatives such as Project 327 and the Red Book, upland villagers face as of yet unresolved challenges when trading *Acacia* trees with middlemen and securing capital for starting or expanding their *Acacia* business. Because the land that the villagers work within the commune is

considered common rather than private property, there is little incentive to invest in improvements to the land.

Table 7 The most common problems with *Acacia* cultivation in Hong Ha Commune as indicated by interviewed villagers

Problems Experienced	Number of times indicated
Unclear Land Tenure/Securing Additional Land	31
Lack of Selling Information (Price, how to contact middlemen, etc.)	22
Securing Sufficient Finances	18
Storm Damage	13
Disease or Pest Outbreaks	12
Price Fluctuations	4
Low Quality Inputs (Seeds, fertilizers)	3
Trampling of Small *Acacia* Trees by Livestock	2

Of the 38 interviewees in Hong Ha Commune, 22 expressed concern that they might not be able to trade *Acacia* trees in the long-term because of unfavourable experiences they had encountered related directly to middlemen (Table 7). These experiences included being paid very low prices by middlemen for their trees or being unable to contact middlemen once their trees had matured and they wanted to sell them (Interviewee #19, 2008). The blunt and sometimes tense business interactions that I

witnessed between villagers and middlemen are evidence that information is not shared unless it is absolutely necessary or expressly requested. With regards to finances, villagers noted that inputs of approximately US$400 [VND 7,000,000] are required to cultivate a single hectare of *Acacia* trees before they mature and can be sold for a profit (Interviewees #14 & 16, 2008). Few villagers have such sums of cash ready to invest. The only way to secure the money is through low-interest loans from government-owned banks, which are located far from Hong Ha Commune (Interviewees # 14 & 16, 2008). The process of securing a loan can be difficult as the journey to a bank can be lengthy and the process requires evidence of collateral, which is usually in the form of villagers' lands (Interviewee # 16, 2008). Hall (2004) also found that villagers try to avoid loaning money from banks where possible because interest payments over several years can amount to fairly substantial sums.

Storm damage as well as disease and pest outbreaks are additional problems that were indicated by 34% (13 villagers) and 32% (12 villagers) of interviewed villagers in the commune (Table 7). This suggests that environmental conditions in Hong Ha Commune are not perfect for *Acacia* cultivation yet they are not significant enough to prevent *Acacia* related incentive programs from being supported in the commune by the government. Furthermore, these issues are counter-balanced by the low frequency in which villagers indicated minor problems such as *Acacia* price fluctuations, low quality inputs, and the trampling of *Acacia* saplings by wandering livestock (Table 7). Two other drawbacks that villagers cite with *Acacia* cultivation are that trees take several years to grow before they can be sold, and that the market for timber is vulnerable to both national and global influences (Interviewees #37 & 38, 2008). This results in villagers

being left with no income for the initial years of *Acacia* cultivation while their trees mature, and also without a secure food supply. Furthermore, on occasion middlemen have temporarily lowered the prices that they offer to villagers for *Acacia* trees, claiming that the prices are adjusted according to reflect regional demand for timber products (Interviewees # 37 & 38, 2008). These findings are to be expected as Bair (2008) concluded that all global commodity chains are affected by the cyclical shifts of expansion and contraction that are inherent in today's world economy.

Although *Acacia* cultivation can be a risky and unpredictable endeavour, the potential profits are enticing to many. This is evidenced by the fact that 97% of the respondents in Hong Ha Commune will continue to grow *Acacia* trees over the course of the next four years and well beyond (Table 8). This is a surprising finding considering that a mere 24% of those surveyed in the commune (9 villagers) believe that they have secure land tenure and that their forestry resources are truly under their control (Table 11). This comes in contrast to the fact that 40% of interviewed villagers in the commune (15 villagers) believe that their accessibility to land has recently increased (Figure 12). It is also interesting to note that unlike Xuan Loc Commune (see Section 4.2.1.2), very few of the 76% who believe their lands are under threat are in the process of having their lands surveyed for the acquisition of a Red Book (Interviewee #89, 2008). The landscape of Hong Ha Commune in the future can be tentatively predicted as 87% or 33 of the 38 respondents believe that *Acacia* cultivation will play a major role in their livelihoods 20 years or more into the future (Table 9). Only 13% or five respondents thought that the days of *Acacia* trees in Central Vietnam were coming to an end (Table 9).

Table 8 Comparison of villagers in Hong Ha and Xuan Loc planning to grow *Acacia* for at least four more years as of 2008

Hong Ha Commune n = 38		**Xuan Loc Commune** n = 20	
Yes	No	Yes	No
97 % (37)	3 % (1)	95 % (19)	5 % (1)

Table 9 Percentage of interviewed villagers in Hong Ha and Xuan Loc who believe that *Acacia* cultivation will be an integral part of their long-term livelihoods

Hong Ha Commune n = 38		**Xuan Loc Commune** n = 20	
Will be	Will not be	Will be	Will not be
87% (33)	13% (5)	95% (19)	5% (1)

In spite of all of these challenges faced by villagers, they continue to develop long-term plans to grow *Acacia* trees and rely upon them as their primary source of income. Many of them have become so enamored with the planting of the tree crop that they do not have alternative plans to generate income should *Acacia* cultivation no longer become feasible. If the price for *Acacia* trees were to drop significantly and for an extended period of time, only three of the 38 villagers would stop growing *Acacia* trees entirely (Table 10). Continuing to sell at extremely reduced prices would be the option chosen by seven villagers while 28 of the 38 would continue to grow *Acacia* but use it solely for subsistence purposes (ie. building materials, furniture) until prices rebounded (Table 10).

These responses prove that since the introduction of *Acacia* species to Hong Ha Commune less than 20 years ago, the trees have become an integral part of villager livelihoods and will be a common sight throughout the five villages in the commune for many years to come.

Table 10 What villagers in Hong Ha Commune will do if the price for *Acacia* drops significantly for a prolonged period of time

Long-term strategy	**Number of villagers** n = 38
Continue to grow and sell *Acacia*, accepting a lower price and waiting for the price to eventually rebound	7
Continue to grow *Acacia* but only use it for subsistence purposes such as for firewood, furniture, and building materials while building up large stockpiles	28
Switch to growing another type of crop such as Rubber or *Eucalyptus* trees	3

4.2.1.2 The Villagers of Xuan Loc Commune

4.2.1.2.1 An Overview of Xuan Loc Commune

Of the 4,236 total hectares that comprise Xuan Loc Commune, more than half, 2,739 ha are forest lands (Interviewee #90, 2008). An estimated 800 ha of the total forest land area are natural forests that technically cannot be harvested. The remaining 1,939 ha are

plantation forests, most of which are comprised of various *Acacia* species (Interviewee #90, 2008). A full quarter of this plantation land (approximately 558 ha) is accessed by individuals or mid-sized corporations that reside or are located outside of the commune. The remaining three quarters are owned by individuals residing in Xuan Loc Commune. In late 2008, commune officials estimated that 97% of all households in Xuan Loc Commune were actively engaged in *Acacia* cultivation (Interviewee #90, 2008).

As is the case in Hong Ha Commune, the Kinh villagers in Xuan Loc Commune are very candid and forthright with their opinions concerning all aspects of *Acacia* cultivation and so there was no shortage of Kinh villagers willing to be interviewed. However, as was noted previously in section 1.4.2, the social and ethnic composition of Xuan Loc Commune is fairly homogenous. Information collected from the predominantly Kinh populations of Hamlets One through Six tended to contain few variations. As a result, only 20 villager interviews were completed in Xuan Loc Commune compared with 38 in Hong Ha Commune. Fifteen Kinh villagers were interviewed while the remaining five interviews were conducted with Bru-Van Kieu villagers who were fairly difficult to locate and at times reluctant to give their consent to participate in the study.

Migration levels are low and reflective of those found in most rural communes (Interviewee #90, 2008). More than 60% of those interviewed (12 villagers) have been residents of the commune for 25 years or more and none of the respondents have lived in the commune for less than a year (Figure 15). The average family consists of 5.3 people and fewer than half of the respondents have six or more children in their family (Figure 16). As a result, the commune is beginning to face a labour shortage and labourers from other communes are temporarily working in Xuan Loc Commune to assist in agricultural

endeavours (Interviewee #90, 2008). Xuan Loc Commune is considered fairly wealthy among rural communes and villagers generally earn more per year than residents of Hong Ha Commune (Interviewees #89 & 90, 2008).

Figure 15 Length of residency of villagers interviewed in Xuan Loc Commune, 2008

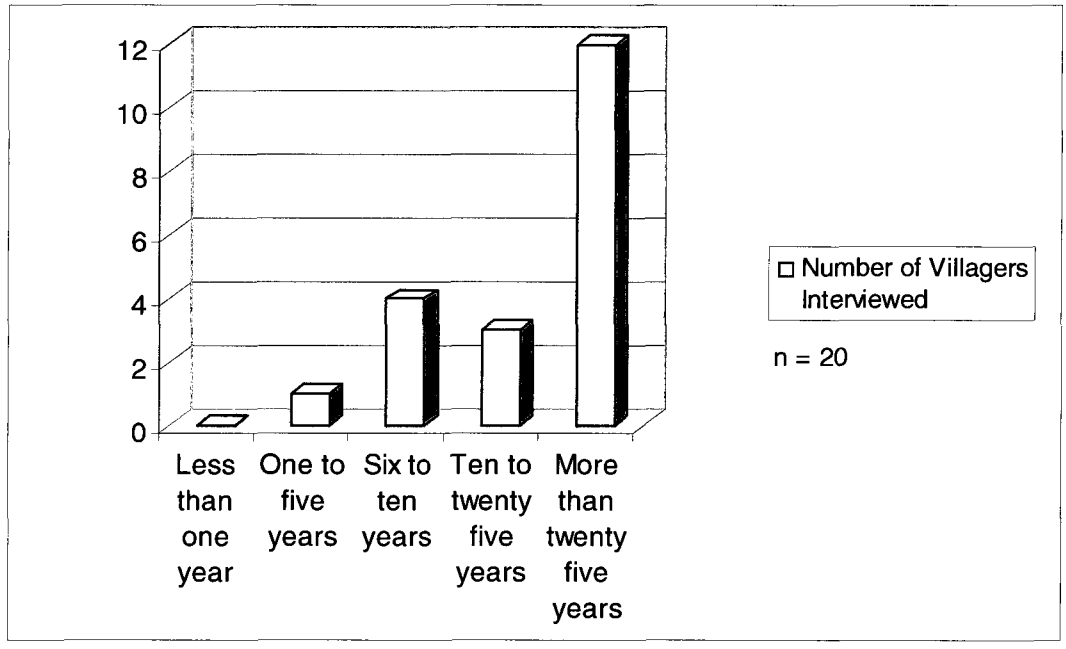
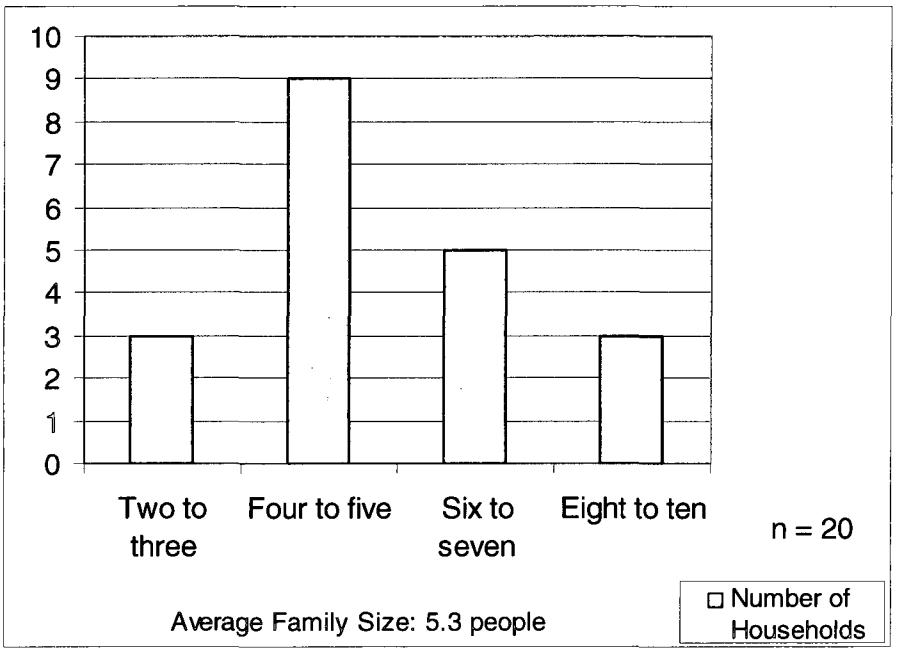


Figure 16 Family size of villagers interviewed in Xuan Loc Commune, 2008



Land ownership within Xuan Loc Commune is not as contentious an issue as it is in Hong Ha Commune, but a large number of villagers are still undergoing the process of acquiring a Red Book. Only 30% (six villagers) of respondents in Xuan Loc Commune believe that their land truly belongs to them and that they have full control over their property (Table 11). However, many villagers have been told by government officials that their land will be surveyed throughout 2009 and that they will be issued a Red Book as soon as possible (Interviewees #31, 34, & 35, 2008).

Table 11 Villagers in Hong Ha and Xuan Loc who feel they have secure land tenure as of 2008

Hong Ha Commune n = 38		**Xuan Loc Commune** n = 20	
Yes	No	Yes	No
24% (9)	76 % (29)	30 % (6)	70 % (14)

One would expect that due to the higher than average population density in Xuan Loc Commune in comparison to most rural upland communes, villagers would in general access few hectares of land and have little opportunity to expand their property boundaries. However, land access levels in Xuan Loc Commune are virtually identical to that of Hong Ha Commune as the bulk of villagers access two to five hectares of land, followed by five or more hectares, and less than two hectares (Table 12). However, villagers in Xuan Loc Commune tend to allocate a much higher proportion of their lands to *Acacia* cultivation. Naturally, they tend to derive a much higher percentage of their annual income from the sale of *Acacia* trees than residents of Hong Ha Commune.

Table 12 Land access among interviewed villagers in Xuan Loc Commune, 2008

Total hectares of land accessed	Number of households
One to two hectares	4
Two to five hectares	11
More than five hectares	5
Total	20

4.2.1.2.2 Government Programs and Laws in Xuan Loc Commune

During the early 1990s, the commune leaders of Xuan Loc Commune began encouraging the planting of *Acacia* and *Eucalyptus* tree species as they recognized that they were potentially viable sources of future income (Interviewee #90, 2008). By 1995, *Acacia* had become the tree of choice for villagers. Having data compiled from his conversations with middlemen from the commune, the chairman of the commune noted that it is not uncommon for a single hectare of plantation forest to support up to 1,650 *Acacia* trees (Interviewee #90, 2008).

The commune has also received considerable support from the national government through the Five Million Hectare Reforestation Program which allocated tracts of government land to individual families primarily from 1993 to 1994 (Sandewall et al., 2005). The additional government program, Project 327, was implemented in 2005 and

is designed to loan money and land over a six year period to villagers living below the poverty line of US$1 per day seeking to participate in *Acacia* cultivation (Interviewee #90, 2008). The program only applies to *Acacia* cultivation and encourages the planting of seven different types of *Acacia* species, primarily that of *Acacia mangium*, *Acacia auriculiformis*, and the hybrid *Acacia* (Interviewee #90, 2008).

A third program, referred to as the Forest Sector Development Project or the WB3 Project, is funded jointly by the World Bank, the Japanese Government, and Southeast Asian governments and was initiated in the mid-1990s with the intention to improve irrigation and agricultural projects in Southeast Asia (Interviewee #90, 2008). Upwards of 80% of the project's US$1,800,000,000 budget is earmarked for the construction of new dams and reservoirs, or the maintenance of existing dams in need of repairs (JICA, 2008). However, the remaining 20% of the fund may also be used to promote sustainable large-scale *Acacia* forest plantations in regions such as Central Vietnam in an effort to lower the risk of severe flooding (JICA, 2008). In Vietnam, the money for the low-interest loans is raised collectively by the World Bank and the Japanese Government, allocated to the Vietnamese Government, and is in turn transferred from the state government to district governments, then to commune chairmen who eventually distribute the funds to individual households (Interviewee #90, 2008).

The WB3 Project does not apply to any household or business that holds land access rights to fewer than 100 hectares of *Acacia* forest plantation lands. Entities that control fewer than 100 hectares have to pay for all land purchase and upkeep expenses on their own (Interviewee #90, 2008). However, an entity that purchases or maintains a minimum of 100 hectares and a maximum of up to 700 hectares of *Acacia* lands can receive low-

interest loans through the WB3 Project to initiate or expand their *Acacia* cultivation operations. At present, the WB3 project in Xuan Loc Commune has met with little success thus far because few individuals have expressed interest in participating in the project (Interviewee #90, 2008). For the most part, villagers are not interested in harvesting or maintaining such large areas of plantation forests and they are concerned that outsiders will have unrestricted access to local forestry lands (Interviewee #90, 2008).

4.2.1.2.3 *Acacia* Cultivation and Sales in Xuan Loc Commune

There has been a rapid and unprecedented increase in the popularity of *Acacia* cultivation in Xuan Loc Commune since 2006. In mid-2006, commune officials surmised that no more than 50% of households within the commune were involved with *Acacia* cultivation (Interviewee #90, 2008). By mid-2008, that number had jumped to 97% (Interviewee #90, 2008). The bulk of available agricultural land in Xuan Loc Commune is utilized for *Acacia* cultivation as can be seen when entering the commune (Photo 4), followed distantly by the growing of corn, cassava, wet rice, *Eucalyptus,* and fruit.

Photo 4 *Acacia* trees lining the western road into Xuan Loc Commune

Villagers plant an *Acacia* tree using one of two methods, the first involves simply spreading seedlings from mature *Acacia* trees over an area while the second less popular method occurs when villagers cut branches from *Acacia* trees and carefully plant them into the ground (Interviewee #28, 2008). The latter method requires more time and effort on the part of the villager but can result in the rapid spreading and growth of *Acacia* into new lands.

At present, the majority of villagers in Xuan Loc sell their *Acacia* trees after only five years of growth (Interviewees #28-31, 2008). They would unquestionably receive higher profits if they waited for their trees to mature, but many families are in constant need of money and cannot wait any longer for their trees to grow larger (Interviewees #30 & 31, 2008). Another reason why villagers sell their *Acacia* prematurely is because very destructive storms occur in the commune every six or seven years, and *Acacia* trees are often damaged. The average villager prefers to avoid the risk of longer-term growth and chooses to sell their *Acacia* as quickly as possible so as to minimize their losses from storm-related damage (Interviewees #30 & 31, 2008).

Due to the rapid increase in *Acacia* cultivation in Xuan Loc Commune, middlemen can occasionally be seen negotiating with villagers or scouting the region's plantation forests for future prospects. The potential is so great that local middlemen frequently have to compete for business transactions with middlemen drawn from other communes in search of enticing profits (Interviewees #32 & 33, 2008). The reason why middlemen from other regions come to Xuan Loc Commune to do business is because of the widespread availability of *Acacia* trees. Most of these middlemen are contracted by nearby sawmill factories that offer salaries to them as well as bonuses for completing additional tasks such as obtaining high quality *Acacia* trees or delivering a certain number of *Acacia* trees to the factories per month (Interviewee #90, 2008).

The going rate that middlemen pay to villagers for their *Acacia* can vary depending on certain factors such as the price of furniture or paper materials in global markets, the relationship between an individual villager and middleman, or the degree of storm damage caused to *Acacia* fields, etc. However, in general *Acacia* trees are sold by hectare under one of three price levels (Interviewee #90, 2008).

The lowest level that middlemen typically pay to villagers occurs when middlemen determine that less than 40% of the total area of a particular hectare is occupied by five year-old *Acacia* trees. The average price for this sparse type of *Acacia* hectare is US$1,315 per hectare [VND 23,000,000] (Interviewee #78, 2008). In order to receive payment for the second price level, middlemen must be satisfied that roughly 40-70% of an entire hectare contains *Acacia* trees. The average price for the mid-level category of an *Acacia* hectare is US$1,900 per hectare [VND 33,000,000] (Interviewee #78, 2008). For the last and highest price level, middlemen must firmly believe that more than 70%

of a hectare is covered in mature *Acacia* trees. This type of dense hectare sells for US$2,650 per hectare [VND 46-47,000,000] on average but has reached record highs of US$3,100 [VND 54,000,000] in 2008 (Interviewee #78, 2008). Villagers have little say in the matters of price as middlemen survey lands on their own then personally decide on what price level a hectare falls into. Once a villager accepts the price offered the trees belong to the middleman and he is then free to choose which factory to take the trees to. Middlemen are also subject to pressures from the sawmill factories as they usually sell their trees to the factory offering the highest price for *Acacia* trees at that time (Interviewee #78, 2008).

Of the 20 villagers interviewed in Xuan Loc Commune, a full 75% (15 villagers) grow and sell at least a fraction, if not all, of their *Acacia* trees to middlemen as logs to be used for pulp and paper material (Interviewee #90, 2008). More than half (11 villagers) of the 20 farmers interviewed in the commune grow *Acacia* solely to sell it to middlemen who in turn sell it to one of the seven very large pulp and paper factories located nearby (Interviewee #90, 2008). Three of these factories are in Hue City, three are in the port city of Chan May, and one is in Da Nang (Interviewee #78, 2008). The factories in Chan May receive the bulk of the product and primarily use the unprocessed *Acacia* trees to produce pulp for paper products, although the other factories also fabricate pieces of furniture as tertiary products. The small diameter of the five year old trees makes them ideal for pulp production, while the more mature and thicker trees are excellent for furniture production (Interviewee #90, 2008).

Acacia trees are occasionally sent to local Vietnamese-owned factories for products to be used in Vietnam such as chairs, tables, doors, and window frames. However, the

majority of *Acacia* trees follow the path of a standard product within a global commodity chain as they are harvested in the developing world yet are consumed in markets in the developed world (Kundu & Chopra, 2009). *Acacia* trees are commonly processed into woodchips and exported overseas to countries such as Taiwan, China, South Korea, and Japan where they are used in the production of high quality paper products. Very little processing takes place in the commune (Interviewee #90, 2008). However, there are scattered part-time carpenters who own and operate small workshops to fashion simple pieces of *Acacia* furniture for themselves and others. There is also one villager in Hamlet One in Xuan Loc Commune whose entire livelihood depends on the medium-sized sawmill that he uses to create furniture such as bed frames, tables, desks, doors, etc. for himself and for other villagers in the entire commune (Interviewee #90, 2008).

Much like Hong Ha Commune, Xuan Loc Commune was another of the few privileged communes chosen to participate in Vietnam's Five Million Hectare Reforestation Program in 1995. However, a large number of ethnic Bru-Van Kieu villagers chose to grow *Acacia* trees on their own accord and not as part of the program because they already possessed sufficient capital and vacant flat lands granted to them by the government (Interviewee #90, 2008). Of the 20 villagers interviewed in Xuan Loc Commune, 90% (18 villagers) have been growing *Acacia* trees for at least five years and nearly half of them have been growing for over a decade (Figure 17). Xuan Loc Commune's economic growth since 1995 is cited by the current chairman of the commune as a resounding success attributable in large part to *Acacia* cultivation (Interviewee #90, 2008). The importance of *Acacia* trees to Xuan Loc Commune is significant. For example, of the 20 villagers interviewed, none dedicated fewer than 21%

of their total land to *Acacia* cultivation (Table 13). One respondent had *Acacia* trees growing on 21-40% of their lands and 75% of respondents (15 villagers) allocated 61% or more of their lands to the exclusive growth of *Acacia* species (Table 13).

Figure 17 How recently villagers began planting *Acacia* in Xuan Loc Commune, 2008

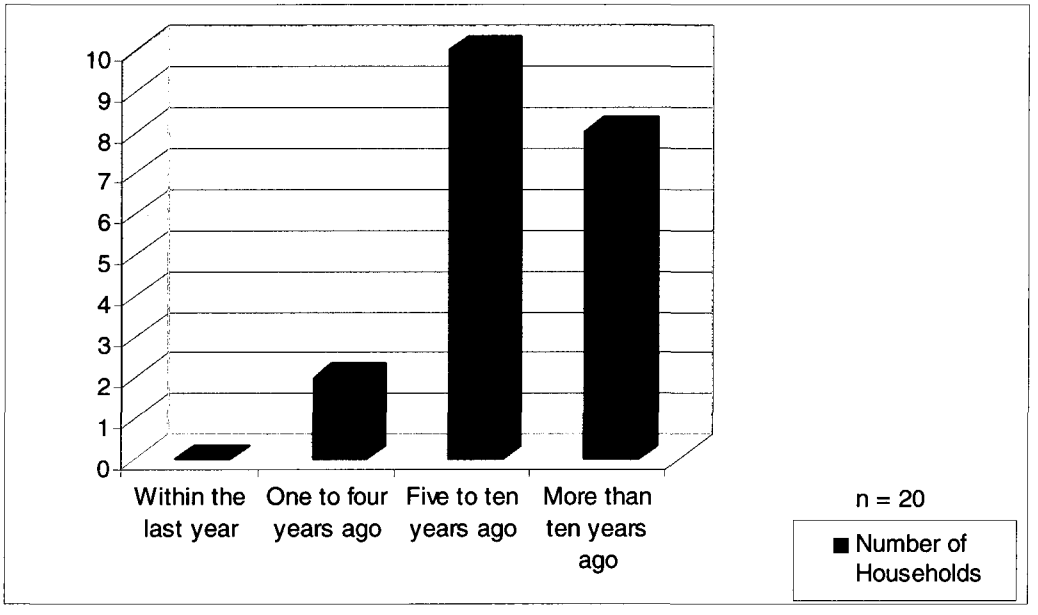


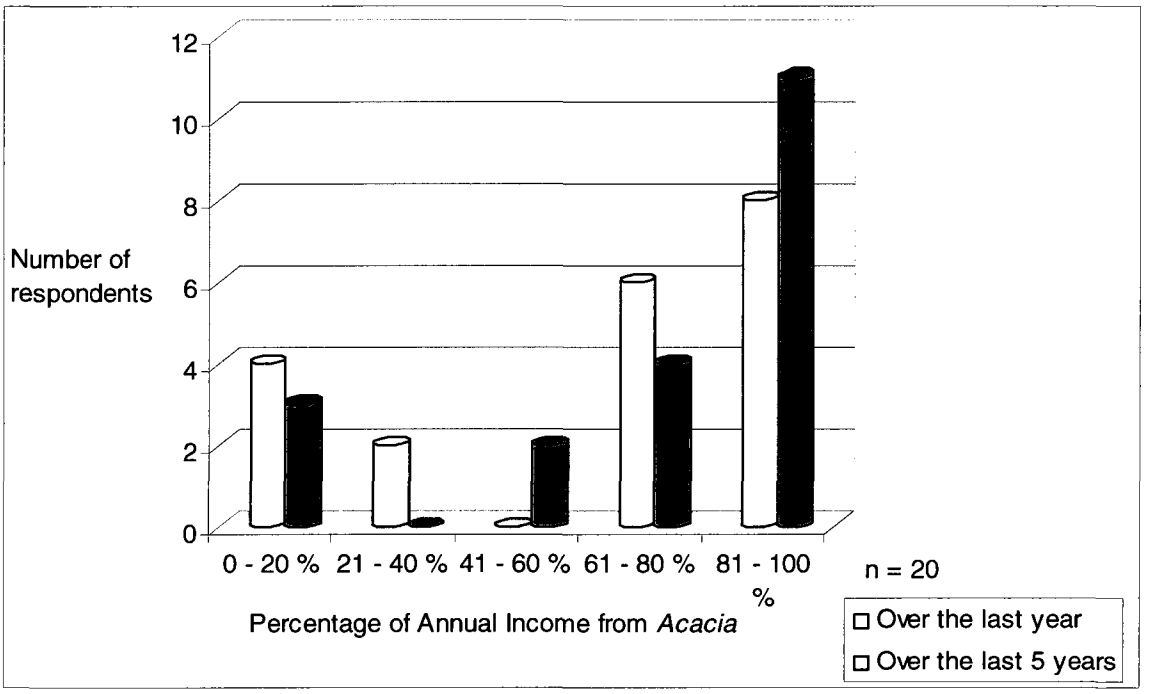
Table 13 Percentage of total household land under *Acacia* cultivation in Xuan Loc Commune as of 2008

Percentage of household land	Number of households
0 – 20%	0
21 – 40%	1
41 – 60%	4

61 – 80%	6
81 – 100%	9
Total	20

Most villagers from Xuan Loc Commune derived 81-100% of their annual income since mid-2003 from the sale of *Acacia* trees to middlemen (Figure 18). A high percentage of villagers also reported that most of their annual household income from mid-2007 to mid-2008 had come from *Acacia* cultivation (Figure 18). This finding suggests that *Acacia* trees in Xuan Loc Commune are typically harvested in 5 year intervals and that most villagers harvested their trees between 2007 and 2008. The second most popular response from respondents indicates that villagers received 61-80% of their annual income since mid-2003 from *Acacia* cultivation (Figure 18). With these findings in mind, it comes as no surprise that a full 95% (19 villagers) of the interviewed farmers plan to grow *Acacia* trees until at least mid-2012 (Table 8). Similarly, those same 19 villagers or 95% of those interviewed who plan to grow *Acacia* trees for at least four more years also firmly believe that *Acacia* species will be an integral part of their long-term sustainable livelihoods 20 years or more into the future (Table 9). Only one of the villagers interviewed in Xuan Loc Commune did not plan on including *Acacia* cultivation into their long-term livelihood strategies (Table 9).

Figure 18 Comparison of total household income derived from *Acacia* between the past year and the past five years in Xuan Loc Commune, 2008



4.2.1.2.4 The Benefits and Challenges of *Acacia* Cultivation in Xuan Loc Commune

With regards to the benefits derived from *Acacia* cultivation in Xuan Loc Commune, villagers listed the same seven most popular benefits as indicated by villagers in Hong Ha Commune. The benefits in order of importance to Xuan Loc Commune residents are: selling tree logs as pulp for paper material, maintaining soil integrity, selling or using the tree logs as firewood, selling or using the logs as furniture or home building materials, acquiring *Acacia* seedlings to plant elsewhere, improving agroforestry conditions, and harvesting non-timber forestry products (Table 14). This information indicates that villagers within the commune rely heavily on middlemen to transport their timber to the sawmills in Chan May Port, and that more than half of the *Acacia* trees grown within the

commune are sold to be processed elsewhere rather than to be used locally (Table 14). Furthermore, the maintenance or improvement of soil conditions has come as an unexpected benefit to 65% (13 villagers) of respondents (Table 14). Using the logs as firewood was another common benefit indicated by nearly half (nine villagers) of the interviewees from Xuan Loc Commune (Table 14). Improved agroforestry, the acquisition of *Acacia* seedlings to plant elsewhere, and the collection of NTFPs are only secondary benefits of relative low importance to villagers of Xuan Loc Commune because they were all indicated by fewer than 75 % (15 villagers) of those interviewed in the commune (Table 14).

Table 14 The benefits from *Acacia* cultivation in Xuan Loc Commune as indicated by interviewed villagers

Benefit	Number of times indicated
Selling logs as pulp/paper material	15
Maintaining soil integrity	13
Selling/using logs as firewood	9
Selling/using logs as furniture/building material	6
Improved agroforestry	4
Acquiring *Acacia* seedlings to plant elsewhere	4
Harvesting non-timber forestry products	2

The eight most common difficulties associated with *Acacia* cultivation in Xuan Loc Commune are identical to those experienced in Hong Ha Commune, but vary in terms of their ranking. The most problematic issues have also been tabulated in order of descending importance. The eight most frequently encountered problems are storm damage, a lack of selling information provided by middlemen, the trampling of *Acacia* saplings by livestock, unclear land tenure or difficulty acquiring additional lands, price fluctuations, disease or pest outbreaks, low quality inputs, and the acquisition of capital (Table 15). Of the 20 villagers interviewed in the commune, 65% (13 villagers) expressed concern over the very real possibility of losing their tree crops to storm damage (Table 15). Despite its upland elevation, Xuan Loc Commune's close proximity to the South China Sea means that it is afforded little protection or warning from the frequent storms and typhoons that regularly affect the Vietnamese coastline during the rainy season. As a result, storm-related damage to *Acacia* plantation forests in Xuan Loc Commune is typically more severe than that experienced in more inland communes such as Hong Ha Commune (Interviewees #49 & 50, 2008). Several villagers even recounted a terrible flood from a typhoon in 2001 which killed dozens of villagers and destroyed hundreds of hectares of *Acacia* trees (Interviewees #49, 50, & 57, 2008).

Table 15 The most common problems with *Acacia* cultivation in Xuan Loc Commune as indicated by interviewed villagers

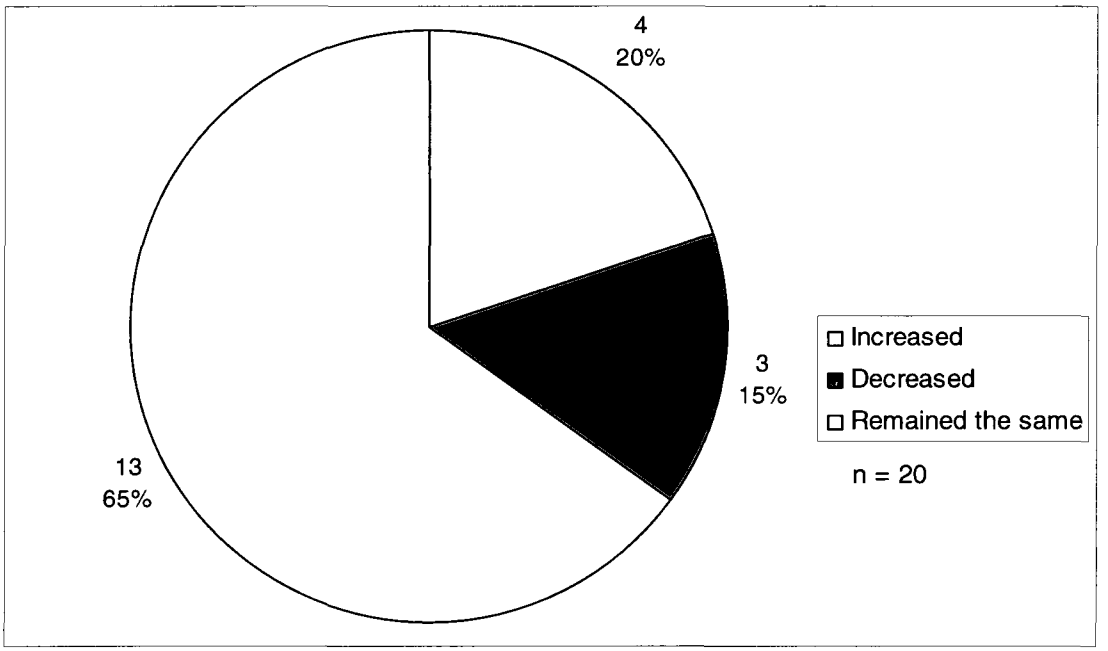
Problem Experienced	Number of times indicated
Storm Damage	13
Trampling of Small *Acacia* Trees by Livestock	6
Lack of Selling Information (Price, how to contact middlemen, etc.)	6
Unclear Land Tenure/Securing Additional Land	4
Price Fluctuations	3
Disease or Pest Outbreaks	3
Securing Sufficient Finances	2
Low Quality Inputs (Seeds, fertilizers)	2

A total of only 30% (six villagers) of interviewed farmers indicated that they had experienced problems trading their trees to middlemen or had their *Acacia* saplings trampled by wandering livestock (Table 15). Being the second and third most frequently cited difficulties, they are not as significant issues as that of storm damage. Fairly low incidences of middlemen dissatisfaction signify that farmers in Xuan Loc Commune are more experienced when trading with middlemen, that they can contact middlemen without great difficulty when they want to sell their goods, and that they are content with the prices they receive for their trees and the relationships that they have developed with

middlemen (Table 15). The tripled rate of trampling of *Acacia* saplings by livestock compared to the rate found in Hong Ha Commune suggests that livestock are an important secondary source of income to villagers in Xuan Loc Commune (Table 15). Price fluctuations, disease or pest outbreaks, securing capital, and low quality inputs were considered relatively minor (see Table 15).

Due to the lower availability of land in Xuan Loc Commune when compared with Hong Ha Commune, it is only natural to assume that villagers in Xuan Loc Commune experience a greater degree of difficulty expanding their lands in order to grow more *Acacia* trees. Of the 20 farmers interviewed, 65% (13 villagers) feel as though their ability to acquire new lands remains unchanged and is difficult as it has been in previous years (Figure 19). Several villagers in Hamlet One noted that practically all of the land in the commune was used for agricultural, residential, or plantation forest purposes and the remainder was designated as natural forest land or was otherwise off-limits to them (Interviewees #34 & 35, 2008). Opinions were strong among respondents as another 15% of those interviewed believe that it is becoming even more difficult to secure new land while 20% believe that the task is becoming easier (Figure 19). An interview with the chairman of the commune confirmed that vacant land is becoming scarce and villagers are required to venture out into lands far from their homes to tend to newly acquired hectares of *Acacia* plantation lands (Interviewee #90, 2008).

Figure 19 Changing land accessibility for cultivation purposes in Xuan Loc Commune, 2008

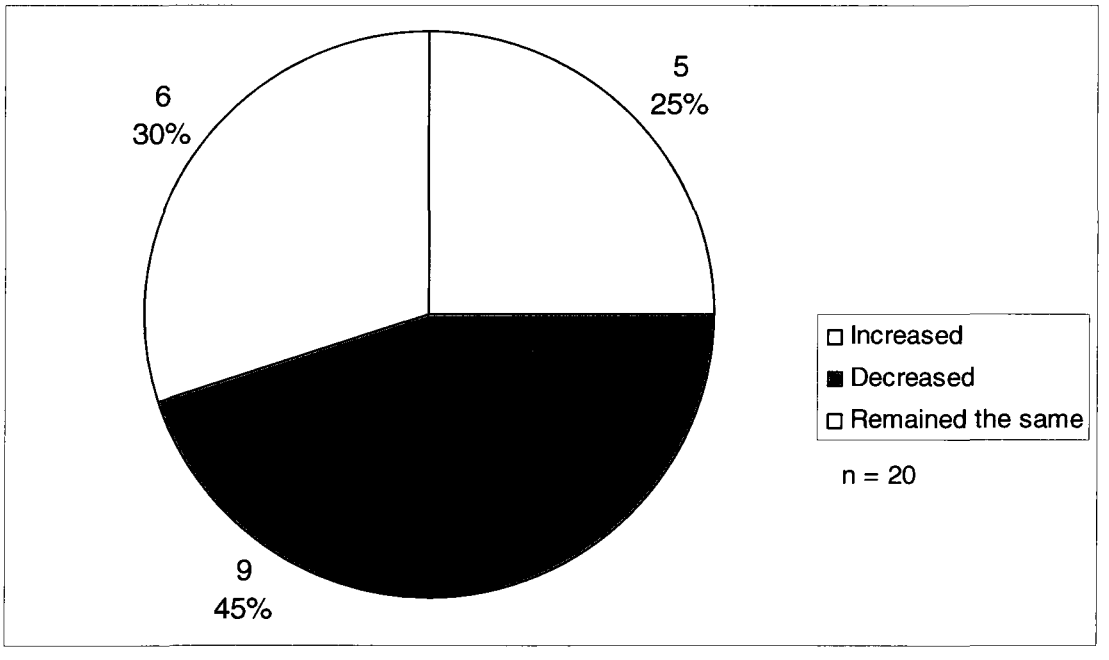


With respect to the overall health of tree crop lands in Xuan Loc Commune, 45% of respondents (nine villagers) indicated that the health of their lands appears to have deteriorated in 2006 and 2007 (Figure 20). These numbers mirror the study of Van Hung et al. (2007) who reported decreases in tree crop productivities in northern Vietnam. However, these decreases in productivity were cited as being slight and even trivial in some cases. The overall decrease in tree crop productivity was due to the choice by villagers not to apply fertilizers to their lands (Interviewees #31, 54, & 55, 2008). This was not because villagers could not afford to do so but rather because they believed that the benefits to their trees accrued from fertilizers were only marginal and not worth the time and effort required of them (Interviewees #31, 54, & 55, 2008).

A full 30% (six villagers) of those questioned believed that the health of their lands has not changed recently while only 25% (five villagers) claimed that the health and

productivity of their lands has increased (Figure 20). Of the five villagers who claimed that the health of their lands had increased, all owned a Red Book while none of the nine villagers who claimed that the health of their lands had decreased were in possession of a Red Book. This indicates that villagers who believe that they hold clear title over their lands tend to take better care of them and become more concerned with reinvestment in *Acacia* cultivation than villagers who believe they do not hold secure land tenure. This finding supports the theory examined by Van Gelder & Reerink (2009) which suggests that villagers increase their willingness to invest in their land and their housing and improve their access to credit from banks after they have been granted land titles.

Figure 20 Changes to the overall health of cultivation land in Xuan Loc Commune, 2008



The vulnerability of villagers to *Acacia* market price shocks appears to be higher in Xuan Loc Commune than in Hong Ha Commune as 50% or ten of the 20 villagers questioned would continue to grow and sell their trees to middlemen even if prices

plummeted for several months or longer (Table 16). If the price for *Acacia* trees was to plummet suddenly and for a prolonged period of time, only ten percent, or two of the interviewed villagers from the commune, would cease *Acacia* cultivation entirely and switch to growing another type of crop in its stead (Table 16). A full 40% (eight villagers) would choose to continue growing the trees well into the future but would only use them for subsistence purposes, rather than selling them to commercial enterprises through middlemen (Table 16).

Table 16 What villagers in Xuan Loc Commune will do if the price for *Acacia* drops significantly for a prolonged period of time

Long-term strategy	**Number of villagers** n = 20
Continue to grow and sell *Acacia*, accepting a lower price and waiting for the price to eventually rebound	10
Continue to grow *Acacia* but only use it for subsistence purposes such as for firewood, furniture, and building materials	8
Switch to growing another type of crop such as Rubber or *Eucalyptus* trees	2

4.3 Summary of the First Stage of the *Acacia* Commodity Chain

This chapter examined the origins of the three *Acacia* species and their introduction to Southeast Asia and Central Vietnam to provide villagers with economic opportunities

and to revitalize degraded forests. Findings indicate that the species are extremely resilient and suitable to climatic growing conditions in Vietnam. This is largely because *Acacia* species require minimal inputs, are able to self-pollinate into new areas, and flourish on steep mountain slopes where agricultural crops cannot be grown. *Acacia* cultivation has increased in popularity at an unprecedented rate throughout Central Vietnam to the point where today it has become the tree of choice for operators of commercial plantation forests in the region and small-scale farmers as well.

The chapter also presented and discussed the case study results from research activities undertaken in Hong Ha Commune and Xuan Loc Commune. The histories, ethnic minorities, government programs, and land access difficulties that are unique to each commune were investigated and analyzed. The chapter also gave insight into the daily life, benefits, and challenges faced by an average upland villager who relies partly or entirely on *Acacia* cultivation for their household income. *Acacia* trees provide a host of benefits to villagers by maintaining the integrity of soil, yielding firewood and building materials, providing income through the sale of logs for pulp and paper material, and improving agroforestry opportunities. A few of the major problems associated with *Acacia* cultivation include complicated transactions with middlemen, storm damage, disease and pest outbreaks, insufficient availability of capital resources, and low quality inputs. Due to their small numbers, ethnic minorities face marginalization across the communes and receive lower profits for *Acacia* goods than Kinh Vietnamese.

Currently, the biggest obstacle to economic progress in general, and *Acacia* cultivation in particular in Central Vietnam, is the prevalence of a common property regime and a lack of secure access to land for income-generating activities. Tanner

(2007) notes that communal land ownership has been dismissed by development experts as an obstacle to economic development and most experts advocate a shift to individual tenure. However, Sikor & Nguyen (2007) confirm in their study that devolution schemes devised by the state government are intended to give greater control of forest lands to rural villagers, but to date they have been poorly implemented. The vast majority of villagers interviewed feel that they could lose access to their commercial plantation forests at any time. As a result, many are unwilling to expand or improve their *Acacia* plantation lands yet they rely on them as their primary source of income.

5 THE SECOND AND THIRD STAGES OF THE *ACACIA* COMMODITY CHAIN IN CENTRAL VIETNAM

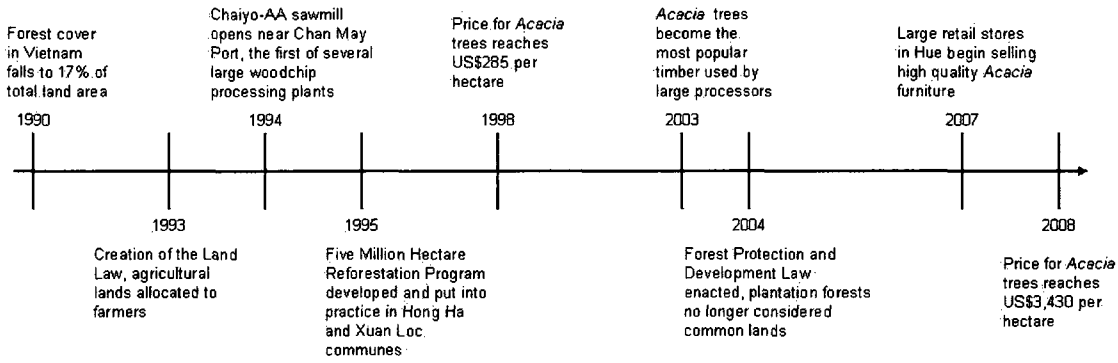
This chapter continues to trace the connections and linkages between production and consumption of *Acacia* commodities and examines the processes and costs associated with trading the tree crops with respect to the second and third stages of the *Acacia* commodity chain. As was mentioned in Chapter Three, the second and third stages of the *Acacia* commodity chain in Central Vietnam encompass all of the stakeholders and their activities necessary for the transportation, processing, and sale of finished *Acacia* products. These products arrive at their final destinations in Vietnamese urban centres, rural communes, or overseas markets.

In stage two of the *Acacia* commodity chain, individuals known as middlemen are contracted by villagers to extract *Acacia* trees from plantation forests and transport them to carpenters or sawmill factories. These enterprises of varying sizes are typically located in some of the more urbanized communes. It is within the third stage of the commodity chain that harvested *Acacia* trees are cut into boards then used in the creation of furniture items. The furniture is sold in retail stores to urban customers. Alternatively, the raw *Acacia* trees are shipped to large pulp and paper mills where they are processed into woodchips.

Information for the three major stakeholders involved in the second and third stages of the *Acacia* commodity chain is derived primarily from the middlemen, processor, and retail store interviews. Secondary stakeholders such as *Acacia* suppliers and government officials are discussed with information collected from additional interviews and observations. Secondary sources such as census information and government reports

further supplement the analysis. A timeline aids in highlighting the importance of key events that have affected the *Acacia* commodity chain in Central Vietnam (Figure 21).

Figure 21 A timeline of key dates in the *Acacia* commodity chain



5.1 The Middlemen

The second stage of the *Acacia* commodity chain in Central Vietnam is dominated by teams of workers that locate, purchase, cut down, strip, then transport *Acacia* trees from rural villages to processing plants where higher end *Acacia* products are fashioned. These middlemen perform some of the most labour-intensive and dangerous jobs in the *Acacia* industry as they work long days to fell trees, strip them of their bark, cut them into smaller section, load them onto large trucks, then transport them along busy highways to distant processing plants (Interviewees #65 & 76, 2008). Middlemen proved to be elusive to find and converse with as the business is fairly secretive and extremely competitive. On occasion, middlemen can be seen scouring the rural countryside searching for communes with a large number of mature *Acacia* trees that can be sold to processing plants. Up-to-date information is the key to a middleman's success, and each

group of middlemen operate in isolation from one another (Interviewees #65 & 76, 2008). I conducted interviews with eight middlemen in order to understand the challenges they endure, the financial compensation that they receive for their efforts, and the services and benefits that they provide to villagers and processors.

5.1.1 Interaction With Villagers and Processors

Middlemen proved to be difficult to locate and so impromptu interviews were conducted with them whenever and wherever they could be found. One such interview was completed at a gas station along National Road no. 1A with a middleman who was refueling his truck at the time. The middleman was transporting a full load of *Acacia* trees (Photo 5) to a small processor in Huong Ho Commune, which borders the western city limits of Hue (Interviewee #65, 2008). He divulged that he had become interested and involved in the timber trade in 1993 when the demand for middlemen skyrocketed as the first of the very large timber processing plants opened for business in the province. Over the previous 15 years the middleman had bought timber from villagers residing in all nine districts of the province, but he recounted that the most productive and profitable districts to work in were that of A Luoi, Nam Dong, and Huong Thuy (Interviewee #65, 2008). The middleman estimated that he had bought timber from roughly 200 customers over the course of his career, but he was quick to point out that he frequently purchased *Acacia* as often as possible from

The first middleman interviewed was found in Hong Ha Commune. He provided invaluable insight into the typical daily routine of an average middleman involved with the *Acacia* trade. Furthermore, the attitudes and opinions expressed by the middleman were representative of the majority of his colleagues.

Ho Van Binh lives in Hue and became involved in timber trading in 2002 when he was strongly encouraged to do so by his older brother, who himself is a middleman, as well as his younger brother who owns and operates a sawmill in Hue. In 2002, Ho Van Binh began transporting local jackfruit trees to several of the small factories in Chan May Port that refined the tree trunks into woodchips used in particle board production.

In 2004, he switched from jackfruit trees to *Acacia* trees when he discovered that he could earn a higher profit margin as factories paid higher prices for *Acacia* than any other tree. He now sells the *Acacia* trees primarily to one of the three largest factories in Lang Co, near Chan May Port, where the timber is processed into pulp then exported to China, Thailand, or Japan and prepared for the initial stages required in the manufacture of high quality paper.

However, he is also contracted on occasion to provide lumber for furniture production to processors found in and around Hue. In order for processors to fashion large pieces of furniture such as bed frames, dressers, and desks, all *Acacia* trees he delivers to mid-sized processors are required to be at least 220 cm in length.

his regular customers to whom he had established a positive trading relationship (Interviewee #65, 2008).

Photo 5 Interviewing a middleman along National Road no. 1A

Before harvesting *Acacia* trees, middlemen must explore the countryside in order to locate communes that contain large areas of prime plantation forests. They occasionally stop once they have found sufficient areas of *Acacia* plantation forests and chat with residents to gather information and to approach *Acacia* farmers in order to purchase their trees. Once a middleman has personally assessed the quantity and quality of a villager's *Acacia* trees, he offers them a standard price based on his knowledge and experience from *Acacia* trading that is rarely rejected (Interviewees #59 & 77, 2008).

However, the price is subject to several other factors such as the bargaining skills of a villager, as well as their ethnicity and gender. Once a verbal agreement has been reached, the middleman returns a few days later with five or six tree-cutters, tree-cutting tools, and a truck. They begin the arduous task of felling the *Acacia* trees using chainsaws or axes, stripping them of their bark using a tool called a rua (Photo 6), then loading and securing them onto the truck so they may be transported safely to the

processors. To secure the loads properly, large *Acacia* trees are placed on the bottom of the truck while smaller trees are stacked near the top (Photos 7 & 8). Thick chains are then utilized to prevent any shifting from taking place during long journeys to the factories (Interviewees #77 & 78, 2008).

Photo 6 The Rua, a standard tool used by middlemen to strip bark from trees

Photo 7 Felled *Acacia* trees being carefully loaded onto a middleman's truck

Photo 8 Securing the *Acacia* trees for the voyage to the processing plants

Clearing a villager's lands of *Acacia* trees can take anywhere from several days up to two months to complete, depending on the size of the area being harvested and its accessibility (Interviewees #77 & 78, 2008). Hectares of *Acacia* trees that are far removed from roads can earn a villager between 25-30% less income than a hectare that is directly adjacent to a road (Interviewees #77 & 78, 2008). This has an important impact on the profits villagers receive. Some decide to plant food crops such as wet rice or cassava instead (Interviewee #59, 2008). Because of the limited road networks operating within rural upland communes and the difficulties associated with moving trees to these roads, a high proportion of forests located along these roads are plantation forests (Interviewee #59, 2008). The loud noises generated by the chainsaws and transportation activities of middlemen frequently attract the attention of villagers residing within several kilometres of their operations. Subsequently, middlemen are often approached during the tree removal process by villagers willing to sell their *Acacia* trees. As a result of this occurrence, middlemen often do not have to search for their next job because customers are drawn to them (Interviewee #59, 2008).

As an important component of their success, middlemen are expected to be extremely familiar with the landscapes of the districts and communes throughout Central Vietnam. They also must develop and maintain friendly business relationships with both villagers and the processors with which they trade (Interviewees #59 & 61, 2008). One middleman interviewed in Hong Ha Commune remarked that the commune had experienced massive changes since his last visit four years ago when there were far fewer villagers selling *Acacia* trees for commercial use. He commented that the infrastructure (a second road, a new radio tower, more power lines) of the commune was markedly improving while lands that had been barren or covered in natural forests four years ago were now occupied by plantation forests (Interviewee #59, 2008). He decided to return in 2008 because he recognized the potential that the commune harbored for timber plantations and he expected to find large trees available for purchase (Interviewee #59, 2008).

5.1.2 The Economics of the *Acacia* Trade

The average middleman's operation is fairly small and simple yet extremely profitable. A middleman typically owns only one truck that costs about US$6 [VND 100,000] per day to maintain (Interviewees #59 & 76, 2008). One respondent calculated that a truck can carry roughly ten tons of *Acacia* trees when it is fully loaded and that each ton is sold at a factory for roughly US$50 [VND 800,000-940,000] per ton, depending on global supply and demand market conditions (Interviewee #59, 2008).

Several middlemen conceded that many changes have taken place since they began work in the 1990s, most notably the tremendous rise in the value and price of *Acacia*

trees. The older and experienced middlemen generally agreed that in 1998, US$285 [VND 5,000,000] was the average price at which a hectare of four year-old *Acacia* trees could be purchased from a villager in Central Vietnam (Interviewees #65 & 78, 2008). By 2006, that figure had tripled to US$860 (VND 15,000,000) for the same hectare due to a rise in demand from overseas markets and in mid-2007 the price had again jumped to record highs of US$1,420 [VND 20-30,000,000] per hectare (Interviewees #65 & 78, 2008).

The price for *Acacia* trees continued to rise throughout the first half of 2008. Mature *Acacia* trees six or seven years old of the highest grade quality, such as those frequently found in Hong Ha and Xuan Loc communes, fetched prices from middlemen as high as US$2,860 [VND 50,000,000] per hectare by mid August of 2008 (Interviewees #59 & 65, 2008). The price for *Acacia* trees further plateaued at US$3,430 [VND 60,000,000] per hectare by late November of 2008 (Interviewees #59 & 65, 2008). It was the belief of the middlemen interviewed that in addition to vast gains in the average rural villager's disposable income, *Acacia* trees provided a number of other benefits to communities including soil erosion alleviation and a mediated climate. Throughout much of mid-2008, the middlemen purchased the highest grade of *Acacia* trees for an average of US$16 [VND 280,000] per ton from villagers and resold them for US$49 [VND 860,000] per ton to the processing plants at Chan May Port (Interviewees #59 & 65, 2008).

5.1.3 Constraints and Opportunities

The middlemen interviewed in Hong Ha Commune believed that the commune remained underexploited in terms of *Acacia* production and they longed for greater government funding in the region (Interviewees #59 & 82, 2008). The middlemen criticized the provincial and state governments for neglecting the commune, and suggested that organizations from foreign countries were largely responsible through their funding initiatives for the increased standard of living now found in the commune (Interviewees #59 & 82, 2008). This finding supports the study conducted by Wyatt & Hirsch (2004) who believe that political power disputes between commune, provincial, and state governments in Vietnam can become so intense and prolonged that rural villages are not given the attention that they need in order to improve their local economies.

The middlemen interviewed claimed that without international funding the projects that have provided villagers with *Acacia* plantations, clean drinking water, and infrastructure improvements found throughout Central Vietnam including the provinces of Thua Thien Hue, Quang Tri, and Quang Binh would not exist (Interviewees #59, 81, & 82, 2008). The middlemen explained that money slated for the development of rural communes leads to more profits for them. This is because development leads to more economic opportunities for middlemen to find and sell *Acacia* trees, so the middlemen tend to support and benefit enormously from new development endeavours. Middlemen also receive support from processors. In the event that middlemen lack the capital to start up or expand their business, they can often enter into favourable financial arrangements with large processing plants that will extend to them low-interest loans that do not have

to be repaid for a pre-determined number of years (Interviewees #59, 81, & 82, 2008).

The average middleman interviewed believed that he is faced with fewer uncertainties and receives a higher income than the villagers he does business with (Interviewees #76 & 77, 2008). Aside from the monotonous task of cutting down *Acacia* trees and loading them onto their trucks, all middlemen are faced with the time-consuming tasks of acquiring all of the necessary permits and documents required of them to legally transport timber. Mandatory government permits can cost up to US$0.60 [VND 10,000] per ton of *Acacia* to transport. All middlemen must also secure a letter of permission from the commune government allowing them to remove trees from an individual's lands (Interviewees #76 & 77, 2008). They must then obtain a permit that is signed and jointly issued by a district forestry board as well as a regional police department that authorizes them to transport over-sized loads onto highways. A written contract may be requested by a villager before the business transaction is considered complete but it was reported that for the most part a verbal agreement would suffice for both parties (Interviewees #76 & 77, 2008). The middlemen reported that although the fees to cut, transport, and sell timber to processing plants are at times unjustifiably high, permits and supporting documents are fairly forthright to attain.

Middlemen must also deal with frequent police inspections and pay all of the necessary tolls along the way to the sawmills in Chan May Port. However, they conceded that they rarely encounter any problems when seeking letters of permission as well as permits and few have ever been fined by police for any violations (Interviewees #76 & 77, 2008). Another minor challenge that middlemen face are the increasing costs of oil and gasoline that are necessary to operate trucks and chainsaws. They explained

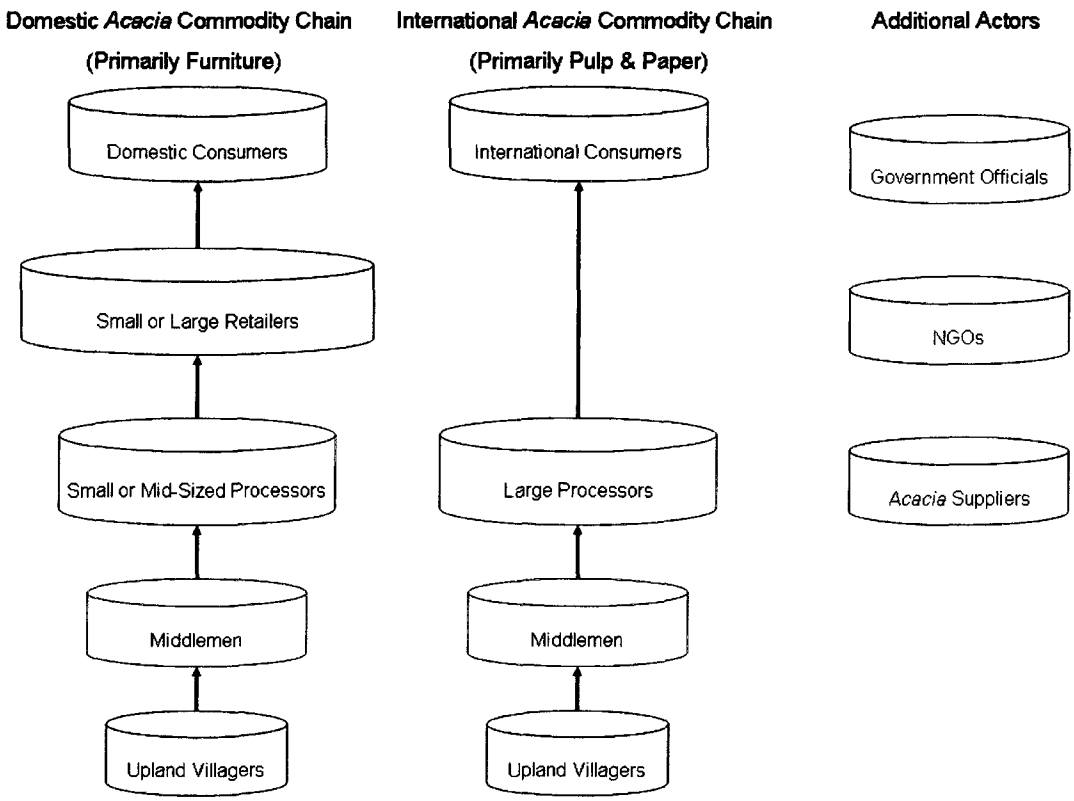
that although the value of *Acacia* trees has been increasing over the years, it has not kept pace with oil and gasoline costs, and that as a result, their profits have declined marginally from previous years (Interviewees #76 & 77, 2008). It was the opinion of one middleman that *Acacia* was "one of the best things to ever happen to the inhabitants of Central Vietnam" because villagers were gradually earning incomes on par with their countrymen in the wealthier southern and northern parts of the country (Interviewee #81, 2008). He pointed out that the three *Acacia* tree species have permitted rural villagers and middlemen to generate cash from mountainous lands that would otherwise be barren as they are too steep and sandy to grow any other type of crop (Interviewee #81, 2008).

The significant majority of trucks that middlemen purchase and utilize on a daily basis are used vehicles that are antiquated and in need of constant repair. Despite this, trucks that are bought fourth or even fifth-hand from vendors can be extremely expensive, and long-term financial arrangements often need to be structured to spread payments out over several years (Interviewees #59, 65, & 82, 2008). Other challenges include hiring motivated and experienced workers to cut down and haul trees, avoiding physical injuries, pinpointing communes that support sufficient *Acacia* forest plantations to yield high profits, and the rising level of traffic present on mountainous roadways that prolong journeys and increase the risk of deadly vehicular collisions. However, the middlemen expressed their satisfaction with the government's encouragement and support of individuals in their profession (Interviewees #76, 81, & 82, 2008). They are thankful that they have the freedom to decide where, when, and how their business operates (Interviewees #59, 65, & 82, 2008).

5.2 The Processors

The third stage of the domestic and international *Acacia* commodity chains in Central Vietnam (Figure 22) encompasses small to mid-sized processors and carpenters. Also included in this stage are large foreign-owned processors and the roles that they play in supplying finished *Acacia* lumber products to urban retail stores, rural villagers, and overseas customers. Domestic processors vary enormously in their size and the scope of services that they offer, ranging from tiny woodshops operated by a solitary villager in the interior of his home with the sole purpose of producing finished *Acacia* boards, to mid-sized enterprises that employ 35 employees simultaneously and produce standard or custom furniture for local customers. Large internationally-financed processors employ several dozen workers who work vigorously to produce pulp used in the creation of high quality paper in overseas markets. Large processors attract the large majority of middlemen for the regular business and high prices that they offer for *Acacia* trees. In order to fully understand all of the activities associated with such a spectrum of businesses, 12 interviews were carried out with an assortment of processors located in several of the districts which constitute Thua Thien Hue Province.

Figure 22 The actors involved in the domestic and international *Acacia* commodity chains in Central Vietnam



5.2.1 Small to Mid-Sized Domestic Processors

The first interview with a small processor was conducted in the village of An Binh, Huong Ho Commune, Huong Tra District, with a carpenter by the name of Nguyen Hooy. Numerous carpenters and larger processors conglomerate in the eastern portion of Huong Tra District because of its proximity to the retail stores found in the city of Hue (Interviewee #64, 2008). They also choose to operate there because a steady supply of *Acacia* can be found in the area as it acts as a crossroads between major roadways where middlemen must pass through on their way to Chan May Port. Nguyen Hooy is a 47 year

old Kinh male who operates a very small woodworking shop in the back of his home which he uses to fashion and sell *Acacia* boards of all dimensions and sizes to furniture manufacturers in the immediate vicinity (Interviewee #64, 2008).

Nguyen Hooy is and always has been a rice farmer first and foremost but he decided to begin supplying mid-sized processors with *Acacia* boards in 2003 because he realized they were in high demand and his income would be greatly supplemented if he did so (Interviewee #64, 2008). At the time, he recognized the potential financial opportunity that was present and he also believed that he could quickly learn the art of woodworking on his own as time passed by and he slowly gained experienced. When he is not preoccupied with farming chores, Nguyen Hooy buys freshly cut *Acacia* trees from middlemen passing through the village and utilizes his table saw (Photo 9) to convert the trees into boards for larger processors (Interviewee #64, 2008).

Photo 9 The simple tablesaw used at a small carpenter's home

He pays on average between US$45-49 [VND 800,000-850,000] per ton of *Acacia* timber and is able to find buyers for his wooden boards in the nearby communes. He is

able to sell finished boards to larger processors for an average of US$63-80 [VND 1,100,000-1,400,000] per ton, depending on the quality of his work and the demand for the product (Interviewee #64, 2008). Nguyen Hooy is pleased with the income generated from his business and the employment that the *Acacia* trees have provided him with so he has no foreseeable plans to scale back his production anytime soon. Furthermore, due to the smaller scale of his operation and the proximity of his home to a highway frequently traversed by middlemen, he enjoys two unique advantages that few other carpenters have. The first is that the government does not require him to possess a permit to run his business while he also has access to an abundant supply of timber (Interviewee #64, 2008). He has been injured quite seriously by his table saw several times already, which subsequently means that he is temporarily unable to work and his income is temporarily halted. He stated that the government gave him no support during these tough times and that he was more or less left to fend for himself until his health improved and he was able to work once more (Interviewee #64, 2008).

Le Phuoc Thuan is a second Kinh carpenter also interviewed in An Binh Village in Huong Tra District. Unlike Nguyen Hooy, Le Phuoc Thuan is a full-time carpenter with over 20 years of experience and with a range of woodworking skills (Interviewee #70, 2008). Now 38 years old, he faithfully devotes 50-70 hours every week to producing furniture from scratch for the retail stores in Hue and also for other villagers within adjacent communes. Le Phuoc Thuan had also been a rice farmer throughout his childhood and into his late teens, but he developed a passion for woodworking at a young age and decided to refine his skills by enrolling in college (Interviewee #70, 2008). At age 22, he left his farm and moved with his wife to the outskirts of Hue. It is there that

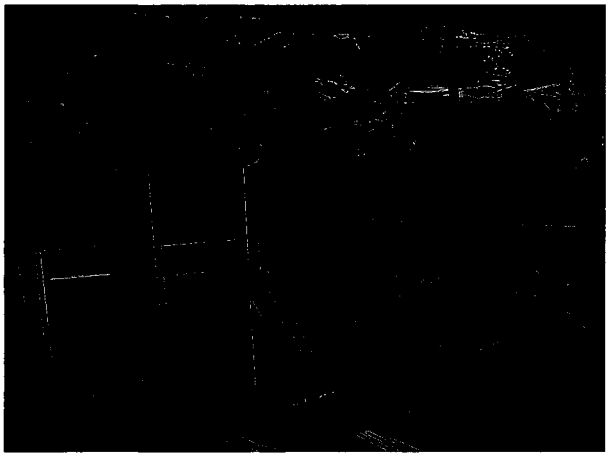
he acquired woodworking machinery and opened his shop behind his home in order to supply mid-sized processors with materials and furniture products that are in high demand (Interviewee #70, 2008).

When he opened his shop in 1992, Le Phuoc Thuan primarily bought indigenous species of trees that were logged from natural forests by middlemen, a practice that is against the law today. These trees were the most readily available and cheapest to purchase at the time while *Acacia* trees as well as other types of plantation forest trees were either rare or expensive (Interviewee #70, 2008). Nowadays, it is difficult to purchase anything other than *Acacia* trees from the middlemen passing through the commune. Le Phuoc Thuan believed that the quality of the indigenous tree species was generally higher than that of the *Acacia* species, but *Acacia* woods were easier to work with and were excellent for producing affordable beds, desks, and dressers for students or low-income families (Interviewee #70, 2008).

Le Phuoc Thuan noted that the villagers of An Binh had become heavily involved with *Acacia* processing in recent years. It is not unusual for households to have one or two family members employed as carpenters or middlemen, and there is no denying the fact that monthly incomes have increased tremendously since the introduction of *Acacia* woods to the commune (Interviewee #70, 2008). However, Le Phuoc Thuan strongly believes that the village has become "far too dependent on raw *Acacia* trees for household incomes" from the surrounding countryside and did not want to think about what would happen if the supply of trees was somehow disrupted. The implications of this finding suggest that villagers have failed to diversify their income sources and will be forced to seek out alternative livelihood strategies if the *Acacia* industry collapses. Le

Phuoc Thuan is saving most of his profits now and has plans to expand his business in the future (Interviewee #70, 2008). However, he is reluctant to do so because he will have to hire expensive skilled labourers and move to a different location because the tiny plot of land on which his home and shop are situated is cramped and surrounded by homes or steep terrain (Photo 10).

Photo 10 The cramped interior of a Kinh carpenter's workshop in An Binh Village



Le Phuoc Thuan believes that carpentry is a very worthwhile livelihood to engage in because a respectable income can be earned and significant savings can be accrued by carpenters who construct their homes and build their own furniture from *Acacia* products. He usually buys a ton of *Acacia* for US$51 [VND 900,000] and is able to produce three or four large dressers from that material within a month. Each dresser sells to a retail store in Hue for approximately US$51 [VND 800,000-1,000,000] and a bed frame sells for US$23 [VND 300,000-500,000] so he is able to turn a profit of over US$171 [VND 3,000,000] per month if he works extremely hard.

With respect to the challenges that he faces, Le Phuoc Thuan revealed that during every annual monsoon season he comes across the most severe hardships that affect him. He and other small processors in the village experience great difficulty in locating buyers for their goods and their inventory stocks can accumulate to the point where they run out of space both in their shops and their homes to store finished products. Le Phuoc Thuan and others have had to cease production as a result. Le Phuoc Thuan's total storage space available to him is rather small so he addresses the issue by only buying small quantities at a time from middlemen passing by his home and by scaling back production during the rainy months. He is also concerned about injuring himself while operating one of his dangerous pieces of machinery, and although he has managed to avoid any injuries thus far he is aware of several of his colleagues who have seriously injured themselves to the point where they are no longer able to work at all.

Due to their small size and relative obscurity, the government often neglects the operations of small processors so they are not aided with financial assistance when they need it the most. Le Phouc Thuan also remarked that the price he pays for *Acacia* trees has multiplied as a ton of *Acacia* that today costs US$51 [VND 900,000] used to cost US$17 [VND 300,000] only two years ago. Lastly, he spoke at length of the "great care and patience that must be put into furniture production". Because the expensive dressers and desks that he creates and sells are carved with intricate designs on their exteriors, one mistake may result in the spoiling of weeks of work and he may have to discard the item and start all over from the very beginning.

Another interview was carried out in the village of Long Ho Ha, Huong Ho Commune, Huong Tra District, with a 51 year-old Kinh female named Ho Thi Cuong

who owned a mid-sized processing shop that employed eight workers. The shop utilizes mature *Acacia* trees to produce a wide range of items including doors, desks, dressers, bed frames, window sills, etc. that are sold primarily to customers from Dong Ha in Quang Tri Province, Dong Hoi in Quang Binh Province, and Lao Bao near the Laos border. Nearly 30% of her products are exported by truck to Laos. She buys her *Acacia* trees once a week from middlemen on their way to Chan May Port and because of her shop's size, she is required to obtain a special business permit that she must renew annually. Ho Thi Cuong currently has a small loan from a nearby bank and has the option to borrow more money if necessary. She has been processing *Acacia* trees for nearly ten years and decided to make the switch from indigenous trees to *Acacia* species because at that time their availability surpassed that of local tree species and they could be bought for lower prices.

Ho Thi Cuong admits that she is subject to few major challenges these days, and has great respect for the middlemen who chop down, strip, and transport trees from rural villages to her wood-working shop. Within recent years, she claims that rural villagers have benefited the most within the *Acacia* industry because the price at which villagers sell *Acacia* trees to middlemen has tripled while the incomes earned by middlemen and processors have only marginally increased. Ho Thi Cuong pays middlemen an average of US$54 [VND 950,000] per ton of *Acacia* and is able to generate US$114 [VND 2,000,000] profit per ton after she pays her workers' wages and other expenses. Most of the workers that she employs have worked with her since her business opened 16 years ago and they stopped going to school so that they could earn the wages that she offers. The dressers that she sells cost roughly US$57 [VND 1,000,000] each and a standard bed

frame costs US$23 [VND 400,000]. Her employees are paid US$11.50 [VND 200,000] per dresser they finish and US$2.50 [VND 45,000] per bed frame.

The largest domestic processing plant that I encountered in Central Vietnam was located just west of Hue in the village of Long Ho Ha, Huong Ho Commune, Huong Tra District. The processing plant that employs 25-35 workers, depending on market conditions, is owned by a 42 year-old Kinh male called Mai Trung who is also a middleman. Mai Trung decided early on in his business career that buying raw materials from middlemen would cost him too much money in the long-run so he quickly bought his own truck and began personally purchasing *Acacia* trees from rural villagers as he needed them.

Today, he owns four trucks and frequently embarks on day-long journeys to cut down and transport *Acacia* trees, although on occasion villagers do the work all by themselves and they bring their trees to him in order to fetch a higher price. Knowing full well that the practice was against the law, Mai Trung began his business by cutting down and utilizing all types of trees found in protected natural forests for the purpose of board production. He did this because trees from plantation forests were expensive and not as readily accessible as trees from natural forests. However, in 2001 he ceased this strategy and began dealing solely with *Acacia* trees because he had been subjected to numerous fines and severe penalties that frequently forced him to halt production.

Mai Trung is required to have two government permits in order for his supply of *Acacia* trees to remain uninterrupted. The first permit is issued by the district government and must be renewed on an annual basis. It allows him to own and operate a processing plant while simultaneously trading and purchasing timber from rural villagers.

The second permit is a document produced by individual commune governments which states that a middleman may cut down *Acacia* trees belonging to a particular villager then transport the trees to a specified processing plant. A permit of this type must be acquired by all middlemen each time they transport timber from a customer to a factory and is to remain with them at all times otherwise their cargo may be confiscated by police during inspections.

All of the small *Acacia* trees that Mai Trung harvests he sends directly to the factories at Chan May Port to be reduced to pulp material for external markets while the larger *Acacia* trees he keeps for his business so that they may be processed into lumber products. The products are later used in furniture production. Mai Trung's 25 full-time employees spend their days stripping *Acacia* trees of their bark and converting the logs into boards and large blocks of wood that are sold to table and chair manufacturers in Southern Vietnam. A full-time worker at the processing plant is paid US$114 [VND 2,000,000] per month and is granted other benefits such as taking home wood scraps to be used for firewood and using the plant's machinery for personal use in their spare time. The ten part-time employees are paid by quota and are only called in to work when they are needed.

Mai Trung sells the majority of his products to a number of manufacturers located in the city of Quy Nhon, in the southern province of Binh Dinh. He generates revenue of approximately US$86 [VND 1,500,000] per ton of material sold before his labour and other expenses are paid. However, by purchasing *Acacia* trees directly from villagers for a third of the price that he would have to pay middlemen, Mai Trung is able to garner considerable savings that are well worth the expenses he must pay for his trucks,

equipment, and hired workers that are all necessary to transport *Acacia*. Mai Trung is thankful for the introduction of *Acacia* into Central Vietnam, and believes that the tree species have strengthened the integrity of regional forests and improved climatic conditions.

Mai Trung's only recommendation for the government is to issue Red Books to villagers as soon as possible so that they take better care of their land and forestry resources. Presently, the government is free to reclaim land from villagers who do not have Red Books at any time as already outlined in Chapter Two by Ninh et al. (2001) and Van den Broeck et al. (2009), and Mai Trung often hears of villagers' lands being expropriated by the state government merely five or six years after settling onto a plot of land to grow *Acacia* trees. The government does this to ensure that sufficient supplies of food are grown and that agricultural and forestry lands remain productive (Van den Broeck et al., 2009). As a result, Mai Trung noted that many rural villagers without Red Books who do not believe that they have secure land tenure choose to neglect their *Acacia* trees. The quality of the *Acacia* trees tends to suffer as an unfortunate consequence as villagers do not apply fertilizers to their tree crop lands.

5.2.2 Large Foreign Processors

A very large Thai-owned woodchip factory called Chaiyo-AA is located on the fringe of Chan May Port (Photo 11). The purpose of the visit to the factory was to collect relevant data related to internationally-owned processors and the intermediate mass-processing stages of the *Acacia* commodity chain in Central Vietnam. I was granted permission beforehand to enter the premises of Chaiyo-AA to take photos of daily

activities there and to converse with employees and middlemen associated with the sawmill's daily operations. The shift supervisor at Chaiyo-AA informed me that the factory had been operating since 1994 and produced a massive quantity of woodchips daily (Photo 12), all with different textures, sizes, and other such properties (Interviewee #60, 2008). The woodchips from Chaiyo-AA are exported to China, Taiwan, South Korea, and Japan where they are used in the creation of low-cost building materials. High-quality paper is also made from the factory's *Acacia* products (Interviewee #60, 2008).

Photo 11 The main processing area at Chaiyo-AA near Chan May Port

Photo 12 Woodchips being stored for transportation to Chan May Port

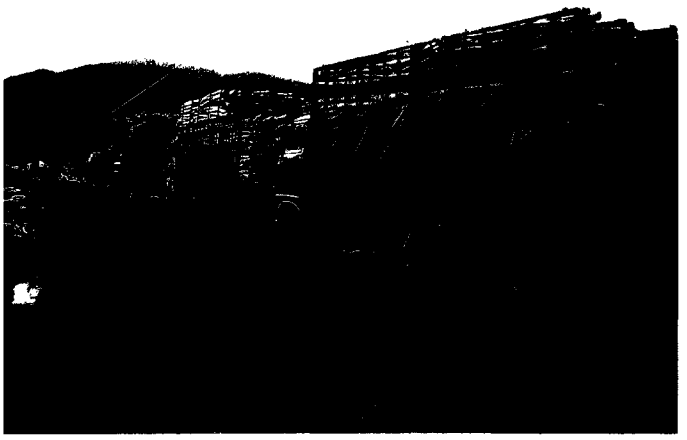
On any given day, the factory is the recipient of many different types of tree species delivered by middlemen for the purpose of woodchip production. However, *Acacia* trees have been most commonly used in the production process since 2005 (Interviewee #60, 2008). Prior to 2003, *Acacia* trees played a trivial role in Chaiyo-AA's operations and were rarely encountered by middlemen in the rural countryside. Today, it is the tree of choice for villagers because of its low inputs, fast regeneration rates, and high profit margins (Interviewee #60, 2008). Nonetheless, the supervisor is reluctant to accept large quantities of *Acacia* trees and he encourages middlemen to deliver other indigenous types of trees to him. The reason for this request is because the supervisor strongly believes that *Acacia* woodchips are of low quality and can only be sold in inferior markets, not in the lucrative Japanese or Western markets where higher profits could be generated (Interviewee #60, 2008).

Overall, the supervisor was pleased with the performance of the factory and he reported that the company's operations ran very smoothly considering its size and productive capacity. The factory employs the services of several dozen middlemen who

journey to and from all nine districts in Thua Thien Hue Province and from other provinces as well (Interviewee #60, 2008). Because of the favourable climatic conditions, the middlemen do business with hundreds of villagers during every month of the year. However, the factory's output can be diminished, sometimes drastically, during the monsoon months of October to December when a middleman's tasks become both difficult and dangerous to accomplish (Interviewee #60, 2008). The middlemen are credited with supplying to rural villagers a steady income, thereby enabling them to engage in sustainable livelihood practices. The company instructs its middlemen to harvest four or five year-old *Acacia* trees where possible because the timber at this age possesses the ideal characteristics (ie. texture, moisture content) for woodchip production (Interviewee #60, 2008).

The supervisor at Chaiyo-AA declined to provide numerical information concerning the company's profits and the prices at which Chaiyo-AA sold *Acacia* woodchips in international markets. However, he insisted that profits continued to increase on an annual basis and the company planned to remain in Vietnam and expand its operations in the near future (Interviewee #60, 2008). Chaiyo-AA had initial reservations about locating in Central Vietnam due to the large capital costs associated with building a brand new factory in a fairly remote location. Nevertheless, the proximity to an abundance of forestry resources, the lack of competition at the time, and the generous tax breaks provided by the Vietnamese government proved to be too enticing to neglect (Interviewee #60, 2008). As was evidenced by the long line of middlemen waiting to offload their cargoes, the company appeared to be extremely busy and prosperous (Photo 13).

Photo 13 The queue of middlemen waiting to offload their *Acacia* trees



5.3 The Retailers

The last stage that comprises the domestic *Acacia* commodity chain in Central Vietnam belongs to both small and large retail stores in urban centres, and the finished *Acacia* furniture products that they distribute to the general population. There are two distinct types of *Acacia*-made furniture retailers that compete for the business of urban customers. The first type of retailer operates a small store located adjacent to the busy downtown core of a city where rent and property values remain low. These small stores specialize in selling *Acacia* products and are often stocked with as many pieces of furniture as possible so as to maximize storage space. The second type of retail store can be found almost exclusively in downtown areas in department stores or shopping malls. They generally sell a wide variety of expensive high quality domestic and imported furniture items made from many different types of wood. I investigated five retail stores in total within the vicinity of Hue, three of which were small stores while the other two were large retailers, in order to compare prices and items sold within both types of

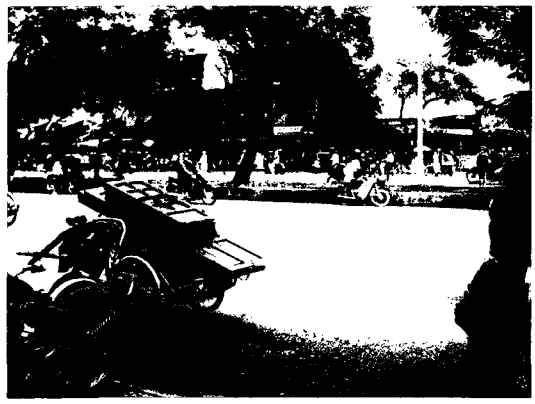
establishments.

5.3.1 Small Retail Stores

The owner of the first small retail store examined is a 40 year old Kinh woman called Kan Hung. The store is located on the western outskirts of Hue and has been in operation for ten years, specializing in the sale of furniture crafted from *Acacia* or jackfruit trees. Kan Hung purchases all of her merchandise from slightly more than a dozen small processors in operation to the north of Hue. She opened her business in 1998 because there was little competition from other retailers at the time and *Acacia* trees were in the initial stages of being introduced to the uplands of the province so she saw great potential in opening such a business. She is also not required by the three levels of government to hold a permit of any kind in order to run her business.

At the time of the interview, demand for her products was high and although she is subject to competition from only a handful of competitors, price wars between her and her rivals are fierce as they frequently try to undercut one another for a greater share of the local furniture market. This is because customers do not hesitate to visit different shops to compare prices and they try to find furniture at the lowest prices available. Kan Hung employs three workers and tasks them with the responsibilities of drawing potential buyers into her store and transporting items from her shop to the homes of her customers. The workers have no access to a truck so they have few alternatives but to tightly strap a sold item to a bicycle or a cycle rickshaw and carefully transport it to its final destination (Photo 14).

Photo 14 Workers transporting sold *Acacia* products in Hue City



Kan Hung caters to students and low income families because furniture produced from *Acacia* trees tends to be of a lower quality than other woods. University students are her most common customers because they do not have very much money and can only afford cheap items made from *Acacia* to furnish the apartments that they rent. As such, she is able to sell dozens of items of furniture every month that encompasses everything that can be fashioned from *Acacia* trees. Her most popular items that she sells within Hue are tables, desks, dressers, bookcases, and bed frames. In order to compete with the other retail stores, she often sells her merchandise at very low prices and receives only a small profit on each item sold. For instance, a small bookcase that she pays a processor US$1.70 [VND 30,000] to buy is commonly resold to her customers for only US$2 [VND 35,000], a small table bought for US$2.90 [VND 50,000] is resold for US$3.40 [VND 60,000], while a bed frame that costs her US$17 [VND 300,000] to buy is sold for only US$19 [VND 330,000]. Her largest profit margin comes from the sale of a large dresser which costs her US$40 [VND 700,000] to buy and is resold for a mere US$43 [VND 750,000].

Kan Hung conceded that she earns between US$0.30 and US$3 [VND 5,000 and VND 50,000] per item of *Acacia* furniture that she sells, but profits are dependent on factors such as the size and quality of the item being sold, the haggling skills of each of her customers, and whether the customer or one of her workers transports sold items to their final destination. She is able to stay in business by maintaining a high turnover and by keeping her store well stocked so that customers can view an item and have it transported to their home in the same day after they have purchased it. However, older items of furniture lose their value very quickly as customers prefer newer pieces that are guaranteed to be free of any flaws. This means that when Kan Hung needs to make room for new items, she is occasionally forced to sell old fashioned items at or below prices that she paid to processors for them.

There are two distinct periods of time during the year when Kan Hung's business thrives and she sells more items than regular months. The first of these occurs in February when the nation celebrates the Tet Holiday and many employers pay bonuses to their workers. The second surge in sales is her most profitable time of the year and takes place in late August or early September when the school year begins for university students and it is during these months that large numbers of her most profitable pieces of furniture such as tables, bed frames, and dressers are sold.

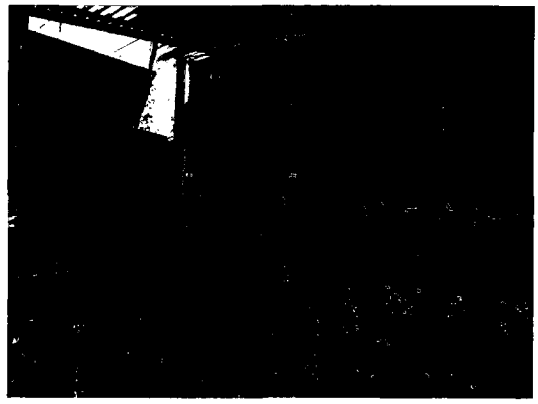
The second retail store investigated is located much closer to the downtown core of Hue and is considerably larger and busier than the first retail store that was examined. The owner is a 32 year old Kinh male who goes by the name of Ho Ta Lu and he operates his business in collaboration with his younger brother and primary supplier who is a processor with his own woodworking shop in Hue. Indeed, all of Ho Ta Lu's family is

involved with the production or sale of wooden furniture which they purchase from the villagers around Binh Diem Commune in A Luoi District. Ho Ta Lu sells a wide range of low and high quality products to all types of customers, both rich and poor. He opened his first retail store in 1993 and moved to his larger and more centrally placed current location in 1999.

The current location of his store benefits him greatly because he is across the street from Dong Ba Market, the largest market in the city of Hue which in turn attracts throngs of consumers. Most of the furniture that he sells is crafted from *Acacia*, Kien, Gioi, Sen, or Go woods. Some prized items, such as a varnished high quality dresser that is made from a combination of *Acacia* and other types of wood can fetch as much as US$171 [VND 3,000,000] (Photos 15 & 16). Large entertainment units may also cost a customer up to US$86 [VND 1,500,000], to which he earns a profit of US$17 [VND 300,000].

Photo 15 A worker applying varnish to a dresser carved out of *Acacia* trees

Photo 16 A number of finished dressers crafted from *Acacia* trees



Ho Ta Lu sells his products to customers both within and outside of Thua Thien Hue Province, and because of his extensive sales he is required to pay a small tax to the government annually. He does not own a truck outright but rather he rents three of them through friends and associates of his who allow him to display advertisements for his business on the exteriors of these trucks. His major challenge is keeping up with current trends and providing customers with the latest style of furniture that is in high demand. A standard bookcase that he offers sells for US$5 [VND 90,000], earning him a profit of US$1.15 [VND 20,000] while a small desk selling for US$20 [VND 350,000] fetches him a profit of roughly US$2.60 [VND 45,000]. The most popular pieces of furniture that he sells are bed frames and dressers and this has largely remained unchanged for the past 15 years. His average profit margin lies between US$1.15 and US$34 [VND 20,000 to VND 600,000] per item of furniture sold. Ho Ta Lu claims that his prices have remained fairly stable during the past 15 years, rising mostly in response to match increases in inflation. His prices relative to inflation have increased only marginally.

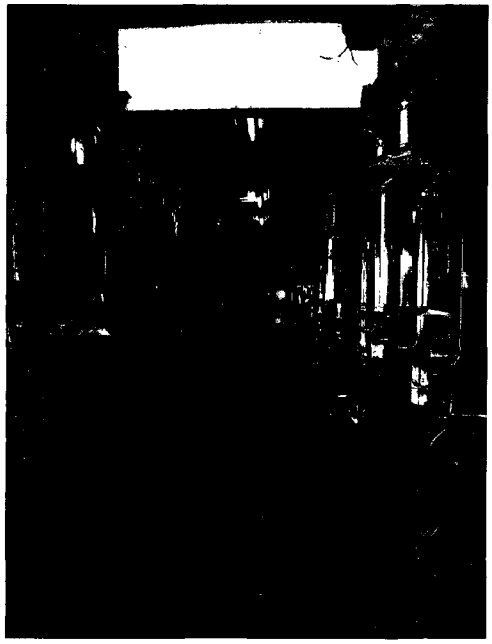
5.3.2 Large Retail Stores

Retailers entrenched in the two major shopping malls in Hue have also recently begun to sell very high quality *Acacia* products to wealthy customers within the past five years. Virtually every small and large item of furniture is available for sale in a variety of different woods and other materials, including *Acacia* (Interviewee #87, 2008). At Du Thuan Thanh Shopping Center, several variations of five piece bedroom sets and both indoor and outdoor tables and chairs made entirely from *Acacia* are prominently displayed at the entrance to the furniture department on the third floor. A brief discussion with the manager of the furniture department revealed that the shopping center had been selling *Acacia* furniture for a mere two years but sales have been high so far and the department has raked in profits from its wealthy customer base (Interviewee #87, 2008). It is a highly profitable niche market as only the most affluent residents of Hue are able to make such extravagant purchases (Interviewee #87, 2008).

At Du Thuan Thanh Shopping Center, the cost for a small coffee table made from *Acacia* is the least expensive item in the store at US$12 [VND 210,000] while the largest and most expensive single item is an enormous clothes dresser selling for US$366 [VND 6,400,000] (Interviewee #87, 2008). The price for a top of the line five piece bedroom set including a clothes dresser, two night tables, a king-sized bed frame, and a large desk retails for US$972 [VND 17,000,000]. An outdoor tea table set including a large table, two small tables, two benches, and a chair is also steeply priced as it sells for US$640 [VND 11,200,000] (Interviewee #87, 2008). The third most expensive furniture set made from *Acacia* is an indoor kitchen table with six chairs selling for a grand total of US$142 [VND 2,481,000]. The table is priced at US$36 [VND 633,000] while each chair costs

US$17.60 [VND 308,000] (Interviewee #87, 2008). Most retail stores are very well stocked and offer a wide variety of items for sale (Photo 17). They are extremely profitable privately-owned enterprises that are dependent on acquiring low-cost *Acacia* products from small to mid-sized processors.

Photo 17 The well-stocked interior of a mid-sized retail store in Hue City



5.4 *Acacia* Suppliers

Villagers that have decided to get involved in the timber market either for their own use or with the intent to sell their trees to others have several options before them when they are procuring their very first trees. Some individuals are fortunate enough to have free *Acacia* seeds delivered to them through one of the government-sponsored programs, several travel to large cities such as Hue, Da Nang, or Dong Ha to purchase seeds at nurseries using their own money, while others buy small *Acacia* trees or acquire them

through trade from their neighbours that they then transplant onto their own lands (Interviewee #75, 2008). However, the unprecedented surge in demand for *Acacia* trees over the last several years has naturally spawned the opportunity for locally-based entrepreneurs to make money by supplying either seeds or healthy small *Acacia* saplings to villagers who are interested in long-term *Acacia* cultivation (Interviewee #75, 2008). *Acacia* tree suppliers remain small in their numbers and as such can be difficult to locate but they tend to agglomerate together near the fringes of wealthy communes.

The first supplier that was interviewed was a middle-aged female of Kinh descent found a few kilometers northwest of Xuan Loc Commune who was tending to her saplings at the time. Her nursery was her only means of income and her and her husband had been growing and supplying saplings of several different tree species for villagers of Xuan Loc Commune for 21 years prior to 2008 (Interviewee #75, 2008). She indicated that she began growing the three species of *Acacia* trees nearly eight years ago and that since that time her orders for *Eucalyptus*, rubber, and all other types of trees have gradually decreased to the point where she no longer grows them at all anymore. The supplier reported that the demand was so high for *Acacia* trees, particularly the hybrid species, that she could not keep pace with new orders being requested by individuals from other parts of the district (Interviewee #75, 2008).

The mid-sized farm consisted of a vast supply of *Acacia* trees in various stages of growth and was tended to by a family of three (Photos 18, 19, & 20). The owner's primary concerns were that she did not have enough money to hire extra labourers to expand her operations nor adequate means to transport the saplings to her customers. The entire process is fairly labour-intensive because customers will not accept trees

unless they appear to be in pristine shape so she and her husband are constantly monitoring the health of their saplings (Interviewee #75, 2008).

Photo 18 *Acacia* seedlings on the day they were planted

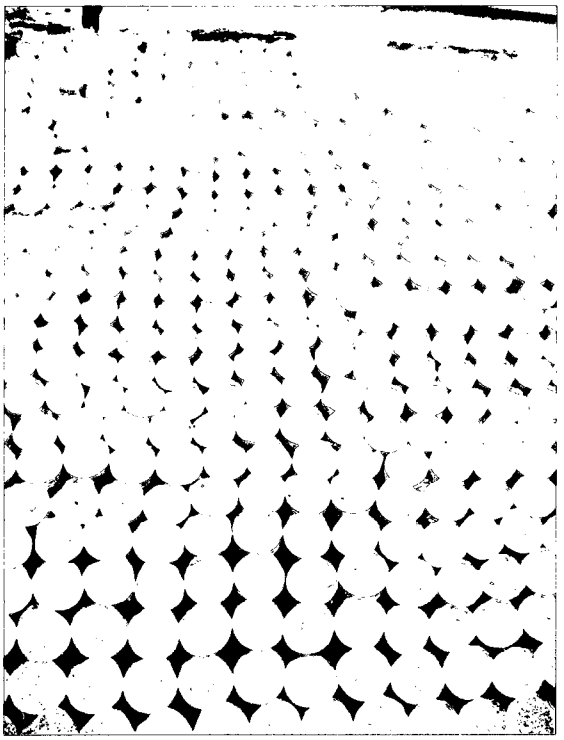


Photo 19 Rows of maturing *Acacia* saplings to be sold in the near future

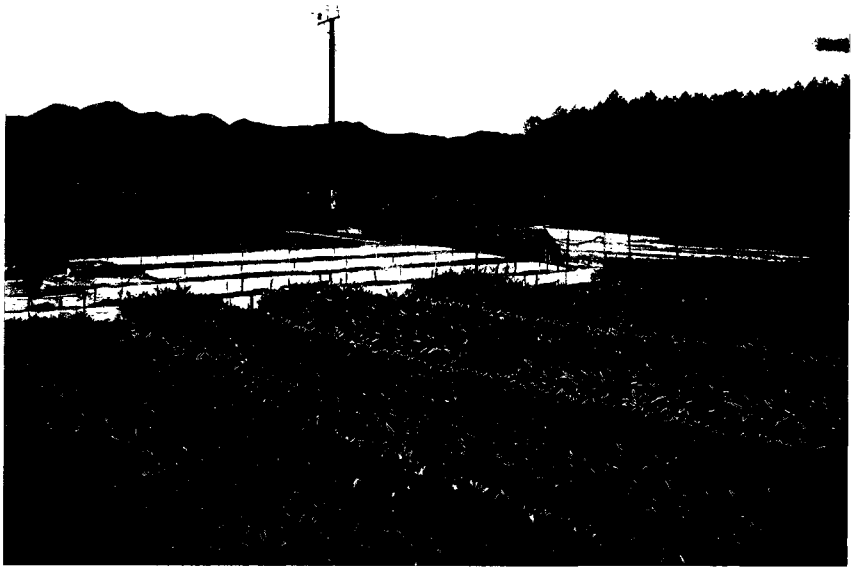
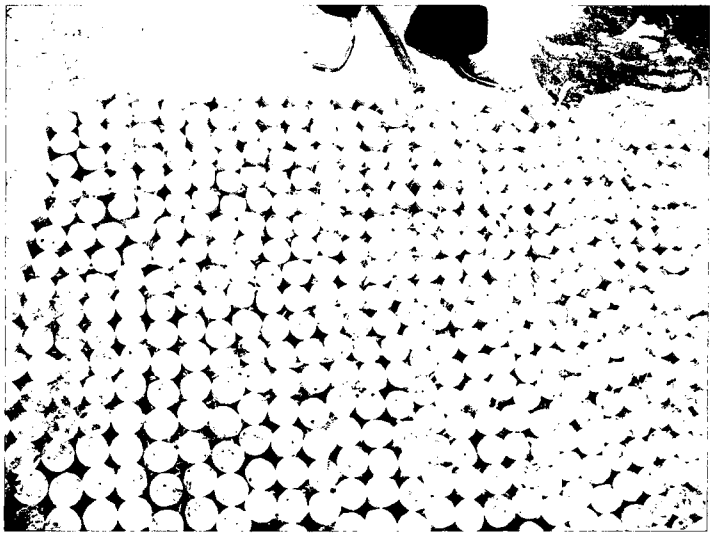


Photo 20 The full length of the *Acacia* tree grower's farm

This *Acacia* tree supplier offers two types of saplings to villagers in and around Xuan Loc Commune that vary in price depending on their size and overall health. The first type of sapling they sell is grown from seeds obtained either from nurseries in Hue

or Ho Chi Minh City and each one is typically grown to about three inches in height then sold for US$0.02 [VND 300] (Photo 21). The second sapling available for purchase is a small tree branch that is carefully cut from a mature *Acacia* tree that is then potted and watered vigorously (Interviewee #75, 2008). These saplings tend to be sold when they reach a height of one foot and cost US$0.03 [VND 500] because of their larger size and greater labour demands. The supplier noted that the price of seeds were virtually identical in both cities but the quality and variety of seeds from Ho Chi Minh City far surpassed what was available in Hue. Consequently, the supplier preferred to travel to Ho Chi Minh City to replenish her stocks and often loaded up her motorbike with as many one kg bags of seed as she could carry (Interviewee #75, 2008).

Photo 21 One week old *Acacia* saplings



The second supplier interviewed was a 35 year old male of Kinh ancestry that also resided on the outskirts of Xuan Loc Commune. He had been growing *Acacia* in the region for six years and validated much of the information provided by the other supplier

as he also sold his saplings to Xuan Loc Commune and beyond, grew and sold both types of saplings, and charged similar prices for them (Interviewee #79, 2008). However, he had recently invested in an automatic sprinkler system that enabled him to grow his *Acacia* saplings quicker and with less supervision than before. He mentioned that branches from *Acacia* trees only four or five months old could successfully be cut and planted into pots to be sold later but that it was wiser to harvest branches from trees that were two or three years old as they had higher chances of survival (Interviewee #79, 2008).

After planting *Acacia* seeds or small branches into pots, he generally gives them a two month period in which to grow and flourish before he sells the saplings, but they can be sold up to four months after being planted before they become too large to transport. The best months to plant *Acacia* saplings were said to be May, June, and July because of their favourable climatic conditions (Interviewee #79, 2008). The major problem cited with the business was that heavy rains, especially during the monsoon season, frequently flood lands and increase the moisture content of the trees to unacceptable levels. This lowers the quality of saplings and in turn reduces the prices that individuals are willing to pay for them. The supplier claimed that during the 2007 monsoon season that lasted from October to December approximately 40% of his *Acacia* crop was lost to flooding and excess moisture (Interviewee #79, 2008).

Supplier profit margins fell drastically in 2008 as the average nation-wide price for a one kg bag of *Acacia* seed nearly doubled from US$8.50 [VND 150,000] in mid-2007 to just under US$16 [VND 280,000] in mid-2008 due to increased demand (Interviewees #75 & 79, 2008). The most common problem faced by suppliers is that of transportation.

Suppliers almost exclusively rely on their small motorbikes as their primary means of transportation so they are limited in the number of bags of seed that they can bring back from faraway nurseries. Furthermore, when delivering their product to distant customers, suppliers are forced to fill three or four boxes or crates with *Acacia* saplings and precariously strap them onto their motorbikes for the long journey ahead (Interviewees #75 & 79, 2008). The suppliers complain that they must engage in this unsafe and inefficient practice because they have no alternative means of transportation (Interviewees #75 & 79, 2008).

5.5 Government Officials and NGOs

A meeting with the former vice chairman of Hong Ha Commune revealed that he grows *Acacia* trees to supplement his income and that as a villager himself one of his primary difficulties with *Acacia* cultivation is that of unclear land ownership (Interviewee #89, 2008). He talked extensively about an ongoing feud he has with his neighbour concerning whose property certain *Acacia* trees are located on, as well as other controversial issues such as how tall the trees must be before they can be cut and what types of fertilizers should and should not be used on *Acacia* species. He asserted that most villagers in the commune do not know the exact boundaries of their lands and have frequently appealed to him or more commonly to the chairman himself to clarify property boundaries (Interviewee #89, 2008). However, in most cases he and the chairman are unable to help as even they do not possess the relevant information. Government surveyors have been assigned to collect and store the information of each household's property boundaries but they are understaffed and it will likely be several more months or

even years before the task is completed (Interviewee #89, 2008).

A regularly scheduled meeting in Hong Ha Commune with the chairman and vice-chairman of the commune along with the vice-chairman of the Father's Front, the vice-chairman and former vice-chairman of the People's Committee, and several land surveyors revealed the reason as to why the issue of local land ownership was so complex and tumultuous. Those present at the meeting explained that many villagers left the commune from 1973 to 1976 during the final stages and aftermath of the Vietnam War in order to avoid the conflict and to seek out refuge and economic opportunities in other parts of the country. At the time, villagers had no documentation to prove that lands belonged to them and hence they had little chance of reclaiming their lands once they returned to the commune. Other households quickly occupied what land they could. As a consequence, once villagers began returning to the commune en masse from late 1976 onward they found that lands that they had formerly farmed were now being contested and there was no consensus as to who the land belonged to.

Disagreements continued through the following decades until in 2005 the A Luoi District Forest Management Board, in conjunction with several NGOs, created a program to return some of these lost lands to former residents of the commune and settle long standing land disputes once and for all (Interviewee #91, 2008). In theory, most if not all of these lands should have been handed back to their rightful owners by now. However, in practice this has not been the case and the land struggles continue as the board has cut and returned to villagers only a small percentage of the lands claimed by two or more households. This perceived inefficiency is compounded by the fact that the forest board attempts to equally distribute land among the villages so every four months it tends to

shift its focus from one village to another rather than completing all land transfers in one village then proceeding to the next (Interviewee #91, 2008). These land distribution programs are commonly designed and administered with the support and participation of development experts from international NGOs that aim to alleviate poverty and promote accountability. It is important to address poverty in Vietnam because it has forced many to engage in unsustainable practices such as slash-and-burn activities that lead to environmental degradation in the form of soil erosion, decreased soil fertility, and landslides (Zeller et al., 2009).

SNV Netherlands Development Organisation is one such NGO that operates within Central Vietnam. It is one of the largest development agencies in Southeast Asia with upwards of 150 advisors in the region and 40 in Vietnam alone (SNV World, 2008). SNV works closely with actors on both national and local platforms to ensure that its primary goals of poverty reduction and good governance are being pursued. The organization has operated in Central Vietnam since 1995 and continues to endorse sustainable development by "generating production, income, and employment opportunities and improving access to basic services" (SNV World, 2008). With respect to forestry, SNV recognizes that while overall forest cover has increased quite dramatically in Vietnam since 1990, the health and productive capacities of Vietnamese forests have actually been weakened significantly. This loss of productivity has severely impacted the poor and marginalized rural populations of Vietnam that rely daily on forestry resources for their livelihoods and income (SNV World, 2008). Nguyen et al. (2009) also indicate that the productivity of agricultural and forestry lands increased

dramatically from 1970 to 2000. However, it has remained virtually stagnant since 2000 as the pace of land and markets reforms has slowed considerably.

While working with government officials, SNV has found that the most poverty-ridden regions of Vietnam tend to also be the ones that have witnessed the most intense forest destruction and that the loss of non-timber forestry products in particular has devastated the average household income of many ethnic minority families (SNV World, 2008). Another significant finding is that the timber market is now strictly regulated and controlled by only a small number of operators who have effectively blocked access for smaller timber producers seeking to enter into the market (SNV World, 2008).

The organization is utilizing a multi-stakeholder approach at both national and provincial levels to closely integrate all of those stakeholders involved with Vietnamese forest market chains. To accomplish this goal SNV is currently aiding government officials at the district and provincial level by encouraging sound forestry management policy formation, promoting a bottom-up participatory planning process that includes rural upland communities, and developing effective information channels with quality knowledge resources that are available to rural villagers (SNV World, 2008). To improve the livelihoods of smallholder producers and small forestry-related enterprises, SNV naturally advocates their fair access and greater participation to national and international markets for forestry products. Two central tenets for this strategy are the long-term income generated from *Acacias* for domestic and overseas furniture markets and the short and medium term income generated from NTFP market chains (SNV World, 2008).

Phan Van Nam is a district government official of Kinh heritage working for the Phu Loc District Watershed Management Board which is found in Loc Vinh Commune, in the eastern portion of Phu Loc District, located roughly 40 kilometres southeast of Hue City. The incidence of poverty in the commune is lower than the national average and villagers have access to a higher level of government services. It is Phan Van Nam's duty to monitor the health of forests in the region and to facilitate the transportation of *Acacia* trees from local plantations to the nearby sawmills and port facilities in adjacent Loc Tien Commune. Most *Acacia* trees that are grown in the district find their way to one of the two major woodchip processing plants in Loc Tien Commune.

Phan Van Nam admitted that *Acacia* had rapidly become an integral economic component of the commune's overall well-being and that income generated exclusively from *Acacia* cultivation had more than tripled in the previous five years. Its importance was verified when it became evident that the recently replaced chairs and desks in the room had all been fashioned from mature *Acacia* trees. Villagers began planting *Acacia* trees in the commune in 1989 and in every year since that year the total area under *Acacia* cultivation in the commune has increased. However, the increase has been considerably smaller than in Hong Ha and Xuan Loc communes as a wide variety of crops are still grown among farmers and a sizeable portion of the commune's population is employed in manufacturing jobs. Today, the average household in Loc Vinh derives nearly 70% of their household income from sources other than *Acacia* cultivation.

Acacia trees are valued in Loc Vinh Commune not only for the income they earn for villagers, but also because they have successfully counteracted the effects of soil erosion, prevented landslide occurrences, and retained high levels of moisture within the soil.

Phan Van Nam was able to estimate that in order to cover one hectare of land with *Acacia* trees a farmer is required to spend VND US$400 [7,000,000] on inputs such as seeds and fertilizers. After six or seven years of growth, these trees are then able to be sold to middlemen for up to US$2,800 [VND 50,000,000] per hectare. However, these middlemen are then able to resell their *Acacia* trees to processing plants for VND 800,000 or US$45 per ton. Each hectare of *Acacia* plantation forest is able to yield nearly 200 tons, meaning that the average middleman earns VND 160,000,000 per hectare that is resold to processing plants which is equal to approximately US$9,000.

Therefore, on average, middlemen receive more than three times the revenue earned by villagers from *Acacia* cultivation. However, their profits are usually modest as operating costs remain high. For example, middlemen are required to rent and maintain their trucks, pay wages to their workers, and supply those workers with equipment as well as the gasoline and oil to operate the equipment. As a result, the average middleman earns only slightly higher profits than upland farmers who engage in *Acacia* cultivation.

There are eight well-known middlemen in Loc Vinh Commune who frequently compete with each other for the business of the villagers. Phan Van Nam oversees the middlemen load up their trucks several times per month with *Acacia* trees stripped of their bark that are taken to the sawmills for processing. Middlemen usually charge reasonable fees for their efforts but have considerable leverage with regards to the price they offer because farmers generally have no alternative. Phan Van Nam divulged that large trucks can often be difficult to locate and extremely expensive to rent within the commune. If a truck can be secured, an experienced driver must also be hired to navigate the steep and uneven roads that are especially dangerous to traverse in the rainy season.

The journey to a sawmill can take the better portion of a day and once drivers arrive they often encounter long queues as they are forced to wait to unload their freight. Permits and travel documents must also be issued by Phan Van Nam's office before a truck carrying timber is allowed to pass through police checkpoints. Phan Van Nam also noted that middlemen often contract highly experienced and efficient tree-cutters who are able to cut down and strip the *Acacia* trees of their bark in a fraction of the time that it would take the average farmer to do so.

As is found throughout most of Central Vietnam, the local government in Loc Vinh Commune supports its villagers through a number of standard nationally and internationally financed programs that encourage the spreading of *Acacia* plantations. However, Loc Vinh Commune and its neighbouring communes are of regional importance being situated halfway between Central Vietnam's two largest cities of Hue and Da Nang and in the vicinity of Chan May Port. Its geographic location has ensured that an abundance of government funding flows continuously into the region. This additional funding is typically earmarked for local amenities such as infrastructure development, police enforcement, government policies, and other services that provide *Acacia* growers with positive externalities.

As a result, *Acacia* cultivation should be extremely appealing to villagers in the commune as they have benefits that others do not have such as better roads on which to transport their *Acacia* trees, clearly marked and officially recognized boundaries to their lands that alleviate disputes with neighbours, efficiently managed government departments and banks that offer low-interest loans to villagers, and other such features. Villagers are also required to pay a mandatory 0.05% tax that must be paid on every

hectare of *Acacia* sold in the commune that is funneled into the forest fire prevention fund. The fund is used primarily to implement precautions that reduce the likelihood of fire from occurring on a villager's fields but it also provides firefighting coverage to remote areas of the commune. Despite all of these privileges, *Acacia* cultivation still accounts for only 30% of the commune's entire income.

5.6 Summary of the Second and Third Stages of the *Acacia* Commodity Chain

This chapter began with an explanation of the secondary and tertiary stakeholders involved in the transportation, processing, and sale of *Acacia* trees and finished *Acacia* products. The chapter focused on the activities of middlemen, processors, and retailers. However, the role of tertiary stakeholders such as *Acacia* suppliers and government officials who are not directly involved in the commodity chain was also examined to understand the effects that these actors have on the commodity chain. Each actor plays an important role in the successful operation of the *Acacia* commodity chain and exerts varying levels of influence over it. Differences were highlighted between the domestic *Acacia* commodity chain, which is dominated by furniture production, and the international *Acacia* commodity chain which is comprised mostly of pulp and paper production.

From the results of the middlemen, processor, and retailer interviews, it is apparent that trained stakeholders in the second and third stages of the *Acacia* commodity chain perform skilled work and hence earn larger profits than the villagers in the first stage of the commodity chain. The scope and scale of these operations vary significantly and competition within these professions is fierce. There is little communication and

cooperation between the stakeholder groups because the *Acacia* timber industry is only emerging from its infancy and remains fairly unregulated. The stakeholders within these two stages are highly supportive of government initiatives to provide incentives to rural villagers so that they may engage in commercial forestry.

After investigating all of the major stakeholders in the *Acacia* commodity chain, it is clear that in general large retail stores that cater to affluent urban customers receive the highest profits. They are followed in succession of profitability by large international processors, small to mid-sized domestic processors, middlemen, and small retail stores. These findings are consistent with Phuc (2005) who noted that the benefits of timber commodity chains are unequal and accrue primarily to those stakeholders who are highly skilled and sell goods directly to final consumers. The *Acacia* timber industry in Central Vietnam is expanding and becoming more lucrative each year. It provides employment and above average incomes to numerous rural and urban residents. However, it has increased the vulnerability of stakeholders to price shocks and has diminished their ability to diversify their livelihood activities.

6 CONCLUSION

6.1 Revisited Goal and Objectives

It was the aim of this research to better understand how forestry-based livelihoods of upland villagers in Central Vietnam have been affected in recent years by economic and ecological changes and to recommend long-term strategies to improve such livelihoods. In order to accomplish this, I embarked on a study to investigate why *Acacia mangium*, *Acacia auriculiformis*, and the *Acacia* hybrid tree species are increasingly being grown by rural villagers in Central Vietnam, how the benefits of the production, sale, and distribution of *Acacia* products are apportioned amongst stakeholders involved in the commodity chain, and how land allocation processes and property rights can be strengthened by government institutions so as to ensure that rural residents have continued access to forestry resources.

I implemented a case study-based approach to examine these issues and to explore the relationships among forestry-based livelihoods and institutional change in the uplands of Central Vietnam. The sustainable livelihoods framework was used to evaluate the complex relationships in Central Vietnam among farmer choices concerning resource use and access barriers to land and resources in terms of farmer vulnerability. The commodity chain analysis framework was used to examine the widespread plantation of *Acacia* trees in the rural upland communes of Central Vietnam. The commodity chain analysis framework was also used to analyze the processes and costs associated with planting the tree crop to various stakeholders and the market opportunities derived from the crop at different stages in the commodity chain.

For the first objective, the physical characteristics, histories, and suitability to climatic conditions in Central Vietnam of each of the three *Acacia* species studied were explored and addressed in section 4.1 of Chapter Four. Reviewed literature and direct observation revealed that all three *Acacia* species, with the *Acacia* hybrid in particular, flourish in the uplands of Central Vietnam and are extremely suitable to climatic conditions in the region. *Acacia* cultivation has occurred throughout humid tropical zones found near the equator in order to revitalize seriously degraded forest lands. However, *Acacia* cultivation in Central Vietnam is complicated because rights to access and harvest timber remain unclear and poorly enforced while devolution programs designed to allocate land from the government to individual households have met with mixed results.

The second objective traced the connections and linkages between production and consumption of the commodities and was examined in the second half of Chapter Four and throughout Chapter Five. This was accomplished by investigating the various stakeholders involved with transporting and processing *Acacia* products from their point of extraction to final markets. It was found that upland villagers, middlemen, processors, retailers, and consumers are at the heart of production and consumption links in the *Acacia* commodity chain (Figure 22). However, a number of secondary stakeholders such as NGOs, government officials, and dedicated *Acacia* suppliers also influence the flow of *Acacia* goods. It was also discovered that upland farmers face numerous challenges when cultivating and selling *Acacia* products, such as uncertain land tenure, a general lack of selling information, middlemen who are difficult to contact, storm damage, and insufficient capital. Villagers continue to grow *Acacia* species despite these difficulties because domestic and global demand for furniture and paper products derived

from *Acacia* increases annually. Between 2006 and 2008, prices for a standard hectare of *Acacia* trees quadrupled from US$860 to US$3,430.

Objective three of the research analyzed the processes and costs associated with planting *Acacia* tree crops and the market benefits derived from the crops by different stakeholders in the commodity chain. Objective three was also addressed in the second half of Chapter Four and in Chapter Five as the specific benefits and costs derived from *Acacia* cultivation and trading were explored from the perspectives of villagers, middlemen, processors, and retailers. It was found that apart from the generation of income, *Acacia* trees provide upland villagers with additional benefits such as erosion control, shade, wind-protection, shelter and building materials, firewood, NTFPs, and furniture products. Middlemen, processors, and retailers only receive income benefits from *Acacia* trees.

Most key informants indicated that villagers and middlemen incur the greatest costs and encounter the most challenging obstacles of all actors in the *Acacia* commodity chain. They also receive fairly low financial compensation for their work. Skilled processors are able to earn fairly high incomes for the products that they create, but their line of work can be hazardous and unstable if the supply of *Acacia* trees from middlemen is disrupted. Small retailers tend to earn very small profit margins from their business activities despite high inventory turnovers due to intense competition within the industry. Large established retailers are able to sell *Acacia* products to wealthy urban customers so they earn the highest profit margins of all stakeholders within the *Acacia* commodity chain. These findings are consistent with that of Kundu & Chopra (2009), who found

that the greatest profits or 'rents' accrue to actors in the top half of the commodity chain, while those at the lowest level of a commodity chain earn meager sums.

The fourth objective examining *Acacia* ownership conditions and implications of property rights for farmer livelihoods was addressed in the literature review in Chapter Two and in Chapter Four. A review of available literature on the subject of land allocation in Vietnam and interviews with villagers confirms that even with the introduction of several land allocation initiatives, the Vietnamese government has been slow in devolving millions of hectares of land to individual households. Few households interviewed in Hong Ha and Xuan Loc communes were in possession of a Red Book, and fewer than 30% of residents in each commune believed they had secure land tenure. This general consensus of land tenure insecurity has persisted despite the introduction of the Land Law in 1993 that permits individual households to sell, rent, mortgage, or trade their lands with others (Van den Broeck et al., 2009). The state government, through the Ministry of Resources and Environment and the National Department of Forestry in the Ministry of Agriculture and Rural Development, owns all of the *Acacia* plantation forests in Central Vietnam and reserves the right to evict tenants at its own discretion.

My study confirmed the findings of Van Gelder & Reerink (2009), Schwarzmeier & Neef (2001), and Ostrom (2000), that most villagers are unwilling to invest their own money into common property lands when they do not hold secure tenure. Consequently, the productivity of these lands is not maximized because fertilizers and additional inputs are not properly applied. Nguyen et al. (2009) also examine data suggesting that production from forestry lands in Vietnam as a whole has only slightly increased since 2000. This is due to the state government's attempt to retain control over resources and

its lack of interest in implementing land and free markets reforms. With these findings in mind, it is clear that the issue of land security is controversial and highly sensitive in Central Vietnam and has not been resolved by the state government devolving land to individual households. For the most part, poorly administered devolution initiatives thus far have not put an end to land disputes and have only marginally raised the productivity of agricultural and forest lands.

The last objective that investigates the impacts of *Doi Moi* on *Acacia* cultivation is addressed in Section 6.3 as strategies to preserve forests and improve sustainable livelihoods are outlined. The objective was initially explored in the literature review in Chapter Two and in Chapter Five during interviews conducted with upland villagers and government officials. Census information and government reports were also used in the development of the strategies. It is certain that *Acacia* trees will be an integral part of upland villagers' livelihoods well into the future as more than 95% of interviewed villagers in Hong Ha and Xuan Loc communes indicated they will grow *Acacia* trees, regardless of price fluctuations.

6.2 Reflections

The research would not have been successful or even possible without the participation of the interviewees, particularly the upland villagers of ethnic minority groups, and the aid of the research assistants. Their enthusiasm and willingness to share information enabled me to assess the *Acacia* commodity chain in Central Vietnam (Figure 21). Furthermore, the careful development of the structured and semi-structured questions allowed me to understand the commodity chain, and to compile much of the

data into figures and tables. The case study-based approach permitted key variables, with important impacts on *Acacia* cultivation and prices such as environmental conditions and ethnic backgrounds, to be compared both spatially and temporally across the two communes investigated. The case studies of Hong Ha and Xuan Loc communes are essential because a comparison of the two communes outlines how complex issues such as government funding, age, gender, annual household income, ethnic group, secure land tenure, and proximity to sawmills affect villagers' decisions about whether or not to become involved in *Acacia* cultivation.

Ideally, a number of changes would have facilitated the research and possibly added insight into some of the issues that were examined. Additional interviews with customers who purchased *Acacia* products would have revealed whether they were pleased with their purchases and how the quality of *Acacia* goods was regarded by the general population. Interviews designed with questions targeted specifically for upper level actors in the *Acacia* commodity chain revealed in greater detail how they conduct business and arrive at final prices offered to villagers for their *Acacia* trees. Direct quotes from interviewees rather than paraphrasing also could have strengthened the research.

It may also have been beneficial to further explore the overseas route that *Acacia* woodchips take after they are loaded onto cargo ships once they depart the large sawmills at Chan May Port. This information could aid in discerning price fluctuations and demand in the regional and global *Acacia* marketplace. As was pointed out by Bair (2008), all global commodity chains are subject to political changes as well as regional and global demand for a commodity. By empowering *Acacia* farmers to anticipate sudden drops in *Acacia* prices, they may be able to reduce their vulnerability and become

encouraged to diversify their livelihood activities to secure a steady annual income. During the course of the research it was only revealed that the woodchips are used in the creation of high quality papers in nearby markets such as Japan, South Korea, and China.

6.3 Summary of Key Findings

The conclusions and recommendations derived from this study are listed below:

- Throughout both Hong Ha and Xuan Loc Commune, 76% and 70% of those villagers interviewed respectively did not possess a Red Book and were concerned that access to their lands and resources could be revoked at any time (Table 11). Most of those villagers, including the vice-chairman of Hong Ha Commune, were engaged at one time or another in a land dispute with a neighbour. As a consequence of the uncertainties associated with common property, a large number of villagers, particularly in Xuan Loc Commune, opted not to maximize the productivity of their lands by not reinvesting their money for improvements. Residents were aware that the government owned these lands and could at any time reassign access to all agricultural or forestry resources found on these lands to other households. These findings mirror those of Tanner (2007), who suggests that common property regimes can act as a barrier against economic development. Despite these issues, upland villagers choose to grow *Acacia* trees because there is the potential to earn high incomes and because there are few other livelihood alternatives available. Residents in possession of a Red Book believed that they had secure land tenure and were more inclined to reinvest their profits into their lands and their homes. Furthermore, a significant portion of

villagers interviewed in both communes who believed that the health of their lands had increased in recent years owned a Red Book, while conversely the vast majority of villagers who were not in possession of a Red Book felt that the health of their lands had decreased. These findings support the theory explored by Van Gelder & Reerink (2009) and Ostrom (2000) that mass titling programs lead to increases in land productivity, although the effect has not had the significant impact that was expected.

- The various levels of government in Vietnam are gradually providing all of their rural citizens with Red Books and a number of land surveyors are consistently out in the fields of these communes working towards that goal. However, the process is taking too long and the health and productivity of rural lands is suffering (Figure 20). Insufficient funds and manpower have been allocated by the state government to issuing Red Books to rural residents. This is primarily due to the state government's recent attempts to deliberately slow land and economic reforms as they vie to retain control over resource bases (Nguyen et al., 2009). Furthermore, villagers do not have distinct land boundaries delineated by the government yet their entire livelihoods are dependent upon harvesting resources on their lands. As such, overlapping land claims are widespread and smallholders experience difficulties when attempting to keep 'illegal' users off of their lands. It is important to recognize that all property rights regimes are imperfect and that overlapping land claims are commonplace in any transition from common property to private property (Pradhan & Meinzen-Dick, 2002). Lastly, penalties for trespassing on a villager's lands or claiming a villager's lands as one's own

are poorly enforced by local governments and fines are rarely handed out to those who are in violation of these laws.

- As has been confirmed in the literature review by Nguyen (2006), the 92 interviews conducted in the study indicate that there is a lack of general information sharing occurring in Central Vietnam between the different stakeholders involved in the *Acacia* commodity chain. Constantine (2003) also concluded in her study that insufficient social capital exists in the rural upland communities of Central Vietnam. The average respondent interviewed was not aware of the daily tasks and duties that other stakeholders performed at their specific stage of the commodity chain. For example, several villagers interviewed did not know where their *Acacia* trees were going nor did they know what they were to be used for, while processors were unsure where their *Acacia* trees were grown or what tools middlemen used to harvest them. Numerous stakeholders did not conduct repeat business with stakeholders in other stages of the commodity chain with whom they had traded before. The absence of regulation and organization within the *Acacia* commodity chain frequently led to inefficiencies such as processors halting work because they had run out of *Acacia* supplies as they were not aware of the schedules of middlemen passing through their village, and they did not stock up on *Acacia* trees beforehand. Furthermore, retailers were typically over-stocked with a certain item of furniture produced by processors such as bed frames or small desks, yet in high demand of other items of furniture such as dressers and entertainment units which processors had temporarily ceased to produce.

- The study also revealed that there is a lack of information exchanged regarding *Acacia* prices not just between stakeholder groups but also *among* them. Stakeholders at the early stages in the *Acacia* commodity chain such as villagers and middlemen were generally not aware of the prices at which upper level stakeholders in the commodity chain such as processors and retail stores sold their products for. If they were, it is very likely that they would demand higher prices for the goods and services that they offered. On average, villagers receive the lowest prices for *Acacia* in the commodity chain when compared with other stakeholders yet many choose to sacrifice their time and their lands for years in order to grow the trees. Ethnic minorities are further exploited by being offered lower prices by middlemen due to their small numbers in communes and through the preference of middlemen to buy timber from Kinh villagers. Middlemen often varied in the prices they offered villagers for identical hectares of *Acacia* by several million VND.
- The majority of villagers were not sure if they received a fair price for the sale of their *Acacia* trees, and several believed that they were receiving fair prices despite accepting lower prices than the average villager. Over the course of the study, it became clear that the major stakeholders receive larger profits the higher up their place in the *Acacia* commodity chain, with the exception of small retail stores that are engaged in price wars to attract customers. In general, villagers received the lowest profits, followed by small retail stores, then middlemen, then domestic processors, then international processors, then large retail stores. The recommendation for this issue is for all stakeholders, primarily vulnerable or

marginalized villagers, to share information in order to compare prices they receive for their *Acacia* goods and services from other stakeholders and to demand higher prices from them if they feel as though they are being underpaid.

- The introduction and growth of the three *Acacia* species to the uplands of Central Vietnam has been rapid and unprecedented. In less than two decades *Acacia* trees have ascended from being an obscure and extremely rare type of tree to a regular sight in most rural communes. 70% and 97% of villagers in Hong Ha and Xuan Loc communes respectively grow *Acacia* trees, and many now rely on them for the majority of their income within a five year span. Upwards of 87% of villagers interviewed in Hong Ha Commune and 95% of those interviewed in Xuan Loc Commune plan to include *Acacia* cultivation as part of their long-term sustainable livelihood. However, households run the risk that they will overly or solely rely on *Acacia* trees for their income. This increases their vulnerability as global prices may fluctuate in unpredictable timber markets. Villagers may also decrease their vulnerability by diversifying their income sources. They can continue to grow traditional agricultural crops such as wet rice, cassava, and green vegetables. This practice would also ensure that they have access to a steady food supply. Although *Acacia* trees have presented rural villagers with no visible or otherwise discernable degradations to the local environment, villagers have the option to continue to grow indigenous species of trees as they did before the introduction of *Acacia* trees so that these species do not become endangered or extinct in the future.

- The successful integration of *Acacia* trees into rural Central Vietnam can be attributed to the string of nationwide projects and programs that the Vietnamese state government created and implemented to promote commercial forestry. Vietnam's Five Million Hectare Reforestation Program and Project 327 have been instrumental in providing villagers in Hong Ha and Xuan Loc communes with the initial funds and lands necessary in order to commence *Acacia* cultivation. However, implementation has not been without its challenges and several of these key programs are behind in schedule due to bureaucratic red tape and a lack of cooperation between the different levels of government. As an example, the district government tasked with distributing lands previously owned by the state government to Phu Vinh Commune has withheld large tracts of these lands without providing officials in Phu Vinh Commune with a reason for the delay. Issues concerning land disputes can only be resolved if the commune, district, and state levels of government work together to efficiently distribute lands to villagers and collectively address these issues as they arise. At present, each level of government is jointly developing and improving access to existing forestry programs such as Project 327, but there is room for improvement. These programs are essential to the long-term prosperity of the *Acacia* industry.

6.4 Concluding Remarks

Poverty remains a fundamental rural issue throughout Central Vietnam. Rapid changes that resulted from a transition towards a market-oriented economy that began in 1989 have led to various opportunities and challenges for rural upland villagers. In

recent years the ecological, social, and economic conditions from *Doi Moi* have dramatically affected local resource users who depend upon natural resources such as forestry and aquatic resources for their livelihoods. The most influential changes have been the creation of the Land Laws in 1993 and 2003 that recognized individual use rights and permitted government-owned lands and natural resources to be allocated to individual households for 20 or 50-year periods. The 2004 Forest Protection and Development Law further allowed forest lands to be managed by community groups with vested interests in protecting and conserving local resources. As a result, sustainable forestry-based livelihoods now offer the potential to contribute towards poverty alleviation in Central Vietnam (Scherr, 2004). However, resource allocation is a messy and complex process that must address diverse and constantly changing bundles of property rights if it is to be successful (Pradhan & Meinzen-Dick, 2002).

Rural upland communes within Central Vietnam are predominantly occupied by ethnic minority groups. As such, these communes experience complicated livelihood issues concerning access and governance of natural resources. With respect to governance, upland villagers are tasked with conserving their natural forest lands while contending with issues of population growth, expansion of agricultural lands, and an increase in popularity of commercial plantation forests. Government authorities have encouraged the residents of upland communities to protect and manage forests for their long-term benefits. At present, the provincial authorities within Thua Thien Hue Province are in the midst of transferring management of potentially over two thirds of the total land area of the province to the local governments of the 149 communes in the province. It is the opinion of several government officials who were interviewed that this

transfer of land has led to better management of natural resources in the uplands of Central Vietnam while also improving the livelihoods of upland farmers in the region.

The attention given to the development of secure and sustainable long-term livelihoods for the rural poor of Vietnam has increased in recent years due to deforestation and soil erosion processes that have impacted Central Vietnam. However, there is still significant room for improvement and the state government has not acted as quickly as it could have in devolving land rights to individual households. An individual's livelihood can only be considered truly sustainable if it not does negatively impact local ecosystem conditions or the livelihood of another individual.

It can be argued that *Acacia*-based livelihoods in Central Vietnam are sustainable because *Acacia* species are raising overall forest cover in Vietnam and can be cultivated on barren or steep lands that would otherwise be left idle. They dramatically increase the productivity of local ecosystems and provide villagers with high annual incomes that could not be accrued from traditional agricultural activities. *Acacia* species further provide villagers with a host of ecological and social benefits. Actors in the second and third stages of the *Acacia* commodity chain such as middlemen, processors, retailers, and *Acacia* suppliers are also able to secure long-term employment from trading *Acacia* products.

However, it can also be argued that *Acacia* cultivation is unsustainable because it reduces a region's biodiversity and threatens the food security of upland farmers. These events occur when farmers choose to replace natural forests containing indigenous species with *Acacia* plantations forests or when farmers decide to grow tree crops rather than staple food crops. Although *Acacia* cultivation in Central Vietnam is fairly novel

and unregulated, it has thus far improved the livelihoods of thousands of stakeholders to date, and has the potential to further reduce poverty levels in the region.

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8 APPENDICES

Appendix 1

The Farmer Livelihood Questionnaire translated into Vietnamese

Forestry Based Livelihoods and Institutional Change in the Uplands of Central Vietnam
Summer/Fall 2008
Sinh kế dựa vào rừng và thay đổi lớn trong vùng đồi núi của miền trung Việt Nam

Date: _____ Code Number & age of Respondent: _____
Ngày Code phiếu

Location: _____ Ethnicity: _____ Sex: _____
Địa chỉ Dân tộc: Giới:

Structured Questions
Câu hỏi cấu trúc

1. How long have you lived in this district?
   - □ Less than one year
   - □ One to five years
   - □ Six to ten years
   - □ Ten to twenty five years
   - □ More than twenty five years

1. Ông (bà) sống ở đây bao lâu rồi
- Dưới 1 năm
- 1- 5 năm
- 6- 10 năm
- 10- 25 năm
- Hơn 25 năm

2. If recent migrant: From where did you move and how long did you live there?

2. Nếu nới di cư đến, ông (bà) đã từ đâu di cư đến và đến đây được bao lâu?

3. How many members do you have in your household?
   - □ Two
   - □ Three to four
   - □ Five to six
   - □ Seven to eight
   - □ More than eight

3. Gia đình ông (bà) có bao nhiêu người?
- 2
- 3 đến 4
- 5 đến 6
-7 đến 8

4. How much land do you own?
   - □ Less than one hectare
   - □ One to two hectares
   - □ More than two hectares

4. Ông (bà) sở hữu bao nhiêu đất?
- Ít hơn 1 ha
- 1 đến 2 ha
- Nhiều hơn 2 ha

5. When did you first start planting *Acacia* species?
   - □ Within the last year
   - □ One to four years ago
   - □ Five to ten years ago
   - □ More than ten years ago

5. Khi nào thì ông (bà) bắt đầu trồng cây keo?
- Trong vòng 1 năm trước
- 1 đến 4 năm trước đây
- 5 đến 10 năm trước đây
- Hơn 10 năm trước đây

6. At the moment, what percentage of your land is under *Acacia* cultivation?
   - □ 0 – 20%
   - □ 21 – 40%
   - □ 41 – 60%
   - □ 61 – 80%
   - □ 81 – 100%

6. Hiện tại, tỷ lệ phần trăm đất của ông (bà) dành trồng keo?
   - □ 0 – 20%
   - □ 21 – 40%
   - □ 41 – 60%
   - □ 61 – 80%
   - □ 81 – 100%

7. Over the past year, what percentage of your total household income is derived from *Acacia* cultivation?
   - □ 0 – 20%
   - □ 21 – 40%
   - □ 41 – 60%
   - □ 61 – 80%
   - □ 81 – 100%

7. Những năm trước đây, tổng thu nhập của gia đình ông bà nhận được trồng keo là bao nhiêu phần trăm?
   - □ 0 – 20%
   - □ 21 – 40%
   - □ 41 – 60%
   - □ 61 – 80%
   - □ 81 – 100%

8. Over the past five years, what percentage of your total household income is derived from *Acacia* cultivation?
   - □ 0 – 20%
   - □ 21 – 40%
   - □ 41 – 60%
   - □ 61 – 80%
   - □ 81 – 100%

8. Hơn năm năm trước đây, tổng thu nhập của gia đình ông bà nhận được trồng keo là bao nhiêu phần trăm?

   - □ 0 – 20%
   - □ 21 – 40%
   - □ 41 – 60%
   - □ 61 – 80%
   - □ 81 – 100%

9. In what way do you benefit from *Acacia* cultivation?
   - □ Selling/using logs as furniture/building material
   - □ Selling/using logs as firewood
   - □ Acquiring *Acacia* seedlings
   - □ Maintaining soil integrity for other crops
   - □ Other

9. Những lợi ích gì của việc trồng keo đem lại cho gia đình ông bà?
- Bán/ sử dụng gỗ để làm đồ đạc/ vật liệu xây dựng
- Bán/ sử dụng làm chất đốt
- Thu lượn hạt keo
- Duy trì tình trạng đất cho các cây trồng khác
- Khác

10. How much longer do you plan on growing *Acacia*?
   - □ Less than one year
   - □ One to two more years
   - □ Three to four more years
   - □ More than four more years

10. Kế hoạch của gia đình ông bà cho việc trồng keo trong bao lâu?
- Dưới 1 năm
- 1 đến hơn 2 năm
- 3 đến hơn 4 năm
- Hơn 4 năm

11. What other crops do you grow?
   - □ Wet rice
   - □ Cassava
   - □ Eucalyptus
   - □ Peanuts
   - □ Tea
   - □ Coffee
   - □ Rubber

- □ Fruit
- □ Other

11. những loại cây trồng gia đình ông bà đang trồng?
- lúa nước
- sắn
- bạch đàn
- đậu phụng
- trà
- cà phê
- cao su
- trái cây
-khác

12. What is the most important crop that you grow? Why?
- □ *Acacia*
- □ Wet rice
- □ Cassava
- □ Eucalyptus
- □ Tea
- □ Coffee
- □ Rubber
- □ Peanuts
- □ Fruit
- □ Other

12. cây trồng nào quan trọng nhất mà gia đình ông bà trồng? tại sao?
- lúa nước
- sắn
- bạch đàn
- đậu phụng
- trà
- cà phê
- cao su
- trái cây
-khác

13. What was the main reason you decided to start planting *Acacia*?
- □ High price
- □ Grows quickly
- □ Soil protection
- □ Because of low inputs/maintenance required
- □ Government policy
- □ Free seedlings
- □ Land security
- □ As a symbol of status in the community
- □ Other

13. Lý do chính gia đình ông bà quyết định bắt đầu trồng cây keo?

- Giá cao
- phát triển nhanh
- bảo vệ đất
- bởi vì chi phí đầu vào thấp/ yêu cầu chăm sóc ít
- chính sách cuảnh nước
- giống miễn phí
- an toàn cho đất
- Xu thế của cộng đồng
- Khác

14. Do you have secure land tenure? Why or why not?
    - □ Yes
    - □ No

14. gia đình ông bà có yên tâm về đất sở hữu không? Tại sao hoặc tại sao không?
- có
- Không

15. What can be done to secure land tenure for *Acacia* cultivation?

15. Những gì có thẻ được làm để yên tâm về đất sở hữu cho việc trồng keo?

16. Has your ability to access land for cultivation purposes in recent years:
    - □ Increased
    - □ Decreased
    - □ Remained the same

16. trong những năm gần đây, ông bà có khả năng để tiếp cận đất cho mục đích trồng keo không?
- tăng
- giảm
- giữ nguyên

17. Has the health of land in recent years:
    - □ Increased
    - □ Decreased
    - □ Remained the same

17. trong những năm gần đây, chất lượng của đất như thê nào?
- tăng
- giảm
- giữ nguyên

18. How do you benefit from *Acacia* cultivation?
    - □ Income
    - □ Soil protection
    - □ Non-timber forestry products
    - □ Opportunities for agroforestry
    - □ Other

18. lợi ích của gia đình ông bà từ việc trồng keo như thế nào?
- thu nhập

- bảo vệ đất
- sản phẩm ngoài gỗ
- nhiều cơ hội cho nông-lâm
- khác

19. How much do you receive per unit of *Acacia*? In VND?

Semi-Structured Questions
Câu hỏi bán câu trúc

1. Who do you sell your *Acacia* to?

1. ông bà bán cây keo cho ai?

2. Where do these people come from? Where are they based?
2. những người mua cây keo đó đến từ đâu? Họ đã dựa vào đâu để đến đây?

3. Do you get a fair price for selling your *Acacia*?
3. ông bà có được giá hợp lý trong việc bán keo không?

4. Have you ever had problems selling your *Acacia* to people?
4. ông bà đã có bao giờ có vấn đề trong việc bán keo không?

5. How stable is the market for *Acacia*?
5. Thị trường cho cây keo ổn định như thế nào?

6. What can the local, district, and provincial governments do to improve your livelihood in general and your planting of *Acacia* specifically?
6. chính quền tỉnh, huyện và địa phương có thể làm gì để cải thiện sinh kế cho người dân trong vùng và đặc biệt là những người dân trồng keo?

7. What would you do if the price for *Acacia* dropped significantly?
7. ông bà sẽ làm gì nếu như giá của cây keo giảm đáng kể?

8. What are the possible risks and problems associated with planting *Acacia?*
   - □ Price fluctuations
   - □ Unclear land tenure
   - □ Lack of growing or selling information
   - □ Disease or pest outbreaks
   - □ Other

8. Những nguy cơ và vấn đề có thể xảy ra với những người trồng keo?
- giá cả thay đổi bất thường
- không rõ ràng trong việc sở hữu đất đai
- thiếu thông tin trong trồng và bán keo
- sâu bệnh
- khác
-

9. Is *Acacia* a feasible long-term livelihood option for you?

9. cây keo có phải là lựa chọn khả thi cho sinh kế lâu dài của gia đình ông bà không?

Appendix 2

The Farmer Livelihood Questionnaire

Forestry Based Livelihoods and Institutional Change in the Uplands of Central Vietnam
Summer/Fall 2008

Date: _____ Code Number & age of Respondent: _____

Location: _____ Ethnicity: _____ Sex: _____

Structured Questions

1. How long have you lived in this district?
   - □ Less than one year
   - □ One to five years
   - □ Six to ten years
   - □ Ten to twenty five years
   - □ More than twenty five years

2. If recent migrant: From where did you move and how long did you live there?

3. How many members do you have in your household?
   - □ Two
   - □ Three to four
   - □ Five to six
   - □ Seven to eight
   - □ More than eight

4. How much land do you own?
   - □ One to two hectares
   - □ Three to five hectares
   - □ More than five hectares

5. When did you first start planting *Acacia* species?
   - □ Within the last year
   - □ One to four years ago
   - □ Five to ten years ago
   - □ More than ten years ago

6. At the moment, what percentage of your land is under *Acacia* cultivation?
   - □ 0 – 20%
   - □ 21 – 40%
   - □ 41 – 60%
   - □ 61 – 80%
   - □ 81 – 100%
7. Over the past year, what percentage of your total household income is derived from *Acacia* cultivation?
   - □ 0 – 20%
   - □ 21 – 40%
   - □ 41 – 60%
   - □ 61 – 80%
   - □ 81 – 100%

8. Over the past five years, what percentage of your total household income is derived from *Acacia* cultivation?
   - □ 0 – 20%
   - □ 21 – 40%
   - □ 41 – 60%
   - □ 61 – 80%
   - □ 81 – 100%

9. In what way do you benefit from *Acacia* cultivation?
   - □ Selling/using logs as furniture/building material
   - □ Selling/using logs as firewood
   - □ Acquiring *Acacia* seedlings
   - □ Maintaining soil integrity for other crops
   - □ Other

10. How much longer do you plan on growing *Acacia*?
    - □ Less than one year
    - □ One to two more years
    - □ Three to four more years
    - □ More than four more years

11. What other crops do you grow?
    - □ Wet rice
    - □ Cassava
    - □ Eucalyptus

- □ Peanuts
- □ Tea
- □ Coffee
- □ Rubber
- □ Fruit
- □ Other

12. What is the most important crop that you grow? Why?
    - □ *Acacia*
    - □ Wet rice
    - □ Cassava
    - □ Eucalyptus
    - □ Tea
    - □ Coffee
    - □ Rubber
    - □ Peanuts
    - □ Fruit
    - □ Other

13. What was the main reason you decided to start planting *Acacia*?
    - □ High price
    - □ Grows quickly
    - □ Soil protection
    - □ Because of low inputs/maintenance required
    - □ Government policy
    - □ Free seedlings
    - □ Land security
    - □ As a symbol of status in the community
    - □ Other

14. Do you have secure land tenure? Why or why not?
    - □ Yes
    - □ No

15. What can be done to secure land tenure for *Acacia* cultivation?

16. Has your ability to access land for cultivation purposes in recent years:
    - □ Increased
    - □ Decreased
    - □ Remained the same

17. Has the health of land in recent years:
    - □ Increased
    - □ Decreased
    - □ Remained the same

18. How do you benefit from *Acacia* cultivation?
    - □ Income
    - □ Soil protection
    - □ Non-timber forestry products
    - □ Opportunities for agroforestry
    - □ Other

19. How much do you receive per unit of *Acacia*? In VND?

Semi-Structured Questions

1. Who do you sell your *Acacia* to?

2. Where do these people come from? Where are they based?

3. Do you get a fair price for selling your *Acacia*?

4. Have you ever had problems selling your *Acacia* to people?

5. How stable is the market for *Acacia*?

6. What can the local, district, and provincial governments do to improve your livelihood in general and your planting of *Acacia* specifically?

7. What would you do if the price for *Acacia* dropped significantly?

8. What are the possible risks and problems associated with planting *Acacia?*
   - □ Price fluctuations
   - □ Unclear land tenure
   - □ Lack of growing or selling information
   - □ Disease or pest outbreaks
   - □ Other

9. Is *Acacia* a feasible long-term livelihood option for you?

Appendix 3

The Middlemen, Processor, & Retailer Questionnaire

Middlemen Involved with the Commodity Flow of *Acacia* in Central Vietnam
Summer/Fall 2008

Date: _____ Code Number & age of Respondent: _____

Location: _____ Ethnicity: _____ Sex: _____

Semi-Structured Questions

1. Where and from how many farmers do you purchase *Acacia*?

2. For how long have you been trading *Acacia* and how did you get involved?

3. What challenges do you encounter when transporting *Acacia* from the uplands to processing areas?

4. How and when do you transport *Acacia*? Do you require a permit?

5. What resources are you required to invest in *Acacia* trading?

6. What changes have you noticed in the local *Acacia* economy in the past 5 years?

7. How important is *Acacia* to the local economy? In Central Vietnam?

8. What can the district and provincial government do to make *Acacia* production easier to benefit the economy?

9. What do you pay for a unit of *Acacia* in VND? How much has the value changed over the last 5 years?

10. How much do you resell *Acacia* for and to whom do you sell it?

Appendix 4

The Date, Type, & Location of Each Interview Conducted

Interview Number	Date of Interview	Type of Interviewee	Location of Interview
1	Aug. 17th, 2008	Villager/Farmer	Pah Ring Village, Hong Ha Commune
2	Aug. 25th, 2008	Villager/Farmer	Can Som Village, Hong Ha Commune
3	Aug. 25th, 2008	Villager/Farmer	Can Som Village, Hong Ha Commune
4	Aug. 26th, 2008	Villager/Farmer	Can Som Village, Hong Ha Commune
5	Aug. 26th, 2008	Villager/Farmer	Can Som Village, Hong Ha Commune
6	Aug. 27th, 2008	Villager/Farmer	Can Som Village, Hong Ha Commune
7	Aug. 27th, 2008	Villager/Farmer	Can Som Village, Hong Ha Commune
8	Aug. 27th, 2008	Villager/Farmer	Can Som Village, Hong Ha Commune
9	Aug. 30th, 2008	Villager/Farmer	Pahy Village, Hong Ha Commune
10	Aug. 30th, 2008	Villager/Farmer	Pahy Village, Hong Ha Commune
11	Sept. 5th, 2008	Villager/Farmer	Pahy Village, Hong Ha Commune
12	Sept. 5th, 2008	Villager/Farmer	Pahy Village, Hong Ha Commune
13	Sept. 5th, 2008	Villager/Farmer	Pahy Village, Hong Ha Commune
14	Sept. 5th, 2008	Villager/Farmer	Pahy Village, Hong Ha Commune
15	Sept. 6th, 2008	Villager/Farmer	Pahy Village, Hong Ha Commune
16	Sept. 6th, 2008	Villager/Farmer	Pah Ring Village, Hong Ha Commune
17	Sept. 10th, 2008	Villager/Farmer	Pah Ring Village, Hong Ha Commune
18	Sept. 10th, 2008	Villager/Farmer	Pah Ring Village, Hong Ha Commune
19	Sept. 10th, 2008	Villager/Farmer	Arom Village, Hong Ha Commune
20	Sept. 10th, 2008	Villager/Farmer	Arom Village, Hong Ha Commune

22	Sept. 17th, 2008	Villager/Farmer	Arom Village, Hong Ha Commune
23	Sept. 17th, 2008	Villager/Farmer	Arom Village, Hong Ha Commune
24	Sept. 17th, 2008	Villager/Farmer	Arom Village, Hong Ha Commune
25	Sept. 18th, 2008	Villager/Farmer	Arom Village, Hong Ha Commune
26	Sept. 18th, 2008	Villager/Farmer	Arom Village, Hong Ha Commune
27	Sept. 26th, 2008	Villager/Farmer	Hamlet 5, Xuan Loc Commune
28	Sept. 26th, 2008	Villager/Farmer	Hamlet 6, Xuan Loc Commune
29	Sept. 26th, 2008	Villager/Farmer	Hamlet 6, Xuan Loc Commune
30	Oct. 3rd, 2008	Villager/Farmer	Hamlet 6, Xuan Loc Commune
31	Oct. 3rd, 2008	Villager/Farmer	Hamlet 5, Xuan Loc Commune
32	Oct. 3rd, 2008	Villager/Farmer	Hamlet 3, Xuan Loc Commune
33	Oct. 3rd, 2008	Villager/Farmer	Hamlet 3, Xuan Loc Commune
34	Oct. 3rd, 2008	Villager/Farmer	Hamlet 1, Xuan Loc Commune
35	Oct. 6th, 2008	Villager/Farmer	Hamlet 1, Xuan Loc Commune
36	Oct. 6th, 2008	Villager/Farmer	Hamlet 3, Xuan Loc Commune
37	Oct. 10th, 2008	Villager/Farmer	Pahy Village, Hong Ha Commune
38	Oct. 10th, 2008	Villager/Farmer	Pahy Village, Hong Ha Commune
39	Oct. 10th, 2008	Villager/Farmer	Kon Tom Village, Hong Ha Commune
40	Oct. 10th, 2008	Villager/Farmer	Kon Tom Village, Hong Ha Commune
41	Oct. 10th, 2008	Villager/Farmer	Arom Village, Hong Ha Commune
42	Oct. 15th, 2008	Villager/Farmer	Arom Village, Hong Ha Commune
43	Oct. 15th, 2008	Villager/Farmer	Arom Village, Hong Ha Commune
44	Oct. 15th, 2008	Villager/Farmer	Pahy Village, Hong Ha Commune

45	Oct. 15th, 2008	Villager/Farmer	Kon Tom Village, Hong Ha Commune
46	Oct. 15th, 2008	Villager/Farmer	Kon Tom Village, Hong Ha Commune
47	Oct. 15th, 2008	Villager/Farmer	Arom Village, Hong Ha Commune
48	Oct. 19th, 2008	Villager/Farmer	Kon Tom Village, Hong Ha Commune
49	Oct. 19th, 2008	Villager/Farmer	Phuoc Loc Village, Xuan Loc Commune
50	Oct. 19th, 2008	Villager/Farmer	Hamlet 5, Xuan Loc Commune
51	Oct. 19th, 2008	Villager/Farmer	Hamlet 4, Xuan Loc Commune
52	Oct. 19th, 2008	Villager/Farmer	Hamlet 4, Xuan Loc Commune
53	Oct. 19th, 2008	Villager/Farmer	Hamlet 5, Xuan Loc Commune
54	Oct. 22nd, 2008	Villager/Farmer	Phuoc Loc Village, Xuan Loc Commune
55	Oct. 22nd, 2008	Villager/Farmer	Phuoc Loc Village, Xuan Loc Commune
56	Oct. 22nd, 2008	Villager/Farmer	Phuoc Loc Village, Xuan Loc Commune
57	Nov. 2nd, 2008	Villager/Farmer	Phuoc Loc Village, Xuan Loc Commune
58	Nov. 2nd, 2008	Villager/Farmer	Hamlet 2, Xuan Loc Commune
59	Oct. 4th, 2008	Middleman	Can Som Village, Hong Ha Commune
60	Oct. 12th, 2008	Large Processor	Chan May Port, Loc Vinh Commune
61	Oct. 12th, 2008	Middleman	Chan May Port, Loc Vinh Commune
62	Oct. 12th, 2008	Commune Official	Chan May Port, Loc Vinh Commune
63	Oct. 12th, 2008	Small Processor	Chan May Port, Loc Vinh Commune
64	Oct. 12th, 2008	Small Processor	Chan May Port, Loc Vinh Commune
65	Oct. 13th, 2008	Middleman	Hue City
66	Oct. 13th, 2008	Mid-size Processor/Middleman	Long Ho Ha Village, Huong Ho Commune, Huong Tra District
67	Oct. 13th, 2008	Mid-size Processor	Long Ho Ha Village, Huong Ho Commune,

			Huong Tra District
68	Oct. 13th, 2008	Mid-size Processor	Long Ho Ha Village, Huong Ho Commune, Huong Tra District
69	Oct. 17th, 2008	Small Processor	An Binh Village, Huong Ho Commune, Huong Tra District
70	Oct. 17th, 2008	Small Processor	An Binh Village, Huong Ho Commune, Huong Tra District
71	Oct. 17th, 2008	Small Processor	An Binh Village, Huong Ho Commune, Huong Tra District
72	Oct. 17th, 2008	Small Processor	An Binh Village, Huong Ho Commune, Huong Tra District
73	Oct. 17th, 2008	Small Processor	An Binh Village, Huong Ho Commune, Huong Tra District
74	Oct. 17th, 2008	Large Processor	An Binh Village, Huong Ho Commune, Huong Tra District
75	Oct. 23rd, 2008	*Acacia* Supplier	Hamlet 1, Xuan Loc Commune
76	Oct. 23rd, 2008	Middleman	Chan May Port
77	Oct. 23rd, 2008	Middleman	Chan May Port
78	Oct. 23rd, 2008	Middleman	Chan May Port
79	Oct. 28th, 2008	*Acacia* Supplier	Hamlet 1, Xuan Loc Commune
80	Oct. 28th, 2008	Small Processor	Hamlet 1, Xuan Loc Commune
81	Oct. 28th, 2008	Middleman	Hamlet 2, Xuan Loc Commune
82	Nov. 8th, 2008	Middleman	Arom Village, Hong Ha Commune
83	Nov. 8th, 2008	Small Retail Store	Hue City
84	Nov. 18th, 2008	Small Retail Store	Hue City
85	Nov. 18th, 2008	Small Retail Store	Hue City
86	Nov. 24th, 2008	Large Retail Store	Hue City
87	Nov. 24th, 2008	Large Retail Store	Hue City
88	Dec. 1st, 2008	Small Processor	Hue City
89	Aug. 7th, 2008	Commune Official	Pah Ring Village, Hong Ha Commune
90	Sept. 24th, 2008	Commune Official	Hamlet 1, Xuan Loc Commune

91	July 28th, 2008	Watershed Management Board Worker	Can Som Village, Hong Ha Commune
92	Aug. 28th, 2008	Commune Official	Loc Vinh Commune, Phu Loc District