EFFECTS OF DEVELOPMENT AND REFORESTATION ON AGRARIAN LIVELIHOODS IN UPLAND VIETNAM

by

ANN ELIZABETH MACFADYEN

(Under the Direction of J. Peter Brosius)

ABSTRACT

This dissertation examines how smallholders in upland Vietnam perceived and responded to state-sponsored efforts to improve rural livelihoods. I approach the question of "improvement" through the lens of political ecology, and I focus on understanding how government projects aimed at modernizing rural areas became meaningful to local stakeholders. From the French colonial era to today, there have been state-level policies and programs to end swidden farming in the uplands of Vietnam. Nevertheless, the practice remained widespread in the areas under study until recently, when acacia plantation programs aimed at replacing hill rice fields took hold. To understand local meaning within the context of livelihood changes, I designed the research to focus on the analytical scale of individual households. This research occurred in three phases. First, I conducted a series of semi-structured household interviews focused on livelihood strategies, land assets and rights, the introduction of acacia and cassava cash crops, and challenges like food and water security and environmental risks. Second, drawing on the relevant findings from phase one interviews, I conducted a comprehensive household interview with a separate set of households. This comprehensive interview included both closed-response and open-ended questions. Third, I conducted follow-up interviews with

several households from phase one, which deepened my understanding of land claims and the issue of limited land availability in the area.

This research highlighted the role everyday politics emerging from local inequalities play in intra-hamlet livelihood resilience. Acacia and cassava provide finite benefits to specific households, yet they cause diffuse environmental risks across the hamlets, placing the wellbeing of less-well off families at risk. People will assume authority over their own circumstances, even continuing illicit strategies as part of their efforts to manage barriers to livelihood sustainability and improvement in the context of the changing climate.

INDEX WORDS: Political ecology, Rural Livelihoods, Livelihood Resilience, Reforestation, Development, Vietnam

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DEDICATION

To my parents and sisters for their unconditional support and love. To my daughter Sierra, with whom every day is gift. And, to my husband, you showed me the way through. I love you.

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CHAPTER 1

INTRODUCTION

Introduction

When a state government wishes to "improve" its population, questions and contradictions emerge (Li 2007a). Improve what, how, and according to whom? I use a case study from a primarily ethnic Vân Kiều rural commune in upland Vietnam called Hương Hiệp to provide insights into the processes of modernization and development among smallholders transitioning from subsistence to market-oriented agriculture. The framework of political ecology, and its contributions to livelihood resilience, guides my analysis of the ways in which local stakeholders responded to these livelihood changes in the context of government tree planting and cash crop programs, limited resources, and a changing climate. In this dissertation, I ask the question: *How have Vân Kiều smallholders in Hương Hiệp commune responded to state-sponsored livelihood improvement schemes and their associated effects?*

I explore this aspect of rural development through three sub-questions:

1. How has the introduction of acacia and industrial cassava affected livelihoods in Hương Hiệp?
2. How has the adoption of cash crops related to local indicators of wellbeing and livelihood improvement?
3. How have residents of Hương Hiệp navigated barriers to livelihood improvement and risks to their wellbeing?

This chapter introduces the theoretical framework for this dissertation and outlines the structure of the following chapters. In the theoretical framework section below, I first provide a general overview of political ecology and its roots in the study of environmental change and power relations. I then discuss the topic of "everyday" politics (Kerkvliet 2009) and its relevance to studying local power relations and rural livelihood change. Next, I provide an overview of resilience thinking, its origins, and its growing importance in development research.

Critiques of resilience thinking, particularly by social theorists, and recent engagements with political ecology provide the foundations for the section on livelihood resilience. While some authors argue that social science and resilience are incommensurable (Olsson et al. 2015), others have found that political ecology's and resilience thinking's shared contributions to breaking down dualistic and static views of nature and society provide opportunities for fruitful and diverse engagements (Stone-Jovicich 2015; West et al. 2014). Political ecology's explanatory power can help identify surrogates for measuring resilience (Quandt 2017; 2018), and it can help gain access to questions of resilience of what (Carpenter et al. 2001), for whom (Lebel et al. 2006), and at what cost to which others (Cote and Nightingale 2012; Stone-Jovicich 2015) – questions about power relations, equity, and the possible privileging of certain resilience outcomes over others (Cote and Nightingale 2012). I conclude the theoretical framework section by explaining how I employ a political ecology framework in examining subjective aspects of livelihood resilience within the context of state-sponsored livelihood improvement projects.

Theoretical Framework

Political ecology is the study of environmental change in relation to social, economic, and political processes (Bryant 1992; Meek 2014). The "political" in political ecology refers to

places and practices through which power – in any form – is wielded and negotiated (Paulson et al. 2005). It differs, therefore, from an apolitical "cultural ecology" analysis that focuses on adaptations to the environment "without attending to the structures of inequality that [mediate] human-nature articulations" (Biersack 2006, 3). Eric Wolf first used the term "political ecology" in its modern sense in his 1972 publication "Ownership and Political Ecology" to describe his study of how power relations mediate human-environmental relations (Biersack 2006). By the 1980s and early 1990s, political ecology emerged as an interdisciplinary research framework for examining power inequalities in the context of the environment (Paulson et al. 2003).

In the following theoretical framework section, I provide a brief background on political ecology, focusing on its dominant themes in connection to studies of rural livelihoods and development. Then, I conclude the section by describing political ecology's contributions to livelihood resilience.

Roots of Political Ecology

Political ecology has its roots in the materialism of political economy and ecological analysis. From its emergence, political ecology started with material productive activities, which can be traced back to Hobbes, Smith, Malthus, and Marx (Greenburg and Park 1994). Moreover, although nature and culture are socially constructed concepts, they are outgrowths of productive activities (Greenburg and Park 1994). Political economy studies important links between power and productive activities. It examines the economy of distributional conflicts, those inequalities of the distribution of wealth, output, or income (Kroger 2014), whereas political ecology instead focuses on "ecological distribution" conflicts (Martinez-Alier 1995). In their introduction to the inaugural issue of the Journal of Political Ecology in 1994, Greenburg and Park state that Marx came closest to "defining the dialectic between individuals, their productive activity in society,

and nature… [and that] we must begin [to address political ecology] with the productive activities of real individuals" (Greenburg and Park 1994, 1). It is not enough, they argue, to focus on local cultural adaptations without addressing inequalities. Rather, power dynamics at multiple levels should be addressed explicitly (Greenburg and Park 1994; Biersack 2006). The power-centered focus of political economy has significant potential to dialogue with social, temporal, and spatial inequalities of resources (Martinez-Alier 1995).

Political ecology covers a wide range of resource inequalities and interactions within the broad scope of human-environment interactions. Researchers examining these inequalities are based in a variety of disciplines, including anthropology, geography, development studies, political science, and environmental history. During the field's emerging years in the 1980s and 1990s, disciplinary and institutional divisions left some researchers feeling isolated (Bryant 1992). However, the kind of questions that were being asked demanded bridging sub-disciplines (Zimmerer 2007). Blaikie and Brookfield's highly influential book *Land Degradation and Society* (1987) argued for such a bridge – a dialogue between natural and social sciences – in the search for the deeper cause of environmental degradation (Biersack 2006). Environmental issues, according to Blaikie and Brookfield (1987), are more a problem of social action and political economic constraints than of overpopulation or ignorance (Peet and Watts 1996).

Political ecology scholars recognize the importance of the state, interstate forces, and peasant groups in the study of three critical areas of interest: the contextual sources of environmental change, conflict over access, and political ramifications of environmental change (Bryant 1992). State policies help to structure the discourse of environmental change, and they do not develop in a vacuum (Bryant 1992). Blaikie (1985), for example, criticized Ester Boserup's classic work (1965) that argued that farmers take on more onerous work when

population pressures force them to do so. He noted that "discussions of the state, relations of production, and patterns of surplus extraction are almost entirely absent from Boserup" (Blaikie 1985, 24 *in* Dove and Hudayana 2008). This omission, according to Blaikie, weakened Boserup's explanations.

Early studies of political ecology, exemplified by Blaikie and Brookfield's (1987) work, fused cultural and human ecology with political economy, positing material and knowable environmental problems (Robbins and Bishop 2008; Blaikie and Brookfield 1987). As Brosius (1999a) explained, classic political ecology assumed the existence of an "unproblematic material/ecological base" and a series of differentially empowered actors with clear interests. This earlier form of political ecology typically focused on the role of political economy in land degradation (Stone-Jovicich 2015). Scholars have since drawn from post-structuralist social theory to form a Critical Political Ecology (Escobar 1999; Forsyth 2003; Peet and Watts 1996; Rocheleau et al. 1996; Brosius 1999a, 17). This latter form of political ecology challenges assumed categories and classifications such as "degradation" and "nature" (Escobar 1999; Forsyth 2003) and brings together "diverse critiques of the knowledge and power that underlie environmental sciences, discourses, and practices" (Paulson et al. 2003, 208).

The work of Foucault laid much of the groundwork for understanding the relationship between power and knowledge in Critical Political Ecology. Critiquing the Hobbesian view of juridical sovereign power, Foucault (*in* Ewald et al. 2003) argued that the relations of power are manifest in discourse and counter-discourse. It is power that categorizes individuals and makes those categories real (Foucault 1982). Peet and Watts (1996) describe discourse as an "area of language use expressing a particular standpoint and related to a certain set of institutions" (Peet and Watts 1996, 14). Discourses are frameworks embracing certain narratives, concepts, and

ideologies at the expense of others. Drawing on this concept of power, Haraway (1988) argues that all knowledge is positioned, and knowledge claims that are un-locatable in a traditional scientific sense are like Foucault's "gaze of power" that renders the subject powerless. Situated knowledge, she argued, is a partial perspective that recognizes the viewer's position, is self-reflexive, and is therefore a feminist form of objectivity (Haraway 1988).

In examining the diverse array of ways political ecology has understood power, from early studies to post-structuralist analyses, Paulson et al. (2003) suggest that a clear conceptualization of power is necessary to better address practical problems of resource degradation and social marginalization. They conceptualize power as a social relation that is built on the unequal distribution of resources and risks (Paulson et al. 2003; Zimmerer 2007). Politics, in turn, "is understood as the practices and processes through which power, in its multiple forms, is wielded and negotiated" (Paulson et al. 2003, 209).

By asserting that both the material world and discourse constitute the environment (Biersack 2006), political ecologists bridge symbolic anthropology and cultural ecology – studies of meaning and materialism (Paulson et al. 2005). Methodologically, it is important for political ecologists to elicit conceptual vocabulary from a range of participants to explore the relationships between discursive formations and environmental and political practice (Robbins 2004). In doing so, political ecology seeks to interrogate presumptions and conceptions that drive and dominate resource conflict (Robbins 2004).

Political ecologists have argued that local knowledge is a partial perspective that is necessary for culturally appropriate development solutions. The arguments of political ecology that deal with nature and the construction of nature (meaning being derived discursively) is significant for the framework of dealing with development and modernization (Biersack 2006).

Everyday Politics in Livelihoods

Rural populations variously embrace and resist the transitions brought on by agrarian modernization and liberalization of socialist markets (Drahmoune (2013). Since Scott's (1985) work on everyday resistance, analyses of resistance in rural Southeast Asia have opened our understanding of various forms of resistance strategies, which include foot-dragging practices, cheating on sharecropping contracts, and other cultural forms of resistance like songs, poetry, narratives of action, and so forth (Brosius 2006; Scott and Kerkvliet 1986; Turner and Caouette 2009).

These mundane, less-than-revolutionary activities are tacit efforts by small-scale farmers to reduce inequalities and protect their material interests (Scott 1985; Bonnin and Turner 2011), or even to negotiate the terms of their subordination (Chandra 2015; Nilsen 2015). In cases where official discourse is not challenged in public, local peoples may privately subvert regulations (Leach and Fairhead 2000; Mathews 2005). Seen as a series of dialogues and as a continual process, acts of resistance are necessary ingredients to change in social life (Theodossopoulos 2014).

Acts of resistance may also be simultaneous acts of engagement (Brosius 2006). Certain groups may selectively engage with new crops, fertilizers, and other modern agricultural changes based on a variety of factors (Turner and Michaud 2009). Livelihoods research that concentrates on understanding these subversions focuses less on materialistic capital and assets in favor of examining how values and beliefs (Velásquez-Runk et al. 2007) and everyday politics affect income and wellbeing strategies (Bonnin and Turner 2011; Turner 2012).

Building on the idea of everyday resistance, "everyday politics" affects the unfolding of agrarian transitions (Kerkvliet 2005; Kerkvliet 2009; Bonnin and Turner 2011; Turner 2012). For instance, in Vietnam the government had for years – beginning initially in the late 1950s in the North, and later in the South after reunification – encouraged and, at times, forced agrarian households to participate in cooperatives to farm rice collectively. But, by the mid-1980s, many cooperatives disintegrated as land and draft animals reverted to individual households. Rather than occurring through upheaval or revolution, decollectivization in Vietnam started locally and national policy followed. The pressure to reverse collectivization came about largely "from everyday practices of villagers" (Kerkvliet 2009, 231; Kerkvliet 2005). These everyday practices were political because they involved the distribution and control over vital resources (Kerkvliet 2009).

Forms of "everyday politics" and resistance are also found in how decisions are made regarding development project implementation and access to benefits. These local-level power relations influence the involvement of individuals and households in various livelihood opportunities (Turner 2012). Everyday interactions between people of unequal social status and class are an important for the production, distribution, and use of resources (Kerkvliet 2009). By incorporating the conceptual framework of everyday politics, researchers (including in this dissertation) have been able to engage with the social, cultural, and political aspects of household decision-making in the context of state-supported livelihood interventions (Bonnin and Turner 2011).

In this research I utilize the framing of "everyday politics" to examine access to resources and opportunities, such as invitations to participate in agricultural projects (Walker at al. 2007), but I also examine the gendered aspects of livelihood activities. In feminist political ecology

(FPE) work, gender is utilized as an analytical concept – not a static entity – for considering power relations (Elmhirst 2011a). While FPE does not explicitly utilize the concept of "everyday politics," it stresses that socio-political relations, cultural practices, and ecological conditions are gendered (Phan 2018; Nygren and Rikoon 2008). FPE's conceptualization of gender and the everyday struggles to secure livelihoods in agrarian lives inform my analysis of local, embodied inequalities and gendered livelihood strategies.

Resilience Thinking

Resilience is the "ability of a system to absorb disturbance and still retain its basic function and structure" (Walker and Salt 2006, 1) while maintaining options to develop (Nelson et al. 2007). Within this definition, resilience has three overarching properties: the amount of change the system can undergo before transforming, the degree to which the system is capable of self-organization, and the degree to which the system can build capacity to learn and adapt (Carpenter et al. 2001).

Resilience thinking as a framework for understanding the "interplay between change and persistence, between the predictable and unpredictable" (Gunderson and Holling 2002, 5) in social-ecological systems has its roots in 1970s ecology (Holling 1973) and anthropology (Vayda and McCay 1975; Tucker and Nelson 2017). Contrary to the paradigm of stable system states, resilience thinking argues that there is no optimal, stable state for a system. Focusing on equilibria and attempting to optimize isolated aspects of a complex system are inadequate for addressing issues like pollutants, endangered species, climate change, et cetera, and such attempts may even be counterproductive (Holling 1973; Vayda and McCay 1975; Walker and Salt 2006). The key to sustainability from a resilience approach involves enhancing

heterogeneity and the ability of a system to absorb and accommodate unexpected future events (Holling 1973). Understanding how and why a system is changing enables people to prepare for and work with changes as opposed to being victims of change (Walker and Salt 2006, 14).

The idea of tightly interconnected socio-ecological systems (SESs) emerged together with resilience thinking (Fabinyi et al. 2014; Adger 2000; Berkes and Folke 1998). Resilience thinking recognizes that SESs are innately vulnerable to climatic and other disturbances. A resilient SES recovers and adjusts from disturbances rather than attempting to prevent specific vulnerability outcomes (Vickers 2015; Nelson et al. 2007). The systems approach to coupled social and environmental aspects emphasizes that humans are not external to or dominant over nature.

Resilience is often considered a "boundary" concept or even a "unifying" framework to integrate the natural and social aspects of sustainability (Brown 2014; d'Errico et al. 2017; Olsson et al. 2015; Quandt 2017). Also, resilience thinking has been increasingly incorporated into the discourse of international development. For example, resilience thinking is featured prominently in the UN Sustainable Development Goals for 2030 (Quandt 2018; Bahadur et al. 2015). Specifically, Target 1.5 reads as follows: "By 2030, build the resilience of the poor and those in vulnerable situations, and reduce their exposure and vulnerability to climate-related extreme events and other economic, social, and environmental shocks and disasters" (Bahadur et al. 2015, 2). Resilience building activities, it is argued in the UN document, improve wellbeing despite shocks and stresses (Bahadur et al. 2015). It is important to note, however, that resilience itself is neither good nor bad, and sometimes negative systems can be very resilient – which is harmful (Quandt 2017). One person's resilience may be another's subjugation. And, what is

termed resilience might be part of the problem, not its solution (Taylor 2015, 79; Harrison and Chiroro 2017).

The increasingly ubiquitous nature of resilience in contemporary debates about global environmental change has encouraged social scientists to find locations of engagement with resilience (Brown 2014). The following section outlines some of the critiques of resilience thinking by social scientists and introduces the concept of "livelihood resilience" as an avenue for political ecology to engage with and broaden resilience thinking.

Engagements Between Political Ecology and Resilience Thinking

I mentioned in the above section that resilience thinking has contributed to the argument that social and environmental systems are interconnected. Political ecologists have also critiqued dualistic views of nature and culture (Cronon 1995; Delang and Wong 2006; Robbins and Maddock 2000). Early engagements between political ecology and resilience (Peterson 2000) recognized this similarity and suggested that a resilience approach to political ecology could "put ecology back in political ecology" (Peterson 2000, 335; Turner 2014; Quandt 2017) – addressing one of the critiques of political ecology (Vayda and Walters 1999).

Since these early engagements, scholars have continued to critique, compare, and contrast resilience thinking and political ecology (Brown 2014; Cote and Nightingale 2012; Turner 2014). Some have argued that the two frameworks are ultimately incommensurable due to the unifying ambition of resilience thinking (Olsson et al. 2015) and fundamentally different epistemologies (West et al. 2014). Turner (2014; 2016) suggested that despite these barriers and challenges, resilience and political ecology can, in some cases, approach problems together. For example, by engaging with resilience, political ecologists can help define social surrogates for

resilience and help ensure both power and ecological concerns are highlighted in resource management (Quandt 2017).

Two of the prominent critiques leveled on resilience thinking by social scientists have been an under-acknowledgement of internal social differentiation and the role of power (Fabinyi 2014). Resilience thinking sometimes places an overemphasis on the similarities between social and ecological dynamics, and several authors have argued that normative aspects of resilience need to be brought forward in research (Armitage and Johnson 2006; Cote and Nightingale 2012). "In order to gain access to questions of resilience of *what and for whom,* greater efforts are required to include factors of power relations and cultural values when framing the scope of possibilities available to individuals, groups, or societies, to respond to change" (Cote and Nightingale 2012, 480, my emphasis; also Marschke and Berkes 2006).

Critical engagement with resilience from a political ecology perspective has suggested that adaptation and resilience occur through social change which, if meaningful, inherently involves conflict – positive or negative (Carpenter et al. 2001; Turner 2010). A more complete understanding of the roles that conflict and local everyday politics play within communities experiencing climate variability and change is required to understand associated social changes and potential resilience trade-offs (Turner 2010, 15).

Additionally, work in political ecology stresses that looking at climate change without social, cultural, and political drivers of persistent inequality and marginalization is outdated and possibly counterproductive (Tschakert 2012). Socioeconomic and political processes shape sensitivity and exposure to climate risks (Eakin and Luers 2006; Nelson and Stathers 2009). Nelson and Stathers (2009) suggest that climate adaptation research should draw upon resilience

thinking, political ecology, and environmental anthropology in order to embed analyses of power struggles and cultural norms in the context of a socio-ecological system.

Livelihood Resilience and the Politics of Improving Rural Livelihoods

Drawing from the above-mentioned critiques, the concept of "livelihood resilience" has emerged as a research approach that links analyses of human agency and power relation with livelihoods research within the context of climate change. Tanner et al. (2015) proposed that the lens of resilience "requires greater attention to human livelihoods if it is to address the limits of adaptation strategies and development needs of the poorest and most vulnerable" (23). To that end, they defined livelihood resilience as "the capacity of all people across generations to sustain and improve their livelihood opportunities and wellbeing despite environmental, economic, social, and political disturbances" (Tanner et al. 2015, 23). Depending on the situation of the stakeholder, livelihood improvement could refer to increasing resilience or it could refer to a transformation. The concept of livelihood resilience draws on earlier work in the sustainable livelihoods framework that stated that "a livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities, assets, and entitlements, while not undermining the natural resource base" (Chambers and Conway 1992, 6). Livelihood resilience highlights the role of human agency, rights, politics, power, and the capacity to prepare for and cope with shocks (Tanner et al. 2015; Quandt 2017).

There have been recent efforts to establish objective measures for livelihood resilience using proxy indicators for buffer capacity, self-organization, and the capacity for learning (Speranza et al. 2014) or a composite index using the five capitals of the sustainable livelihoods approach (Quandt 2017; Quandt 2018). The range of indicators used under different methods for

objectively measuring livelihood resilience is vast; and each framework has their own set of indicators used to characterize livelihood resilience (Jones and Tanner 2015).

Subjective measures of livelihood resilience have the benefit of being more of a bottom-up approach to measurement than objective indices, relying on people to self-assess and consider what characteristics are most important to their own livelihoods (Jones and Tanner 2015). They capture perceptions, opinions, judgements, and the nature of social relationships together with observable socio-economic characteristics of the household (d'Errico et al. 2017). In this dissertation I use a political ecology framework, drawing on everyday politics, to explore two aspects livelihood resilience: wellbeing and livelihood improvement. I approach these aspects using subjective measures – considering local perspectives of "a good life" and "improvement" together with observable household variables (described in Chapter 2). I then explore the place-specific politics, wellbeing inequalities, and barriers to livelihood improvement that limit livelihood resilience among households in Hương Hiệp; additionally, I describe coping strategies variously employed by households to sustain their livelihoods during times of stress. This analysis provides insight into the household-level effects of governmental projects aimed to transition households from traditional swidden, subsistence farming to more market-oriented, cash crop farming within the broader context of a changing climate. The next section outlines the following chapters of this dissertation.

Outline of Chapters

The following chapter provides a description of my research permissions process, methods, and analysis. This chapter will also outline the independent and dependent variables used in statistical analyses. Chapter three provides a site description for Hương Hiệp commune

and a background on Vân Kiều livelihoods and culture. Chapter four highlights the historical and political context for recent tree planting projects in Hương Hiệp, including governmental perceptions of ethnic minorities and traditional upland livelihoods. In Chapter Five, I examine livelihoods in Hương Hiệp. This includes subsistence strategies, income-generating strategies, household expenses, and an interpretation of analyses associating acacia plantations with household size and land assets. In chapter six, I examine local responses cash crop introduction, including why people decided to grow cash crops, and how the adoption of cash crops relates to local indicators of wellbeing and livelihood improvement. Chapter seven focuses on how households in Hương Hiệp cope with barriers to their wellbeing and to improving their livelihood and how these constraints may be affected by climate change continued cash crop production. I will conclude the dissertation with chapter eight, in which I will summarize the findings presented in this dissertation, highlight the significance of the research, and suggest avenues for future research.

CHAPTER 2

MY LONG ARRIVAL: PERMISSIONS PROCESS AND RESEARCH METHODS

Introduction: New Year's Welcome

I arrived in Vietnam in mid-January 2013 with a ten-month research visa in hand and my anxious mind filled with research plans. As part of the Fulbright grant benefits, the US Embassy in Vietnam provided an orientation for the 12 research grantees in the 2012-2013 funding year. After a morning of welcoming introductions and a briefing on US-Vietnam relations, one of my fellow grantees asked a seemingly simple question of our US Embassy contact. "When is Tết this year?" "Oh, February 10th", she responded. We all nodded and took note. Tết, the shortened form of Tết Nguyên Đán, is the Vietnamese Lunar New Year – the most important holiday of the year for most Vietnamese.

As researchers arriving to Vietnam just before Tết, we recognized that our schedules might be affected, although we were unsure how significantly. Our Embassy contact continued. "The holiday begins on the 9th, but do not expect anyone to be at work for maybe two weeks", she continued. "Maybe more, it depends". At this point we all looked up from our welcome packets, glancing at each other in confusion. When *is* Tết? In that moment we all began to realize that in Vietnam, Tết celebrations occur within no fixed time frame. Rather, the official New Year's Day is surrounded on either side by a large, blurry buffer zone. For a few days leading up to the holiday, the atmosphere is festive, and days can consist entirely of work parties and gift presentations. After New Year's Day the mood is much more pious, and businesses

throughout the country close so that people may travel back to their home towns to celebrate with family and visit ancestral altars. Hearing these details at the orientation, I pictured myself alone in a hotel room in Hanoi. I would be waiting for my research permissions to come through while the city celebrated, then rested, and finally slowly emerged from that calm that comes just once a year. Ultimately, what I pictured was correct, but the pre-research permissions process took much longer than I could have imagined that day.

Walking along the streets of Hanoi during the Tết holiday was serene and unnerving. The normally bustling streets, packed with motorbikes on a normal day, seemed wide and clean in their emptiness. And the sidewalks, typically jammed with street food vendors, parked motorbikes, noise and color, were grey and lonely (see figure 2.1). While I planned to finalize permission details in January and begin research in Quảng Trị province shortly after the end of the Tết holiday (officially February 9th-14th for government offices), the holiday came and went without any perceivable changes to my permission status. I remained in Hanoi through the end of April - an additional two and a half months past my estimations - working towards attaining provincial and local research permission.

Research Permissions Process

State Level Permissions: Research Visa

My efforts to gain permission to work as a solo researcher in Vietnam began nearly four years ahead when I first visited my Hanoi-based host institution, the Center for Natural Resources and Environmental Studies (CRES) in 2009 during a two-month pre-dissertation trip. During that 2009 summer, I met with several CRES biologists who in turn directed me to their colleagues at the Department of Natural Resources and Environment (DONRE) in Đông Hà

town, the capital of Quảng Trị province. Then, in the summer of 2011, after completing a two-month language training course in Ho Chi Minh City, I flew to Hanoi, visited CRES again and met with the director. At that time, the director confirmed that CRES would host my research in Quảng Trị when I returned.

Figure 2.1 Downtown Hanoi seen here in late morning with shuttered stores and quiet streets during Tết holiday. Photo by the author.

In the months leading up to my arrival in January 2013, I worked with CRES officials – providing documentation of my research grant and affiliation and successfully had my research visa approved. However, a research visa represented a national-level permission, something of little consequence to provincial and district-level officials.

Province-Level Permissions: Beyond the Visa

My contact at CRES, the foreign affairs officer, had no way of knowing how long the process could take or even if I would ever get permission for researching in Quảng Trị. "Maybe you will have to work in a different province, I don't know", she told me in late February, nearly two months after my arrival.

For my part of the permissions process, I sent a detailed work schedule to my CRES contact, who then sent an official letter to the province before I even arrived in country. I spent January and February writing and re-writing my work schedule and research outline in different formats and in varied degrees of specificity in both English and Vietnamese for CRES, the Foreign Affairs Office in Quảng Trị, and DONRE of Quảng Trị. Each time I completed a work schedule, I was asked to add more details or change the format. My impression of this time is that no action on my part could have made the process speedier.

When March arrived, my contacts at CRES felt that I should take an initial trip to Quảng Trị province to meet government officials in person. They felt this could mobilize the province-level permission that was otherwise stalled. I went on a two-day initial trip with one of the CRES officials, Mr. G___, to visit all the necessary government officials and to choose my specific research site.

We took the 12-hour overnight train south to Đông Hà, the capital of Quảng Trị where the major governmental offices for the province are located. The train, known as the Reunification Express, plods north and south between Hanoi and Ho Chi Minh City, servicing towns along Vietnam's curving coastal plane. A favorite among adventurous back-packing tourists and a common mode of travel for average Vietnamese, the Reunification Express belies its name, but offers excellent people-watching and sight-seeing. Mr. G and I traveled in "soft

seat" class, first discussing the plans for our trip, and finally drifting off to sleep in our cramped, upright chairs.

Shortly before pulling into the Đông Hà station around 6:30 in the morning, I awoke stiff and bleary but happy to have the smell of noodles and coffee drifting through our train car. After a quick rest and breakfast of steaming phở at a stopover hotel near the station, we took a quick taxi ride to the Foreign Affairs office, our first visit.

Mr. G introduced me to two officials there, and despite being interested in my work, they told me to write another research schedule for them. Although the schedule I had written in February had already been sent to this office ahead of my arrival in Quảng Trị by CRES, the Foreign Affairs department requested that I write a new, more detailed *daily* schedule which included the specific details of where I planned to be, with whom, and discussing what things. This, they told me, was for my own safety. The Foreign Affairs office would be the department in charge of me while I worked in the province – both in terms of assistance, if I needed anything, and monitoring my behavior. Indeed, a border security guard monitored my whereabouts throughout the six months I spent living and researching in Quảng Trị province.

Next, Mr. G and I visited the Department of Natural Resources and Environment (DONRE), which was intended to be my local host institution. We discussed the content of my research and the possible commune sites for my research based on locations where the Biodiversity Conservation Corridors Initiative was in place and actively operating. Of the six communes with active reforestation programs, we narrowed my choices down to the more feasible (based on location near roads) Tà Long and Hương Hiệp communes. That was my last interaction with DONRE since the Foreign Affairs office took over hosting duties.

Later that day Mr. G and I took a bus west up the winding mountain highway to ĐaKrông district. There we met with several government officials in the district seat of Krông Klang town and visited the two possible research communes. Tà Long, located within the ĐaKrông nature reserve, and Hương Hiệp, located just 5 km from the district town center.

Tà Long is much more isolated than Hương Hiệp. After visiting both, Mr. G and I both agreed that it would not be very feasible for me to work in Tà Long as an independent researcher. For instance, the housing in Tà Long, a research outpost, did not have reliable clean water or regular access to food. Additionally, I preferred Hương Hiệp specifically because it is not located within a formal protected area, but it is close to both the nature reserve and the district seat town of Krông Klang. I was interested in how people living in buffer regions responded to reforestation programs, without specific mandates or rules associated with a nature reserve. This was because my research focused on the development aspects of smallholder plantations that were specifically production forests.

I hoped to start working immediately in Hương Hiệp after my visit in March. But, I would wait another month and a half to receive provincial approval. In the meantime, I prepared and sent my required day-to-day schedule, and kept in contact with the Foreign Affairs office in Quảng Trị.

Conditions of Research Permission

Four months had passed since my arrival in Vietnam when I returned to Đông Hà on May 1st to begin my work. The morning after my arrival, I met again with officials at the Foreign Affairs Office. At this meeting I found out - in no uncertain terms - that I was not allowed to visit the households in the hamlets by myself, go out into the agricultural fields or forests, or stay

with a family in the hamlets at any time. I was permitted only to conduct in-house interviews with my Foreign Affairs-approved interpreter, Sửu. Sửu was assigned to work with me as a lower-level employee at the Foreign Affairs office. Close in age, we could be seen as peers and the opportunity gave Sửu a chance to improve his English language skills. After some negotiation, Sửu's boss, Mr. A__ and I agreed that I would pay Sửu a daily wage of 20 US dollars and cover his room and board for each day that he worked for me. We also agreed that I could pay 10 US dollars for a half-day if we worked 8AM-Noon or 1pm-5pm[1].

Additionally, at this meeting Mr. A informed me that the only location in ĐaKrông district where a foreigner could stay was the austere but spacious People's Committee Guesthouse of ĐaKrông district, *Nhà Khách Ủy Ban Nhân Dân Huyện ĐaKrông* in Vietnamese (see figure 2.2). I describe more about guesthouse living in the methods section below.

[1] I suspect, although this is not confirmed, that the Foreign Affairs office received most of the money that I paid to Sưu and that he took home a small portion of the daily wage. Nonetheless, he seemed pleased to work with me, and we were able to conduct interviews in a timely fashion once local district and commune-level permissions were finalized.

Figure 2.2 Author in from of the People's Committee Guesthouse in Krông Klang town (white building). Photo by J. Brent Vickers

It was only at that point that I knew that I had lost the ability to conduct participant observation in the traditional anthropological way. Despite these disappointing restrictions and a late start, I had no time to change my mind or negotiate further. The very next day I strapped my luggage to my second-hand motorbike – purchased that morning – and caravanned behind Sửu up mountain highway 9 to ĐaKrông district.

District and Commune-Level Permissions

With state and province-level permissions secured, Sửu told me that the meetings with local officials should be just a courtesy – a necessary formality. By asking permission at the local level, the purpose, he said, was to inform local government that I would be living in the area for a six-month period. Sửu and I met with several district officials as well as officials in

the town Krông Klang immediately after our arrival to ĐaKrông district. Both the chairman of Krông Klang and the head of ĐaKrông district carefully checked my affiliation documents and spoke at length with Sửu about my plans. We also brought my daily schedule of my planned whereabouts and activities for them to examine.

Sửu and I also visited the commune-level officials in Hương Hiệp. These officials were less open and welcoming than I expected. Although they asked me if I would like any information or documents from them, when I asked for demographic data on the commune, I was met with blank stares. I thought that might be more innocuous than asking for land cover data, and sure enough that request was also met with blank stares. Unfortunately, the staring accounted for most of our first meeting with the commune office. Because there were commune-wide elections in the hamlets that weekend, the commune officials said they were too busy to work with us to establish the hamlets for research.

Final Permission: Hamlet Selection and Meeting the Hamlet Heads

Due to my limited time-frame, I asked the commune officials to help me choose two neighboring hamlets close to Krông Klang town where I would be staying. I was interested in researching two hamlets for feasibility reasons. One hamlet in that area typically includes about 100 households. I wanted to work with a population of around 200 households in the hopes that I would interview or survey about half that number. This estimation was based on my expectation to interview approximately 100 households in a six-month period, per Bernard (2006). Some homes would be empty, and I anticipated that some people would be uninterested or unwilling to be interviewed. Additionally, by looking at two hamlets, I might be able to account for or better understand local political variations and influences.

Ultimately, I worked with two neighboring hamlets – located across from each other on the north and south sides of Highway 9. Phú An and Xa Rúc were similar to each other in terms of ethnicity, environment, and exposure to state agricultural programs. Their differences were not statistically significant, but slightly different livelihood stressors emerged during semi-structured interviews due to different local political leaders and family dynamics. These differences will be explored in Chapter 6 in the discussion on non-income benefits from tree planting programs. Phú An and Xa Rúc were both close to Krông Klang, where I lived, and close to the road so that I would be able to minimize time spent commuting between Krông Klang, where I lived, and my participants' homes.

These two hamlets in Hương Hiệp commune were particularly interesting places to examine perceptions of livelihood improvement because residents were undertaking significant changes to their livelihood strategies. Recent swidden farmers, the residents of Hương Hiệp were experimenting with alternatives to traditional subsistence hill rice, *rẫy*, and rapidly adopting cash crops. Most households in the commune had newly transitioned from swidden farming to cash crops within the five to ten years prior to my research.

On the following Monday morning after the election weekend, an officer from the Hương Hiệp commune met us at his office. We drove out to meet the heads of my two research hamlets. First, we arrived at Phú An, where we participated in a town hall-style meeting. About twenty people were grouped together in one of the households. Sửu and I were able to make introductions, describe my research and timeline, and establish the 15 households who would participate in my initial research phase of multiple interviews in that hamlet.

The selection of initial-phase households in Xa Rúc hamlet was a bit different. Because we had missed the town hall-style meeting in Xa Rúc, the commune official, Sửu and I stopped

by the hamlet head's house after our meeting in Phú An. There, the hamlet head herself chose 15 households who she thought would be good to work with. She then told us that she would inform the households of my imminent research. That same afternoon Sửu and I got to work at last.

Figure 2.3 My first translator, Sửu, and the Xa Rúc hamlet head (on the left) in Xa Rúc hamlet on our first day of conducting interviews. Photo by Author.

Reflections on the Permission Process

In hindsight, I marvel at the amount of time it took to get my research started. My CRES contact at some point explained to me that a combination of factors may have caused the long wait. The timing of Tết in conjunction with my arrival in mid-January stalled the progress of my research permission until well into February. The levels of Vietnamese bureaucracy simply do not function for large periods of time around Tết. Also, my research site location, along the

former demilitarized zone, was close to the Lao border in the uplands of a poor district where many ethnic minorities live. As an American national, my presence near this politically sensitive area was only reluctantly accepted and highly conditional.

Without the capacity to live in the hamlet with my research participants, or visit in an informal way, I did not gain the familiarity that helps anthropologists attain *verstehen*, deep understanding, that anthropologists value. I grappled with this fact while conducting my dissertation research for a whirlwind six months, and I used the time I had as best I could.

Methods

I collected data in Hương Hiệp commune between May and October 2013. I conducted five semi-structured household interviews with a set of 30 households (returning to the same households repeatedly), to which I refer as Group A, and one structured household interview that incorporated information learned from the prior household interviews with 73 new households, to which I refer as Group B. The research structure was three-phased [Table 2.1]. Phase one was introductory and exploratory, using semi-structured interviews to explore household demographics, livelihood decisions and strategies, perceived risks, land titles and land use. Phase two consisted of a livelihood survey with some open-ended questions. Finally, phase three consisted of a follow-up interview based on questions that arose during the survey with households from the initial 30-household Group A. For bilingual versions of the all the research tools used and a copy of the USAID Food Security Access document, please refer to Appendix A. I adapted my research plan based on the conditions placed on my work by the Foreign Affairs office. I had originally planned to systematically interview both male and female heads

of household. Due to my housing location outside the hamlets and the limitations of the research, however, I interviewed the available household head for any given interview.

Table 2.1 Research Activities

Phase	Activity	# Phú An Houses	# Xa Rúc Houses	Group
Phase One: Exploratory				
	Interview 1-Livelihoods and Landscape	15	15	A
	Interview 2-Livelihood Decisions	15	15	A
	Interview 3-Hazards and Risk	6	6	A
	Interview 4-Land Titles and Use	6	6	A
Phase Two: Survey				
	Trial Surveys	10	6	B
	Surveys	31	26	B
Phase Three: Follow-up				
	Interview 5-Livelihood Follow-up	3	1	A

Interview Languages, Logistics, and Ethnic Dynamics

I worked with two ethnic Vietnamese translators for the duration of my research, Sửu and Yên. Both were, by requirement, approved by the Foreign Affairs Department in Quảng Trị province. My first translator, Sửu, had a full-time, entry-level position at the Foreign Affairs Department. He worked with me from May-September. In early September, he was moved to a different project for the Foreign Affairs Department in Huang Hoa district. As described above, I paid Sửu's room and board as well as $20 USD for each day that he worked with me in Hương Hiệp. Sửu, his manager, and I negotiated this pay rate during a meeting on May 1st before my research started. When Sửu had to stop working with me, I was able to work with his cousin, Yên, an English major and recent graduate from university. After a border police officer and

officials at the Foreign Affairs Department met with her and approved her as my translator, she worked with me from September-late October – at which time she received another job as an English teacher and my time in Vietnam was ending. I paid Yên the same daily rate as Sửu and provided her room and board for the days we worked together. Both Yên and Sửu lived in Đông Hà and would travel up to ĐaKrông to work with me as often as our schedules and my budget permitted.

Working with a government-approved translator for all my interviews likely had an impact on the way my research participants perceived and responded to my questions. Residents of Phú An and Xa Rúc never had the chance to get to know me personally, since I lived in a nearby town and not in either hamlet. Additionally, nearly all the participants were ethnic Vân Kiều, and all interviews occurred in their (and my) second language, Vietnamese. Most interviewees seemed confident in their Vietnamese language skills. Sửu and Yên had no trouble understanding most people, and most interviews operated smoothly regarding language. However, on two occasions, older interviewees appeared to have trouble, and we did experience strong language barriers. In both those cases, younger family members assisted in translating between Vietnamese and Vân Kiều.

My Vietnamese skills were at a basic but functional professional capacity at the time of my research, although I was far from fluent. A specific language issue I expected and encountered was the Central Vietnamese dialect, spoken by Sửu, Yên, and most ethnic Vietnamese in the town where I lived, Krông Klang. I had not previously learned or encountered Central Vietnamese during my preparations. Because of this and because of our mutual understanding of Vietnamese as a second language, I was typically able to understand my interviewees' Vietnamese more so than that of my translators.

During all household interviews, I managed the flow of conversation, wrote notes, operated the audio recorder, and asked follow-up questions. My translator would ask the primary questions and clarified the conversation in English as I needed. I expected that some participants would seem uncomfortable with certain topics, so I coached my translators on the principles of informed consent. Nevertheless, the added complications of language barriers and potential ethnic tensions arising between myself, my translators, and research participants may have limited people's interest in participating in my research. Indeed, we encountered many people who declined to participate in this study, and I believe this refusal was in part due to the history and status of ethnic dynamics in Vietnam.

At the end of each household visit, I presented a small thank-you gift to the research participant. These gifts were typically tea cakes or other sweet bread or candy. The Foreign Affairs office specifically forbade me from giving financial gifts to offset the cost of spending time participating in the interview.

Living Conditions

For the six months I collected data in ĐaKrông, I lived at the People's Committee Guesthouse of ĐaKrông district, *Nhà Khách Ủy Ban Nhân Dân Huyện ĐaKrông* in Vietnamese. Located in Krông Klang town, five kilometers from the border with Hương Hiệp commune, the guesthouse was conveniently located for my purposes. I also enjoyed several side benefits from living in a governmental guesthouse in a rural district. I benefited from 24-hour Wi-Fi availability, air conditioning, and daily meals made fresh by the full-time guesthouse cook. Used for weddings, conferences, training sessions, and even truck driver training (conducted in the parking lot), the guesthouse provided plenty of people-watching when it was booked full.

Frequent guests included police and other government officials and workers with the NGOs Project RENEW and Peace Trees Vietnam. But more often, the guesthouse was nearly empty, and I spent most evenings quietly eating dinner with the cook and front desk clerk and watching Chinese TV before heading to bed early.

Figure 2.4 The author in front of The People's Committee Guest House of Krông Klang. Photo by J. Brent Vickers.

Phase One

All the semi-structured household interviews in phase one and three were completed with all or part of the initial 30 households in Group A. This group of households was selected to participate during the introductory meeting with the hamlet heads of Phú An and Xa Rúc. I

chose to focus initially on a small subset of the total population of the two hamlets initially in order to have repeated interactions with the same households and to gain ethnographic depth with those initial participants.

The first household interview (conducted May 6-10) included all 30 households, 15 each from Phú An and Xa Rúc. I asked demographic data of the household as well as open-ended, free-listing of gendered livelihood activities in the house, field, and forest. Finally, I asked about terms for different types of land. This interview helped establish base-line household livelihood and gender information, from which I could further delve into the effects of afforestation. For the second household interview (May 20-27), I revisited the same 30 households and asked open-ended questions about money decisions, cash crop decisions, participation in forest programs, and wellbeing. This interview focused more specifically on money as well as cash crops and why they were beginning to be established in the hamlets.

Because the topics of natural disasters and problems with food and water access began to emerge during the first two interviews, I asked specifically about those topics with 12 households – 6 each from the two hamlets for the third household interview (June 24-26). Then, I asked a different set of 12 households (also from the original group of 30) about their land titles, land use, unused land, and crop cultivation decisions for interview four (June 27-28). The land title and crop cultivation information that I gained from interview four provided me with the necessary background to understand how to ask about land decisions and land use in a more relevant and meaningful way for the research participants.

Phase Two

Phase two of my research consisted of a survey-style household interview aimed toward reaching new households that had not participated in phase one. I did not plan to conduct a survey-style interview when I first arrived in Vietnam to conduct research. I had intended to augment my household interview data with farm and forest visits, forest transects, and institutional interviews. Nevertheless, the circumstances of my research permission and the logistics of working with a research assistant who was already fully employed elsewhere placed limitations on not only the kind of data I could collect but also the time I had to collect it. I had a total of 6 months at my disposal rather than my anticipated 10. Additionally, much of those six months were punctuated by scheduling conflicts, field assistant wedding preparations and honeymoon, and extreme weather delays [see Table 2.2]. Given the realities of my situation, a structured interview – with several specifically placed open-ended questions – was a practical way for me to gain access to a more complete cross-section of people's experiences with development projects in the hamlets.

Table 2.2 Research Timeline: Expected and Actual

Timeline	**Expected Activities**	**Actual Activities**
January	Permissions and Tet	Permissions and Tet
February	Preparations	Permissions and Tet
March	Work	Permissions Delays
April	Work	Final Permissions and Preparations
May	Work	Work
June	Work	Work
July	Work	Scheduling Conflicts, Sửu's Wedding, Prepare Survey
August	Work	Scheduling Conflicts, Work
September	Work	Work, New Translator
October	Work	Wrap-up, Typhoon Delay
November	Prepare to Depart	Prepare to Depart

I designed the livelihood survey to capture the role that cash crops played in the livelihood portfolios of people in Hương Hiệp. Livelihood portfolios are the constantly changing set of activities along three core livelihood strategy continua: agricultural intensification/extensification, livelihood diversification, and migration (Scoones 1998). Additionally, the survey aimed to collect data on how households coped with disturbances, like unexpectedly limited food or income due to crop loss, and the interviewee's vision for an improved livelihood. The survey as composed of both structured and open-ended questions that covered the following topics: basic household demographic information, household employment and participation in temporary labor, top household income-earning strategies, household expenses, economic status, land and animal assets, cash crop and rice cultivation information, participation in agricultural training, household health, food and water security, loans, and information on household and land development.

During the month of July, I prepared the first draft of a household survey that would consist of the second phase of research. Because the Group A households were chosen by the hamlet heads – Phú An households were assigned at a meeting, and Xa Rúc households were assigned by the hamlet head as we walked through the hamlet for the first round of interviews – I suspected that they were representative of a more privileged social network. For the survey, I wanted to learn about the hamlets more broadly, beyond the possibly limited perspective of Group A. While commune officials rejected my request for a household list, the hamlet heads were able to give me handwritten lists of all households in both hamlets in order to better prepare for the broad household survey. However, my field assistants and I were ultimately not able to utilize the household name list to select participants because the hamlet heads were unavailable to help us associate houses to names. Rather, they each gave us geographical ranges for the

hamlet limits. Given the parameters, my field assistants and I surveyed available and willing interviewees within the hamlet areas. After working closely with Sửu on the Vietnamese translation, we conducted 16 trial surveys (10 households from Phú An and 6 from Xa Rúc) between August 19 and September 13, always with new households that had not been visited previously. Bernard (2006) recommends working with new participants during trial survey work. Because they lacked prior experience with my research, new participants were less able to anticipate my questions, so questions that were poorly worded or thought through were more obvious. After each day's work, I returned to the guesthouse and revised the survey based on elements of confusion, inaccuracies, or poor areas that had arisen during trials. I used the information gained from Group A interviews and trial surveys to construct a livelihood survey aimed at capturing a more holistic set of experiences in the hamlet.

Sửu and I began the survey in mid-September, again, always with new households. The goal was to conduct an exhaustive survey of available households from both hamlets. However, on the first day of survey interviewing, Sửu received a call from his supervisor at the Foreign Affairs office. We then learned that he would be placed with another project and would not be able to work with me any longer. This was a complete shock for both of us, and I was concerned that my research would be cut short at that point. However, Sửu recommended that I work with his cousin, Yên, an unemployed English teacher who had recently graduated from college. Despite the restrictions on my research at the onset, the Foreign Affairs Department quickly assigned Yên as my new interpreter. She went through a small permissions procedure during her first week working with me. Yên had to return to Đông Hà to receive basic special instructions from a border police officer regarding what I was and was not allowed to do in the hamlets.

Despite the short notice for us both, Yên and I worked together very well, interviewing 57 households (31 from Phú An and 26 from Xa Rúc) from September 17th to October 10th.

Typhoon season arrived in late September, so October was a difficult work month, mainly due to the extreme weather. Two typhoons hit Quảng Trị province in just three weeks, derailing much of our work time. The first, Typhoon Wutip, hit Vietnam's central coast on September 30th; the second, Typhoon Nari, arrived on October 15th. Yên was also searching for English teaching jobs in October, so she was not regularly available for work. Despite these limitations, we were able to interview all households in both hamlets who were willing to be interviewed and were at home at the time that we arrived. This method of convenience sampling was necessary based on the conditions and timeframe of the research.

Phase Three

During the survey phase of my research, several follow-up questions about livelihood activities emerged. These questions came about through the aggregate experience of speaking with many households and discovering recent changes in the amount of available land, the process of titling land, accessing credit, and the amount of paid daily labor needed to fund household expenses. Thus, the final interview with Group A consisted of 5 key interviews (October 23-24). I asked about the availability of land, the process of clearing new lands, the availability of paid labor in the hamlets, and more specific aspects of daily nutrition.

By the time Yên and I finished household interview 5, she had been hired as an English teacher, and I had only two and a half weeks left on my research visa. Additionally, the residents of Phú An and Xa Rúc were showing signs of research fatigue: declining interviews more often,

asking when I would be finished, and requesting money for interviews – something I was not permitted to provide.

Data Organization and Analysis

I transcribed all semi-structured interviews with Group A using Express Scribe. I then transferred the transcriptions of each interview to MaxQDA for organization and coding. I coded along five broad categories: agricultural changes, wellbeing, land titles, household livelihood improvement, and hamlet livelihood improvement. These broad categories represented aspects of the interviews that I was interested in analyzing according to my research questions. After iterative readings of the transcriptions, highlighting interesting passages as I proceeded, I chose most sub-categories according to elements that arose from the text itself. A few sub-categories were also based on focused questions such as "why cassava" that I used to code occurrences when households discussed their decision to grow that crop. Throughout the dissertation, I use exemplar quotes to illustrate my analysis.

Field notes and initial analysis of Group A interviews informed the design and structure of the Group B survey. Once I finished collecting data for the survey, I entered the data from these Group B structured interviews into an Excel spreadsheet. Additionally, I entered field notes from each interview onto an adjoining Excel sheet according to topic and household. Descriptive statistics from the survey provide context and support my analysis. Supporting field notes and audio recordings helped preserve the conversations that took place during household surveys. Several exemplar quotes came from this set of data as well as from Group A interviews.

In addition to descriptive statistics from the livelihood survey, I conducted, with the help of a CDC (Centers for Disease Control and Prevention) statistician[2] and a CDC survey expert[3], logistic regression analyses to determine whether associations existed between independent variables (for example, access to hill lands, number of people in the household, and gender of the household head) and a dichotomous expression of both cash crop acacia adoption and traditional subsistence hill rice (*rẫy*) cultivation. Because nearly all surveyed households (94.74%, n=57) adopted industrial cassava, statistical models determining associations between households who had adopted cassava and those who had not would not be meaningful. In this dissertation, descriptive analysis of why people chose to adopt, and in some cases abandon, cassava and acacia complement quantitative regression analyses.

Managing Missing Data

For livelihood surveys, we arrived unannounced to households requesting interviews, a process that produced household interviewees with varied knowledge of the family's history and agricultural practices. Oftentimes, the livelihood survey interviewee was not the head of house – as was the case with 30 of the 57 surveyed households. I spoke with an available person during the day, typically between 8:00am and 5:00pm. Sometimes the interviewee did not know specifics about the household's history, such as the education of the household head or the government-assigned poverty status, "poor house" status[4], of the family. This was particularly evident in the cases of a household head's son's wife. Because Vân Kiều were patrilocal, new wives came to live in the hamlet of their husband's family. Additionally, young couples often

[2] Dieudonne Nahigombeye, NCHS (National Center for Health Statistics) – Hyattsville, MD
[3] J. Brent Vickers, NCHS – Hyattsville, MD
[4] Poor Houses as defined by the Vietnamese Government are defined below in the section on Household Analytical Variables

would live with the husband's parents for a short time while they saved resources to make their own household. Some of the new wives were at home with their young children or babies, and, while available to talk with me, were relatively new to the family and farm where they lived.

In the case of missing data, I was able to do two things: either complete the missing data where possible or remove the survey with missing data from a particular statistical analysis. I was able to complete missing data for the variable *AgeCategory* (see table 2.3 below), based on other supporting evidence like the age of the household head's children and the year the household head married. I was not able to fill in or estimate responses for other missing data for the variables *EdCategory*, *PoorHouse*, and *TrainingInvitation*. I could not include surveys with missing data in for those three variables because the regression software would treat blank data as "zeros," inaccurately altering the results.

Household Analytical Variables

Table 2.3 provides descriptions of the household variables I established to use in the logistic regressions described in Chapter 5, testing for associations with growing acacia, and Chapter 6, testing for associations with food insecurity. I developed the *AgeCategory* variable by dividing households along three categories according to household head age: young, middle, and late. These age categories corresponded to the roles that children played in the household. In young homes (household head born 1974-1990), children in the family were in school and generally not participating in agricultural work or producing income for the family. In middle-aged homes (household head born 1955-1971), children in the household were typically starting to earn income or help on the family farm. In late-aged homes (household head born 1935-1948), the household head typically was a grandparent, retired and reducing his or her work on

the farm, while the household head's children were the primary contributors to the household subsistence and income.

Table 2.3 Description of Household Variables

Variable	Description	Type	N
GenderHhH	Gender of the household head	dichotomous	57
AgeCategory	Age category of the household head: young, middle-aged, or elderly	categorical	55
EdCategory	Level of education of the household head	categorical	55
PoorHouse	Poor as designated by the government	dichotomous	54
SizeHh	Number of people living in the house	continuous	57
DependencyRatio	Number of dependents (retired, non-working, or in school) per total number of household members	ratio	57
GenerationsinHh	Number of generations living in the household	categorical	57
UpperField	Had access to use upper field lands	dichotomous	57
HillLands	Had access to use hill lands	dichotomous	57

The *EdCategory* variable arose from the level of education that the household head had completed. I formed seven categories and divided the categories as follows: 0=no formal education, 1=some primary school, 2=completed primary school, 3=some secondary school, 4=completed secondary school, 5=some high school, and 6=completed high school. The *PoorHouse* variable referred to whether or not the government officially recognized the household as poor. Poor houses held a "poor house" certificate which entitled them to certain services such as lower bank loan interest rates (Nguyen 2016; Vietnam Government 2007; Vietnam Government 2011a; Livelihood Survey Field Notes) and subsidized health services (Vietnam Government 2002; Vuong et al. 2014). The Department of Labour, Invalids, and Social Affairs published the guidelines for poor houses for the 2011-2015 period in Decision No.

09/2011/QD-TTg on January 30th, 2011. In that decision, rural poor houses were defied as earning an income of up to VND (Vietnamese Đồng) 400,000 per month or VND 4,800,000 per year (Vietnam Government 2011b). Fourteen livelihood survey interviewees noted that their household was removed from the "poor house" classification when the government-subsidized cement frame for their house was built. This suggested that the cement frame, while not paid for by the households, was included as part of their yearly income.

Wellbeing Variables

Recognizing that wellbeing is a complex composite of perceptions and experiences (Armitage et al. 2012), I incorporated a mixed method approach to measuring wellbeing in this study. Prior ethnographic research (Vargyas 2000) indicated that Vân Kiều have highly valued both harmonious, non-confrontational relations, within and without their villages, and security in food and clothing when weighing interactions and participation with the "outside world." My own research in Hương Hiệp also revealed household harmony and having basic needs met – having enough food to eat – as the most significant interview responses about what a "good, happy, and successful" life meant to interviewees. Based on these data, I developed a subjective assessment of food security which incorporated food anxieties, preferences, and reported occurrences of food access shortages that I used as one proxy measurement for wellbeing in this study.

Table 2.4 shows the responses for the wellbeing question (Interview 2). Having food security was a common, significant, and measurable aspect of wellbeing, but it was not the only response. Having a stable and clean water supply was also important for day-to-day needs.

Table 2.5 describes the household wellbeing variables, which include food security and water source, that I used in the regression analysis.

Table 2.4 Wellbeing Responses

In your opinion, what is a good, happy, and successful family?
Having enough food* Children go to school Being healthy Having a firm house** Having money Avoiding trouble (vices/jail/obey elders)
Learn from others who are successful
Living in harmony* Helping each other in our work Lucky
*=most common responses **=included among household economic variables (below)

Table 2.5 Description of Household Wellbeing Variables

Variable	**Description**	**Type**	**N**
WaterStream	Drinking water for household was from a stream	dichotomous	57
FoodInsecurity	Household food insecurity access scale category (1-4)	categorical	57

Collecting drinking water from a stream, as opposed to water systems and wells, was non-preferred for households in Hương Hiệp. Those who got their drinking water from streams were concerned about pollution (from fertilizers and pesticides) and droughts, which threatened their water supply seasonally. I formulated the water variable *WaterStream* to capture any associations between type of water supply and growing acacia in Chapter 5 and between water

quality and food insecurity in Chapter 6. I utilized a subjective assessment of people's water safety and health in my discussion of wellbeing in Chapters 6 and my discussion of water security in Chapter 7.

I adapted the USAID food insecurity access scale (HFIAS) for use within my own livelihood survey (as described in Coates et al. 2007). This scale was designed to capture household behaviors signifying insufficient quantity, acceptability, and anxiety over insecure access to food (Maxwell et al. 2014). The scale has remained useful over a decade after its I used six overarching questions that first asked an occurrence question – whether the condition described occurred within the prior year (yes or no). If the interviewee responded "yes", I then asked a frequency follow-up question to determine if the occurrence happened rarely, sometimes, or often. The first two overarching questions dealt with anxiety about having enough food to eat. The first question referred to anxiety about having enough non-rice foods to eat, and the second referred to anxiety about having enough rice to eat. The third question dealt with having to eat non-preferred foods. In the case of Hương Hiệp, this typically referred to replacing rice with cassava ("sweet" cassava from the garden, not industrial cassava for sale). The fourth question asked interviewees if anyone in their household had to reduce the quantity eaten at meals. In Hương Hiệp, reducing quantity at meals typically meant eating rice porridge instead of plain rice as a base. The fifth question in the food security section of the livelihoods survey asked interviewees about the occurrence of anyone in the household needing to skip meals due to lack of foods. And finally, the sixth asked if anyone needed to go an entire day without food. If the interviewee answered "yes" to any of the six questions, I asked the follow-up frequency question that was coded 1, 2, or 3. The response received a 1 if the frequency was 1-2 days per month or fewer, 2 for 3-10 days per month, and 3 for more than 10 days per month.

I followed the USAID category tabulation plan to form four categories for the food insecurity of each household. If the interviewee responded that someone in the family had ever a whole day of food or they had limited amounts or skipped meals more than 10 days per month they were categorized as 4, severely food insecure access. If the interviewee said that people in the household skipped meals or limited food at meals between 1 and ten times per month and never skipped whole days then they were categorized as 3, moderately food insecure access. If the interviewee responded that no one in the family ever skipped a whole day of food, or a meal, or limited the amount of food they ate at meals but that they ate non-preferred foods, or they were anxious about having enough food more than 1-2 times per month they were categorized as 2, mildly food insecure access. If the family only worried about having enough food 1-2 times per month and never ate non-preferred foods, limited foods, skipped meals or skipped days, then they were categorized as 1, food secure. I analyzed the *FoodInsecurity* variable as a dependent variable in Chapter 6.

Economic Variables

I used analyses of interviews, surveys, and observations to develop household five dichotomous household economic variables. These variables fell within three subcategories that I developed to understand different aspects of household economics: security and safety, expendable income, and investment. Household construction, having a "firm house" was an important aspect of preparedness for extreme weather events such as cold, storms, and floods. Table 2.6 describes the nine dichotomous household economic variables.

Table 2.6 Description of Dichotomous Household Economic Variables

Variable	Description	Subcategory	N
House_of_Cement	Walls of the house made from cement	Security and Safety	57
HasTV	TV in the house	Expendable Income	57
FunctionalMotorbike	Functioning motorbike for the household	Expendable Income	57
HasLargeAnimals	Have buffalo(es)	Investment	57
HasSmallAnimals	Have small animals	Investment	57

Houses with cement posts and cement walls were generally preferred by Hương Hiệp households. Therefore, household construction variables comprise the subcategory "security and safety." Expendable income refers to that which families have left over after their basic needs are met. I used TVs and functioning motorbikes as the variables comprising "expendable income" because they were commonly available and systematically countable during household surveys. Finally, animal asset variables, having large animals (buffaloes and cows) and other, small animals, make up the subcategory "investment." Buffaloes and cows were used to pay back bank loans or to help finance large family expenses like weddings, funerals, and baby one-month parties. Smaller animals like chickens and pigs were used to pay back monthly loan interest or for household income on a more as-needed basis. When I asked survey households how they intended to pay back their bank loans, one interviewee responded in the following way: "We will sell pigs. We sell them to get money for food and to pay back the bank loan" (43PA Survey). Likewise, another survey interviewee explained that her family members worked as hired labor and sold chickens to pay the interest each month. To pay the full amount, she planned to use the cassava harvest (39PA Survey). I utilized these independent economic

variables when testing for associations between economic indicators and growing acacia in Chapter 5 and when testing for associations with food insecurity in Chapter 6.

Access to Assistance Variables

Acacia was introduced to Hương Hiệp through governmental reforestation programs aimed to convince households to grow tress in place of hill rice. In interviews and surveys, interviewees described acacia saplings as a financial barrier to entry. Many said they would rather wait for another government program rather than pay to purchase the saplings themselves. In order to capture access to governmental and family assistance, I created assistance variables. Table 2.7 describes housing assistance variables that capture which households received help, financial or in work aid, for building their current house. *TrainingInvitation* referred to whether a family member had been invited to attend an agricultural training program within the prior year. Survey responses to an open-ended question about why a household was not invited to attend trainings indicated that interviewees felt that agricultural training invitations were provided to people with family or political connections in the local government. So, this variable provided a proxy for political connection within the hamlets. I utilized these variables when testing for associations between assistance access and growing acacia in Chapter 5 and when testing for food insecurity in Chapter 6.

Table 2.7 Description of Access to Assistance Variables

Variable	Description	Type	N
Received/Receiving Outside Help	The household received help (money or construction) from a government program or a development organization for building the newest house	dichotomous	57
Received/Receiving Family Help	The household received help (money or work aid) from family members for building the newest house	dichotomous	57
TrainingInvitation	Invited to agricultural training programs within the prior year	dichotomous	54

Defining the Dependent Variables

After developing variables to test aspects of household demographics, wellbeing, economics, and access to assistance, I developed the Phase Two livelihood survey described above to test these variables. I conducted multiple logistic regression analyses[5] to determine associations between household variables and a dichotomous variable describing if the household had ever grown acacia, *EverAcacia* and the whether the households were still growing hill rice, *HillRice*, and whether they were food insecure, *FoodInsecurity*. Table 2.8 describes these three dependent variables.

Table 2.8 Description of Dependent Variables

Variable	Description	Type	N
EverAcacia	The household grew acacia, either at the time of the research or previously	dichotomous	57
HillRice	The household grew *rãy* at the time of research	dichotomous	57
FoodInsecurity	Household food insecurity access scale category (1-4)	categorical	57

[5] I used Excel with the Real Statistics add-in to conduct the multiple logistic regression and several individual variable logistic regressions with *HillRice*. Mr. Nahigombeye used SAS to run analyses with *EverAcacia*.

I chose to test against having *ever* grown acacia, rather than if they were currently growing it, because the crop was relatively new, having been introduced to Hương Hiệp a little over a decade before research took place. Growing time for acacia was between 6 and 7 years, so many households who had just grown one crop had recently harvested and had not had enough time to replant. The most harvests by any household in the survey was two, and the second harvest was ongoing at the time of data collection (25XR Survey). I chose to test the dependent variable *HillRice*, whether a household was growing hill rice during the year research took place, because this demonstrated if the household still grew the traditional subsistence crop, *rẫy*, which was harvested once per year. I discuss the results of these analyses below in Chapter 5. I discuss food security as an important aspect of wellbeing in Chapters 6 and 7. Analyses determining associations between independent variables and *FoodInsecurity* are described in Chapter 6.

This chapter provided a detailed description of my research permission process and research methods undertaken for this dissertation. In the Data Organization and Analysis section, I introduced the variables I developed test for associations between recent cash crop adoption and measures of household demographics, land and labor assets, wellbeing, economics, and assistance access. The next chapter situates the site for this research, Hương Hiệp commune, geographically, environmentally, and ethnographically.

CHAPTER 3

SITUATING HƯƠNG HIỆP

> God spoke to Anha the chief telling him that a great flood was coming and commanding him to build a boat. Although the chief tried to hire workers to help him make the boat, no one was willing, not even to escape a flood. When the boat was finished, Anha took his family into it. With him were his wife, four daughters, and two sons – eight people in all, as well as the civet cat which the youngest daughter took with her. God commanded the civet cat to grasp the precious sword by the handle several times. A violent rainstorm followed; it rained for 8 days and 8 nights. The water rose, destroying everything on the earth. The water rose up to the heavens, and the fish nibbled at the stars. (From Creation and Flood in Bru Legend (Bui 1961) *in* Mole 1970)

It was nearly time for me to leave Vietnam when typhoon season arrived. We had two typhoons in two weeks while I worked on the final phase of my data collection. The morning after typhoon Wutip, during which the wind and rain furiously battered my guesthouse until a window in my room shattered, I went out to the hamlets to continue the household survey. The morning was clear and cool – strangely sunny after such a torrential storm the night before. Sửu and I pulled up to our first house. It was a large, firm home, made of cement and lifted eight feet off the ground by its pillars. There was a narrow dirt path leading up to the house from the hamlet road, neatly dividing the front part of the home-garden which surrounded the house. The plants on either side of the front path were flattened down as if a wave had come to push them over. Two dogs joyfully played together under the house.

After greeting the wife of the household head, Ms. Hoa[6], who agreed to participate in my survey, we walked up to the living area. A group of five men were relaxing and drinking

[6] This name and the names of other interviewees in this dissertation are pseudonyms.

together on the other end of the room from where our interview took place. I had found the prior night harrowing – spent in the dark, no power, wind and rain howling – but Ms. Hoa and her husband seemed to find it pedestrian. She explained that while prior acacia crops had been damaged by storms in the past, her family's cassava crop remained undamaged by storms. She told me she would expect to recover from storm damage in the following way: "If our farm or household is damaged by a storm, we would expect the hamlet to help us" (35XR Survey).

The prior night's storm was strong. While it did damage some of the neighbor's cassava crop, the storm did not reach the level that overly concerned Ms. Hoa's family. Their familiarity with weather events like typhoon Wutip was, in part, a product of where and how they lived. This chapter explores the environmental and cultural context within which Ms. Hoa lived and I worked.

Site Description

A general overview of Vietnam's governmental hierarchy is helpful to understand my research location within the country. There are four hierarchical levels of administration within the state. From largest to smallest, they are the province, district, commune, and hamlet. Each province in Vietnam is broken down into administrative units called districts, and many communes make up one district. Finally, many hamlets, or small villages, populate each commune. As described in Chapter 2, I conducted the research for this dissertation in two neighboring upland hamlets – Xa Rúc XR and Phú An – in Hương Hiệp commune, ĐaKrông district, in Quảng Trị province.

Figure 3.1 shows two political maps of my study area in Central Vietnam. The image on the left provides a broad view of mainland Southeast Asia with the Quảng Trị province

highlighted in a square. The image on the right shows a larger view of Quảng Trị while also highlighting ĐaKrông district (irregular shaded shape) and the area within the district where Hương Hiệp commune lies (small square).

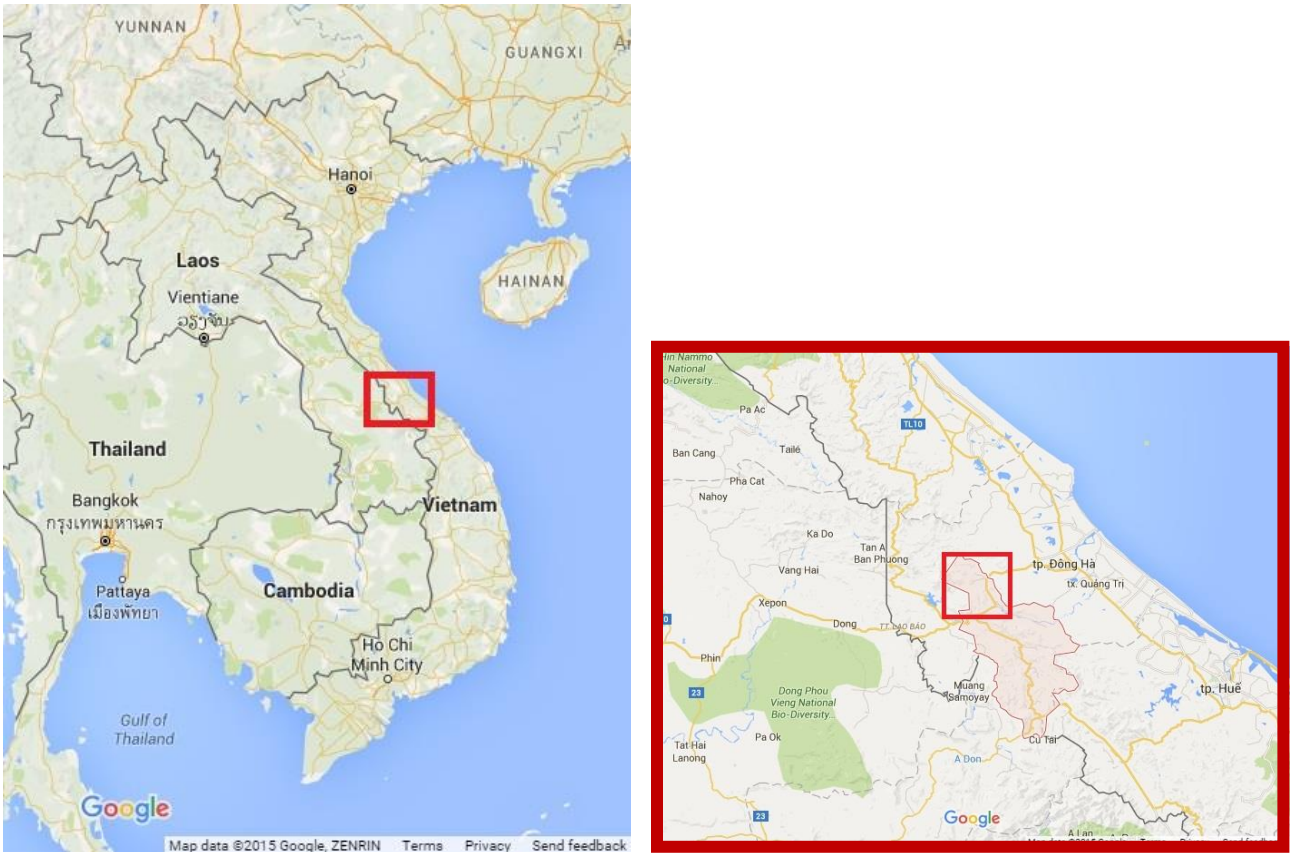

Figure 3.1 Maps of the study area. ĐaKrông district shown on the right in shaded red.

Regional Context: Central Vietnam's Environment

Vietnam's terrain varies from low flat deltas in the north and south, to highlands and mountains that run along its western border with Laos. This central mountain chain is known as the Annamite range, *Dãy Trường Sơn* in Vietnamese, and it extends parallel to Vietnam's long, s-shaped coastline (3,444 km of coast). The highland regions are irregular in shape and form, sometimes rugged and sometimes rolling. Vietnam's highest peak, Fan Si Pan, 3,142m (10,308

feet) high, is located in the far northwest of the country. Quảng Trị province is in Central Vietnam, in the Central Coast region, where the width between the sea and border with Laos is under 100 km. The narrow lowland plain on the eastern side – which faces the South China Sea – rises quickly to the Annamite range in the west. Figure 1.2 shows the broad view of this geography in the context of mainland Southeast Asia.

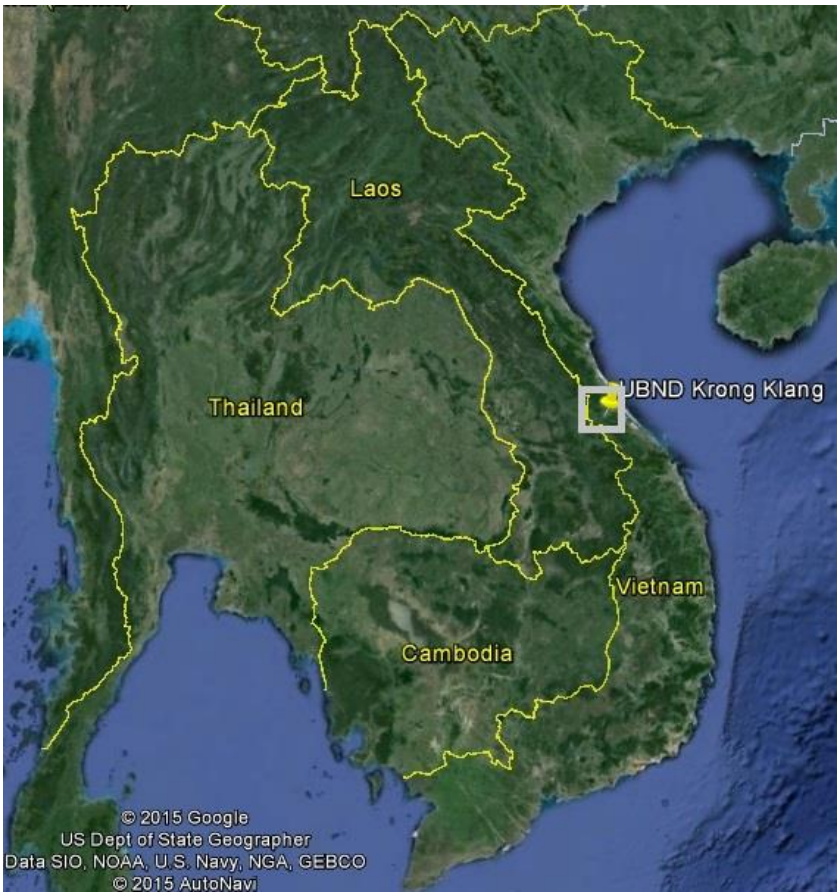

Figure 3.2 Google Earth physical map of Vietnam: the study area lies within the small square, and the pin highlights the author's local accommodation – labeled "UBND Krông Klang."

Vietnam's climate is tropical and monsoonal. Its long latitudinal range (8°N to 22°N) causes significant variability in the monsoon rains and risk of typhoon landfall within the country (Matsumoto 1997). The northern and southern regions of Vietnam experience a hot rainy season

from May-September and a warm dry season from October-March (CIA 2015). By contrast, the central region of Vietnam endures the heaviest rainfall during the autumn months of September, October, and November (Vu et al. 2014; Yokoi and Matsumo 2008). Central Vietnam is known to have the harshest weather in Vietnam, particularly due to its higher risk of storms, especially typhoons.

Typhoons are most likely to make landfall in Central Vietnam during the autumn months, exacerbating the damaging effects of the peak rainfall season (Wang et al. 2015). Additionally, Wang et al. (2015) reported an increase in the frequency of typhoons and heavy rainfall in Central Vietnam over the course of the past century, which makes this area increasingly vulnerable to extreme weather events. During the course of research for this study, I experienced extreme weather events first-hand. Two typhoons made landfall in Quảng Trị while I lived there, damaging both fields and houses throughout my study area.[7] These typhoons provided the occasion to discuss with research participants the effects of extreme weather events, and other shocks, on local livelihoods.

Anticipated Effects of Climate Change

According to the 5th IPCC report on climate change, Vietnam is among the countries that are projected to lose 2.2% of their GDP by the year 2100 (Hijioka et al. 2014). This is based primarily on expected loss in agricultural and coastal zones, and the projection is well above the projected average of GDP loss globally, 0.6% (Hijioka et al. 2014). For Vietnam, like other

[7] The three typhoons that I experienced in Vietnam during 2013 were Wutip (September 30, 2013), Nari (October 14, 2013), and Haiyan (November 10, 2013). Typhoons Wutip and Nari were both category-three storms, while Haiyan was a category five on the Saffir-Simpson scale. Haiyan was particularly damaging to the Philippines, making landfall there on November 8th just after reaching peak intensity. It gradually decreased in strength until it hit Vietnam's northern Quảng Ninh province on November 10th (the same day as my departure flight out of Hanoi).

highly climate-vulnerable parts of the world, climate change is already there and affecting household decision making such as which crops to plant and when (McElwee 2017). With rising temperatures, for instance, rice development accelerates (Wassmann et al. 2009a; Wassmann et al. 2009b) and, in terms of increasing heat stress on the crop, current temperatures are already approaching critical levels (Hijioka et al. 2014). Typhoons, floods, and droughts are the primary climate-related hazards that will increasingly affect Central Vietnam. Global climate models do not predict well the track or frequency of tropical storms and typhoons; however, overall evidence indicates that higher sea-surface temperatures, and a warmer climate generally, will produce more intense storms (McSweeney et al. 2010).

Projections for rainfall indicate an overall increase during August, September, and October and an overall decrease during February, March, and April (McSweeney et al. 2010). This means that rainy seasons will become wetter and more intense and the dry seasons will become drier. Flooding during the wet season and droughts during the dry seasons are therefore likely to intensify. Changes to rainfall will alter the traditional flood patterns that the central region typically experiences and increase the incidence and duration of droughts across much of Vietnam (McElwee 2017).

Flooding will more severely impact people living along streams and rivers in shoddy, unsecure housing, while those with durable, cement houses on higher ground will be more protected. Likewise, periods of droughts will more adversely affect people who rely on local small stream sources for their water supply. Many people who use stream water for their drinking supply in Hương Hiệp already worry about drought periods. At times, people have needed to dig down in the dry streambed to find ground water during the dry season[8].

[8] See Chapter 7 for more description on water scarcity during the summer months.

Local Environmental Context

If a traveler in Quảng Trị knew nothing about the Vietnam War, or the "American War" as it is known in Vietnam, the province's green and beautiful highland landscapes would give very few clues to its violent past. Quảng Trị's northern border marked the boundary of the former Demilitarized Zone, the DMZ, roughly along the 17th parallel. This demarcation line and buffer zone around it separated North and South Vietnam after independence from France in 1954, a salient result of the Geneva Accords (Asselin 2001), until the end of the Vietnam War in 1975. The two countries unified with the surrender of South Vietnam and the fall of Saigon a little over two years after the 1973 withdrawal of United States military forces.[9]

Despite Quảng Trị's current bucolic appearance, many unexploded ordinances (UXO) still endanger people living in the province. During my 2013 research year, several non-profit organizations were working to remove these war remnants. Peace Trees Vietnam and Project RENEW ("Restoring the Environment and Neutralizing the Effects of War") were particularly active in my research area, and I regularly interacted with workers of both organizations. According to a Project RENEW report, the heaviest bombing during the Vietnam War took place in Quảng Trị province – just 11 out of 3500 villages were left un-bombed (Project RENEW report 2004 *in* Miguel and Roland 2011). Although more than 40 years has passed since the end of the conflict, little more than small metal shrapnel pieces remained. One Peace Trees Vietnam worker told me that a downed helicopter had been found in the forest of ĐaKrông district, just west of my research site, while I was living there. These facts highlight the difficulty and long-term nature of the war recovery effort.

[9] For impressive archival footage and video documentation of Saigon's fall, see the documentary *Last Days in Vietnam* (2014).

Vietnam is now a country undergoing a forest transition, reversing its deforestation trend to one of net afforestation (Lestrelin et al. 2013; Mather 2007; Meyfroidt and Lambin 2010). Forest cover in Vietnam reached its lowest point not during the American War (although the use of Agent Orange defoliants was extensive) but rather during the late 1980s and early 1990s (Meyfroidt and Lambin 2008a). Collectivization of agriculture was poorly managed, mountain rice paddy productivity was low, and, as a result, agriculture plots expanded extensively at the cost of forest cover (Meyfroidt and Lambin 2008b). Now that trend has reversed. However, forest plantations and young, non-diverse forest areas account for much the afforestation, so degradation of forest areas continues despite an overall increase in forest cover (Ankersen et al. 2015; McElwee 2009; McElwee 2012; Meyfroidt and Lambin 2008b). Additionally, afforestation and deforestation occur in different areas of Vietnam simultaneously, with much of the afforestation occurring in Northern and Coastal Vietnam, while deforestation is concentrated in the Central Highlands (Hansen et al. 2013; McElwee 2016, 167).

Vân Kiều Ethnicity in Hương Hiệp Commune

The Vietnamese government recognizes 54 distinct ethnic groups living with its borders. The majority group are called Kinh, also known as Viet, while the remaining 53 groups are often referred to collectively as *dân tốc thiểu số* (minority people) or sometimes by the (now outdated) French colonial term for mountain people, *montagnard*.

People living in Hương Hiệp commune primarily identify as ethnic Bru-Vân Kiều, also known as Bru (Brou, B'ru, Baru), BruTrị (in Lao PDR), Eastern Bru, or Vân Kiều in the literature. In this dissertation, I use the term "*Vân Kiều*" because it was the term used repeatedly by my research participants. According to Gábor Vargyas (2016), Hoàng Văn Ma and Tạ Văn

Thông (1998), the term Vân Kiều comes from 16th century old Vietnamese references to "Vân Kiều" or "SaKiều" – a mountain region or village. In related languages, Bru simply means "mountain", referring to "people of the mountains" (Miller 2017). In the two hamlets of Hương Hiệp where I worked, all but one family identified as Vân Kiều – the exception being a single Kinh family. Additionally, a small handful of individuals identified as Kinh, within a Vân Kiều household. Some ethnic minorities in Vietnam have significantly large populations; for example, the H'mong in Vietnam numbered over one million in the 2009 census (GSO 2010). Vân Kiều, however, are a small group in Vietnam, numbering only 74,506 in the same census.

Language

Vân Kiều are part of the Western Katuic sub-branch of the Mon-Khmer language family (Michaud 2006; Miller 2017; Sidwell 2005). In Vietnam, Vân Kiều reside along the Laotian border primarily in Quảng Bình and Quảng Trị and there are a few in Đắk Lắk[10]. Vân Kiều in Vietnam belong to a broader, transboundary ethnic and linguistic group, Bru (see table 3.1), that includes three minority groups in Laos: Katang, Makong, and Tri. These Laotian groups reside primarily in the province of Savannakhet, the boundary province directly west of Quảng Trị (Michaud 2006).

The Mon-Khmer languages among minority groups in the mountains of the Central Coast include many closely related Katuic[11] languages. Table 3.1 shows Vân Kiều within the

[10] Protestant missionaries John D. and Carolyn P. Miller, who established Vân Kiều literacy and conducted linguistics research along with their missionary work, participated in well organized military propaganda operations during which, in 1972, the South Vietnamese government airlifted 2,300-2,500 Vân Kiều from Quảng Trị and settled them in Đắc Lắk (Hickey 1982, 233; Vargyas 2017, 458). Vargyas (2017) states that the majority of these Vân Kiều evacuated were relocated because they were converted protestants and considered natural allies of the Americans.

[11] Katuic (East and West) languages are a subgroup of Mon-Khmer languages in the Austroasiatic family. While linguists consider several dialects within West Katuic separate languages, these are not all discrete (Gehrmann 2016). Vietic (Vietnamese) is a different subgroup in the Mon-Khmer branch of Austroasiatic languages.

Austroasiatic language family. Figure 3.3 estimates the modern distribution of Katuic languages in mainland Southeast Asia, including Vân Kiều distribution along the border areas between Laos and Vietnam. How Austroasiatic groups are related, however, and where they came from, remains debated among historical linguists (Sidwell 2010). The language was originally oral and unwritten (Schrock 1966), but SIL (Summer Institute of Linguistics) missionaries and linguists worked to modify the language into Roman script beginning in the 1960s (Miller 2017).

Table 3.1 Classification of the Vân Kiều Language (Sidwell 2005)

Austroasiatic **Mon-Khmer** **Katuic** **West Katuic –** Kui, Souei, So, Bru (Vân Kiều in Quảng Trị included)

While there are very few historical references to Vân Kiều prior to 1965 (Schrock 1966), an extensive study of early Vân Kiều history was outlined in Gábor Vargyas's book *A la recherche des Brou perdus, population montagnarde du Centre Indochinois* [In Search of the Lost Bru, a Highland People in Central Indochina] (2000; Also referenced in Vargyas 2016; Vargyas 2017). Vân Kiều first appear in Vietnamese historical records in the 16th century already living in their current territory (Vargyas 2016). Hypotheses for Vân Kiều territory prior to the historical record are based primarily on linguistic data and the possible influence of earlier Laotian historical events on Vân Kiều folklore. But these efforts recognize that there is nearly no data on the region's earlier history on the relationship between local populations and surrounding countries (Vargyas 2016; see Blench 2005 and Sidwell and Blench 2011).

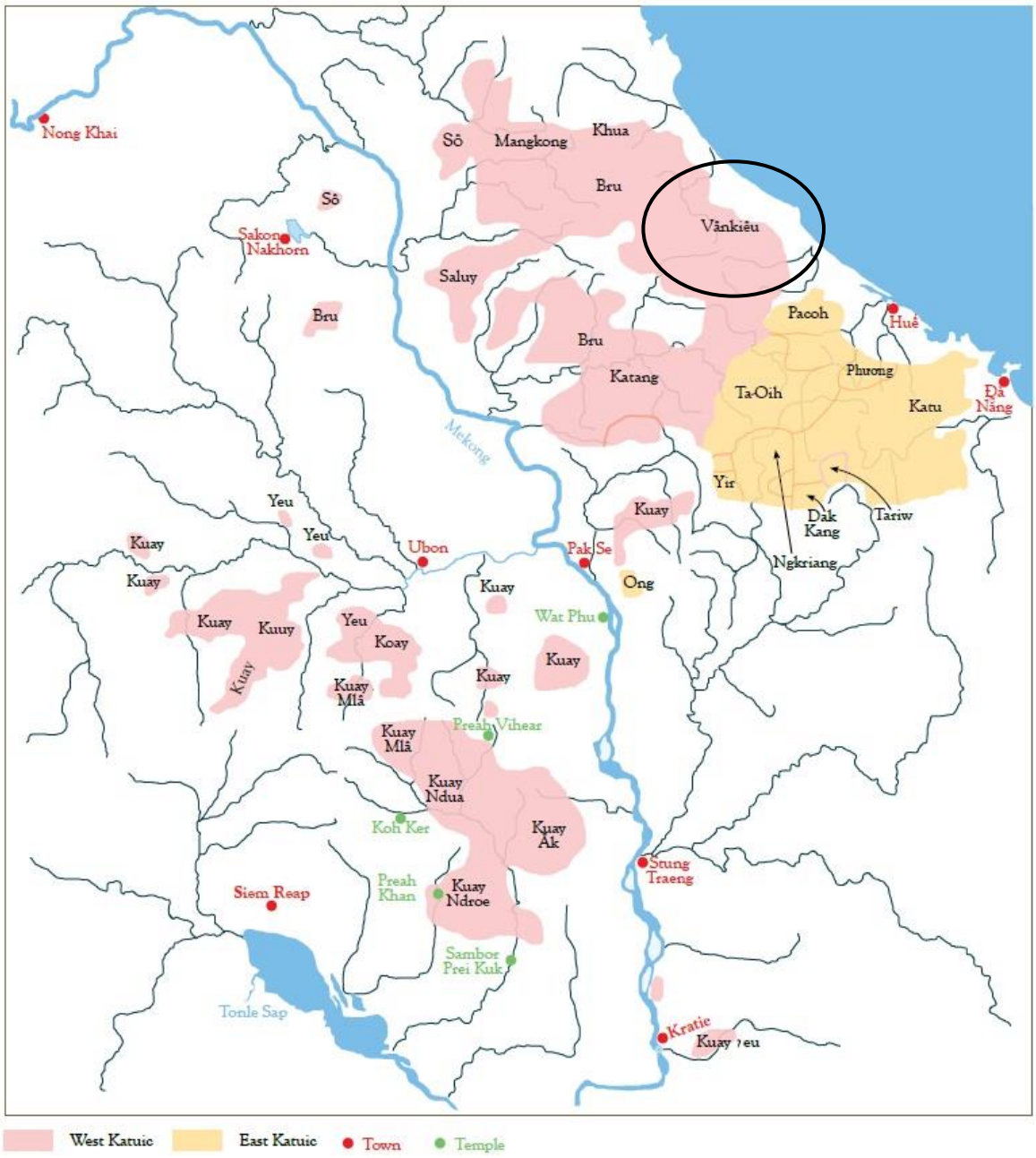

Figure 3.3 Modern distribution of the Katuic Languages (Diffloth 2011) – Vân Kiều circled.

Religion

Vân Kiều religion was based in animism, and nearly every circumstance in life may be explained by the good or ill wishes of a spirit (Miller 1972). If a spirit was offended, then

attempts to appease it were made by offering a specific sacrifice (Miller 1972; Hickey 1993). In the pantheon of Vân Kiều gods (*yiang*), there were two main groups: five household gods (*yiang tâng dông*), who lived in human areas, and a nearly infinite number of brushwood gods (*yiang tâng nsak*), who lived in the forest (Vargyas 1996). *Yiang Sursei* was the supreme deity who created the first man and woman (Schrock 1966), but there were no sacrifices specifically to him (Hickey 1993).

The patrilineal and patrilocal rules of descent and location were integral to the organization of household gods. When people died, their soul's path was circular. First the soul (*ruviye*) remained close to the tomb. Then after a series of rites took place over decades, the soul rose to become a god, and eventually it returned to join the family's *Yiang Kaneaq*, the god of patrilineal ancestors. In that way the deceased were absorbed into a pool of lineal divinities (Vargyas 1996, 118). Because *Kaneaq* was an amalgamation of patrilineal ancestry, each lineage had their own *Kaneaq*. Newborns were introduced to *Kaneaq* in a ceremony called *amut tang Kaneaq*. And, when brides were given away in marriage, she would leave her group to annul her formal attachment from her birth family, and she was then "introduced" to the *Kaneaq* of the group she joined. In the case of divorce, the same procedure took place in reverse (Vargyas 1996).

The forest god, *Yiang Su*, played a similar role that *Kaneaq* fulfilled for the household. In the same way that Kaneaq was the amalgamation of ancestors, Su was an amalgamation of mountains, rivers, crop plots, and forests into a single spirit. *Kaneaq* and *Su* shared the fundamental quality of ancestrality, but *Su* represented belonging to an area through ancestral right (Vargyas 1996). *Su* was the god of all nature, organic and inorganic, except for animals who had their own god (*yiang chih taranh*), and he had to be invited to accept sacrifices at all

open-air ceremonies. Additionally, *Su* had to be kept informed about certain activities taking place on a family's land (Vargyas 1996).

An example of informing *Yiang Su* about forest changes comes from my fieldwork. One woman told me that representatives of a factory came and told her that they intend to do work on her forest land. She was not sure what they would do, perhaps build a rock quarry. The prospect of a quarry worried her, and she thought that a quarry might make the hills vulnerable to erosion, damaging her fields and water supply. But, before the factory could be established, the company needed to ask permission. The company gave the hamlet 30 million Đồng ($1500 USD in 2013) to buy sacrificial buffalo and pigs. The hamlet then performed a sacrifice informing the spirits in the forest about the upcoming quarry activity (8XR Interview 4).

Singing was an important aspect of Vân Kiều folklore that accompanied ceremonies or was used as a method of storytelling. Epic songs (*sanot*) were typically sung by older men in pairs with a flute accompaniment (Vargyas 2001; 2003). Themes could vary, but the most popular were stories about historical events, about the creation and mythical flood, or stories about the origin of rice (Vargyas 2001; 2003). Singing also played a role in courtship and marriage. But after the marriage ceremony was complete, the wife was not allowed sing these songs again – for risk of insulting her husband and his family. Men could sing courting songs until they died (Vargyas 2003).

Missionaries have been working in Vân Kiều territory since at least 1935, although the large-scale spread of Protestantism began in the 1960s with the work of linguist-missionaries John D. and Carolyn P. Miller (Vargyas 2017). While many Vân Kiều retain their animist practices, Salemink (2015) suggested that a desire for modernity motivated people to convert to Christianity, thereby joining a global community that embodied modern universals. He argued

that upland minority strategies to become modern, including Christian conversion, were predicated on the abandonment of traditional culture. Vargyas (2017, 452) counters that argument, and asserts that conversion to Christianity among Vân Kiều did not entail a wholescale abandonment of cultural notions and habits, and in some cases at least, arose from a desire for prosperity and security, not modernity.

Kinship

The patrilineal family is the most important social and economic unit (Hickey 1993; Miller 1972). Elders kept careful track of membership, and it was traditional practice to provide mutual aid within the family. Marriages created a changing network of kinship ties, expressed by the terms *khoi* and *cuya* (Miller 1972; Hickey 1993). "Ego's *cuya* are all the members…of those clans from which members of his clan have taken wives. Ego's *khoi* are all the members…of those clans which have taken wives from Ego's clan" (Miller 1972, 66). For example, a man's sisters would eventually become his *khoi* when they married, since they would leave his father's lineage and join their husbands'. Miller (1972) describes two primary restrictions upon marriage. First, a man cannot marry a member of his own clan (patrilineage), and he cannot marry a member of a clan with which has clan has a *khoi* relationship, a clan which has someone who married a woman from his own clan.

Economics

Prior to the year 2000, Vân Kiều people in Hương Hiệp were primarily swidden farmers growing mostly upland rice, *rẫy*, and other crops such as corn, pumpkins, gourds, beans, peas, and potatoes. The swidden was with traditional dry rice, corn, and sweet cassava seeds (13XR

Interview 4). The initial planting of *rẫy* (typically in January) began with a sacrifice to *Yiang Cuteq,* spirit of the earth. Both men and women dug holes with dibble sticks to plant the upland rice (Hickey 1993). Rice harvests occurred in October or November, and, depending on the soil quality, the swiddens were farmed for one to three years before fallowing the land (Hickey 1993). Additionally, Vân Kiều typically kept domesticated animals such as pigs, chickens, dogs, and goats, and used forest products attained through gathering and hunting (Schliesinger 1997). Men and women foraged for seeds, roots, and wild fruit to complement their subsistence (Hickey 1993).

From a religious point of view, the subsistence cycle of dry rice was more than simply a food source, it was a living being whose soul conceptualized a being who lived in the plant, *Yiang Aban*. The swidden cycle included an intricate series of rituals appropriate to each technological phase (Vargyas 2010, 130-131). According to ethnographic work with Vân Kiều in Đắc Lắk province, cash crops and wet rice (considered "foreign") were considered secular and did not have an accompanying ritual or sacrifice. Abandoning swidden farming, and the dry rice plants with it, mean that the former ritual cycle was also largely abandoned, apart from a small "thanksgiving" sacrifice conducted at the end of a harvest (Vargyas 2010).

Residents of Hương Hiệp report that, around the year 2000, the Vietnam government had a movement to encourage upland farmers to grow wet rice (4XR Interview 4). Wet rice cultivation in this area is geographically limited by small spaces of irrigable flat land. However, a little over half of the households interviewed in the livelihood survey (58%; n=57) grew at least some amount of paddy rice. Some families who still grow wet rice began to do so upon resettlement of this area in the mid-1970s, after the end of the Vietnam War. The amount of rice

grown by most families was not enough to last the year; instead, purchased rice or rice "borrowed" from family members supplemented the rice grown by many households.

Since approximately 2005, most households have been incorporating more cash crops such as acacia trees, *keo lá tràm* (or just *tràm*) in Vietnamese, and a new strain of industrial cassava, *sắn*, to their livelihood strategies. Access to these cash crops has encouraged households to open previously dormant or fallow hill swidden lands to new crop development or, in some cases, to replace rice fields with these cash crops. According to Gerald Hickey's account published in 1993, Vân Kiều did not grow cash crops normally, and, compared to Kinh counterparts, they were relatively inexperienced with marketplace behavior. Within twenty years of that account, Vân Kiều in Hương Hiệp had adapted their household economies to incorporate the cash crops described here.

This chapter explored the geographic, environmental, and ethnographic context of Hương Hiệp. Vân Kiều live in a rugged and environmentally challenging area of Vietnam that, despite being upland from the threat of rising sea level, will experience climate change in ways that will exacerbate current seasonal extremes. Within their own means, Vân Kiều have always been dynamic and have tried to evolve, achieve prosperity, and increase their wellbeing (Vargyas 2017). For example, during his fieldwork with Vân Kiều in 1989, Gábor Vargyas saw a rapid and wholesale change in rice harvest technique, from hand to sickle – leading to a radical transformation of their religious belief system – in order to achieve better food security with less work (Vargyas 2017). This type of rapid change highlights people's remarkable ability to adapt and maintain their livelihood resilience.

Modernity is not the same as wellbeing, although Vân Kiều have adopted more "modern" agricultural techniques and crops in the pursuit of increased food security and prosperity. The

replacement of *rẫy* with acacia and cassava will be further discussed in the remaining chapters below. The next chapter provides the historical and political context for state-sponsored agricultural development in Vietnam's upland regions. In particular, the long-term goal to end swidden farming in the uplands was integral to tree planting programs like those that introduced acacia to Hương Hiệp.

CHAPTER 4

UPLAND-LOWLAND DYNAMICS IN VIETNAM

State Avoidance in "Zomia"

In his 2009 book *The Art of Not Being Governed: An Anarchist History of Upland Southeast Asia*, James Scott argues that the upland region of mainland Southeast Asia, which he calls "Zomia", is home to the largest number of people in the world who, until recently, were not fully incorporated into Nation States. They were self-governed people who should not be seen as marginal and ancestral to modern ways of living. Rather, Scott writes, these people are best understood as fleeing the oppression of state-making projects like taxes, slavery, conscription, war, epidemics, and forced labor. Everything from livelihoods, social organization, ideologies, and folklore is a strategic positioning adapted for state evasion (Scott 2009).

Some have critiqued Scott's book as a "history of nowhere" (Brass 2012) or suggested that certain upland minorities have sought out "inscriptions into modernity" (Salemink 2015). In the case of Vân Kiều history, Vargyas (2016; 2017) suggests Scott's theory provides insight into Vân Kiều habitus (2016, 247) and that they are the oldest known inhabitants of their territory (Vargyas 2000; 2016). While he recognizes his inability to generalize that Vân Kiều have *always* been living where they are today, he utilizes "micro-historic" data to assert his claim. Examining historic maps, particularly names and locations of villages, administrative units, hills, and rivers, Vargyas compared the total material gathered with the results of current maps. He came to the conclusion that the majority of Vân Kiều still live where they lived 100 or even 400

years ago (Vargyas 2000; Vargyas 2016). He found no evidence that they were originally lowland peoples who fled upland to avoid the state. However, in examining Vân Kiều encounters with the "outside world[12]", Vargyas (2000; 2017) found three overall survival strategies that support Scott's theory of state avoidance: 1) withdrawal, avoiding contact, and eventual escape – all of which are a pattern of avoidance behaviors and are also conspicuous examples of Scott's "weapons of the weak" (Scott 1985), 2) borrowing and incorporating foreign elements into their own culture – "becoming similar" to maintain peace, 3) a (seeming) readiness to accept political domination while maintaining their own ethnic identity (Vargyas 2017, 441-442).

Vân Kiều territory (in Vietnam and Laos) has been a strategic region, seeing much through traffic, because it is near one of the few passes through the Annamese Cordillera, the Ai Lao pass (Hickey 1993; Vargyas 2001). Because of this, Vân Kiều "escape" from lowland authorities was only ever relative to later, more consistent contact. The passage through Ai Lao pass as been known since at least the 13th century, when Mongolian troops used it to enter Vietnam and the Champa empire in 1282 (Vargyas 2016). While maintaining their autonomy, Vân Kiều paid tribute to the imperial court in Huế and enjoyed relative independence (Schrock 1966). And, the old trade route in this region facilitated cultural exchange of tangible (clothes, goods) and intangible aspects (language, folklore).

Vân Kiều lack political administration beyond the level of the village (Schrock 1966; Vargyas 2017), and they have strategically embraced imposed political systems in order to maintain freedom and arouse little attention or suspicion. They "insist on their privileged liberty

[12] By "outside world" Vargyas (2000; 2017, 441) refers to the Vietnamese and the Siamese empires from the 16th to the 19th centuries, French colonization in the 19th and 20th centuries, and the Vietnamese Socialist Republic since 1945.

on the periphery of the political system. In short: "if you leave us alone, we accept you as a ruler" – meaning that "for preserving their *freedom* on the periphery, the Bru [Vân Kiều] are willing to give up even their *independence*" (Vargyas 2008, 366 in Vargyas 2017, emphasis in original).

From the French colonial period onward Vân Kiều were no longer relatively isolated, but rather they were in the epicenter of wars in the region against France, Japan, and the United States (Vargyas 2001). Tangible aspects of their culture were decimated during the war with the United States. And, while people fled the region during hostilities, many returned as soon as possible. Indeed, several interviewees for this dissertation research returned to Hương Hiệp as soon as they could safely enter the area. After the war ended in 1973 (when the Americans left Vietnam), Mrs. Hồ's (2XR) family, for example, moved back to Hương Hiệp. When they first arrived, the men cleared the land of mines while the women lived up in the forest where it was safer. By December of 1973, they lived together in the newly cleared household land. From the time they arrived in Hương Hiệp, they practiced swidden, working in one area for three years and then clearing a new area. After some time, they returned to the first area. Mrs. Hồ's family practiced swidden in this way until the year 2000, when they stopped and began to work in one place. Mrs. Hồ's story is representative of other research participants who mentioned that their families came to Hương Hiệp after the war in the 1970s and 1980s either because it was their homeland area or because they knew lands were available to clear. Despite cataclysm and devastation in their territory, "they returned, and, stubbornly stuck to their territory, to their language, culture, ethnic identity, they remained what they were – Bru!" (Vargyas 2016, 255).

Perceptions of Upland Minorities and Swidden Agriculture

Various entities over time, including French colonists, the post-reunification government, and foreign researchers, have persistently viewed ethnic minority populations in Vietnam as isolated, backwards subsistence farmers in need of civilization, modernization, and development (Clarke 2001; Fox et al. 2009; Taylor 2008). In his article "Nation-Building or Nation-Destroying", Walker Connor (1972) states that post-world war two "new states", and even some social scientists of the time, tended to view ethnic diversity as something to be overcome and done away with in order to integrate the nation. Likewise, South Vietnam's president Ngô Đình Điệm aimed to achieve national cohesion through assimilation of upland minorities to the Vietnamese way of life. Increasing modern modes of transportation and communication were seen as modernizing ways to achieve assimilation through cultural contact. However, the "reduction of cultural differences between ethnic groups does not correlate in any simple way with the reduction in the organizational relevance of ethnic identities or a breakdown in boundary-maintaining processes" (Barth 1969 *in* Hickey 1982, 7). Hickey (1982) suggests that Điệm's process of assimilation contributed to a rise in ethnic identity, rather than its demise.

During the interwar period after French rule ended, Điệm wanted to eliminate French influence over the highlanders by "civilizing" people there, meaning Vietnamize them. As part of this process, Điệm found it necessary to move ethnic Kinh Vietnamese from the lowland deltas to the more sparsely populated upland areas in order to bring economic development and Vietnamese culture to those regions (Hickey 1982). This effort to assimilate and "civilize" ethnic minorities continued in Vietnam's post-reunification upland development policies.

Internal territorialization processes were part of the process of state formation throughout Southeast Asia (Vandergeest and Peluso 1995). After securing independence from France, the

Vietnamese government continued efforts to relocate lowland Kinh people to the upland areas to "tame" both nature and the people who lived there (De Koninck and Derry 1997). This relocation was also an effort to establish and secure national borders (Hardy 2003). Despite the stated goal for Kinh to influence the upland minorities, McElwee (2008) found that Kinh who moved into the uplands were largely unable to survive on wet rice alone. She writes that many Kinh had to "look to minorities for ways to diversity their livelihoods – the exact opposite of the process that many migration programs have hoped for, which is that Kinh will teach minorities how to "develop" (McElwee 2008, 83).

Even contemporary governmental documents openly refer to minorities generally, and Vân Kiều specifically, as "backward in every way" (Tran 1996) and in need of governmental projects to help them "overcome poverty, backwardness, and underdevelopment" (Vietnam Government 1998). Minority groups who practiced swidden farming were further maligned as their livelihood strategy was blamed for causing deforestation and degradation in the uplands (De Koninck 2000; Fox 2000). This discourse has continued despite evidence demonstrating that swidden shifting cultivation practices are generally non-destructive and adaptive in their traditional environments (Dove 1983; Fox 2000; Fox et al. 2009; Tran et al. 2006). Taylor (2008) critiques the view of minorities, where they are portrayed as isolated, "wasteful", voiceless, and hopelessly desperate, as inaccurate and "carceral." Throughout Vietnam's history, the Kinh majority, French colonists, and, more recently, foreign researchers have viewed minorities in Vietnam as bounded both territorially and deprived of agency. However, minority groups have shown that they are able to draw upon their own knowledge and suite of strategies to face these contemporary challenges (Nguyen 2008; Taylor 2008).

Swidden landscapes are diverse, complex systems under cyclical transitions between field, fallow, scrubland, and forest. This cycle between field and forest defies a single category of land cover since the land cover itself changes over time in this type of system. The state tends to view swidden fields as illegible, backwards, and wasteful because they do not fit easily into fixed categories (Scott 1998, 283; Lestrelin 2010). Additionally, the categories that state agents use serve as mechanisms for exerting authority over the population and resources (Scott 1998, 83) and legitimizing appropriation and intervention (Brosius 1999b; Harms 2014). Labeling an area without tree cover as "forest," for example, may have consequences for forest management policies in addition to development and restoration programs organized and sponsored by the state (Peluso and Vandergeest 2001).

While former swidden areas have the potential to regenerate into healthy forest areas in the uplands (Wangpakapattanawong et al. 2010), the process of clearing native plants on fallow areas to re-plant mono-crop acacia saplings does not enrich the ecology and limits the economic value of these fallow areas (McElwee 2009). Swidden farming knowledge of intercropping and rotational renewal, however, promote long-term sustainable use in upland areas. Fox et al. (2000) argue that swidden farming is not truly a "deforestation" practice since it only temporarily shifts the land cover from forest to field. The secondary regrowth from swidden farming may be the most species-rich and soil-holding land cover available in Vietnam (Fox et al. 2000).

Categorizing and Reforesting "Degraded Lands"

In the 1980s and 1990s, the global interest in forest degradation that could be seen in the emergence of large amounts of academic and NGO literature concerning land and forest degradation (Baird 2014). In countries such as Vietnam and Lao PDR, which rely on the

financial support of development banks and international development agencies, the environmental discourse on land degradation has resulted in national-level policies to settle swidden farmers – seen as contributors to degradation – and reforest upland areas (Lestrelin and Giordano 2007).

Harms and Baird (2014) posed the question "what counts as productive use of land"? They continued by parsing the politics behind such a question. Who has the power to decide what is productive, and who can contest that assertion? Various actors, from rural villagers to government officials to company managers, all have diverse political and economic agendas regarding making productive use of land (Harms and Baird 2014). For those who closely examine swidden agriculture systems, fallow swidden land represents a valuable part of the cycle of production and renewal (Condominas 1977; Dove 1983; McElwee 2009; Sowerwine 2004). Most governments, however, do not recognize swidden fallows as part of the agricultural landscape but rather categorize swidden fallows as unproductive and degraded (Fox et al. 2009; Harms and Baird 2014; Nguyen 2008).

Swidden landscape's complexity, diversity, and livelihood value, particularly that of fallows, have been often viewed as degraded due to their low tree density (McElwee 2009). Although the concept of "degraded" may be unclear in local contexts, the ability to discursively claim whether a landscape is or is not degraded forest is often important for determining which development initiatives can occur in that particular space (Baird 2014). In Lao PDR, for example, the Lao government has not clearly defined the concepts of "degraded forest" and "degraded land," but plantation development concessions may only occur in degraded spaces (Baird 2014). These concessions on degraded lands are part of a newer global trend known as the "global land grab" or "global land rush" (Baird 2014). Despite the absence of large-scale

land grabbing in Vietnam (Sikor 2012), the concepts of "degraded land" and "unused land" that drive the land-grab phenomenon in neighboring Laos and elsewhere are present in Vietnam's rural development narrative (McElwee 2009). In Vietnam, these degraded areas are those that the state considers available for reforestation.

Identifying, categorizing, and reforesting "degraded" lands in Vietnam has been a long-term goal of successive administrations, beginning with the French colonial foresters (McElwee 2016). The Cochinchinese Forest Law of 1912 gave the forest service the right to afforest areas where conservation is necessary (McElwee 2016). And, in 1943, three million hectares of land was designated as "degraded," "barren," or "unused" (Sikor 1995).

In 1986, Vietnam began the process of abandoning a central planning model of socialism for a more market-oriented socialist economy (Beresford 1998). This change is known as *Đổi Mới* (renovation). The first post-Đổi Mới reforestation project, the 327 program, was set up in 1992 as a way to encompass longstanding goals of environmental policy and rule in upland areas: sedentarization of ethnic minorities (swidden farmers), migration of Vietnamese to less populated uplands, reclassification of protected forests managed by the state, and afforestation of "barren lands" (McElwee 2016, 141-2). Despite a thoroughly top-down approach, with national-level "experts" deciding what and where to plant (McElwee 2016), the 327 program accounted for 1.3 million hectares of forest planted or rehabilitated between 1993 and 1998 (Nguyễn Vãn Sản and Gilmour 1999; McElwee 2016).

Bolstered by the success of the 327 program, in 1998 the government enacted the Five Million Hectare Reforestation Program (5MHRP), to bring the total forested area in Vietnam to 14.3 million hectares, the 1943 equivalent, by 2010 (McElwee 2016; Nguyễn et al. 2015). The 5MHRP had three main objectives: 1) increase national forest cover from 28% to 43% by 2010,

2) use areas of barren lands to create jobs for local farmers, eradicate famine, and alleviate poverty, and 3) supply timber for industrial purposes, making forestry an important contributor to socio-economic development in mountainous regions (Nguyễn et al. 2015). The goals of the 5MHRP continued, as did the 327 program before it, long-held goals of settling swidden farmers in order to end swidden farming, labeling agricultural fallow lands as "barren" forest land, and implicating local upland minority farmers as the cause of deforestation (McElwee 2016).

Reforestation is a primary conservation and development measure in Vietnam's uplands due to the perceived relationship between traditional cultivation practices like swidden, high levels of poverty, and land degradation (Lestrelin and Giordano 2007). "Barren land" is a keyword indicator for deforested, degraded, and unused land areas in Vietnam (Nikolic et al. 2008; McElwee 2009). The Vietnamese government classifies land according to political and economic criteria as much as ecological reasons (Sikor 1995). If, for example, an area has no tree cover and is not currently under cultivation, but the government intends to reforest that area, then it will then be classified as "barren" or "unused" forest land.

Although "unused lands" (*đất chưa sử dụng*) or "bare hills" (*đối trọc*) are focal areas for reforestation initiatives in Vietnam, the ecological and agricultural reality of these areas does not clearly relate to the associated classification (Nikolic et al. 2008). Researchers studying the "bare hills" category have found that these areas may be biologically rich landscapes ranging from swidden fallow and grasslands to scrubland areas with sparse trees (McElwee 2009; Nikolic et al. 2008; Sikor 1995). The terms "unused" or "bare" are misnomers. Bare hills may be used as pasture lands and harbor a diversity of non-timber resources that are used by local communities, particularly women and the poor, although their value is generally under-appreciated and undervalued by the state sponsors of reforestation programs (McElwee 2009;

Sowerwine 2004; McElwee 2016). Allocating these areas for reforestation by specific households is a "local land grab", marginalizing less powerful people and excluding them from access and economic benefits (McElwee 2016). The resources collected in "bare hill" areas were numerous and included "fuelwood, medicines, construction materials, or food and fodder" (McElwee 2009, 328; Ohlsson et al. 2005). Despite their importance, swidden fallows and words associated with swidden agriculture have pejorative connotations in the Vietnamese language. For example, the Vietnamese term "*du canh du cư*" (nomadism) refers to the swidden way of life, but it invokes associations with "backwardness," forest destruction, and biodiversity loss.

Household Participation in Acacia Plantations

Revisions to the national land law, beginning in 1988, broke up agricultural collectives to make way for household-based farming (Ravallion and van de Walle 2008). While the state officially owned land, it "entrusted" land to households and organizations for long-term use (McElwee 2016). In 1993, an update to the land law ushered in a forest land market with redistributed and privately allocated forest land through land use certificates (titles). Title-holders gained the rights to exchange, transfer, lease, inherit, and mortgage (use for collateral) their long-term land leases called land-use certificates (LUCs) (Scott, S. 2009; McElwee 2016). The 5MHRP was the first reforestation program to transfer full, long-term, private land use rights to households participating in tree planting projects. Previous programs provided saplings and payments, but after the introduction of long-term LUCs, known as red books (*sổ đỏ*), participation by households increased significantly – suggesting that land tenure rights were a

crucial driver of reforestation along with non-*rẫy* agricultural intensification (Meyfroidt and Lambin 2008; McElwee 2016, 154).

Worries about limited land permeated my interviews. The increasing population in Hương Hiệp has spurred families to get their lands measured and secure those lands with an official title. Nevertheless, one interviewee mentioned that crowding was an issue that limited his ability to practice swidden: "In 1996-7 we stopped [swidden] because there is no land – it is too crowded…After 1997-8 we stopped cultivating [hill] rice and started to plant acacia" (1PA Interview 4). But even with a title in hand, a family may have little to pass down to the next generation. As one interviewee noted, "it is hard for new families now because there is no new land for them. The young families can only get land from their parents. If one family has many children, then maybe no one can get land, maybe no land for some children" (2XR Interview 5).

For some families, land title formalization, receiving "red books" for land registered for a tree planting project, has restricted land use by "freezing" the once-flexible process loaning and borrowing a family's cultivated land – adding to the decades-long process of sedentarization in the uplands. One interviewee reported that some of her family's hill land, passed down by her parents and her husband's parents, was taken in a "local land grab." Her grandfather, she explained, was very generous and loaned land to many families in the hamlet; but now, those families are getting titles to her grandfather's land in their own names (8XR Interview 4). This freezing of land rights and forms of customary land borrowing practices limited the household's ability to subsist because there was very little "available" land to clear and cultivate.

Looking Ahead with "New Countryside"

The more recent overarching program that encompasses, and builds upon, Vietnam's long-standing goals for upland areas is known as "New Countryside," (*Nông Thôn Mới*). Rather than being encompassed by a single statute or decree, New Countryside is an umbrella strategy for developing rural areas, particularly upland and frontier regions, and it is embodied in many laws and programs. New Countryside[13] is one of two, partially integrated National Target Programs (NTPs) aimed at developing the rural sector, the other being the NTP on Sustainable Poverty Reduction (World Bank 2017a; World Bank 2017b; Vietnam Government 2016a).

The concept of developing a "New Countryside" dates back at least to the mid-1990s with several social and cultural legal decisions, such as on reducing "serious social evils" (*tệ nạn xã hội nghiệm trọng*), and it continued in the early 2000s with legal decisions on developing rural villages, developing farming economies, and developing the economies of specifically difficult areas such as the uplands, remote areas, and islands (Nhà Xuất Bản Chính Trị Quốc Gia 2003). Then, a little over twenty years after Đổi Mới economic renovations began, on August 5th, 2008, the government reaffirmed and refocused its goals for a modernized rural sector in the resolution number 26-NQ/TW of the 7th plenum of the 10th Party Congress on agriculture, farmers, and rural areas (Vietnam Government 2008; Vu 2015). This resolution stated that the country had changed significantly since renovations, but that more could be done to improve rural life, livelihoods, and environment. For example, adaptive capacity and coping with natural disasters was limited, the environment was polluted, and poverty rates, especially among ethnic minorities, were still high (Vietnam Government 2008). The resolution indicated urgent tasks

[13] New Countryside (*nông thôn mới*) is sometimes translated in development white papers as "New Rural Development." For example, the World Bank documents cited here (World Bank 2017a; World Bank 2017b) refer to New Countryside as the National Targeted Program on New Rural Development (NTP-NRD).

for 2010 and further goals for 2020. The Vietnam government has produced many policy documents to detail and update New Countryside strategy envisioned in Resolution 26 (Vietnam Government 2018).

The overall objective of New Countryside is to build new rural areas, raising up the material and spiritual live of rural peoples, improving infrastructure, linking industry to agricultural development, encouraging stability, protecting the environment, and improving national defense and security (Vietnam Government 2016b). The government document introducing the 2016-2020 phase of New Countryside breaks down the broad objective of New Countryside into two general arenas: infrastructure and rural livelihoods. The infrastructure arena includes improving electricity, roads, water supplies, schools, and health centers. The livelihoods arena includes improving the productivity, efficiency, and competitiveness of rural livelihoods and raising incomes (Vietnam Government 2016b).

The New Countryside strategy envisages improving productivity and raising incomes in rural areas by promoting tree planting, introducing hybridized crop varieties, encouraging cash-crop cultivation, and formalizing land titles, among other reforms, to help integrate farms into the global market economy (Vietnam Government 2008a). This push toward more unified (patriotic) and modern rural areas is a continuation of decades of varied modernization and assimilation policies for ethnic minorities living in upland areas. The Five-Year Socio-Economic Development Plan for 2016-2020, which highlights New Countryside as a primary mechanism for increasing productivity in rural areas, specifically mentions "resolving shifting cultivation, nomadic, [and] free migration" as well as developing and protecting forests as key ways to increase productivity and raise incomes in rural areas (Vietnam Government 2016b, 81). The introduction of acacia plantations followed by the widespread and rapid adoption of

industrial cassava on former hill rice lands in Hương Hiệp is an example of locally implemented New Countryside goals to connect industry with household farms, reduce swidden, and promote smallholder forestry.

The New Countryside resolution for rural areas follows a prescription of intensified modernization, committing to more irrigation, more agrochemical use, and the use of modified crop varieties. This modernization process itself, seeking to expand opportunities of accumulation, "has made Vietnam and its agricultural producers increasingly dependent on complex but fragile production and distribution regimes, both within and outside of agriculture" (Fortier and Tran 2013, 86). Fortier and Tran (2013) argue that modernizing agriculture in Vietnam impoverishes the ecosystem and threatens the resilience of societies by decreasing crop diversity and limiting people's capacity to respond when livelihoods become overstretched. While smallholders may face increased indebtedness as they seek to intensify agriculture on limited lands, they will be increasingly reliant on moneylenders with limited ability to negotiate prices or terms (McElwee 2007).

The land market, introduced through the revisions to the Land Law mentioned above, is an important part of Vietnam's goal to create a "New Countryside," with decreased land fragmentation and increased productivity through modern, industrial agriculture (Vietnam Government 2008, Vietnam Government 2010; Vietnam Government 2016b). The Five-Year Socio-Economic Development Strategy for 2016-2020 includes land accumulation as one of the pathways for increasing land-use efficiency in the New Countryside (Vietnam Government 2016b). The Vietnam government aims to reduce the number of farmers and encourage "efficient" farmers to accumulate lands and pursue modern farming technologies and knowledge. Stephanie Scott (2009) noted that the government policy for a New Countryside encourages off-

farm work by squeezing "inefficient" farmers out of the agricultural sector and encouraging "leading" farmers to form an entrepreneurial class. But there have been concerns raised about land markets, and Đổi Mới reforms generally have been causing increasing divides between rich and poor (Scott 2009; Fortier and Tran 2013). Disparities in land holdings is on the rise as land accumulation processes continue (Akram-Lodhi 2004; McElwee 2007).

New Countryside policies and programs are implemented across the country in a centralized, top-down manner through seven regional coordinating offices overseeing the process, including the North Central Coast region within which Hương Hiệp is located. The ĐaKrông district government outlined plans for developing the New Countryside in Hương Hiệp in a synthesis report (Ủy ban Nhân dân (UBND) Huyện ĐaKrông 2012). This report was kept at the People's Committee of Hương Hiệp office building, and the officials there were very reluctant to allow me to see it. Only after extensive promises to return the report within 24 hours was I able to take it back to my guesthouse room to read over some of the commune plans for New Countryside. This speaks to not only the distrust between me and the commune officials, but also to a general lack of transparency about the upland strategy embodied in New Countryside.

Plans for New Countryside development in Hương Hiệp from 2011-2020 included making use of scientific advancements to increase the wet rice yields, expand areas under wet rice, expand the cultivation of corn and decrease cultivation of cassava (in favor of corn and legumes) (UBND 2012). Regarding forest development, the New Countryside plans were a continuation of prior upland forest production strategies. With the goals of creating jobs for residents, mitigating the effects of natural disasters, and protecting the biodiversity of the forests, the plans included developing rattan production under the forests allocated to households or

community groups and planting 1,600 hectares of new production forests by 2020 (UBND 2012, 63).

Within the framing of multiple objective benefits, including mitigating the negative effects of natural disasters, reforestation programs in Hương Hiệp have been placed within the technical domain. However, this occludes the political and historical precedents of swidden farmer sedentarization and upland territorialization. The processes of displacing politics in favor of technocratic framings have been previously discussed in political ecology work on "sustainable management" of forests (Brosius 1999b; Li 2007b). Climate change adaptation is another domain, like "sustainability", that frequently has been framed as technical, but this framing is contingent and produced (Lindegaard 2018). For example, in her work on Sampan boat dwellers in Huế province, Lily Lindegaard (2018) found that, rather than the newer rationale of global climate change adaptation, the long-held political rationalities of integrating marginal peoples and controlling mobility informed governmental efforts to use sedentarization policies with these populations. Likewise, in Hương Hiệp, reforestation policies are integral to the long-held goal of settling swidden farmers, controlling the mobility of people in the uplands and integrating marginal peoples. Sedentarization and integration are part of the state's efforts to make society "legible" (Scott 1998).

This chapter provided an overview of the historical precedents for New Countryside, particularly with regards to household participation in forest planting. The next chapter describes the overall picture of livelihoods in Hương Hiệp and the association between household variables and participation in tree planting programs. It will discuss household subsistence strategies, income-generating strategies, expenses, and the gendered aspects of these activities.

CHAPTER 5

LIVELIHOODS IN HƯƠNG HIỆP

Introduction

Sửu and I stood and waited for Ms. Sen[14] by an outdoor table that lay between her house and her in-laws house. The two-house compound sat just off the dirt single track path that ran by houses in Phú An and formed a long horseshoe, connected on each end to Highway 9. This path would be widened and paved before my departure from Hương Hiệp five months later. Ms. Sen's in-laws lived in a "firm" house, made from cement and raised off the ground. She, her husband, and their two young children lived in a ground-level wooden house with a metal roof (see Figure 5.1). The front yard was cleared of grass and pleasantly shaded by a few tall trees. Animal hutches bordered the household property, and the home garden was just visible from behind the house.

Ms. Sen walked towards us, arriving from her rice field that was located behind the compound. She wore galoshes and loose fitting long-sleeve shirt and pants to work in the field. A conical hat shaded her head and face. It was rice harvest time, so she had been busy cutting the rice. Despite the constraints on her time, the hamlet head informed her that we had arrived for the interview, and she was willing to come a speak to us. After initial introductions, we sat together at the table. She explained that the head of the house, her husband Mr. Thao, was away

[14] This name is a pseudonym.

working as hired labor. He plows the field, she explained, and she cuts the rice. "After the harvest he will plow the land again, and I will plant new rice", she said (13PA Interview 1).

Figure 5.1 A front view of the 13PA Home. Photo by Author.

Even after this harvest, Ms. Sen's family would need to buy additional rice throughout the year in order to have enough for their family's meals. Like most families in Hương Hiệp, her family could not subsist on their rice harvest alone. Income from temporary labor and the sale of an industrial strain of cassava were integral to making a living (13PA Interview 2). Ms. Sen worked on the rice and cassava primarily, and her husband primarily worked as hired labor and maintained their acacia forest. The couple had planted their acacia trees four years prior, regularly using it to gather fuelwood for cooking, and they planned to harvest and sell the trees

after another three years. Acacia, while helpful for some income, was not nearly as beneficial as the annual cassava harvest. As I heard many times in Hương Hiệp, seven years is a long time to wait.

This chapter[15] describes the livelihood choices people made in Hương Hiệp. The activities and behaviors that people employ to generate income and subsist make up the livelihood profiles of households. Changes in the availability of cash crops and agricultural labor opportunities have affected how households divide work among family members and the calculus each household makes when deciding how to make a living within the available options. Ms. Sen's family provides an example of how a husband and wife might divide labor, particularly before their children are old enough to help in the fields or earn income through labor.

Livelihood Survey Overview

The data for the statistical analysis of livelihoods in Hương Hiệp were elicited from 57 households, Group B mentioned above in Chapter 2. Table 5.1 lists characteristics of participating households divided into individual and household-level characteristics. Nine household-heads (15.79%) were women and 48 (84.21%) were men. The ages of the household heads ranged from 23 to 78, and the median age for household heads was 37. The minimum level of education (by grade) for a household head was no education and the maximum was 12, graduation from high school. The median education for household heads was completion of 5th grade.

[15] The structure of this chapter was modeled on "Chapter 4: Livelihood Profiles in Đông Hải" in Fly (2012).

Most households, 47 (84.46%, n=57), in the sample set were nuclear households. Eight (14.04%) were multigenerational households, and two were elder-only. In Hương Hiệp young married couples often live with the husband's parents for period of time until the new couple makes their own house and lives separately. When Ms. Sen married Mr. Thao, she lived with her in-laws until she and her husband build their own house next-door. Many of the multigenerational households consisted of young couples with a new baby living with the husband's parents. These young families oftentimes intended to move into their own separate house when possible. Nuclear families here include households with two generations that consisted of parents or guardians and their children. One of the households categorized as "nuclear" consisted of grandparents and four of their grandchildren. In this case, a woman's husband had died, and she subsequently remarried. Her new husband did not adopt the children she already had. Therefore, the four children from her previous marriage lived with her parents rather than with her and her new husband (and their younger children). Because the children's guardians were their grandparents and not their mother and step-father, I considered this house a nuclear household.

Household size varied from one to nine people. In order to express the composition of the household with respect to livelihood contributions, I calculated the dependency ratio of each household. Rather than using age as a proxy, I was able to measure the ratio of non-workers in each household. "Dependents" included household members whose primary occupation was described as "student" or "retired". "Workers" included people who worked in paid positions, collected a regular pension, or worked as farmers. A dependency ratio of 1 would indicate that no household members regularly bring in money or work in subsistence farming. Whereas a dependency ratio of 0 would indicate that all the household members work, and none are

dependent. Two households had dependency ratios of 1. One of those was a household of one, an elderly man whose son provided his food. He said he preferred his independence, and so he did not want to move in with his son's family (36XR Survey). The other household was already mentioned above, in which two retired grandparents lived with their daughter's three children from her first marriage. Although the grandparents self-identified as "retired", they did earn some money from animal husbandry and selling vegetables grown in the garden or found in the forest (36PA Survey).

Table 5.1 Characteristics of Livelihoods Survey sample (n=57)

Individual Head-of-Household Characteristics	**Total**	**Mean**	**Median**	**Min**	**Max**
Gender					
Male	48				
Female	9				
Age		43.02	37	23	78
Education		5.25	5	0	12

Household Characteristics					
Household Size		4.68	4	1	9
Dependency Ratio		0.44	0.50	0	1
Household Generations Category					
Nuclear Households	47				
Multigenerational Households	8				
Elderly-only Households	2				
Hamlet					
Phú An	31				
Xa Rúc	26				

Subsistence Strategies

The subsistence strategies employed in Hương Hiệp included wet rice cultivation, dry hill rice (*rẫy*) and corn cultivation, home-gardening (including edible cassava), collecting wild plants

– produced or foraged, hunting, and fishing. Rice was the foundations of people's diets. Wet, paddy rice cultivation was practiced by 33 (57.89%) of the 57 surveyed households. Of the 24 interviewees who reported that their households did not grow wet rice, five had grown wet rice previously and had since decided to stop. Those who stopped did so in favor of cassava or because their fields were damaged by animals or a lack of water. Just 13 households (22.81%) were growing hill rice (*rẫy*) at the time of data collection. They grew one harvest of *rẫy* per year. And, most interviewees reported growing a crop of corn between the rice harvest and the new rice planting season. One surveyed interviewee whose family grew *rẫy* reported that her family used to alternate their rice harvests with corn. But during that year they alternated with cassava instead, and they planned to continue cassava in the future, ending *rẫy* entirely (55PA Survey). I will discuss how cassava and acacia were replacing *rẫy* further in the Chapter 6.

I conducted a logistic regression analyses to assess whether the independent variables outlined in Chapter 2 predicted which households were still growing *rẫy* (variable named *HillRice*). No variables could predict *HillRice* either taken together or individually. Additionally, the models could not determine positive or negative associations between the independent variables and *HillRice*.

Foods that complemented rice-based meals were grown and collected in several ways. Home-gardening was universal in Hương Hiệp, although the size and complexity of the garden varied from house to house. Apart from growing vegetables and fruits at home, interviewees also discussed collecting plants like mushrooms, bamboo, and medicinal plants from the forest or from their fallow hill lands. For example, one interviewee said that she collected bamboo from a wildland area that her family had left fallow ten years prior. They planted the bamboo there after their last harvest (2XR Interview 4). Fishing and hunting were employed by households in

Hương Hiệp when seasonality and time permitted. Finding fish and meat decreased the need to purchase these items from the market. Two surveyed households reported having their own fish ponds. While these fish ponds were primarily for in-home eating, they were also used as a small source of income for those families.

Income-Generating Strategies

I asked livelihood survey interviewees to name the top three ways his or her family earned money during the prior year. Also, I asked who in the household did the most work for each of those sources of income, allowing me to associate income strategies and gender. Often, an interviewee did not want to specify a single person, so they indicated that two people had worked equally. If, in those instances, the two people were different genders, I categorized that strategy as "both" a male and female strategy for that household.

Interviewees named eleven different income strategies – labor, selling cassava, selling livestock, employment, selling vegetables, selling medicinal plants, a business (such as a small store), selling corn, money from family, selling handicrafts, and other general, non-specified agriculture sales – as their top three sources of income. Figure 5.2 shows how many households named each of the income strategies. The most common responses for income strategies were labor and selling cassava, each with 43 households (75.4%) indicating them as their first, second, or third income strategy.

Figure 5.3, 5.4, and 5.5 show each of the eleven named strategies in bar clusters for the first, second, and third household income strategy named respectively. The bars in each cluster indicate the total number of households naming that strategy followed by the number of houses naming the primary worker for that strategy as male, female, or both.

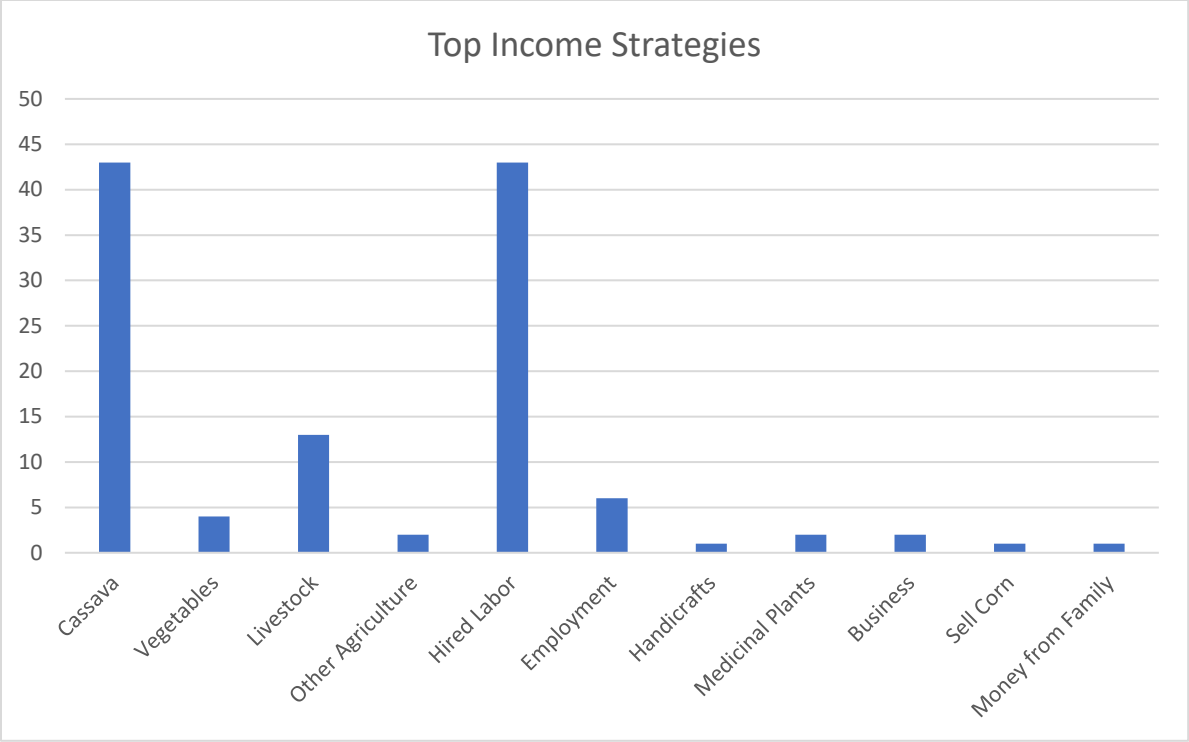

Figure 5.2 Overall top income-generating strategies

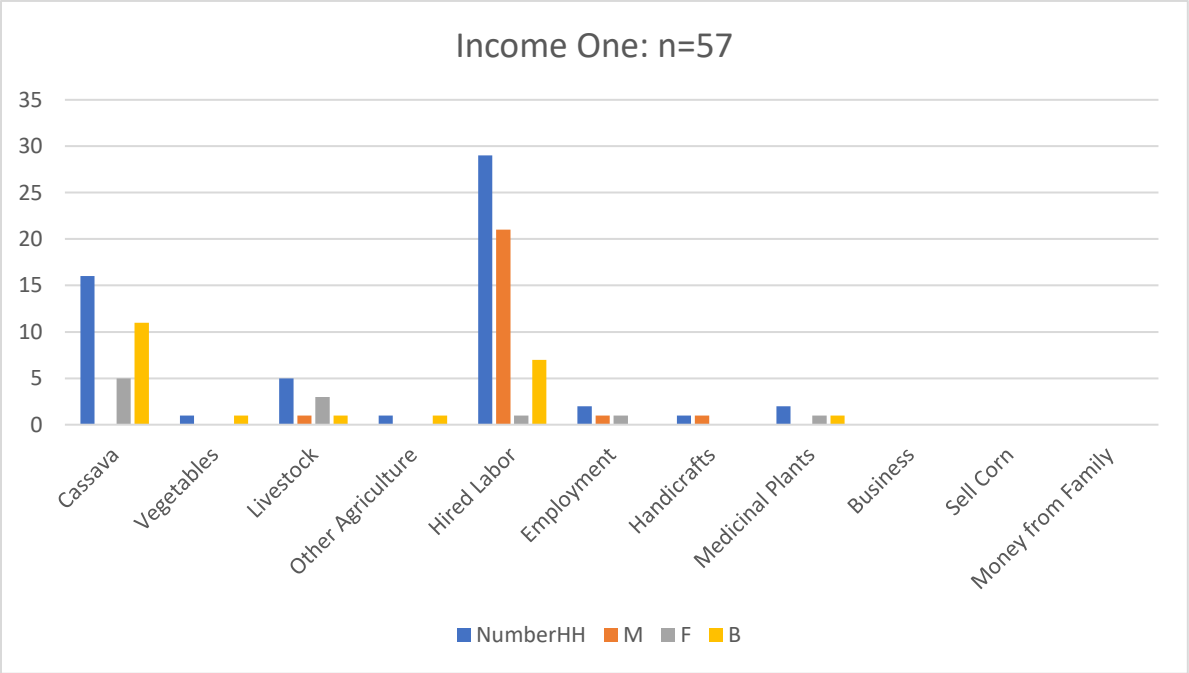

Figure 5.3 First household income strategies

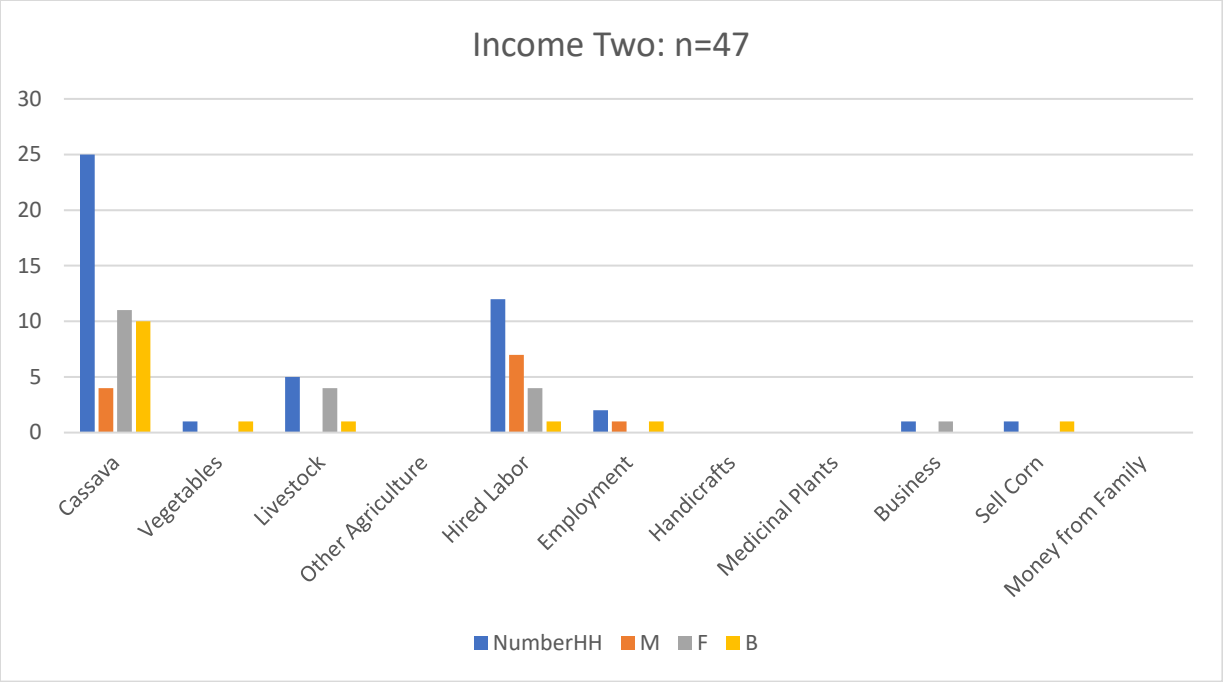

Figure 5.4 Second household income strategies

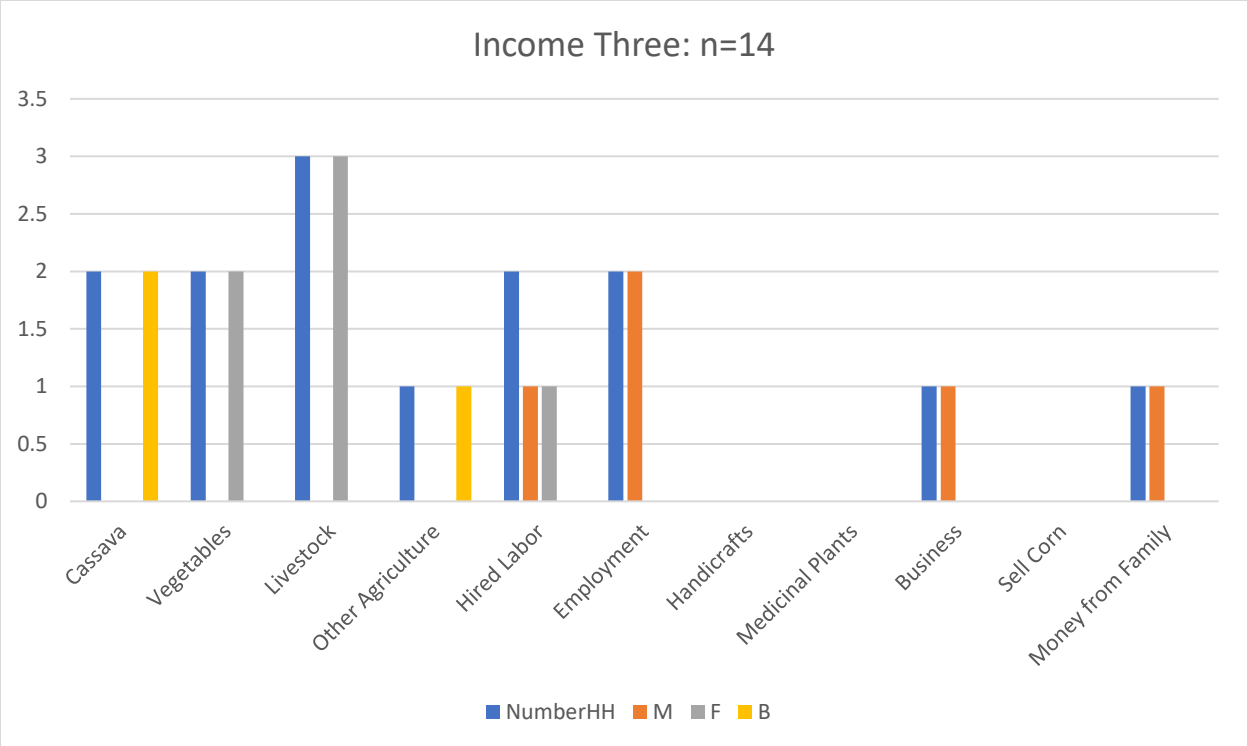

Figure 5.5 Third household income strategies

Hired Labor

In this section, and below in this dissertation, I use the term "hired labor" to describe non-employed, short-term work, typically on the farm. Working as hired labor, typically in agriculture and forestry, was one of the two most frequently named methods of generating income for the household. As mentioned above, 43 of the 57 interviewees named it as one of their household's top three sources of income during the prior year. And, an additional five households had at least one person earning income through short-term agricultural labor. The frequency of working of labor jobs varied greatly, with some individuals working as many as 28 days per month and others working just a few days per year.

Broken down by gender, males were much more likely to participate in agricultural labor than females (see figures 5.2 and 5.3). This was the case not just taking households overall, but also individually. Within the 57 interviewed households, there were 128 males and 136 females, totaling 264 people. When I analyzed the labor status (Yes or No within the prior year) for all individuals, significantly more males participated in labor than females ($p=0.001657$ for chi square test).

Men worked more often and with a wider variety of short-term labor jobs. Women responded that they were paid to work in several agricultural jobs, including wet and dry rice, corn, cassava, local acacia, and the coffee plantation harvest in neighboring Hương Hoa commune. One woman reported to work each of the following: clearing lands, shrimp farming, and working in a clothes factory. While no men reported working in a clothes factory or clearing lands, they did all the other labor work reported by women. Additionally, men reported working as skilled carpenters, working on acacia plantations in Laos, collecting metal, making fertilizer,

and working in home construction. Women tended to work fewer days of labor and closer to their home hamlet.

Among interviewed households, people working as hired labor were between the ages of 15 and 58. The youngest participant in hired labor work, the 15-year-old, was a girl working at a clothing factory in Ho Chi Minh City. She planned to work there for a two-year period before finishing and returning home to agricultural work in Hương Hiệp. The youngest person working as hired labor for local agricultural work was a 16-year-old boy. Some older interviewees complained that young people can find farm labor jobs more easily than older people. Access to farm labor work depended on good health or, more specifically, others perceiving the worker to be fit and in good health.

With the introduction of cash crops over the prior decade, the availability of hired labor work changed in Hương Hiệp. Before people grew cash crops like cassava and acacia, people primarily worked at home on their own rice and corn crops. For money, people collected metal fragments left over after the war. As one woman told me, "in the past, there was no hired labor, no work for people, and they only worked in the family. But, now people are always doing acacia, cassava, and coffee" (2XR Interview 5). Another man explained how the work had changed: "Both before and now the work is difficult, but before we did not have cash crops. We went to find iron on the hill, and now the work is acacia and cassava" (5PA Interview 5).

Cassava Cash Crops

Like "hired labor", 43 of the 57 interviewees mentioned cassava sales as one of the top three ways they earned income during the prior year. Reported income from cassava varied depending on the quality of the land, the density of the crop, and the cost of harvesting with hired

laborers. Interviewees reported earning roughly 10 and 30 million Đồng ($500-$1500USD in 2013) per hectare (Interview 2). The cassava grown for sale was not the same seed stock as that previously grown for food throughout home gardens in Hương Hiệp. Rather, this newer strain of cassava (seed variety KM94) was a genetically modified variety developed to be high-yield, high-starch, and industrially processed (Kim et al. 2001). Inedible due to high levels of bitter cyanogenic glycosides (Lamprecht 2015), the industrial cassava grown for sale was sold to a starch processing factory and not eaten at home. Some households mentioned continuing their cultivation of "sweet" cassava in their home gardens as a complement to rice at meals or as a food source during rice scarcity.

Forty-three households, the same number of households whose interviewee mentioned industrial cassava as a top income-generating strategy, grew cassava previously, and they had at least one harvest. Eleven additional households (54 total) were growing cassava at the time of data collection and planned to earn significant income from the upcoming harvest. That left just three households of those interviewed not participating in the sale of industrial cassava. Given this trend, cassava sales were increasing at the time of this research. Cassava and rice were the most obvious crops visually throughout Hương Hiệp. Being relatively lucrative and fast growing, cassava could be found growing in patches throughout the commune along the roadside, next to houses, or even in higher elevation, steep slope areas. Figure 5.6 shows an upper field area in Phú An hamlet under industrial cassava cultivation.

Of the 43 households with cassava sales as a top income-earning strategy, 23 reported that both men and women worked with the cassava crop equally, 16 reported that women primarily worked with the cassava, and four reported that men primarily worked with the cassava crop. Compared with hired labor work, growing and selling cassava was a much more

significant livelihood activity for women. Many interviewees in semi-structured interviews discussed men and women working together on their cassava crop, but they emphasized women working more than men in the cassava fields. One man explained how he and his wife share the cassava work in the following way: “In the upper field we both clear grass for the cassava.” I asked him, “do you work together?” “Yes,” he responded, “but my wife works more than me in the fields” (12PA Interview 1).

Figure 5.6 Phú An upper field under industrial cassava cultivation. Photo by Author

Livestock

Thirteen interviewees (22.81%) mentioned selling animals, such as pigs, chickens, and cows, as one of their household's top three sources of income. While only five households (8.77%) listed livestock as their top income strategy, many more relied on raising and selling livestock as a supplementary way to earn money or as an investment that could be sold and converted to cash on an as-needed basis. For example, four interviewees discussed selling chickens and pigs as their plan for paying regular interest on their bank loans. Additionally, 14 interviewees mentioned selling buffalo and cows as their plan for paying back the loan principle in full.

Women were primarily responsible for earning income from raising and selling animals such as chickens and pigs. While women commonly reported taking care of these smaller livestock, in semi-structured household interviews, many men noted taking care of buffaloes and cows. A frequently mentioned daily household duty for men, particularly the household head or an elder man in the household, was to care for buffalo and cows by taking them to patches of grass where they could graze during the day and returning them to the house in the evening. While buffaloes and cows were cared for primarily by men, only one household mentioned selling cows as an income-earning strategy and none mentioned buffaloes. Buffaloes and cows were more important for occasional sale to pay back bank loans or raise money for family events like weddings and funerals.

Employment

Five interviewees (8.77%) reported income from employment among their household's top three income-earning strategies for the prior year. The reported jobs included one nurse, two

teachers, one commune official, one district official, and one hamlet police officer. The two teachers were husband and wife living together in the home of the husband's mother. Two of the six job positions mentioned among income-earning strategies were held by women: one nurse and one teacher.

Employment was challenging for residents of Hương Hiệp. Those who had made the investment to attain higher education still struggled to find paid positions. Of the six people who had graduated from an undergraduate degree program, three said they were currently looking for work and one, who had graduated three years prior, was working at home as a farmer. Work opportunities were limited to few positions in teaching, the health care industry, local government, and the military.

Vegetable Sales

Among livelihood survey participants, four interviewees (7.02%) reported vegetable sales as one of their household's top three income-earning strategies. Some interviewees described selling vegetables grown in their home garden, and others reported collecting vegetables from the forest to sell. The relatively low number of households reporting vegetable sales as a primary income source, four out of 57, belies the day to day value that home gardens and collected vegetables provided to families.

In Hương Hiệp, having a home garden was a common as having a home. Gardens commonly consisted of sweet potatoes, traditional cassava, and green leafy vegetables used in daily meals, among other crops. Often home gardens were bordered by fruit trees such as mango and banana. Home gardens played an important role in rounding out nutritional needs for the household. Fruit and vegetables grown at home were often the primary compliment to rice in

daily meals. While selling vegetables was not the most common top source of income for families, it played a vital role in daily subsistence.

Additionally, home gardens provided an avenue for fulfilling both small day to day needs for money or larger financial obligations. People could sell their garden crops alongside Highway 9 or at the ĐaKrông market in Krông Klang to make some extra money. A few households even grew a limited number of cash crops such as tobacco or coffee in their gardens. During initial semi-structured interviews, one woman explained that she planted 20 coffee plants in her garden in 1997. They accounted for the household's primary source of income, bringing in 800,000 to 1,000,000 Đồng per year ($40-50 USD in 2013) (15XR Interview 1).

Home-gardening and collecting vegetables in the forest was primarily a female activity. Of the four livelihoods survey participants who reported vegetable sales as a top income-earning strategy, two said that both men and women worked on the vegetable sales and two said that women only worked on the vegetable sales. In semi-structured interviews discussing men and women's work in different areas (such as home, field, hill, and forest), the home garden was not discussed in terms of a field or another agricultural plot, rather, it was located on the household land, and it was part of the household itself. When describing work done "at home", interviewees often described men feeding the cows and buffalo and helping with housework. Women's work "at home" was often described as doing housework, working on the vegetable garden, and taking care of the chickens and other small animals (Interview 1).

Medicinal Plants

Two participants in the livelihoods survey (3.51%) reported selling medicinal plants as a top income-earning strategy for their household. One of these participants characterized her

household's medicinal plant sales as selling collected plants found in the forest (50PA Survey). The other participant characterized their medicinal plant sales as more formulated, explaining that his household made and sold traditional medicines (43XR Survey).

The occurrence of beneficial roots and leaves brewed into tea was very common in Hương Hiệp. Whenever I entered a house to begin an interview, we were offered tea to drink as we sat and talked. Oftentimes this tea was brewed from collected leaves or roots. It was a common initial conversation starter when we first sat down for the interview. On one occasion, Sửu, my first translator and assistant, bought medicinal plants from an interviewee to sooth his upset stomach. Among residents of Hương Hiệp, medicinal plants and home remedies were important compliments to medicine bought from a doctor or from the provincial hospital. When explaining strategies for dealing with illness in the family, survey interviewees oftentimes described a combination of home remedies and purchased drugs depending on the severity of the illness and/or the amount of available money. For instance, when one woman was explaining her household's strategy for treating her children's and husband's fevers she said the following: "They stay at home and we find leaves – medicine – in the hamlet. Sometimes we go to the hospital" (35XR Survey). Likewise, another interviewee said that her family members "bought medicine and drank root tea" to treat upset stomach and a fever (37PA Survey).

Small Businesses

Many households in Hương Hiệp showed entrepreneurial spirit by selling a wide variety of crops, found items (such as war-time metal objects), collected plants, and other items along the road, at home, or at market. I categorized such work as a "small business" in cases where the interviewee described it as their "store" where they sold items daily – rather than occasionally.

Among the survey participants, two (3.51%) had a small business. In both cases the businesses were in-home stores where the household had a locked cabinet that held small items like snacks and drinks that were for sale.

One of these two stores (32PA) was more developed as a café. The household head, who was a single mother, had a cooler for beers, and had set out plastic table and chairs for customers to sit and relax. In this case, the small business was vital to the household's economy. When the household head divorced her husband, she lost access to bank credit and to most of her farming land. The store provided day-to-day income, while a small plot of cassava was the primary income for the family. The other household's store (25XR) was simply a place where people could stop by and purchase snacks. While the male household head operated this small business, his wife helped when he was busy or away from home.

Corn

Corn was a traditional subsistence crop for Vân Kiều grown in the hill lands alternately with dry rice. Just one interviewee among the survey participants (1.75%) listed corn as one of his household's top three income-earning strategies for the prior year. This low number does not correspond to the importance of corn in Hương Hiệp because it was more often utilized for subsistence and not income. Like the rice crop, corn harvests were frequently saved and consumed by households rather than sold and converted to income. The interviewee who listed corn said that both he and his wife worked on this crop together (34XR Survey).

Money from Family

One interviewee among the survey participants (1.75%) reported receiving money from family members as one of his household's top three income-earning strategies. Even in this case, it was reported as the third income strategy. Borrowing money from family members may also have been on this interviewee's mind because his family had recently hosted a wedding.

Despite being rarely reported, "borrowing" was an important and common way people in Hương Hiệp made ends meet. This was more common with food and water as compared with money. When asked the hypothetical question, "If your crops were not growing well this year, and you produced less food/rice than you expected, what would you or anyone else in your household do in order to get more food/rice?", 14 survey interviewees (24.56%) indicated that they would expect their household to borrow from family members or neighbors. Additionally, among survey participants who indicated that their household's water supply was limited or ran dry during the year, 17 (44.74%, n=38) said that they "borrowed" from a neighbor or family member's well or water system. With regards to water, "borrowing" typically referred to using another's water source on a temporary, as-needed basis. Chapter 7 further discusses the ways households coped with food and water insecurity.

Handicrafts

Many people in Hương Hiệp produced handmade products such as brooms and rice wine. One survey interviewee (1.75%) indicated that he sold handmade baskets as his sole income source. He was an elderly mand who lived alone (36XR), one of only two households I encountered which were single occupant homes. His children helped him by giving food and other assistance, but his basket sales were his only source of income. He mentioned that he

sometimes helped people raise their livestock animals but did not include that as an income source.

Other Agriculture – non-specified

Two survey participants (3.51%) said that they sold a variety of goods as one of their top three income-generating strategies. In both cases, the interviewee indicated that the goods were various and non-consistent. Sometimes they sold vegetables and sometimes collected items from the forest, among other things, differentiating these sales from the other strategies listed above.

Non-Income Livelihood Benefits

Livelihoods were subsidized in a number of ways by family connections and development programs. Some of these benefits were mentioned above, in the case of borrowing water or rice in times of need, for example. Another non-income way livelihoods were supported was through saplings. Many households (62.2%) who grew acacia had their first saplings supported by an acacia program. And, in a few cases, households were given rice for each year they grew acacia in addition to the saplings (44PA; 51PA; 46XR). One interviewee said that their saplings were supported by the government 30a Program (48PA Survey), while others reported receiving them from the hamlet or the commune.

Household Expenses

I asked survey participants to name the top three ways their family used money during the prior year. Also, I asked a follow-up question about how much they worried about having enough money to pay for each of the three named expenses. Figure 5.7 shows the household

expenses named in response to the survey question. The expenses named included rice, fish and meat, school, fees, a combination of rice, fish, and meat (termed "general food" in the figures below), weddings, medical expenses, spices and other small food stuffs, loans, household goods, clothes, home improvements, travel, drinks, and saplings.

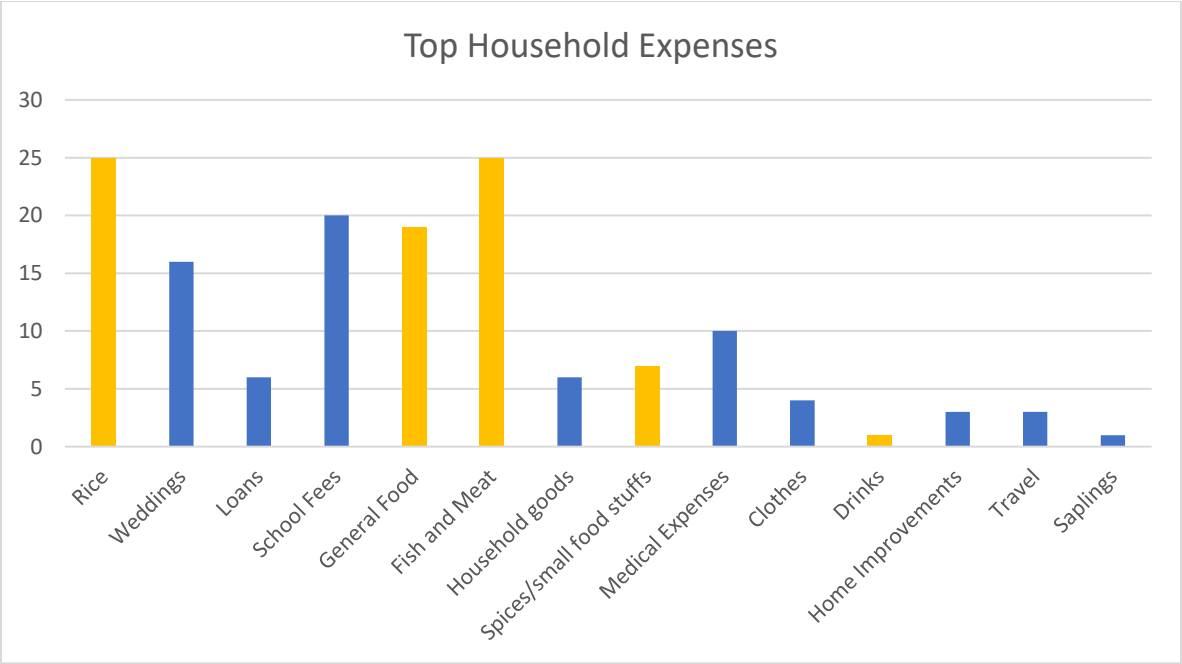

Figure 5.7 Top household expenses – food and drink emphasized

Additionally, figure 5.7 shows top household expenses with food and drink expenses highlighted in yellow, emphasizing the fact that foods were by far the most frequently mentioned expenses among interviewees. As the preferred base for all meals, rice was particularly significant in terms of day-to-day food security. Whereas fish and meat, the complementary proteins, were foods that households made efforts to procure themselves, and if they could not, they bought these foods as often as finances allowed. Due to the prevalence of home-gardening,

households in Hương Hiệp did not need to buy vegetables as often as fish, meat, and spices (e.g. salt).

Rice was an important household expense, and the prospect of running out of rice was a cause of stress for interviewees. Of the 57 surveyed households, 12 (21.05%) needed to buy rice every month of the year. Just 7 households (12.28%) never needed to buy rice. The median number of months that households bought rice was 4 and the average was 5.84. Several survey respondents even said that they could not sleep because they were so worried about having money to buy rice. In semi-structured interviews I asked about limitations on food, and many people expressed their concern about having enough rice to eat and their limited ability to maintain variety in their diet. One man responded in the following way: "Sometimes…we have to eat food that we do not prefer because we have a low income, and when we buy rice it is low-quality…we usually buy meat and fish and eat the vegetables that we grow" (10PA Interview 3). I follow-ed up by asking about whether he worried about having enough to eat. He responded, "[y]es, I worry. In the past year we had a bad crop, so I am worried about the amount of food – especially rice" (10PA Interview 3). Rice, particularly for children's meals, was the priority, followed by other food.

Costs for fish and meat costs varied family to family depending on how many people were in the household, how much money they could spend on food, and whether they were able to catch their own fish, since fishing was seasonal. One survey respondent said her family spent 50,000 Đồng ($2.50 USD in 2013) per day on fish and meat for her family of six. Access to money for food costs were also seasonal, and worries were strongest during the rainy season, after a household's own rice supply ran out and before the new harvest. The availability of hired labor work also decreased during this time, compounding the stress.

Figure 5.8 shows household expenses broken down by first-, second-, and third-named household expenses. All households (n=57) named at least one household expense, four interviewees did not name a second or third household expense, and 21 interviewees did not name a third household expense.

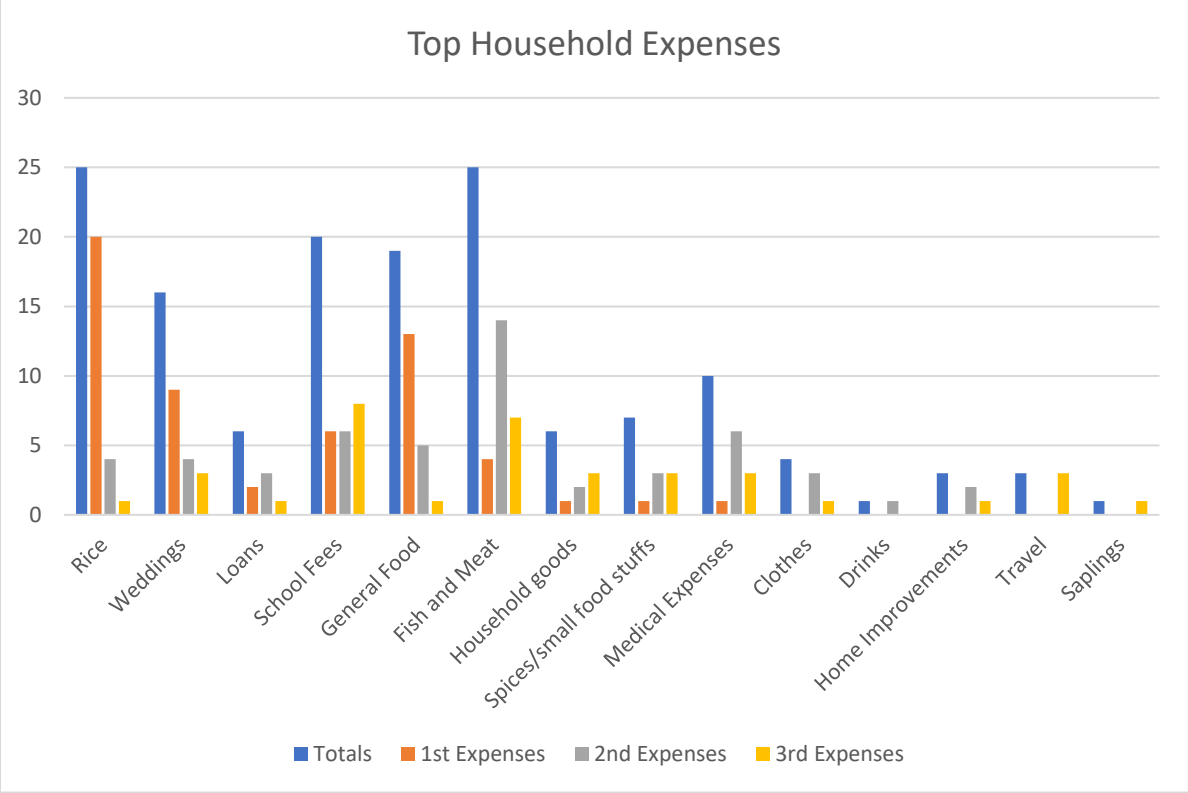

Figure 5.8 First-, second-, and third-named household expenses

After food expenses, school fees were the next most frequently mentioned expense, mentioned by 20 (35.09%) interviewees. School fees included tuition costs as well as books and supplies. Also, after food supply concerns, school fees appeared to worry interviewees very much. One respondent (30XR Survey) noted that school fees cost her household 8 million Đồng

($400 USD in 2013) per child per year. Another said that she cries when she does not have the money for her children's school fees (45PA Survey).

Sixteen interviewees (28.01%) named family events such as weddings, funerals, and baby one-month parties as a top household expense for the prior year. This may be in part because the survey took place during the rainy months of September and October, just after the busy summer wedding season. Many weddings in Hương Hiệp took place between the May rice harvest and the fall typhoon season. One interviewee noted that his household had just spent 7 million Đồng ($350 USD in 2013) on his child's wedding the prior week (25XR Survey). While this was a very large amount of money for the household, he had borrowed money from relatives to help cover the wedding expenses.

Ten survey interviewees (17.54%) mentioned such medical fees as one of their household's top three expenses for the prior year. Medical expenses included medicines, hospital stays, and doctor's fees. Rather than being broadly worrisome for all interviewees, medical expenses ranged from being not a concern at all to the most worrying expense for the household. The interviewee who noted that medical costs were not a concern at all said that the hospital helps her family pay for medicines (37PA Survey). Whereas another woman said that she worries so much about the 8 million Đồng ($400 USD in 2013) hospital bill that she could not sleep (30XR Survey).

Less commonly mentioned household expenses included loan payments, household goods, clothing, home improvement costs, travel expenses, and saplings. Six interviewees (10.53%) mentioned loan payments among their household's top expenses. Household goods included items such as furniture, blankets, televisions, bicycles, and motorbikes. Additionally, six survey interviewees (10.53%) included household goods among their household's top

expenses for the prior year. Four interviewees (7.02%) mentioned clothing as one of the top expenses for their household. Primarily, clothing expenses were for children in the household. Home improvement expenses included structural changes or work to the house such as building a new roof or building a new cement frame. Three interviewees (5.36%) said that home improvements were a top expense. Likewise, three interviewees (5.36%) noted travel expenses to visit family and friends among their household's top expenses. Finally, just one survey interviewee (1.75%) said that saplings were among her household's top three expenses (37XR Survey). As figure 5.8 shows, the singular mentioning of saplings was among the third household expenses. She named saplings after rice and fish and meat.

Logistic Regression Analysis of Growing Acacia

One very interesting aspect of the cash crops cassava and acacia in Hương Hiệp is that one of them, acacia, was completely absent from the top named income-generating strategies. Also, acacia was nearly absent from the top expenses, with just one interviewee naming "saplings" as a top household expense. Cassava, by contrast, was clearly an important income-generating strategy in Hương Hiệp. Because cassava was so widespread, only three surveyed households did not yet grow cassava for sale, it was difficult to associate adoption of cassava to household variables of demographics, economics, wellbeing, or access to assistance. Acacia, while not named as a top income-earning strategy, was also significant in that government programs provided non-income support by providing saplings to many households and rice to several. Acacia was also relevant to the decreasing numbers of houses growing *rẫy*, because these acacia programs aimed to replace mountainous fields with acacia plantations.

Using a logistic regression, I tested for associations between household variables described in Chapter 2 and the dependent variable *EverAcacia* – the household had grown acacia at any time. No variables had a clear predictive power when taken together in the model, but *EverAcacia* was associated positively with two variables: hill lands (*HillLands)* and household size (*SizeHh*). The lack of predictive power may be due to the relatively low sample size (n=57). Despite the limited number of households contributing to the sample, *HillLands* and *SizeHh* showed statistically significant positive associations. The Figure 5.9 shows the association between *HillLands* and *EverAcacia*, indicating that if a household had hill lands, it was more likely to have grown acacia (p-value=<0.001; 95% confidence interval = 4.204, 65.329).

The fact of an association between houses who had hill lands and those who grew acacia was unsurprising to me. When I asked survey interviewees whose household did not expect to grow acacia in the future why they did not, most replied that their family lacked enough land. One interviewee explained, "if we have land to do it [grow acacia] then we would. We want to get income for a better life" (27PA Survey).

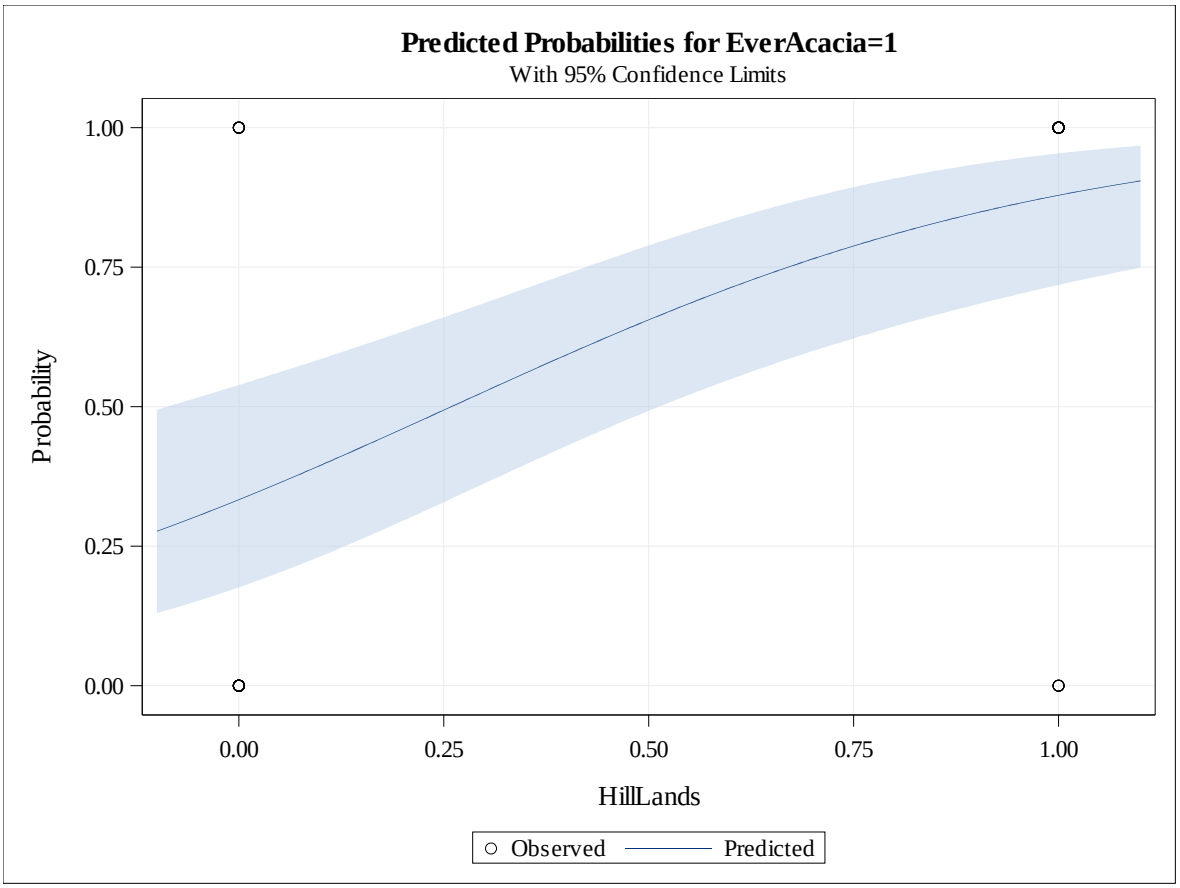

Figure 5.9 Probability of *EverAcacia* by *HillLands*

Households that had hill lands were significantly associated with having ever grown acacia for several reasons. The first reason is that acacia and hill lands were associated by design. Programs to promote acacia as a replacement for dry rice targeted *rẫy*, hill rice, by encouraging households with hill lands to participate. Hill lands differed from upper fields in that they were more remote, more rugged areas that, prior to the introduction of acacia, were typically used for *rẫy*. When discussing how they had heard about programs to grow acacia, interviewees frequently mentioned that people with hill land, sometimes referred to as "forest land", could register for the programs. As part of the program, participants received training, saplings proportionate to the amount of land registered to the program, and, in some cases, rice.

One interviewee explained the acacia program's aims regarding hill lands in the following way: "Before, the people here cleared natural forest for the cultivation of rice and corn. This makes the forest reduced. So, this program works to limit people clearing the natural forest and to replace with acacia in that land – replace the cultivated rice and corn in the hill land with acacia" (15PA Interview 2). Another interviewee said, "whoever has forest land in order to grow acacia can go to the meeting for registration [in the program]" (3PA Interview 2).

Additionally, hill lands were associated with growing acacia due to the location and terrain of those fields. Interviewees frequently commented that hill lands were far away from their homes. People explained that acacia was easier to grow than rice, so it was more convenient to grow acacia in the remote fields, where it was difficult to access. Rather than tending the field five times per week, as was the case for hill rice, people were able to tend the acacia forest only two times per week (10PA Interview 2).

Finally, many interviewees commented that acacia was suitable for the uneven, rocky terrain of the hill lands while upper field was more suited to cassava. As one man explained, "on the hill land we cannot grow other trees [crops] but acacia there, there are a lot of rocks up there. So, we grow acacia" (8PA Interview 2). Likewise, that man's brother also mentioned the rocks on some areas of his family's hill lands were so dense that they were not able to grow rice (7PA Interview 2).

Figure 5.10 shows association between *SizeHh* and *EverAcacia*, indicating as the overall number of people in a household increased, the likelihood that the household had grown acacia increased (p-value=0.0221; 95% confidence interval = 1.081, 2.745). The significant association with household size and growing acacia was initially surprising to me because having workers was mentioned by only a few interviewees during semi-structured interviews. These comments

were in the context of a lack of laborers limiting a household's ability to continue or expand their acacia plantation. One man described the way his household's limited work force affected his plantation in the following way: "I registered [for acacia] at a meeting in the hamlet; I registered 2 *sao*… Because of the lack of labor force, it is just husband and wife, I registered little land" (9XR Interview 2). A typical acacia plantation was one hectare, and there are 20 *sao*[16] to one hectare. So, two *sao* was a relatively small amount of land for acacia. Another interviewee described her family's decision to limit their acacia plantation in the following way: "Yes, we will grow acacia again. We would like to grow more, but labor and economics are lacking. We do not have the capital to invest in the acacia forest. We have the land, but no people to work it or money" (15XR Interview 2).

To delve into the meaning of the significance of household size, I tested the association of *EverAcacia* with both the number of workers in the household and the number of male workers. I examined the gendered aspect of workers within households because, according to semi-structured interview responses regarding male and female work, the tasks for growing, maintaining, and harvesting the acacia plantations were more often listed as male activities. Both the number of workers in the household (p-value=0.0494; 95% confidence interval = 1.002, 3.500) and the number of male workers (p-value=0.0154; 95% confidence interval = 1.395, 23.354) were significantly associated with the variable *EverAcacia*. The number of male workers in the household was the variable with the lowest p-value, suggesting that having working-age males in the household influenced the decision to grow acacia. Interestingly, none

[16] A "sao" is a local measurement of land equivalent to 497.025 meters squared (United Nations 1955). This measurement is different than that referenced in Scott et al. (2010) and Sikor et al. (2017) because they use the Northern measurement, which is 360m2 for a *sao*.

of the three households with zero male workers had ever grown acacia. A larger sample size, however, would be needed to firmly draw a gendered interpretation.

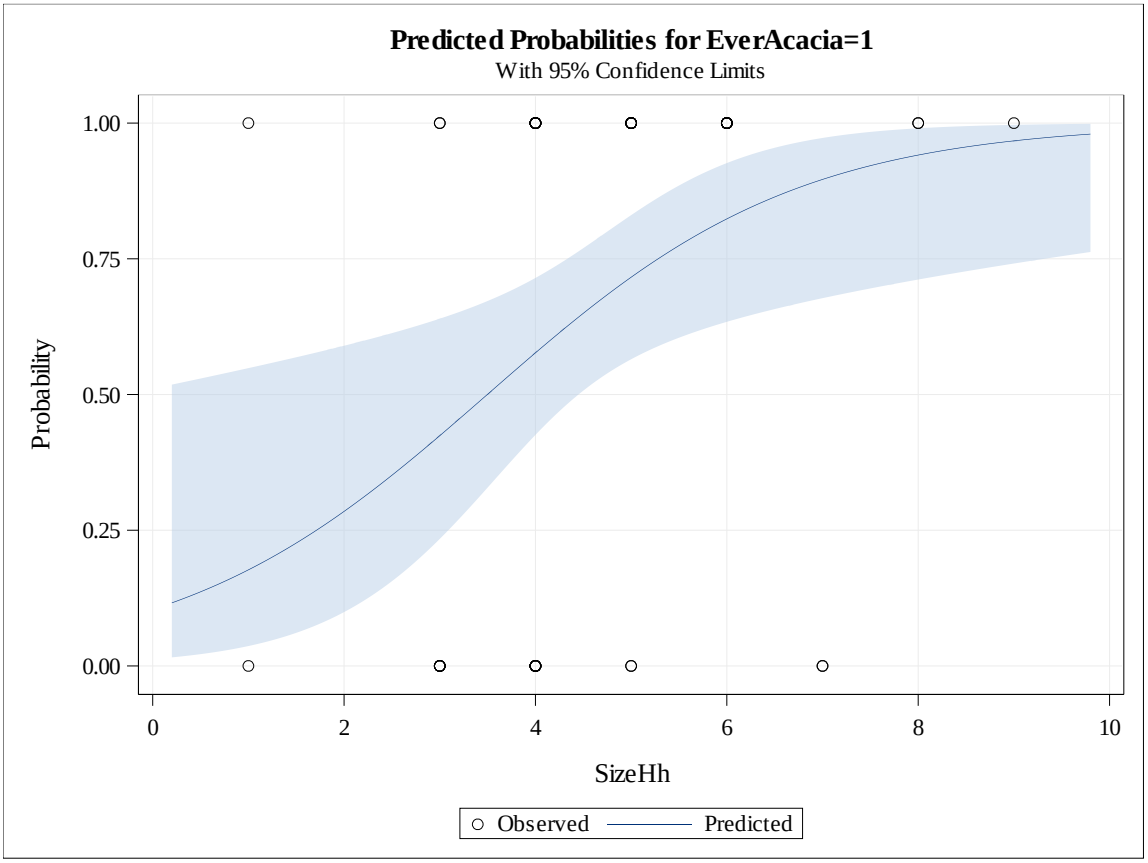

Figure 5.10 Probability of *EverAcacia* by *SizeHh*

Ultimately, all three household size variables (including *SizeHh*) suggested that having grown acacia was more closely associated with households that had more people, workers and otherwise. Acacia species are labor intensive, and because they tolerate little competition from other plants when they are seedlings (particularly compared to native, naturally growing tree species), they require regular hand-weeding (McElwee 2016, 161). Having increased numbers in the house, including young school aged children and elderly grandparents, decreases the work

load for the working-aged household members. Those not out in the fields and forests could help with the home-garden, caring for livestock, helping with house chores, or assisting in childcare. Anecdotally, I found that several of the smallest households were also very young, just-married couples with children too young to attend school. In that case, one of the working-age parents, the mother typically, needed so spend most of their day doing childcare, and she would not be able to spend time in the far-away hill lands caring for acacia. The age make-up of young families effectively diminished the acacia labor force of the household because priorities were turned toward child-rearing. The statistical associations between household size and acacia cultivation and having hill lands and acacia cultivation will compliment analysis provided in Chapters 6 and 7 below – as will a lack of associations found for the other independent household variables.

Conclusion: Gender, Subsistence, and Access to Diversification

In this chapter, I described the livelihood strategies of residents in Hương Hiệp using data from a livelihood survey and supporting semi-structured interviews. Gendered livelihood activities were affected by the increase in cash crop production and the reduction of traditional *rẫy*. Women were less likely to work in the increasing hired labor opportunities than men. However, the previous labor work of land mine collection was also male-dominated, so the level of female participation in hired labor jobs could have increased overall, but this study did not determine that longitudinal change. Women were more likely to be the primary income earners responsible for industrial cassava, livestock sales, and vegetable sales. They played a vital role in securing day-to-day subsistence through home-gardening and small animal sales. Men's role in acacia plantations was more prominent than women's, and they also reportedly took care of

buffaloes and cows more frequently, indicating several male-dominated activities in the hill lands where men and women previously worked with *rẫy*. Early feminist political ecology work discussed the gendered domains of resource use and access with respect to trees and forests as being internally, rather than externally, negotiated (Roucheleau and Edmunds 1997). Gender dynamics in Hương Hiệp were re-inscribed in the mundane, daily activities of men taking buffaloes and cows up to the hills for grazing and through intra-household negotiations of divisions of labor (Elmhirst 2011b).

Survey participants described their household's decision to stop growing subsistence *rẫy* as one of both economics and contestations over that land. Rather than growing hill rice, many households decided to grow industrial cassava on that land instead, a more profitable crop. Others described leaving the land fallow because buffaloes and cows were encroaching on their fields, damaging the crop to the point of worthlessness. The effect of these decisions was an overall shift from livelihood strategies that revolved around subsistence rice, corn, home-gardens, and livestock, to those in which cash crops played a key role in providing income. Cassava was a significant source of income for most households surveyed.

Acacia programs were intentionally introduced to compete with *rẫy* for space on hill lands. And, before the widespread adoption of cassava among residents in Hương Hiệp two years prior to data collection, households that adopted acacia did so on their former *rẫy* lands – as intended by both the tree planting programs and the broader upland strategy for rural development as described in the previous chapter. These tree planting efforts were undertaken by many households, but not all. Having grown acacia, represented by the variable *EverAcacia* was not associated with firm housing, indicators of economic wealth or security, water

infrastructure, or poor house status. Rather, households with access to hill lands and those with larger household sizes were associated with having grown acacia.

It appeared that not all households had the necessary assets to grow acacia. Does this matter, particularly if no economic or wellbeing variables were associated with acacia? I believe it does. Diversification of livelihood strategies is a critical component of risk management from a livelihood resilience standpoint (Eakin et al. 2012). Additionally, participants in acacia programs often received various non-income benefits like rice, seedlings, and fertilizer. And, the ability to diversify cash crops benefited those with access in their capacity to intercrop cassava and acacia, to the benefit of their soil fertility. The next chapter will discuss why people chose to grow cash crops instead of *rẫy*, the role of everyday politics in the uneven access to acacia – among other agricultural extension projects in Hương Hiệp – and the strategic benefit of intercropping cassava and acacia.

CHAPTER 6

WHAT IS LIVELIHOOD IMPROVEMENT? THE PERCEPTIONS OF LIVELIHOOD CHANGE IN HƯƠNG HIỆP

Introduction

While Southeast Asian countries are generally experiencing rapid economic growth and increases in overall agricultural output, poverty and hardship persist. This is particularly true among ethnic minorities in Vietnam's upland districts (McElwee 2004). Beginning with *Đổi Mới's* economic renovations in the mid-1980s, Vietnam has opened its doors to capitalism and free trade agreements with its Asian neighbors and the West and has improved food production and productivity. But while the current trends toward market integration could create openings and opportunities for the diversification and re-orientation of livelihoods, the focus on complex, yet fragile, agricultural modernization techniques leave these gains vulnerable to climate change and widening inequalities (Fortier and Tran 2013). Research on agricultural modernization in Vietnam suggests that new livelihood opportunities are unequally available and may increase social differentiation by further marginalizing politically unconnected people (Beresford 2008; Rigg 2006; Fortier and Tran 2013). Additionally, social norms of reciprocity and redistribution of wealth found in local peasant moral economies may erode under the integration in the global economy (McElwee 2007).

Issues of power, politics, class struggle, and internal inequalities are important in anthropological studies of rural farmers and social change (Kearney 1996; Lesorgorol 2003;

Scoones 2009). In his article calling for the re-energizing of livelihood studies, Scoones (2009) argued that it is a vital challenge to explore the underlying politics of knowledge-making in livelihood development. For instance, what is the difference between a good and bad livelihood strategy? In this chapter, I explore the meaning of "livelihood improvement" for residents of Hương Hiệp. Drawing on issues of internal inequalities and the dynamics of local politics, I examine livelihood decision-making by focusing on how people negotiate the government's efforts to reduce swidden through tree planting programs as well as the local politics of participation in agricultural development programs. I conclude this chapter by looking to women's efforts to secure their livelihoods as possible pathways for sustainable futures in Hương Hiệp. Work in feminist political ecology suggests that in examining women's everyday struggles to secure livelihoods, we may be able to observe possible sustainable futures (Elmhirst 2013; Wutich 2012).

As outlined in Chapter 5, most households in Hương Hiệp commune only recently stopped swidden farming in favor of market-integrated cash crops within the five to ten years prior to the research for this dissertation, making Hương Hiệp commune an ideal place to study agrarian changes. When I asked one participant when his family cultivated hill rice in the traditional way, he said they practiced the old way until around the year 2000. He explained, "If we stop swidden then we receive a land title for the forest (*tràm*). It is the policy – if we stop swidden and plant trees, then the government issues a land title" (13XR Interview 4). But why would a household decide to reduce their traditional rice cultivation technique and choose to grow trees in return for a land title? Acacia trees take six to seven years to reach profitable maturity, but households were making the choice nonetheless. In the following section, I explore the conditions in Hương Hiệp that may have led to these decisions.

Reducing Swidden Farming in Hương Hiệp Commune

The population of Vân Kiều in Quảng Trị was severely reduced during the war with the United States. Although the war was difficult for all people in the upland area of Central Vietnam, Vân Kiều were closest to the Demilitarized Zone (DMZ) and suffered the most casualties and major displacements among the upland minority peoples in the region (McElwee 2008). After the Americans withdrew their troops in 1973, families began to return and repopulate Hương Hiệp. More Vân Kiều families arrived in Hương Hiệp in the 1980s and 1990s, particularly from the nearby districts such as Vĩnh Linh or Hương Hoa in Quảng Trị (Structured Interview Notes). They were not alone in repopulating this region, as many Kinh families moved into the upland areas as well. According to the People's Committee of ĐaKrông summary report, in 2011, there were 20 Kinh and 96 Vân Kiều households in Phú An and no Kinh and 82 Vân Kiều households in Xa Rúc (UBND Huyện ĐaKrông 2012).

As families returned to Hương Hiệp to clear new lands and begin their lives again, population and land access pressures have grown. While long-fallow swidden cultivation has been sustainable in the uplands of Vietnam for centuries, it requires extensive, rather than intensive, use of the land. In recent years, new lands have decreasingly available for young families to set up their own swidden plots as populations increase and land titles crystallize which family can use which area of land. Before, the commune would give new families, a recently married couple, a small plot of land to start, but now they cannot. One participant explained, "[n]ow young families have to get land from their parents. Young families will have to move to another area soon because there is no more land available" (11PA Interview 5).

In addition to limited land availability, because there were fewer land areas available for cultivation that were not a full day's hike from the hamlet, people in Hương Hiệp expressed interest in getting the title for the land they had. One woman explained to me that "because there is now less land for people to use, they have to get the title in order to keep the land" (4PA Interview 5). Similarly, another woman told me that she wanted a title for her land because she was worried that people would otherwise take her land (2XR Interview 5).

In this context of decreasing land availability and increasing use of formal land titles, many households in Hương Hiệp were open to new ways to protect and intensify the use of their hill land. The government of Vietnam has been working to end swidden cultivation since the early sedentarization policies were introduced in 1968 (McElwee 2004). To that end, waves of reforestation projects have come through Hương Hiệp since 1998, offering saplings, a forest land title, and sometimes payments of rice in return for replacing the hill rice fields with forest. One man explained his household's decision to stop growing *rẫy* in the following way: "Around 1996-7 we stopped [growing hill rice] because there was no land – it was too crowded…then after 1997-8 we stopped hill rice and started to plant acacia" (1PA Interview 4).

Acacia plantations have a long history in South Africa and Brazil, but most of the 3 million hectares of managed acacia worldwide has been planted in Southeast Asia in the past three decades (Griffin et al. 2015). Large companies manage most of the acacia plantations in Indonesia and Malaysia, but in Vietnam, smallholders account for over 50% of the country's 1.1 million hectares of acacia plantations (Nambiar et al. 2015; Sandewall et al. 2015). In a report on forest tree species selections for planting programs, Vietnam's Ministry for Agriculture and Rural Development notes that acacia (*keo lá tràm*) may be grown in many types of soil and on a limited slope of up to 30 degrees (Le et al. 2003). The paper also notes that acacia is particularly

suitable to industrial timber materials as well as for the purposes of soil improvement and erosion prevention (Le et al. 2003).

These characteristics, according to supporters of acacia plantations, made acacia well suited for introduction in the uneven, rocky, hilly areas where Vân Kiều in Hương Hiệp previously cultivated hill rice. Acacia can be grown in lower slope areas as well, but the tree planting projects in Hương Hiệp targeted families with hill fields so that they would reforest *rẫy* fields with trees (5XR Interview 2) and prevent soil erosion (5PA Interview 2; 7XR Interview 2; 12PA Interview 2). Those who grew acacia trees in Hương Hiệp remarked that they decided to grow them because the trees would provide income to the family, become a new source of fuelwood[17], and grow well on their land that was rocky and hilly. One woman explained her household's rationale in the following way: "Before acacia we grew rice. We cultivated rice, but the rice was not as much of a benefit as acacia…it was just enough for food, not enough for money (14PA Interview 2). Later adopters of acacia also explained that they saw others in their hamlet grow acacia successfully, so they followed the trend and grew acacia too. I frequently heard people remark, "we do not know what else to grow."

Despite the purported benefits of tree plantations, critiques of tree planting programs that utilize exotics like acacia and its hybrids point out that acacia is a labor-intensive crop that requires dense planting and continuous pruning to shepherd the seedlings to maturity (McElwee 2016; Sein and Mitlohner 2011). Additionally, others have noted that acacia can *cause* soil erosion, rather than prevent it, reduce nearby stream flow, and, acacia is vulnerable to storm

[17] Fuelwood collection was primarily a woman's subsistence activity, vital to daily living, that occurred in forests prior to the introduction of acacia plantations. Many people said they got their fuelwood from acacia since starting their plantation, and they said that it was one of the benefits of the programs. McElwee (2016, 164-5) notes that in focus groups women complained that acacia and eucalyptus produce "stinky, smoky" fires. This issue was obscured in my data collection because I did not ask about species preferences and no one made mention of fuelwood species preferences independently.

damage (Kull et al. 2011; Nambiar et al. 2015). Many interviewees whose households relied on streams for their water sources explained that their water quality was decreasing, but one interviewee specifically blamed acacia plantations for a decrease in his family's water availability. He described the effect of the acacia plantations in the following way: "When someone, some families harvest acacia then the water in the stream is low, so it takes more time to collect water. This is because some people are planting acacia at the natural water source up on the mountain. The source [where he got his water from] hasn't changed, but the water flow is weaker" (9XR Interview 3). This statement suggested that the environmental costs of acacia affected households in the hamlets differentially. I will discuss the differential effects of water scarcity in Chapter 7 below.

Not only were environmental costs borne differently, but also households in the research hamlets differentially gained access to meetings about growing acacia or to the benefits associated with joining a reforestation project. Below I discuss the politics of invitation around reforestation programs. Beyond the initial invitation to participate, households in the hamlet also experienced uneven access to other, non-acacia project benefits.

Reforestation Projects and the Politics of Invitation

In interviews with Group A, the semi-structured interview group, when I asked how a household initially found out about an acacia tree plantation program, the responses were highly consistent regarding the procedure. The commune government first informed the hamlet head that a project to grow acacia would be arriving. Then, the hamlet head informed people who had available land that a meeting would be held. At the meeting, people could register their land for the project. Then, an officer would come out and measure the household's land to be used in the

tree plantation project. The project then provided saplings for the household based on how much land area was registered and measured for a forest land title. Finally, the commune government processed and distributed the forest land title.

One participant explained how she came to participate in acacia cultivation as follows: "There was an announcement. The head of hamlet was informed [by the commune government], and we participated in a meeting and registered for the project [at the meeting]" (5PA Interview 2). Similarly, another participant explained how his land was measured for a land title as part of the acacia project: "I registered my land at the meeting. An officer came here and measured the land. And the officer evaluated how much I registered for…the state assigned saplings for the people and gave responsibility [to grow them] to the household" (13XR Interview 2).

While this process of informing households about agricultural development projects seemed straightforward, hamlet heads were the conduit through which people accessed any agricultural trainings and project meetings, including the acacia projects. While all 30 households in interview Group A reported growing acacia, just 37 out of the 57 (65%) Group B households had grown acacia trees. There could be a strong tendency for the same set of households to be repeatedly invited and others to be repeatedly left out, due to local politics and family clan bias among hamlet heads. Acacia saplings were a cost burden on the household and an entry barrier for those wishing to grow acacia. While the most commonly mentioned reason among Group B respondents for not growing acacia was a lack of land, the inability to buy saplings due to lack of capital was the second most cited reason. Those who were invited to participate in a project, and were awarded some or all of their saplings, were at a distinct advantage.

In order to test whether invitations to programs were associated with the adoption of acacia, I included *TrainingInvitation* as an independent variable in my logistic regression test described in Chapter 5. *TrainingInvitation* was not associated with *EverAcacia* among surveyed households. Rather, *HillLands* and *SizeHh* were significantly associated, meaning that those with hill lands were more likely to have grown acacia as well as larger households. The asset of hill lands was particularly significant for growing an acacia plantation.

Invitation to Other Agricultural Projects

Despite the lack of a statistical association between training invitations and acacia, I wanted to further examine possible associations with *TrainingInvitation* because invitations were so unevenly distributed among surveyed households. And, several interviewees whose households did not receive invitations to participate in agricultural training programs during the prior year expressed frustration and disappointment.

Twenty five of the 57 (44%) households in Group B reported that the hamlet had not invited them to any agricultural training programs in the past year, and, additionally, most said that they were typically never invited at all. This was surprising because two households that reported the most frequent invitations to training meetings said they were asked two to three times per month. It is significant that the Group A and Group B households were sampled differently. The Group B household sample set was produced by convenience, as I interviewed all willing and available households in a designated area. The Group A set, however, was produced by referral from the hamlet head.

In their work on the "politics of invitation," Walker et al. (2007) examined how local indigenous Zoque leaders in Chimalapas, Mexico "confronted and redeployed" the concept of

"participation" in a forest management program. Because local leaders insisted that the forest was their home, they asserted the power to extend invitations to manage the forest. Walker et al. (2007) describe how local leaders exercised control over project participation with the following statement:

> The resolutely territorial politics of invitation is not a rejection of development per se, but an inversion of the typical development discourses and practices of participatory development...Zoques are insisting, on the basis of their territorial control, that any invitation to participate in planning for their lands will come from them alone. (438)

Like the Zoque leaders in this example from Chimalapas, Mexico, hamlet heads in Hương Hiệp had the power to extend hospitality, to invite people in; and, conversely, they had the power to exclude and discriminate, to mask social difference and marginalize certain households from development project benefits (Walker et al. 2007).

As local leaders who brokered the relationship between households and agricultural development projects, hamlet heads had a great deal of power in determining which households received regular benefits from participation in development projects and which households did not. In the politics of invitation, the importance of the benefits from agricultural trainings concentrated power in the hands of hamlet heads. When asking "who has the right to invite others to participate in whose plans" (Walker et al. 2007, 438), people without invitations perceived hamlet heads as affirming their local power by favoring some households over others.

Among those households who were not often invited, connections to the hamlet leadership or other government positions repeatedly emerged as the primary reason that households who often received invitations had access and they did not. This research did not include a formal social networking element that would clarify the connections between the hamlet heads and those households who were invited to participate in agricultural trainings.

However, responses by some of the Group B participants highlighted the patterned way that access to programs was granted to certain households by the hamlet head: “There are many times [we are not invited] because the hamlet and government say who is invited” (27PA Survey). Another participant responded likewise: “If people do not have a parent who is invited, then they are not invited” (41PA Survey). Even a participant who said that his household received an invitation once per year noted inconsistencies in the frequency of invitations saying the following: “People who work for the hamlet are invited two or three times per year and others just one time per year” (31PA Survey).

Apart from family and work connections, to local leadership or the government, other personal biases could account for some households being repeatedly excluded from agricultural development trainings. These biases were difficult to capture without the benefit of a larger sample. Interestingly, both hamlets reported similar rates of uninvited households despite having separate hamlet leaders. In Phú An, 14/31 (45%) households were not invited to trainings within the prior year, and in Xa Rúc, 11/26 (42%) households were not invited to trainings within the prior year. Moreover, when I accounted for the difference in invitation rates among male and female-headed households for both hamlets, the difference was not significant (chi square p=0.287). Table 3.1 shows the counts for male and female household heads related to invitation to agricultural trainings in the prior year.

Table 6.1 Invitation to Agricultural Trainings by Household Head Gender

Household Head Gender	**Invited**	**Not Invited**	**Total**
Female	4	5	9
Male	28	20	48

Taken separately, the count for Xa Rúc appeared significant because the only two female-headed households that I surveyed in the hamlet were not invited to any trainings. These numbers here were so small, however, that the rate could simply be a product of chance.

In addition to qualitative evidence that local hamlet politics, at least in part, determined access to agricultural training benefits, intra-household politics could have been a factor to access as well. One woman who said that she had lost faith in government programs asserted that men go to trainings, but women do the work. This gendered participation is ineffective, she explained, because women should be trained on the work they do each day. Some men who attended the trainings would take the money compensating their time and use it only for themselves (6XR Interview 2). This may have been the case with some households, but not all. Indeed, one woman who I talked with reported that her husband attended trainings two or three times per month (being among the most frequently invited households), but she could not recall the content of a single training (45PA Survey). Another woman said that her husband attended trainings and did not tell her what happened or if he received benefits (22XR Survey). Despite these individual accounts, evidence from the livelihoods survey supports the idea that women *did* attend agricultural training regularly. Among households in Group B that reported ever participating in agricultural training, 14 of 35 regularly sent a woman to trainings. Table 6.2 shows the counts for households reporting typically sending a male, female, or either male or female equally.

Table 6.2 Who Attends Trainings? Participation in Agricultural Training by Gender

Male	**Female**	**Either Equally**	**Total**
19 (one Female-headed house)	14 (three Female-headed houses)	2	35

Certainly, those interviewees whose household was not invited to agricultural trainings felt left out, overlooked, and disenfranchised by the local government. Interestingly, when I analyzed associations between *FoodInsecurity* and independent variables in a multiple logistic regression, the variable *TrainingInvitation* was significantly associated with households who were *less* food secure (see chapter section on Perceptions of Wellbeing and Improvement below). Perhaps the households who needed the most help regularly securing their food were the households selected for participation in training programs. But, non-income benefits to livelihoods, like agricultural trainings, were highly sought after and could be a significant source of grievance if their distribution was perceived as uneven. This extended beyond the scale of households to that of hamlets as well. For example, one woman from Xa Rúc complained to me about the different acacia programs. She said, "in Phú An when people register with the agency for forestry management, they are given acacia saplings and they also receive rice. But not in Xa Rúc" (1XR Interview 2). The difference between the tree planting programs in each hamlet were perceived as unfairly benefiting one hamlet over the other. I will discuss the regression analysis further below in the section on perceptions of wellbeing and livelihood improvement.

Local Politics and Non-Income Benefits

Even if a household was invited to an acacia project, sometimes the benefits were never distributed. The benefits from projects can include not only training to grow new crops but can also extend to free saplings and sometimes money, rice, other household goods, or some combination of all these things. During household interviews, some participants described a consistency in the differential way that benefits from projects were allocated through hamlet-level channels. One participant told me, after the recorder was turned off, that she had lost faith

in the government programs. She continued, saying that she wanted training courses and the money that comes with them. However, once she had registered to participate in the acacia tree program, the former hamlet head had used the acacia saplings that had been owed to her for his family's farm (6XR Interview 2 Interview Notes). Another participant told me: "I registered for growing acacia, but somehow people didn't come to evaluate the land…did not come to survey the land…Maybe when they came to my land…they did not have time, they had to go back for their lunch, and they forgot [to return]" (14PA Interview 2). When I was interviewing Group B, the responses were more strongly worded, and the sense of frustration seemed to me to be much more palpable, as seen in the response below:

> We asked for saplings at the training, but they are only given to the hamlet leader's relatives. We always go to training but do not get what they [the training staff] say they will give…We got no saplings. We don't get the benefits we are supposed to get – but some houses always get gifts from organizations and programs. Some get gifts many times – noodles, clothes, everything – so they are wealthy. But we do not get the benefits. (30XR Survey)

Among those households who *were* able to benefit from livelihood intervention projects, I found a clear appreciation for these benefits. When I asked families to explain why they decided to grow acacia, one participant responded, "We followed a project to protect and replace upland fields…we get rice…three times per year we get 400 kg of rice" (5PA Interview 2). While rice is a specific material benefit, other families found that they benefited by saving time and energy; one interviewee noted that "[w]e don't have to spend time in the natural forest because we can use the wood from the acacia" (12PA Interview 2). Still others marked a combination of benefits, the ability to sell the wood to make money and buy other things as well as the physical wood itself to be used for the family farm: "We can get money and fuel wood – and wood to make features in the house…or a house for the animals like our cows and pigs" (8PA Interview 2). Even when the saplings given for free failed to grow, which was common for

a project implemented in Xa Rúc in 2011, most participants expressed that they felt the projects were beneficial.

Despite the benefits associated with participating in and receiving the benefits from an acacia plantation project, the plantations have several drawbacks. Households growing acacia depended on the income at harvest to improve the house, pay back loans, and purchase livestock, among other household costs. Many households did not save enough to invest in another crop of acacia, but rather preferred to wait for another project to support new saplings. This dependence on top-down donations of additional saplings limits the longevity of acacia plantations in Hương Hiệp. Besides the cost of starting a new crop of acacia trees, many participants indicated that the long growth period for these trees was difficult: "Acacia helps the family to have money, to buy things, but 6 or 7 years is so long to wait" (3XR Interview 2).

Introducing Industrial Cassava and Reducing Swidden Again

From 2010 to 2011, a new strain of industrial cassava, inedible and sold to a tapioca powder factory, quickly spread among the Hương Hiệp households. Cassava was able to spread much more quickly than acacia throughout the hamlets for a few reasons. Unlike acacia, where participants in acacia projects expected to receive saplings from the project managers, cassava saplings were easily spread between families and neighbors. Family members and neighbors with their own cassava crop can easily share cuttings without the oversight of a project manager. This horizontal, social spread of the plant allowed for rapid adoption. Rather than waiting for top-down implementation from a government project as in the case of acacia, households could quickly decide to grow cassava, ask for cuttings, and plant them without the need for invitation

to a meeting or access to large hill land assets. Also, due to the yearly harvest, neighbors were able to quickly see one another's financial success in growing and harvesting cassava.

Households indicated that they could make more money over the course of a few years growing cassava, harvested once per year, than they could with acacia. Besides less frequent harvests, the acacia harvest was labor intensive, often leaving the family with little profit after paying for laborers to cut and carry the wood. One interviewee said that he spent 70% of his acacia income on labor and extraction, receiving only 30% himself. He said, "After 6-7 years we can exploit the acacia and get money. We get about 20 million Đồng ($1000 USD in 2013) after one harvest. There is no road – it is so hard to harvest – the road is difficult, and we must hire labor and buffalo to carry the acacia wood and to get the truck to pick it up. For example, out of 10,000 trees, we can get the income from 3,000 – because we use 7,000 in labor and costs of exploiting" (10XR Interview 2). Given the drawbacks of acacia, it was easy to understand the high level of interest in a new cash crop, cassava, with a yearly, less labor-intensive harvest. While 47% (27/57) of Group B were actively growing acacia in 2013 at the time of this research, all but three households in Group B were growing cassava. Moreover, 81% (44/54) of those households growing cassava began growing it for the first time between 2011 and 2013.

Although cassava had the benefits of easily accessed cuttings or saplings and a yearly harvest, it aggressively striped the soil of nutrients. The research for this article occurred at a point in time when many households had just begun growing industrial cassava within the previous two years, including many households who had never before grown acacia due to lack of land, money, or access to a project. So, for many participants, the accumulated effects of cassava on the soil had not yet taken hold.

Cassava alone is too hard on the soil to be harvested year after year without high inputs of expensive fertilizer. The two cash crops of cassava and acacia can be alternated to restore the soil after three harvests of cassava. As one person explained, "[t]he land is not good after cassava. We need to do acacia and then switch again. The acacia becomes the fertilizer for the cassava" (12PA Interview 2). Another participant explained, "[t]he cassava is [harvested] every year, and the acacia takes 6 years. The acacia can be planted after the cassava – it helps to mitigate the soil damage. After three years the soil needs to be planted with acacia because cassava cannot be harvested anymore" (6PA Interview 2).

Simultaneous with the rapid increase in cassava crops, very few households were growing traditional Vân Kiều field crops like hill rice and corn. As described in the Chapter 5 section on subsistence strategies, just 13 surveyed households were growing hill rice (23%), and five of those reported that they planned to grow cassava instead of rice the following year. As one participant explained, "[c]assava is better than rice and corn before, we spend less time to take care of it. It makes more money than rice" (1PA Interview 2). Most households grew a small plot of wet rice near the house garden, but flat, irrigable land for wet rice was very limited in this upland area. By growing a cash crop for sale, households in turn needed to buy most of their rice for daily meals rather than grow it themselves. Although most families now need to purchase rice for some or all the months of the year, many families lamented the poor quality of purchased rice and prefer the flavor of their own home-grown varieties (seen also in Bonnin and Turner 2011).

Perceptions of Wellbeing and Livelihood Improvement in Hương Hiệp

This section examines people's perceptions of wellbeing and livelihood improvement, taking into consideration the "everyday politics" at play in the implementation of Hương Hiệp's reforestation and agricultural development programs. In Chapter 2, I described how I used prior ethnographic research and my own data from semi-structured interviews to develop an adapted USAID food insecurity questionnaire. Along with a descriptive analysis of perceptions of access and participation in agricultural development, I discuss wellbeing as captured by food security in the following sub-section. Then, I discuss household perceptions of livelihood improvement and alternative ways some women utilized cash crops near the household land an in their own home-gardens.

Subjective Measures of Wellbeing

The ability to have enough food was fundamental to Vân Kiều perceptions of wellbeing (see table 2.4) expressed by their answers to the following interview question: "what makes a good, happy, and successful family"? To test for associations between wellbeing, here measured in terms of *FoodInsecurity* (see Chapter 2 for a full description of this variable), and independent variables, I conducted a multiple logistic regression. I chose to test food security as a binary variable rather than as four level ordinal variable. This was due to the low number of data points (n=57) for the survey. By grouping the *FoodInsecurity* values into two meaningful categories, more food secure (values 1 and 2) and less food secure (values 3 and 4), I could test for a binary variable. The independent variables I tested for included the hamlet, the nine household variables described in table 2.3, *WaterStream*, described in table 2.5, the economic variables described in table 2.6, and the access to assistance variables described in table 2.7.

From this analysis, two significant variables emerged: *HasLargeAnimals* (buffalo and cow) and *TrainingInvitation* (introduced above). The variable *HasLargeAnimals* (p-value=0.0402; 95% confidence interval=0.0005, 0.8413) was negatively associated with *FoodInsecurity*, meaning that having more food security, higher wellbeing, was associated with owning buffaloes and cows. The variable *TrainingInvitation* (p-value=0.0427; 95% confidence interval=1.0868, 147.1618) was positively associated with *FoodInsecurity*, meaning that less food secure households, those with lower wellbeing, were more likely to have been invited to participate in agricultural trainings within the year prior to this research. Additionally, another variable was nearly significant in the regression analysis – *AgeCategory*. Younger households may be more likely to be associated with reduced wellbeing, by being food insecure. However, the results (p-value=0.0520; 95% confidence interval=0.0037, 1.0240) were ultimately inconclusive. For the output table listing all the independent variables and their associated p-values, coefficients, and lower and upper limits, see table AB.1 in Appendix B.

In addition to the examination of *FoodInsecurity* and the independent variables described above, I tested for any association between *EverAcacia* and *FoodInsecurity* with a chi square test and found no association (p-value=0.977). As described in Chapter 5, the only associations I found with growing acacia were human capital, household size, and hill land assets. I did not find evidence that growing cash crops was associated with indicators of higher household economics such as cement houses, non-stream water sources, and important animal assets like buffaloes and cows. Rather, higher wellbeing was associated with having cows and buffalo. This fits remarkably well with local perceptions of livelihood improvement described below in the next section.

Wellbeing is a process as well as an outcome, and it was characterized by Sumner (2010) as "a state of being with others, where human needs are met, where one can act meaningfully to pursue one's goals, and where one enjoys a satisfactory quality of life" (Sumner 2010, 1066). Sumner considers wellbeing to be three-dimensional, encompassing material wellbeing, subjective wellbeing, and relational wellbeing. The subjective – perceptual – and relational aspects of wellbeing are inherently political (Brown and Westaway 2011; Sumner 2010).

Although agricultural training invitations were statistically associated with lower wellbeing as measured by food security, the feeling of disenfranchisement among those lacking invitations was striking. The political, perceptual, and relational elements of wellbeing were made evident in this research as those interviewees whose households did not receive invitations perceived themselves as poorer, and less socially connected to decision-making in the hamlets. Tangible factors do not capture every aspect of resilience, including wellbeing (Brown and Westaway 2011; Béné et al. 2016; d'Errico et a. 2017). In a study comparing resilience and subjective perception of wellbeing and social inclusion, d'Errico and his colleagues (2017) found that people who saw themselves as being involved in the decision-making process in their community had higher levels of resilience capacity. Also, others have found that the tangible aspects of responding to unforeseen, adverse events affecting livelihoods were influenced by the way people perceive their own livelihoods, risk, knowledge, and experience (Béné et al. 2016). Regardless of wellbeing measures, those without access to regular agricultural extension programs felt poorer and less advantaged in comparison to neighbors who did have access.

Perceptions of Improvement

When I asked survey participants what they would do differently if they could change one thing about their farm, the most common response was wanting to raise more animals. Participants generally saw animal husbandry as a good way to improve their life and increase family income. Indeed, the regression analysis described here associated those households with cows and buffalo with higher food security. The Group B survey responses also indicated recent increases in small loans taken primarily from either the state-run Vietnam Bank for Social Policies (VBSP) or Vietnam Bank for Agriculture and Rural Development (Agribank). In many cases, loans were taken out in order to buy cows or buffaloes, since families viewed increasing their herds as a good way to make money for the family.

Group A semi-structured interview discussions on wellbeing and improving the life of the family complement the survey responses about improving the household farm. In interviews, after we discussed what makes a happy, good, and successful family, I followed-up with the following question: "What is your wish for a better life for your family?" Again, the most frequent answer – after simply responding "more money" – had to do with increasing the numbers of livestock in the family farm. Additionally, people talked about expanding their cultivation area, broadening the fields. For example, one man told me, "I want to have a large farm, to raise many animals – maybe goats. And next, I want a large forest with a high value" (15PA Interview 2). This response illustrates a common feeling among residents in Hương Hiệp that the way to improve the farm was to both increase the livestock and broaden the area under cultivation. Only one interviewee described his view of "improvement" in terms of modernization and technical knowledge (9PA Interview 2). He said, "I want to improve the economy of my household by raising animals. I want to build a modern, mechanical farm with

technical improvements" (9PA Interview 2). This rare exception still referred to raising animals as the primary method of improvement. The local perspective of cultivation improvements involved broadening and expanding the area, not intensifying productivity through fertilizers or hybridized crops.

While the most common responses for livelihood improvement referred to having a higher income, expanding the farm, and increasing livestock, the next most common answers revealed two different aspects of improvement: livelihood transformation for their children and physical security in the form of a cement house. Nine interviewees (n=30) mentioned that they viewed improvement in terms of their children going to school and getting good jobs later in life. Tellingly, one man told me, "I put my future in the children. After succeeding in the university, they can get a good job. He continued, "I cannot become rich by raising animals or working in the forest, so I put my future in my children" (3PA Interview 2). Despite viewing livestock and expanding cultivation as means to improve their livelihoods, this response, and others who discussed their children's future away from farming, indicates that people perceived a limit to what farming could achieve for their lives. Transitioning away from the family farm to a full-time job was viewed as a way for their children to have a better life.

Five interviewees in Group A (n=30) mentioned the desire for physical security in the form of a firm house as a way to improve their lives. In Hương Hiệp, many families were shifting from traditional bamboo and wood houses to ones made of cement. Cement houses, or at least houses with a cement frame, were viewed as firm, secure, and a means to protect the family from seasonal storms and typhoons. For the remainder of this section on livelihood improvement, I will focus on the following aspects of agrarian livelihoods mentioned above,

comparing them to state-level perceptions of agrarian improvement: increasing livestock and expanding the farm – the primary ways residents in Hương Hiệp discussed improvement.

The Vietnamese Government viewed livelihood improvement among minorities in the uplands in terms of increased agricultural productivity and increased income (Vietnam Government 2016a). While increasing income was also a goal for those living in Hương Hiệp, there were differences between local responses and state documents regarding the means to achieve increased income. As described in Chapter 4, Vietnam's umbrella policy for the uplands, New Countryside, aims to continue the end of swidden agriculture by modernizing rural areas like Hương Hiệp, connecting household farms to industrial production (Vietnam Government 2008a; Vietnam Government 2016b)[18]. Ending swidden agriculture and participating in tree planting efforts were seen by the government as a means to raising rural incomes. The Five-Year Socio-Economic Development Plan (2016-2020) notes the following: "Consider the protection and development of forests as a key solution to create jobs and raise incomes [in poor, rural areas]" (Vietnam Government 2016b, 81).

Additionally, redistribution of the population for the purposes of central planning and to "rationally organize the daily life of inhabitants in mountainous areas and rural villages and hamlets" (Vietnam Government 1998), or, in other words, "replan the dispersed population in mountainous areas" (Vietnam Government 2016b, 81), continued to play a role in the state's plan to develop the uplands. In the government document outlining the 135 program, the primary mechanism for the poverty reduction aspects of New Countryside under the NTP-SPR

[18] In response to interview questions about how to improve the hamlet overall, many families expressed a desire for better roads in their hamlets – one goal of New Countryside was improved infrastructure. During the months I lived in ĐaKrông district, I saw two sections of previously eroded and muddy hamlet roads in Phú An being paved. This was something that participants specifically desired. Despite this particular alignment of local desires and government-funded results, the meaning of livelihood improvement among residents of Hương Hiệp and among state officials were not always in lock-step with one another.

subprogram (World Bank 2017a), the tasks of the program describe population redistribution as a way to create the conditions to stabilize lives and production in the uplands (Vietnam Government 1998). Through centrally planned population areas, agricultural production and forestry could then be increased in association with markets and industrial processing (Vietnam Government 1998). By contrast, residents in Hương Hiệp displayed no interest in moving away from their homes, and they expressed concern for the increasing population in their area. Prior ethnographic research mentioned in Chapter 4 has indicated a strong tendency among Vân Kiều in Quảng Trị to resist displacement – even through the recent periods of war (Vargyas 2016).

Household participation in both acacia plantations and industrial cassava aligned with Vietnam's New Countryside goals. These changes were also intended (by the government) to bring about food security and a decrease in poverty, fundamental elements of locally perceived wellbeing in Hương Hiệp. As Gábor Vargyas (2017) pointed out, and I noted in Chapter 3, modernity and wellbeing are not the same thing – particularly among Vân Kiều. The primary motivation in growing cash crops was not to "become modern", or to "settle", or even to replace *rẫy*. Residents of Hương Hiệp adopted acacia and cassava, often replacing their traditional *rẫy* crops in order to pursue better food security and a higher income for their households.

While a chi square analysis described above did not find an association between acacia production and food security, overall, the majority of participants reported that new crops like acacia and cassava were beneficial and improved their overall household economy. In fact, those who expressed dislike for the development programs desired *more* access rather than less. As Owens (2013) found, smallholders incorporated new crops and market integration within the cultural context of their own history of swidden agriculture. While household hilly areas that were surveyed and titled as "forest lands" were supposed to be planted repeatedly with tree

crops, the introduction of cassava allowed former swidden farmers to rotate and intercrop acacia and cassava together in an advantageous way that was not the intention of the reforestation program. This opportunistic household decision making that utilizes the knowledge and skills of a traditionally swidden farming culture represents a form of engagement with the government that is not a direct criticism of power or an unwillingness to change but rather a tacit negotiation (Forsyth 2009). Rather than wanting to pursue agricultural intensification to increase production, residents maintained a swidden farming perspective of extensification and crop rotation as a means to bolster agricultural production.

Finally, success in Hương Hiệp was not just a question for individual families and individual farms. People there also had desires to improve the hamlet as a whole. Repeatedly I heard from interviewees that they wanted better infrastructure: roads, bridges, fresh, clean water, and public meeting houses. Despite the centrally planned rural development policy of New Countryside, the day-to-day movements around the hamlet remained challenging. Secondly, people wanted to be more organized and coordinated with their neighbors. "I want a master plan," one man suggested, "one that is suitable for the condition of this region" (3PA Interview 2). One young father explained his wish for improving his hamlet in this way: "I want people to learn from others who work successfully – to learn from each other" (11XR Interview 2). Interviewees expressed the desire for more plans for the hamlet and more knowledge to take advantage of the lands they had.

Gender and Sustainability: Alternatives to Male-Dominated Acacia Plantations

A delay in growing acacia after harvesting, or a decision to grow another crop that does not protect the soil from erosion, like cassava, could create problems for soil fertility. Long-term

studies of acacia plantation sites in Southeast Asia show that soils are most vulnerable to damage from the time of harvest until canopy closure of the next rotation (Griffin et al. 2015). The time between the acacia harvest and canopy closure of the subsequent crop was exactly the timeframe that a lack of access to saplings extends. Households with limited access to saplings postponed their plans to replant acacia in favor of cassava or in favor of leaving the land uncultivated while awaiting another government reforestation project.

One possible avenue for Hương Hiệp residents to learn from each other to pursue improved livelihoods is to examine creative ways women diversify the family farm and creatively develop the family home-garden. In Hương Hiệp, women were primarily responsible for taking care of small livestock, like chickens and pigs, fuelwood collection, the cassava cash crop, and the home-garden. Several examples from my fieldwork point to ways in which women's everyday efforts to sustain their livelihoods provide insight into managing livelihood sustainability (Elmhirst 2013; Wutich 2012). One woman explained to me that although her family registered for one hectare of acacia plantation, they only received enough saplings for half that areas. But she was able to collect acacia seeds while out gathering fuelwood. She said, "I was able to get the seeds from the forest, I collected the seeds…It is easy to collect the seeds while collecting fuelwood for my family" (8XR Interview 2). Figure 6.2 shows her collected seeds in a small plastic bag. In this way, her household's costs were lowered because they would not need to purchase additional saplings or wait for another tree planting program to come to her hamlet. This was the only case of seed saving that I encountered. In fact, sapling cost, along with lack of land, was repeatedly cited as a reason that households chose not to grow acacia.

Others as well developed the home-garden into a multiple use subsistence activity that not only included foods for the family, but also a few small cash crops like coffee trees and

tobacco plants (15XR Interview 1). One woman said that buffaloes and cows had killed all of her household's acacia saplings on the hill, as many houses reported. In response, she had maintained a few acacia trees near to the house in the home-garden area (6XR Interview 2).

Figure 6.1 Acacia seeds collected by one household.

Conclusion: Politics and Process of an Improved Livelihood

Though there was an initial interest in acacia tree plantations when the crop was first introduced to Hương Hiệp commune, that interest has recently faded in favor of industrial cassava. The everyday politics (Bonnin and Turner 2011; Kerkvliet 2009) of local access to land assets and livelihood improvement programs have limited which households could participate in acacia plantations and other agricultural extension programs. The downstream effect of this

differentiation of access to the acacia program is that those households that successfully grew and harvested acacia subsequently turned a profit, while those who never had the chance to participate did not. Some families used their profit to pay back loans, while some families invested in their house or farm. One person explained their benefits as helping the family much later after the acacia is planted: "[b]efore we received benefits [before acacia], the children did not have [enough] clothes…We sold the acacia and bought a goat, and now we have eight goats...so that is the benefit of the assistance program" (8XR Interview 2).

The genetically modified industrial cassava, however, was broadly appealing to both land-rich and land-poor residents in Hương Hiệp commune and more equitably and quickly shared between households. This transition, and the way in which households share cassava saplings, demonstrates a move toward more broadly accessible crop for agricultural intensification, at least in the short term. More households were able to work with cassava in limited space and with limited financing compared with acacia.

This chapter highlights the opportunities and challenges associated with livelihood changes when small-scale farms integrate with industrial, market-integrated agriculture. In order to better understand how households, respond to these changes, the research examined local perspectives on new crops and efforts to improve one's life. In the case of Hương Hiệp, acacia plantations were only sustainable when they were clearly improving the overall income of families. Once it became clear to residents that cassava provided a higher income, households planted cassava on lands that had previously grown acacia.

Smallholders sometimes perceive hardships with new rural development as coming from local power rather than broad state policies (Tran 2009). In the case of Hương Hiệp, families who were not invited to training programs, or who did not receive promised benefits, perceived

that access to project benefits was also mediated through local power relations. Despite the association between lower food security and invitation to attend agricultural development programs, those who did not receive invitations felt that they were poorer than their neighbors who were able to take part in agricultural development programs and access the non-income benefits associated with those programs.

When I asked participants what they wanted to improve their family, most frequently, they expressed the need for more money and a desire to develop the farm with more crops and livestock. Additionally, when I asked participants how their hamlet could be improved, the most common response was improved agriculture and central planning to work together toward a common goal. The centralized efforts in Vietnam's "New Countryside" policy to modernize agriculture through the building of local roads, the support of new cash crops, agricultural trainings, and micro-credit loans for agricultural purposes seem to support these local priorities for improved livelihoods. Most of these interventions, however, were allocated to individual households – those who have the appropriate resources or connections. Development projects aimed toward sharing knowledge and promoting more crops and seeds that can be shared horizontally could broaden access to development and strengthen household connections within the hamlets.

The trend of transitioning cultivation from acacia to cassava seemed to introduce more equity, spreading between households rather than just from programs to households. Families in Hương Hiệp quickly adopted and shared access to cassava plants among themselves. People saw cassava as better than acacia because the crop was easier to grow, they could harvest it for profit more often, and they could easily share cuttings between neighbors without the need for a project to donate saplings.

However, industrial strains of cassava can be harmful to the environment for a few reasons. First, it degrades the soil over time. Only three cycles of cassava can be grown before the soil becomes too depleted to continue without external inputs like fertilizer or rotation to another crop. Secondly, concerns about fertilizer contaminating the water supply were prominent. People were already concerned for their water quality, and the addition of outside pollutants would further damage drinking and bathing water supplies without further development of safe water infrastructure. Undermining the natural resource base of rural livelihoods ultimately reduces the resilience of those livelihoods, albeit differentially, across the hamlets by rendering those livelihoods unsustainable. The following chapter discusses the local wellbeing inequalities that were amplified by the introduction of cash crops and the barriers to livelihood improvement that were variously expressed and contested by residents of Hương Hiệp.

CHAPTER 7

COPING STRATEGIES IN THE CONTEXT OF CHANGING LIVELIHOODS AND CLIMATE

Introduction

This chapter examines barriers to livelihood improvement for residents of Hương Hiệp and the coping strategies used to navigate risks to their wellbeing. Livelihood improvement practices for some households could decrease the livelihood resilience for others. Residents of Hương Hiệp viewed "improvement," introduced in the prior chapter, as expanding the farm and raising more livestock as money allowed. These actions, people believed, would increase their family's wellbeing. I will outline four barriers to livelihood improvement in Hương Hiệp: access to money, access to land, land degradation, and extreme weather events. Then, I will examine embodied outcomes of unequal wellbeing in Hương Hiệp – food and water insecurity – and the ways households cope with risks to their wellbeing. The chapter concludes by contextualizing people's efforts to navigate livelihood changes while being exposed to extreme weather events like tropical storms, floods, and droughts, which are predicted to intensify as climate change continues.

Barriers to Livelihood Improvement

Barriers to climate change adaptation refer to "obstacles that can be overcome with concerted effort, creative management, change of thinking, prioritization, and related shifts in resources, land uses, institutions, etc." (Moser and Ekstrom 2010, 22027). Social barriers may

seem like limits – like absolute thresholds – but in fact can be overcome with sufficient political will, social support, resources, and effort (Adger et al. 2009; Moser and Ekstrom 2010). In this section I will discuss the barriers to households attaining locally perceived livelihood improvements, an element of livelihood resilience. Under livelihood resilience, livelihood opportunities and wellbeing are either "sustained or improved" (Tanner et al. 2015; Quandt 2017). Like barriers to climate change adaptation, barriers to livelihood resilience, described in each of the sub-sections below, present obstacles. In the case of livelihoods in Hương Hiệp, these barriers obstruct the household's ability to sustain and expand the family farm and invest in livestock.

When Sửu and I met Mr. Thinh for our first interview at his home, he and his wife invited us in for tea while we talked. Their traditional, single-room, bamboo thatch house was about four feet off the ground, up on cement pillars. We climbed the wooden, three-rung ladder, slipped our shoes off on the landing, and stepped inside. One end of the house served as the sleeping area, where blankets were rolled up and stored for the day. On the other end, there were household goods and a television. In front of it sat a wide and shallow basket of rice, their harvest for the year from just one *sao*[19] of rice paddy. Figure 7.1 shows the rice basket in Mr. Thinh's home. The couple and their five children expected that they would finish that rice within just a month or two, and with income from hired labor jobs and the sale of their small cassava harvest, they would purchase rice for the remainder of the year.

[19] See page 110, footnote 16 for a definition of *sao*.

Figure 7.1 Yearly rice harvest for the 9XR household. Photo by the author.

When I later returned to conduct a follow-up interview, I asked Mr. Thinh whether he sometimes worried about having enough to eat. He told me the following: "There are many times I worry about the amount of food [we have]. From August to October we are lacking, and we have trouble and worry about food – including rice. Also, before, during and a little after the Tết holiday I worry about food" (9XR Interview 3). Despite diversifying his livelihood by growing three *sao* of cassava and a small 2 *sao* plot of acacia trees, his household's land and labor assets were too small to build the income necessary to invest in a broader acacia plantation or more livestock. Mr. Thinh's family faced barriers to improving their livelihoods, namely access to land and money.

Limited Land Assets

In Hương Hiệp, people considered land a vital and limited resource. One prerequisite to expanding the family farm by growing a large acacia plantation, for instance, was the availability of hill lands. Research on acacia plantations from an upland commune in Quảng Nam province, south of Quảng Trị but also in the Central Region, found that despite differential participation in acacia planting, the entire commune was either directly or indirectly associated with acacia plantations (Thulstrup 2014). The wealthiest households held large areas of acacia plantations while able-bodied members of the poorest households worked as hired labor on those plantations (Thulstrup 2014). Likewise, in Hương Hiệp, acacia was an important factor for non-growers as means of hired labor work.

As the analysis described in Chapter 5 showed, households with hill land assets were significantly associated with having grown acacia. When I asked survey participants if they planned to grow acacia in the future, the primary reason people chose not to was that they did not have enough land. For example, one surveyed interviewee told me that they wanted to grow acacia in order to get income for a better life, but his family lacked the necessary hill lands (27PA Survey). Due to the high cost of acacia seedings and the high labor cost of harvesting, households needed to grow enough trees to cover costs, protect against some expected damages, and make a reasonable profit. Borrowing land to expand and develop the farm was relatively uncommon. Only one interviewee explained that her family had borrowed land to grow acacia previously, and now that was no longer possible (52PA Survey).

Reported purchases and sales of land were rare among participants. There were just two instances when a participant reported buying and selling land among Group A households, and

there were seven instances of reported land purchases among Group B households. One household reported buying a small area of land in 2012 after an acacia harvest. The family purchased approximately 1.5 *sao* of wet rice field to expand their holdings to 2.5 *sao* (14PA Interview 1 and 2). In another case, a participant told me that her neighbor sold some land to one of their own sons (8XR Interview 4). While this reported sale was hearsay, it also appeared to be a hereditary transfer more than a sale. Table 7.1 outlines how households in Group B acquired their land. Overall, most land was passed down between family members, and older household heads often reported clearing their own lands in the 1970s and 1980s.

I expect that land sales and purchases were underreported. While finishing some tea and talking for a short while after one of the semi-structured interviews, the same woman who reported that her neighbor had sold land told me that many families had much more untitled land than they were reporting during interviews (8XR Interview 4 Notes). Whether or not this is true, this exchange tells me that this woman considered land assets crucial and sensitive among households in Hương Hiệp.

Table 7.1 How Group B Households Acquired Land

How Household Acquired Land	Wet Rice	Upper Field	Hill	House/Garden	Other
Passed Down	16	16*	16	33	2
Borrowed	1	6	2	4	3
Rented	0	0	0	0	0
Cleared Yourself	8	8	12	7	6
Allocated	0	1**	0	2	0
Bought	1	1	0	5	0
Exchanged***	0	0	0	3	0
Unknown	0	0	0	4	0
Total (n=57)	26	32	30	57	11

Note: *One household expanded the lands that were passed down to them.
** When the family arrived in the area and married in 1987, the commune gave them a little land to grow rice. This used to be the practice when households married or arrived to set up their house. Now there is not enough available land to continue this practice.
*** Land exchanges were not originally on survey, but some interviewees reported that they had traded lands with another family.

Indeed, when I asked the household who had bought a rice paddy about changes to their land in a later interview, the land sale was not mentioned (14PA Interview 4). One of the two households who reported taking out a loan to buy some land only discussed this when asked about loans and not when I asked about land specifically (49PA Survey).

The limited evidence here of land transfers and sales in the livelihood survey should not obfuscate local contestation and concerns over the "local land grab," introduced in Chapter 4. Through the implementation of acacia tree planting programs, formalized land titles froze land ownership in the hills. While many interviewees reported that their anxiety about others "taking their land" was one reason to seek out official land titles, others felt regret and frustration that their grandparents' land had been claimed by another household (8XR Interview 4, quoted in Chapter 4). For many, the tree-planting programs became an opportunity to exert land claims, particularly in areas where it was uncertain what land belong to whom (McElwee 2016). Among

the concerns raised by land grabbing is the development of unequal patterns of accumulation and classes along divisions in land ownership: a class of landless laborers and one of landed farmers (Akram-Lodhi 2004; Akram-Lodhi 2010; Beban and Gorman 2017).

Access to Money

Access to money was an often-cited reason interviewees gave for not developing their family farms or investing in livestock in the ways they wanted. When income from hired labor work or harvest profits were not sufficient or available, households could take out a bank loan to temporarily access more money. As discussed above in Chapter 6, participants in acacia tree planting programs received a land title for the hill lands registered to be reforested. Households could receive land titles for their other land assets as well, and many interviewees mentioned that the commune was issuing a title for their upper field lands at the time of research. With long-term land holdings, households could leverage their land titles as collateral to access formal credit from banks.

Bank loans enabled households to temporarily overcome capital restraints on people's efforts to improve their livelihoods. These loans were used for larger investments and debts such as livestock purchases, weddings, building a cement house, and, occasionally, for school fees. Most loans were five-year terms, requiring interest to be paid each month. Poor houses (with government "poor house" certificates) could access loans at an interest rate of 0.65%. While loans enabled families to invest in livestock or a firm house, both of which were perceived as important improvements, loans brought risk and uncertainty.

Of the 57 surveyed households, 42 had a bank loan (74%), and an additional six households had taken out a loan in the past. Of those with a loan, 15 households (36%) did not

know how they would pay back the loan; four of those households had had a buffalo or cow die before they could sell it to pay back the loan. Crop damage or loss of animals due to cold, flood, or disease caused considerable stress – particularly to those who were counting on profits to pay back a bank loan. For example, one family had taken out a loan to buy a buffalo to raise and to buy a motorbike. They expected to sell the buffalo for approximately 10 million *Đồng* (about $500 USD in 2013). Unfortunately, the buffalo died, so they were only able to sell it for 2 million ($100 USD in 2013), which left them without a clear plan for repayment (46XR Survey).

The risk of chronic indebtedness or asset seizure threatened to widen the gap between more and less well-off households. Akram-Lodhi (2004) warned that a widening gap between rich and poor in Vietnam's rural areas along with land market pressures was already causing the emergence of a class of landless wage laborers in rural Vietnam. Relatively poorer households may decide to liquidate land holdings for many reasons including climate shocks, loan debt, ill health, land degradation, and wage labor (Akram-Lodhi 2004). While land titles can provide the important rural development goal of gaining access to credit (Deininger and Feder 1998), the risk is enormous when people do not have a clear plan for paying back the debt. Households may risk losing their land if unexpected shocks like health problems or livestock deaths put them over the knife's edge. For instance, one survey interviewee explained to me that she had borrowed 20 million *Đồng*[20] ($1000 USD in 2013) for a buffalo and a cow, but her son had had an accident in which other people had been injured. She had had to sell her cow to pay back the other family for the injuries. She did not know how to pay back her loan and told me she might have to give her land to the bank (42XR Survey). This type of indebtedness was particularly risky for elder households and those with people who could not do hired labor work for whatever reason.

[20] When I asked about how much money she needed to pay back, the participant said 21 million *đồng* – the extra being because she had not paid her interest on time.

Without access to hired labor income, land assets were and important base of livelihood security. Families could rent their land, receiving a share of the harvest for themselves.

Pastures or Forests: Land Use Conflict in the Hills

Swidden fallow lands were long used for diverse livelihood activities, and the so-called "barren lands" targeted for reforestation were traditionally utilized actively, particularly by households without significant landholdings (McElwee 2016). Chapter 4 described some of these activities which included collecting medicinal plants, gathering fuelwood, and grazing animals. One man described grazing his cow in the following way: "We just take in anywhere with grass. We use other people's wildland" (8PA Interview 4). However, once households began to plant their hill lands with acacia, multi-use pasture areas and young, fragile sapling fields overlapped.

Many households who had grown acacia expressed their frustration that crops were damaged, and that their time, money, and the opportunity to otherwise cultivate the land productively were lost due to animal damage. One man told me that his household had tried to grow acacia three times already, but the saplings had all been damaged by people grazing their animals in the hills. He said, "I'm tired of trying to grow trees. I want to grow them, but I would have to protect them with a fence" (44PA Survey). Another person echoed this feeling, saying, "I want to grow acacia, but there are many buffaloes, so I would need to build a fence" (45XR Survey). Others reported that even when they did fence in certain areas of their fields, the fences were knocked down. People's perceptions of increased animal damage were supported by increases in animal populations. The numbers of large livestock were increasing in Hương Hiệp in years prior to this research. According to the People's Committee of ĐaKrông summary

report on Hương Hiệp, the commune had 780 buffaloes and 730 cows in 2005. By 2011, there were 1,039 buffaloes and 1,075 cows (UBND Huyện ĐaKrông 2012). Crop damage from animals in the hills effectively decreased some households' access to land resources by limiting the usable area, as one interviewee noted: "Because there are many buffalo and cow, we do not use land on the hill any more. Also, the hill lands are so far away" (4PA Interview 5).

Animal damage was widespread, despite efforts by the community to reduce these negative impacts by introducing a financial penalty for people whose animals did crop damage and by maintaining community grazing lands. The penalty did little to mitigate damage, since most damage occurred on fields far from the households, and it was unclear whose animal had done the damage. Of those who owned a cow or buffalo (35/57), 20 used the community lands to graze them. Despite the allotted space for grazing, buffalo and cows clearly damaged a broader area. One person lamented that their rice was damaged by buffalo because their land was far from the house (56PA Survey). Another said that they would not harvest acacia again because they had lost all their money: 100% of the saplings had been damaged and they could not harvest them (30XR Survey). Of those in Group B who had grown acacia, only 4 (N=37) said that they did not experience any damage from buffalo and cows. Also, buffalo and cow damage extended beyond trampling and eating young saplings. One interviewee told me, "our acacia was damaged from buffaloes and also from people who cut the trees and took them home to make a house for their animals – but we don't want to confront them" (50PA Survey). Clearly, the hill lands remained areas of contestation over land use rights despite attempts at formalization through land titles.

Although there appeared to be a high level of frustration about the problem of animal damage, many households wished to broaden their livestock numbers as a relatively easy way to

increase their family income. As discussed in Chapter 6, having large animal livestock was positively associated with food security. Also, although acacia sapling damage represented a large loss for a family farm, people did not appear to want to confront their neighbors about damage to their acacia[21]. Rather, they preferred to alter their behavior, adapting to the situation in the hill lands by leaving those areas fallow. While this animal damage constrained households' ability to expand their acacia plantations in the hill lands, those without hill lands to utilize fallows has they had prior to the introduction of acacia.

Land Degradation

Another aspect constraining livelihood improvement and resilience was the erosion of the households' land productivity. Although industrial cassava was an excellent way for households to quickly and effectively make a profit, it was widely described as hard on soil quality. As soil quality decreased, input costs increased for the same crop returns. Interviewees described cassava as fast-growing and profitable, but they could only raise cassava three times before the soil would not sustain another crop. Some households responded to this limitation by intercropping with acacia. Others chose fertilizer. "It affects the productivity if we do not use [fertilizer]", one woman said. "It affects the productivity if we do not use it – cannot afford it…We worry about the soil after the cassava and worry we will need more fertilizer. After three years we will need fertilizer" (8XR Interview 4).

When I first arrive in Quảng Trị, before I had decided to work in Hương Hiệp, an environmental scientist from Hanoi took me on a rented motorbike through ĐaKrông province so

[21] A more well-off family had an entire cassava crop stolen from their fields (50PA Survey). The woman with whom I spoke about her family's stolen crop said that people told her she was too rich, and she did not need the profit from cassava as much as others did. Yet, she did not want to confront those who stole her crop.

that I could be introduced to various officials. As we drove on the mountainous road west of Krông Klang town, he called back to me, "the local people here should not plant cassava! Cassava is bad for the land" (Field Notes). Residents of Hương Hiệp were well aware of the land degradation effects of cassava and the high cost of fertilizer. Despite these problems, the cassava processing factory reliably bought the crops from farmers in Hương Hiệp, the growing time was much faster for families than acacia, and the profit margins were larger. As one person told me, "[i]f we do not grow cassava we do not know if we can eat" (43PA Survey).

This section has provided an explanation of the barriers to livelihood improvement as perceived by residents in Hương Hiệp. The following section will examine risks to wellbeing that people faced, and it will examine the coping strategies employed to mitigate those risks.

Food and Water Insecurity: Coping with Embodied Risks

Coping strategies, activities or responses undertaken by households or individuals during times of stress, are central to livelihood resilience (Quandt 2017; Mosberg and Eriksen 2015). These strategies "can be spontaneous, but often involve planning and preparation for certain shocks" (Quandt 2017, 39). Researchers examining coping strategies have long recognized the centrality of social capital in adaptive capacity and coping with risk (Adger 2003). I mentioned food borrowing and water sharing in Chapter 5 above, and those are cases in which households use their social capital to buffer from hunger and thirst. In this section I delve into greater detail regarding the various coping strategies employed by people in Hương Hiệp to buffer themselves from food shortages (seasonal and unexpected) and protect themselves from limited or harmful water sources.

Residents of Hương Hiệp were deeply worried about having enough food to eat. Several people described their stress as being so intense that they could not sleep. Even those with reportedly mild food insecurity worried about their food on a day-to-day basis. In my field notes for one household I wrote, "each day they do something to make money and buy food to eat for that day. They are always borrowing money for food. And, when they sell cassava, they have to pay everyone back. They would like to improve everything about their farm – they would especially like to have a well – but, they are satisfied with their new [cement] house" (26XR Field Notes).

The median food insecurity score[22] among surveyed households was a 3 (out of 4), moderately food insecure. This meant that at least one person in the household skipped meals between one and ten times per month. Nineteen households (33%) were moderately food insecure. Nearly one fifth of surveyed households (11/57; 19.3%) were severely food insecure. Being severely food insecure meant that at least one member of the household skipped meals at more than ten times per month, or at least one member of the house sometimes went an entire day without food. Taken together, over half of surveyed households in Hương Hiệp had family members regularly skipping meals and feeling hungry on a consistent basis.

People employed several strategies when their household's stored rice was getting low. Skipping meals was one of the strategies people used. Other strategies included stretching rice by making porridge or mixing rice with sweet cassava and sweet potatoes from the home-garden. One man I spoke with had just been married the year before. He worried about having enough money for rice because he decided to grow cassava instead of rice. While discussing food security, he said that many times throughout the year he and his wife ate half cassava and half

[22] See Chapter 2 for a detailed description of the food insecurity score and the development of the variable *FoodInsecurity*.

rice.[23] While he did not know what they would do if they produced less cassava than expected, he said that he hoped people would give them rice. He said, "Before we grew rice… and now we do not grow rice and every month I worry" (41PA Survey). Another participant had been married for 6 years, but she and her husband had just moved into their own house within the last year. She explained that because they have no land to grow rice, they need to buy it each month. If they lacked rice, then they did not eat rice or did not eat at all for a meal (47PA Survey).

In the livelihoods survey, I asked the question, "If your crops were not growing well this year, and you produced less food than you expected, what would you do?" The most common response was that people in the house would find work as hired labor. Thirty-three interviewees (57.9%) said that people in their house would first look for any kind of hired labor work to make money and buy additional food and rice. This response emphasizes how important hired labor jobs were as sources of income and as ways to cover gaps in subsistence. Chapter Five went into greater detail about the gendered nature of hired labor work and its widespread importance as a primary income source for families in Hương Hiệp.

The next most common response to the survey question was that families expected to borrow rice or money to subsist in lean times. People borrowed money to buy rice or they received rice from their family, neighbors, or, as one man said, "I borrow rice from anyone because if I do not eat, then I will die" (36XR Survey). Some interviewees said that their household borrowed money from the hamlet store or even from the factory that buys the industrial cassava. Then, after the household harvested the cassava, they repaid their debts.

Other strategies to make ends meet when rice ran low, or during expected seasonal shortages, included the following: finding something in the forest to sell, selling vegetables from

[23] Cassava is a non-preferred alternative to rice.

the home-garden, or getting money from small livestock like pigs and chickens. These strategies were primarily practiced by women. Additionally, many people ate sweet cassava and sweet potatoes alone (as opposed to mixing with rice) from the home-garden as emergency food stocks (6XR Interview 3). Five interviewees simply said, "I do not know what I would do."

Water Pollution and Scarcity

When I drove my motorbike out onto the side roads and trails that wound through Phú An and Xa Rúc, the frequent stream crossings and muddy, low-lying paths challenged my novice driving abilities. One stream in Xa Rúc gave Sửu and I trouble one day in May. The hot, morning sun beat down, and the stream was relatively low. One woman stood calf-deep in the water washing clothes, two children playing nearby. We got off our bikes and pushed them through the stream and, in a move that I did not enjoy, drove them up the steep river bank while scrambling next to the bike to keep up. Figure 7.1 shows this troublesome stream crossing in October, after the rainy season had begun.

Access to clean, safe drinking water was a major concern among households in Hương Hiệp, despite living in a river valley surrounded by streams. While, many households shared access to well water for drinking or piped water down from the mountain, one third (19/57) of surveyed households relied on stream water for drinking. Over half (23/55; 41.8%) said their drinking water was not safe. Those who said their water was unsafe cited fertilizers, pesticides, and animal manure as making their streams too polluted to use for drinking water. One of the strategies people used to avoid drinking polluted water was to use different sources of water for drinking and cooking as opposed to bathing and laundry. However, even using local, polluted streams for bathing could be difficult. One interviewee told me that her family got drinking

water from a neighbor's well and considered that water safe. But they bathed in a nearby stream, and she said that the water was not safe. "When we take a bath in the stream we get rashes on our skin" (26PA Survey).

Figure 7.2 Xa Rúc stream crossing in October. Photo by J. Brent Vickers.

Likewise, another interviewee told me that they got their water from a pipe that brought down clean water from a mountain stream. However, in the summer time, the water flow decreased and there was not enough to bathe. She said, "in that case we have to use the water in the stream – to take a bath and wash. But, the stream water is very dirty, and we can feel our skin is affected when we bathe there" (6XR Interview 3). Families knew that water sources from the mountain streams were cleaner, and the most sought-after water sources were systems that piped water down from the mountain streams to the hamlets. Ten households in Xa Rúc worked

together to build such a water system. They worried, however, that a new quarry in the area could cut off their water, and they planned to request that a well be built by the quarry company (13XR Interview 4). Water systems were also vulnerable to weather damage. One interviewee reported that his water system had been damaged in a flood and was never replaced or repaired (2PA Interview 3).

Droughts were also a great cause of concern for the availability of clean drinking water. Two thirds of survey interviewees (37/57; 64.9%) reported that there were times during the year that their usual water source ran dry or was limited. Some had to walk farther to use a larger stream, and many described "digging down" in the streambed to collect water during summer months. In some cases, interviewees whose neighbor had a well said that they would ask to share the well on a short-term basis. However, in particularly dry times, even wells ran dry in Hương Hiệp. Rainy season floods and storms could also limit the availability of drinking water by overflowing streams. Several interviewees said that during those times they try to collect rainwater for drinking.

Acacia plantations exacerbated already limited sources of clean water by reducing the flow of nearby streams (Kull et al. 2011; Nambiar et al. 2015). As noted in Chapter 6, one interviewee specifically mentioned acacia as causing his family's water source to decrease in flow. While he still uses the same stream, he explained that his family used to be able to collect a lot of water at once, but it became more difficult to get enough water, and it took a longer amount of time. His family too had to dig down in the streambed to find water during the dry season (9XR Interview 3).

This section examined coping strategies to wellbeing risks among households in Hương Hiệp commune. While cash crop production was widespread, as described in Chapters 5 and 6,

the negative environmental effects were bodily felt by certain households and not by others. Those with limited access to water, especially those requiring stream water for their household's needs, risked pollutants, skin rashes, and thirst while neighbors used fertilizers and pesticides on cassava crops and acacia plantations drew water from the mountain streams. Having a robust asset base, particularly in land assets, provided a platform from which to manage risk more effectively (Eakin et al. 2012). Those with limited land assets for rice and cash crops – as was the case with Mr. Thinh's household described at the beginning of this chapter – relied on borrowing, credit, or working as hired labor, which was seasonal and relied on the household having able-bodied workers of the right age range. The next section in this chapter, also examining coping strategies, focuses on the overarching environmental context of climate change.

Coping with Climate-Related Risks

Extreme weather events like tropical storms, floods, and drought limit household's ability to improve their livelihoods by damaging crops and even killing livestock, lowering households' food and water security. Typhoons already impact Hương Hiệp yearly, and many people there have been unable to protect their fields or forests from severe storms. To protect their homes, people tie down the room and secure the house as best they can. Having a firm, cement house was something that most residents wanted for their increased security and safety during storms. One man, who lived in a new cement house, expressed his feelings about storms in the following way: "During storms I feel out of control. For a long time, I did not know how to protect the family. Now we have some protection" (3PA Interview 3).

Recovery from storms depended on the degree and type of damage. While people in Hương Hiệp helped each other rebuild their homes after bad storms in the past, it was more difficult to recover lost assets, like livestock. As one woman explained, "we want a firm [cement] house to protect us from storms, but we cannot protect the field and forest" (6XR Interview 3). After a storm, one man explained, "a group of young people from the hamlet come to help repair people's houses." He continued, "if a storm happens and the plants break down, we will replant them. But if some animals die, we will not have money to raise new ones again. It takes a long time to get the money to buy animals" (5XR Interview 3).

Seasonal flooding was also prevalent in Hương Hiệp. One man reported that he loses 50-60% of his rice field to flooding each year (7PA Interview 3). Floods are expected to worsen with climate change due to predicted increases in precipitation during the rainy season (McSweeney et al. 2010; McElwee 2017). Another problem with flooding is the risk of landslides. "Because we live near to the hillside we are afraid of the rocks from the hill. When it rains heavily, we watch out for landslides, and in the rainy season if it rains a long time then we do not go out to the field or forest" (6XR Interview 3).

Conversely, drought was another major concern in Hương Hiệp, with people feeling that they have "no way to defend against it." Certainly, droughts impacted people's ability to access water for daily use in the household, as discussed in the section above. Droughts are also expected to worsen over time due to decreasing precipitation during the dry season (McSweeney et al. 2010; McElwee 2017). One man said that they have no way to plan for drought, so "we can only grow one crop of rice" (3PA Interview 3).

Change in weather patterns could also put livestock at increasing risk for diseases. Currently households rely on governmental programs to provide vaccines and antibiotics for

their livestock (3PA Interview 3). With livestock playing a pivotal role in perceptions of livelihood improvement, food security, and the ability to pay back bank loans, livestock disease was a serious concern for livelihood sustainability and resilience. For example, one man explained to me that he had planned to sell chickens to get money for rice, but 139 chickens and 18 ducks had died from disease in one year. He asked the hamlet for help but received none (53PA Survey).

Many interviewees expressed a desire for more assistance from the local government, especially during recovery from animal disease, typhoons, and droughts. But, governmental responses to the various shocks described in this section were inconsistent, and assistance was not perceived as a guarantee or insurance against future losses. In their discussion on local governmental responses to disasters in Vietnam, Ian Christoplos and his co-authors (2017), in agreement with Jesse Ribot (2014), note that disasters create pressures to reassess moral judgements about how to best prepare and respond. However, they continue by arguing that disasters do not lead to holistic thinking on the part of local officials. Rather, the social contract between local officials and hamlet residents for responding to the effects of climate change is being actively contested and renegotiated amid, among other elements, mixed directives, natural disasters – like typhoons – and high-risk plantations (Christoplos et al. 2017).

Conclusion: Everyday Politics of Livelihood Resilience

This chapter examined differential barriers to livelihood improvement and risks to household wellbeing. Barriers ranged from land and financial assets to the undermining of the natural resource base by land degradation. Additionally, I found that local contestations over land rights and land use remained, despite the introduction of formalized land use certificates

(LUCs). These contestations consisted, in part, of everyday decisions among residents in Hương Hiệp to bring their livestock up in the hills to graze among fragile acacia saplings or even to harvest acacia trees from another household's plantation. These illicit acts directly affected the livelihood resilience of neighboring families. Mosberg and Eriksen (2015) discussed illicit coping strategies as ways that people assumed authority over their own circumstances and resisted what was socially acceptable. The long-term implications of these illicit strategies could be contradictory and unpredictable, particularly in terms of social differentiation and vulnerability (Mosberg and Eriksen 2015). Their work and the case of animal damage and crop theft described in this dissertation demonstrate the everyday politics emerging from local inequalities in the context of mounting livelihood stresses. Local assertions of power by certain households first claiming hill lands through land titles were met by more covert actions of certain households reasserting their own land use on the hills. The continual push and pull of local contestations and inequalities in Hương Hiệp created a microcosm of livelihood resilience trade-offs. Not only are trade-offs found in resilience management decisions (Lebel et al. 2006), but also in the everyday politics found in local struggles to sustain and improve livelihoods.

Transitioning away from subsistence farming may leave marginalized households, particularly those without diversified livelihoods, vulnerable to market changes and unexpected climate events with a limited ability to cope (Cramb et al. 2009; Fu et al. 2010; Thulstrup 2014; Thulstrup 2015; Christoplos et al. 2017; Trinsci 2017). Critiques of acacia plantations point out that they reduce stream flow near plantations, cause extensive soil erosion, provide poor fuelwood, and are vulnerable to blowing over in tropical storms (Kull et al. 2011; Nambiar et al. 2015; McElwee 2016). It has been noted that that this type of monocrop plantation production entailed risks for the rural population that were greater than those associated with smallholder

production patterns of the past (Thulstrup 2014; Christoplos et al. 2017). In conjunction with climate-related risks, acacia could exacerbate farm losses due to storms, intensify the land degradation problem, and further marginalize people with poor water and food security.

The negative environmental costs of raising livestock and growing input-intensive cash crops were borne differentially within the hamlets. Less water secure families, for example, were more physically exposed to fertilizer and pesticides, animal manure, and water scarcity that families with access to wells or mountain stream pipes. While state officials have dissuaded people from engaging in resilient land practices like shifting cultivation (Thulstrup 2014; McElwee 2016), the natural resource base has been undermined by exotic acacia and genetically modified, industrial cassava. Water quality and soil fertility need to be protected to guard against decreasing food and water security in Hương Hiệp. Households exposed to risks to their wellbeing employ various coping strategies from limiting their own consumption to utilizing their social capital to "borrow" food and water during occasional periods of stress. Climate-related risks required both short- and long-term strategies, such as investing in a firm, cement house and protecting animal assets with vaccines or shelters when possible.

Interviewees expressed the desire for some form of insurance to protect their farm investments and to avoid indebtedness in the case of unexpected illness or other circumstance. The state has focused on improving farm productivity through modernization, at the expense of traditional livelihood systems, and safety nets, that could support households as they attempt to cope with stresses and shocks (Ellis 1998), were lacking in Hương Hiệp.

CHAPTER 8

CONCLUSION

Addressing the Research Questions

The objective of this dissertation was to use a case study from upland Vietnam to provide insights into the processes of modernization and development among smallholders transitioning from subsistence to market-oriented agriculture. Three sub-questions guided this research and together addressed the following overarching question: How have Vân Kiều smallholders in Hương Hiệp commune responded to state-sponsored livelihood improvement schemes and their associated effects? This section[24] provides a summary of my research results organized by research sub-question.

Sub-question 1: How has the introduction of acacia and industrial cassava affected livelihoods in Hương Hiệp?

Chapter 5, "Livelihoods in Hương Hiệp," focused on sub-question 1. In examining effects of the introduction of acacia and industrial cassava, I conducted a livelihood survey with 57 households. I assessed subsistence strategies, income-generating strategies, and expenses of households, taking care to analyze differences in activities by gender. I was not able to directly observe differences from before and after the introduction of these two crops, rather, I examined

[24] The structure of this chapter is modeled on "Chapter 9. Conclusions" in Quandt (2017, 210-237).

their importance in livelihood strategies at the time of research, noting that they were recent additions from around the year 2000, in the case of acacia, and 2010, in the case of cassava.

Acacia was not mentioned among the top income-earning strategies by surveyed households, but cassava sales and working as hired labor were each mentioned by 43 households (n=57). Despite not being mentioned as a top income-earning strategy, acacia was important as a means of hired labor job opportunities for non-growers. Traditional hill rice, *rẫy*, was limited to just 13 households and many interviewees said that they had either replaced their hill rice with acacia or cassava or left the fields fallow due to animal damage. While women were less likely than men to work as hired labor or in the acacia plantations, they were slightly more likely to be the primary workers on the cassava crops. Additionally, women played a vital role in day-to-day subsistence by maintaining the home-garden and taking care of small livestock like chickens and pigs.

Overall, cash crops have promoted a shift in livelihood strategies from primarily subsistence to mixed cash-crop agriculture. Because nearly all households grew cassava, I could not meaningfully run statistical analyses to determine associations between household variables and cassava. For acacia, I found that households with hill land assets and those with larger household sizes were positively associated with growing acacia (36 households had grown acacia out of 57 total). Variables not associated with having grown acacia included indicators of economic wealth and wellbeing.

Sub-question 2: How has the adoption of cash crops related to local indicators of wellbeing and livelihood improvement?

Chapter 6, "What is Livelihood Improvement?" focused on addressing sub-question 2. There was uneven access to the adoption of acacia, as evident from the associated land and human assets discussed in Chapter 5. Other agricultural development programs were differentially accessible as well. The outcome of this differential access was unexpected, however. Acacia was not associated with higher levels of food security, a surrogate indicator for wellbeing in this research. In fact, people with *lower* food security were associated with invitations to attend agricultural trainings. Despite the association between lower wellbeing and attendance at agricultural trainings, interviewees who had not been invited to agricultural trainings felt that they were poorer, more disenfranchised, frustrated, and politically unconnected as compared with training attendees. In contrast to acacia and agricultural extension training programs, industrial cassava enjoyed wide participation in Hương Hiệp. Although cassava was easy to grow on a variety of land types and brought a high profit return, it had the potential to put poorer households at risk for damaged soils and indebtedness if higher and higher inputs were required over time.

People with large animal assets, buffaloes and cows, were associated with higher food security scores. This association aligned well with local perceptions of livelihood improvement. I explored the impact of the increasing the number of livestock in Chapter 7. Mostly though, people wanted access to money and saw the increases in access to cash through acacia and cash crops as an improvement over prior subsistence farming.

Sub-question 3: How have residents of Hương Hiệp navigated barriers to livelihood improvement and risks to their wellbeing?

Chapter 7, "Coping Strategies in the Context of Changing Livelihoods and Climate," focused on addressing sub-question 3. Barriers to households expanding their farms and buying more livestock that were highlighted by this research included limited land assets, access to money, contestations over hill land use, and land degradation. Land assets were a difficult barrier to overcome. Few households borrowed or rented land, and many people noted that the only available lands were "far away." While families could access bank loans as a way to invest in their farm, household, children's education, or family event (like a wedding), loans put families without clear repayment plans, or vulnerable repayment plans, at risk. Local contestation over hill lands led to some households self-disciplining and deciding to leave their hills fallow. And, despite widespread buffalo and cow damage in the hill lands, households were moving away from growing acacia and overwhelmingly desired more livestock. Land degradation affected households differently depending on their access to land, access to money, and ability to diversify. With more land available, more well-off families could afford to fallow certain areas of field, or grow acacia, peanuts, or corn instead of cassava as a means to rotate crops and recover soil viability. Costly fertilizers were another option to overcome degradation of soils.

Risks to food and water security were major concerns among residents. Inequalities in food and water access were exacerbated by cash crops that created broad environmental effects and produced specific household benefits. Those must vulnerable to water scarcity, for example, had their water sources limited further by acacia plantations grown near stream sources. The effects of climate change are expected to intensify droughts and flooding, posing further risks, particularly if households depend on non-diversified cash crops. While many households expected

to request help from the local government in the event of a natural disaster, they were also actively pursuing ways to firm their houses with cement and protect their livestock with shelters and medical care when possible.

Conclusions of the Research

At the time of this research in Hương Hiệp there were two burgeoning arenas of conflict and contestation among residents regarding livelihood changes. These had to do with differential participation in agricultural development programs and overlapping land uses in the hills. Despite the association between lower food security and invitation to attend agricultural development programs, those who did not receive invitations felt that they were poorer than their neighbors who were able to take part in agricultural development programs and access the non-income benefits associated with those programs. These perceptions were particularly important given recent evidence that people who saw themselves as being involved in the decision-making process in their community had higher levels of resilience capacity (d'Errico et al. 2017) and that the tangible aspects of responding to unforeseen, adverse events affecting livelihoods were influenced by the way people perceive their own livelihoods, risk, knowledge, and experience (Béné et al. 2016).

Formalization of land claims through forest land titles did not limit contestation over hill land use. Local assertions of power by certain households first claiming hill lands by participating in tree-planting programs and attaining a land title were met by competing, though covert, claims. Many families reasserted their own land use on the hills through illicit, non-socially acceptable practices of allowing their livestock to damage saplings or even by taking the trees from another family's plantation. The continual push and pull of local contestations and inequalities in Hương Hiệp created a microcosm of livelihood resilience trade-offs.

Vietnam's broad "New Countryside" rural development policy is a continuation of the government's long-held goals for the upland region. It envisions rural development in terms of settled farmers, improved infrastructure; more intensive, mechanized farming practices; market-oriented crops; and an agriculture sector linked closely to the rapidly developing industry sector (Nguyen 2015). The policy describes the goal of uniting farmers as "citizens" rather than simply "village farmers," and "revitaliz[ing] the spirit of patriotism, self-reliance and self-improvement of the farmers" (Vietnam Government 2008, quoted in Nguyen 2015, 1). Programs to reforest the uplands in Hương Hiệp promoted livelihood interventions aimed to end swidden farming in favor of forest plantations. These tree planting projects fit within the New Countryside umbrella policy as efforts to settle and modernize upland farmers while promoting production acacia. The New Countryside policy assumes that modernization and industrialization are inevitable and that farmers, especially ethnic minority farmers in upland areas, need encouragement in pursuing these changes.

The idea that ethnic minorities in Vietnam's uplands are recalcitrant, backwards, and harboring outdated traditions dates to colonial times (see Chapter 4), and yet, it persists in the country's latter-day development discourse. My research indicated that people in Hương Hiệp were responsive to recent livelihood intervention programs, but not beholden to them. Households widely integrated new cash crops into their livelihoods as a way to improve their food security and income, not necessarily as a way to become modern and end their traditional practices. When acacia plantations were threatened by internal contestations and livestock damage or if the seedlings provided by the programs failed to thrive, many households rapidly turned from plantations in favor of industrial cassava or left their previous acacia forest lands fallow. As prior research with Vân Kiều has shown, they have always tried to evolve and

achieve increased wellbeing, even by altering religious systems and changing subsistence strategies (Vargyas 2017).

In the transition from primarily subsistence farming to market-oriented farming, marginalized households may be particularly vulnerable to unexpected climate events and market changes (Cramb et al. 2009; Fu et al. 2010; Thulstrup 2014; Thulstrup 2015; Christoplos et al. 2017; Trinsci 2017). People will assume authority over their own circumstances, remaining active agents in adaptation (Mosberg and Eriksen 2015), even continuing illicit strategies as part of efforts to manage barriers to livelihood sustainability and improvement in the context of the changing climate. Programs promoting modernization in rural areas and introducing climate adaptation measures should account for the context of small-scale social differentiation and every day, local-level politics.

Monocropping swathes of upland territory puts households at risk for crop and profit loss. Rather than replacing traditional crops with cash crops and modified rice varieties and industrial cash crops, modern and traditional crops could be complements, not substitutes (Boyce 1996, quoted in Scott 1998). To sustain rural livelihoods in the long term, development projects need to promote diversified livelihoods that support the democratic spread of knowledge and access – for the sake of both people and the land.

Furthering Knowledge

In addition to providing a representative case study of how rural smallholders transitioning from swidden agriculture to market-oriented agriculture perceived and responded to state-sponsored reforestation and development programs, this dissertation furthers knowledge within the guiding frameworks of political ecology and livelihood resilience. It aimed to

integrate everyday politics into specific aspects of livelihood resilience, namely wellbeing and livelihood improvement, through the research analysis process.

Everyday Politics and Livelihood Resilience

Chapter 1 outlined some of the previous engagements of political ecology and resilience, noting that several authors suggested that the two frameworks complement each other's weaknesses (Peterson 2000; Quandt 2017; Quandt 2018). And, they share a common history in responding against equilibrium notions in ecology and society (Turner 2014; Stone-Jovicich 2015). There have also been criticisms by social scientists of way resilience thinking has borne remarkable similarities to earlier functionalist and neofunctional approaches to ecological anthropology which predated post-structural insights on power, knowledge, and discourse (Fabinyi et al. 2014; Olsson et al. 2015). The overarching, common critiques of resilience thinking are that it has ignored power relationships (Lebel et al. 2006; Nelson and Stathers 2009) and internal social differentiation (Fabinyi et al. 2014).

Tanner et al. (2015) promoted a livelihood resilience as an emerging research approach because it focuses on livelihoods and highlights human agency and capacity to prepare and cope with different shocks. The concept of livelihood resilience draws upon earlier work on sustainable livelihoods, and recent work on measuring livelihood resilience has used the sustainable livelihoods framework to do so (Thulstrup 2015; Quandt 2017; Quandt 2018). The five-capital approach to measuring livelihood resilience can highlight how people actively build and accumulate capital in order to prepare for shocks (Quandt 2017). Rather than utilize the capitals approach to create a measurement index, this research focused on local politics to examine ways in which these everyday social processes create barriers or exert trade-offs in two

aspects of livelihood resilience: wellbeing and livelihood improvement. Analyzing rural livelihoods through the political ecology concept of "everyday politics" (Kerkvliet 2009) was a useful way to approach livelihood resilience, focusing on both power relations and social differentiation – two elements commonly lacking in resilience analyses.

Limitations of the Dissertation and Avenues for Future Research

Additional work on land accumulation in this region could highlight and deepen knowledge of local perceptions of land and how it relates to people's meaning and identity as livelihoods change. Also, focused research on social networks with specific attention paid to food and land sharing would improve understanding of how households respond to pressures of modernization in the context of environmental and asset constraints. This dissertation was limited by its highly localized and narrow data collection, as described in Chapter 2. The number of livelihood surveys completed was relatively small and, due to lack of access, I did not conduct interviews with local officials responsible for implementing reforestation and agricultural development projects. Research into regional and international networks as well as short and long-term migration could improve understanding of how Vân Kiều have been able to and continue to exercise agency and sustain their livelihoods in an increasingly interconnected economy. Additionally, more work (like Christoplos et al. 2017) that examines the everyday politics and negotiations taking place in the offices of local officials at the commune and district levels could highlight decision-making around the implementation of New Countryside programs and climate change adaptation measures.

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APPENDIX A

RESEARCH INSTRUMENTS

I used each of the following research instruments as interview guides and for note-taking. I sent initial drafts of each to my research assistant ahead of our scheduled work time. This had several effects. First, it allowed us ample time to discuss each interview guide. This helped to decrease miscommunication between myself and my assistant. Before we started using a new interview guide, we spent a half day going over the instrument in detail together, smoothing the translations as well as we could. Often, after the first few interviews with a new guide, we altered it based on issues that arose in the field. Secondly, with advanced copies of the interview guides, my interpreter could then relay the content of each research instrument to the foreign affairs department - which oversaw my research permission. The government's knowledge of my research content was a key factor in my permission to work in the province. However, I was not asked to hand over data to the government.

I have included here in this appendix five household interview guides and one household survey. In conjunction with using these guides, I audio recorded and took additional notes for every interview conducted – including the livelihoods survey.

Household Interview 1: Demographics and Household Activities

Initial Community Census Phiếu điều tra ban đầu Date Ngày_____
Household Number Hộ số (người nghiên cứu dùng): _____
Ethnicity Dân tộc:_____

Name Tên	Age Tuổi	Married Tình trạng hôn nhân	Number of children Có bao nhiêu người con?	Highest Grade completed Học hết lớp mấy?	Occupation Nghề nghiệp hiện tại	Have you worked outside the village? Trước đây, ông/bà đã từng làm việc xa nhà chưa? (Không hoặc kể tên công việc nếu có)	Of so, where? Nếu có thì ở đâu?	How long were you gone for each work period? Mỗi lần như vậy thì làm xa nhà bao lâu? (mấy ngày…)

Ghi chú:

Free List Guide Bản thảo phỏng vấn theo danh sách tự nguyện
Prompts for Livelihoods Mẫu thông tin cần lấy về sinh kế
I am trying to understand about men and women's different daily activities around how your family makes a living. This includes the work you do at home, in the fields, and in the forest. Tôi muốn biết về các hoạt động hằng ngày của cả nam giới và phụ nữ để nuôi sống gia đình là như thế nào, kể cả công việc mà ông/bà làm ở nhà của mình.

Please list the daily work activities that do you do at home? For example: child care, gardening, raising animals, making food, etc. Ông/bà vui lòng kể tên các công việc hằng ngày mà ông/bà làm ở nhà! Ví dự như: Chăm sóc con cái, làm vườn, nuôi gia súc gia cầm, kiếm thức ăn, v.v.

Male Head of Household Chủ hộ là nam giới	Female Head of Household Chủ hộ là nữ giới

Please list the types of activities that do you do in the fields. For example: Plowing, planting, etc. Ông/bà vui lòng kể tên các hoạt động mà ông/bà làm ở đồng ruộng, nương rẫy của mình. Ví dụ: cày ruộng, gieo cấy…

Male Head of Household Chủ hộ là nam giới	Female Head of Household Chủ hộ là nữ giới

Please list the activities you do in the forest. For example: Fuel wood collection, collecting medicinal plants, clearing trees, etc. Ông/bà vui lòng nêu các công việc, hoạt động mà ông/bà làm ở rừng. Ví dụ: lấy củi, hái câyvà lá thuốc, chặt cây lấy gỗ…

Male Head of Household Chủ hộ là nam giới	Female Head of Household Chủ hộ là nữ giới

In what ways do you earn money? Selling goods, labor in fields, etc. Ông/bà làm gì để kiếm được tiền? Bán hàng hóa, làm ruộng thuê, v.v

Male Head of Household Chủ hộ là nam giới	Female Head of Household Chủ hộ là nữ giới

Free List Prompts for Land Types Mẫu thông tin cần lấy phỏng vấn theo danh sách tự nguyện về các loại đất
I am trying to get a better understanding about how you name and use different land areas. Tôi muốn tìm hiểu chi tiết về cách ông/bà đặt tên và sử dụng các vùng đất khác nhau.

In your own words, what are all the types of land that you can work on? For example: field, forest, grassland, new forest, community forest, aquaculture land… Có những loại đất nào mà ông/bà làm? Ví dụ: đất ruộng, đất rừng, bãi cỏ, rừng mới trồng, rừng già, rừng cộng đồng,

Notes: Ghi chú:

Household Interview 2: Livelihood Decisions

Note: This interview was untranslated. My assistant and I experimented with *in situ* translation after he and I discussed the interview at length. Because there are not many questions, it was relatively easy for him to work with the English version. However, after we finished working with this guide, we decided to translate the remaining instruments. It was easier for both of us if the interview guides included the Vietnamese translations – no matter how comfortable we became with the repetitive questions.

21/5/2013

Livelihood Decisions Interviews – HH2

Questions about Money Decisions

1. I'm interested in how you make decisions about money.

1.1 What do you need to buy or spend money on?

2. Why did you decide to start growing cassava? (has it helped the family?)

    2.1 How much of the cassava do you eat and how much do you sell?
    2.2 Do you think you will continue to grow cassava in the future?

3. Why did you decide to start a tram forest? (has it helped the family?)

    3.1 Do you think you will continue to grow tram in the future?

Questions about Assistance Programs

4. Have you participated in a government or NGO project/program help the family?

If so, what did you receive?
For example: animals like cows and buffalo, tree saplings to plant, house building assistance.

5. How did you first participate in the tree program? For example: how were you contacted to participate?

6. How do you feel participating in the (tree) program has affected your family?

Questions about Wellbeing

7. In your opinion, what is a good, happy, and successful family?

8. What is your wish/desire for your family to make a better life?

9. What is your wish/desire for your hamlet to make it a better place to live?

Household Interview 3: Understanding Investment and Risks

Household Questionnaire 3 24 June 2013
Câu hỏi phỏng vấn hộ gia đình 3 **24/6/2013**

Natural Disasters **Thiên Tai**

1. What types of natural disasters affect this hamlet? (ex. Storms, flood, hail, drought, disease) **Có những thiên tai nào ảnh hưởng đến thôn của ông/bà? (Ví dụ: bão, lụt, mưa đá, hạn hán, dịch bệnh…)**
   1.1 How do you prepare before natural disasters to protect your family and property? **Ông/bà đã chuẩn bị như thế nào trước khi thiên tai xảy ra để bảo vệ gia đình và tài sản của ông/bà?**

2. What do you wish to change in order to improve the protection of your family and property during a natural disaster? **Ông/bà muốn thay đổi những gì để tăng cường việc bảo vệ gia đình và tài sản của ông/bà tránh khỏi thiên tai?**

2.1 Why? What is preventing you from making these changes (ex. Lack of money)? **Tại sao? Điều gì đã cản trở ông/bà thực hiện các thay đổi đó? (Ví dụ: Thiếu tiền…)**

3. Can you remember any years in the past when you experienced particularly bad damage from a natural disaster? What happened? **Ông/bà có nhớ năm nào trước đây mà ông/bà gặp phải thiệt hại đáng kể do thiên tai gây ra? Những gì đã xảy ra?**

4. If a natural disaster damaged your house and land this year, how would you recover from the damage? **Nếu năm nay, thiên tai gây thiệt hại cho nhà cửa và đất đai của gia đình ông/bà thì ông bà sẽ khắc phục thiệt hại đó như thế nào?**

4.1Would you expect to receive help from others (family, neighbors, State)? **Ông/bà có mong muốn ai đó giúp đỡ không (Ví dụ: gia đình, họ hàng, láng giềng, Nhà nước)?**

Water **Nước**

5. Where do you get your daily water now? **Hằng ngày, gia đình ông/bà lấy nước ở đâu?**
   5.1 How far is this water source from your house? **Nơi ông/bà lấy nước cách nhà bao xa?**

6. How safe do you think your water is? **Ông/bà nghĩ nước mà gia đình ông/bà đang sử dụng an toàn như thế nào? (***Is it ok if I change this question into***:** Do you think your water is safe? If not, why?)

7. Are there ever times when you cannot get water from your usual source or there is not enough water for your daily needs? **Đã có lần nào mà ông/bà không thể lấy được nước nơi mà ông/bà thường hay lấy không hoặc không đủ nước phục vụ cho nhu cầu sử dụng của gia đình ông/bà không?**

7.1 (if yes) What do you do during those times? **Nếu có, ông/bà làm gì trong những lần đó?**

8. Has your water source changed in the past five years? (if yes, how?) **Trong vòng 5 năm trở lại đây, nguồn nước ông/bà lấy có thay đổi gì không? Nếu có thì thay đổi như thế nào?**

9. Has the amount of water that you are able to use changed in the past five years? (if yes, how?) **Trong vòng 5 năm trở lại đây, lượng nước mà ông/bà sử dụng có thay đổi gì không? Nếu có thì thay đổi như thế nào?**

<u>Food **Thức ăn**</u>

10. Were there ever times during this past year that your family needed to eat foods you don't prefer or a limited variety due to lack of resources? **Cách đây trong vòng 1 năm, đã có lần nào gia đình ông/bà phải ăn thực phẩm/ thức ăn nào mà gia đình không thích ăn hay hạn chế về sự phong phú lương thực/thực phẩm do thiếu nguồn lực không?**

11. Were there ever times during this past year that you worried your family would not have enough food? **Cách đây trong vòng 1 năm, ông/bà có lo lắng gì về việc gia đình ông/bà sẽ thiếu ăn không?**

12. Generally speaking, in the past five years, has the variety of food that your family is able to get changed? (if yes, how?) **Nói chung, trong vòng 5 năm trở lại đây, sự phong phú về lương thực/thực phẩm của gia đình ông bà có gì thay đổi không? Nếu có thì thay đổi như thế nào?**

13. Generally speaking, in the past five years, has the amount of food that your family is able to get changed? (if yes, how?) **Nói chung, trong vòng 5 năm trở lại đây, lượng thức ăn/thực phẩm của gia đình ông bà có gì thay đổi không? Nếu có thì thay đổi như thế nào?**

13.1 Why do you think this change happened (ex. Increase/decrease in money). **Tại sao ông/bà nghĩ thay đổi đó xảy ra? (Ví dụ: Tăng/giảm tiền)**

Livelihood Improvement **Cải thiện sinh kế**

14. What do you wish to change in order to improve and develop your farm? **Ông/bà có mong muốn gì nhằm cải thiện và phát triển nông trại của gia đình mình?**

14.1 Why? What prevents you from making these changes? **Tại sao? Điều gì cản trở ông/bà thực hiện những thay đổi đó?**

15. Do you have a loan from the bank? **Ông/bà có vay vốn ngân hàng không?**

15.1 (if yes) When did you take out the loan, and what is the term? **Nếu có, Ông/bà vay lúc nào và thời hạn vay là bao lâu?**
15.2 How much is the loan? **Ông/bà vay bao nhiêu?**
15.3 Why did you take the loan from the bank? (What did you take the loan from the bank for?) **Tại sao ông bà lại vay vốn ngân hàng? (Ông/bà vay vốn ngân hàng để làm gì?)**
15.4 How often to you make payments? **Ông/bà thường trả tiền cho ngân hàng bằng cách nào?**
15.5 How do you intend to pay off the loan? (what do you do, when will it be paid) **Ông/bà dự định sẽ trả nợ cho ngân hàng bằng cách nào? (Làm gì và khi nào sẽ trả)**

16. At what age can children help with work in the fields or with household chores? **Con của ông/bà có thể giúp ông/bà làm việc ruộng nương hay việc nhà lúc bao nhiêu tuổi?**

Household Interview 4: Land Titles and Use

Household Interview 4 **Câu hỏi phỏng vấn đợt 4**
Land Use and Land Titles **Sử dụng đất và quyền sử dụng đất**
26 June 2013

Land Titles **Quyền sử dụng đất**

1. How much land does your family have the title/right to use? **Gia đình ông bà có quyền sử dụng bao nhiêu đất?**

2. What are the types of land for which you have a title/right to use? **Có những loại đất nào mà gia đình mình có quyền sử dụng?**

3. Who's name(s) is on the land title? **Ai đứng tên chủ sở hữu đất đai mà ông/bà có quyền sử dụng đó?**

4. Generally speaking, how have land titles for your family changed in the past 10 years? (for example, community title changed to individual titles, husband and wife joint titles, or new lands acquired by the family) **Nhìn chung thì quyền sử dụng đất của gia đình ông/bà thay đổi**

như thế nào trong 10 năm trở lại đây? (Ví dụ: Đất cộng đồng, làng bản bây giờ trở thành đất của cá nhân, cả vợ và chồng cùng có quyền sử dụng hoặc gia đình ông/bà đã mua được đất mới)

5. Is any of your land currently used by more than one household? **Hiện tại có đất nào mà được sử dụng bởi 2 hộ gia đình trở lên không?**
   5.1 (if yes) Who else uses that land? **Nếu có thì ai cùng sử dụng đất đó?**
   5.2 What is that land used for? **Đất đó dùng để làm gì?**

Wild-land/Unused Land **Đất bỏ hoang/Đất không sử dụng:**

6. Is any of your family land currently wild-land or unused land? **Hiện tại gia đình ông/bà có đất bỏ hoang hay đất không sử dụng nào không?**
   6.1 (if yes) How much? **Nếu có thì bao nhiêu?**

   6.2 Why is it wild-land and not under cultivation? **Tại sao đất đó lại bị bỏ hoang, không canh tác trên đất đó nữa?**

6.2a Is that wild-land being used for any other purpose (ex. graze animals, collect plants)? **Đất bỏ hoang, không sử dụng đó dùng cho việc gì hay không (Chẳng hạn: dùng để chăn thả động vật, để lượm và nhặt cây…)?**

6.3 Did you use your wild-land differently in the past? (if yes) What was it used for? **Đất bỏ hoang của ông/bà có dùng vào việc gì trước đây không? Nếu có, dùng vào việc gì?**

Agricultural Change **Thay đổi về nông nghiệp**

7. In general, how have your family's farming activities changed in the past 10 years (since 2003)?

(for example: new kinds of crops, changed practices) **Nói chung, các hoạt động về nông nghiệp của gia đình ông/bà thay đổi như thế nào trong vòng 10 năm trở lại đây (từ năm 2003)?**

7.1 In your view, have overall work responsibilities (farm activities) changed for women? For men? (if yes, how?) **Theo ông/bà, tổng trách nhiệm làm việc của phụ nữ có thay đổi hay không? Của nam giới có thay đổi không? Nếu có, thì thay đổi như thế nào?**

8. Does your family practice swidden farming (du canh du cư) in the hill lands currently or did you do swidden farming in the past? **Hiện tại gia đình ông/bà có canh tác theo kiểu du canh du cư không? Trước đây có làm theo kiểu du canh du cư không?**

   8.1 (if in the past) How long ago did you stop swidden farming? (and why) **Nếu trước đây có thì cách đây bao lâu ông/bà không còn canh tác theo kiểu du canh du cư đó nữa? Tại sao?**

8.2 (if currently) How much land area do you use for swidden farming? **Nếu hiện tại có thì diện tích đất mà gia đình ông/bà canh tác theo kiểu du canh du cư là bao nhiêu?**

Household Interviews 5: Survey Follow-up
23 October 2013

Clearing lands and getting new land:

I'm trying to understand about how families get new land.

1. When did your family first come to this hamlet and clear new lands? **Gia đình của bạn đến thôn này và canh tác đất mới là từ khi nào?**

2. Did your family used to clear more land each year? (if yes, explain) **Gia đình bạn đã từng canh tác đất nhiều hơn qua mỗi năm không**

3. Is it difficult to clear new lands now? Why? **Ngày nay thì việc canh tác đất mới có khó khăn không?**

4. In what types of land (hill, upper field, or forest) are people able to clear land now? **Ngày nay thì loại đất nào con người có thể canh tác (đất đồi, đất bằng , đất rừng)**

5. Do you need to register land that is newly cleared? (For example, if I cleared some new upper field land, would I then be required to register my land?)**Bạn có cần sổ đỏ cho đất mới canh tác không?**

6. Compared to ten years ago (2002/3) what is different about clearing new lands today? **(So với 10 năm trước việc canh tác đất mới ngày nay có khác gì)**

7. In your opinion what prevents young families from clearing new land? (**theo ý kiễn của bạn, điều gì ngăn cản những gia đình trẻ từ việc canh tác đất mới)**
(ex. Distance from home, No one to work the land, No free land to clear)

Food:

I am trying to understand about daily nutrition for people in your hamlet.

1. What is a typical day of food like? (what do you typically eat each day) **(Bạn ăn loại thức ăn tiêu biểu mỗi ngày)**

2. What did you eat yesterday?(**hôm qua bạn ăn gì)**

3. How often to you (or people in your family) find foods – go fishing, catch animals rather than buying fish or meat?(**bạn có thường tìm thức ăn – câu cá, săn bắt động vật hơn là mua cá hay thịt)**

Work:

I am trying to understand about availability of hired labor in your hamlet.

1. What was hired labor like before people grew tram and cassava for sale?**(Người làm thuê ngày nay có giống với trước đây như trồng tram và trồng sắn để bán không)**

2. Compared to ten years ago (2002/3) what is different about hired labor jobs today?**(So với 10 năm trước việc làm thuê ngày nay có khác gì)**

Livelihoods Survey

Note: My research assistants and I completed this version (below) after several initial drafts and

17 trial surveys.

Date:**Ngày** _____Time:**Thời gian** _____ Village **Thôn**:_____ Household Code: **đang của hộ**_____

Ethnicity of household members: **Dân tộc của người hộ** Circle all that apply (**tất cả)**

Van Kieu **Vân Kiều** Kinh **Kinh** Other (specify): **khác**_____

ID	Name **Tên -** * next to speaker *	Sex **Giới tính** 1.Male **nam** 2.Female **nữ**	Year of Birth **Năm sinh**	Marital Status **Tình trang hôn nhân** (all that apply) 1.Single **độc thân** 2.Married **đã kết hôn** 3.Widow/er **goá** 4.Divorced **ly hôn**	Number of Children **Số con**	Education-**Giáo dục** Highest grade completed in school/12 or 10 **Lớp cao nhất học hết ở trường** (Specify for higher education)	Relationship to HH Head **Mối quan hệ với chủ hộ** 1.Head of House **Chủ Hộ** 2.Spouse **Vợ/Chồng Chủ** 3.Child **Con** 4.Grandchild **chaú** 4.Parent **bố mẹ** 5.Sibling **anh, chị, em** 6.Other (specify) **khác**	Primary occupation(s) in the past twelve months **Công việc trong 12 tháng trước** (all that apply) 1.In school **đi học** 2.Farmer/farm work **làm nông** 3.Officer (specify) **nhân viên văn phòng** 4.Teacher **giáo viên** 5.Pension **lương hưu** 6.Retired/At home **nghỉ hưu** 7.Other (specify) **khác**	Worked as hired labor in past 12 months? **Làm thuê trong 12 tháng trước** 1.yes **có** (go to T2) 2.no **không**
1									
2									
3									
4									
5									
6									
7									
8									

Hired Labor History **Lịch sử làm thuê**

ID **STT**	List all hired labor jobs that apply to the past 12 months. **Liệt kê tất cả các việc làm thuê trong vòng 12 tháng qua** (see list) (xem danh sách)			1.Labor in low rice field **Làm ruộng/lua rẫy** 2.Labor in hill/upper field –cassava **Làm các công việc về sắn** 3. Labor in hill/upper field – tram **Làm công về tràm** 4. Labor in hill/upper field – rice/corn **Làm công về lúa rấy/ngô** 5. Labor in plantation – coffee **Lao động ở vườn cà phê** 6. Skilled labor-specify (ex. carpenter) **Lao động có tay nghề (Ví dụ: Thợ mộc…)** 7. Foreign Labor –specify **Xuất khẩu lao động - Cụ thể** 8. Other hired labor –specify **Làm thuê các công việc khác - Cụ thể**
	Job **Công việc**	Where **Nơi làm**	How many days **Bao nhiêu ngày**	

Household Age **Tuổi ngôi nhà**

When did the household heads get married? **Ông/bà (chủ hộ) lập gia đình khi nào?**	
How many years did you live with your parents before moving into your own house? **Ông/bà sống với bố mẹ mấy năm trước khi ra ở riêng?**	
How long have you spent in your current house? **Ông/bà đã sống trong ngộ nhà này bao lâu rồi?**	

Are any household members from a different hamlet (different hometown)? **Có ai ở thôn khác (nơi khác) sống cùng gia đình ông/bà không?**

ID **STT**	Hamlet, District, Province **Thôn, huyện, tỉnh**	How long has this person lived in this hamlet? **Người đó đã ở thôn này bao lâu rồi?**

Household Income **Thu nhập của gia đình**

Is this a poor house (with poor certificate this year)? **Năm nay gia đình ông/bà có thuộc diện hộ nghèo (có giấy chứng nhận hộ nghèo) không?**	1.Yes **Có** 2.No **Không**
If yes, when did you become poor? **Nếu có, là hộ nghèo khi nào?** If no, were you poor in the past? **Nếu không, trước đây gia đình ông/bà có thuộc diện hộ nghèo không?** What year did you escape poverty? **Gia đình thoát nghèo từ năm nào?**	

Please name the top three ways your family earned money this past year. **Vui lòng nêu tên 3 việc mà gia đình làm để kiếm tiền nhiều nhất (03 thu nhập chính) trong năm vừa rồi**	Who in the household does the most work for each of these sources? **Ai trong gia đình làm công việc đó nhiều nhất cho nguồn thu nhập đó?**	Sources **Nguồn thu nhập:** 1.Money from family members **Tiền do các thành viên trong gia đình kiếm được** 2.Sale of cassava **Bán sắn** 3.Sale of tram **Bán tràm** 4.Sale of vegetables **Bán rau củ quả** 5.Sale of animals **Bán động vật (trâu, bò, lợn, gà, vịt, dê, cá…)** 6.Other agricultural sale (specify) **Bán các loại nông sản khác (ghi cụ thể)** 7.Sale of collected plants/objects (specify) **Bán các loại cây/vật phẩm kiếm được (Ghi cụ thể)**	8.Sale of rice wine **Bán rượu** 9.Skilled labor **Lao động có tay nghề** 10.Hire labor **Làm thuê** 11.Employment **Việc làm** 12.Pension **Tiền trợ cấp, lương hưu** 13.Business **Kinh doanh, buôn bán** 14.Sale of handicrafts **Bán đồ thủ công** 15.Other (specify) **Khác (ghi cụ thể)**

Household Expenses **Chi tiêu trong gia đình**

Please name the top three ways your family used money in the past year. **Vui lòng nêu tên 03 thứ/việc mà gia đình ông/bà sử dụng tiền nhiều nhất**	How much do you worry that you will not have enough money to pay for this expense? **Ông/bà lo lắng là mình không đủ tiền để dùng cho các chi phí đó không?** 1.I don't worry **Không lo lắng gì cả** 2.a little bit **Chỉ lo một ít thôi** 3.sometimes **Thỉnh thoảng** 4.worried **Lo lắng** 5.very worried (always) **Rất lo lắng (luôn luôn ,lo lắng)**	Expenses: **Chi tiêu** 1.Bank loan **Nợ ngân hàng** 2.Rice **Gạo** 3.Fish and meat **Cá, thịt** 4. Other food (specify) **Các loại thức ăn khác (cụ thể)** 5.Hired labor **Trả tiền công làm thuê** 6.Gas **Tiền ga** 7.Electricity **Tiền điện** 8.School fees **Chi phí học tập** 9.Household goods (furniture, dishes) **Dụng cụ, đồ đạc trong gia đình (vật dụng, chén dĩa…)** 10. House improvements (roof, posts, etc) **Cải tạo nhà cửa (mái nhà, cột trụ….)** 11. Other (specify) **Khác (cụ thể)**

Household Questions **Tham vấn về nhà/hộ gia đình**

List house construction info for newest complete house on the family's household land **Nêu các thông tin xây dựng về ngôi nhà hoàn thiện mới nhất trên đất ở cuả gia đình**

How many houses are on your household land **Có mấy ngôi nhà trên cùng 1 đất ở**		Received support for current house? **Ngôi nhà ông/bà đang sinh sống có nhận được sự hỗ trợ nào trước đây không?**	1.yes(from whom): **Có (từ ai)** 2.no **Không**
How many families are living on the household land **Có mấy gia đình đang sống trên đất ở ông bà?**		Are you receiving support for a new construction? **Ông/bà có đang được hỗ trợ gì cho việc xây dựng mới không?**	1. Yes(from whom): **Có (Từ ai)** 2.No **Không**
Cement posts? **Có cột trụ bê tông không?**	1.no **Không** 2.yes **Có**	Television **Ti vi**	1.no **Không** 2.yes **Có**
House Material **Vật liệu ngôi nhà**	1.bamboo **Tre** 2.wood **Gỗ** 3.cement **Xi măng**	# Motorbikes **Có mấy chiếc xe máy?**	

Roof (circle) **Mái nhà**	1.wood **Gỗ** 2.tin **Tôn**	#Bicycles **Có mấy chiếc xe đạp?**	

Land Assets **Tài sản đất đai**

Type of land your family USES **Loại đất gia đình sử dụng** (all that apply) **(tất cả)**	**Area Diện tích**	Status of the land **Tình trạng đất** 1.cultivated **Trồng trọt** (specify crop) **(Trồng cây gì)** 2.wildland/ grazing **Đất bỏ hoang/chăn thả** 3.natural **forest Rừng tự nhiên** 4.other (specify) **Khác (cụ thể)**	**How was the land acquired? Đất đó có được từ đâu?** 1.passed down in family **Gia đình để lại** 2.borrowed (specify) **Mượn (cụ thể)** 3.rented (specify) **Thuê (Cụ thể)** 4.cleared/claimed by yourself (year) **- phát thêm, khai hoang thêm đất (năm nào?)** 5.allocated by government (year) **Nhà nước cấp cho (năm nào?)** 6.bought (year) **Mua (năm nào?)**	Titled? **Có sổ đỏ chưa?** 1.yes **Có** 2.no **Chưa/K hông**	If yes, whose name(s)is on the title? **Nếu có, ai đứng tên trong sổ đỏ đó?**	If yes, what year was the title issued? **Nếu có, sổ đỏ đó được cấp năm nào?**
Rice Paddy **Ruộng lúa**						
Upper Field **Đất bằng**						
Hill Land **Đất đồi**						
House and Garden **Đất ở và vườn**						
Other (ex. land for grazing cow) **Loại đất khác (Ví dụ: Đất để chăn thả trâu, bò…)**						

1. Does your family have rights to land that you do not use? For example –land you rent or lend to another family or unused hill land **Gia đình ông/bà có mảnh đất nào gia đình có quyền sử dụng nhưng chưa sử dụng hoặc để hoang không? Ví dụ: Đất ông/bà cho thuê hoặc cho mượn hoặc đất bỏ hoang chưa sử dụng.**	1.yes (go to a) **Có (hỏi câu a)** 2.no **Không**

a. Please explain about this land: (why is it unused? is it titled?) **Vui lòng giải thích thêm về đất đó (Tại sao lại không sử dụng? đã có sổ đỏ chưa?)**	

Community Lands **Đất cộng đồng (Đất dùng chung)**

Does this household participate in community grazing lands? **Gia đình ông/bà có tham gia các hoạt động chăn thả trên đất cộng đồng không?**	1.yes **Có** 2. no (go to cultivated lands) **Không (hỏi phần đất canh tác)**
How many animals graze on the community land? **Gia đình ông/bà chăn thả mấy con vật trên đất cộng đồng đó?**	
Who in the household participates in the work share for that land? **Ai trong gia đình ông/bà tham gia các hoạt động trên đất cộng đồng đó?**	
a. How many days per month do they work? **Người đó làm việc trên đất đó mấy ngày 1 tháng?**	

Cultivated Lands **Đất trồng trọt**

1. Are you growing tram this year? **Năm nay gia đình ông/bà có trồng cây tràm không?**	1.yes **Có** 2.no (go to b) **Không (chuyển sang câu b)**
a. How old are the trees currently? **Cây tràm ông bà đang trồng được mấy năm tuổi rồi?**	
b. Have you grown tram in the past? **Trước đây, gia đình ông/bà có trồng tràm không?**	1.yes **Có** 2.no (go to 2 if both no) **Không (sang câu 2 nếu cả 2 đều không)**
c. How many harvests have you had? **Gia đình ông/bà đã trồng được mấy vụ tràm rồi?**	
d. When was the first time you planted tram? **Lần đầu tiên gia đình ông/bà trồng cây tràm là khi nào (năm nào)?**	
e. Why did you decide to start growing tram? **Tại sao lúc đó ông/bà quyết định trồng tràm?**	
	1.yes (go to a) **Có (đến câu a)** 2.no **Không**

f. Did you get support for the first harvest of tram? **Gia đình ông/bà có nhận được sự hỗ trợ nào trong vụ tràm đầu tiên không?** a. If yes, what kind of support did you receive? (saplings, rice, training, fertilizer, money?) **Nếu có, ông/bà đã được hỗ trợ những gì? (ví dụ: cây con, gạo, tập huấn, phân bón, tiền…)**	
g. Have you received support since the first harvest? **Từ vụ tràm thứ 2 cho đến nay, ông/bà có được hỗ trợ gì không?**	1.yes(explain): **Có (nêu ra)** 2.no **Không** 3.n/a (only one harvest) **Không trả lời (Chỉ 1 vụ duy nhất)**
h. Was your land surveyed and registered for a land title at the time of your first tram planting? **Đất mà ông/bà trồng tràm vụ đầu tiên có được cán bộ đến đo và đăng ký sổ đỏ không?**	1.yes surveyed -received land title **Có đo đạc và đã nhận sổ đỏ** 2.yes surveyed –not yet received title **Có đo nhưng chưa nhận sổ đỏ** 3.no – not surveyed **Không đo đạc** 4.no- had the title already **Không đo vì đã có sổ đỏ từ trước** 5.other **Khác**
i. Before tram, what crop did you grow on that land/how did you use that land? (hill rice, corn, wild land, didn't use in past, etc) **Trước khi trồng tràm, ông/bà làm gì trên đất đó? Hoặc, ông/bà đã sử dụng đất đó như thế nào trước khi trồng tràm?**	
j. Has your tram crop ever been damaged by buffalo/cows? **Có khi nào rừng tràm của gia đình ông/bà bị trâu bò phá không?**	1.yes (year) _____ **Có (năm nào?)** (% total)_____ **Mấy %?** 2.no **Không**
k. Has your tram crop ever been damaged by natural disasters like floods or storms? **Có khi nào rừng tràm của gia đình ông/bà bị ảnh hưởng do thiên tai như lụt, bão…không?**	1.yes (explain): **Có (như thế nào)** 2.no **Không**
l. Do you plan to continue to grow tram in the future? Explain why or why not**. Ông/bà có định tiếp tục trồng tràm trong thời gian tới không? Giải thích tại sao?**	1.yes **Có** 2.no **Không** Explain: **Giải thích**
2. Are you growing cassava for sale this year? **Năm nay, gia đình ông/bà có trồng sắn không?**	1.yes **Có** 2.no **Không**
a. Have you grown cassava in the past? **Ông/bà đã trồng cây sắn trước đây chưa?**	1.Yes **Có** 2.No (Go To 3) **Không (đến câu 3)**
b. How many harvests have you had already **Ông/bà đã trồng mấy vụ sắn rồi?**	

c. When was the first time you planted cassava for sale? **Ông/bà trồng sắn để bán lần đầu tiên là khi nào?**	
d. Why did you decide to start growing cassava? **Tại sao lúc đó ông/bà quyết định trồng cây sắn?**	
e. Did you receive support for the first cassava planting? **Ông/bà có được hỗ trợ gì trong vụ sắn đầu tiên không?**	1.yes(go to a) **Có (đến câu a)** 2.no **Không**
a. If yes, what type of support did you receive? (seeds, seedlings, fertilizer, etc) **Nếu có, ông/bà đã nhận được hỗ trợ gì? (giống cây, phân bón,….)**	
f. Have you received support since the first harvest? **Từ vụ sắn thứ 2 trở về sau này, khi trồng sắn ông/bà có được hỗ trợ gì không?**	1.yes(explain): **Có (nêu ra)** 2.no **Không** 3.n/a **Không trả lời**
g. Was your cassava land registered for a land title at the time of the first planting? **Đất trồng sắn có được đo đạc và đăng ký sổ đỏ trong vụ đầu tiên không?**	1.yes surveyed -received land title **Có đo đạc, khảo sát và đã nhận sổ đỏ** 2.yes surveyed –not yet received title **Có đo đạc, khảo sát nhưng chưa nhận sổ đỏ** 3.no – not surveyed **Không đo đạc, khảo sát** 4.no- had the title already **Không đo đạc vì đã có sổ đỏ trước rồi** 5.other **Khác**
h. Before cassava, what crop did you grow on that land/how did you use that land? **Trước khi trồng sắn, ông/bà trồng cây gì hoặc làm gì trên đất đó?**	
i. Has your cassava crop ever been damaged by cows/buffalo? **Có khi nào sắn của ông/bà bị trâu, bò phá chưa?**	1.yes: (year)_____ **Có (năm nào)** (%total)_____ **Thiệt hại mấy %** 2.no **Không**
j. Has your cassava crop ever been damaged by natural disasters like floods or storms? **Có khi nào sắn của ông/bà bị thiệt hại do thiên tai gây ra như lụt, bão chưa?**	1.yes (explain): **Có (nêu cụ thể)** 2.no **Không**
k. Do you plan to continue to grow cassava in the future? Why or why not? **Ông/bà có kế hoạch tiếp tục trồng sắn trong thời gian tới không? Tại sao?**	1.yes **Có** 2.no **Không** Explain: **Giải thích**
3. Are you growing hill rice this year? **Năm nay, ông/bà có trồng lúa rẫy không?**	1.yes (go to c, d, e, f) **Có (đến câu c, d, e, f)**

	2.no (go to a, b, f) **Không (đến câu a, b, f)**
a. (if no) Why did you decide to stop growing hill rice**? Nếu không, tại sao ông/bà không trồng lúa rẫy nữa?**	
b. (if no) When was the last year that you grew hill rice ? **Nếu không, lần cuối cùng ông/bà trồng lúa rẫy là năm nào?**	
c. (if yes) What cultivation cycle of hill rice do you use? **Nếu có, chu kỳ ông/bà làm lúa rẫy như thế nào?** **(Bao nhiêu năm sử dụng và bao nhiêu năm bỏ hóa phục hồi lại?)**	
c.1 Is the current way of cultivating hill rice different from the past? **Cách trỉa lúa rẫy hiện tại có khác gì so với trước đây không?** if yes, what is different? (for example: moving fields) **Nếu có, khác như thế nào? (Ví dụ: Chuyển đến làm và trỉa nơi khác)**	
d. (if yes) Compared with 5 years ago (2007/8), have you increased or decreased the size of your hill rice? **Nếu có, so với 5 năm trước đây (tức là năm 2007-2008), diện tích đất ông/bà trỉa lúa tăng lên hay giảm xuống?**	
e. (if yes) Why did you make these changes to your hill rice? (**Nếu có) Tại sao ông/bà lại có những thay đổi đó?**	
f. (both) Will you continue to grow hill rice in the future? Why or why not? **(Nếu cả 2) Sau này ông/bà có định tiếp tục trồng lúa rẫy nữa không?**	
4. When did your family start growing wet rice? **Lần đầu tiên ông/bà trồng lúa nước là năm nào?**	
a. Why did you decide to start growing wet rice? **Tại sao ông/bà quyết định bắt đầu trồng lúa nước?**	
5. Does your current household share farm work with people from another household? **Hiện tại, gia đình ông/bà có chia sẻ các công việc trồng trọt và chăn nuôi với người khác hoặc gia đình khác không?**	1.yes (go to a) **Có (đến câu a)** 2.no **Không**
a. With whom does your family share farm work? (explain what work you share) **Gia đình ông/bà chia sẻ các công việc trồng trọt và chăn nuôi với ai? (Nêu rõ chia sẻ các việc gì)**	
6. Does your family share food or benefits from crops with people outside of this household? **Gia đình ông/bà có chia thực phẩm hoặc các lợi nhuận thu được từ trồng trọt, chăn nuôi cho người khác không?**	1.yes (go to a) **Có (đến câu a)** 2.no **Không**

a. With whom does your family share crops/benefits? (explain what food/benefits you share) **Chia cho ai? (Nêu rõ chia những gì?)**	

Animal Assets **Tài sản động vật nuôi**

Animal **Động vật**	Current Number **Hiện tại có mấy con**	Animal **Động vật**	Current Number **Hiện tại có mấy con**
Buffalo **Trâu**		Goats **Dê**	
Cow **Bò**		Ducks **Vịt**	
Chickens **Gà**		Geese **Ngỗng**	
Pigs **Lợn**		Fish **Cá**	1.yes **Có** 2. No **Không**

Other (specify)_____ **Khác (cụ thể)**

1. Have you lost animals in the past due to disease, cold, or other natural disasters? **Trước đây có nhiều động vật nuôi của ông/bà bị chết do dịch bệnh, rét hoặc do thiên tai không?**	1.yes(explain): **Có (nêu cụ thể)** 2.no **Không**

Participation in Agricultural Training Programs **Tham gia các chương trình tập huấn về nông nghiệp**

1. How many times per year is your family invited to participate in agricultural training programs? **Gia đình ông/bà được mời tham dự các buổi tập huấn về nông nghiệp mấy lần/năm?**	
2. How many times per year do people from this family participate in the agriculture training programs? **Gia đình ông/bà tham dự các buổi tập huấn về nông nghiệp mấy lần/năm?**	1.every time they are offered **Tham dự tất cả các lần được mời** 2.ususally **Thường xuyên** 3.sometimes **Thỉnh thoảng** 4.occasionally **Ít khi, đôi lúc** 5. never **Không bao giờ**
3. Does the hamlet or commune ever have agricultural training programs that your family does is not invited to? **Có khi nào thôn hoặc xã tập huấn mà gia đình ông/bà không được mời tập huấn không?**	1.no **Không** 2.yes: explain why you think that is **Có: Giả thích tại sao**

4. Who in the household usually participates in the training programs? **Ai trong gia đình thường xuyên tham dự các chương trình tập huấn?**	

Please describe several recent agricultural training programs **Vui lòng nêu cụ thể vài chương trình tập huấn gần đây mà gia đình ông/bà đã tham dự**

Description of Training **Mô tả chương trình tập huấn**	Location **Địa điểm tập huấn**	Who in the family Participated **Ai trong gia đình tha dự**	How many days long? **Tập huấn trong mấy ngày/mấy buổi?**	Other benefits received for participation? **Khi tham dự tập huấn, có nhận được trợ cấp hay lợi ích gì không?**

Health **Sức khỏe**

1. Has anyone in the household been ill in the past twelve months? **Trong năm qua, có ai trong gia đình ông/bà bị bệnh, ốm đau gì không?**	1.yes **Có** 2.no (go to 2) **Không (đến câu 2)**

Who was ill in the last 12 months? **Trong 12 tháng qua, ai bị bệnh, ốm đau?**	Nature of the complaint **Đặc điểm chứng bệnh**	How many days unable to go to school or work? **Mấy ngày không thể đi làm hoặc đi học?**	Who do you go to for help? **Đi đâu để điều trị, chưa bệnh?** 1.no help **Không đi đâu cả** 2.home remedy **Điều trị ở nhà** 3.district or commune doctor **Đi đến bệnh viện huyện hoặc trạm y tế xã** 4.province hospital **Đi bệnh viện tỉnh** 5.other (specify) **Khác**

2. Compared to five years ago, how has the health of this family? **So với 05 năm trước, tình hình sức khỏe của gia đình ông/bà như thế nào?**	

Food Security (questions adapted from USAID) **An ninh lương thực (trích từ bộ câu hỏi của USAID)**

1. In the past 12 months, were you worried that you would run out of food or rice before being able to buy or receive more food or rice? **Trong vòng 12 tháng qua, ông/bà có lo lắng là ông/bà hết gạo hoặc thức ăn trước khi mua hoặc kiếm thêm gạo hoặc thức ăn không?**	Food **Thức ăn** 1.yes **Có** 2.no **Không** 3.Don't know **Không biết**	Rice **Gạo** 1.yes **Có** 2.no **Không** 3.Don't know **Không biết**
a. How often did this happen **Xảy ra bao lâu 1 lần, thường xuyên không?**	1.only one or two days **Chỉ từ 1 hoặc 2 ngày** 2.some days **Vài ngày** 3.many days **Nhiều ngày** 4.almost every day **Hầu như ngày nào cũng lo**	1.only one or two days **Chỉ từ 1 hoặc 2 ngày** 2.some days **Vài ngày** 3.many days **Nhiều ngày** 4.almost every day **Hầu như ngày nào cũng lo**
2. This past year, did you have to buy rice? **Trong năm vừa qua ông/bà có phải mua gạo ăn không?**	1.no (go to b) **Không (đến câu b)** 2.yes **Có**	
a. How many months did you need to buy rice last year? **Năm ngoái, ông bà cần phải mua gạo trong mấy tháng?**		
b. Compared with 5 years ago, has the amount of rice you need to buy each year increased, decreased, or stayed the same? **So với 05 năm trước đây, lượng gạo mà ông/bà cần mua trong từng năm tăng lên, giảm xuống hay vẫn như cũ?**	1.increased **tăng lên** 2.decreased **Giảm xuống** 3.stayed the same **Vẫn giữ nguyên như cũ** 4.don't know **Không biết**	
3. In the last 12 months have you or anyone in your household ever had to limit the variety of foods in a meal or eat non-preferred foods because of lack of production or money? (examples: no fish or meat, eating cassava instead of rice) **Trong vòng 12 tháng qua, có ai trong gia đình ông/bà từng bị hạn chế sự đa dạng của các loại thực phẩm trong bữa ăn hoặc ăn thực phẩm không muốn ăn vì thiếu sản lượng hoặc tiền? (ví dụ: không có cá hoặc thịt, ăn sắn thay cơm)**	1.yes **Có** 2.no **Không** 3.don't know **Không biết**	

a. How often did this happen? **Xảy ra bao lâu 1 lần, thường xuyên không?**	1.only 1 or 2 days **Chỉ 1 hoặc 2 ngày** 2.some days **Vài ngày** 3.many days **Nhiều ngày** 4.almost every day **Hầu như ngày nào cũng có**
4. In the last 12 months have you or anyone in your household had to limit the amount of food or rice eaten at meals due to lack of production or money? (Such as eating chao instead of rice) **Trong 12 tháng qua có ai trong gia đình ông/bà đã từng bị hạn chế lượng thức ăn hoặc gạo cho các các bữa ăn do thiếu sản lượng hoặc tiền? (Chẳng hạn như ăn cháo thay cơm)**	1.yes **Có** 2.no **Không** 3.don't know **Không biết**
a. How often did this happen? **Xảy ra bao lâu 1 lần, thường xuyên không?**	1.only 1 or 2 days **Chỉ 1 hoặc 2 ngày** 2.some days **Vài ngày** 3.many days **Nhiều ngày** 4.almost every day **Hầu như ngày nào cũng có**
5. In the last 12 months have you or anyone in your household had to skip meals due to lack of production or food? **Trong vòng 12 tháng qua, có ai trong gia đình ông/bà phải bỏ bữa ăn do thiếu thực phẩm hay thức ăn không?**	1.yes **Có** 2.no **Không** 3.don't know **Không biết**
a. How often did this happen? **Xảy ra bao lâu 1 lần, thường xuyên không?**	1.only 1 or 2 days **Chỉ 1 hoặc 2 ngày** 2.some days **Vài ngày** 3.many days **Nhiều ngày** 4.almost every day **Hầu như ngày nào cũng có**
6. In the last 12 months have you or anyone in your household gone an entire day and night without food due to lack of production or money? **Trong vòng 12 thuáng qua, có ai trong gia đình ông/bà nhịn đói cả ngày do thiếu thực phẩm hoặc tiền không?**	1.yes **Có** 2.no **Không** 3.don't know **Không biết**
a. How often did this happen? **Xảy ra bao lâu 1 lần, thường xuyên không?**	1.only 1 or 2 days **Chỉ 1 hoặc 2 ngày** 2.some days **Vài ngày** 3.many days **Nhiều ngày** 4.almost every day **Hầu như ngày nào cũng có**
7. If your crops were not growing well this year, and you produced less food/rice than you expected, what would you or anyone else in your household do in order to get more food/rice? **Nếu như năm nay cây trồng không phát triển tốt và ông/bà làm được rất ít gạo/thức ăn hơn bình thường thì ông/bà hay các thành viên trong gia đình ông/bà sẽ làm gì để có thêm gạo/thức ăn?**	1.work hire labor **Làm thuê** 2.borrow from neighbor/family **Mượn hàng xóm/bà con** 3.other **Khác**

8. Compared with five years ago, how has your family's food quality and quantity changed? **So với 05 năm trước, chất lượng và số lượng thức ăn/thực phẩm của gia đình ông/bà thay đổi như thế nào?**	
a. If there has been a change, why do you think your food quality/quantity has changed? **Nếu có thay đổi thì tại sao ông/bà nghĩ chất lượng/số lượng thức ăn/thực phẩm thay đổi như vậy?**	

Water Security **An toàn nước**

1. Where does your household get water for drinking? **Gia đình ông/bà lấy nước ở đâu để uống?**	
a. Is this water source safe? **Nước đó có sạch và an toàn không?**	1.yes **Có** 2.no (explain) **Không**
b. How far is this water source? **Nguồn nước ông bà lấy để uống bao xa?**	
2. Where does your household get water for cooking? **Gia đình ông/bà lấy nước ở đâu để nấu ăn?**	
a. Is the water source safe? **Nước đó có sạch và an toàn không?**	1.yes **Có** 2.no (explain) **Không**
b. How far is this water source? **Nguồn nước ông bà lấy để nấu ăn bao xa?**	
3. Where does your household get water for bathing? **Gia đình ông/bà lấy nước ở đâu để tắm?**	
a. Is the water source safe? **Nước đó có sạch và an toàn không?**	1.yes **Có** 2.no(explain) **Không**
b. How far is this water source? **Nguồn nước ông bà lấy để tắm bao xa?**	
4. Where does your household get water for washing and laundry? **Gia đình ông/bà lấy nước ở đâu để giặt rửa?**	
a. Is the water source safe? **Nước đó có sạch và an toàn không?**	1.yes **Có** 2.no(explain) **Không**
b. How far is this water source? **Nguồn nước ông bà lấy để giặt rửa bao xa?**	

5. Compared with 5 years ago, has the quality of your water changed? **So với 05 năm trước, chất lượng nước có thay đổi không?** a. If yes: how has it changed? Nếu có, thay đổi như thế nào?	1.yes (go to a) **Có (đến câu a)** 2.no **Không**
6. Are there times during the year when your usual water source runs dry or is limited? **Có lần nào trong năm nguồn nước mà gia đình ông/bà thường sử dụng bị cạn hoặc thiếu không?**	1.yes(explain what you do in such times): **Có (Lúc đó ông/bà làm gì để có đủ nước dùng)** 2.no **Không**

Loans/Access to Credit **Các khoản vay / Tiếp cận tín dụng**

Please respond regarding current loans **Vui lòng nêu các khoản vay hiện tại liên quan**

Loan source **Nguồn vốn cho vay**	Loan amount **Số tiền vay**	Interest rate **Lãi suất**	Term of loan **Thời hạn vay**	Due date **Ngày hết hạn**	How much is still owed? **Hiện tại nợ bao nhiêu? (Đã trả mấy tiền rồi?)**	Why did you take out the loan? **Vay để làm gì?**	How do you get the money to pay interest? **Làm gì để có tiền trả lãi?**	How do you intend to pay the full amount? **Định làm gì để trả tổng số nợ đó?**

1. Have you taken out loans in the past? **Trước đây, ông/bà đã có vay vốn chưa?**	
a. When was the first time you took out a loan? **Lần đầu tiên ông/bà vay vốn là khi nào?**	
b. What was the first loan for? **Lần đầu tiên đó ông/bà vay vốn để làm gì?**	

Household and Land Development **Phát triển nhà ở và đất**

1. Have you made changes to your house in recent years? If yes, what are some of the most significant development you have made to the house in recent years? **Nhà cửa ông/bà đã có những thay đổi nào trong thời gian gần đây không? Nếu có thì vui lòng nêu một số thay đổi đáng kể trong thời gian gần đây?**	1.yes(explain): **Có (nêu cụ thể)** 2.no (move to 2) **Không (sang câu 2)**
a. How long ago were these improvements made? **Những cải thiện đó có cách đây bao lâu?**	
b. How were you able to make changes? (ex. bank loan, government help, family help) **Ông/bà đã thay đổi như thế nào? (Ví dụ: Vay vốn ngân hàng, Chính phủ hỗ trợ, gia đình hỗ trợ)**	
2. What changes would you most like to make to your house? (ex. new foundation, well for water, etc) **Ông/bà mong muốn thay đổi gì nhiều nhất đối với ngôi nhà của mình (Ví dụ: Móng mới, giếng nước,…)**	
a. Why? **Tại sao?**	
3. What prevents you from making changes to develop your house? **Cái gì đã cản trở ông/bà thực hiện việc thay đổi đê phát triển ngôi nhà của mình?**	1.lack of money **Thiếu tiền** 2.risk of loss **Rủi ro mất mát** 3.lack of training/knowledge **Thiếu kiến thức/kỹ năng** 4.other (explain) **Khác (nêu cụ thể)**
4. Have you made changes to your farm in recent years? If yes, what are some of the most significant developments you have made to your farm (both animal and crops) in recent years? **Đối với trồng trọt và chăn nuôi, trong những năm gần đây có gì đổi mới không? Nếu có, nêu những thay đổi đáng kể nào về trồng trọt và chăn nuôi trong những năm gần đây của gia đình ông/bà?**	1.yes (explain): **Có (nêu cụ thể)** 2.no (go to 5) **Không (đến câu 5)**
a. How long ago were these improvements made? **Những đổi mới đó được thực hiện cách đây bao lâu rồi?**	
b. How were you able to make these changes? **Ông/bà đã thực hiện đổi mới đó như thế nào?**	

5. What changes would you most like to make to your farm? (ex. new crop, raise more animals, expand cassava, etc) **Ông/bà mong muốn thay đổi gì đối với trồng trọt và chăn nuôi của gia đình mình? (Ví dụ: Trồng cây mới, nuôi nhiều động vật hơn, mở rộng trồng sắn,…)**	
a. Why? **Tại sao?**	
6. What is the main thing preventing you from making changes to your farm? (such as growing a new type of crop or tree) **Cái gì đã cản trở ông/bà thực hiện việc thay đổi trồng trọt và chăn nuôi của gia đình? (Chẳng hạn như: trồng vụ mới, trồng loại cây mới,…)**	1.lack of money **Thiếu tiền** 2.risk of loss **Rủi ro mất mát** 3.lack of training/knowledge **Thiếu kiến thức/kỹ năng** 4:lack of land **Thiếu đất đai** 5.other (explain) **Khác (Nêu cụ thể)**
7. If your house and farm were significantly damaged in the coming storm season, how would you expect to recover? **Nếu nhà cửa, trồng trọt và chăn nuôi của gia đình bị mất mùa, thiệt hại đáng kể trong mùa mưa bão, gia đình ông/bà mong muốn khắc phục như thế nào?**	1.yourself (savings or bank loan) **Gia đình tự khắc phục (giành giụm, tiết kiệm tiền hoặc vay vốn ngân hàng** 2.help from government **Nhờ Chính phủ hỗ trợ** 3.help from neighbors **Nhờ hàng xóm giúp đợ** 4.help from family **Nhờ gia đình, họ hàng giúp đỡ** 5.other (specify) **Khác (Nêu cụ thể)**

APPENDIX B

REGRESSION TABLE

Table AB.1 Table of Independent Variables for Food Insecurity Multiple Logistic Regression

	coeff b	***p-value***	***lower***	***upper***
Intercept	5.683927	0.514275		
Hamlet, 1=PA, 2=XR	2.307433	0.052313	0.977179	103.3326
GenderHhH	3.804888	0.115613	0.392729	5137.968
AgeCategory	-2.79046	0.051965	0.003681	1.024038
EdCategory	-0.23957	0.550501	0.358408	1.727953
PoorHouse	2.30463	0.059379	0.912857	109.995
SizeHh	0.971398	0.122392	0.77024	9.059822
DependencyRatio	-9.2597	0.179453	1.28E-10	70.77137
GenerationsinHh	-3.49921	0.150397	0.000257	3.559831
UpperField	-1.12561	0.380097	0.026276	4.006424
HillLands	-0.58049	0.626504	0.054021	5.797367
HasTV	-0.79722	0.578263	0.027109	7.489145
HasMotorbike	-1.55909	0.200139	0.019366	2.284325
HasLargeAnimals	-3.85894	0.040183	0.000529	0.841276
Has Small Animals	-1.84671	0.154333	0.012428	2.002434
House of Cement	1.737079	0.156481	0.513964	62.78768
Received/Receiving Outside Help for House	-0.01651	0.992518	0.031187	31.02302
Received/Receiving Family (close neighbors) Help	-3.46215	0.103685	0.000485	2.029732
TrainingInvitation	2.537384	0.04272	1.086797	147.1618
WaterStream	0.285851	0.883547	0.029039	60.99643