

DOMESTICATING ELECTRICITY IN RURAL LAOS

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The thesis examines how electrification has been received in rural villages in Lao People's Democratic Republic and how electricity has been integrated into living conditions and daily activities. The aim of the thesis is to highlight the active role of rural inhabitants in the electrification process. Moreover, the thesis attempts to offer reference points of electrical adoption and use in the Global South to the Western tradition of Science and Technology Studies.

The empirical data for the thesis consists of semi-structured interviews, focus group discussions and observations made in five rural villages in the Vientiane province. In analysis of the data, the *domestication* framework is utilised.

The study in hand shows that since its introduction electricity has transformed from a new technology into an integral part of everyday life in the villages. In the process, homes and the village environment, as well as some of the villagers' routines, have been changed permanently. Electricity has not, however, been integrated into all aspects of the villagers' routines, but has been integrated only into those activities in which it is seen as providing the greatest benefit; that is, in women's income earning and domestic tasks.

The findings of the thesis offer insights as to how electricity functions in rural lives in Laos, as well as what kind of meanings are attached to it to other researchers. Moreover, the thesis indicates that though the domestication framework has its limitations, it is applicable to infrastructural technologies, and is more versatile from an anthropological perspective than it may at first appear.

Keywords: electrification, domestication, Laos, rural

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ACRONYMS AND ABBREVIATIONS

EDL	Electricité du Laos, the national electricity provider
FFRC	Finland Futures Research Center
GDP	Gross domestic product
INES	Inter-linkages between energy and livelihoods, a project carried out by Finland Futures Research Center
NGPES	National Growth and Poverty Eradication Strategy
NSEDP	National Socio-Economic Development Plan
SST	Social Studies of Science and Technology

1 INTRODUCTION

Energy forms an integral part of everyday life all around the world. Not only does it provide people with services such as heating and lighting, but, through them, it also contributes to general considerations of what a good life entails. This makes energy an interesting, though little researched topic for anthropology (Wilhite 2005, 2).

In terms of energy, there has long been a clear division between the Global North and the Global South. Specifically, while for Northern countries electricity has been a taken-for-granted energy source for a century already, in many Southern countries, it is still a relatively new phenomenon and has only recently become available to the majority. Among these countries is Lao People's Democratic Republic (Laos), a former French colony along the Mekong river in Southeast Asia, whose government has adopted electrification as one of its primary means of delivering development and modernization, particularly to the state's rural population.

For the rural inhabitants, who have historically relied on their natural environment for sources of heat and light, utilising the newly available energy form and the technologies it enables requires technology adoption, considerations over its uses, and changes in their everyday life and routines. These processes, negotiations and social changes related to electricity adoption form the focus of interest in this thesis.

1.1 Research statement

Domestication is a concept, and a framework, within Social Studies of Science and Technology (SST) that has been developed to analyse the acceptance, use and rejection of new technologies in the home environment. Simply speaking, domestication perceives technology adoption as a process of house-training through which technologies eventually become part of the family. Until today, the concept has been utilised particularly in the Northern context and in relation to information and communication technologies.

The study in hand aims to test the concept's suitability in analysing the adoption of an infrastructural type of technology in Laos. In doing so, the thesis attempts to adopt a valuable perspective to the electrification of Laos, one that highlights the rural inhabitants' active role in integrating the new technology into their lives and living environment. Moreover, by looking at

Laos, the study aims to offer meaningful reference points on electricity adoption in the Global South to the tradition of SST. This is all done within the limits of the data available, discussed in detail in chapter 4 and briefly explained next.

1.2 Data and methods

The data on which the thesis builds on was gathered in five Lao villages in the rural district of Feung in Vientiane Province in spring 2012. The villages were electrified approximately 8 years before the fieldwork. In producing the data qualitative methods have been used. Specifically, the data consists of notes from 15 semi-structured interviews and shortened transcriptions of 5 focus group interviews, which gave room to the villagers' *emic* perspective on electrification and experiences related to it. The interview data is supplemented by observations made in the villages, as well as brief conversations with villagers. In producing the data I have relied heavily on an interpreter and worked together with another budding researcher conducting her own study. The fieldwork was kindly enabled by Finland Futures Research Center and its Mekong group.

1.3 Research question

The question I ask from the data is: *How is electricity domesticated in rural Laos?* I aim to answer the question with the help of the following sub-questions:

- What kind of domestication processes are involved with electricity adoption and use?
- What kinds of changes take place in people's personal lives and routines, the social life of the village and the physical environment? Does the technology change in some way?
- How is electricity adoption and use influenced by household values, priorities and constraints?

1.4 Structure of the thesis

In this first chapter I have offered an introduction on the topic of the thesis, that is, the domestication of electricity in rural Laos, and stated the research question the thesis aims to answer. The rest of the thesis proceeds as follows:

Chapter 2 will set the context of the thesis by looking at the historical impacts of electrification on everyday life, the role of electrification in Laos today and the rural context. The chapter will build a basis that will help to understand the way electricity is domesticated in rural areas in Laos.

Chapter 3 is dedicated to theory. In it I will provide an overview of Social Studies of Science and Technology, the branch of study with which the thesis associates, and introduce the domestication framework that works as the core analytical tool in the further chapters.

Chapter 4 will discuss the methods utilised in gathering the data and describe the process of conducting fieldwork, including the challenges faced during it and their implications for the data. What becomes apparent is that the reality of working with limited time and finances in a one-party state such as Laos differs greatly from the ideals of anthropological knowledge production.

In Chapter 5 I will examine the empirical data gathered in the villages and show how electricity is integrated into rural life in several dimensions. What is revealed is that electrification has not only meant a change in the technologies available to villagers, but that it has positively transformed life in the villages. Although the focus of the chapter is on the domestication process of electricity, it will also serve as a window to the social and cultural changes taking place in the Lao countryside as a result of electrification.

The final chapter concludes. In it I will present the main findings of the thesis, consider their implications and discuss the framework's suitability for analysing electricity adoption in Laos. Ideas for further studies will also be presented.

2 INTRODUCING ELECTRICITY INTO EVERYDAY LIFE

Electrification is undeniably included among the most influential and valuable technological advances of all time. In this chapter I will first provide a brief history of electrification and its impacts on everyday life, after which I will move on to discussing its role in Laos' development policy today. Finally, the context into which electricity has been introduced as a result of the electrification, that is the rural villages of Laos, will be described.

2.1 Transforming everyday life through electrification

The roots of the use of electricity can be traced back to the 1880s when current was first harnessed into wider use, and the process that is today called *electrification* first emerged in Europe and America. Before this, electricity had been mostly a scientific curiosity, connected to magnetism, heat, power and light, among other things (Nye 1990, 1). An essential development in popularizing electricity as an energy source was the invention of the electric bulb in 1879, described as “the wonder of the age, the hallmark of progress” (Nye 1990, 1). Electric light sparked interest and astounded people as it was unlike all previous lights, whether candles, oil lamps or torches: it did not flicker and it was smokeless, steady, fireless and seemingly inexhaustible – it thus violated the natural order (Nye 1990, 2). Regarding electricity's provision to the public, the construction of large scale power systems and a grid of wires from the early 1880s onwards were also important. In America, the first electrified places were cities, particularly wealthy houses and public buildings such as hotels, theatres and department stores, many with their own isolated generators, which then made electricity synonymous with wealth and privilege. In addition, electricity was utilised to power streetcars and street lights as well as illuminating various buildings and attractions. Electricity was introduced into industrial applications after 1900, and a decade later it finally found its way into people's private lives in their urban and suburban homes. Finally, electrification reached rural areas in the U.S. during the 1930s (Nye 1990, 382). The main reason for rural areas lagging behind was that they were considered unattractive to the electrical market (Pellegrini & Tasciotti 2012, 2).

As a result of the electrification, a wide array of machines and electrical appliances became available to industry and the public. However, the transformation related to electrification extended far beyond appliances. At the level of state and industry, for example, electric power and lighting

made natural light a supplement rather than a necessity, leading to lengthened work days and greater productivity, thus contributing to economic growth (Nye 1990, 185–237). Within households, everyday life was transformed by appliances that replaced manual labor. In cities, where households first adopted electric lighting and only later began to make use of electrical heating and power, standards of cleanliness rose and efficiency and speed became more valuable (Nye 1990, 242-258).

In rural areas of the United States, electricity facilitated increased sanitation levels, more leisure time and a general rise in the standards of living (Wolfe 2000). Electric light made it safer to move outside and easier to do chores before sunrise or after sunset. Families could, in other words, continue with activities such as sewing, reading and repairing even in the evenings and plan their activities with greater flexibility. Moreover, electrification relieved much of the burden of physical work permanently, particularly that of women. The first appliance to do so was the washing machine, thanks to which laundry became easier and less time consuming, and the farm's general appearance was improved as “backyards were no longer cluttered with kettles and ashes from last week's laundry” (Nye 1990, 323). A few years later washing machines were followed by water pumps that saved time and made the task of fetching water less demanding as water no longer had to be hauled up from a well and carried into the house. Irons and refrigeration had also an essential role, as the former were cleaner and lighter to use than the heavy iron weights used before and the latter contributed to improved family health. Furthermore, the radio became an important appliance that allowed farmers to listen to weather reports and other agriculturally important news. Finally, agricultural machines and appliances were purchased, increasing productivity. (Nye 1990, 304–327.)

Since the technology was first introduced, a tide of electrification has swept over the world, providing “societies with a means for using energy in a multitude of ways” and creating the conditions for rapid industrialisation and economic growth (Winther 2008, 1). Similarly, the technology has continued to transform everyday life in the contexts in which it has been introduced. Studying the electrification of a Zanzibarian rural village called Uroa, anthropologist Tanja Winther (2008) discovered that due to electric light, the limitations posed by daylight had been removed and people could continue with their activities even in the evenings. This had led to speeding time and changed practices. As a result, Winther noted, the number of meals cooked during the day had reduced from three to two, new activities such as watching television had emerged, and electric light had come to represent safety from the spirits. Moreover, men and women spent more time at home together with neighbours and relatives. Interestingly, this

communality had, however, decreased the time for marital intimacy, resulting in a decreasing birth rate. Electricity's high cost and rapid normalisation had only contributed to this, as the need for electricity had made it too expensive for men to have more than one wife, or get married at all. Furthermore, the availability of electrified water pumps and improvements in health services had had positive effects on health terms. Finally, electrification had affected the time spent on highly valued education: on one hand, thanks to water taps, girls did not have to spend long hours in fetching water from wells, but could attend school to the same extent as boys. On the other, electric light had also made it possible for children to attend night classes before exams. (Khazaleh 2008). In her study of a village called Cheer in rural China, anthropologist Xiujie Wu (2008) discovered similar impacts as Winther. Wu also noted that introduction of electricity had reshaped gender relations in households towards mutual support: in the case of electric light, for example, women had lost their exclusive right of controlling lighting and men had taken over the task of acquiring the necessary equipment and its daily maintenance.

For many, the impacts of electricity have appeared positive. Historian David Nye (1990, 304), for example, quotes a Tennessee farmer stating "The greatest thing on earth is to have the love of God in your heart, and the next greatest thing is to have electricity in your house." However, despite electrification's seeming benefits, integrating the new technology into homes and routines has not always been smooth, nor has everyone been delighted by the effects electricity has had on everyday life. In America, for example, the need to protect the new standards of living created new chores for housewives and necessitated performing old ones more frequently. Thus, although electricity made life more enjoyable and convenient for the rest of the family, women were tied to their cast-iron hearths even more than before. Furthermore, many complained about the corrupting effects of radio and the entertainment programmes that were aired, as well as the lack of taste in meals cooked with electricity. As a result, many elderly women, in particular, kept their wood stoves alongside their new electric ranges for the rest of their lives. All in all, for many electricity represented a mysterious and dangerous power that was difficult to adapt to, which was attested to by the fact that overhead lights were hung only in living rooms, kitchens and grandparents' bedrooms, with other bedrooms devoted only for sleeping (Wolfe 2000). The same idea was conveyed in the farmers' thought that electricity belonged in the house, not the barn (Pellegrini & Tasciotti 2012, 17). What is more, some did not see the financial benefits that might follow investing in electrical equipment. Booklets and trainings arranged in electricity usage then played an important role in overcoming this hesitance towards electricity and making it a household necessity (Champ 2001).

In today's world, electrification, and the use of modern energy¹ forms in general, has been gaining increasing recognition in the context of development. This has been because of electricity's strong association not only with economic growth but also with improved living conditions and an overall easier and better life (see Wilhite 2005, 2). The concept of *energy poor* has emerged, referring to those, living mainly in rural areas, who are both poor and rely on wood fuels for their energy needs. Development interventions, funded both by national and international actors, are then aiming to increase the availability of electricity and other modern energy forms in such areas, as this is seen to contribute to the realization of contemporary development goals such as poverty reduction, universal primary education and better health (Modi et al. 2005).

Although the concept of development has evolved since it first emerged in the early post-World War II period as a result of the increasing awareness of vast poverty in Asia, Africa and Latin America, not much seems to have changed in the technological discourse within the development field. That is, as it did in the early years of development interventions, technology still forms an important factor against which development is measured, with the Western world appearing as the model against which others are compared. Moreover, technology is still perceived as “neutral and inevitably beneficial” (Escobar 1995, 36) and, therefore, as one of the main and concrete solutions for the 'underdevelopment' of the Global South, its people and their conditions. This is the case despite the efforts of researchers (e.g Escobar 1995, Kumar 2009, Scott 1998) who have pointed out that ignoring social and cultural factors may actually only worsen the conditions of the intended beneficiaries.

2.2 Electrification in Laos' modernisation and development policy

One of the countries where electrification has somewhat recently become a concern is Laos, a landlocked single-party socialist state in mainland South-East Asia, bordered by China, Vietnam, Cambodia, Thailand and Myanmar. From the late 19th century until 1954 the country was colonised by the French. After the French defeat, Laos became an independent country united by a king, but, after a short period of royalist-communist coalition, a communist transition took place in 1975. During this period, the country also went through a war that displaced at least half of its population, leaving long lasting marks on the country and its population (Ireson-Doolittle & Moreno-Black 2004, 10–14.) Today, the agrarian Laos is included on the United Nation's list of the Least

¹ In addition to electricity, 'modern energy' refers to modern fuels, improved technology, sustainable biomass production and mechanical power (Modi et al. 2005).

Developed Countries in the world, much like its neighbours Cambodia and Myanmar. The main reasons for this include its heavy dependence on the primary sector, underdeveloped infrastructure, especially deficient in rural areas, and high poverty rate², which, despite a steady decline in the recent decades, held at 27 % in 2008 (World Bank 2012, 2).

In the past three decades, the government of Laos has engaged in an ambitious project of modernisation and development, determined to escape the country's Least Developed Country status by 2020. Essential in this regard has been a series of policy reforms, encapsulated in the New Economic Mechanism (NEM) and implemented in the late 1980s, that led to liberalisation of foreign investment laws, and, on a larger scale, to a transition from “a centrally planned to a market based economy led by the state” (World Bank 2012, 2) – or, from another point of view, from subsistence to market (Rigg 2005, 12). That is, until the 1980s, the country's whole economy had relied on small scale subsistence farming and foreign aid, first from the colonial host France and, since the Vietnam War in the 1960s, from the Soviet Union, China and North Vietnam (Rehbein 2007, 44; Ireson-Doolittle & Moreno-Black 2004, 13). Since the implementation of these policy reforms, the country's economy has been growing and its public sector has become increasingly attractive to both private investment and neighbouring giants such as China (World Bank 2012, 2; Rigg 2005, 8). Moreover, the state has been receiving substantial support from international development partners such as the World Bank and the Asian Development Bank: in 2010, 8.5% of the country's GDP and 90% of the government's budget alone comprised of donor-funded programmes (US Department of State 2011).

Laos' economic transition has been accompanied by an increasing interest in socio-economic issues and economic disparities between the country's population, not insignificantly due to the involvement of the international donor community. In practise, the government has begun to address the widespread poverty in the country by employing socio-economic programmes such as the National Growth and Poverty Eradication Strategy (NGPES) and National Socio-Economic Development Plan (NSEDP). Both of the programmes aim to sustain the country's economic growth while achieving all-encompassing sustainable development (NGPES 2004, 2–3; NSEDP 2011, 100). Moreover, they determine two other essential tasks for the future development of the country: first, achieving the eight Millennium Development Goals determined by United Nations, with special focus on relieving poverty (NGPES 2004, 3; NSEDP 2011, 100); and second, bringing rural areas, where the poverty is most pressing, up to the same level as urban ones in terms of general

2 Percentage of population living under US\$1.25 a day

development (NGPES 2004, 2; NSEDP 2011, 101).

This is where electrification, the topic of this study, enters the picture. That is, alongside modernisation and development targets, an idea has emerged of implementing those targets by the means of electrification. Electrification is seen not only as a key to integrated economic development (NGPES 2004, 3) but also as a stepping stone for reaching humanitarian goals such as poverty reduction. Specifically, improved living standards, facilitated by access to electricity, are expected to lessen the workload of women, in particular, leaving time for other, more productive activities and, on a larger scale, leading to a reduction in poverty (NGPES 2004, 104). Consequently, the government has set itself a target of providing access to electricity to 90% of its population by 2020 (NGPES 2004, 103).

As a result of the government's electrification scheme, the country's four regional electricity grids have been expanded to rural areas throughout the country by the governmentally financed electricity company *Electricité du Laos*. Off-grid solutions such as solar panels have worked as supplements in remote areas that the grid cannot reach, at least not in short term. The first areas to be electrified were the vicinity of Vientiane, the country's capital, accessible areas along the border of Thailand, and some villages near recently built hydroelectric dams (Ireson-Doolittle & Moreno-Black 2004, 34). All in all, electrification has occurred at a brisk pace: in 1995, only 16% of households were electrified, while by 2011 the figure was already 70% (World Bank, Allen 2011). The high rise in the number of households with an electrical connection can be seen as due in part to interest free credits that have been offered to the poor in some regions (see World Bank 2012, ix). Nevertheless, rapid electrification has made Laos a model country in the eyes of the donor community, most importantly the World Bank and Asian Development Bank, who, to be noted, have played an essential role in supporting the government financially in the implementation of its electrification plan.

2.3 Subsistence and change in the Lao countryside

Before moving on, it is necessary to examine for a moment the physical setting of the study; that is, the rural environment and life that goes on there. Generally speaking, Laos is a rural country. In fact, 73% of the country's estimated 6,5 million inhabitants live in rural areas, dispersed unevenly across the country's mostly forested and mountainous terrain (World Bank 2012, 1; CIA). Lowland river valleys are dominated by ethnic Lao, making a total of 55% of the population, while upland

areas are inhabited by the country's numerous ethnic minorities (World Bank 2012, 1).

Rural communities in Laos typically consist of 50 to 1,000 individuals, most or all of whom are connected to each other through kinship and live together in a village, or *baan* (Potter 1976, 35; Rehbein 2007, 36–37). The physical living conditions in the villages consist of buildings, local services, gardens and fields, and nearby forests and streams utilised by villagers. Houses, whose residents typically include a married couple and their children, are raised off the ground on stilts and built out of natural materials such as wood, bamboo and grass, with tile or tin making up the roofing in wealthier houses. The houses, with their connected gardens and rice granaries, are typically clustered together in old villages, while in newer ones they may be laid out in a grid pattern or along a road. In addition, some villages may have a Buddhist temple, a school, a health post and a rice mill. Village services tend to be very basic, although they have improved in recent decades (Ireson-Doolittle & Moreno-Black 2004, 32–34, 37). Previously, villages tended to shift location regularly as a result of changing environmental conditions, but in recent decades they have become more settled due to government policies (Rehbein 2007, 6).

Southeast Asian peasants have been characterised perhaps the most famously by anthropologist James Scott (1976), who coined the concept *subsistence ethics* to describe their mentality. With the term Scott refers to a culture that revolves around securing one's family's subsistence, but with the least effort possible. That is, the focus of the peasants is on having enough until next harvest instead of producing as much as possible. This is achieved through means such as traditionalism, reinforcing family ties, avoidance of risk that could jeopardise the stability of the household, and mutual aid, particularly directed towards the rich in the village community. Although coined nearly 40 years ago, this *subsistence ethics* can be seen to fit the Lao rural population even today (Rehbein 2007, Ireson-Doolittle & Moreno-Black 2004). In fact, “[a]s they did in the past, most rural dwellers still devote the majority of their time and energy to meeting their own subsistence needs” (Ireson-Doolittle & Moreno-Black 2004, 34).

The base of the household economy is formed by subsistence rice farming, which has typically relied on paddy farming in lowland areas and on shifting cultivation in hillside slopes. Both men and women take part in rice cultivation, and family members living outside the village often migrate back during harvest. Depending on environmental conditions, households produce one or two crops of mostly glutinous rice per year (Schiller et al. 2006, 197). The importance of glutinous rice, also known as sticky rice, is exemplified in language: in Lao language the expression 'to eat' translates as

'to eat sticky rice' (Schiller et al. 2006, 205). It should be noted, though, that among some ethnic minorities, such as the Hmong, sticky rice is not as valued, but other varieties are preferred (Schiller et al. 2006, 201).

In addition to rice cultivation, important nutritional sources in rural regions include fishing and foraging, as well as small scale production methods such as small livestock raising and gardening. Handicraft production also serves households with access to raw materials. Besides gathering and producing goods for their own use, those able to produce a surplus sometimes sell their extra to earn income. This also applies also to rice production. Other income sources in villages include financial support sent by children studying or working outside the village and, particularly in villages near the capital, working for wages in non-agricultural activities (Ireson-Doolittle & Moreno-Black 2004, 34–39).

In addition to livelihood activities, domestic tasks are a time-consuming area of work in the villages. In comparison to agricultural activities and handicrafts, which are the responsibility of both men and women (Ireson-Doolittle & Moreno-Black 2004, 37), domestic tasks in the form of household chores and rearing children have been women's responsibility, while men have been freer to dedicate their time to socialising and public business outside the family (UNICEF 1996 in Ireson-Doolittle & Moreno-Black 2004, 69–70). The most essential domestic tasks include food processing and preparation, including preparing daily meals, processing forest products and preserving meat and fish by fermenting, drying or jerking. The husking, soaking and steaming of sticky rice, the main staple, has a particular place in the food related chores, with “women and older daughters [rising] before the rest of the family in order to husk rice and prepare the first meal of the day”. (Ireson-Doolittle & Moreno-Black 2004, 70.) Besides cooking related chores, other important domestic tasks include fetching drinking water from nearby water sources such as rivers, wells or boreholes, the former being popular during dry season and the latter two during wet season. Moreover, collecting firewood for cooking is a laborious chore for the women, though men sometimes take part in the activity by chopping trees in the forest or the upland fields and transporting them to the village by trucks or oxcarts³. (Ireson-Doolittle & Moreno-Black 2004, 69–72.) In addition to domestic tasks, in approximately half of households women are responsible for their household's finances. Thus, although men, and the elderly, generally speaking enjoy a higher status than women in the clear, hierarchical social structure in rural communities, “being a female

3 Rehbein (2007, 37) calls this “complementarity of the sexes in the division of work”. That is, while forms of work such as those mentioned are considered more suitable for women, men engage in repair work, housebuilding, hunting and other similar activities.

[has] had and still has a certain value as a social resource” in rural life (Rehbein 2007, 57).

Although subsistence farming and its associated lifestyle still persist, in recent decades rural life has been significantly changing, mainly as a result of the government's development scheme. Concrete impacts have included relocations from upland villages into the valleys, prohibition of shifting cultivation and a switch from communally owned to privately owned land – policies that many have perceived more as acts of surveillance and control of ethnic minorities than actual development (see e.g. Daviau 2010, 195; Lestrelin 2009). Moreover, money has come to play a far greater role in daily life and, as a result of government propaganda, the villagers themselves have begun to consider themselves poor. What is more, new infrastructure such as water pipeline projects and roads connecting villages to market places and national life have been constructed, which have in turn increased migration out of villages (Rehbein 2007, 46). Market integration has also been found to have an effect on the division of work at homes and the composition of the family itself by offering economic opportunities that draw one or more household adults from agricultural work. Women, for example, have gained increasing mobility, power to make financial decisions and help with their domestic work through their success as merchants (Håkangård 1992 in Ireson-Doolittle & Moreno-Black 2004, 77). As this shows, although agriculture still employs 75% of the population (CIA), the livelihoods of villagers are becoming less and less subsistence-oriented, with farming losing its position of utmost importance. This has been the case particularly in income terms, with alternative occupations such as industrial work gaining a firmer footing in the household economy (Rehbein 2007, 46; Rigg 2005, 141–142).

Somewhat ironically, the country's energy development scheme also poses a challenge to rural livelihoods. Specifically, the government's electrification scheme has been accompanied by an export oriented transition, due to which an increasing number of hydroelectric dams, owned both by public and private investors, are being built in the Mekong river and its tributaries. This development has its pros and cons: on one hand the dams generate revenue for the government and profits for private-sector investors, thus forming an opportunity the policy makers do not want to pass (Middleton, Garcia & Foran 2009, 35). On the other, expected negative impacts of dam development on rural people depending on the Mekong river and its natural cycle are numerous. They include loss of fisheries, riverbank gardens, and riverside forests; cultural sites and artefacts such as spirit forests, cemeteries, temples; and the displacement of people from valleys to upland areas (ICEM 2010, 112–114). Some of these impacts have already been experienced in the case of dams such as the Nam Lik and Nam Song (see Middleton, Garcia & Foran 2009, 31).

What, then, have the effects of the electrification been on the people living in rural areas in Laos, and how has the new technology been received? That I will examine in detail in chapter 5. First, however, I will introduce the theoretical basis of this thesis, as well as the data on which the thesis is built.

3 THEORETICAL ACCOUNTS ON TECHNOLOGIES AND THEIR ADOPTION

The thesis in hand associates with a research approach that perceives the adoption of new technologies as a process of domestication. The tradition not only offers the theoretical assumptions on which the thesis builds on but also a framework that will be used in organising and analysing the data in chapter 5. These will be discussed next. First I will, however, locate this study in the field of social sciences.

3.1 Social Studies of Science and Technology

The present study associates with the multidisciplinary field of Social Studies of Science and Technology (SST). SST forms the primary field within which technology is studied in American and European social sciences, and it combines, amongst others, anthropological, sociological and historical perspectives. Moreover, it covers a range of explanatory frameworks and treats different aspects of the society from initial innovation phase to consumption (Williams & Edge 1996). Generally speaking, the main goal of studies associated with the field is to understand the nature of technologies as cultural artefacts: that is, how they carry meanings in themselves and how they not only shape the society within which they emerge but, in return, are also themselves shaped by the surrounding socio-cultural context in activities such as innovation and consumption (Aune 2001, 8).

The roots of SST in its present form can be traced back to the 1980s, when the seminal works *The Social Shaping of Technology* (1985) by Donald MacKenzie and Judy Wajcman and *The Social Construction of Technological Systems* (1987) by Wiebe Bijker, Thomas Hughes and Trevor Pinch were published. Until then technological innovation was perceived as a linear, unproblematic process, in which technologies, with their designed uses and meanings, were diffused from scientists and engineers to the end-users. Studying users was seen pointless, as it was assumed that technologies were used in accordance with their design and that the consequences of this use were, therefore, predictable and inevitable (Aune 2001, 8). In their works, the above mentioned scholars, however, challenged this view by showing how, in fact, the shaping of a technology was related to wider societal structures and, to a large degree, affected by conflicts between different actors and levels. Technologies were, in other words, not products with inherent meanings but products of negotiations. As a result of this realisation, the role of the different actors involved with technology became the key focus of the research area. At first, this focus was set almost exclusively on

scientists and engineers, that is the start of the innovation process, but as the body of work piled up, the role of the end-users in developing a technology started to gain attention (Aune 2001, 8).

Today, the way technologies are received, used, and sometimes rejected is typically examined within SST as a process of domestication. The concept was first introduced by sociologist Roger Silverstone and his research group in the early 1990s (Haddon 2003, 44). In addition to the sociology of technology, it drew inspiration from ethnographic studies on media from the 1980s that emphasised that watching TV should be examined within the social setting in which it took place, specifically at home and with other family members (Peteri 2006, 56). Moreover, the approach was influenced by anthropological studies on the multi-faceted biographies of artefacts (e.g. Appadurai 1986, Kopytoff 1986), referring to the way consumption patterns, as well as the meanings and uses attached to technologies, transform over time due to, for example, social or technological change (Haddon 2003, 46).

3.2 Domestication framework

Simply speaking, the term *domestication* refers to a process of taming or houstraining that accompanies the introduction of a technology and through which a technology eventually becomes, in a sense, part of the family (Berker et al. 2006, 2). From a more theoretical point of view, it can be seen as a period in a technology's biography, during which the technology, with its designed uses and meanings, is integrated into the household both at a material and a symbolic level, and transformed from an alien object into a meaningful, even taken-for-granted part of the user's life and environment (Silverstone et al. 1992, 18). In this process it is not only the technologies that are changed but also the users and their environment; that is, people, for example, develop different use patterns “in 'negotiation' with the technology” (Aune 2001, 8) and create “an environment that is increasingly mediated by technologies” (Berker et al. 2006, 3). Examining the domestication of a technology can thus be seen to offer meaningful insights on processes of social change in groups under the lens.

In studies making use of the concept, domestication is oftentimes divided into four dimensions: appropriation, objectification, incorporation and conversion (e.g. Lim 2008, Hynes & Rommes 2006). While the first and the last one emphasise the symbolic meaning of a technology, objectification and incorporation pay focus to the material expression of that symbolic meaning (Silverstone et al. 1992, 25; Hynes & Rommes 2006, 127). These dimensions can be further

characterised in the following terms:

- 1) *Appropriation* is an activity which involves both actual and potential users (Hynes & Rommes 2006, 128). It consists of imaginative work, in which a technology is symbolically taken possession of and moved from the world of commodity to the domestic sphere. In this activity the technology is constructed either as an object of desire or something that the users do not want, and assigned uses and personal meanings that can fill the purpose of differentiation or allying with others. (Silverstone et al. 1992, 21; Hynes & Rommes 2006, 128.)
- 2) In *objectification* a technology is installed and given a place in a specific, already constructed, meaningful physical environment such as the home. In its display and use the technology becomes part of constructing the environment as such. The process of objectification is, then, informed by the “household's sense of its self and its place in the world,” drawing on perceptions of status and revealing the values the household feels comfortable with (Silverstone et al. 1992, 22).
- 3) *Incorporation* focuses on the ways in which technologies are used, as well as when they are used and by whom. In fact, it is by being incorporated into the household and its daily routines that a technology gains its functionality; it can, for example, help to control time, releasing it for other things, or act as a sign and a reinforcement of status. The functions that a technology gains in use do not necessarily comply with the ones assigned to it in the appropriation or initial design phase but can differ (Silverstone et al. 1992, 24).
- 4) In *conversion* the personal meaning that has been attached to a technology is made public through display, use or talk of the technology, not only contributing to the public culture but also acting as an indicator of the household's membership to it. In conversion the technologies and their meanings pass again the boundary between the private and the public sphere, only now to the opposite direction than in appropriation (Silverstone et al. 1992, 25–26) (Illustration 1). As Hynes and Rommes (2006, 128) point out, “conversion is of importance in explaining how potential new users gain their representations of [technologies], once again starting the domestication process for new users”.

As these definitions show, the concept of domestication builds upon a notion of the household as a

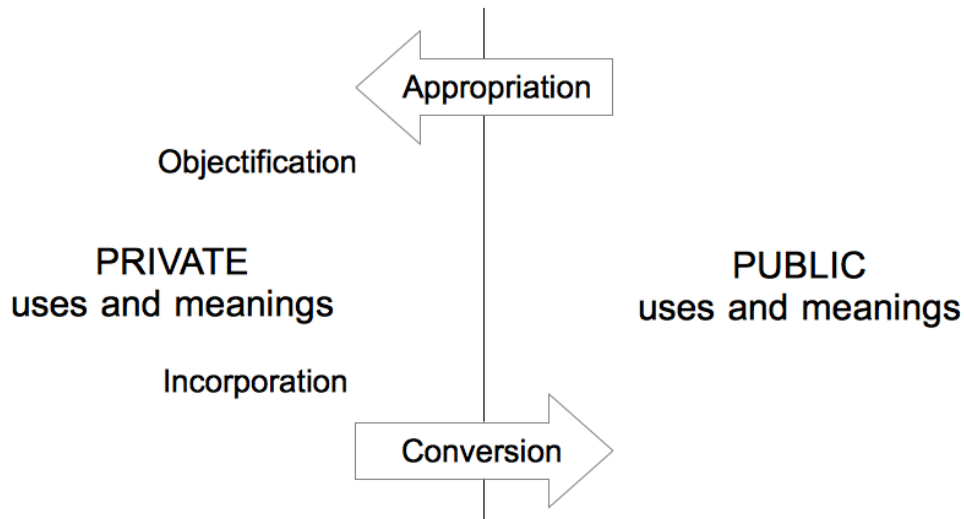


Illustration 1: The four dimensions of domestication and their relation to the private and public spheres

moral economy, that is, an entity that is in constant exchange with the surrounding economy, and whose values and judgements, and its aim towards *ontological security*, play a vital role in its productive and consumptive activities (Silverstone et al. 1992, 18).

It is worth pointing out that while some elements of households' moral economies are shared, others are unique (Silverstone et al. 1992, 18). Therefore, “not all households, even those equivalently placed, consume equally or with the same consequences” (Silverstone et al. 1992, 6). In other words, while some households are able to successfully domesticate a technology and the values attached to it into their routines and moral economy, others never pass the appropriation phase. In addition to the cultural resources available to each particular household, studies on domestication have identified factors such as financial constrains (e.g. Haddon & Silverstone 1996) and lack of supportive networks behind the decision of not to take up a certain technology (e.g. Haddon 2004).

Although domestication has over the years become a popular concept among technology studies, it has also received some criticism. Anthropologist Mareile Flitsch (2008, 267), for example, has argued that by focusing on the adoption of new technologies, the concept undermines the practises that existed before, as well as the skills and competence that are related to those practises. In addition, the concept has been accused of implying that technologies will, at some point, become fully settled. According to critics, this is not the case; much like pets, technologies sometimes act out, and do not submit to all that is demanded of them, even if they are regarded as part of the

family. Moreover, the meanings and uses assigned to them do not necessarily stay the same forever, but may alter, for example, due to technological or social change (Peteri 2006, 61). A final criticism directed towards the concept has been that by examining the micro level the concept forgets the bigger picture; that is, the surrounding societal context. This view, however, has also been challenged by pointing out that, in fact, looking at the way technologies are used and treated at the household level may reveal how the societal and cultural reality is continuously renewed in household practises. Hence, making a strict division between the micro and the macro level can be futile (Ridell 1994, 57). Although these critiques, with the exception of the first one presented, have been made in relation to media technologies, they also hold certain relevance in the context of this thesis, as will be illustrated in the analysis of the empirical data.

3.3 Empirical studies on domestication

As the term itself suggests, domestication was initially developed to analyse the use of technology in the private setting of home. The concept's usage has, however, been extended, and in the past decades, it has been applied also to public environments such as work places (e.g. Sorensen et al. 2000) and training courses (e.g. Hynes & Rommes 2006). As for the technologies under study, ICT remains a focus of domestication research, particularly in the case of non-European countries, where studies have focused almost exclusively on mobile phones and other ICT (e.g. Lim 2008 for East-Asia, Chigona et al. 2010 for South Africa, Hahn & Kibora 2008 for Burkina Faso and Shekar 2009 for India). Still, researchers making use of the concept have, over the years, also utilised it more or less successfully in relation to a few other technologies, including health and e-learning technologies (Juntunen 2011, 165) and, as one of the concept's latest conquests, electricity and energy technologies.

Historian Graeme Gooday (2008) is one of the researchers who have utilised the domestication concept in the study of energy. Gooday examined the early years of electrification in late 19th century Britain and discovered that, much like in the United States (see my summary of Nye 1990 in chapter 2), electricity was interpreted in its initial years as mysterious and hazardous, and was confronted with a widespread fear of its threat to the body and home (Gooday 2008, 2–3). For domestication to succeed, it was then essential that this fear was overcome and the technology was, so to speak, tamed. According to Gooday, both the perception of electricity as dangerous, as well as the act of taming it, were strongly related to gender. To be more exact, it was the physical safety and aesthetic appearance of the female body, in particular, that electricity threatened. Ironically, it was

mainly the wives of electrical engineers who eventually demonstrated how well the current could be tamed by electrical appliances. (Gooday 2008, 6.)

Sociologists Margrethe Aune (2001) and Jouni Juntunen (2011) have also employed the concept in relation to energy. Much like Gooday, they focused on the European context. In Aune's study the concept was used to examine how a temperature controlling technology called Ebox was integrated into Norwegian homes. Aune noted that significant variety could be found within the way the technology had been tamed: specifically, while some had domesticated Ebox into their daily routines successfully, and, as a result, either changed their heating habits or managed to simplify the process of climate control, others had decided not to incorporate the technology into their routines. The reason for this was usually that the people were perfectly happy with their established routines and living conditions. At the end of her study, Aune came to the conclusion that, unlike many consumer goods, the value of energy technologies tends to be restricted to their utility. That is, for their users, the technologies are practical, but not much more.

Juntunen (2011) then examined the residential use and production of small-scale renewable energy at Finnish summer cottages. His study revealed that financial considerations, convenience and utility formed the main reasons for switching from grid use to small-scale energy technologies. Moreover, the new technologies were purchased with the purpose of testing what the technology's capabilities, and were not necessarily acquired to fully replace grid connection but to support it. Juntunen's findings contradict Aune's (2001) in that, in Juntunen's opinion, the meanings of energy technologies may also extend to the symbolic level. More precisely, in his study some signs of expression of identity could be noted in the use of somewhat rare solar thermal collectors, whose users had purchased the technologies with environmental concerns in mind.

3.4 Domestication in this study

In the theoretical overview above I have provided a summary of the branch of study with which the thesis associates, that is, social scientific technology studies that perceive technologies both shaping and being shaped by their social context. I have also introduced the concept of domestication as an analytical tool in uncovering the processes at work when people confront new technologies and attempt to fit them into their lives. Based on the discussion above I define domestication as a process of taming or houstraining through which a technology is integrated into a household. This process, which takes place at different material and symbolic levels within and against the moral

economy of the household (see Silverstone et al. 1992), not only changes the technology, but also the environment around it 'in negotiation' with the technology. In the context of this study, the basis for the understanding of the moral economy is formed by subsistence ethics described in the previous chapter.

In the following chapters the concept of domestication as well as its different dimensions will be used as a framework steering, but not restricting, my examination of the reception of electricity in rural villages of Laos. I have chosen the approach as both my theoretical background and my methodological tool mainly because of the content and nature of the data available to me. Next I will describe this data, as well as the process of gathering and organising it.

4 METHODOLOGY: TO THE VILLAGES AND BACK

Since the discipline's early years, ethnography has formed an ideal method in anthropological knowledge production. Specifically, participant observation, face to face interaction with informants and engagement with the community and phenomenon under study are have been found to work as tools that imbue the researcher with the ability to depict the world from the perspective of the informants (Malinowski 2012). The same techniques and the so-called *emic* perspective ethnography offers have been widely utilised also in domestication studies (e.g. Hynes & Rommes 2006, Bakardjieva 2006), where they are seen to produce a more comprehensive picture of technologies' place in social life than, for example, surveys (see Berker et al. 2006, 5). For these very reasons, ethnography is employed in this study, although, to be frank, the extent to which this is done is somewhat limited. This is because of financial realities and various other factors that often force a researcher to make compromises in their work, particularly in a country such as Laos (see Daviau 2010). In this chapter I will discuss the methods used and the choices made during the research process, as well as their implications on the data that the thesis relies on. Finally, I will speak briefly regarding the representation of the data in the next chapter.

4.1 Finding the field

The research process for this thesis had its start in summer 2011, at which time I was interning at Finland Futures Research Center (FFRC). During my internship I was asked to write a briefing on energy and development for one of the research and capacity building energy projects FFRC is implementing in the Mekong area. The assignment sparked my interest on a topic that was somewhat foreign to me at the time. Completed, and with my interest in the region, I was then eager to write my Master's thesis related to one of FFRC's projects. After asking the staff, I received an affirmative answer. They suggested to me the INES project, which examines the inter-linkages between energy and livelihoods, and offered some of the quantitative data and qualitative focus group discussions already gathered in the project for me and another thesis writer⁴ to use in our analyses. This data played an essential role at the start of the research process, working as the basis for familiarising myself with the topic, along with literature on Laos and development. The data also served as a reference point in formulating a research question.

The FFRC focus groups were replaced as the primary source of data for analysis in December 2011,

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when both of us thesis writers were offered a chance to travel to the country to conduct fieldwork there in February–March 2012. The idea was to conduct interviews, first, with development experts in the capital Vientiane, and, second, in one of the provinces in which the FFRC focus groups had been arranged to gain a more comprehensive picture of the issues discussed in the focus group discussions and elaborate on certain topics that needed more clarification. The length of our stay in Laos was soon settled to 3,5 weeks, as other obligations prevented us from staying longer in the area. The first and the last week of this time would be spent in Vientiane while the 1,5 weeks in between was reserved for village visits.

The most essential practical preparations for the field visit included hiring a bicultural researcher to assist us during our stay in Laos, choosing a site for the village visits and taking care of the required bureaucracy. With reference to the first item, it was clear from the beginning that we needed a Lao national to accompany us on our field trip, one both informed of the objectives and the themes of our studies and with experience working with foreign researchers. This was crucial, first, because neither of us spoke Lao and therefore lacked a shared language with the interviewees, essential for gathering data in the villages. Second, it was thought that a bicultural research assistant would have the best insight on the cultural context and issues under study, as they share not only the language but also many social and cultural traits with the people under the lens (see Liamputtong 2010, 138). This was seen to make entering the field easier than it probably would be otherwise, and particularly important in the context of our fieldwork's time limits.

Initially, our assistant was to be one of the Laotian staff working at FFRC's office in Vientiane. Unfortunately, when the time came, she was unable to participate, and we were forced to find another person to do the job on short notice. In the end, a new person was found relatively easily thanks to the original assistant's recommendation. The man who we hired was not a professional translator, but a Lao national who worked as a teacher and researcher at the National University of Laos and had completed his doctorate in Sweden. Moreover, he had previously worked with Master's students and was familiar with the environmental and livelihood issues of the country through his research. Thus the man was seen to possess the kind of cultural knowledge and experience that we found essential. Due to this change of an assistant, however, we were forced to abridge the length of the trip to a week, as the new assistant's other engagements only allowed him to stay in the field for that period of time.

When we boarded the plane in Helsinki, the area in which we would carry out the fieldwork was

still undecided. As stated, our intention was to visit villages in one of the districts in which FFRC had already conducted research. This, however, proved difficult. The villages in which the FFRC focus groups had been arranged were far from Vientiane, which served as our base during the trip, and their exact location was hard to determine. Therefore the idea of revisiting them was abandoned, and the rural district of Feung in Vientiane province was selected as the site to carry out the fieldwork. This decision was made when our new assistant suggested us the district based on his previous experience of carrying out research there. We were satisfied with the assistant's suggestion, as it met the criteria we had set for the fieldwork area: specifically, (1) rural location, important because my fellow researcher's focus on rural livelihoods depended on nature as well as its general importance in the Lao society; and (2) relatively recent grid access (<10 years since the extension), reflecting the emphasis on grid extension within the government's modernisation policy, and assuring that the villagers still remembered the time before electrification reasonably well, as well as the events and considerations related to adopting the new technology. The Feung district suited our interests and limitations, mainly the limited amount of time and money in hand, as well as in the sense that it could be reached relatively quickly and easily from the capital.

Finally, to gain an access to villages in Laos, foreign researchers must acquire a research permit from governmental authorities, as well as hire a local governmental officer to join the fieldwork and interview situations (see e.g. Daviau 2010, 195). Being a highly bureaucratic one-party system, acquiring a research permit in Laos may take time, causing delays in the research process, and even prohibiting the researcher from going to certain areas (e.g. Smits 2008, 43). This was also the case with our research: although FFRC's connections with the National University of Laos and the Lao Ministry of Mines and Energy proved highly beneficial regarding the research permit, receiving the permit took longer than we expected and forced us to postpone our trip by a week. The governmental officer, working in the environmental department of the Feung district, was, however, found relatively easily through our research assistant, who had worked with the district's officials before.

4.2 Producing the data

During our week in Feung, we visited five villages within a 20 km radius of the district capital where we stayed, specifically Naseng, Sammuen, Phonsavath, Nam Pung and Nong Por. The number of villages visited was a compromise: I would have preferred to focus on one or two villages and a few interviewees, but for my fellow thesis writer it was important to visit as many

villages and interview as many people as possible during our stay in the area. Data was gathered in the villages using four different methods that were meant to complement each other: semi-structured interviews, ethnographic observation and diary keeping, photography, and short conversations with a few villagers. These methods have proven useful in studies on domestication, as they provide a more in-depth understanding of the processes under the lens than do quantitative methods, or interviews alone (see Berker et al. 2006, 6–7).

4.2.1 Semi-structured interviews

The main data used in this thesis consists of twenty 1,5- to 2,25-hour long interviews that were arranged in the villages, which followed a semi-structured format. The method was chosen as it sets a clear focus for interviews by setting specific themes to be dealt with, but, at the same time, allows for flexibility, allowing interviewees to assume the lead (Bernand 2006, 212). In other words, a semi-structured format would maximize the circumstances of the study, specifically the short period of time we were able to spend in the villages and the fact that we were able to visit the same villages only one or two times and to speak to most participants only once (see Bernand 2006, 212). The topics that we agreed upon beforehand, and which guided the interviews, were livelihoods, environmental change, energy and village development. Of these, livelihoods and energy formed my main themes. More specifically, I was eager to find out **in what areas of their lives people were using electricity, how it had entered their lives and what kind of role it played in people's lives in general**. Moreover, I was interested in what kind of electrical appliances the people had, if life had changed after the grid extension and **if electricity had replaced some other energy sources or techniques**. These issues were addressed with a variety of questions and word formulations, and the question list was revised after every village visit based on the experience gained from the interviews. The original set of questions can be found in the Appendixes (Appendixes 2–4). For the sake of brevity I have included in it all questions on the theme of electricity, but only the most essential ones on other topics.

Altogether 20 interviews were arranged in the villages. They consisted of 5 interviews with village headmen (one arranged in each village), 10 individual interviews (two in each village) and 5 focus groups (one in each village). The different types of interviews served different purposes: the aim of the headman interviews was to show respect for the village hierarchy and to gain general information about the villages and people's uses of energy. Individual interviews, then, were arranged to gain more detailed insight into people's livelihoods, their energy use and the role of

electricity in their lives. Finally, the focus groups, comprised of 4–6 persons, were arranged with the intention of sparking conversation between the villagers regarding environmental changes (the focus of the other study being carried out) and the role of electricity in their lives, while offering peer support for those interviewees who find one-on-one interaction intimidating (see Liamputtong 2010, 176). Unfortunately, in many cases, the focus groups failed in the first task and were reduced to simple question and answer sessions.

The interviewees for the individual interviews and focus groups were reached through the village headman and a district official, who chose suitable people according to our criteria. This was, again, done out of respect for the Laotian social order. In the interviews we were particularly interested in hearing the views of women and people who defined their livelihoods as poor, as they make up a significant group in the villages but oftentimes remain unheard. In the end, 17 of the interviewees were women and 19 were men, while 13 stated to be of poor livelihood and 23 of sufficient livelihood. Depending on the village, the criteria for the poor group included a shortage of food or a permanent house, and significant difficulties in supporting one's family. In sufficient households such issues were not common place. Because of the small size of the villages and their closely-knit social structure, the people taking part in the focus groups seemed to already know each other. In some cases people seemed encouraged by the presence of neighbors, while in others the village hierarchy seemed to stifle some of the participants, particularly the poor (the Naseng FGD), from talking, and they instead kept their statements very brief (see Bernard 2006, 237).

All of the full-length interviews were recorded as they took place. The main languages of the interviews were English and Lao: the interpreter translated our English questions into Lao and the interviewees' Lao answers back into English. In two interviews conducted in the village of Nam Pung, in which the Hmong interviewees spoke only a little Lao, the village headman worked as an additional interpreter between the interviewees and our interpreter. In interviews with village headman and during individual interviews, the need for translation was frequent: first, to maintain our control over the interviews and, second, to allow detailed notes to be taken. This was essential because, due to limited time and finances, full, detailed transcriptions could not be produced later on. In the case of the focus groups, on the other hand, the research assistant was given more room to steer and moderate the conversation, as he would be transcribing the conversations after our fieldwork. Moreover, we felt that continuous translation would only limit natural conversation between people and trusted the assistant's skills, both in finding relevant information for us and encouraging even the most reticent to speak. It should be noted, though, that this decision was

problematic in the sense that it restricted me from asking clarifying questions on issues that were raised during the conversation.

4.2.2 Observation and short conversations

12 of the 20 arranged interviews took place in village meeting rooms, five in headmen's houses and three individual interviews in people's living rooms. This allowed me to observe the surroundings while conducting the interviews, particularly what kind of appliances people had in their homes and meeting rooms, and how these were placed. In some of the villages we also had the opportunity to walk around the village in order to take pictures and gain a wider understanding of the village life and routines, even visiting some businesses, such as a repair shop and a barber shop. While, in most cases, the time left for such activities was limited, as the interviews started early and finished late in the evening when it was already dark, I feel such less-formal research opportunities contributed greatly to my study. This was because they allowed us to follow the leads that our informants gave us and engage in short, 5–10 minute conversations with the villagers. It is the diary entries of these observations and short conversations that make up the rest of the data.

4.3 Secondary data

The additional data used for the thesis consists of five, approximately 50-minute long interviews with development experts working in Laos for different international and non-governmental organisations. These semi-structured interviews, conducted together with the other thesis writer, have served mainly as an opportunity to familiarise myself with and gain insights into the issue of energy development in Laos. These interviews covered the same topics as the village interviews, my main themes being energy use and village and household development. Approximately half of the length of each interview was dedicated for these themes. Moreover, the transcriptions of the seven FFRC focus groups arranged in on-grid villages in different parts of Laos serve as supporting data. As stated earlier in this chapter, they functioned as the basis of my research question.

4.4 Notes on the data and its collection

Before turning to analyse the data collected in the villages, I want to address a few points on the research process that have influenced the quality and nature of my data.

The first factor that has shaped the data is related to the conceptual tools used in the thesis. Specifically, when forming the interview questions, the theoretical approach I had in mind was anthropologist James Scott's (1998) theory of knowledge systems. However, as is often the case with anthropological practise (see Okely 2011, 1983), as the research process moved along, another approach came to seem more relevant to the collected data and the particular cultural context, specifically that of domestication. As for the current focus of the thesis, covering a few topics more thoroughly would have been, in hindsight, useful. The initial motivations for acquiring an electrical connection, specifically, is one of the topics that deserved more attention.

Another unforeseen factor that may shape the collection of data is the involvement of a party official. From the perspective of the research, the presence of officials has been found to leave “little space for the (critical) researcher to manoeuvre” (Daviau 2010, 201). That is, in the presence of government officials, interviewees’ answers may be very cautious, and deciphering people's real opinions on a certain topic proves challenging as interviews often end up simply reproducing the official Party discourse (Daviau 2010, 201). In our case, the district official did not, luckily, take part in the conversation or try to affect the topics that were discussed, but just sat in the room observing. Half-way through our fieldwork, he seemed to lose interest on our research altogether and spent time either napping in the background or relaxing outside as I conducted interviews. With regard to the content of the interviews, there were no significant differences between the answers in the interviews in which the official was present and those in which he was not. The reason for this might, of course, be that the interviewees had seen the man and thought that he would later hear what had been discussed. Still, the interviews can be regarded successful in the sense that, as will be shown, the participants did not only repeat the official discourse on electricity, but also articulated some critical opinions.

Undoubtedly the most significant factor that shaped the data was the participation of a native research assistant. As stated, the assistant whom was hired was not a professional translator but a researcher who knew both Lao and English. Because of this, not all answers were translated word-to-word, but, at times, the conversation was summarised. What is more, because of this, as well as our inexperience of conducting interviews in demanding conditions, steering the conversations as well as making it clear what kind of information interested us the most, and getting that information translated back to us, at times took extra effort. Moreover, managing time proved challenging, and, as a result, some of the interviews turned out lengthy and tiresome for all parties. All this is reflected in the data to some extent.

It should be noted, however, that what was lost in the quality of the word-to-word translations and effortless cooperation by choosing a non-professional interpreter, was made up in access to his understanding of the rural context and methods used. That is, thanks to his experience in the fieldwork, the assistant was able to cooperate with district officials and village headmen successfully and arrange for us relatively wide access to the villages. Moreover, thanks to his experience of conducting semi-structured interviews and focus groups, the assistant was able to connect with the interviewees and managed to encourage even the shyest interviewees to speak up. Due to these, the research assistant turned out invaluable to us, particularly considering the time and finances available for collecting the data.

4.5 Representing the data

In the following chapter I have organised the data gathered in the villages according to the four dimensions of the domestication framework: appropriation, objectification, incorporation and conversion. In the interviews, I have identified these dimensions, as well as the factors that affect these phases, with the help of the following sub-questions:

- *Appropriation*: What kind of motives did the household state to have for (not) acquiring a connection to electricity/certain electrical appliances? What kind of uses are assigned to electricity? What kind of factors affect the uses?
- *Objectification*: How is electricity installed? What kind of technologies are used in combination with electricity? Where and how are they placed?
- *Incorporation*: In what kind of activities has electricity been incorporated? What kind of function does electricity serve in the activities? How do these functions support/fit the household's activities?
- *Conversion*: How are electricity's use and private meanings made public?

Identifying and distinguishing these dimensions was at times difficult, and involved a number of choices that needed to be made in the analysis. Objectification, in particular, proved tricky, as electricity itself lacks a physical form that could be simply placed into a house. Therefore, the classification used in this thesis is hardly the only way of organising the data in hand, but merely presents one option. One reason for the difficulties in the organisation of the data might be the fact that the interviews that formed the main data for my analysis were not constructed with the

presented classification in mind, but that these dimensions were identified only later on.

In the analysis I have provided quotes only for the focus group discussions for which transcriptions are available. Regarding these quotes it is worth emphasising again that they, as with the transcriptions in general, have been produced by applying a simplified method of translation. In other words, the transcriptions bring out the main points of the interviewees' statements but do not include every spoken word. Due to this, in addition to the general process of translating, some of the meanings and nuances of the interviewees' speech may have been lost.

Finally, I have coded the interviews using a combination of letters and numbers that reveal which interview and interviewee I am referring to. The first two or three letters indicate the village in which the interview has been conducted: specifically, NS stands for Naseng, SM for Sammuen, PHO for Phonsavath, NMP for Nam Pung and NPR for Nong Por. The number after the hash signifies the type of the interview in question: 1 denotes an interview with the headman, 2 a focus group discussion, 3 and 4 individual interviews, and 5 a short, informal conversation. In the case of focus groups, participants are, furthermore, differentiated with codes R1–R6. Based on these explanations, the code NS#1 then refers to an interview with the Naseng headman, R1 in SM#2 to participant 1 in the Sammuen focus group and PHO#3 and PHO#4 to individual interviews in Phonsavath. A full list of all semi-structured interviews, with the sex, age and the livelihood status of the people interviewed, is available in the Appendices (Appendix 1). This basic information is also used in the text to describe the interviewees and has been provided by the interviewees themselves, including the livelihood status that the interviewees have identified based on village criteria. The age of the interviewees has been rounded to the nearest multiple of ten as the exact age of the interviewees is not seen as relevant.

In this chapter I have explained the methods used in the thesis, discussing also the choices made and the problems faced during the research process. As the discussion has illustrated, the process of gathering the data has not been ideal from the perspective of the available resources. Nonetheless, I feel that the interviews and the supplementary methods used managed to produce enough data against which to test the theory. This data can be seen as valid in the sense that all of the methods applied seemed to produce similar findings, which again resembled those of the FFRC focus groups. In the following chapter I will turn to analysing the collected data in detail.

5 FITTING ELECTRICITY INTO EVERYDAY LIVES

Anthropologist Tanja Winther (2008, 9) has identified three levels relevant to the analysis of electrification. First, there is the electric current itself, materialised in the wiring and meters that connect it to the house and the household's reach. Second, since electricity is always consumed in combination with other equipment, there are the electrical appliances that harness the power of electricity for further utilisation, identified as the 'primary objects' of electricity. Finally, there are the 'secondary objects' of electricity, referring to the services that the electricity provides through the application of electrical appliances. In this chapter, in which I look at how electricity was domesticated in the rural villages of Feung, my analysis moves on all of these three levels. Before moving on to the actual domestication process, I will offer an introduction to the fieldwork area.

5.1 Overview of life in the villages

The fieldwork was conducted in five villages in the Feung district of Vientiane Province (Illustration 2): Naseng, Sammuen, Phonsavath, Nam Pung and Nong Por. The first two were located along the river Nam Lik and were affected by a dam that had been constructed somewhat recently near the villages. Phonsavath, the third village, was a resettlement project undertaken to accommodate the villagers who had been displaced by the Nam Ngum II dam project. The last two villages were located in the mountains and were inhabited by Hmong, one of the numerous ethnic minorities in Laos. Nam Pung had been formed by a community that used to live in another district, and Nong Por by a community that previously lived higher in the mountains. With the exception of the resettlement village and its 6544 dwellers, the number of inhabitants in the villages ranged from 572 to 902, making them the size of a typical Lao village (see Rehbein 2007, 37). On a national scale, the villages and the district on the whole were considered relatively well-off. In fact, on the wall in the meeting room of the resettlement village there was a map of Laos, provided by the World Bank's Water and Sanitation programme, in which the districts of Laos had been separated into rich, poor and poorest using different shades of blue for colour coding. Of these, Feung belonged to the second group.

As with rural villages in general, the livelihoods of the villagers in the Feung district rested heavily on agriculture and the natural environment. The main livelihoods were rice cultivation, specifically paddy rice and shifting cultivation, livestock, fishing, gardening for personal use and collection of



Illustration 2: Map of Laos (Nations online project). Fieldwork area marked with a circle

non-timber forest products. In previous years, many of these activities had been affected by environmental changes such as irregular rainfall, polluted water and a decline in forest production. Sources of income included weaving, shop keeping, garage work and hairdressing. In some villages

such as Nam Pung both the number of people practising handicrafts, as well as the importance of this activity relative to household livelihood and security, had increased in recent years, because villagers had nothing else to do to support themselves (NMP#1). A further important factor affecting households' economic stability and well-being was the support people received from their children: grown-up children living outside the village helped the family by sending money monthly and migrating back to the village during cultivation season when labour was needed.

Most of the interviewees in the villages lived with their spouse and children. However, some families shared a house, which was implied by the fact that there were fewer households than families in the villages, though the houses we were able to visit accommodated only one family each. The housing conditions in the villages differed. In Naseng, Sammuen and Phonsavath, most houses were of a traditional Laotian design, similar to those described by Carol Ireson-Doolittle and Geraldine Moreno-Black (2004, 32). They were built of wood and raised off the ground on stilts, and a wooden ladder was used to climb up to the actual living space. The area underneath was used for storing wood, weaving and other livelihood activities, and was usually open. The headmen's houses, where we interviewed the headmen and arranged the focus group discussions in the first two villages, as well as some other houses, were built on the ground and included a terrace where livelihood activities such as weaving were performed, and where agricultural machines were kept. In the Hmong villages and in the resettlement village, houses were also built on the ground level. For roofing, several materials were used, including grass and shingles, while siding usually consisted of wooden boards or bamboo. In traditional Lao houses the floor was made of planks, whereas in the houses built on ground it was covered with tiles. The houses were typically separated with a fence made of small wood or bamboo. Probably due to their cost, there were no glass panes in the windows, only shutters that were open in the daytime, letting the sun shine inside and creating a feeling of openness. This sense of unlimited community was emphasised by the fact that in all of the villages doors were kept open during light hours, at least.

The rural home environment was rather simplified and practical. The main room of the house, where the interviews took place, was fairly large and spacious. In poor and sufficient households there was little furniture in the room, and the interviews were conducted sitting on the floor with the interviewees. A sleeping area was either separated with a curtain from the living space or located in a different room, whereas a kitchen space with a fireplace was built in a separate room or completely separate of the main house. In both of the headmen's houses, on the other hand, the living room was furnished, for example, with shelves, wooden benches and low tables around

which the interviews were arranged. In the house of the Sammuen headman a sizeable loom was also located in the corner of the living space; in Naseng it was placed in a separate room next to the living room. In addition to the living room, the ground floor included a small kitchen and a toilet. The headmen's houses also had a second floor, where the sleeping area appeared to be located, but we were unfortunately unable to visit it.

In recent years the villages had undergone a number of changes made possible by the district's proximity to the nation's capital, contributing to its middle-income status in policy-makers' eyes. Among these were infrastructural changes such as a pipeline water project in some of the villages and the construction of a road to the villages, which made transportation easier. Infrastructural changes appeared to be ongoing, as there were several houses and shops either under construction or being repaired. Among the most dramatic changes was electrification.

5.2 Electricity becomes available

The crucial step towards the domestication of electricity in the villages of Feung was taken in approximately 2004. It was at this time that the national grid, as a result of the government's electrification policy, was extended to the area (see discussion in chapter 2), and electricity, along with many of its associated services, first became available for the majority of the villagers. Before this the villagers had relied on sources such as firewood, tree wax and gas for their energy needs. Some villagers had also employed methods such as gas generators to produce electricity for lighting, television and other uses. Moreover, the villages of Naseng and Sammuen had participated in a solar panel project between 2000–2003, which had provided electricity for a limited number of villagers: in Sammuen, for example, only 11 families out of 126 had solar panels installed. After the grid became available, most solar panel users gave up their off-grid solution for grid access. In fact, only a few people were using the panels anymore, and they had been almost completely replaced by grid electricity. In Naseng (NS#1), for example, only one family whose previous home had been destroyed by a flood, and who had been forced to relocate to the dam reservoir where the grid did not extend, still relied on the panels.

Before the final grid extension, district staff and EDL, the company in charge of the electrification, had organised one or two trainings in each of the villages, the aim of which was to encourage residents to adopt the new technology and support its passage from the market into the household. According to the villagers, the first training had focused on informing them how important

electricity is for modernisation and how it would improve their and their children's lives, for example, by allowing children to study in the evenings (NPR#3). The concrete means of how to use electricity in households had not, however, been explained. In the second training, staff had concentrated on informing the villagers how to use and install electricity safely in order to avoid electric shocks. The villagers were told not to use electrical appliances when wet and to replace power cords if they were broken (SM#2).

It should be noted that although electricity only became available to the villagers in 2004, knowledge of electricity and its possible uses had most likely reached the villages significantly earlier due to electrification's long history. This was moreover likely due to the villages' close proximity to the nation's capital, which had felt global influences earlier than, for example, villages located in the mountainous north. Similarly, the availability of both electrical appliances and general opportunities has most likely been wider than in more remote rural areas.

5.3 Appropriation: Assigning uses and meanings

From this section onwards I will turn to analysing the domestication process in detail. First, I will examine at the beginning of the domestication process, or, in the language of domestication, the appropriation phase of electrification. As stated in chapter 3, the appropriation phase consists of imaginative work "within which both actual and potential consumers engage" (Hynes & Rommes 2006, 128). It is through appropriation that the desirability of technologies is constructed, and through which a technology enters the household and becomes owned, transforming from a public commodity into a domestic object. In practise, appropriation is concerned with the household's motivations for employing a certain technology, the expectations people have towards the technology and the uses it is assigned once it enters the household (Silverstone et al. 1992, 20–21). These will be examined next.

5.3.1 Motivations for acquiring a connection

While the decision to extend the grid to the villages had been made mainly by policy makers and planners, the decision to bring electricity into the home was made by the households themselves. In other words, it was the villagers themselves who decided whether or not they connected their house to the grid. An exception to this was the resettlement village of Phonsavath where all houses had

already been connected to the grid by the dam operators when the villagers moved in. Since the houses that were allocated to the villagers had electricity readily installed, they did not have a saying in whether or not to acquire a connection. They could, however, still decide which uses they assigned to it. That is to say, they too engaged in the process of appropriation.

The villagers' main motivation for appropriating grid electricity appears to have been gaining access to the many services it could provide. Grid electricity's ability to provide power for a range of services was emphasised, for example, by the village headmen of Naseng (NS#1) and Sammuen (SM#1) in their explanations of why off-grid electricity users had decided to switch to grid electricity. Compared to off-grid solutions that could provide electricity for only a few hours, and then only for one lamp, grid electricity was able to power many appliances round the clock, thus giving people the possibility to access also services besides fluorescent lighting and use them regardless of time of the day, at least in theory⁵. What motivated people to access services were not the services, per se, but the way they were expected to function when incorporated into lives and routines. This became evident in an explanation by a 40-year old poor man from Nam Pung, who stated that he had acquired a connection because his wife had wanted to have light by which she could weave saleable goods in the evenings (NMP#4). A 60-year old man of sufficient income from Nong Por, on the other hand, had had electricity installed because he wanted to purchase a fan and a refrigerator and enjoy their cooling capacity (NPR#3). A 40-year old poor woman from Nam Pung stated that she had wanted to start using electricity because she had heard that electricity would make life and routines easier (NMP#3). As these statements show, the services available via electrification were expected to facilitate increased income, leisure time, and an overall easier life. Thus the decision to appropriate electricity can be seen as connected to wider considerations of what a good life entails (see Wilhite 2005, 2).

Other factors motivating the villagers to acquire a connection included electrical appliances' general practicality, a factor that was found to be influential also in Wu's (2008) study of rural China. Moreover, electricity's financial sensibility, safety and accessibility were considered. Specifically, as a 30-year old poor man from Nong Por pointed out, using grid electricity for lighting was cheaper than using a gas lamp: the lamp had cost the man 20 000 kip/month, while using electricity for the same purpose cost him only 10 000 kip/month (NPR#4). Using grid electricity was also cheaper than off-grid electricity, for which the users in Naseng had paid 30 000 kip/month (NS#1). Moreover, according to a 70-year old weaver of sufficient livelihood from Naseng, grid electricity

5 In the FFRC focus groups villagers sometimes complained about regular power cuts.

was less hazardous than the tree wax she had used previously, which could potentially explode once lit (NS#4). Finally, a 60-year old man of sufficient livelihood from Nam Pung noted that grid electricity was easier to access than the interviewees' previous energy sources, such as tree wax, which had become difficult to find after the village was relocated to the lowlands (NMP#2). Interestingly, the interviewees' accounts can be seen to reflect the risk-averse attitude that Scott (1976) attaches to the subsistence ethics that he uses to describe the moral economies of Southeast Asian peasants. Moreover, the way electricity's uses and meanings were defined in relation to existing techniques resembles sociologist Virve Peteri's study (2006) in which she discovered that new media were domesticated by comparing them to existing media technologies.

5.3.2 Appropriating uses

As my previous examples have shown, people were already assigning uses to electricity while deciding whether or not to join the grid. The wish to gain access to electricity in general was thus closely connected to the wish to gain access to certain services. The main use assigned to electricity was lighting. As the following excerpt from the Phonsavath focus group shows, lighting was not only the most common but also by far the most valued service of all those electricity could provide:

R2, R3, R6: The most important thing for us is for lighting, we really need it. Even we don't have other electrical appliances, we want it for lighting. (PHO#2)

The main factor behind the popularity of electric lighting was its perceived superiority in comparison to alternative light sources. That is to say, electrical light was stronger and lit a wider area than, for example, that of a gas lamp, thus making it easier to incorporate it in various activities (SM#1, NS#1, PHO#2). I will develop this point further in section 5.5.

Although access to fluorescent lighting may have been the initial reason for acquiring a grid connection, it was hardly the only form in which electricity was utilised in the villages. In fact, as Juntunen (2011, 166) illustrates in his study of the domestication of energy technologies in Finnish summer cottages, “[the] meaning of technology changes over time [and] new activities and needs take over”. This was also the case with the households interviewed. Since its introduction, electricity had been applied to a range of other uses besides lighting. Of these, ventilation had become as popular as lighting, while pumping water, refrigeration, cooking, information access and entertainment were further uses.

When considering the uses that the villagers had assigned to electricity, it is worth pointing out that not all households were consuming electricity in a similar fashion, but that significant differences could be found. The most important factor in this regard was the household's financial resources: they not only affected the extent to which people were able to make use of electricity but also, on occasions, halted the domestication process of more costly services from moving beyond the appropriation phase, even if the household would have liked to access them. The Phonsavath focus group provides examples of both cases:

I: What are the most important uses of electricity in daily livelihood?

R3: For the people who can afford many electrical appliances, electricity mainly is used for many purposes including lighting, cooking, washing, fixing. For the poor people they used only for the lighting, they turn off some time. (PHO#2)

...

I: Do you use water pump?

R1-R6: No, we don't use water pump, only one family in the village use deep water pump, about 20 meters.

R6: I want to use it also, I found really constraint about pipeline water provided by the project, it's very dirty, unclean, I want clean water.

R2: I heard from my neighbour that some villagers tried but they couldn't get water.

R3: The price of building new water well is expensive about 10 million kip. That case who has now they use water from pump for water factory. Water is convenient and lot of water. The pump uses of automatic water pump machine and run by electricity. (PHO#2)

As the 60-year old poor man's statement in the first excerpt shows, the household's financial resources defined which uses electricity could be employed for. While those well-off could appropriate it for multiple uses, poor people could only use electricity for lighting, and, even then, had to limit their usage. The latter excerpt from the Phonsavath focus group, whose participants had been suffering from lack of clean water, then illustrates how even the most essential uses were sometimes out of poor people's reach because of their cost. Specifically, due to the cost of building a well with an electric pump, the interviewees were unable to further domesticate a device that was essential regarding their wish to secure easy access to clean water. As a result, they continued to depend on polluted pipeline water for their needs. The inability to appropriate electricity for all the uses that people would have wanted to thus appeared not only as an inconvenience but also as a threat to their well-being and health.

Refrigeration is another use that was, for similar reasons as water pumps, considered important but

rarely accessed by poor people due to its cost (SM#3, NS#3, PHO#4, NMP#3 and NMP#4). Cost was also mentioned in relation to using electricity for cooking; more precisely, the fact that paying for electricity to use in cooking was unnecessary as long as free firewood could still be found in the nearby forests. This point was made, for example, by a 70-year old man of sufficient status (R6) in the Naseng focus group:

I: What do you prefer between firewood and electricity cooking stove?

R6: I prefer electricity cooking, but at the present it's not convenient to use it because we still have lot of firewood and charcoal, and for those who are not good at cooking with electric, the taste of the food is not good, rural people like firewood cooking because the food is nicer, more tasty, soft, better smell, all house have cooking stove, but they don't use it. (NS#2)

As the man's explanation shows, the availability of firewood and the villagers' hesitance to test the financial stability of their household was hardly the only factor limiting the use of electricity in cooking. In fact, although electricity was on certain occasions, employed in cooking (I will address this point further in section 5.5), generally speaking it was not appropriated for the task because firewood was found to be a more culturally appropriate energy source: that is to say, it was more suitable for preparing sticky rice, the traditional rice variety in Laos, as it made the texture of the rice softer and food better tasting (also e.g. NS#3, NS#4, NPR#3). Taste preferences also limited, to some extent, electricity's utilisation for preserving food. Specifically, a 40-year old poor woman from Phonsavath said that using electricity for refrigeration would be nice if she could afford it but also added that she, nevertheless, preferred cooking fresh food everyday (PHO#4). A similar comment was made by an elderly poor man from Phonsavath who owned a refrigerator but still did not want to keep food for longer than one day (PHO#3). Thus, in many cases, instead of financial resources, it was the household's personal and wider cultural preferences that limited electricity's utilisation in food related tasks, even if the necessary appliances had been purchased.

In addition to cost and cultural preferences, fear of electricity dictated the uses to which it was assigned, possibly because of the content of the power company's trainings. This is illustrated by comments made by people in the Naseng focus group:

I: Why you do not use electricity [in cooking]? Is that time saving for doing something else?

R3, R6: For the safety, cooking by charcoal is the most safety.

R6: Safety because, no big flame, and if accident, you can get it burn from the heat, but if it is electricity, people can die of electricity shocked. (NS#2)

As the comments show, the women preferred their established techniques because they were safer than electricity, which they viewed as potentially life-threatening. Still others believed electricity

particularly dangerous to children and elderly who did not necessarily know how to use it safely. This worry over the safety of the members of the household reflects the same kind of fear that accompanied the introduction of electricity in Europe in the late 19th century (see Gooday 2008).

5.4 Objectification: Installing electricity and appliances

As it relates to the concept of objectification, electricity is given a place in the household's physical layout. Thus it includes both the installation of an electrical infrastructure and the placement of electrical appliances into the house.

Apart from Phonsavath, where electricity had been readily installed once the villagers moved in, households were purchasing the equipment necessary for an electrical infrastructure directly from the electrical provider. From the perspective of the villagers this transaction had been relatively painless and simple: Representatives of the national electricity provider and district authorities had visited each house in the villages and asked if the household wanted to acquire a connection. Most had done so, and paid one to two million kips, either at once or in instalments, for the installation of the necessary wiring, a meter board and one or two fluorescent lights. For an average household in an about-to-be or only recently electrified rural village, the sum equalled one to two month's income (Pasanen et al. 2013). As a result of the fear towards electricity and its dangers, some people had also installed expensive safety cuts for emergency use, at a cost of one million kips, a practice that was then encouraged by the power company staff and district officials. Although some had heard about accidents in other villages, they themselves had not had the need to use the safety cuts yet (NMP#2).

Since many had been saving for a connection as they were eager to access electricity, paying for the initial installation had not generally posed a problem (NS#2). However, the poorest in the villages often lacked the financial means to purchase a connection and, instead, relied on traditional networks and family relations for their access. A 40-year old poor woman from Nam Pung, who could not afford to pay for the installation herself, had, for example, asked her relatives if she could share their access (NMP#3). When they agreed, the woman had connected electricity to her neighbouring house with the help of wiring. In addition to relatives, people accessed electricity through their neighbours. Again, perhaps because of the content of the trainings, some expressed their worry over this practise of sharing, fearing that others would hurt themselves. Interestingly, the fact that the villagers still continued to share electricity, despite fears over its potential danger,



Photo 1: Wires connecting electricity to a house in Naseng

added new meanings to the current. More precisely, electricity seemed to form a commodity of utmost importance that everyone wanted access to in one way or another. The need for it, then, outweighed its dangers. It was mainly thanks to this practise of sharing that only a few people in the villages remained completely without access to electricity. According to the interviewees, reasons why some had not acquired a connection included living too far of the mainline and lacking a permanent house (NS#2, NS#1, SM#1), making a connection physically impossible.

After the installation, the villagers continued to pay their electrical provider for the electricity they used up to 30,000 kips per month. What was common to those who gained their access through sharing was that they did not have a meter board in their own house that would measure their usage but paid the people with whom they shared the electricity a certain amount in compensation, typically 6,000-12,000 kips per month. Phonsavath was a special case in that the dam company that had provided the villagers with electrical access had initially been responsible for the payments as well. A 50-year old man in the Phonsavath focus group explained the situation in the following way:

R5: The resettlement project is Nam Ngume 2 Dam impact, before the relocation, all allocated house were installed with electricity for light, so, all house have equipped with light. At the first year, the project allow the use of electricity for free, then on the second year, the project paid by half to help the villagers. For instance, if the electrical bill of one house is 30000 kip, the project pay 15000 kip for the villagers and the 15000 kip is paid by the villager. Now this year 2012, third year all fee has to be paid by the villagers. All 1353 houses have light. (PHO#2)

As the man's statement shows, the project initially covered the monthly cost of service, although it had over the years reduced its support, ultimately leaving the villagers responsible for the payments. The dam company's actions can, therefore, be seen highly influential in encouraging the domestication of electricity by establishing a dependency upon it.

After a connection had been installed, the electricity it provided was used to power a variety of appliances that provided households with a range of services. Within the house, these included fluorescent lights, fans, fridges, cooking tools and televisions, which villagers acquired through a variety of means. The lights had been provided by the company at the time of the installation, and people had also bought other appliances from the company directly. Furthermore, some people had brought their appliances with them when they moved to the village. Others had acquired them at an electrical appliance store in the district capital, located approximately 10–20 km from the villages.

As stated in chapter 4, in the houses we visited we were only able to access a limited area, specifically the main living area that consisted of a living room and a kitchen, and most of the appliances people owned could be found in these locations. Therefore it can be argued that the two formed the primary locations where electrical appliances were located in the domestic setting. The most common items powered by electricity inside the house included lights and fans. While lights were installed on the ceiling where they lit the main room, fans were located on the floor where people sat. Other appliances that the interviewees had in their living rooms included TV sets, VCRs and record players. In the headmen's houses these appliances were placed on a shelf in a prominent place in the living room (NS#1, SM#1) (Photo 2), while in houses with less appliances the TV set was placed in the corner of the room (NS#3, SM#3, SM#4). In both cases plenty of open space was left on the floor in front of the TV, allowing people to gather around it. Moreover, in headmen's houses, water coolers could be found in the living rooms, placed close to the sitting area. Much like the villagers' wish to appropriate certain appliances, the decision to place most of the items in the living room was, most likely, motivated by practical judgements. Placed in the room that appeared to function as the space in which most waking time inside was spent, activities performed and visitors greeted and socialised with, the appliances were the most accessible both to the members of the household as well as to visitors, who would occasionally pop by even during our interviews.



Photo 2: Electrical appliances in the Sammuen headman's house

The appliances did, however, also come to serve another purpose, which I will discuss in section 5.6.

In the kitchen, the most popular appliances included kettles, refrigerators, rice cookers and other cooking appliances. To clarify, the term kitchen is used here to refer to a space reserved for tasks related to preparing and storing food rather than a separate room, though they were also to be found in some houses. Commonly, space limits and the placement of electrical outlets played an important role regarding where kitchen appliances were placed. In the house of a middle-aged poor man from Naseng (NS#3) and a 60-year old woman from Sammuen (SM#4) they were located in a visible place in the main living space, whose one corner served as a kitchen area. Although the woman's family had a separate room for a wood-burning fireplace, they could not place the electrical appliances in that room, since there was no electrical outlet in it. In the house of the Sammuen headman (SM#1), on the other hand, both the placement of outlets and the house's layout allowed the appliances to be located in a separate kitchen area next to the living room. Only the refrigerator

could not fit in the kitchen but was placed in the living room next to the kitchen doorway, where it could then be easily accessed from the kitchen room (Photo 2). Again, practicality seemed to be the main factor behind the placement of appliances.

Although the most commonly used electrical appliances could be found within the home, this was hardly the only place where electricity had been objectified. On the contrary, electricity had been materialised in different forms and settings in the village environment: in addition to the headmen's and other villagers' houses, a range of electrical appliances were in use on construction sites, in kiosks, barber shops, garages and fish hatcheries as well as in village halls and meeting places. Of the appliances located outside the house, the ones that were most widely utilised, typically against a small fee, included large and expensive machines such as water pumps and rice mills, of which several of each could be found in the villages. These machines were in shared usage, allowing those unable to purchase one themselves to access them. Moreover, one of the shared items was a refrigerator placed in the village meeting room of Phonsavath, reserved for storing medicine that needed to be kept cool. The refrigerator seemed to be in frequent use and was accessed by villagers even during our interview session.

5.5 Incorporation: Making electricity functional

In the process of incorporation, technologies are integrated into the household temporally. That is, they are made part of the households' daily activities, where they begin to function in a manner that supports the routines and provides the household with new possibilities. The daily routines of the interviewees consisted of tasks similar to those described in chapter 2, specifically, waking up at sunrise to prepare the morning meal, after which women and men without other duties engaged in various tasks around the house. These included fetching water and firewood, taking care of the household's home garden and animals, and cooking. Some men left home either to go fishing or work at the household's animal farm, and children attended school. After sunset people returned indoors: for men, these evening hours were typically devoted to leisure, while women continued with household chores, as well as tasks intended to generate income, such as weaving. Electricity was incorporated into all of these tasks throughout the day, particularly in domestic tasks, the household's other productive activities, and free time, and made all of them easier. Moreover, it came to function not only in the manner that had been thought of in the appropriation stage, but also in some unexpected ways. I will examine these next.

5.5.1 Saves time and effort in domestic tasks

The incorporation of electricity into domestic tasks allowed for a variety of benefits that the interviewees found practical and convenient. First, as stated in section 5.3, electricity allowed people in Phonsavath, who had suffered from lack of potable water, access to clean well water. A similar sentiment was reported by a middle-aged man from Sammuen (SM#3), who stated that he used pumped water for cooking purposes because it was cleaner than river water and therefore better for one's health. Electric pumps thus provided an alternative for using river water and met not only the household's important subsistence needs, but also aided in keeping its members healthy.

A more common way in which electricity became functional in the task of acquiring water was, however, by helping to save time and labour. A 30-year old woman of sufficient income from the Sammuen focus group stated that

R2: With electricity, I can reduce my work load for carrying water, before we carried water from the river by myself, now I use electrical pump. (SM#2)

A 60-year old man of sufficient income from Sammuen (SM#3) echoed the woman's statement, saying that before access to an electric water pump, he had to carry water from a river further away, which took him an hour. Thanks to the water pump, he could now fetch water for household use from a nearby well in 10 minutes. Considering that this task was performed five to six times a day, the amount of time and labour saved was substantial. A point to be made here is, however, that despite the potential the pumps represented, in certain cases they failed to be incorporated in the task even if they were available. In Nam Pung, for example, some people had been suffering from lack of water due to inadequate rainfall and therefore were unable to incorporate the pump in the routine of acquiring water. As a result, they had to fetch it from a river 1 km away from the village, which then took more time than pumping water (NMP#2). Constraints imposed by the environment, in other words, prevented the pumps from fulfilling their purpose.

In tasks related to food preparation, cooking and storing, incorporating electricity into the activity also helped the villagers to save time and effort. This was the case especially regarding the task of husking rice. As rice cultivation serves as one of the main livelihoods in the villages, and because of the staple status rice has in Lao culture, processing rice was a common task for the villagers. Before electrically operated rice mills, which can now be found in every village, the activity had been performed by manually grounding the rice seeds in a basin to separate the husk. This had been both laborious and time consuming: A 40-year old poor woman from Nam Pung (NMP#3), for example,

said that in her old village, which did not have access to electricity, she had husked rice everyday by hand. She had performed the activity twice a day, early in the morning after breakfast and again in the evening before going to bed at 10 pm, consuming approximately 3–4 hours a day. In Nam Pung, where she could use a common electrical rice mill, milling rice was faster, allowing her more time to work in her home garden. A similar comment was made by a 60-year old man from Nong Por (NPR#3) who paid a small fee to use a common rice mill. He stated that, previously, the task of husking rice had taken him 4–6 hours and had been challenging, while now it was faster and less demanding physically. Again, the time and effort saved by using electricity was considerable.

In addition to husking rice, electricity helped to save time in cooking. For this reason, electricity occasionally became incorporated into the task, although people generally preferred using firewood as an energy source (see discussion in section 5.3). This became evident in a statement made by three women in the Sammuen focus group, when they were asked whether they preferred cooking with electricity or firewood:

I: Which do you prefer using, electricity or firewood/charcoal? Why?

R1, R2, R3: We prefer cooking by firewood because of the food is more tasty.

R2: We use electrical energy for cooking sometime that is necessary for us.

R1: When we are in a hurry and we want to save time, so we turn to electrical cooking appliances. (SM#2)

As the women's discussion reveals, all of them preferred food prepared using firewood, but still occasionally incorporated appliances powered by electricity into their cooking activities, mainly because of their time saving ability, which allowed them to allocate their time to more urgent tasks. Interestingly, not everyone agreed with the women's thoughts. A 70-year old man of sufficient status in the Naseng focus group elaborated on the topic in the following way:

I: Why you do (not) use electricity [in cooking]? Is that time saving for doing something else?

R6: I can compare this way. Using electricity and using charcoal can spend same time for cooking, If I use rice cooker I can start plug in rice cooker and making fire for charcoal or firewood that spend quite same time to get it cooked by both cooking. (NS#2)

According to the man, cooking with electricity was not, in other words, any faster than cooking with firewood. The different perceptions of the interviewees can then be explained at least in three possible ways. First, the women might have been using different kinds of appliances than the man. It could also be that using electrical appliances required less attention than making fire, thus allowing people to use the cooking time for other tasks and explaining why the women consider it

time saving. Finally, the man's perception of the abilities of the rice cooker might have been affected by his possible protective attitude towards the established techniques, or prejudice against the new technology.

Besides turning to electricity in a time of hurry, the villagers mentioned using electricity at specific times. In one example, the Nam Pung head man (NMP#1) stated that the villagers used electricity during the daytime, while in the mornings and evenings they preferred using firewood. The reason for this was that cooking with firewood heated the house, which was desirable in the early and late hours when it was cold, but undesirable during the day when temperatures were high. Electricity, in other words, helped keeping the temperature of the house steady and therefore became incorporated into the villagers' routines during day time but not in the cool evening or morning hours.

What is more, a poor man in his 40s from Naseng (NS#3), whose family usually cooked and ate only sticky rice prepared using firewood, explained that he used his electric rice cooker when his children, studying and working in Vientiane and Luang Prabang, came to visit. One reason for this was that the cooker was, in his opinion, quicker than using firewood. Another reason was that the cooker was more suitable for cooking steamed rice, which the children preferred. Incorporated into the cooking routine, electric stoves and rice cookers thus allowed the villagers to respond to different preferences and, particularly, to urban tastes. One final attribute connected to rice cookers was that they, according to the man, saved rice because of the different preparation style. The fact that the family nevertheless preferred cooking with firewood reflects the valued position sticky rice and traditionalism had in the family's moral economy, discussed further in section 5.3.2.

In addition to preparing food and cooking, some villagers also made use of electricity in storing and food. This allowed them to keep food for longer than was possible with other methods, as the following excerpt from the Nong Por focus group illustrates:

I: How did you keep food for long time if no refrigerator?

R1: I don't have fridge, I have to keep food by drying and cook fry food not soup.

R2: Or I can keep in plastic bag.

R4: If I use with fridge, I can keep food for months.

R5: I can keep it in bamboo box, at least I can keep it for 24 hours. (NPR#2)

As the discussion indicates, refrigeration made it possible to store food “for months” whereas other

methods could only keep it for a day or two. This formed the reason why refrigerators were, as explained in section 5.3, among the most desired appliances in the villages.

One final way in which electricity supported domestic tasks was by helping people to overcome the limitations of their circadian rhythm and extend their active hours past daylight. Incorporating electricity into tasks such as cooking and cleaning, in other words, allowed the villagers to perform them regardless time of the day. This was the main reason behind the popularity of fluorescent lighting. Besides turning the house into a 24/7 workplace, electricity had also allowed for performing the domestic tasks more effectively than before. Specifically, a poor man from Naseng (NS#3) stated that thanks to lighting, houses were now cleaner than earlier. That is to say, fluorescent lighting's quality allowed the people to see better the area they were cleaning and achieve better results. Fluorescent lighting's better quality compared to other techniques was also emphasised by a 40-year old man of sufficient livelihood from Phonsavath, only in relation to eating:

R2: If light went out, I use gas lamp, but that is not light enough. Even I used it before in old village, I find light from electricity is better. It's difficult like for eating, I can't see thing properly if I use gas lamp. (PHO#2)

To the man, fluorescent lighting thus appeared as practical and convenient in comparison to the gas lamp's dim and inadequate lighting.

Although electric lighting was also utilised in household tasks, it had been most successfully incorporated in income earning activities, as I will show next.

5.5.2 Facilitates income earning and studying

In addition to domestic tasks, electricity had been incorporated into various income-generating activities. For one, using electricity for husking rice had made it possible to husk larger amounts of rice than would be possible by mere manpower. For the villagers who could produce rice for market, this then meant better earnings, as husked rice brought a higher price than unhusked. Moreover, electricity had allowed the villagers to respond not only to their relatives new tastes but also to those of the customers. A 40-year old female shopkeeper and a 40-year old man of sufficient status from Phonsavath explained that

I: How has life changed after electricity?

R6: In my shop in old village, I sold only drink that was not cold and possible for people to buy. Now the customer often ask me to buy the cold drink. So, I use extra fridge in my house to keep cold drink and sell to customers. That's new for me and I can earn more money.

R2: In my old village, I could drink warm water after boiling, now I prefer cold drink too. (PHO#2)

In other words, by utilizing a refrigerator in her business the woman was able to respond to her customers' requests and thereby increase her income. Interestingly, as the man's statement shows, electricity did not only let the villagers respond to different tastes, but it had also affected their own taste preferences, as the man nowadays preferred cold beverages over warm ones. In addition to shopkeeping, electricity came to be utilised in livelihoods such as fish farming, garage work and hairdressing. Unfortunately, the data provides little information on these fields.

The income earning activity into which electricity had been adopted the most effectively was the production of handicrafts, particularly weaving and sewing, that were practised by women both for the family's own use as well as for sale, thus forming one of the main livelihoods of village households. Utilising electric light had a positive effect on the women's productivity and, in turn, on their incomes, since it allowed them to work on their handicrafts during evening hours. The wife of a 40-year old poor man we interviewed in Nam Pung (NMP#4) stated that before electricity, when she could sew only during the daytime, and then only after completing her garden work, it took her two to three days to finish one small product and two weeks to finish a large one. After gaining access to electricity a few months prior to the interview, she could now complete one large project in a week. Another poor woman in her 30s from the same village (NMP#3), who had begun sewing in order to earn money for her poor family, told us that before electricity it took her one week to complete a product, whereas now she could sew three per week. With the help of electricity, the women had thus been able to double or even triple the number of handicrafts they produced. As for the income the women were able to earn, a 40-year old woman of sufficient status stated the following

I: Do you plan to produce more weaving products after installation?

R1: Yes we can produce more and get more income from weaving. For instance, before electricity, I just weaved at day time, I earned about 2 million kip per year, now I can get about 5 million per year. (SM#2)

As the woman's comment indicates, as a direct result of the introduction of fluorescent lighting, the women had been able to more than double their income. This connection between electricity and income growth made lighting for household tasks and handicraft production the primary, if not the only, use of electricity among the poor. It allowed them to generate income even if there was little

other work available in the village, as in the case of Nam Pung (NMP#1, NMP#3).

It is noteworthy that, although women often stated that electrical appliances and machines, and water pumps and rice mills in particular, were reducing their work load, it actually seemed that electricity had, in some respect, increased it, as they now continued working well after sunset. When asked if electricity had indeed increased her work load, a 40-year old woman of sufficient status from Sammuen gave a confirming answer.

R1: Yes, I think so, and I have to work until 10 or 11 pm. Before electricity, after dinner then I went to bed, now I have to work longer time at night, but if I think of the money that I will get from weaving then I am not tired. (SM#2)

As the woman's answer illustrates, among the interviewees, the ability to work longer and earn income was a right rather than an obligation, with electricity the tool that enabled them to have this right. People were not working based on an hourly rate, but rather on general agreement of the tasks that needed to be done to provide for the family. In the changing village life, one of these tasks was earning income, income that was used mainly on things such as clothing, and on children's school fees and equipment.

Conversely, it is notable that having fluorescent lighting did not automatically lead to better earnings. Sammuen serves as an example of this. The women in the Sammuen focus group (SM#2) explained that they had started to sell their weaving products only after they gained access to electricity. Although they were happy with the fact that they now had more time to weave, they were still not satisfied with the income they were earning. According to the women, the reason behind their modest sales was a clash between the market demand and their skills: the women were only able to produce traditional weaving products, which had little demand among customers who preferred more modern ones (SM#2). As a result of this imbalance, the women requested training from the government and donors to learn new patterns, so that they might better respond to their customers tastes.

Furthermore, although electricity had been successfully incorporated into handicraft production, it had not completely replaced the villagers' previous techniques. In one instance, people turned to their old gas lamps when there was a power loss. Moreover, a 70-year old female handicraft maker from Naseng (NS#4), for example, was lighting her relatively spacious production area beneath her house by enclosing illuminating gas in glass bottles, though she also had a small electric light bulb hanging from the ceiling. The reason for this might have been that the bottles were easy to move

around depending on the station she was working at, whereas the placement of the light bulb was fixed (see Wu 2008, 219). This supports anthropologist James Scott's (1998, 332) idea of technology adoption being a gradual process, with new techniques slowly emerging as alternatives to established practises.

In addition to handicrafts, fluorescent lighting had gained recognition for its positive impact on education, specifically as it enabled children to continue to study after dark. In fact, many interviewees reported that electric light was practical because it allowed children to study in the evenings. The fact that this point was addressed repeatedly reflected the value education was given in the villages, and within the households' moral economies. However, as in the case of weaving, oftentimes the results of incorporating electricity into the practice of studying were not as positive as the villagers might have hoped. A middle-aged poor man from Naseng (NS#3), for example, said that despite the benefits of electric lighting, his children had not studied further than primary school. The man's statement confirms what an expert interviewee from the Lao Institute for Renewable Energy emphasized: electricity works as a tool that can help people achieve their goals, but it is not enough by itself to lead to improvements. Instead, practical hindrances, such as lack of money, prove to be obstacles that electricity alone cannot overcome.

5.5.3 Makes spare time enjoyable and educational

In addition to domestic tasks and income generating activities, electricity had been incorporated into leisure activities. One form in which electricity accompanied the villagers in their free time was, again, lighting, which was made use of in homes and parties, as it allowed people to stay up later. In fact, as became evident in a comment made by a 60-year old woman from Sammuen (SM#4), despite the villagers' statements, fluorescent light oftentimes failed to be incorporated into valued tasks such as studying and was, instead, made part of other activities. The woman stated that electricity had not in actuality increased time spent on studying, but had, produced results to the contrary. Since the introduction of electricity, children spent less time home in the evenings, as lighting had made it more pleasurable to visit friends after sunset. Instead of supporting the valued purpose of education, electricity had thus begun to accompany the youngsters during their free time and socialising.

Ventilation was another manifestation through which electricity lent itself to more enjoyable leisure



Photo 3: Interviewing a man in his house in Sammuen

time⁶. In fact, electrical fans were among the most common appliances in the villages, having replaced hand fans made out of bamboo. A 40-year old poor woman from Nam Pung (NMP#3) stated that she had purchased a fan with the money she earned from sewing and used it before engaging in domestic tasks after a day at the garden. The appliance thus not only accompanied the woman during her break but also facilitated her a moment of relaxing personal time between her productive activities. The fan seemed to gain a similar function in social occasions as in private time: in nearly all of the places we conducted an interview, a fan placed on the floor was quietly rotating in the background, producing a refreshing breeze in the otherwise still air (Photo 3). Incorporated into socialising, the fan thus made the activity more enjoyable.

Although the fan was owned and claimed to be used by most people, not everyone agreed with its cooling effect. A 60-year old man from Nong Por (NPR#3), for example, stated that though he had originally purchased the appliance for this particular reason, later he had learned that, in fact, the

⁶ Whether the appliance was used during productive activities or household tasks did not come up, but, in hindsight, would have been an interesting point to address.

fan did not make the air any less hot. The villagers of Sammuen had yet another interpretation of the fan. A 60-year old woman of sufficient status (SM#4) told about her personal experience of using a fan in the following way: when the woman's family first purchased a fan, they thought that the air current produced by the fan was cooling. After a while, however, they came to believe that the fan was actually making the house warmer, and, as a result, started calling the air current "the hot wind". This sentiment was echoed elsewhere, as when villagers from Sammuen explained to us their perception that electrical appliances, the fan and fluorescent light in particular, were heating the air (SM#2). This interpretation was based on the villagers' observation of how the weather had started to get warmer around the time electricity was first introduced. In their minds the former was, then, a result of the latter.

The villagers' experiences with the fan serve as examples of how technologies do not always function the way they are expected to; nevertheless, new functions and meanings may arise. What is telling in the above examples is that although people's personal experiences of the fan had changed their view of its technical abilities, they continued using it. During the interview with the 60-year old woman from Sammuen (SM#4), for example, a fan, which the woman claimed to use regularly, was rotating right next to us in a prominent place in the room. This suggests that although the fan had failed to fulfil the task it was originally appropriated for, that is, cooling the air, it had gained new meanings and functions once incorporated into daily activities. Arguably, the fan had started to act as a sort of a status symbol, something that people were simply expected to have and that was supposed to be available in case of visitors. In other words, much like in Wu's (2008) analysis of the water boiler-coolers in rural China, what was important regarding the fan was not what it actually did, but what it could potentially do, and what it represented. Thus, its new function seemed to be related to the way it became objectified into the household; in other words, placed in a visible location in the living room.

Apart from powering fans, electricity provided enjoyment during leisure time by facilitating television, one of the most common services people mentioned when asked about the positive aspects of electricity. The television, as well as the VCRs and DVD players that some owned, offered the villagers entertainment in the form of programmes such as sports, films, dramas and musical shows, of which the first two were watched mainly by men and the latter ones by women (NPR#2). The TV's role in the villagers spare time was, however, hardly limited to entertainment, acting additionally as a source of knowledge, connecting the domestic setting to the public sphere of global events and the world beyond in their daily routines and established practises. This became

pronounced in comments made by a 60-year old poor rice farmer in the Phonsavath focus group and people in the Sammuen focus group who explained how they had learned about climate change in the following way:

I: Have you heard about global warming?

R3: Yes, I have heard about that too. I watched news on TV. I heard about global warming and how it changes the weather. And I also heard why this phenomenon happening. (PHO#2)

...

I: Have you heard about global warming?

R1, R5, R4: We have heard about it in the news from abroad. That is for other countries, not here [Laos]. There is nothing like storms or typhoons here. (SM#2)

As the villagers' statements reveal, television news had played an important role regarding their knowledge of climate change, informing them of the previously unknown phenomenon and the factors contributing to it. However, as the people in the Sammuen focus group argued, for the climate change represented a phenomenon that did not concern them personally, but was “for other countries”. That is to say, through watching TV they were learning about issues affecting lives beyond their everyday routines and environment, but not necessarily locating them within their own daily existences. It is worth noting in this instance the high trust placed in the legitimacy of information presented via television; that is, the claim that climate change does not have an impact on Laos. This information, which is highly regulated by the government, is not contested, at least not in the presence of a district official and foreign researchers, indicating respect towards those responsible for the newscasts, or possibly fear of the government should they question the official line.

Furthermore, occupation related programmes served as a source of new knowledge. This was evident in comments made by two women in the Nam Pung focus group, aged 50 and 30, who, respectively, told about their TV watching habits in the following way:

I: What do you watch from TV? Do you watch news?

R4: I like watching many programs, some time I news, I watch program for advice how to cook, how to earn money.

R2: Particularly I watch mushroom cultivation, and fruit trees plantation. (NMP#2)

As the women's statements reveal, they were actively employing the TV to learn new things about practical issues such as income earning and household work. Women were not the only ones interested in these programmes, as male interviewees also noted the impact of such programs.

The villagers' preference towards livelihood programmes reflected not only the importance of and emphasis on income earning in their lives, but also the stress that their established livelihoods were under, forcing people to consider other alternatives. For the head man of Nong Por (NPR#1) the TV's occupational programmes thus represented a positive influence, because, according to him, the villagers could learn new cultivating and cleaning techniques from TV which they could then use to improve their living conditions. In practise this was not so straightforward, as many villagers could not put the new techniques into use for a variety of reasons. A 20-year old female rice farmer with a baby and a 60-year old male farmer, both from Nam Pung, explained the factors constraining them from applying the techniques they had seen on TV in the following way:

I: Can you adopt any program into your living and start new occupation?

R3: For me I cannot do because I do not have money.

I: Do you try to apply some techniques from TV program for paddy rice planting?

R1: No, not really because I don't have big machine like them demonstrated in TV. I just use hand tractor for preparation of paddy land and I plant rice seed by hands. In the TV I saw, they use modern tools for paddy rice plantation. (NMP#2)

As is evident in the participants' accounts, lack of financial resources and modern machinery are the main reasons for not being able to make use of the techniques shown on TV. Implementation was further hindered by a lack of basic knowledge. Among the Hmong, for example, poor education and weak Lao language skills made it difficult to understand many television programmes, therefore limiting the benefit of the techniques demonstrated on television (NMP#3).

Although the villagers were struggling with putting such livelihood-related knowledge into use, some influences transmitted by television had been successfully adopted into practise. Specifically, in the opinion of the headman of Naseng (NS#1) the programmes had affected the style of the villagers' clothing. In fact, though our supervisors at the Finland Futures Research Center informed us that, up to just a few years ago, covering one's arms and knees was essential when visiting Lao villages, this custom seemed to have lost some of its importance. Though many women still wore the traditional *sinh* skirt, their shirts were short-sleeved or even tank tops. Men, on the other hand, preferred t-shirts and casual dress shirts. The villagers had thus incorporated electricity not only into their daily routines but also, in a way, into their fashion sense.

Again, there are two points to be made here. First, although television was an important tool in connecting the villagers to global events, it was hardly the only media or channel doing so. On the

contrary, in addition to the TV, the villagers were learning about issues such as the weather, for example, by listening to their battery radios, or through contact with friends and relatives living abroad. Therefore, television should be seen as one of many tools that facilitated the villagers knowledge of the world abroad, rather than as the only one doing so. Second, the villagers were not making use equally of electricity's knowledge and entertainment related potentials. For one, although some of the women interviewed claimed to be watching TV in their free time, generally, gender seemed to form an important factor regarding the TV's incorporation into the villagers' lives. The following excerpts from the focus groups demonstrate this further:

I: Who benefits the most from getting electricity? Could you give an example.

R1, R2, R3: Women benefit from electricity in the sense that we can use it for light for cooking, weaving, pumping water.

R4, R5: For men, we can watch news and sport from TV. (SM#2)

...

R2: I have TV, but I rarely watch it, just my husband watch TV. (-- I watch news from TV some time. I don't have much time to watch TV because I have to do housework and have baby, I watch drama from TV but not all series. Less than 1 hour. For men spend more than 1 hour for news, but not for drama. (NPR#2)

As the answers illustrate, while electricity was incorporated into women's lives as a tool for reducing their work load, on one hand, and as a tool that enabled them to work longer, on the other, in men's lives its benefits were embodied in the television as a means of leisure, making it primarily a men's technology. The main reason for this was the division of work in the villages. Specifically, men, who had less household work to take care of, enjoyed more free time than women, who were responsible for taking care of children and attending to various household chores.

In addition to gender, the simple lack of televisions affected the way it came to be incorporated in the villagers' lives. Specifically, for those who did not have a television at home, the technology was incorporated instead into their social visits. This then affected the uses they were able to assign to the appliance. A 40-year old poor man from Nam Pung (NMP#4), for example, stated that when he watched TV at his neighbour's house, he always watched whatever was on, mainly movies and sports. Not having a TV at home the man had, thus, little control of the technology or influence on the way it came to function in his life; rather, he was a passive consumer, in that he could not decide what was being watched, or even if the TV was on in the first place.⁷

⁷ The man's statement did not reveal if he went to the neighbour's house specifically to watch TV.

Finally, along with lighting, ventilation and television, electricity facilitated leisure time and socialising by providing a means of charging mobile phones, and by powering loudspeakers, used both in village gatherings, and in devices used to listen to music. These uses seemed to be rather rare and, as the data offers little evidence on them, I cannot delve into them further. They do, however, provide clues that should be pursued in further studies.

5.6 Conversion: Making uses public

To revisit the beginning of my analysis, the idea that electricity would enhance living conditions, contribute to income-generating practices, and generally make life easier, were cited among the main reasons for acquiring an electrical connection. Where, then, had the villagers obtained these ideas of the value and role of electricity? According to sociologists Deirdre Hynes and Els Rommes (2006, 128), the answer lies in conversion, the fourth and final dimension of domestication. In conversion, the private uses and meanings attached to a technology become displayed publicly through usage, display of, or discussion about the technology, hence offering representations of it and indicating the user's competence with it. These then take part in constructing the public picture of the technology and affect potential users' ideas of it.

Following Hynes and Rommes (2006), as one form of conversion one can see the trainings organised at the event of electrification, in which officials had communicated their conception of electricity as a positive force to the villagers. Judging from the fact that the villagers' motivations for adopting electricity, as well as their general picture of it, corresponded to the government's energy-development discourse to a significant extent, these trainings had been successful in shaping the domestication process by encouraging the villagers to appropriate electricity. However, the public picture of electricity as a positive influence was also constructed and shaped by other means. The idea of electricity as enhancing living conditions and helping to maximize livelihoods was articulated, for example, in the use of fluorescent lighting. Specifically, a night tour in the village of Naseng revealed that the houses employing electric lighting were easily spotted in the darkness that had fallen on the village, while others blended into the background. Hence the lighting not only indicated electricity's power to provide more enjoyable living conditions but also the household's access to that culture. Moreover, the idea of electricity making life more pleasurable by allowing access to new services, such as television, was supported and communicated to potential users by placing the appliances in the living room and incorporating them into social activities with other villagers. The villagers' close relations were thus instrumental for conversion through display and

use. They were also influential regarding the villagers' wishes to purchase certain appliances, as was suggested by a poor man's (NS#3) statement: he wanted to buy a fridge, because he had seen one at a neighbour's house.

In addition to display and use, the private meanings of electricity were publicised through conversation. One setting for conversation via conversation was, of course, the arranged interviews: by discussing their uses for electricity with us, the villagers made their relationship to the force public not only to us but also to other villagers, who were often present even in individual interviews. At the same time, they took part in reinforcing a positive picture of electricity, as the following comments show:

I: Have there been any major changes in your village in the past 10 years?

R6: Now about electricity, that is very good because we can use many things with it. Like before women couldn't weave during the night time because one it's old belief that was not allowed women to weave at night, second because it was dark and could not see it. Now there is electricity, it is convenient at night. Depend on people who want to do, men can also do artisan with bamboo to make basket, tray [handicraft with bamboo]. (NS#2)

...

I: What was it like to first get electricity?

R5: I felt that civilization was arriving to me. I saw the civilization.

R4: Civilization because we got road and electricity same time in 2004. (NS#2)

As the comments demonstrate, in the public representation, the connection of electricity to the villages and households meant more than simple infrastructural changes. Electricity became an essential factor for village life and development, and a thing through which everyone benefited, particularly in the way it improved living conditions and made it possible for villagers to work in dark hours and earn income. It thus extended its impacts on a cultural level and guided the villagers to a new era of civilisation and, arguably, to better life (see Wilhite 2005, 2). Interestingly this kind of attitude towards electrification, indicating a perceived connection between electrification and human development, reflects the government's development discourse to a significant extent. Due to the experience of electricity making life better, electricity was also represented as an indispensable part of life in the villages, one that was missed when it was occasionally unavailable and without which the interviewees would not want to live in the villages (NS#2, PH#2).

As stated in chapter 3, according to Aune (2001, 15), a sign of a technology's successful integration is that it has a symbolic meaning in addition to its utilitarian aspect, a quality that energy

technologies in her opinion lack. The findings above, however, suggest that in the case of a technology such as electrification, these two are difficult to separate and, in fact, seemed to be linked. In other words, although the uses and meanings that electricity conveyed were practical inasmuch as its force was employed for practical uses, they also extended to a symbolic level. This difference, between the findings of this thesis and those in Aune's study, can be explained by looking at the people studied: while the interviewees in Aune's study were Norwegians already accessing electricity, most of the people in the Feung district had not accessed electricity before the grid extension, and, partly for that reason, had a low status in officials' eyes. Either way, the presence of a symbolic element supports Juntunen's (2011, 168) argument that energy technologies, too, are able to extend their value beyond utility.

Although people's experiences of electricity and its impacts, overall, reinforced the general developmental discourse of electricity and its positive impacts, as discussed in chapter 2, they nevertheless produced a few contradictory interpretations that added new meanings and conceptions to the public picture of electricity. An interview with the village headman of Naseng (NS#1) serves as an example. In it he claimed that electricity had a bad influence on youngsters, and made his case by saying that after the introduction of electricity some of the village's good students had dropped out of school. The man's comment, although not entirely elucidated, suggested that electricity offered young people entertainment that diverted them from activities, such as studying, that he considered more important.

The idea that electricity was an undesirable influence was further communicated via his statement that people were learning bad habits, such as drug use and smuggling, from watching television. This concern was shared by a man, who accompanied us later as we walked around the village (NS#5), and according to whom there was a substantial drug problem among the young people in the village, of whom he labelled 30% 'good', and the remaining 70% 'bad'. Implicit in the men's statements was their concern regarding the lack of control over the new technology and its impacts on daily life, and on the values they cherished. Electricity's merely positive influence was also challenged in Sammuen, where villagers blamed fans as the source of 'the hot wind', as examined in the previous section. The interviews were not, however, the only setting where these interpretations were discussed. Rather, through conversations between villagers, these private experiences had constructed a shared understanding of the fan's technical abilities, or rather the lack of them, that then shaped the public's perception of electricity.

6 SUMMARY AND CONCLUSIONS

The thesis in hand has examined the ways in which electricity has been domesticated into everyday life in rural Laos. I opened the study by laying out the context of the thesis, taking a closer look at electrification's historical impact as well as its role in Laos today. Additionally, an overview of the physical and mental setting of the thesis, specifically, the changing rural life, was provided. In the chapters that followed I introduced the conceptual tools as well as the data that were utilised in the empirical analysis in chapter 5. In this final chapter I shall summarise my discussion, consider its implications, and attempt a look to the future of electrification.

As the study has illustrated, the adoption of electricity could be seen to take place in four different dimensions of domestication, originally theorised by Silverstone et al. (1992). First, in appropriation, electricity was constructed as an object of desire by attaching to it expectations such as an easier life and enhanced income earning, and considering potential uses for it. Appropriation did not end in acquiring an electrical connection but, rather, negotiations over electricity's appropriate and attainable uses continued, being affected by contact with other villagers as well as personal experiences. Second, in objectification, a home electrical connection was established either by acquiring a connection through the electric company, or via friends or relatives who were willing to share access. This dimension also included purchasing electrical appliances that were then placed in the house. Moreover, some electrical appliances and machines, particularly the more expensive ones, could be found in public places. Third, in incorporation electricity was integrated into people's daily work and leisure routines, where it grew to support these activities. Not all of the machines and appliances that became incorporated into people's activities were objectified in their own homes, but were sometimes accessed during social visits, for example. This observation was also made by Smits and Bush (2010, 123), who noticed that in newly electrified villages, houses with entertainment appliances became gathering places for villagers. Finally, in conversion, ownership of electricity was made public through use and conversation both with other villagers and in the arranged interviews. In these conversations, electricity was depicted as a force that had changed life in the villages for the better, although a few contradictory interpretations were also articulated.

Moreover, as has been shown, the village environment had been visibly changed by the introduction of electricity. Specifically, electric wires and appliances had entered houses and public places, and, to some extent, even the clothing styles of the villagers had adapted to the new influences transmitted via television. Electrification had also left its mark on household practises. To be more

exact, new routines such as watching TV and relaxation by the fan before beginning the days' work had emerged, activities could be performed later in the evening, and some physical tasks had been made lighter. From the perspective of the domestication theory all these changes had, then, taken place 'in negotiation' with the technology. Worth noting is that, much like the theory assumes, electrification had not one-sidedly shaped the lives of the villagers, but, on the contrary, it too had been shaped in the domestication process. That is, since a connection had been established, electricity had transformed from a new technology into an essential part of the material living conditions in the villages that was missed when it was occasionally unavailable.

Based on the analysis, household values, priorities and constraints had had an impact on the way electricity was adopted and used. In other words, domestication had, indeed, taken place within and against the moral economy of the household. This was evidenced by the fact that electricity had not replaced previous practises completely, or entered just any activity in the villagers' routines, but had been incorporated into activities in which it was seen the most useful. Due to the growing importance of money and the villagers' need to earn income, for example, electricity had been incorporated into women's handicraft production as a tool that enabled them to work longer and earn more income. Moreover, the need to learn new livelihood strategies in the changing environment had motivated the villagers to employ electricity for purposes, such as viewing livelihood programmes. Gender relations and dynamics had also affected the way electricity had been integrated into the villagers' activities, specifically as it became a useful tool in household chores for women, and in leisure time activities for men. Furthermore, financial resources and considerations formed an essential factor not only regarding whether the household was able to acquire its own connection, or if it had to rely on other people for their access, but also considering the uses and needs electricity had become to fill in the households. Finally, much like Smits (2011, 4) has argued, the villagers' taste preferences, the availability of firewood and the preference for sticky rice had limited the use of electricity in cooking, making electricity a supplement to which the villagers turned to only in special cases such as family visits, or due to time constraints. Regarding this last point it should be noted that although electricity was rarely used for cooking, most had still acquired a variety of electrical cooking appliances. From the perspective of Juntunen's (2011) study it can be then argued that the appliances had been acquired with the intention of testing what the new technology was capable of, but later rejected as it was proven unsuitable and expensive compared to established techniques. This again supports the theory that the process of appropriation continued even after bringing electricity into the household.

What can be said of the domestication process as a whole then? Based on the findings, electricity seems to have been domesticated rather successfully. That is, it has, in a sense, become a familiar part of the family and village life in general. However, as has also become clear, in a few occasions electricity has continued to contravene: First, instead of providing the villagers of Sammuen with refreshment in the form of ventilation, electrification failed to do so, serving only to make the air hotter. Second, while electric light came to support many valued activities, it nevertheless diverted youngsters from the respected activity of studying. Third, in addition to providing access to useful global information, television had also brought undesired influences, including drug use, to the villages, which, again, had had a negative effect on children. Finally, the idea of electricity as an untamed, wild force manifested in the fear that villagers displayed towards it and its potential dangers, particularly to children and the elderly. Interestingly, unlike in Gooday's (2008) study, in which electricity was considered harmful to women, in Feung it was thus the children to whom the current was seen as a threat. One reason for this might be the women's role in taming electricity for the family's benefit.

The fact that electricity continued to disobey can be seen to support the argument, as presented in chapter 3, that technologies never really become fully domesticated. From this perspective, the way electricity is currently used in the villages should be expected to evolve. This is supported by historian David Nye's (1990) study of rural America, where electrification was also first found unsuitable for cooking tasks, but has over the years turned into a popular technique. Interestingly, the technology itself may have a major role in this change, specifically in the increased income it facilitates, in turn enabling households to purchase more appliances and use more electricity. Among the potential future uses of electricity, one can include information and communication technologies (ICT). Of them, mobile phones were already utilised by some interviewees and can be expected to gain more popularity due to their relative inexpensiveness. As for computers and Internet use, significant barriers remain. The current low penetration of computers and Internet is not simply a result of the rural population's low income level, but is also due in part to underdeveloped infrastructure, shortage of Laotian content and a lack of skills (Minges & Gray 2002, 20–21; Phissamay 2009). Although private investors have begun to address the former by providing a viable ICT infrastructure, realising the empowering potential of ICT requires further bold actions (Haddawy & Sayakoummane 2011). As for now, computer usage remains limited. This was illustrated by the Naseng headman's 20-year old son, living in a city but visiting his home village at the time of the interview, who claimed that his laptop served mainly as a digital music playback device (NS#6).

As anthropologist James Scott (1998) has argued, many large-scale technological schemes fail despite their good intentions. Why has the electrification now taking place in Laos been as successful as it has? One answer to this is that electricity's potential seems to fit well with the subsistence ethics of the villagers. That is, electricity has, on one level, helped villagers to secure their household economy, while on another it has reduced the amount of physical labour needed to perform subsistence tasks. Worth noting is that many of the traits connected to subsistence ethics were revealed through electrification. Specifically, the villagers relied on their traditional networks and engaged in mutual assistance to gain access to electricity, and to guarantee its availability to all. This paints a picture of electricity as a necessary item for household survival. From Rigg's perspective (2005, 31) an analysis of Laos' modernisation thus might not be that far-fetched. Rigg argues that the reason why “the products of modernisation” have become “valued and sought after” is that the universal wish of improving one's life and one's children's prospects is becoming increasingly determined in terms of modernisation, a development that has been intensified by government policies, traders and media, all promoting modern lifestyles. Rigg's point can be seen to apply also to electricity: as demonstrated in chapter 2, in Laos, as in the global energy-development discourse, electricity has come to represent a ladder out of poverty, integral both to families' current livelihoods and their future. As a result, electricity truly matters to a growing number of people (see Winther 2008, 7). In fact, it does so to the point that some are even willing to risk their lives to gain access to it, as the dangerous practise of sharing electricity demonstrates.

Although the focus of the analysis was primarily on households, the thesis ended up portraying a wider social and cultural change related to electrification, similar to that found in previous studies, as presented in chapter 2. These changes became pronounced not only in altered habits, but also at a deeper level, such as in the expression of gender roles. Specifically, as stated in chapter 2, women's limited power in the Lao village hierarchy has, to large extent, been tied to their control of the household finances. In this respect, the findings of the thesis suggest that electrification had brought women more power and strengthened their position in relation to men by enabling more and more women to become not only the controllers of the family purse, but also important, if not primary income earners within the household, and, in larger scale, in the village as a whole. In addition to changes initiated by electrification, the thesis also ended up illustrating the broader changes taking place in the Lao countryside, as described in chapter 2, within which the act of domestication took place. This change was exemplified, for example, in the consumptive attitudes of villagers. That is, the moral economy of the rural inhabitant depicted in the previous chapter – one that values practicality and security, one that is willing to share and even encourages it, one that values tradition

but is also open to new influences, and one that, simultaneously, embraces change and resists it – did not entirely fit the description of subsistence ethics, but seemed to be undergoing a transformation connected to the pressures and possibilities faced by villagers in today's world.

Before concluding, a few points can be made with regard to the tools used in the thesis. First, although rarely utilised in analysing infrastructural technologies, the domestication framework has proven a possible theoretical and conceptual basis for examining the reception of electrification, particularly if applied rather liberally as in this thesis. Second, the findings of the thesis suggest that studies on domestication do not automatically invalidate previous theoretical techniques (cf. Flitsch 2008, 267). On the contrary, analysing the domestication of new technologies and practises, and especially the cases in which they are rejected, can, in fact, reveal something of the importance and role of the previous technologies in people's lives, in this case, of firewood's role in rural life. As for the approach's suitability for social anthropological analysis, a few points arise. For one, although domestication focuses on the household and the relations between its members, it is not necessarily limited to them. That is, the approach also allows for an examination of the community level, one of the key interests in anthropology, if and when a community is understood as one comprising of households connected to each other, as in this study. Moreover, as has been shown, although the approach itself does not directly focus on the cultural or structural level, nor does it alone allow making generalisations extending to them, these levels become, nevertheless, revealed as a kind of a side product of domestication analysis.

As elaborated in chapter 4, the process of gathering data for the thesis was not ideal from given the resources available. This was then, to some extent, reflected both on the data forming the basis for this thesis, as well as the end result. In hindsight, choosing one or two electrical appliances, or a specific group of household activities, rather than looking at the domestication of electricity as a whole, might have been a more fruitful choice, as this would have allowed a more in-depth analysis and a better focus in the interviews. Another analytical concept alongside domestication could have offered valuable insights on the topic, but, it should be noted, could have also lengthened the thesis considerably.

Still, although the thesis did not manage to provide a comprehensive description of how electricity has been domesticated, the study has proven that though domestication approach has its limitations, it is more versatile from an anthropological perspective than it may first seem. Moreover, the study has offered some clues as to how electricity functions in rural lives in Laos, as well as what kind of

meanings are attached to it. In so doing, the thesis has touched upon a number of anthropologically and social scientifically interesting themes and questions that provide fruitful ground for further research. One of these themes is electrification and young people. Studies could, for example, look at how young people have experienced electrification, since it was towards them that electricity is seen as a corrupting influence, or examine what kind of energy use children are socialised into; that is, what kind of uses are encouraged or prohibited. It would also be revealing to explore the domestication process from a gender perspective, as gender was strongly present in the data. It did not, unfortunately, allow for either a more comprehensive description of the topic or generalisations. Håkangård's (1992) study, introduced in chapter 2, that found that women's success as income earners, enabled by market integration, had had positive implications for their decision making power and work load at home, could work as one possible entry point. That is, researchers could chart whether women's ability to produce more weaving products, made possible by electrification, has affected the gender balance and division of work at homes, and whether women's increased engagement with handicrafts has withdrawn them from agricultural work altogether. In addition, studies could investigate who is in charge of acquiring the technology and who decides when and how it is used within a family. The dynamics related to electrification represent one final theme worth delving into. Specifically, human geographer Jonathan Rigg (2005, 2) has argued that all processes of modernisation, regardless of their outcome, include a certain degree of struggle related to the way they introduce a new agent of differentiation into a community. On this basis, researchers could look at whether the fact that successful entrepreneurs have emerged as a result of electrification has changed the power relations or the general dynamics within the village community. Answering these questions would help build a more thorough understanding of the numerous social complexities related to electrification.

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APPENDICES

Appendix 1: List of interviews

Village codes: NS=Naseng, SM=Sammuen, PHO=Phonsavath, NMP=Nam Pung, NPR=Nong Por

Code	Type of interview	Name(s)	Sex(es)	Age(s)	Livelihood(s)
NS#1	Headman		Male		
NS#2	Focus group	R1	Female	40	Poor
		R2	Female	60	Sufficient
		R3	Female	60	Sufficient
		R4	Male	50	Sufficient
		R5	Male	80	Sufficient
		R6	Male	70	Sufficient
NS#3	Individual		Male	middle-aged	Poor
NS#4	Individual		Female	70	Sufficient
NS#5	Short conversation		Male	middle-aged	
NS#6	Short conversation		Male	20	
SM#1	Headman		Male		
SM#2	Focus group	R1	Female	40	Sufficient
		R2	Female	30	Sufficient
		R3	Female	30	Sufficient
		R4	Male	60	Sufficient
		R5	Male	60	Sufficient
SM#3	Individual		Male	60	Sufficient
SM#4	Individual		Female	60	Sufficient
PHO#1	Headman		Female		
PHO#2	Focus group	R1	Female	70	Poor
		R2	Male	40	Sufficient
		R3	Male	60	Poor
		R4	Male	50	Poor
		R5	Male	50	Sufficient
		R6	Female	40	Sufficient
PHO#3	Individual		Male	Elderly	Poor
PHO#4	Individual		Female	40	Poor
PHO#5	Short conversation		Three males	Early twenties	

NMP#1	Headman		Male		
NMP#2	Focus group	R1	Male	60	Sufficient
		R2	Female	30	Sufficient
		R3	Female	20	Sufficient
		R4	Female	50	Sufficient
NMP#3	Individual		Female	40	Poor
NMP#4	Individual		Male	40	Poor
NPR#1	Headman		Male		
NPR#2	Focus group	R1	Female	50	Poor
		R2	Female	30	Sufficient
		R3	Male	30	Poor
		R4	Male	50	Sufficient
		R5	Male	40	Poor
NPR#3	Individual		Male	60	Sufficient
NPR#4	Individual		Male	30	Poor

Appendix 2: Question set for village headmen

BACKGROUND INFORMATION

Name of the respondent? Ethnic group? Level of education?

POPULATION STRUCTURE

How many people live in this village? Is there seasonal variation? How many men/women? How many households?

LIVELIHOODS AND FOOD SECURITY

What are the main livelihoods in this village? Is there seasonal variation?

Where do people get food?

Are there any poor households in the village? How many? What is your criteria for poverty?

Have there been any major changes in the village in past 15 years? Have these changes affected livelihoods?

ENVIRONMENTAL CHANGE

Have there been any environmental changes in past 15 years? Why do you think these changes are happening?

Have environmental changes had negative or positive impact on livelihoods?

Did people have to change something in their occupations because of the environmental changes?

Do you feel that the occupations of this village are threatened? What could make them less threatened?

Have you heard about global warming? Do you think it has or will have an effect on the life of your village?

What kind of strategies would help people to overcome environmental changes in the future? New occupations?

Are you worried about the environment?

ENERGY

When was this village connected to a grid?

Did you have access to electricity before the village was connected to the grid? For how long?

Does everyone in the village have access to the grid? If not, how many don't?

Do they use some other type of electricity (e.g. generators)?

What kind of other energy sources do people use in this village?

Do people use electricity in their livelihoods? Has it made their livelihoods easier? Has it brought new livelihoods?

Do you see people could use more electricity in livelihoods?

INFRASTRUCTURE DEVELOPMENT

When was the road built?

FUTURE

How do you see the development of the village in the future?

Appendix 3: Question set for individual interviews

BACKGROUND INFORMATION

Name? Sex? Livelihood status? Level of education? Ethnicity? How many people live with you?

LIVELIHOODS

Main occupations? Food sources? Division of work in the household? What is your typical day like? Has life changed in the past 10 years?

ENVIRONMENTAL CHANGE

Have there been any environmental changes? Their impacts on livelihoods? Etc.

ENERGY

Do you use electricity at home?

When and how did you first start using electricity?

Have you taken part in any trainings related to electricity? If so, how were they?

For what purposes do you use electricity? What kind of electrical appliances do you have?

Does electricity have some kind of role in any of your jobs? Could it have?

Has electricity changed the way you perform these tasks? (e.g. the time or the place)

Do you use any other energy sources like firewood, charcoal or liquid fuels? Where do you get them?

For which purposes do you use them?

What do you use the most (electricity or some other energy source)? Why?

What was it like to first get electricity? What was the first thing you purchased?

What do you think about electricity? What sort of positives/negatives does it have?

Who benefits the most from electricity?

Who benefits the least from electricity?

In what ways are firewood and charcoal better/worse than electricity?

Which do you prefer using, electricity or firewood/charcoal? Why?

Why do you (not) use electricity?

Has life changed in some way after getting electricity? Could you give an example?

Is the electricity access reliable?

If you had the money, would you use more or only electricity? Why (not)?

Are there some electrical appliances you would like to have?

FUTURE DEVELOPMENT

What kind of things do you find important for village/household development?

What is your main information source?

What kind of positive/negative aspects do you see in the future?

Appendix 4: Question set for focus groups

BACKGROUND INFORMATION (ON EACH PARTICIPANT)

Name? Sex? Livelihood status? Level of education? Ethnicity? How many people live with you?

LIVELIHOODS

Main occupations? Changes in the village in the past 10 years? What kind of things are important for livelihood security?

ENVIRONMENTAL CHANGE

Have there been any environmental changes? Their impacts on livelihoods?

ENERGY

What are the most important uses of electricity? Is it used in livelihoods?

Do you see it possible to use energy in livelihoods? What would it require?

What kinds of things affect people's electricity use?

What was it like to first get electricity? How did you acquire a connection?

What kind of good/bad sides does electricity have?

What kind of good/bad sides do firewood/charcoal have?

Which do you prefer using, electricity or firewood/charcoal? Why?

Why you do (not) use electricity?

Has life changed in some way after getting electricity? Could you give an example.

VILLAGE DEVELOPMENT

What kind of things do you find important for village/household development?

How do you see the future of your village and the environment?