

The background of the cover is a composite image. The top half shows a dense forest with tall, thin trees. The bottom half shows a rural scene with three people: a young girl in a light-colored shirt, a woman in a red jacket holding a basket, and another woman in a purple jacket. They are standing in a field with trees in the background.

International Cooperation Cambodia (ICC)

A Livelihood And Gender Study of Three Bunong Kroms

Mondulkiri Province, NE Cambodia

Report: July 2004

Field Research: February 2004

Data Analysis: March 2004-April 2004

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July 2004 | Mondulkiri Province | Cambodia

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Table of Contents

1	Objectives.....	1
2	Introduction.....	1
3	Background	2
3.1	Mondulkiri province and the Bunong people	2
3.2	Traditional Bunong beliefs and practices	2
3.3	History of Mondulkiri province.....	5
4	Methodology	6
4.1	The communities we studied	7
4.2	Explanation of the Rapid Appraisal Tools.....	7
4.2.1	Village Social Map	7
4.2.2	Resource Picture Cards.....	8
4.2.3	Seasonal Calendar.....	9
4.2.4	Daily Activity Clocks	9
4.2.5	Income and Expenditures	11
4.2.6	Benefits Analysis	11
4.2.7	Farming Systems Diagram	12
5	Results.....	13
5.1	Village Social Map (Appendix 2).....	13
5.2	Resource Picture Cards (Appendix 3).....	13
5.3	Seasonal Calendar (Appendix 4)	13
5.4	Daily Activity Clocks (Appendix 5).....	13
5.5	Income and Expenditures (Appendix 6)	15
5.6	Benefits Analysis (Appendix 7).....	16
5.7	Village Farming Systems Diagram (Appendix 8).....	16
6	Conclusions.....	16
6.1	Change in social structure & formal authority structures	16
6.2	Major Livelihood Activities & Seasonal Cycle	17
6.3	Division of Labor.....	17
6.4	Locus of Control	18
6.5	Leisure Time	18
6.6	Land tenure issues.....	18
6.7	Technology & Innovation.....	19
6.8	Summary.....	20
7	Recommendations.....	20
8	Limitations of the study	22
9	Acknowledgements	22
10	Bibliography	23
11	Appendixes Index.....	25

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Executive Summary

Since 1996 International Cooperation Cambodia (ICC) has been involved in community development and bilingual education in Ratanakiri province. Expanding on this experience in 2001 ICC personnel conducted a survey of the functional literacy levels in the four mountainous districts of Mondulkiri province. This survey confirmed the low functional literacy rates reported in the survey conducted by the Department of Non-Formal Education in 2000 particularly among the Bunong ethnic minority. Based on these results ICC committed to begin a bilingual education project for the Bunong community in Mondulkiri province. The current livelihood and gender study was undertaken as part of the foundation for effective interventions in this ethnic minority community.

A sketch of traditional Bunong beliefs and practices provides the background for the study. The field research was conducted in three villages within Mondulkiri province, namely: Bu Cjaa village, Srae Preah commune; Bu Lung village, Romonea commune and Lamih village, Bu Sra commune. In addition to personal interviews and observations the following set of rapid appraisal tools were used to understand the livelihood system and associated gender roles: Village Social Maps, Seasonal Calendars, Daily Activity Clocks, Resource Picture Cards, Income and Expenditures matrixes, Benefits Analysis flowcharts, and Village Farming Systems diagrams.

Findings of interest include changes from the traditional social structure and traditional leadership, changes in the division of labor between women and men, a shift in the locus of control within the family, land tenure issues, as well as issues related to introducing technology. The increased understanding of the livelihood system and the current gender roles resulting from this study will greatly facilitate the process of developing culturally sensitive interventions for the Bunong people.

Summary of Recommendations

General comments & recommendations

- Take the seasonal cycle and daily activities of the Bunong into account when planning interventions and training.
- The Bunong are not as group-oriented as they once were. Private ownership of community resources may be possible.
- Ongoing monitoring of the gender related implications of the ICC project on the Bunong community is essential.

Food Security

- In general, women take care of feed animals like pigs and chickens while men are responsible for grazing animals like cattle, buffalo and elephants.
- In swidden cultivation both women and men share knowledge of the farming system and the entire family is involved in the farming work.

Teacher selection & training

- Despite inequalities in knowledge and past education provide training to both women and men as much as possible.
- Training women teachers may require different approaches such as pre-service training for women and holding trainings in villages or at district centers so that participants can travel home in the evening.

Timing and location of literacy classes and trainings

- Classes can be held in the village throughout the year with relatively few interruptions.
- Many villages do not have a building for communal meetings or a school so the physical location for classes will have to be decided.
- Numeracy classes should target women in particular.
- It may be preferable to have separate women's and men's classes.
- It may be possible to have women's classes during the day.
- Having small classes which meet in homes and leaving the time and location up to the teacher would make it easier to make classes fit their seasonal and daily activities. In addition, they may be less threatening for women (both students and teachers).
- Men's classes or mixed classes would probably need to be in the evening.

Appropriate Technology

- Investigate wells, rice hulling machines and other technology which can reduce women's workload and make it easier for them to attend literacy classes.
- Lighting systems will be necessary for evening classes.
- Use the Gender Analysis Matrix or a similar tool to help women and men in the community assess the social and economic impact of new technology.

Topics for literacy materials

- Human health
- Animal health
- Agriculture
- Natural resource management and land issues
- Income generation, numeracy and marketing
- Current events
- Cultural materials

1 Objectives

The objective of this study is to gain a greater understanding of the gender roles and livelihood system of the minority peoples in Monduliri province in order to identify areas for effective food security and education interventions and to ensure that both women and men have equal opportunities to participate, influence and benefit from these interventions. A secondary purpose was to train ICC staff in PRA methodology as this will be useful in future project implementation and facilitation of community development.

2 Introduction

Since 1996 ICC (International Cooperation Cambodia) has been implementing community development initiatives among ethnic minorities¹ in Ratanakiri Province of northeastern Cambodia. The program focuses on community health, food security, and adult literacy. In 2001 ICC expanded these efforts to Monduliri province. ICC's recent study on literacy levels in Monduliri² revealed that the vast majority of the Bunong ethnic minority people³ there have minimal facility in spoken Khmer and alarming rates of illiteracy: this is especially true for women. Additional research by ICC verified that livestock are an essential component of Bunong culture and critical to the Bunong livelihood system: thus ICC has elected to focus on non-formal education (bilingual literacy) and animal health. There is an emphasis on lifeskills in ICC's NFE curriculum as well as the basic skills of reading, writing, and mathematics. Generally, education is the window through which ICC views and will implement development activities in northeastern Cambodia.

Focused research is a critical part of designing and implementing appropriate and effective development and literacy initiatives for ethnic minority populations who have a unique culture and thus particular needs that differ markedly from the majority population. These populations also have particular issues related to the remoteness of their location and their complex livelihood systems: and many issues of access to social or other kinds of government and NGO services. It cannot be assumed that programs or interventions which work well among the majority population can also work well among minority populations. And it is especially important to keep gender roles in mind when planning and implementing any kind of development work because change and development affect women and men in different ways. Experience shows that when gender is not intentionally considered, it is difficult to serve women and men in an equitable way. Therefore, ICC has undertaken this gender and livelihood study as a means of enhancing the quality of its development interventions among the Bunong people; it is hoped that the information generated will also be of value to other organizations planning to work in the province.

ICC is committed to implementing culturally sensitive and sustainable development projects. The current study builds on the strong foundation ICC has built working with the ethnic minority populations in northeastern Cambodia by analyzing the livelihood and gender context of the Bunong people. Recognizing that society and gender roles⁴ change over time, and defining 'development' primarily as change management, this study considers the current situation in relation to the past. The Background section gives a brief history of the region and of the Bunong people. The ensuing Methodology section introduces the Rapid Appraisal (RA) tools used for the study and explains how they were applied. The Results section provides an overview of general and consolidated findings including comparisons and contrasts between villages. A Conclusion section summarizes the results and finally, this report document presents recommendations based on the findings.

¹ Specifically, ICC is working with the Brao, Kreung, Kavet, and Tampuan indigenous ethnic minority groups in Ratanakiri.

² *An Assessment of Khmer Language Skills and Literacy Levels within the Adult Hilltribe Population of Monduliri Province, the Kingdom of Cambodia* (Hiatt 2003).

³ The majority population in Monduliri and one of the largest indigenous ethnic minority groups in Cambodia.

⁴ Gender refers to socially constructed roles of men and women which are learned and change over time (GAD/C 2001:3).

3 Background

3.1 Mondulkiri province and the Bunong people

Mondulkiri is a remote province located in northeastern Cambodia bordering on Vietnam. It is the largest province in Cambodia with a land area of 14,682 square kilometers but the least populated. Much of Mondulkiri province is included in various protected forest and wildlife sanctuary zones (Goldthorpe 2003:3; Evans 2003:26). There are lowland areas in Kaoh Nheak district in the north and in Kao Seima district in the southwest. These lowland areas are good for growing wet paddy rice (See Appendix 1: Map). The rest of Mondulkiri is a higher elevation, hilly region known as the Saen Monourom Plateau. The region has a tropical monsoon climate with rainfall of 2.0-2.5 meters annually (Evans 2003:31). There are two monsoon seasons: the dry season from November to April with northeasterly winds and the wet season from May to October with southwesterly winds. The northeasterly winds at the beginning of the dry season are strong for most of December and January. Approximately 19,000⁵ (Grimes 2000 online) of the 35,771⁶ people living in the province are from the Bunong ethnic minority group. Khmer make up the next largest segment of the population followed by various other ethnic minority populations such as Stieng and Kraol.

The Bunong are an ethnic group residing in the highland region of northeastern Cambodia and Southern Vietnam. There are approximately 69,000 Bunong people with approximately 19,000 residing in Cambodia (Grimes 2000 online). The people refer to themselves as the Bu Nong. ‘Bu’ means ‘people’ (it is not clear what ‘Nong’ means). In Cambodia, Bu Nong is transliterated as ‘Pnong’ or ‘Phnong’ following Khmer conventions whereas closely related groups in Vietnam are referred to the anthropological literature as ‘Mnong.’ Bunong people in different areas have different names for their subgroup such as Biat, Bu Bunar, Bu Rehong, Bu Preh, etc. Often these subgroups represent minor dialect differences.

3.2 Traditional Bunong beliefs and practices

There is little written evidence of the history or culture of the Bunong and other indigenous ethnic minority groups of Cambodia. Except for Cham and Jorai, all of the indigenous languages of Cambodia are in the Mon-Khmer language family (Grimes 2000 online). It is thought that the Mon-Khmer people originated in the upper valleys of the Mekong River in present day Tibet and migrated down the Mekong River basin (Schrock 1966:479). There is a high probability that the ethnic minorities of Northeast Cambodia and the Saen Monourom Plateau share a common ancestry with the Khmer. “Most sources place the time of separation [of the Khmer from the other Mon-Khmer ethnic groups in Cambodia] some time between the arrival of Hinduism and the beginning of the Funan era in the third century and the rise of the Chen-la in the fifth” (White 1996:341). Traditionally, the highland groups including the Bunong have traded with the lowland groups (Khmer, Thai, Lao and Vietnamese). The highlanders would trade livestock, elephants, rice, exotic forest goods, wood, feathers, wild spices, [and] herbs for ceremonial gongs, pottery jars, beads, jewelry, salt, and iron (White 1996:339). Other contact with lowland groups came in the form of slave trading/raiding. According to Chinese sources in the late 13th century the majority of people living in Angkor were slaves taken captive from the highland areas. Also, up until the early nineteenth century highlander villages were heavily fortified to protect slave raiding and, later, from the Viet Cong (White 1996:343; Schrock 1966:483).

The Bunong have practiced swidden cultivation on the hillslopes for generations. This report refers to swidden farms by the Khmer term *comkaa*.⁷ This type of farming is well suited to the hilly tropical forest climate where they are located. It is a labor intensive system which does not use plow or draft animals. Everyone in the family helps with the *comkaa*. Planting and harvesting rice are communal

⁵ This is a very conservative estimate based on a 1988 government figure. It is difficult to get an accurate estimate of the current Bunong population but several sources report that the Bunong make up approximately 70% of the population of Mondulkiri province.

⁶ This is an extrapolation from the 1998 census based on a 2.5% annual growth rate. McAndrew (2003:2) identified Ministry of Interior documents from the Commune Council Elections listing the provincial population at 40,181 in early 2002. The difference between these figures is at least partially the result of in-migration.

⁷ In the Bunong language a swidden farm is called a [miir].

activities. Even though everyone in the family works on the farm there is division of labor within this system such as men clearing large trees, digging holes and lifting heavy items and women clearing underbrush, planting, and weeding. Women typically decide when to burn fields, what seed to use, where to plant and when to harvest the vegetables while men choose the location of the *comkaa* and when to harvest the rice (Berg 1999:12). The Bunong follow a 15-20 year swidden horticulture cycle. One site can be used for up to 5 years before moving to a new location. After letting a *comkaa* lay fallow for 15 years they can replant at that location. In this way four *comkaa* sites can provide a perpetual farming system. In the past, if the village elders deemed it necessary (due to death, disease or other disaster) they would abandon their *comkaas* and begin fresh. Today, individual farmers can decide where and when to start a new *comkaa*. Despite the fact that many Bunong families learned to farm paddy rice during the Pol Pot Regime, the majority of Bunong continue to practice swidden horticulture on the hillslopes.



Picture 1: Swidden farm or [miir] in Mondulkiri

The Bunong were semi-nomadic, shifting their villages frequently over short distances within a traditional village area as a response to death, disease or disaster [or the perceived threat] (Evans 2003:44). Today they still often abandon old residences and construct new ones for similar reasons but they usually remain within the same village. Dreams are very significant to the Bunong and a dream which forebodes death, disease or other disaster could also trigger this response (Schrock 1966:483). Their semi-settled nature of swidden cultivation also causes them to move *comkaa* residences every few years. Bunong families typically have two residences: one in the village and one at their *comkaa*. Traditionally, the village residence provided community and protection from outside attack while the *comkaa* residence is needed in order to protect their crops from being eaten by animals. Today, many Bunong have built Khmer style wood homes on stilts in the village, but they often have a traditional house at their *comkaa*.



Picture 2: Traditional Bunong houses in a Mondulkiri village

The traditional belief system of the Bunong is animism, although some Bunong have adopted Buddhism and others Christianity (both Catholic and Protestant). Their traditional animistic beliefs focus on spirits which control all of life at home, on their *comkaa* and in the forest. There are spirits of the natural elements (sky, sun, earth, fire, and water) and other objects such as their home, wine jars, certain trees, elephants, certain tools and most important of all—the spirit of the rice. These spirits animate the world around them and inside them and permeate their interactions with the natural world and other people. Many of the ceremonies they perform throughout the year are designed to appease the spirits. Hardships like a poor harvest, chronic illness and premature deaths can be the result of not appeasing the spirits properly. If bad things are happening in the community they may look to see if a tradition was not respected properly, if a ceremony was not performed properly, or if anyone has been possessed by an evil spirit. Wealth, beauty and orphan status are looked on with suspicion. Once they have identified a problem they calling a shaman (of which there are many kinds) to perform a ceremony to help appease the spirit. Their belief in spirits and particularly evil spirits helps explain why bad things happen and promotes conformity and equality within the community. As a result,

The M’ong are group oriented and seldom approach tasks and problems as individuals. Their behavior is strongly influenced by the conformity required by their traditions and customs. However, there are individuals who strive to gain prestige and status by acquiring wealth and political power. Among the M’ong, this status is symbolized by the Tam Boh, an exchange of sacrifices between parents and a married son (Schrock 1966:491).

The Bunong have matrilineal descent and matrilocal residence (Lebar et al. 1964:155). Wealth is traditionally controlled by the wife’s family. Schrock (1966:492) summarizes traditional division of labor between men and women in Bunong society, “The men hunt, engage in warfare, clear the fields, prepare the ground for sowing, make baskets, and work with metal; women spin, weave, plant seeds, and gather edible leaves, fruits and roots in the forest.” Women are responsible for the home, *comkaa* and family. Men share responsibility for the *comkaa* and are responsible for hunting, grazing animals and other jobs that can take them far from home.

Traditionally, Bunong leadership consisted in a group of village elders and a village headman (elected by the elders). The village elders handled land issues, ceremony and inter-village disputes that affect the entire village. The village headman handled issues of customs and manners normally within a village but the authority of the headman varied from one village to the next (Schrock 1966:509).

In Cambodia's current administrative system, provinces are divided into districts; districts are divided into communes; communes are made up of villages; villages are made up of Groups which, in turn, are made up of families. Each level has one or more administrative heads. In order to reduce confusion with other uses of the word 'group,' this report uses the Khmer term *krom* to refer to the administrative Group. The *kroms* which make up a village are not necessarily contiguous; some *kroms* are scattered (cf. Bu Cjaa village). Some *kroms* have their own names and some have multiple names. The Bunong have adapted their traditional leadership structure to fit in the current context. *Kroms* in today's hierarchy consist of several families which usually have some kinship affiliation. This may be a remnant of the People's Republic of Kampuchea (PRK) system of administration (White 1996:336). The chief of a Bunong village (who is selected by the village elders) is the representative to the government but the *krom* heads are the head of the constituent families.

3.3 History of Monduliri province

In the early 20th century during the French colonial period, a road was built from Saen Monourom to Kampong Cham with a military post at present day Gati village (Evans 2003:33). Later, the Cambodian government attempted to Khmerize the Bunong during the Sangkum Reastr Niyum (SRN) period (1954-1970) and settled over 250 Khmer in Monduliri province (Evans 2003:33). The French colonial and SRN (Sihanouk) governments asked the minorities to settle near the roads (Evans 2003:42) and by 1962, 18 villages had been brought from the forest interior to live along the road in Kao Seima district (Evans 2003:34). These more permanent settlements broke from their traditional semi-nomadic way of life. The population density at that time was very low, around 1 person per square kilometer. It wasn't until 1962 that Monduliri was established as a separate province. Formerly it was the district of Chhlong Leu in Kratie province (Evans 2003:33).

During the war between North Vietnam and the United States, Bunong were recruited as soldiers by both sides. Also, in 1969-1970 the Khmer Rouge took control of the northeastern part of Cambodia and made the residents of Monduliri resettle in Koh Nheak and practice paddy rice farming (Evans 2003:34). It was at this time that some were able to escape the Pol Pot regime by fleeing to Vietnam. The Vietnamese army took control of the eastern provinces of Cambodia in 1979 (Chandler 1996:213,228), and not long after the people who were relocated to Koh Nheak began to move back to their home villages. This was not a quick process as the Khmer Rouge retained control of some of these areas for several years. For example, the residents of Bu Cjaa and Bu Lung moved from Koh Nheak to Saen Monourom in 1980 and 1981, respectively, and waited there until they could move back. The first family moved to Bu Cjaa in 1984 (Evans 2003:42) but it wasn't until 1988 that the other families joined them. In 1986 the Bunong who had escaped to Vietnam returned to Cambodia, many of them resettling in Bu Sra and Dak Dam communes. In effect, most Bunong families were away from their home lands for between 10-20 years. In many cases they were not able to resettle in their original location. This was a major disruption to their traditional land use & ownership patterns and makes them even more vulnerable to land disputes.

As a result of nearly 30 years of unrest, the road from Saen Monourom to Snoul (and Kampong Cham) fell into disrepair. During this time it was necessary to go through Vietnam to get to Phnom Penh. In many cases it was easier to go to Vietnam for supplies and services, especially medical services. The road was upgraded in 1997-1998 by Samling logging company (Evans 2003:34). In 2002 all of the log bridges on the road from Phnom Penh to Saen Monourom were replaced with metal bridges. And, in 2003 this road was graded and paved two-thirds of the way, making Monduliri province much more accessible to Khmer and tourists. While the Bunong have been the majority ethnic population in this remote province for hundreds of years this may not always be the case—with access comes migration. In the 1998 census 18 percent of the population had moved to Monduliri from another province; in other words, in-migration already accounted for 18% of the population of Monduliri province at that

time (McAndrew 2003:2). Migration has accelerated further as the road from Phnom Penh to Saen Monourom has greatly improved in the last two years. The two major migration routes are via the goldrush town of Memong in Kao Seima district and via Saen Monourom, the provincial capital (Evans 2003:44).

Because of the difficult access to this region and the largely ethnic minority population, Mondulkiri province has been largely neglected by both the national government and non-governmental organizations. An indication of this are the functional literacy rates of the residents of Mondulkiri province. A recent nation-wide survey found that the overall functional literacy⁸ rate in Mondulkiri was 5.3%, the lowest of any province (MoEYS--NFE 2000:44). The literacy survey conducted by ICC within Mondulkiri which disaggregated by ethnicity and sex found that only 1% of Bunong women and 2% of Bunong men were functionally literate in Khmer (Hiett 2003:11).

The combination of disrupted land ownership, high rate of in-migration, and low literacy rates makes the Bunong especially vulnerable. This is a crucial time to focus our attention and resources on this neglected people.

4 Methodology

The objective of this study was to understand more about the current livelihood system of the Bunong with an emphasis on gender roles. The design of the present study was adapted from the Socio-economic and Gender Analysis (SEAGA) approach developed by the Food and Agriculture Organization of the United Nations (FAO). One component of the SEAGA approach was selected to meet the objectives of this study, namely, the 'Livelihood Analysis' which includes a set of rapid appraisal (RA) tools designed to understand the livelihood system of a community. This, in turn, was modified to suit the goals and situation of the project area. The RA tools selected include the following:

- Village social map
- Seasonal calendar
- Daily activities clock
- Resource picture cards
- Farming systems diagram
- Benefits analysis
- Income and expenditures matrix

These RA tools are introduced and explained in more detail below.

Our research team was comprised entirely of ICC staff. Two ethnic Tampuan ladies from the Ratanakiri office, four ethnic Bunong (two women and two men) and one ethnic Khmer male from the Mondulkiri office, along with three expatriate staff from the Mondulkiri office (two women and one man). Altogether, the team consisted of six women and four men. The entire ICC Mondulkiri staff had participated in a week-long gender awareness workshop in 2003. Before beginning the current project the ten members of our research team participated in another week-long training seminar which focused on gathering information, gender analysis and the RA tools selected for the study. The team of ten was divided into smaller groups of 4-7 for the village research teams. Some team members researched more than one village. Each village research team was required to have at least two women and two men and at least one of the two women and one of the two men were required to be native Bunong speakers. Since the villages were studied over a period of several weeks in the month of February ten researchers were sufficient to study all three locations.

One week was spent in each village although this time was broken up into two or three visits. In each village women's and men's focus groups were organized and more detailed information was collected from the families which hosted us. In each village two families were selected to live with for the duration of the village visits (in Bu Lung there were three families). The families were chosen based on the Village Social Map which was made during a preliminary visit. An effort was made to stay with

⁸ Functional literacy is defined as, "A person aged 15 years or over who can, with understanding both read and write, a short, simple statement about everyday life. (MoEYS--NFE 2000:18)"

families from different socio-economic groups (see Appendix 2: Village Social Maps). Since our ICC Mondulkiri staff are Bunong themselves they were able to ask questions and let people discuss answers in Bunong. Answers were recorded in Khmer and we have maintained the use of Khmer terms throughout this report (unless otherwise noted), writing them in italics.

4.1 *The communities we studied*

Just as using several RA tools gives the ability to triangulate and identify similarities and differences, studying different locations also has the added benefits of triangulation. With this in mind, it was decided to study three different locations in Mondulkiri. In order to keep the research to a manageable size it was decided to focus on one *krom* in each of the three villages. The following *kroms* were selected for study (see Appendix 1: Map):

- In western Mondulkiri near the border with Kratie province we chose *krom* 4, Bu Ciaa village, Srae Preah commune, Kao Seima district. Bu Ciaa is 69 km from Saen Monourom. This village has significant contact with the market town of Snoul in the neighboring province of Kratie. Bu Ciaa is comprised of 55 families and 270 residents. This village was known to comprise primarily rice paddy farmers. This is on the western edge of Bunong territory and it is not uncommon to find the Bunong intermixed with other ethnic groups such as the Stieng in this region. *Krom* 4 which we studied contains eleven families.
- In central Mondulkiri eight km from the province capitol, Saen Monourom, we worked in *krom* 1, Bu Lung village, Romonea commune, Saen Monourom district. The villagers here practice primarily swidden cultivation. They are quite close to Saen Monourom town and have had a lot of contact with Khmer. *Krom* 1 had 15 houses and 22 families.
- On the eastern side of the province near the Vietnam border we chose to work in *krom* Lampu, Lamih village (village 5), Bu Sra commune, Pech Chenda district. The population of this village is 425 residents. The residents of this village are primarily swidden farmers. Lamih village is approximately 43 km from Saen Monourom but the road is difficult in the rainy season. Many of the residents of Lamih village are Christians. Historically, the villages in this region have had significant contact with Vietnam and this continues to some extent. There are 17 houses in *krom* Lampu.

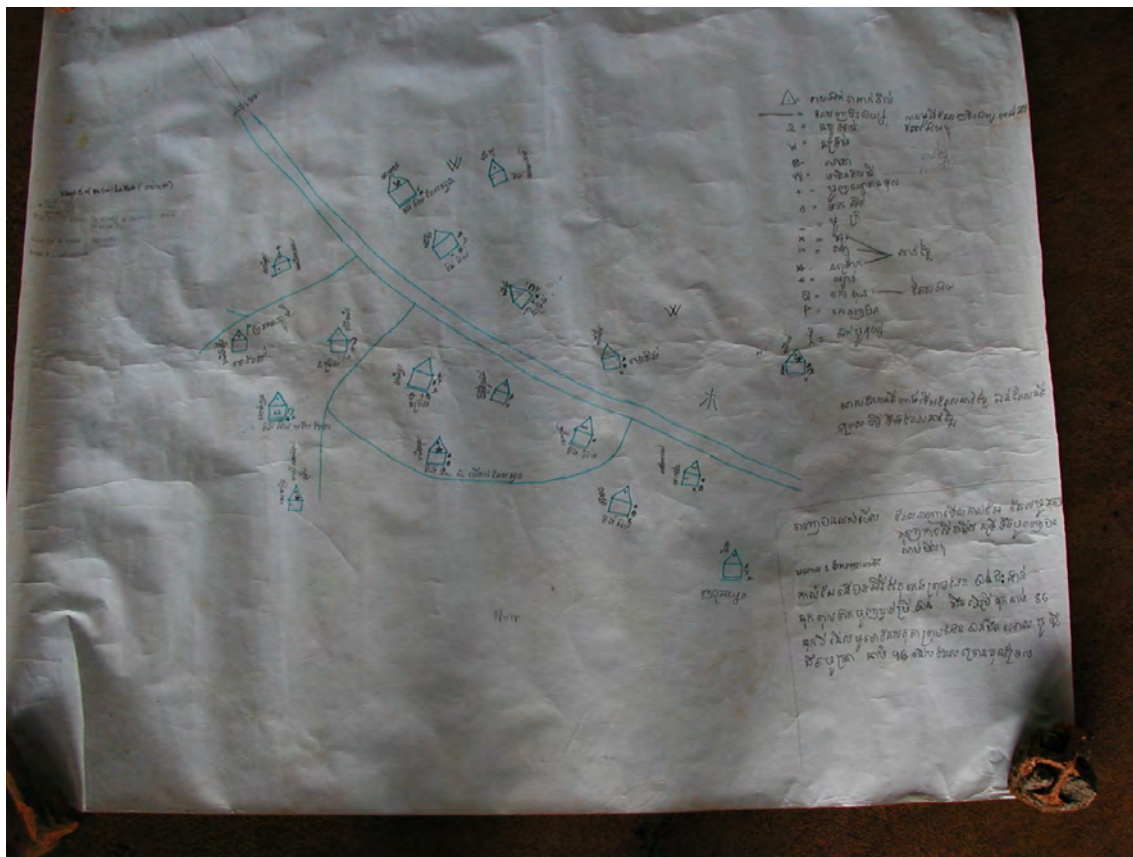
ICC did not have literacy classes in any of these villages at the time of this study. In addition to our research aims it was hoped that the information and relationships resulting from this study would help to evaluate the need for future interventions in these communities.

4.2 *Explanation of the Rapid Appraisal Tools*

4.2.1 Village Social Map

The Village Social Map is a map of the community being studied which includes socio-economic information about the community residents. The map is developed in consultation with village leaders and should include both women and men. It is useful for giving an overall look at the community combined with an insider's perspective which can be helpful in guiding later decisions. In particular, it is helpful for ensuring that all segments of the population are represented in the research.

Approximately one week before the research, *lekhuts* 'letters of permission' were delivered to the district, commune and village leaders. It was at this time that the *krom* we would study was identified. After walking through the village, asking about the history of the village, and discussing what represents wealth, a map of the *krom* which represented this information was made with the community leaders. An effort was made to be consistent between villages, but it was also important to let them tell us what they felt was relevant to their community. These maps were useful in helping to decide which families to study on later visits.



Picture 3: Village Social Map, Lamih village

In addition to the focus group research, in each village two families were selected to live with and study. These families were selected based on their socioeconomic levels as illustrated on the village social maps. In this report the Khmer terms *kroan baa* ‘sufficient’ and *khvah khat* ‘poor’ are used to identify the families studied based on their socio-economic levels. In Bu Lung village three families were studied so the numbers 1 and 2 are used to distinguish the two ‘poor’ families: *khvah khat 1* and *khvah khat 2*.

4.2.2 Resource Picture Cards

The Resource Picture Cards is an RA tool that helps uncover gender related differences in the control and use of resources. This tool is typically used with women’s and men’s focus groups. Results from this tool give an indication of the gender related balance of power and who makes certain decisions. These factors can be an indication of who will benefit most from development interventions.

The set of resources which were used in conducting the Resource Picture Cards tool were limited to those which were of ‘high value.’ This included the wine jars and the gongs because they were some of the most valuable possessions in the past. A picture of a rice basket was meant to represent the family’s rice supply. In addition, items which were mentioned in discussions of what constituted wealth from the Village Social Map were included. In the end, there were fourteen resources which were divided into the following three categories for analysis purposes:

Household resources	Large Animals and related items	Small Engine Machines
Rice	Elephant	Rice hulling machine
Wine jars	Buffalo	<i>koo-yun</i> tractor
Gongs	Cattle	Chainsaw
Television	Plough	Motorcycle
Radio	Ox cart	

The Resource Picture Cards tool was carried out in men's and women's focus groups. First, a picture of a man and a picture of a woman were placed side-by-side on the ground. Next, resource picture cards were given to one of the participants and they were asked to discuss with the group who uses the resource and place the picture card on the respective drawing. After they had agreed on who uses each resource, the process was repeated but this time the focus was on who has control of each resource.

4.2.3 Seasonal Calendar

The Seasonal Calendar is a way of understanding and recording the variation in the seasonal activities of a given population. This tool is often used with women's and men's focus groups although it is possible to ask individuals as well. Seasonal information reveals how and why activities change throughout the year which are hard to observe during a single village visit and which is helpful when planning interventions.

Women's and men's groups asked to make separate seasonal calendars. For this tool a circle was drawn on the ground to represent the year and the participants were asked to use natural objects (rocks, leaves, etc.) to represent the following topics: the amount of rainfall, the means rice (upland and paddy) and vegetable production, other work, periods of rice and water shortage, types of illnesses and when they occur, and finally, patterns of income and expenditures. The responses were recorded by the research team.



Picture 4: Seasonal Calendar, Bu Lung, women's group

4.2.4 Daily Activity Clocks

Daily Activity Clocks are a means for understanding what members of the community do on a given day. It is best to complete this tool with women and men for comparison purposes. Understanding daily activity patterns has many uses including showing relative workloads and seeing how productive and non-productive labor is divided between women and men.

This RA tool was conducted in the men's and women's focus groups except in Lamih village where individual families were questioned. Individual men and women were asked, "What did you do yesterday?" Their answers were recorded on a large 24 hour clock diagram which had been prepared on butcher paper. The activity clocks are NOT meant to be representative of a typical day's work. The work load is very seasonal and the time of year chosen to do the study, in February just after harvest,

is probably the least busy time of year. At this time of year the Bunong enjoy the fruits of their harvest and many people took time to enjoy the fruit of their labors by drinking rice wine in a ceremony which they call *saen srov*.



Picture 5: Daily Activity Clocks, Lamih village, women's group

One concept which is helpful for analysis of the Daily Activity Clocks is the triple work roles. According to this model there are three types of roles, they are (GAD/C 2001:9):

➤ **Productive**

Work done for pay in cash or kind. "This includes both market production which has an exchange value (e.g., rice, corn chickens, pigs...), and home or subsistence production with actual use value and potential exchange value, (vegetables, eggs, fruit,...)." Productive work roles tend to be valued higher than non-productive roles. In tribal societies where people are heavily reliant on human labor, women tend to share the workload with men. Relative to most other farming methods, swidden cultivation is heavily dependent on women's labor and at times has been considered a, "women's farming system" (Kelkar 1997:1). As societies adopt new technologies, men tend to be the ones to take control of the new technology leaving women to do non-productive roles which tend to be less valued in society.

➤ **Non-productive (a.k.a., Domestic, Reproductive)**

Non-productive work includes everything that doesn't have cash value or community interest. This includes child-bearing, child-raising, cooking, cleaning, collecting water or firewood, etc.

➤ **Community**

Community work roles involve any work done for the benefit of the community (whether paid or unpaid) but it is helpful to distinguish between community managing roles and community leadership roles. From a gender perspective it is important that women be represented in the community leadership since whoever holds these positions determine what roles women will be able to hold in the future.

The Bunong are primarily subsistence farmers who consume much of what they grow and gather. As a result, it is sometimes difficult to separate productive from non-productive roles. For this study hunting, gathering, wage labor, feeding animals and working in the *comkaa* were considered as productive roles. If the by-products of these activities are used by the family they have ‘actual use value’ or ‘potential exchange value.’ If the by-products are sold or exchanged they have ‘cash value’ or ‘exchange value.’ In addition to these ‘triple work roles,’ a category was made for relaxation and another one for ‘rest, eating and travel.’

4.2.5 Income and Expenditures

Income and Expenditures is a way of understanding the economic situation of a community. This tool is designed to be done with individual families or households from different socio-economic levels. A wealth of information can be gathered by this means such as annual incomes, sources of income, sources of expenditure, savings, etc. In addition, it can provide insights into how decisions are made and how crises are handled.

The RA tool presented in the SEAGA manual for investigating income and expenditures was not used in this study. Instead, for collecting income information a list of income sources was developed during the first village visit which was used in the succeeding villages. The value of each item was collected as well as and how many times they received it or how many they sold last year. Often, they were asked to think about one month and then extrapolated for the year. Lastly, they were asked if they had any other income sources in 2003. For investigating expenditures a fairly comprehensive list of possessions was developed based on a preliminary village visit and families were asked how many of each item they purchased in 2003 and for how much. Respondents were also given an opportunity to add to the list. The analysis of the Income and Expenditures results focused on items over \$10 in value.

4.2.6 Benefits Analysis

Benefits Analysis is a means of identifying how benefits are used, who does it and who has control. This is best done at the household or family level. The resulting information provides information regarding the use of benefits, basic livelihood activities, the division of labor and decision-making.

Benefits are the products and by-products of the farming or livelihood system. For example, if chickens are a ‘product’ of the farming system they could result in the following ‘by-products’: chicken eggs for consumption, chicken meat for consumption, chicken eggs for sale, chicken meat for sale, feathers, fertilizer, and gifts or offerings for special occasions. For this tool a set of index cards was prepared for each family showing the ‘benefits’ or ‘fruits’ of their labor revealed in the discussion about resources collected in the farming systems diagram. It was decided to focus on fifteen items that were known to be important and had multiple uses. Families were asked the following set of questions for each product:

What are the by-products of each product (or benefit)?

How is the by-product used?

Who uses it?

Who decides on use? Which are controlled by women? men?

In Bu Lung and Bu Cjaa the items were divided up between the families studied, but in Lamih village the entire Benefits Analysis RA tool was carried out with each family.

The way the terms ‘control’ and ‘use’ were applied changed based on what benefit was being discussed—the control of vegetables which are eaten was different from the control of bamboo which is made into baskets. When discussing food items control referred to who was responsible for food preparation, but when discussing tools and household items control was applied to the resulting by-product. For example, women are responsible for the rice storage (control) and women also cook rice (use), but with regards to bamboo, men collect it and make things with it (use) while women are responsible for the resulting basket that hangs in the cooking house (control).

For analysis the fifteen benefits were divided into two main categories for analysis: on-farm benefits and off-farm benefits. On-farm benefits include rice, banana, gourd, pumpkin, corn, cassava, taro,

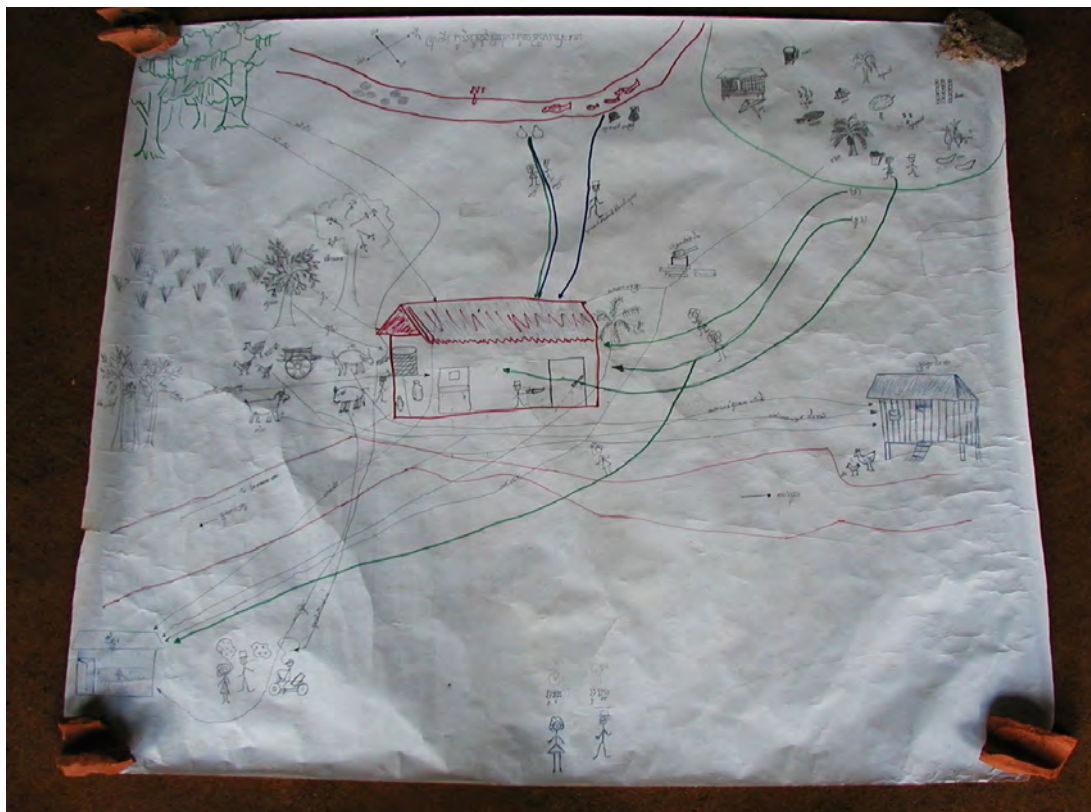
chickens, pigs, and buffalo. The on-farm benefits were further subdivided into paddy field, swidden field, grazing animals and feed animals. Elephants, buffalo and cows are grazing animals while pigs, chickens and ducks are feed animals. Grazing animals are often used to do work, that is, used as draft animals. Any of these animals can be raised for consumption except for elephants due to a cultural taboo. Animals from either category can be sold or traded for money, goods or services.

The off-farm benefits were bamboo (three different kinds), rattan, Koki tree and one type of resin tree. Elephants are difficult to classify as on-farm or off-farm resources. On the one hand, elephants are very important for transporting rice and other goods. On the other hand, elephants themselves can be considered as forest benefits because the Bunong have a taboo against breeding elephants in their villages and in order to get a new elephant they must capture it from the wild and tame it.⁹

The by-products derived from these 'benefits' are color coded into seven categories representing how they are used, namely: cooking and firewood, tools and household items, house building and repair; grazing animals; farming; selling of goods; and ceremonial uses (see Appendix 7).

4.2.7 Farming Systems Diagram

The Farming Systems Diagram is an attempt to illustrate in a diagram how the livelihood system works including on-farm, off-farm and non-farm activities. This is done with a family and information is disaggregated for gender. This is best done over an extended period of time or after several visits. This tool is helpful for understanding the significant components of the livelihood system and the flow of resources to and from an individual household. The Farming Systems Diagrams in this study were designed in consultation with the host families as they showed their home and farm during the village visits.



Picture 6: Farming Systems Diagram, Bu Lung, Khvah Khat 1

⁹ According to Fauna and Flora International (FFI), there are approximately 100-150 elephants in the wild in Mondulkiri province. Sometimes when the Bunong capture a baby elephant the mother elephant won't let the baby be taken and the mother has to be killed. This process will not be sustainable as the population of wild elephants decreases but there are efforts to develop captive breeding programs (Goldthorpe 2003).

5 Results

The following section summarizes the results between the *kroms* studied by comparing and contrasting the findings from the RA tools. This will be followed by a thematic analysis of the research findings in the Conclusion.

5.1 Village Social Map (Appendix 2)

Completing the Village Social Map in a preliminary village visit in advance of the research was very helpful for planning purposes. Asking the village leaders to distinguish socio-economic levels was not a simple task. It was often easier to ask them to think about who was richer or poorer after we did the map. In general the respondents were hesitant to define wealth because it would single some people out. Since these questions were primarily directed to the village or *krom* chief and they are often from the wealthier families they would be singling themselves out. Also, there often isn't a big difference economically speaking between the families in a *krom*. In Bu Ciaa they didn't say who was poor and who was wealthy. Our main criteria of wealth in this village turned out to be their supply (or lack) of rice. In Bu Lung, they used cattle and buffalo as an indicator. In Lamih village they said that the type of house and the machines they owned were the best indicators of wealth. The way wealth was perceived by the village leaders did not always match up with the research findings (see Income and Expenditures matrix).

5.2 Resource Picture Cards (Appendix 3)

There was a high degree of consistency in the responses from the different villages. Overall, the results from the RPC tool shows that men have 63% control and use of the high value resources we asked about. Focusing on household items women have approximately 70% control and 63% use of these resources. Men have 80% control 73% use of large animals. The one area where there wasn't agreement was regarding control of machines. This may be because in Lamih village they didn't respond to these items and in Bu Ciaa village their only machines were motorcycles which are generally shared more evenly between women and men. If we disregard these discrepancies we see that men have 95% control and 83% use of the small engine machines.

The wine jars and gongs which used to be the items of high value are still controlled by the women, but they don't have the economic value they once had. Men have control of most of the high value resources many of which are new farming technologies and electronics.

5.3 Seasonal Calendar (Appendix 4)

There was widespread agreement as to the weather, agricultural cycle, supplies of food and water, and prevalence of illness among the villages. In Bu Ciaa the focus was on paddy rice farming. Their rice supply was more reliable than the other villages but their water shortages are more severe. Besides farming the residents of all three villages take every opportunity to collect resin or find wage labor to supplement their income. April and May are crucial for planting the new round of crops. They are also possibly the most difficult months because of the combination of water shortage, vegetable shortage, rice shortage and illnesses (both human and animal). November and December are very busy months as they are harvesting the rice. There is no particular time set aside for 'other work' activities. They make time for them based on need.

5.4 Daily Activity Clocks (Appendix 5)

In general, the men's time is less fragmented and more of their time is spent on productive labor. In every village, women were responsible for cooking food and feeding the pigs and chickens in addition to other activities. In Bu Lung and Lamih village a lot of time was spent traveling to and from their *comkaa*. Community roles were very limited and generally filled by the village chief and the *krom* chief. But, in Bu Ciaa we noticed that the village chief sent a representative in his place to an NGO meeting. In every village there was time in the evenings for people to socialize, gather, or go listen to karaoke. On average, men had more free time in the evening than women. Since none of the villages have electricity (except at the karaoke shop) many people went to bed early.



Picture 7: Pounding rice

The division of labor between men and women in Bu Cjaa and Bu Lung is very clear (see Appendix 5). Men tend to do most of the farm work while women work around the house cooking, cleaning, feeding the pigs and chickens, washing clothes, etc. When we looked into this further we noticed that when we did the study in February several of the women in Bu Cjaa and Bu Lung spent two hours or more per day pounding rice. As a result, they didn't have time to be engaged in productive work. In Lamih village where they have rice hulling machines the women were not busy pounding rice and had time to travel to and work on the *comkaa*. In Bu Cjaa, one man took his rice to be hulled by machine in one hour. Not only did he help with non-productive work but he saved the time the women would spend pounding the rice. This is an example of when technology can make a difference in gender roles. However, it must be remembered that these gender roles differ depending on the time year. If we had done our study in November when everyone is harvesting rice the results would certainly have been different.



Picture 8: Rice hulling machine

5.5 Income and Expenditures (Appendix 6)

In five of the seven families questioned, their annual expenditures for 2003 were higher (in most cases much higher) than their income for 2003! While this may point to weaknesses in the research it also may be an indication that most of their income goes to meeting basic expenses. One local NGO, Nomad RSI, has reported that the past two years have been especially difficult for farmers in Mondulkiri. Two years ago there was an insect infestation followed by a drought last year which has affected the income of the villages they are working in. This information confirms that many families may not be making enough to provide for their annual needs (Nomad RSI, pers. comm.).

The largest sources of income are from wage work (cutting wood), selling animals, collecting resin, selling rice and the *krom* chief's salary. The biggest expenses were motorcycles, gas, ox cart, wood, tin roofing, stereo with speakers, and rice. Wage labor is a major source of income for many families. The wealthier families seemed to be less dependent on the forest for sources of income. The *khvah khat* families rely on collecting resin and wage labor for extra income. Selling animals is a way to get money but because of traditional customs many Bunong resist selling their animals until it is absolutely necessary. The ethnic minorities of Ratanakiri province have a similar practice (Berg 1999:14). One family from Lamih village had a significant income supplement from sawing wood. This was surprising since a recent study found that wage labor accounted for less than 13% of the annual income for the families of Dak Dam and Srae Preah communes (also in Mondulkiri province) (McAndrew 2003:23). But, when we returned to Lamih village for a follow-up visit the *kroan baa* family no longer had this extra income as local forestry officials were enforcing a ban on cutting trees.

Investments and savings were mainly in the form of animals and, to a lesser extent, jewelry (see Bu Caa *khvah khat*). All of the families in Bu Caa seemed to have enough rice to make rice wine and *saen srov*. In Bu Caa the *krom* 4 chief had enough extra money to buy a stereo with speakers and another resident of this *krom* had a TV with VCD player for karaoke and watching videos.

5.6 Benefits Analysis (Appendix 7)

There was not complete agreement between the Benefits Analysis results but some patterns were clearly evident. Women control or share control of nearly all of the products and by-products from the farm. Women also control the feed animals as it is primarily their responsibility to take care of them. Men control nearly all of the products from the forest, that is, bamboo, rattan and wood. These forest products are the materials used to make baskets, tools and houses, which are all men's roles. The by-products of these forest resources often end up in the home or kitchen where they are used and controlled by the women. Grazing animals such as elephants and buffalo (esp. the bulls) also come under the men's control. According to Bunong informants the reason for this division between feed and grazing animals is that men and boys are the ones who travel into the forest with the grazing animals and the bulls can be hard to handle. Elephant bulls are especially hard to handle when they are musking. Women usually stay around the home and do most of the cooking so it's not difficult for them to take care of the feed animals as these animals are usually living around the home and are consumed there as well. Since girls and women stay around the home it's easier for the parents to trust them with the family's wealth. Women in Bunong society are primarily responsible for taking care of the family's wealth (Nomad RSI, pers. comm.). Selling of goods is often a joint decision between the wife and husband or grandparents. Both women and men share responsibility for soil enrichment and planting. In Bu Ciaa, there were clues that men perform certain rituals.

5.7 Village Farming Systems Diagram (Appendix 8)

The farming system of the Bunong families in our study consisted of their farm (*comkaa* and sometimes paddy), the forest, their home (in the village and at the fields), their neighbors, the local market, the health post, the church (in Lamih village) other villages and the nearest town (Saen Monourom or Kao Seima). From the farm they get rice, fruit, vegetables, and some meat (from animals they trap). From the forest they get wood, bamboo, resin (solid & liquid), fish, wild vegetables and wild game. At home they often raise pigs and chickens and often have fruit trees. The forest and the farm provide most of their food supply but they do need to supplement with things from the market. Men use the bamboo to make baskets and women make or buy thread to weave cloth. They sell rice, vegetables, fruit, pigs, chickens, woven goods and resin to the market and buy rice, other food items, clothing, supplies, equipment and gas from the market. In addition, they charge batteries at the market. Some families buy metal from the market for making tools. Some grow cash crops like cashew nuts or coffee which they sell to the market or a middleman. Since the market is often far away they often exchange goods and services with neighbors in a barter economy. The *khvah khat* families especially take advantage of this barter system. We attempted to capture on some of the diagrams (see Appendix 8: Lamih village *khvah khat* and Bu Lung *khvah khat 1*). One family has significant income from cutting wood and building houses in addition to the benefits from their farming system. The *kroan baa* families do not need to buy rice and some of them have extra money to buy nonessentials like televisions and stereos.

6 Conclusions

This research has provided a clear and detailed picture of the livelihood system and gender roles of the Bunong.

6.1 Change in social structure & formal authority structures

The Bunong are no longer as group-oriented as they once were. Their village structure has been heavily influenced by the influence of the Khmer Rouge, PRK and current national government requirements. Most villages are built along the roads so they are quite spread out and at the district centers it is common to find several villages clustered together. Unlike the ethnic minority villages in Ratanakiri, the villages in Mondulakiri do not have a communal meeting house. Another sign of this change is that wells and rice machines are often personal property and in some cases other villagers are charged for their use. While this is different than traditional Bunong culture it may demonstrate that personal ownership can be an effective means of ownership for community resources.

Despite these changes, most of the villagers were related to each other in one way or another. They knew each other very well, lent money in times of need, and helped each other plant and harvest. Some aspects of traditional culture are intact.

While formal structures of village leadership are determined largely by the national government, some comparisons with traditional structures can be useful. The *krom* leaders (plus other older, respected men) are also part of the village elders. Village chiefs are selected by this group village elders (*krom* heads) as headmen were in the past. It is interesting to note that it does seem to be acceptable for women to hold positions of authority in the Province. There are currently several women serving as village chiefs in Mondulkiri province (mainly near Saen Monourom almost exclusively Khmer – perhaps because they can read and write and literacy is required by the government for formal leadership). Unless Bunong women are literate they will not be able to assume roles of community leadership.

6.2 Major Livelihood Activities & Seasonal Cycle

The Bunong we interviewed were primarily subsistence farmers who supplement their income by collecting resin (where forest is accessible), selling livestock and finding wage labor such as sawing wood. They may have some rice or other cash crops to sell, but it is not enough to provide for their annual needs. There was an inverse relationship between the wealth of the family and the complexity of their livelihood system. In general, wealthier families were less diversified in their income sources but were able to exploit the market economy to their advantage better than *khvah khat* families. Their practice of swidden cultivation has remained intact although in Bu Cjaa this is secondary to paddy farming.

The seasonal activities of the Bunong revolve largely around their agricultural cycle. It is important to understand this cycle when planning to hold classes, workshops, etc. The seasonal calendars show periods of heavy rain making travel difficult, heavy workload, food shortages, water shortages, and illness. Each of these periods present challenges to those wanting to work in this region. The busiest times of year in the swidden cultivation cycle are from April through June when they are preparing fields and planting crops and also in November and December when they are harvesting. In the dry season there are periods of time when they go to the forest and in the wet season they spend much of their time in the farm. Most families come back to the village house for the night. During the rainy season and harvest, it is mostly the older family members (grandmothers and grandfathers) who stay out on the fields during the whole week. A practical outworking of these observations is the possibility of holding classes in the villages throughout most of the year although there would be some definite periods of interruption (which could be planned for as there is not much variation in the annual cycle).

6.3 Division of Labor

The entire family, both women and men, are involved in farming their *comkaa*. Women are responsible for things in and around the house including pigs and chickens. Men are responsible for grazing animals, basket-making, tool-making and house-building. These are quite similar to traditional roles (see Background section). In Bu Cjaa where they do more paddy rice farming women spend more time in non-productive roles and the women's practice of cloth weaving is becoming a lost art. In all villages men are responsible for most new technology especially small engine machines. But, in Bu Sra the rice hulling machines are making time for women to be engaged in productive work. The wealth of families did not seem to be a significant determiner of gender roles.

Generally speaking women's main opportunities for productive labor are selling rice and vegetables, selling pigs and chickens, cloth weaving and wage labor. Collecting resin, wage labor (such as cutting wood) and selling knives and baskets are the primary productive roles for men. While it was difficult to get accurate information on income and expenses it is evident from our research that the forest is the Bunong's most important resource. Without being able to farm and collect resin they would truly be impoverished.

6.4 Locus of Control

Compared to traditional roles women seem to be losing influence in the community. In contrast to traditional Bunong culture, men have assumed control of many of the high value resources. Items like wine jars and gongs no longer have the value they once did. New technology is being introduced and with it control is tipping towards the men. This is evidenced by the Resource Picture Cards results (see Appendix 3) and the way Lamih village assigned wealth to their residents (see Lamih Village Social Map explanation). In Lamih village some of these changes may be offset by the extra time that women now have to be involved in productive labor due to the time saved by hulling rice by machine. But, in Bu Lung and Bu Ciaa, where they continue to rely on manual labor for processing rice, women continue to be occupied with non-productive work roles. A local health training project found that when training is conducted outside the village women are less likely to be involved because of their family responsibilities and culturally it is not normal for them to leave the village unaccompanied for extended trips (Nomad RSI, pers. comm.). If men are the primary beneficiaries of new technology and training opportunities and women are consistently relegated to roles of lesser value this may lead to difficulties in gender relations.

6.5 Leisure Time

Men appear to have more free time especially in the evening. Women often didn't have as much free time in the evening but they were less busy during the day. While we were in the villages we also observed that women were more flexible with their time. They didn't mind to stay in the village to answer questions, while the men were in a rush to leave. In villages like Bu Ciaa and Bu Lung where there was a clear division of labor it may be appropriate to have separate classes for men and women. Even disregarding the division of labor, NFE programs in Ratanakiri have found that women often do not feel comfortable in mixed sex classes and do not attend evening classes (Kelkar 1997:64). They are tired in the evening and go to be with the children. This being the case, it may be prudent to hold women's classes during the day and men's classes in the evening.

In every village people have a significant amount of free time in the evening. It was a surprising finding considering the major reason given for not wanting to attend Non-Formal Education (NFE) classes in a previous study was that they didn't have enough time; this accounted for 57% of the reasons (Hiett 2003:17). In Bu Lamih (Bu Sra commune) many villagers went to watch Khmer karaoke or dancing in the evenings. The Daily Activity Clock results confirm that the Bunong are very busy working to meet basic needs but they do have unallocated time when they could attend NFE classes or other types of development training events – or to apply new activities such as home gardening, if they recognize the importance of alternative activities and have a desire to engage in them. Despite the apparent existence of unallocated time, evenings are generally not a good time to organize people for village meetings. The early evening is a busy time of day and after a long day of work there is a need for relaxation and rest. For NFE classes to be successful in the evening they need to be enjoyable and interactive—helping meet the felt needs of the target population.

6.6 Land tenure issues

Since the Bunong have always been highly dependent on the forest they are greatly affected by restrictions on forest products and land. During our study land issues were very evident in Bu Lung and Lamih villages although the reasons were different. In Bu Lung this was the result of the new road being built from Saen Monourom to Kaoh Nheak. The road cuts through the *comkaas* of some of the residents of Bu Lung. The residents reportedly didn't receive any compensation for this and had to find new land to farm.

In Lamih village the issue was related to the enforcement of stricter logging restrictions. Residents reported that forestry officials didn't recognize their [local] ownership of their *comkaa* lands. Most Bunong do not have titles for their land. Land titling is a foreign concept which is difficult to understand, difficult to achieve and can be very costly to carry out. The logging restrictions in Lamih village disrupt their 15-20 year swidden cultivation cycle. When it is time to move back to an old *comkaa* the trees are already big enough that the local forestry law enforcement officials won't allow them to be cut down. This may be one reason why the residents of Lamih village have to travel so far

to their *comkaas*. It is obvious that a strong and workable legal framework for logging is an important part of environmental conservation and, in turn, livelihood sustainability. However, when law enforcement doesn't recognize the rights of local people to farm their old *comkaas* the farmers have to find a new places to farm elsewhere. In this way, enforcement of the law could contribute to the problem of deforestation and make life very difficult for the Bunong. Because the forest is such a vital resource for the Bunong, conservation areas and associated restrictions can greatly affect their livelihood. At the same time, their knowledge of and dependence on the forest should make the Bunong excellent natural resource managers.

6.7 Technology & Innovation

One hypothesis going into this research was that the biggest determiner of productive versus non-productive work roles would be the farming system. Specifically, the expectation was that there would be a clearer division of labor and gender roles in Bu Ciaa where they farm paddy rice than in Bu Lung and Lamih villages where they practice primarily swidden cultivation which is considered a "women's farming system" (Kelkar 1997:1). This was not what we found. Instead, the Daily Activity Clocks from Bu Lung showed a clear division of labor between women and men, not unlike the results from Bu Ciaa. In both Bu Lung and Bu Ciaa most women spent 2-2.5 hours per day pounding rice by hand (a non-productive role). As a result, they didn't have time to go to the farm. In Lamih village where they have acquired rice hulling machines there was a more even balance between the productive and non-productive roles of men and women apparently because women don't spend so much time pounding rice. The rice hulling machines in this village seem to have reduced women's non-productive workload and given them more opportunity to be involved in productive labor. In Ratanakiri, on the other hand, rice hulling machines ending up being a way for men to have more control over women as they were the ones trained in how to use and maintain the equipment (Kelkar 1997:64). Difficulties in gender relations may result if men always assume control of new technology and women are consistently relegated to roles of lower value. If women can have control over the technology and/or to use the 'extra time' to engage in valued productive labor the change may be a positive one. It is also important to note that rice processed by machine is often less nutritious than rice that has been pounded by hand. Because of the twin dangers of loss of control and less nutritional value it is not clear whether the benefits of this technology out-weigh the disadvantages.

Culture can also complicate the matter of introducing technology. When asked why they don't have rice hulling machines in Bu Lung, they replied that taking *comkaa* rice to be hulled by machine would violate their beliefs and result in personal misfortune. Paddy rice would be okay to have hulled by a rice machine but they don't grow that kind of rice in Bu Lung. The people of Lamih village are predominately Christian and no longer hold to these traditional Bunong beliefs. In addition, the residents of Lamih village saw the benefits of rice hulling machines during their time in Vietnam. In this way the Christian (Catholic and Protestant) communities in Bu Sra and also Dak Dam communes introduced this technology which is now being used by most of the residents of the surrounding villages. So, even if rice hulling machines were introduced to Bu Ciaa and Bu Lung villages it is not certain that they would be used to the extent as in Lamih village. Traditional beliefs may restrict them from using this technology. It will be interesting to see how this technology is accepted and how gender roles are affected now that there is a rice hulling machine in Bu Ciaa.

Other technology which could reduce women's workload and facilitate literacy classes include wells and small lighting systems. Wells are a critical need in Bu Ciaa village, and Bu Lung could benefit from additional wells since their new pump well only provides 30 liters of water at a time. Wells save time and provide a safer source of water. Since women collect water more than men they would benefit more from having wells. Providing lighting systems could be an effective way to make time for literacy classes as many people seem to have free time in the evening.

Introducing new technology, if not managed carefully, can create worse problems than it solves. Issues such as what to introduce, who has ownership, who has control, who will be able to use it, etc. need to be addressed as a community. A tool that can be of assistance in this process is the Gender Analysis Matrix (GAM) (see Appendix 9). GAM is a model for helping a community discuss the benefits and disadvantages of change. It is important that the group consists of people—both women and men—

from the local community. For ongoing projects this should not be a one time event. The recommendation is to review the results once per month for the first 3 months and once every three months thereafter. It is important to include gender issues in the regular record keeping and supervision of a program. The GAM is a simple and constructive means for doing this which can be applied to our literacy and VLA programs for ongoing gender planning and evaluation (Vainio-Mattila 2000:35).

6.8 Summary

The literacy survey ICC conducted in 2003 suggested that the majority of adults and children are too busy making a living to attend formal education (Hiatt 2003:14, 16). The increased understanding we have for the livelihood system of the Bunong as a result of this study emphasizes the challenges which families face to survive day to day, but it also uncovers areas for potential intervention. As long as meeting their survival needs takes up all of their time it will be difficult to break the cycle of illiteracy and there will be little opportunity for development. While no one program will alleviate this problem, each program must help contribute to the solution. Literacy and numeracy coupled with practical training (such as village livestock agents) can provide access to information and skills that will be of immediate use. It is critical that this be done in a way that allows both women and men have equal opportunities to participate, influence and benefit from these interventions. One of the most important things to promote through quality NFE classes is a desire to learn. This will reach a generation of adults who never had the opportunity to go to school; and hopefully, in a way that meets their needs. They, in turn, can pass this on to their children by encouraging them and giving them the opportunity to attend school. With literacy skills and formal education certification, the Bunong will have available to them a whole range of opportunities of involvement in civil society both among themselves and within the wider context of participation in national civic life.

7 Recommendations

General comments & recommendations

- Take the seasonal cycle and daily activities of the Bunong into account when planning interventions and training.
- Don't assume that Bunong community is group-oriented. Private ownership of community resources may be possible.
- Continue to monitor the gender related implications of the ICC project on the Bunong community using the Gender Analysis Matrix.

Food Security

- Understand the division of labor between women and men. In general, women take care of feed animals like pigs and chickens while men are responsible for grazing animals like cattle, buffalo and elephants.
- Keep in mind that in swidden cultivation both women and men share knowledge of the farming system and the entire family is involved in the farming work.
- The Bunong use natural fertilizer for fruit trees around the home but not in the *comkaa*.

Teacher selection & training

- Despite inequalities in knowledge and past education provide training to both women and men as much as possible. Make every effort to include and encourage women to participate and benefit from our work from the beginning rather than reinforcing or introducing unbalanced gender roles. "Achieving gender equality requires changes in institutional practices and social relations through which disparities are reinforced and sustained" (UNESCO 2003:8-9).
- Training women teachers may require different approaches such as pre-service training for women and holding trainings in villages or at district centers so that participants can travel home in the evening.

Timing and location of literacy classes and trainings

- Classes can be held in the village throughout the year with relatively few interruptions.
- Many villages do not have a building for communal meetings or a school so the physical location for classes will have to be decided.

- Women control wealth and often bring farm products to market therefore numeracy classes should target women in particular.
- It may be preferable to have separate women's and men's classes.
- In villages where women work mostly around the house it may be possible to have women's classes during the day.
- Having small classes which meet in homes and leaving the time and location up to the teacher would make it easier to make classes fit their seasonal and daily activities. In addition, they may be less threatening for women (both students and teachers).
- Men's classes or mixed classes would probably need to be in the evening although after the harvest (December—January) it may be possible to hold these classes during the day.

Appropriate Technology

- Provide lighting systems for classes which will be held in the evening.
- Investigate wells, rice hulling machines and other technology which can reduce women's workload and make it easier for them to attend literacy classes.
- Use the Gender Analysis Matrix or a similar tool to help women and men in the community assess the social and economic impact of new technology.

Topics for literacy materials

This livelihood and gender study confirms conclusions from the literacy survey conducted by ICC in 2003 stating that teaching materials and curricula should recognize, respect and build upon the culture and knowledge systems of the target population in order to make the program relevant to their needs and circumstances (Hiett 2003:21). Most Bunong are subsistence farmers who struggle to provide for their families. It is important that any interventions provide information, skills and training that will be relevant to their lives in the not too distant future. The following is a list of possible curriculum topics:

Human health

- Provide information regarding good hygiene and the prevention of sickness
- Provide information regarding human sickness and the safe and effective use of medicines

Animal health

- Provide information regarding the care of animals and the prevention of sickness
- Provide information regarding animal sickness and the safe and effective use of medicines

Agriculture

- Provide information regarding cash crops
- Provide information regarding crop sicknesses and the safe and effective use of pesticides
- Provide information regarding the safe and effective use of fertilizers

Natural resource management and land issues

- Provide information regarding swidden agriculture in Khmer
- Provide information regarding logging restrictions
- Provide information regarding land laws and land titles

Income generation, numeracy and marketing

- Develop a numeracy curriculum which can be used apart from literacy
- Make books or videos showing how to do various handicrafts and sponsor workshops teaching how to do these handicrafts
- Investigate other income generation possibilities

Current events

- Consider having a local newsletter
- Calendar

Cultural materials

- Provide materials which illustrate and explain Bunong customs past and present
- Publish Bunong folktales and traditional stories
- Publish the life stories of Bunong people

8 Limitations of the study

Since the teams researching different villages were different and the local staff have had limited experience in gathering information there was not complete consistency in our results. Working in two (and sometimes three) languages leaves room for translation problems as well. In particular, the meaning of terms, such as ‘control’ and ‘use,’ even though defined carefully, was difficult to convey consistently (see Section 4.2.6: Benefits Analysis). At times the RA tools themselves limited the questions and responses. One of the strengths of the SEAGA research methodology is that the triangulation of using several different RA tools is designed to compensate for the limitations of individual RA tools. Having said that, we were still not satisfied with either the SEAGA income and expenditures RA tool or with the procedure we followed for investigating this domain. Finally, some of the methods used could best be done over a longer period of time while gaining intimate knowledge of a single family or community rather than as RA tools.

9 Acknowledgements

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Any inquiries into the manner of this survey or questions with respect to the findings would be welcomed. Please direct inquiries to our Phnom Penh office:

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10 Bibliography

- Berg, Connie van den. August 1999. Gender and natural resource management in Ratanakiri: a literature review. Ratanakiri, Cambodia: CARERE.
- Chandler, David. 1996. A history of Cambodia. 2nd edition, updated. Westview Press.
- Department of Non-Formal Education, Ministry of Education, Youth and Sports (MoEYS—NFE). 2000. Report on the assessment of the functional literacy levels of the adult population in Cambodia. In cooperation with UNDP and UNESCO. Phnom Penh: MoEYS.
- Emerson, Bridget. 1997. The Natural Resources and Livelihood Study Rattanakiri Province, NE Cambodia. Ratanakiri, Cambodia: NTFP.
- Evans, Tom D.; Hout Piseth; Phet Phaktra and Hang Mary. 2003. A study of resin-taping and livelihoods in southern Monduliri, Cambodia, with implications for conservation and forest management. Phnom Penh: Wildlife Conservation Society.
- Food and Agriculture Organization of the United Nations (FAO). 2001. Socio-economic and gender analysis programme: field level handbook. http://www.fao.org/sd/seaga/index_en.htm
- Gender and Development for Cambodia (GAD/C). 2001. Gender awareness handbook. Phnom Penh, Cambodia.
- Goldthrope, Gareth; Pich Phirun; Cheang Nak; Kong Bunly; Plek Cheun & Joe Heffernan. September 2003. Elephant culture in Monduliri: implications for Asian elephant conservation. Phnom Penh: Fauna & Flora International.
- Grimes, Barbara F. 2000. Ethnologue: languages of the world. 14th edition. Dallas, TX: SIL International. http://www.ethnologue.com/show_country.asp?name=Cambodia
- Hiett, Steven. June 2003. An Assessment of Khmer Language Skills and Literacy Levels within the Adult Hilltribe Population of Monduliri Province, the Kingdom of Cambodia. Phnom Penh: International Cooperation Cambodia.
- Kelkar, Govind; Yunxian, Wang; Sugiarti, Sri R. and Henneke Meijers. 1997. Women in agriculture and natural resource management: highland communities in Ratanakiri, Cambodia. Gender studies monograph 6. Bangkok: Asian Institute of Technology.
- LeBar, Frank M., Hickey, Gerald C., and John K. Musgrave, eds. 1964. Ethnic groups of Mainland Southeast Asia. New Haven: Human Relations Area Files.
- MacInnes, Megan. Nomad Recherche et Soutien International (Nomad RSI). Personal communication on 3 July 2004.
- McAndrew, John P.; Mam Sambath, Hong Kimly and Ly Bunthai. 2003 September. Indigenous Adaptation to a Decline in Natural Resources -- The Experience of Two Phnong Communes in Northeast Cambodia. Phnom Penh: CIDSE Cambodia.
- Mitchell, Kristina. May 2001. Health and Healing Among the Phnong People in Monduliri Province. Phnom Penh: Medicine Du Monde/Nomad Recherche et Soutien International (Nomad RSI).
- Royal Government of Cambodia. 1998. Population census of Cambodia. Ministry of Planning.
- Shrock, Joann L. et al. 1966. Ethnographic study series: minority groups in the Republic of Vietnam. U.S. Department of the Army. Pamphlet No. 550-105.

Tola, Prom and Bruce McKinney. 2003. Forest product trade in Cambodia: a case study in resin. Cambodia development review. Phnom Penh: Cambodian Development Resource Institute (CDRI).

UNESCO. 2003. Gender equality in basic education and lifelong learning through CLCs: experiences from 15 countries. Bangkok: UNESCO.

Vainio-Mattila, Arja. 2000. Navigating Gender: a framework and a tool for participatory development. Helsinki, Finland: Ministry of foreign affairs, Department for International Development Cooperation.

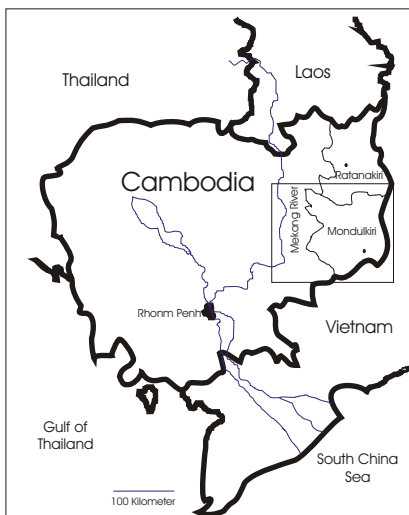
White, Joanna. July 1996. "The indigenous highlanders of the northeast: an uncertain future." in *Interdisciplinary research on ethnic groups in Cambodia*. Final draft reports. Phnom Penh: Center for Advanced Study.

11 Appendixes Index

Description	Appendix #
Map of Mondulkiri Province	Appendix 1
Village Social Maps	
<i>krom</i> 4, Bu Cjaa village	Appendix 2a
<i>krom</i> 1, Bu Lung village	Appendix 2b
<i>krom</i> Lampu, Bu Lamih village	Appendix 2c
Resource Picture Cards	
Compilation of all three <i>krom</i> s	Appendix 3
Seasonal Calendars	
<i>krom</i> 4, Bu Cjaa village women's group	Appendix 4a -- 1
<i>krom</i> 4, Bu Cjaa village men's group	Appendix 4a -- 2
<i>krom</i> 1, Bu Lung village	Appendix 4b
<i>krom</i> Lampu, Bu Lamih village	Appendix 4c
Daily Activity Clocks	
<i>Key to color coding</i>	
<i>krom</i> 4, Bu Cjaa village	Appendix 5a
<i>krom</i> 1, Bu Lung village	Appendix 5b
<i>krom</i> Lampu, Bu Lamih village	Appendix 5c
Income & Expenditures	
Income for 2003 -- all three villages	Appendix 6a
Expenses for 2003 all three villages	Appendix 6b
Benefits Analysis	
<i>Key to color coding</i>	
<i>krom</i> 1, Bu Lung village	Appendix 7
Farming Systems Diagrams	
<i>krom</i> 4, Bu Cjaa village <i>kroan baa</i>	Appendix 8a
<i>krom</i> 1, Bu Lung village <i>khvah khat</i> 1	Appendix 8b
<i>krom</i> Lampu, Bu Lamih village <i>khvah khat</i>	Appendix 8c

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Appendix 1 : Map of Mondulkiri

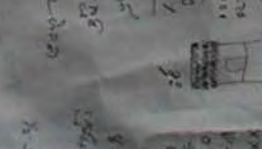
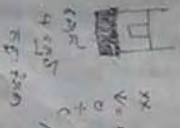


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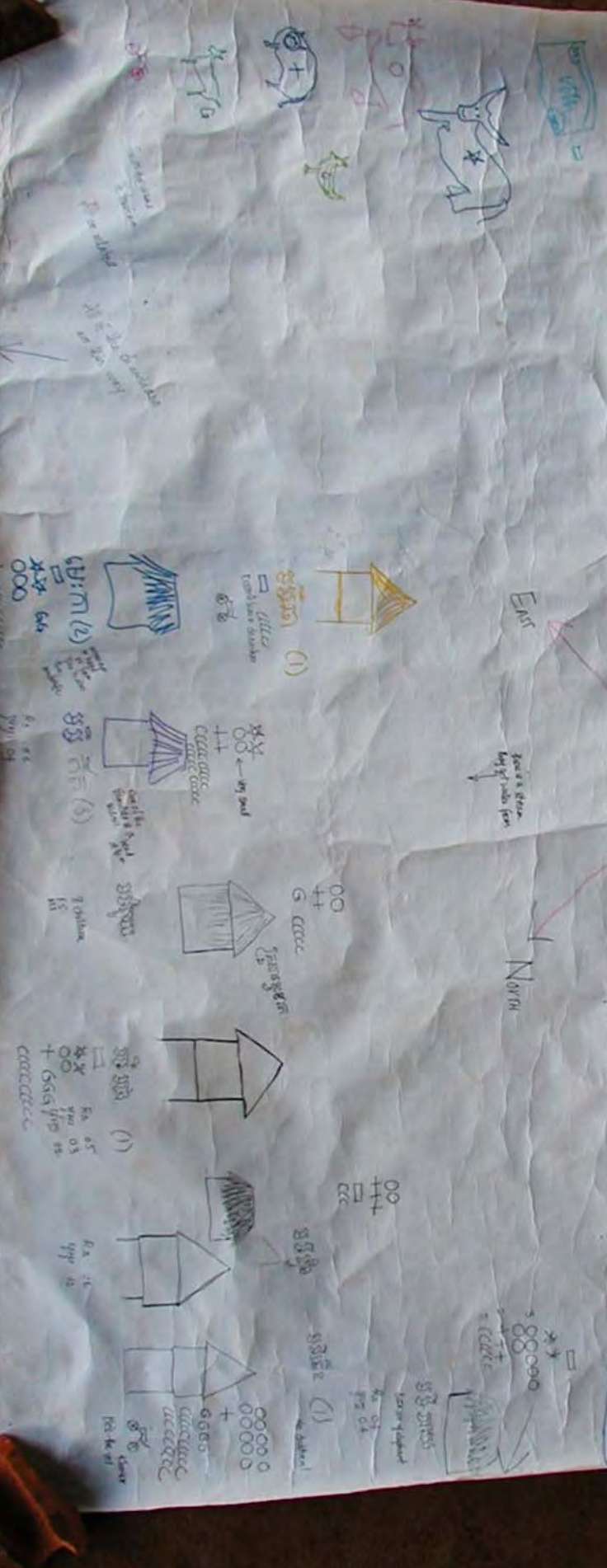
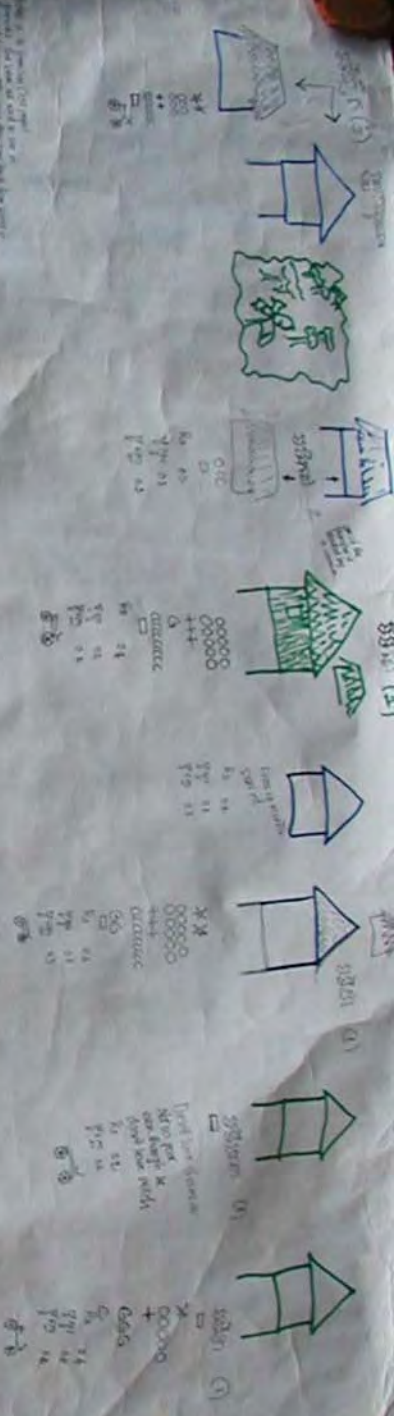
Appendix 2a -- krom 4, Bu Ciaa village

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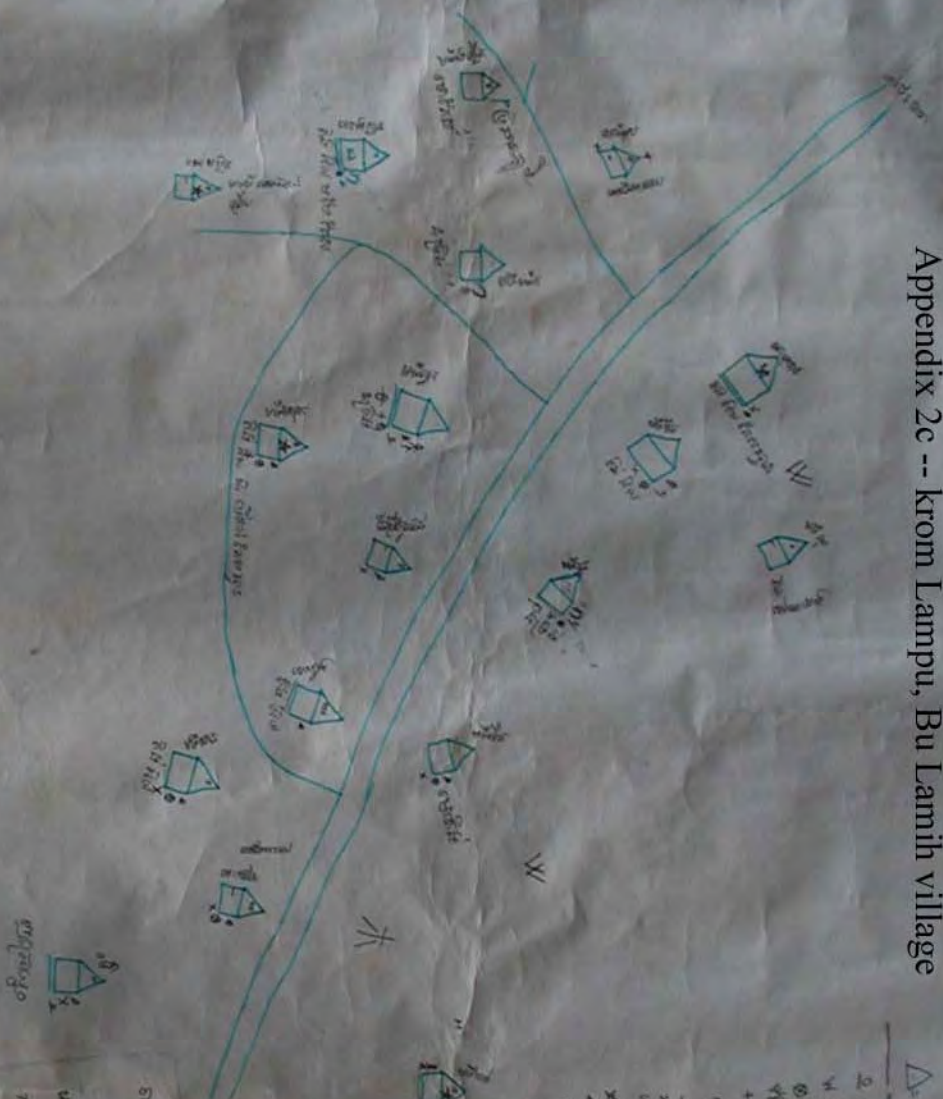
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Appendix 2b -- krom 1, Bu Lung village



Appendix 2c -- krom Lampu, Bu Lamih village


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Appendix 3: Resource Picture Cards Compiled Results

The use and control columns don't always add up to 10 because the computer rounded up.

Compilation of Bu Ciaa and Lamih villages

	Men's Group				Women's Group			
	Use		Control		Use		Control	
	Men	Women	Men	Women	Men	Women	Men	Women
Overall Total	6	4	6	4	7	3	7	3
Household item	5	6	4	6	4	6	3	7
Large animals	7	3	9	1	8	2	7	3
Machines	8	2	5	5	8	2	9	1

Blue shading signifies that in Bu Lamih there was no response.

In Bu Ciaa *krom* 4 the only machine was a motorcycle.

Compilation of reponses from families in Bu Lung

	Womens and mens responses			
	Use		Control	
	Men	Women	Men	Women
Overall Total	6	4	6	4
Household items	3	7	2	8
Large animals	7	3	8	2
Machines	10	0	10	0

One family didn't include any machines.

Appendix 4a-1: Seasonal calendar-- Bu Ciaa village women's group

Key: Gray shading is used for intermittent activities. non-shaded activities occur everyday.

	Weather	Rice	Vegetables	Rice & water	Other work	Income	Sickness
January	Windy & hot	Drink rice wine	Vegetable shortage	Rice surplus		Sell rice, pigs, chickens & resin	
February	Windy & hot	Cut trees	Vegetable shortage	Rice surplus	Collect fish	Sell rice, pigs, chickens & resin	
March	Windy & hot	Cut trees	Vegetable shortage	Rice surplus	Collect resin	Sell rice, pigs, chickens & resin	People sick* Animals get sick and die
		Clear grass & burn	Collect vegetables in forest				
April	Rains begin	Burn piles of trash	Collect vegetables in forest	Rice surplus		Sell rice, pigs, chickens & resin	People sick* Animals get sick and die
			Plant corn				
May	Rainy	Plant rice	Vegetable surplus	Rice surplus		Sell rice, pigs, chickens & resin	People sick*
June	Rainy	Plow paddy & weed <i>chomkaa</i>	Vegetable surplus	Rice surplus		Sell vegetables	
July	Rainy	Plow paddy & weed <i>chomkaa</i>	Vegetable surplus	Rice shortage		Sell vegetables	Buy new animals
	Heavy rains	Transplant rice seedlings	Harvest corn	Water surplus			
August	Heavy rains	Transplant rice seedlings	Vegetable surplus	Rice shortage		Sell vegetables	
		weed paddy		Water surplus			
September	Heavy rains	weed paddy	Vegetable surplus	Rice shortage		Sell vegetables	
		Guard crops		Water surplus			
October	Rainy	Guard crops	Vegetable shortage	Rice shortage		Sell vegetables	
		Harvest rice		Water surplus			
November	Windy	Harvest rice	Vegetable shortage	Rice surplus		Sell rice, pigs, chickens & resin	
				Water surplus			
December	Windy	Harvest rice	Vegetable shortage	Rice surplus	Wage labor	Sell rice, pigs, chickens & resin	

*diarrhea, fever, runny nose,
Malaria, cough, dysentery

Appendix 4a-2: Seasonal calendar -- Bu Cjaa village men's group

Key: Gray shading is used for intermittent activities. non-shaded activities occur everyday.

	Rain	Swidden field	Paddy field	Other work*	Shortages	Sicknesses
January		Clear new field	Gather & store rice	Collect resin	Water lacking	
		Drink rice wine	Clean rice & drink rice wine			
February		Clear new field	Clean rice & drink rice wine	Collect resin	Water lacking	
March		Clear new field		Collect resin	Water lacking	Animals sick
		Burn trash in piles		Catch fish & collect rattan House building & repair		
April	Rains begin	Burn trash in piles	Plow paddy	Collect resin, rattan & fish	Water lacking	Animals sick
		Plant rice in old <i>chomkaa</i>		House building & repair		People sick: colds & diarrhea
May	Rains begin Heavy rains	Plant rice in old <i>chomkaa</i>	Plow paddy & broadcast seed	Catch frogs		People sick: colds & diarrhea
		Plant rice in new <i>chomkaa</i>				
June	Heavy rains	Plant rice in new <i>chomkaa</i>	Transplant seedlings & guard paddy		Rice lacking	People sick: colds & diarrhea
		Weed <i>chomkaa</i>				
July	Heavy rains	Weed <i>chomkaa</i>	Transplant seedlings Repair & guard paddy	Collect resin	Rice lacking	
August	Heavy rains	Weed <i>chomkaa</i>	Repair & guard paddy	Collect resin	Rice lacking	
		Guard crops		Trap fish		
September	Heavy rains	Guard crops	Guard paddy	Trap fish	Rice lacking	
				Weave baskets		
October		Guard crops	Guard paddy	Trap fish	Rice lacking	
		Harvest early rice		Weave baskets		
November		Guard crops	Guard paddy		Water lacking	
		Harvest rice together				
December		Harvest rice together	Harvest rice together	Collect resin	Water lacking	

*They make time to collect resin, hunt and seek wage labor year round.

Appendix 4b: Seasonal Calendar, Bu Lung village, women's group

Key: Gray shading is used for intermittent activities. non-shaded activities occur everyday.

Women's group

	Rainfall	Temperature	Swidden farm	Other work	Food & water	Human sickness*	Animal sickness
January		Hot	Clear grass & trees Pound rice Drink rice wine	Collect firewood Weave blankets Catch fish	Water lacking Rice surplus	Colds Malaria & some Dengue	
February		Hot	Clear grass & trees Pound rice Drink rice wine	Collect firewood Weave blankets Catch fish	Water lacking Rice surplus	Colds	
March		Hot	Burn trash in piles Pound rice	Collect resin & fish Look for wage labor Weave blankets	Water lacking Rice surplus	Diarrhea	
April		Hot	Burn trash in piles Plant corn & vegetables	Collect resin Look for wage labor	Rice surplus	Diarrhea	
May	Heavy rains	Cold	Plant rice in old <i>chomkaa</i> Plant vegetables			Diarrhea	Animals sick & many die
June	Heavy rains	Cold	Plant rice in new <i>chomkaa</i>		Rice lacking Water & vegetable surplus		Animals sick & many die
July	Heavy rains	Cold	Guard and weed		Rice lacking Water & vegetable surplus		
August	Heavy rains	Cold	Guard and weed		Rice lacking Water & vegetable surplus		
September	Heavy rains	Cold	Guard against sparrows	Catch fish	Rice lacking Water & vegetable surplus		
October	Rain & wind	Cold	Harvest rice		Rice surplus	Colds	
November	Rain & wind	Cold	Harvest rice		Rice surplus	Colds	
December	Rain & wind	Cold	Harvest rice		Rice surplus	Colds Malaria	

*Diarrhea & vomiting throughout the year

Men's group








	Rainfall	Temperature	Swidden farm	Other work	Food & water	Human sickness*	Animal sickness
January		Hot	Cut big & small trees Drink rice wine				
February		Hot	Cut big & small trees				
March	1 time	Hot	Burn old & new <i>chomkaa</i>			Colds, coughing & vomiting	Animals sick
April	4 times	Hot	Burn old & new <i>chomkaa</i>			Colds, coughing & vomiting	Animals sick
May	6 times	Hot	Plant rice				
June	Heavy rains	Hot & cold	Plant rice				
July	Rains not as heavy	Cold	Weed <i>chomkaa</i> (esp. women)			Colds	
August	Heavy rains	Cold	Weed <i>chomkaa</i> (esp. women)			Colds	
September	Heavy rains	Cold	Guard against sparrows (esp. children)				
October	Some rain	Cold	Guard against sparrows (esp. children) Harvest rice				
November	Fog & Mist	Cool	Harvest rice			Malaria	
December	Fog & Mist	Cool	Drink rice wine			Malaria	

Appendix 4c: Seasonal Calendar -- Lamih village

Key: Gray shading is used for intermittent activities, non-shaded activities occur everyday. Parenthesis () are used to indicate information that was added based on observations.

	Weather	Farm (men's group)	Farm (Women's group)	Other work	Food & water	Sicknesses	Ceremonies
January	Hot & cold	Clear a farm	Cut large trees	Collect thatch Collect resin Wage labor	Water shortage Collect crabs, frogs & fish Collect vegetables	People & animals sick	Weddings
February	Hot	Clear a farm	Cut large trees	Collect thatch Collect resin Wage labor	Water shortage Collect crabs, frogs & fish Collect vegetables	People & animals sick	Weddings
March	Hot	Clear a (new) farm Burn trash in piles	Burn straw in piles (old farm)	Collect resin Wage labor	Water shortage Collect crabs, frogs & fish Collect vegetables	People & animals sick	Weddings
April	Rains begin	Burn trash in piles Clear grass	Burn straw in piles (old farm) Burn trash in piles (new farm)	Collect resin Wage labor	Water shortage	People & animals sick	Weddings
May	Constant rain	Clear grass Plant rice	Burn trash in piles (new farm) Plant rice	Collect resin Wage labor	Rice shortage		Weddings
June	Constant rain	Plant rice Clear weeds	Plant rice	Collect resin Wage labor	Rice shortage Vegetable surplus		Weddings
July	Constant rain	Clear weeds Plow paddy & transplant seedlings	Plant rice Clear weeds	Collect resin Wage labor	Rice shortage Vegetable surplus		Weddings
August	Heaviest rains	Plow paddy & transplant seedlings Guard against parrots	Clear weeds	Collect resin Wage labor	Rice shortage Vegetable surplus		Weddings
September	Heaviest rains	Guard against parrots	Guard against sparrows	Collect resin Wage labor	Rice shortage Vegetable surplus		Weddings
October	Heaviest rains	Harvest rice	Guard against sparrows Harvest rice	Collect resin Wage labor	Rice shortage Vegetable surplus	Common cold	
November	Windy	Harvest rice	Harvest rice	Collect thatch		Common cold	
December	Windy	Harvest rice	Harvest rice	Collect thatch		Common cold	Harvest thanksgiving & Christmas

Appendix 5: Key to color coding of Daily Activity Clocks

	Resting and eating
	Traveling
	Non-productive activities
	Productive activities
	Social, leisure, and entertainment
	Time unaccounted for
	Community roles
()	Used to indicate information that was inferred.

Appendix 5a: Daily activity clock (in Febraury) Bu Cjaa village

Time	Man 1	Man 2	Woman 1	Woman 2 (single)
12:00-12:30 AM	Sleep	Sleep	Sleep	Sleep
12:30-1:00 AM	Sleep	Sleep	Sleep	Sleep
1:00-1:30 AM	Sleep	Sleep	Sleep	Sleep
1:30-2:00 AM	Sleep	Sleep	Sleep	Sleep
2:00-2:30 AM	Sleep	Sleep	Sleep	Sleep
2:30-3:00 AM	Sleep	Sleep	Sleep	Sleep
3:00-3:30 AM	Sleep	Sleep	Sleep	Sleep
3:30-4:00 AM	Sleep	Sleep	Sleep	Sleep
4:00-4:30 AM	Sleep	Sleep	Sleep	Sleep
4:30-5:00 AM	Sleep	Sleep	Sleep	Sleep
5:00-5:30 AM	wake-up	wake-up	Wake-up and start fire	wake-up
5:30-6:00 AM	Hull rice	Travel to stream	Cook rice	Clean dishes & cook rice
6:00-6:30 AM	Hull rice	Travel to stream		
6:30-7:00 AM	Breakfast	Collect & check fish traps		
7:00-7:30 AM	Travel to farm	Return home		
7:30-8:00 AM	(Rest)	Return home		
8:00-8:30 AM	Clear grass	Breakfast	Breakfast	Sweep the house
8:30-9:00 AM	Clear grass	Sharpen tools	Feed pigs & sweep the house	Feed pigs & make pig feed
9:00-9:30 AM	Clear grass	Travel to farm	Bathe*	Bathe & collect water*
9:30-10:00 AM	Clear grass	(Rest)	Wash clothes*	Wash clothes*
10:00-10:30 AM	Clear grass	Cut trees	Boil rice & cook food	Boil rice
10:30-11:00 AM	Clear grass	Cut trees	Boil rice & cook food	Wash dishes & clean the house
11:00-11:30 AM	Rest	Cut trees	Lunch	Cook food
11:30-12:00 AM	Rest	Rest	Feed pigs & make pig feed	Lunch
12:00-12:30 PM	Lunch	Rest	Rest	Rest
12:30-1:00 PM	(Rest)	Lunch	Rest	Rest
1:00-1:30 PM	Clear grass	Rest	Wash dishes	Rest
1:30-2:00 PM	Clear grass	Rest	Sleep	Rest
2:00-2:30 PM	Clear grass	Rest	Sleep	Travel to farm
2:30-3:00 PM	Clear grass	Sharpen tools	Sleep	Clear underbrush
3:00-3:30 PM	Clear grass	Cut trees	Pound rice	Clear underbrush
3:30-4:00 PM	Return home	Cut trees	Pound rice	Clear underbrush
4:00-4:30 PM	(Rest)	Cut trees	Pound rice	Return home
4:30-5:00 PM	Collect water & split firewood	Cut trees	Pound rice	(Rest)
5:00-5:30 PM	Collect water & split firewood	(Rest)	(Rest)	Boil rice & cook food
5:30-6:00 PM	(Rest)	Go set fish traps	(Rest)	Feed pigs
6:00-6:30 PM	Supper	Return home	Boil rice	Supper
6:30-7:00 PM	Relax with family	Supper	Supper	Supper
7:00-7:30 PM	Relax with family	(Relax with family)	Relax	Relax
7:30-8:00 PM	Relax with family	(Relax with family)	Relax	Relax
8:00-8:30 PM	Relax with family	(Relax with family)	Relax	Sleep
8:30-9:00 PM	Relax with family	(Relax with family)	Relax	Sleep
9:00-9:30 PM	Sleep	Sleep	Sleep	Sleep
9:30-10:00 PM	Sleep	Sleep	Sleep	Sleep
10:00-10:30 PM	Sleep	Sleep	Sleep	Sleep
10:30-11:00 PM	Sleep	Sleep	Sleep	Sleep
11:00-11:30 PM	Sleep	Sleep	Sleep	Sleep
11:30-12:00 PM	Sleep	Sleep	Sleep	Sleep

* at the stream

Appendix 5b: Daily activity clock (in February) Bu Lung village

Time	Man 1	Man 2	Man 3	Woman 1	Woman 2
12:00-12:30 AM	Sleep	Sleep	Sleep	Sleep	Sleep
12:30-1:00 AM	Sleep	Sleep	Sleep	Sleep	Sleep
1:00-1:30 AM	Sleep	Sleep	Sleep	Sleep	Sleep
1:30-2:00 AM	Sleep	Sleep	Sleep	Sleep	Sleep
2:00-2:30 AM	Sleep	Sleep	Sleep	Sleep	Sleep
2:30-3:00 AM	Sleep	Sleep	Sleep	Round up cows & pigs	Round up cows & pigs
3:00-3:30 AM	wake-up	Sleep	Sleep	Round up cows & pigs	Round up cows & pigs
3:30-4:00 AM	Start fire	Sleep	Sleep	Sleep	Sleep
4:00-4:30 AM	Cut rattan by the fire	Sleep	Sleep	Sleep	Sleep
4:30-5:00 AM	Cut rattan by the fire	Sleep	Sleep	Sleep	Sleep
5:00-5:30 AM	Cut rattan by the fire	Sleep	Sleep	Boil rice & cook food	Start fire & boil rice
5:30-6:00 AM	Travel to farm	wake-up	Sleep	Boil rice & cook food	Sweep house
6:00-6:30 AM	Travel to farm	Collect water	wake-up	Sweep house	Feed pigs
6:30-7:00 AM	Travel to farm	Split wood	Collect water	Feed pigs & chickens	
7:00-7:30 AM	Travel to farm	Breakfast	Travel to work	Breakfast	Breakfast
7:30-8:00 AM	Clear grass	Travel to farm	work		
8:00-8:30 AM	Clear grass	Sharpen tools	work	Dry rice	Dry rice
8:30-9:00 AM	Clear grass	Cut trees	work	Cook pig feed	Cook pig feed
9:00-9:30 AM	Clear grass	Cut trees	work	Clean dishes	Work in the house
9:30-10:00 AM	Clear grass	Cut trees	Return home	Collect firewood & water	Work in the house
10:00-10:30 AM	Breakfast	Cut trees	Breakfast	Boil rice & cook food	Boil rice & cook food
10:30-11:00 AM	Rest	Cut trees	Travel to farm	Boil rice & cook food	Boil rice & cook food
11:00-11:30 AM	Clear grass	Cut trees	Travel to farm	Lunch	Lunch
11:30-12:00 AM	Clear grass	Cut trees	Travel to farm	Lunch	Lunch
12:00-12:30 PM	Rest	Rest	Travel to farm	Rest	Rest
12:30-1:00 PM	Rest	Rest	Sharpen tools	Rest	Rest
1:00-1:30 PM	Rest	Rest	Clear grass	Pound rice	Pound rice
1:30-2:00 PM	Rest	Rest	Clear grass	Pound rice	Pound rice
2:00-2:30 PM	Clear grass	Cut trees	Clear grass	Pound rice	Pound rice
2:30-3:00 PM	Clear grass	Cut trees	Clear grass	Pound rice	Pound rice
3:00-3:30 PM	Clear grass	Cut trees	Clear grass	Pound rice	Pound rice
3:30-4:00 PM	Clear grass	Cut trees	Rest & bathe	Bathe & collect water	Bathe & collect water
4:00-4:30 PM	Clear grass	Cut trees	Return home	Boil rice & cook food	Boil rice & cook food
4:30-5:00 PM	Clear grass	Rest	Return home	Boil rice & cook food	Boil rice & cook food
5:00-5:30 PM	Return home	Bathe	Split firewood	Supper	Feed pigs
5:30-6:00 PM	Return home	Return home	Boil rice	Feed pigs	Supper
6:00-6:30 PM	Return home	Tie up the cows	Collect water	Cook pig feed	Cook pig feed
6:30-7:00 PM	Return home	Feed pigs	Supper	Feed chickens	Cook pig feed
7:00-7:30 PM	Bathe	Supper	Relax & Talk about the day	Cook pig feed	Cook pig feed
7:30-8:00 PM	Supper	Relax at home	Relax & Talk about the day	Cook pig feed	Cook pig feed
8:00-8:30 PM	Joke around & smoke cig	Sleep	Relax & Talk about the day	Sleep	Sleep
8:30-9:00 PM	Sleep	Sleep	Sleep	Sleep	Sleep
9:00-9:30 PM	Sleep	Sleep	Sleep	Sleep	Sleep
9:30-10:00 PM	Sleep	Sleep	Sleep	Sleep	Sleep
10:00-10:30 PM	Sleep	Sleep	Sleep	Sleep	Sleep
10:30-11:00 PM	Sleep	Sleep	Sleep	Sleep	Sleep
11:00-11:30 PM	Sleep	Sleep	Sleep	Sleep	Sleep
11:30-12:00 PM	Sleep	Sleep	Sleep	Sleep	Sleep

Appendix 5c: Daily activity clock (in February) Bu Lamih village

Time		Man 1 (old)	Man 2 (old)	Man 3	Women's group
12:00-12:30	AM	Sleep	Sleep	Sleep	Sleep
12:30-1:00	AM	Sleep	Sleep	Sleep	Sleep
1:00-1:30	AM	Sleep	Sleep	Sleep	Sleep
1:30-2:00	AM	Sleep	Sleep	Sleep	Sleep
2:00-2:30	AM	Sleep	Sleep	Sleep	Sleep
2:30-3:00	AM	Sleep	Sleep	Sleep	Sleep
3:00-3:30	AM	Sleep	Sleep	Sleep	Sleep
3:30-4:00	AM	Sleep	Sleep	Sleep	wake-up
4:00-4:30	AM	Sleep	Sleep	Sleep	Start fire, boil rice & make soup
4:30-5:00	AM	Sleep	Sleep	Sleep	Clean dishes
5:00-5:30	AM	wake-up	wake-up	Sleep	Feed pigs & chickens
5:30-6:00	AM	Start fire & cut rattan	Sit by the fire	Sleep	
6:00-6:30	AM	Cut rattan by the fire	Sit by the fire	Sleep	Breakfast
6:30-7:00	AM	Breakfast	Sit by the fire	Sleep	Prepare equipment
7:00-7:30	AM	Travel to farm	Breakfast	wake-up	Travel to farm
7:30-8:00	AM	Travel to farm	Prepare equipment	Drink coffee	Travel to farm
8:00-8:30	AM	Travel to farm	Travel to farm	Joke around	Travel to farm
8:30-9:00	AM	Travel to farm	Travel to farm	Travel to forest	Travel to farm
9:00-9:30	AM	Sharpen tools	Clear grass	Travel to forest	Travel to farm
9:30-10:00	AM	Cut trees	Clear grass	Travel to forest	Travel to farm
10:00-10:30	AM	Cut trees	Clear grass	Breakfast	Arrange equipment
10:30-11:00	AM	Cut trees	Clear grass	Saw wood	Prepare equipment
11:00-11:30	AM	Cut trees	Clear grass	Saw wood	Cut trees
11:30-12:00	AM	Cut trees	Clear grass	Saw wood	Cut trees
12:00-12:30	PM	Lunch	Lunch	Saw wood	Cut trees
12:30-1:00	PM	Sharpen tools	Rest	Saw wood	Cut trees
1:00-1:30	PM	Cut trees	Rest	Lunch	Lunch
1:30-2:00	PM	Cut trees	Clear grass	Saw wood	Sharpen knife & axe
2:00-2:30	PM	Cut trees	Clear grass	Saw wood	Cut trees
2:30-3:00	PM	Cut trees	Clear grass	Saw wood	Cut trees
3:00-3:30	PM	Cut trees	Clear grass	Saw wood	Return home
3:30-4:00	PM	Cut trees	Return home	Saw wood	Return home
4:00-4:30	PM	Return home	Return home	Return home	Return home
4:30-5:00	PM	Return home	Return home	Return home	Return home
5:00-5:30	PM	Return home	Bathe	Return home	Boil rice
5:30-6:00	PM	Return home	Bathe	Bathe	Feed pigs
6:00-6:30	PM	Bathe	Collect water	Bathe	Bathe
6:30-7:00	PM	Collect water	Collect water	Supper	Cook food
7:00-7:30	PM	Supper	Supper	Rest	Supper
7:30-8:00	PM	Sleep	Relax & joke around	Travel to karaoke shop	Cook pig feed
8:00-8:30	PM	Sleep	Relax & joke around	Watch vidoes	Cook pig feed
8:30-9:00	PM	Sleep	Sleep	Watch vidoes	Pray with the family
9:00-9:30	PM	Sleep	Sleep	Watch vidoes	Sleep
9:30-10:00	PM	Sleep	Sleep	Return home	Sleep
10:00-10:30	PM	Sleep	Sleep	Sleep	Sleep
10:30-11:00	PM	Sleep	Sleep	Sleep	Sleep
11:00-11:30	PM	Sleep	Sleep	Sleep	Sleep
11:30-12:00	PM	Sleep	Sleep	Sleep	Sleep

Appendix 6a: Income for 2003

Income of \$10 or more is shaded. Based on a \$1=4000ƛ conversion rate.









	Bu Cjaa		Bu Lung			Bu Lamih	
	<i>kroan baa</i> family	<i>kvah khat</i> family	<i>kroan baa</i> family	<i>kvah khat</i> family 1	<i>kvah khat</i> family 2	<i>kroan baa</i> family	<i>kvah khat</i> family
Cattle				340000	400000		
Buffalo	1350000						
Pig		100000		100000			
Chicken	40000				30000		
Rice	140000	90000				200000	
Winnowing basket				50000			
Fishing baskets				50000			
Resin, liquid		360000					
Resin, solid	1000	45000		90000			250000
<i>krom</i> chief's salary	240000						
Elephant				100000	320000		
Sawing wood				60000	50000	2500000	
Weaving						60000	
Dog					10000		
Blanket			25000				
Sickle						6000	
Wire/rope for traps			14000				
Fish						21000	
Total in Riel	1771000	595000	39000	790000	810000	2787000	250000
Total in Dollars	\$442.75	\$148.75	\$9.75	\$197.50	\$202.50	\$696.75	\$62.50

Appendix 6b: Expenses for 2003

Expenses of \$10 or more are shaded. Based on a \$1=4000f conversion rate.

Goods	Bu Ciaa		Bu Lung			Bu Lamih	
	<i>kroan baa</i> family	<i>kvah khat</i> family	<i>kroan baa</i> family	<i>kvah khat</i> family 1	<i>kvah khat</i> family 2	<i>kroan baa</i> family	<i>kvah khat</i> family
Gas	72000	8000	208000	30000		3360000	
Candles		72000		300		96000	49600
Fish sauce	15000			1000			144000
Salt	12000	144000	36500	500	6000	36000	48000
Rice			560000	400000	160000		45000
Green vegetable	6000	180000	46000				
Fish paste	6000	42000	26000	2500	144000		28800
Shovel	10000	46000				7500	
Blanket	50000	60000	25000	20000	30000	8000	18000
Clothes	21000	44000	9000	5000	8000	15000	5000
Snacks	20000	180000	52000	4000			
MSG	30000	144000	62900	3500	30000	72000	91000
Clock	50000	60000					
Earrings	60000	70000				500	
Necklace		260000				500	
Ring		140000					
Shoes	14000	56000	14100	5000	19000	8000	5000
Wine jar	50000						
Rice Pestle	50000				10000		
Tin roofing sheets	330000						
Radio & speakers	500000						
Car battery	70000						
Motorcycle	2300000	800000					
Ox cart	1400000						
Wood	600000						
Soap						20000	48000
Crushed rocks							68800
Rent <i>koo-yun</i>							75000
Soy sauce	15000	24000	4000	1000			
Beef		22500					
Wok	17000			13000		5000	
Pots	20000	37500	20000	25000	10000	20000	
Water jug	21000	9000		15000	4000	2500	
Water jar	25000						
Cups	30000	3000		5000	1000	1600	1500
Plates	10000	15000		7500		6000	6000
Spoons	6000	7000	1500	10000	2000	7000	
Mosquito net	10000		10000	26000		12000	
Mat	30000	24000	15000	10000		17000	
Pillow	10000	18000		20000		7000	
Books	4000	10000		5000		500	500
Pens	1500	5500		1000		500	500
Pencils	2500	4500		1000			
Scoop, for water	4000	3000				500	
Bracelet						1000	
Helmet	2500	31500				1500	
Gloves		5000					
Comb	2000						
Plastic container	6000						
Spoon holder	1000						
Flourescent light	7000						
Book bag	10000						
Headlamp	7000						
Tire tube	30000						
Mud guard for moto	30000						
liquor	36000						
Cup holder	2000						
Axe		10000					
Sickle		7000					
Rice pestle					5000		
Back Basket					15000		
Winnowing basket					15000		
Dog					10000		
Hammock					10000		
Toothpaste							24000
Toothbrush							1500
Total in Riel	6005500	2542500	1090000	611300	479000	3705600	660200
Total in Dollars	\$1,501.38	\$635.63	\$272.50	\$152.83	\$119.75	\$926.40	\$165.05

Appendix 7: Key to coding of Benefits Analysis results

	Cooking and firewood
	Selling of goods
	Tools and items found in and around the house
	House building and repair; boat building (Bu Ciaa)
	Grazing animals
	Farming: soil enrichment & planting
	Ceremonial
	No information

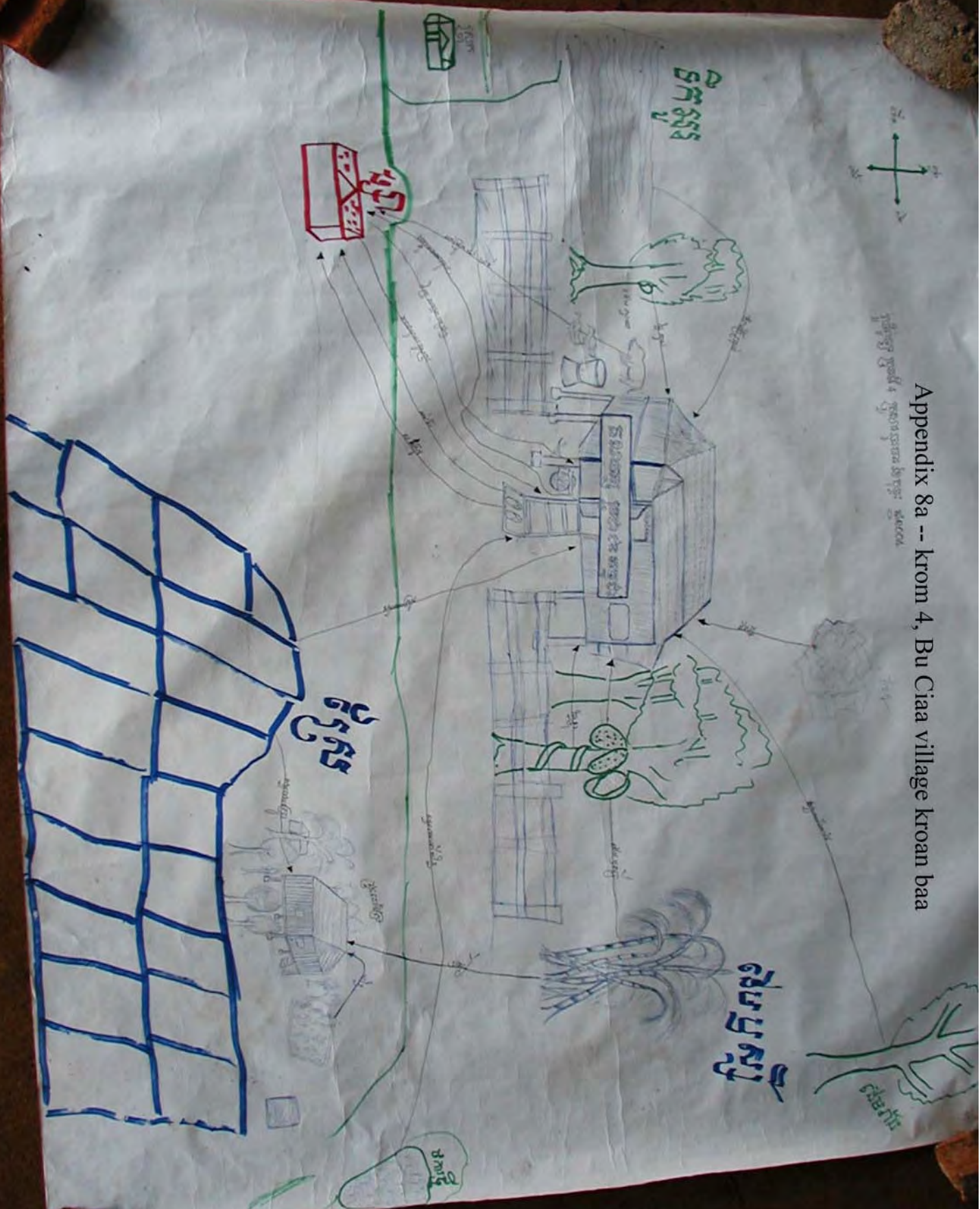
Appendix 7: Benefits analysis flow chart, Bu Lung

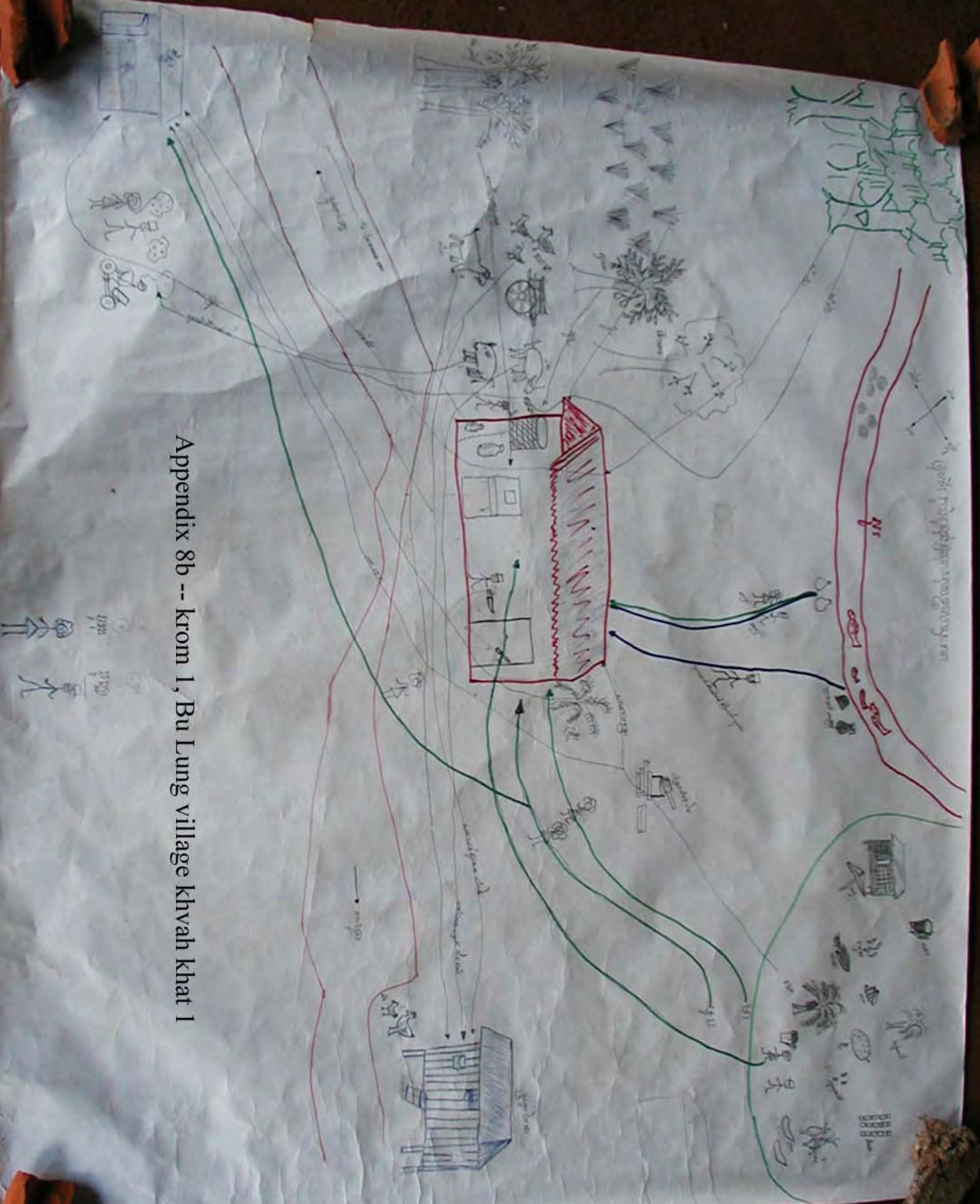
Location	Products	By-products	How used?	Who uses?	Who controls?
Swidden farm	Rice	straw	To burn it at field for good soil	women & men	women & men
		rice, unhusked	For ducks and chickens to eat	women & men	women & men
		grain	Cook rice	women & men	women
			Make alcohol	women & men	women
			Give to the chickens and ducks	women	women & men
		hull	Used to make alcohol	women	women
		bran	Pig feed	women & men	women & men
	Banana	stem	Prepare as food and pig feed	women & men	women & men
		leaves	to wrap cakes and things	women & men	women
		flower	Prepare as food	women & men	women & men
		unripe fruit	Prepare as food	women & men	women & men
		ripe fruit	Make jam, dessert and cake	women & men	women
	Gourd	young leaves	Prepare as food	women & men	women & men
		unripe fruit	Prepare as food	women & men	women & men
		over-ripe fruit	Clean and dry to store water	women & men	women
			Store rice and rice soup in	women & men	women
			To steam rice in	women & men	women
			Store cooked rice	women & men	women
	Corn	unripe fruit	Prepare as food	women & men	women
		over-ripe fruit	Grill, boil, make dessert, cook with rice	women & men	women
		ripe fruit	Pound for soup and to make food	women & men	women
		young leaves	Pound with powder and make food	women & men	women
		bran	Pig feed	women & men	women & men
	Pumpkin	young leaves	Prepare as food	women & men	women
		flower	Prepare as food	women & men	women
		unripe fruit	Prepare as food and pig feed	women & men	women & men
		ripe fruit	to make dessert, food and cake	women & men	women & men
			Pig feed	women & men	women & men
	Taro	leaves	Pig feed	women	women

Location	Products	By-products	How used?	Who uses?	Who controls?
	Cassava	stem	Pig feed	women	women
		root	Keep for planting	women & men	women & men
		stem	Keep for planting	women & men	women & men
		leaves	Make into soup with fish paste	women	women & men
		root	Prepare as food	women	women & men
			Make into alcohol	women	women & men
Feed animals	Pig	meat	Prepare as food	women	women & men
		bones	Make a stew	women	women & men
		skin	Prepare as food	women	women & men
		manure	Use as fertilizer on crops	women & men	women & men
	Chicken	meat	Prepare as food	men	women & men
		bones	Give to the dog to eat	women & men	women
		feathers	Used to seal the metal forge pump	men	women & men
			Use as fertilizer on onions, etc.	women & men	women & men
Grazing animals	Buffalo		Ear cleaner	women & men	women & men
		meat	Prepare as food or jerky	women	women & men
		bones	Prepare as a stew	women	women & men
		skin	Make a rope to catch the buffalo	men	women & men
			Make into an elephant whip	men	men
		horns	To make a handle of sickle	men	women & men
Forest	Elephant		To make a comb	women & men	women & men
		elephant	To drag the wood or bamboo	men	men
			To carry something heavy	men	women & men
			to transport merchandise and people	women & men	women & men
	Bamboo, thorny	tusks	Sell for a lot of money	women & men	women & men
		stem	To make back basket	men	men
			To make house wall	men	men
			To make bed	men	women & men
			To weave basket	men	women & men
			To make a fence	men	women & men
	bamboo, khlei	stem	To make a fence	men	women & men

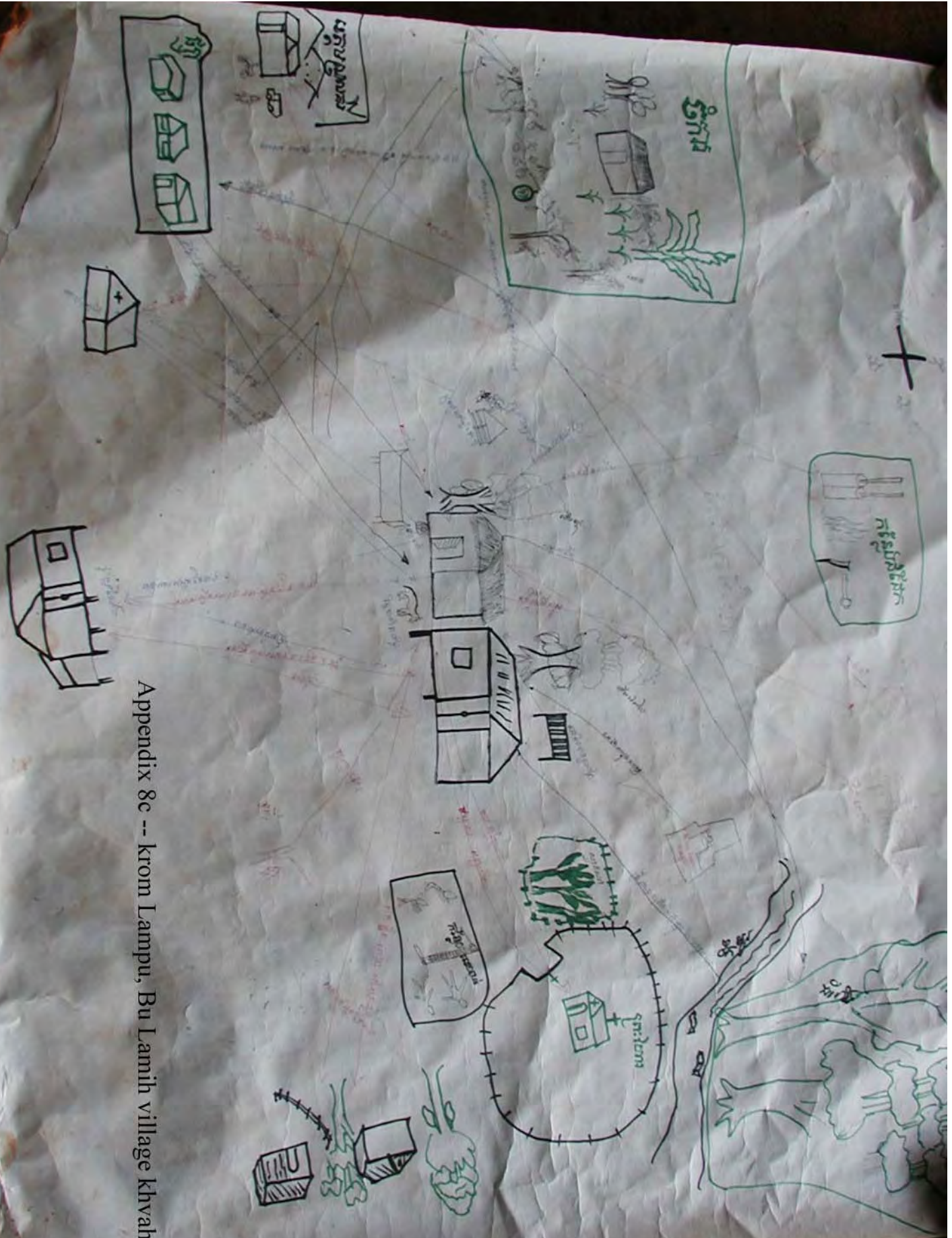
Location	Products	By-products	How used?	Who uses?	Who controls?
			To make the roof rafters	men	women
			To make rope	men	women
			Long machete handle	men	women & men
			Knife handle	men	women & men
	bamboo, <i>pook</i>	stem	To make a knife cover	men	women & men
			The frame on which thatch is sewn	men	men
			To braid a winnowing basket	men	women
			To make a harvesting basket	women & men	women
			To make a ladle	women & men	women
			To make a large basket to store rice	women & men	women
	Rattan	stem	Use as rope to tie things	men	men
			Tie the harvesting basket	men	men
			Tie the back basket	men	men
			Tie winnowing and fishing baskets	men	women & men
			To tie an cart	men	women
			Tie house beams	men	women
	Tree, hardwood <i>koki</i>	trunk	Prepare as food	women	women
			Make furniture	women & men	women & men
			House pillar	men	men
			Boards for house building	men	men
	Tree, resin <i>reang</i>	trunk	House pillar	men	men
			Boards for house building	women & men	women & men
			Firewood	women & men	women & men
		bark	Firewood	women & men	women & men
		resin, solid	Sell	women & men	women & men

Appendix 8a -- krom 4, Bu Cia village kroan baa





Appendix 8b -- krom 1, Bu Lung village khvah khat 1



Appendix 8c -- krom Lampu, Bu Lamih village khvah khat

Appendix 9: Gender Analysis Matrix

Objective: _____

	WORK		TIME		RESOURCES	
	In favor	Against	In favor	Against	In favor	Against
Women						
Men						
Household						
Community						

Are the effects listed above desirable?

Are they consistent with program goals? + - ?

How will this activity affect those who do not participate?

What are the unexpected results of this program?