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Towards understanding household-level forest reliance in Cambodia – study sites, methods, and preliminary findings

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Towards understanding household-level forest reliance in Cambodia – study sites, methods, and preliminary findings

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Preface

There is growing international interest in the role of forests in poverty prevention and reduction. In consequence, this broad area of investigation has been subject to increased research; one major international research project is that facilitated by the Poverty Environment Network (PEN, www.cifor.cgiar.org/pen/_ref/home/index.htm). This project covers a large number of sites in 26 countries throughout the tropics. The present report contains contextual details, methodological information and preliminary findings for the PEN sites in Cambodia. Data was collected as part of the PEN sub-project "Tropical forest for poverty alleviation - from household data to global analysis" undertaken in collaboration between the Centre for Forest, Landscape and Planning (S&L) at the Faculty of Life Sciences, University of Copenhagen (KU); the Forests and Livelihood Programme at the Centre for International Forestry Research (CIFOR); the Forestry Research Institute of Ghana (FORIG); the Department de Sociologies at the University of Ouagadougou (DSUO) in Burkina Faso; and the Cambodia Development Resource Institute (CDRI). Funding was provided by the Consultative Research Committee (FFU) at the Danish Ministry of Foreign Affairs, Grant no. 104.Dan.8-933.

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Acronyms

A1	Annual household survey 1
A2	Annual household survey 2
CDRI	Cambodia Development Resource Institute
CDHS	Cambodia Demographic and Health Survey
CF	Community Forestry
CIA	The Central Intelligence Agency
CIFOR	The Center for International Forestry Research
CMDG	Cambodia Millennium Development Goals
CSES	Cambodian Socio-Economic Survey
Danida	Danish International Development Agency
DSUO	Department de Sociologies at the University of Ouagadougou
FA	Forestry Administration
FFU	The Consultative Research Committee
FORIG	The Forestry Research Institute of Ghana
GDP	Gross domestic product
GPCC	General Population Census of Cambodia
GTZ	German Technical Cooperation
KU	University of Copenhagen
MoE	Ministry of Environment
NIS	The National Institute of Statistics
NRE	Natural Resources and Environment
NTFP	Non-timber forest products
PEN	Poverty Environment Network
Q1	Quarterly household survey 1
Q2	Quarterly household survey 2
Q3	Quarterly household survey 3
Q4	Quarterly household survey 4
RGC	Royal Government of Cambodia
V1	Village survey 1
V2	Village survey 2
WFP	World Food Programme

Acknowledgements

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The role and support of the Poverty Environment Network (PEN) is acknowledged, in particular through the work of PEN resource persons in developing the PEN prototype questionnaires and technical guidelines.

Mr Larry Strange, Executive Director of CDRI, Dr Hossein Jalilian, Former Research Director of CDRI, Mr Ung Sirn Lee, Director of Operations, Dr. Top Neth, Former NRE Programme Coordinator, and Mr. Lic Vuthy, Former NRE Research Associate provided encouragement and technical support to make this study possible. Special thanks are also due to the finance and administrative staff of CDRI, who were very cooperative and responsive to the needs of the study team.

1. Introduction[1]

Hundreds of millions of poor people live within or adjacent to forest areas. There is evidence that forest products are harvested in significant quantities by a large number of households across virtually all forest types in developing countries (Scoones et al., 1992; Pérez and Arnold, 1996; Neumann and Hirsch, 2000; Cunningham, 2001). Frameworks have been developed for analysing and understanding different types of forest reliance (Byron and Arnold, 1999) and the continuum of forest-people interactions (Wiersum, 1997). Research on the role and potential of forests in preventing and reducing poverty is, however, very limited and can be considered an emerging field of inquiry. The term "poverty" is here used in the traditional materialistic manner, lack of income and assets (Angelsen and Wunder, 2003). Existing literature has been critically examined with the aim of understanding forest-poverty linkages and the potential of forests in poverty alleviation (Arnold and Bird, 1999; Arnold, 2001; Wunder, 2001; Angelsen and Wunder, 2003; Scherr et al., 2004; Sunderlin and Ba, 2005), and a World Bank paper uses a meta-analysis of 54 case studies to assess rural reliance on forest income and make recommendations on appropriate research methodologies (Vedeld et al., 2004). They noted that comparisons were generally not possible because of varying methods. Thus our knowledge of the actual and potential role of forests in poverty alleviation remains rudimentary, and views on the role of forests in providing pathways out of poverty range from sceptic (e.g. Wunder, 2001) to optimistic (e.g. Scherr et al., 2004). Just comparing the existing heterogeneous forest valuation studies is challenging if not impossible (Wollenberg and Nawir, 1998; Sheil and Wunder, 2002; Vedeld et al., 2004). To obtain a better understanding, new in-depth studies across a range of different sites are required, using best-practice and unified methodologies that enable comparison and synthesis.

While there is some consensus on the broad picture, there are still huge knowledge gaps about the forest-poverty nexus. A few recent case studies indicate that the normally "invisible" forest and environmental incomes can make up a substantial part of rural household incomes. Cavendish (2000), in his path-breaking investigation in rural Zimbabwe, found that more than 20% of rural household income was derived from forest and non-forest environmental resources, with this share almost doubling for the poorest households. A similar level of forest reliance and variation in reliance across wealth groups was found by Campbell et al. (2002). In the meta-analysis, Vedeld et al. (2004) found that on average 22% of the sampled households' income was derived from forest and non-forest environmental resources. They also found that forest income had a strong and significantly equalising effect on local income distribution. These results also showed that households exposed to shocks, such as HIV/AIDS, possibly could become more forest dependent. There is also evidence that forest income (subsistence and cash) is often relatively more important to the poor and vulnerable groups, e.g. women and landless households.

Forestry policies have tended to impose strong controls on forest uses and to discriminate against the poor (Scherr et al., 2004; Anderson et al., 2006). Rights to the most valuable forest products, in most cases timbers, is given to the wealthier and well-connected individuals and companies, often at the expense of villagers. Corrupt government officials often demand bribes from small-scale harvesters and traders, a practice made possible by detailed forest regulations which make many traditional uses illegal (e.g. Olsen and Helles, 1997). Conservation policies have also tended to deprive poor people access to forest resources, although local people's rights are now increasingly becoming part of the conservation agenda (Scherr et al., 2004; Anderson et al., 2006). In addition, the new generation of poverty reduction strategies has given limited attention to the role of forests.

A key research issue is how policy formation and implementation can enhance the role of forests in preventing and reducing poverty. For instance, does increased market integration and market liberalization increase forest benefits to the poor? Two opposite scenarios are: (i) markets provide new opportunities for the poor, or (ii) markets lead to resource degradation, elite capture of benefits, and economic marginalization of the poor. The present study will include villages along a gradient of market

[1] The research described in this report is part of the "Tropical forests for poverty alleviation – from household data to global analysis" project (see Preface). The present Introduction is almost identical to that in the report describing research at the sister sites in Burkina Faso, see Pouliot et al. (2010: 3-4).

access and integration, which will allow for a rigorous testing of which conditions are likely to lead to either of the two scenarios.

To meet the above challenges, and thus be able to answer the associated key research questions, requires a multi-case data set on households and forest use. It is necessary to develop best-practice methods for assessing the role of forests and other environmental resources in rural livelihoods, and then create a critical mass of good and comparable data. Such methods have been developed by The Poverty Environment Network (PEN) – the next steps are empirical data collection across a variety of sites, and thorough global-comparative analysis of the patterns revealed by this data. PEN data collection started in 2005 and this study's data collection started in 2007 and aimed at compensation for a lack of data from Indochina by focusing on three sites in Cambodia.

1.1 Objectives

The general objective of the research project, of which the present study is a component, is to increase the understanding of the potential and actual role of renewable natural resources in preventing and reducing rural poverty in developing countries.

The present working paper's specific objectives are to:

1. Provide an overview of contextual information from the three study sites in Cambodia;
2. Provide an overview of the applied methods;
3. Disseminate preliminary findings from the Cambodia sites.

2. Study context

2.1 Demographics and living standards

According to the General Population Census of Cambodia (GPCC) in 2008, Cambodia had a population of 13.4 million, of which 81.5% lives in rural area (NIS, 2008). Approximately 51.5% of the total population was female and 48.5% was male. During the last decade, Cambodia's population has increased by 1.95 million with an annual growth rate of 1.5%. The growth rates for urban and rural areas are respectively 2.6% and 1.3% (NIS, 2008).

The population density (people per sq km) for the country as a whole increased from 64 to 75 in the last decade. The average size of a normal household (i.e. excluding institutional, homeless, boat and transient households) in Cambodia as a whole decreased from 5.2 in 1998 to 4.7 in 2008. In urban areas the decrease was from 5.5 in 1998 to 5.0 in 2008. In rural areas, from 5.1 in 1998 to 4.6 in 2008. The changes in total fertility rate between the 2000 and 2005 Cambodia Demographic and Health Survey (CDHS) indicate a sharp decline in fertility: from 4.0 births per woman in 2000 to 3.4 births per woman in 2005. Further, infant and child mortality have also experienced a substantial decline. The majority of Cambodia's population is Khmer (90%); other ethnic groups include Vietnamese (5%), Chinese (1%), and other unspecified groups (4%) (CIA, 2011).

Cambodia Socio-Economic Survey 2004 was conducted by National Institute of Statistics (NIS, 2006), covering 15,000 sample households across the entire country. The poverty line in 2004 was estimated at 2351 Riel (USD 0.59) in Phnom Penh, 1952 Riel (USD 0.49) in other urban areas and 1753 Riel (USD 0.44) in rural areas. Adjusting for inflation the latter is equivalent to approximately 2663 Riel or USD 0.66 in 2008, the study year of the present project. The food poverty line, the money required to achieve a food intake level of 2,100 Kcal/person/day, was estimated at 1782 Riel (USD 0.45) in Phnom Penh, 1568 Riel (USD 0.39) in other urban areas and 1389 Riel (USD 0.35) in rural areas (NIS, 2006). The disposable income varies considerably between the different areas in Cambodia, with an average household income of USD179 per month. In Phnom Penh, the average household income is USD 492 per month. The average household income in Phnom Penh is almost twice as large as in the other urban areas (USD 265 per month) and more than three times larger as in rural Cambodia (USD 135 per month)(CSES, 2009).

2.2 Main economic activities

Agriculture is a key sector in economic development in Cambodia. In 2008, the agricultural sector contributed 34.5% to GDP, with the forestry sub-sector contributing 6.9% (Chao, 2009). The majority of rural residents still live in traditional ways, primarily cultivating rice and collecting natural resources from water bodies and forests. The importance of off-farm income is growing rapidly, like remittances, wage labour and non-agricultural self employment. Approximately 69% of Cambodian population are engaged in crop production. A major constraint on many households is inadequate means of food production. Most Cambodian farmers rely heavily on draught animals to cultivate their land. Buffalo are usually used in pairs for ploughing. Cattle (and horses) are preferred for pulling carts. According to CSES 2004, 30% of the poor's income is sourced from crop cultivation against 10% for livestock rearing and 25% for common property resources, such as forestry and fisheries (World Food Programme, 2011).

Forests contribute to rural livelihoods throughout Cambodia. Important forest products include foods, fuels, traditional medicine, resins, and construction materials. These are used for both

subsistence and commercial purposes, e.g. there is widespread and large-scale trade in charcoal and firewood. Cambodia's forests thus provide contributions to food security, employment, health maintenance and improvement, and household incomes. They also provide safety net functions for the rural poor (McKenney and Tola, 2002).

Rapid population growth and economic development have in the last two decades brought the country's forests under pressure. The forest area declined from 13.2 million ha in 1970 to 10.6 million ha in 2002, corresponding to an average annual loss of about 81,000 ha (CMDG, 2003). From 2002 to 2006, the annual deforestation rate increased to more than 93,000 ha per year (0.5%/yr; RGC, 2010). Deforestation impacts on biodiversity, ecosystem services and local livelihoods.

Household-level forest reliance is not well studied in Cambodia. Hansen and Top (2006), in a study of livelihoods in 16 villages, reported that poor and medium households obtained 42% and 30% of their annual income, corresponding to USD 280 and USD 345, respectively from natural forests. These findings indicate that forest products may play a critical role in supporting rural livelihoods in Cambodia, thus warranting further investigation. Previous studies have all relied on long recall periods (typically one year).

2.3 Forest area, types and management

Cambodia has one of the most substantial relative national forest covers in the region (FAO, 2005), although the rate of deforestation is clearly increasing. In 1969, forest covered 13.2 million hectares or 73% of the country's total land area. The Forest Cover Assessment and Monitoring Project showed that the forest cover had decline with 14% to 58.8 % of the total land area in 1997. Between 1997 and 2002 gross forest cover decreased by approximately 5%, or 1% per annum (IFSR, 2004). Between 2002 and 2005, forest cover appeared to decline at an annual rate of 2% (CDRI, 2006). Perhaps more importantly, the shrinking forest area has been accompanied by a reduction in forest quality when characterized by the number of commercial stems per unit area (SCW, 2006). According to the Independent Forest Sector Review (2004), forest loss from 1991 to 1997 was primarily concentrated on the boundary between agriculture, particularly in the lowland areas, and the major forest blocks. Loss of flooded forest was also evident. In contrast, recent trends indicate that the establishment of new roads has enabled easier access to more isolated locations and primary forests (SCW, 2006).

According to FA records from 2003, the permanent forest estate covers 10,638,208 hectares, or 60.2% of the total land area in Cambodia. The area of forest types within the permanent forest estate are: (i) Evergreen forest covers 3,986,719 ha; (ii) Semi-evergreen forest 1,505,326 ha; (iii) Deciduous forest 4,281,397 ha; and (iv) other forest 864,764 ha (FA, 2006). Forest types in Cambodia are generally not well described, e.g. Legris and Blasco (1971) provided a vegetation map of Cambodia and Rollet (1972a, 1972b) reported forest type details. Research on characterizing the forest types of Cambodia continues (e.g. Theilade et al. 2011) but there is yet no definitive text on Cambodian forest types.

Over the last decade, central forest management in Cambodia has almost entirely focused on commercial timber interests through large-scale concession forestry (Hansen and Neth, 2006). The system was implemented in high value natural forests country-wide covering around 7 million hectares, or almost 40% of the total land area of the country. The system largely ignored environmental and social aspects of sustainable forest management and was criticised for high levels of uncontrolled logging, conflicts over rights with local communities and limited contribution to national development and poverty alleviation (e.g. McKenney et al., 2004). A series of critical reviews (e.g., ADB, 2000), social protests and donor pressure resulted in the suspension of all

concessions, and the government enacted a moratorium on timber harvesting in December 2001 until concession companies revised their management plans and these were re-approved by the Forestry Administration (FA). As part of this process, a final independent review concluded in November 2005 that only two or three of the "best" concessions possibly could continue if management plans were further adjusted (GFA, 2005). Donors, on the other hand, concluded that concession forestry should be terminated (WB, 2005), and it has still not been decided by the FA whether some of the concessions should continue. As of November 2005, 13 forest concessions covering 2.7 million hectares still remained (WB, 2006).

Lately, forest management has slowly shifted towards more decentralised models aiming at improving local people's livelihoods. This has mainly been through community forestry (CF) approaches; in 2006 about 179,000 hectares had been allocated to community forests by the FA (MAFF, 2006). This system may involve commercial timber harvesting, but in practice it often focuses more on forest management for the benefit of local people (as opposed to optimizing commercial timber production). In Cambodia, CF has mainly been implemented in degraded forest areas. So far, CF has been linked to the important role forests play in sustaining rural livelihoods, which has been described in several studies (e.g., McKenney and Tola, 2002). CF covers only around one percent of Cambodia's land area and must still be considered as negligible compared to concession forestry.

2.4 Nominal and functional forest legislation

The focus of forest management in Cambodia has changed from sustained timber yields to sustainable forest management, emphasising multiple benefits (environmental, social, economic) to an array of stakeholders. The emphasis on sustainable forest management was enshrined in the new forestry law in 2002 and is central in the recently developed National Forest Programme (2009-2029) in which the overall objective is to "… provide optimum contribution to equitable macro-economic growth and poverty alleviation, particularly in rural areas, through conservation and sustainable forest management with active participation of all stakeholders" (NFP 2010: 15. The National Forest Programme, together with initiatives such as the sub-decree on community forestry management and operational guidelines for the implementation of forest management, constitute a coherent national plan for achievement of sustainable forest management.

There is also a string of functional forest legislation and policies (i.e. non-forest law and policy with influence on forest conservation and use) including the land law, the law on natural resources protection area, the implementation manual for commune land use plans, and the guidelines for Environmental Impact Assessment (EIA). In general, nominal and functional laws and policies are not well co-ordinated and they may be mutually non-supportive or even contradictory.

3. Methods

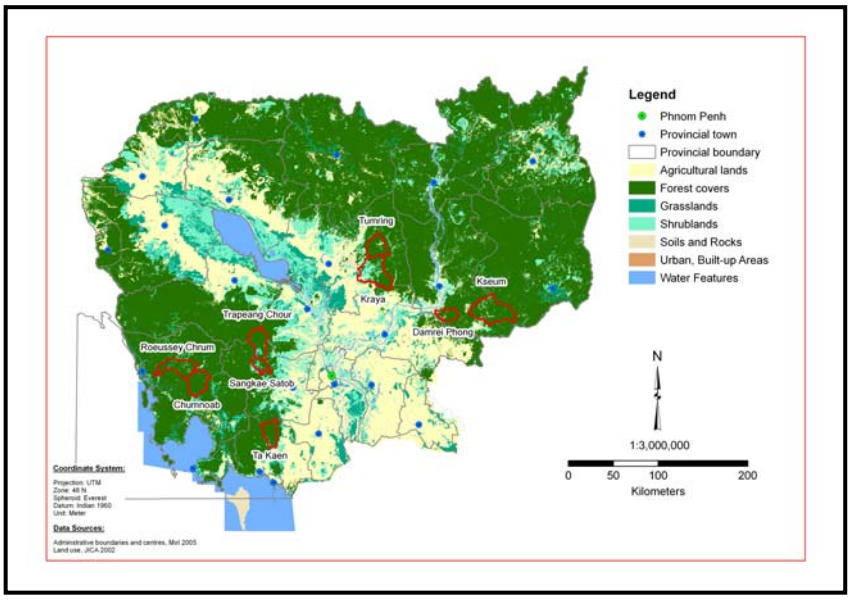
These are described in chronological order: pre-field work preparations, field work data collection, and post-field work activities. For a general description of methodological experiences from implementing the PEN approach, see Angelsen et al. (2011).

3.1 Pre-field work

3.1.1 Selecting research sites

The site selection criteria were: (i) variation across main forest types (evergreen, deciduous), (ii) market access (close, remote), and (iii) tenure (open access, community forestry, proximity to protected areas). Based on previous CDRI research experiences, five preliminary sites were identified in the provinces of Kampong Speu, Kampong Thom, Kampot, Koh Kong, and Kratie (Figure 1).

Figure 3.1: Location of preliminary sites considered for inclusion



Site details are presented in Table 1. To cover variation in the selection criteria, three sites were selected in the communes of Sangkae Satob (Kampong Speu Province), Tum Ring (Kampong Thom), and Takaen (Kampot). The sites are all located in the low lands, including in the transition area between low land and mountains, and reflect the rainfall gradient (increasing from southwest to northeast).

Table 3.1: Characteristics of research sites considered for inclusion; finally chosen communes are listed in bold

Province	Communes	Total area (ha)	No. of villages	No. of households (1998)	Main forest types	Access to markets
Kampong Speu	**Sangkae Satob**	21,674	15	1052	Deciduous	Close

Province	Communes	Total area (ha)	No. of villages	No. of households (1998)	Main forest types	Access to markets
	Trapeang Chour	15,556	23	1643	Deciduous	Close
Kampong Thom	Kraya	88,645	6	1149	Evergreen, Deciduous	Close
	Tum Ring	44,786	8	769	Evergreen, Deciduous	Remote
Koh Kong	Chumnoab	57,206	2	45	Evergreen	Remote
	Roeussey Chrum	57,717	2	191	Evergreen	Remote
Kratie	Damrei Phong	26,310	8	929	Evergreen, Semi-evergreen	Close
	Kseum	100,149	8	1243	Deciduous, Evergreen	Close
Kampot	**Takaen**	12,622	12	1796	Deciduous, Evergreen	Remote

[1] The three chosen sites are further distinguished by differences in forest tenure arrangements: in Sangkae Satob there is community forestry and a protected area, in Tum Ring there is open access and major land use changes, in Takaen there is open access and a protected area.

Sangkae Satob Commune is located in the transition zone between the northern Cardamom mountain range and the low lands of Tonle Sap Lake. The dry season is shorter than four months with low annual rainfall ranging between 800 and 1400 mm (FA, 2003). The area is dominated by deciduous forest, much of which is shrub land, and includes parts of the Phnom Oral Protected Area. Community forestry was initiated in the area in early 2000.

Tum Ring Commune is a lowland area in the remote part of Kampong Thom Province. The area experiences a relatively long and intensive dry season longer than four months (FA, 2003). Annual rainfall ranges from 1400 to 2000 mm with an average of 1700 mm (FA, 2003). Until 2000, the area of the commune was dominated by evergreen and deciduous forests (FA, 1999) and forest concessions (Colexim Enterprise, GAT International, and Mieng Ly Heng Investment) were present. Logging was banned in 2002 and forest areas were considered open access and consequently subject to considerable conversion.

Takaen Commune is located in the remote part of Kampot Province, in the coastal cardamom area. Annual rainfall is relatively high, ranging from 2600 to 3200 mm (FA, 2003). The area is dominated by deciduous forest, much of which is shrub land, and includes part of the Bokor National Park. Forests outside the park are open access and subject to high conversion pressure. There is no community forestry in the area.

Detailed descriptions of the individual study sites are provided in Chapter 4.

3.1.2 Selecting villages and households

Out of the 35 villages in the three study sites, 15 (five in each of the three sites) were purposively selected in order to capture existing tenure variation and taking logistical arrangements into consideration (e.g. proximity of villages to reduce transport time – an important factor especially during the rainy season). Details of villages were obtained from local authorities, such as commune heads and forest officers, and included information on transportation issues (e.g. access problems, transportation times) and livelihoods.

A total of 600 households were randomly selected: 200 households in each of the three study sites, with 40 households in each of the 15 villages (corresponding to 10-30% of households in each village). Before field work, a complete list of households in all villages was drawn up using the official record books of the village heads. The first household in each village was randomly drawn from the list, followed by selection of every $x/40^{th}$ household (with x being the total number of households in a village). Households are defined as a group of persons who commonly live together and take their meals from a common kitchen unless the exigencies of work prevented any of them from doing so (NIS, 2007).

3.1.3 Setting and managing the data collection teams

To ensure high quality data collection, a research team was formed: the research programme coordinator responsible for the overall management of the project (and who had participated in training in the PEN approach), two research assistants, and 15 enumerators. These were divided into three teams of six people, one team for each site. Each team consisted of three men and three women. The same team worked in the same site throughout the entire data collection period, thus allowing trust to be build up with respondents (promoting the quality of data collection). CDRI has extensive experience in conducting research related to natural resources and environmental management, especially in the field of forestry. The research site teams had a good team spirit and collaborated closely in both the field and in the office.

In order to ensure high quality data collection, enumerators were required to have experience with natural resources management and an understanding of research processes[2]. Enumerators were consequently all fourth year students or newly graduated from the Faculty of Forestry at the Royal University of Agriculture in Phnom Penh.

All enumerators went through a two-day training programme, conducted by the programme coordinator and research assistants (who had received prior training from the coordinator), i.e. the field team leaders. They also participated in the questionnaire testing, see below. To further facilitate experience sharing and team building, to promote high quality data collection, each team leader and his enumerators met at the end of each day; problems encountered were discussed, questionnaires checked and outstanding issues flagged and resolved the following day. Team leaders across the three sites (where work was usually conducted simultaneously) were also in direct contact through mobile phone and shared experiences on a daily basis.

3.1.4 The prototype questionnaires

This section presents a brief overview of the PEN prototype questionnaires (see Appendix A):

- The two village survey questionnaires (V1, V2). V1 was used in the beginning of the survey to collect information on climate variability, demographics, infrastructure, land use, and tenure arrangements, and basic information regarding the forest resource base and forest institutions. V2 was used at the end of the survey period and focused on climate variables, occurrences of village level risks, wages and prices, and village level payments for forest services.
- The two annual household survey questionnaires (A1, A2). A1 was used at the beginning of the survey to collect information on household composition, assets, access to forest resources, presence of and relation with forest institutions (Community forestry or Forest User group) and markets for forest products. A2 was used at the end of the survey period

[2] The alternative, to hire local enumerators, was not feasible due to high levels of illiteracy.

and focused on collecting information on assets, household level crises and unexpected expenditures, payments for forest services, welfare perceptions and enumerator assessment of the general validity of the collected information.

- The four quarterly household survey questionnaires (Q1-Q4) focused on collecting detailed household-level income data throughout a one year period using one or three months recall periods. Each quarterly survey used the exact same format to collect information on major products collected, grown, processed, consumed, and sold.

3.1.5 Translating the questionnaires to Khmer

The questionnaires were translated into Khmer language and pre-tested to evaluate their flow and effectiveness. Feedback from the pre-test was used to modify, where necessary, the questionnaires. The translation process and subsequent testing were done in a number of stages:

1. In November 2007, Mr Vuthy Lic, Research Associate of the Natural Resources and Environment (NRE) Unit at CDRI began to translate the PEN – Prototype Questionnaire version 4 into Khmer. Mr Lic holds Bachelors and Masters Degrees in Forest Sciences and is known for his Khmer language proficiency.
2. The translated material was then passed to the Publication Unit for verification and comments. The Publication Unit is responsible for CDRI's translation and publications and comprises numerous language experts in English and Khmer. Ms Sophany Yen (Translation Assistant) and Mr Sethirith You (Publishing Manager) of the Publication Unit worked together to verify the translation materials and provide comments/feedback to the NRE Unit. A number of errors in spelling and the use of Khmer terms was identified and later revised after discussion with Mr Lic. In addition, the discussion also looked closely into a number of English words for which it is difficult to find the appropriate Khmer equivalent, e.g., guinea pigs, guinea fowl, butter, ghee, and curdled milk. In such cases, the collective comments from different disciplines proved particularly important.
3. The semi-final version of the translated materials was then returned to Mr Lic for inclusion of some additional items required by the Danida-PEN project. It was then passed to Dr Neth Top (Research Manager of the NRE Unit) for final verification and approval. Dr Top made a final check of every part of the questionnaires and made adjustments to a number of phrases and sentences, simplifying them so they were more readily understandable for enumerators.
4. Dr Top then arranged the first gathering of the project team (Neth Top, Vuthy Lic, Pich Dara Lonn, Vannavuth Hay), together with nine enumerators. The objective of the gathering was in general to introduce the project, time frame, and questionnaires to all relevant individuals.
5. Field testing was conducted for two days in Takaen Commune, Kampot Province. Eight households were interviewed using A1 & A2 and Q1-4 questionnaires. In addition, three village chiefs were approached for interview using the V1 & V2 questionnaire. Each team member carried one sheet of paper, describing the project's objectives to avoid misinterpretation or confusion over the survey activities. Feedback from the field was discussed for a full day. Two day training of enumerators was then undertaken, using feedback from the field and obtained answers from respondents.
6. A number of errors in the original English version were found. In addition, some difficulties during the interview were raised, for example: (i) In the A1 questionnaire, E2 – Does your household collect firewood? If 'no', we should go to 7 (not 8). (ii) In the A1 questionnaire, D3, most questions, especially question 2 (How much does the household have in savings in non-productive assets such as gold and jewellery?), are very sensitive and difficult to get answers to. The team will need to ask indirect questions first, and then move step-by-step to the actual question. Otherwise, respondents will be surprised and refuse to respond.

7. The final version of the translation into Khmer was completed in early January 2008 before start of the field survey.

3.1.6 Testing of questionnaires

To allow all field team members, including enumerators, to become familiar with the questionnaires and to further improve on the translated Khmer version, these were tested outside the sampling frame with 30 households in Aural District, Kampong Speu Province (very close to the research site). Testing resulted in various minor changes to the questionnaires and addition of new product codes.

3.2 Field work

Upon first arrival at the research sites, each team leader presented a letter to the commune and village head in order to inform them about the objectives of the research. Due to the remoteness of some of the sites, commune heads were also asked for assistance in identifying localities for safe accommodation.

Before commencement of the quantitative surveys, key informants (such as village heads and village elders) were interviewed to generate village-level general information, such as a map showing the land cover and other physical resources, and a seasonal calendar of the main activities in the village.

3.2.1 Timing of surveys

Table 3.2 shows the detailed time line for data collection in each of the three research sites. The first, second, third and fourth quarter data collection were in January, March-April, June-July, and October-November 2008, respectively. The first quarterly survey was in the so-called windy season; the second quarterly survey started in the dry season; the third started during the rainy season; and the fourth was conducted in the late rainy season. Thus all seasonal variations were caught.

Table 3.2: Time line for field surveys in each of the three research sites

Quarters	Timeline	Site 1 : Kampot Province HH Codes: 001-200	Site 2 : Kampong Speu Province HH Codes: 201-400	Site 3 : Kampong Thom Province HH Codes: 401-600
Quarter 1	Started	08/Jan/2008	08/Jan/2008	22/Jan/2008
	Ended	19/Jan/2008	19/Jan/2008	30/Jan/2008
Quarter 2	Started	31/Mar/2008	31/Mar/2008	31/Mar/2008
	Ended	12/Apr/2008	12/Apr/2008	12/Apr/2008
Quarter 3	Started	12/Jul/2008	30/June/2008	30/June/2008
	Ended	22/Jul/2008	06/Jul/2008	06/Jul/2008
Quarter 4	Started	18/Oct/2008	18/Oct/2008	18/Oct/2008
	Ended	02/Nov/2008	02/Nov/2008	02/Nov/2008

The surveys were undertaken smoothly and cooperatively. Selected households were generally happy to answer the PEN questions. All interviewers were welcomed to the interviews and A1, Q1, and V1 were completed satisfactorily during the first quarter. However, the research teams were concerned that (due to lack of trust induced by experiences under the former Red Khmer regime) interviewed households seemed hesitant while answering questions related to their wealth.

The first quarter (Q1) surveys started 8th January and ended 30th January 2008. It was the windy season. There were two teams of six surveyors each. One team investigated the five villages (Tourl Chheu Neang, Peam, Yang Pis, Chum Norb, and Tang Sreung villages) of Sangke Satob commune, Aural District, Kampong Speu Province while the other surveyed the five villages (Khpob, Sraka Neak, Trapeang Bei, Trapeang Kdei, and Veal Krasang) of Takaen Commune, Chhuk District, Kampot Province. The two teams joined together to finish the last site in Tum Ring Commune, Sandan District, Kampong Thom Province (Khoas, Leaeng, Ronteah, Samraong, and Tum Ar villages). To allow easy identification of households during subsequent quarterly surveys, each house received a permanent marker. Team leaders also located the selected households by roughly drawing maps with GPS points. The second quarter (Q2) surveys were started in the dry season. Each site was assigned one survey team of six people (one team leader from CDRI and five enumerators). Generally enumerators worked in the same sites and households across quarterly surveys. There was replacement of a few enumerators (who left for other jobs) – new enumerators always received training. Each team needed around 12 days for the field works. The third quarter (Q3) surveys started in the beginning of the rainy season. The team members were the same teams as in Q2. In this period, even though it was the rainy season, the weather was harsh with uneven rains. The fourth quarter was also during the rainy season. In this last quarter, A2, Q4 and V2 questionnaires were applied. Before the field work, refreshing training was done for all team members to share experiences and lessons learned from the previous quarters. Rains delayed the interviews; further delays were caused by households who went to do agricultural work far from their homes.

Each interview typically lasted from 60-90 minutes. Each team on average required 12 days to finish one round of quarterly data collection in one site.

3.2.2 Data handling and management in the field

As mentioned above, each team met at the end of every day to review questionnaires. This included detailed scrutiny of used codes and calculations (all enumerators were issued calculators), elimination of all blank cells, and more full text descriptions of relevant observations. Problems were flagged and resolved the next day, if necessary by going back to the households.

Each team leader was responsible for entering data into the databases; this was done after each round of field work. To ensure consistency across quarters, and to avoid confusion, each research team was required to bring along with them the previous questionnaires, i.e. bring along Q1, Q2 and Q3 when they conducted Q2, Q3 and Q4, respectively. Preliminary comparisons between quarters were done in the field (to enable immediate clarification from households).

3.2.3 Problematic issues connected to survey interviews

A number of factors may impact on the quality of data collected during the household interviews. How such factors were dealt with is briefly described in this section.

Trust. At start of the initial interview, at first contact with a household, each enumerator provided a detailed introduction to the research team (who, where from) and the purpose of the research. At the end of each interview, time was allocated for the respondent to ask questions. The same enumerator was required to collect data in the same village and the same households. In case of enumerator replacement, it was always attempted to have the new enumerator introduced by an older member of the site research team. It takes time to build trust and the enumerators generally assessed the

quality of information gathered from the second quarterly survey to be superior to that collected in the first. It was emphasised to all participants that all answers were strictly confidential.

Who is interviewed. Information about income and expenditure were collected from the household head or spouse. On a few occasions they were not available and another household member older than 18 years and responsible for preparing food for the whole family was interviewed.

Timing. Farmers usually leave their home in the morning for agricultural activities, take lunch around 11 am, have a nap after lunch, and take dinner around 6 pm. Many are engaged in taking care of livestock (e.g. bringing cattle back home) in the evening. Interviews were mainly done at working places so as to minimise interruption of daily schedules.

Enumerator bias. As mentioned above, all enumerators (including those replacing others between surveys) were trained. Most enumerators also participated in development of the Khmer questionnaire and the general questionnaire pretesting in Kampong Speu Province. All enumerators received refresher training before conducting Q2, Q3 and Q4. Moreover, at the end of each day, each team spent 1-2 hours discussing interview issues (e.g. how to standardise probes and code answers). All questionnaires were checked in the field by each research site team leader. To provide enumerators with the best possible starting point for conducting the quarterly surveys, they always brought with them the relevant household survey questionnaire from the previous quarter.

3.2.4 Collection of unit data and prices

Units. Many different units were reported by interviewees, e.g. households reported selling firewood in bundles, sticks, head loads, ox carts, steer (1x1x1m of staked wood) and cubic meters. Reliable measurement of physical quantities is a large task and was not undertaken. In stead, values in local currency (Riel) were used to convert all reported units to standard units. For instance, all firewood reports were converted into cubic meters: the average price for one cubic meter of firewood is 37500 Riels while the average price for one stick is 1750 Riels. Thus one stick was assumed equal to 0.046 cubic meter (1750/37500 = 0.046 cubic meter).

Prices. Whenever possible, local market prices were used to value products. For subsistence products, of which there are many in the study areas, household-level value estimates were obtained using substitute pricing and the opportunity cost of time.

3.2.5 Giving gifts

In token appreciation of the time devoted by households to the interviews, each household received a bar of soap during each survey round. These nominal gifts were much appreciated by the households and, according to the enumerators, acted to create an atmosphere of co-operation and hospitality.

3.2.6 Household attrition

The initial 600 randomly selected households were reduced to 578 households with at least three quarterly surveys completed (an attrition rate of 3.6%) at the end of the survey. Households were eliminated from the study as they migrated to other locations or could not be contacted (e.g. due to extended stays at distant land plots or temporary outside employment). Table 3.3 shows a site level overview of attrition. In general, drop-out levels were low and no systematic pattern was observed in drop-out households.

Table 3.3: Number of household surveyed and percentage of households not available for interviews, per study site and quarter

Study sites	Q1	Q2	Q3	Q4	No. of valid[1] HH
Kampot Province	200	193	190	185	190
	0.0%	3.5%	5.0%	7.5%	
Kampong Speu Province	200	199	193	187	196
	0.0%	0.5%	3.5%	6.5%	
Kampong Thom Province	200	183	184	173	192
	0.0%	8.5%	8.0%	13.5%	
Total	600	575	567	545	578
	0.0%	4.2%	5.5%	9.2%	

[1] I.e. the number of households that completed at least three quarterly surveys

3.3 Post field work

3.3.1 Data entry

As soon as possible after each round of field work, the field team leaders carried out data entry into the database. Data entry was done using Microsoft PEN standard Access database which allowed for data entry checking. Much effort was spend on ensuring high quality of data entries - data entry for each quarter took around 40 working days. Since data checking have already been done during field work, only minor problems were encountered during data entry. If problems could not be solved by directly checking the original questionnaire, the issue was flagged and investigated by the relevant enumerator during the next round of data collection.

3.3.2 Data cleaning

After completing data entry for all surveys, the entire database was subjected to the standard exhaustive PEN data cleaning procedure (see http://www.cifor.cgiar.org/pen/_ref/tools/data_cleaning.htm for details). CDRI was responsible for responding to bug reports and producing the final clean data set.

3.3.3 Returning results to local communities

After finalization of the database and drafting the present working paper, the preliminary results were presented at a string of village workshops in the study areas. This served the dual purpose of: (i) presenting findings to local people and local authorities, and (ii) getting feed-backs and comments from local stakeholders to the findings.

4. Study area

This section provides an overview of each study site using a standard format. The three study sites are: (i) Kampong Thom Province, Sandan District, Tum Ring Commune; (ii) Kampong Speu Province, Aural District, Sangkae Satob Commune; and (iii) Kampot Province, Chhuk District, Takaen Commune.

4.1 Kampong Thom Province study site

4.1.1 Brief history

Tum Ring remained isolated till the late 1990s when the area was made accessible with the start of forest concession activities. Although elderly people in the commune claim that forest areas have been under slash and burn agriculture for over 200 years, conversion of these areas to rubber plantations started in 2001 when a company named Chup was awarded the necessary permissions by the government. Rubber plantations now cover an area of around 6,200 ha taking advantage of the red basaltic soils that are apparently particularly suited for this purpose.

The history of this area can be divided into three periods:

- The first period is the pre-Khmer Rouge era when villagers relied much on forest resources, especially non-timber forest products. They went into the forests to hunt wildlife for food and collect wild vegetables and fruits and other forest products.
- The second period is from the Khmer Rouge Regime and the start of rubber plantation establishment in 2001; this is the period of forest concessions during which companies such as Colexim, GAT International, and Mieng Ly Heng were granted forest concession areas. During this period, people still relied on forest resources, including timber and non-timber forest products such as dry and liquid resin, wild fruits and vegetables, rattan, and medicinal plants. However, there were problems between forest concessionaires and local people, especially regarding local peoples access to collect forest products and do shifting cultivation. Sawmill activities and illegal logging were carried out by both local people and outsiders.
- The third period is the transition from forest concessions to rubber plantations since 2001; plantations were established by converting forest concession areas to rubber plantations. Villagers who lost their shifting cultivation lands to rubber plantations cleared forests for agricultural crops. Most villagers gain income from selling labour and doing subsistence farming on small plots of land. Forest areas have receded but are still accessed to collect firewood, resin, rattan, and some foods. Villagers also go to cut trees, to get materials for house construction, but they have to get a license from the district forest administration before they are allowed to remove timber, otherwise they may be fined. Moreover, the poor and destitute have begun encroaching onto forest lands to do shifting cultivation, which is now banned by the Cambodia Law on Forestry and Land.

4.1.2 Demographics

Based on NIS (2009), the Tum Ring Commune consists of 1244 households with 5668 people (2823 male). The average household size is 4.6 persons (NIS, 2009), with an annual population growth rate of 1.0% in Kampong Thom Province between 1998 and 2008 (with urban and rural population growth rates at 0.2% and 1.1% respectively). Although Tum Ring is said to have been in existence for more than two hundred years, only one ethnic group – the Khmer – have occupied the site. Recently, however, migrant Khmer groups (from Kampong Cham, Kampong Thom, Takeo, Prey Veng, Phnom Penh and other places) have established themselves along the main roads of Tum Ring Commune. The population density remains relatively low.

4.1.3 Major economic activities

In the early 1990s, Tum Ring was known for commercial timbers, liquid resin and wild meat. Agricultural crops were grown only for family subsistence. Yields from rice cultivation are low, just enough for subsistence, and for some households the rice production is not enough to feed the families for the whole year due to the small land size, inadequate rainfall, and other factors.

However, with the introduction of rubber, villagers have seen opportunities for agricultural product markets for mung bean, cassava and peanut, either sold at farm-gate or in district town markets. Many people asked for the land from the rubber plantation company to cultivate soybean integrated with rubber while some leased land from the company at a price of 400,000 to 500,000 Riels per hectare per year. The company only allows intercropping of soybean along the gaps of rubber trees.

Poor and destitute households usually sell their labour for land clearance, weed clearing, planting, rice harvesting, log sawing, and cleaning waste from log sawing. However, some people who finish work on their farms also sell their labour to earn additional income. Besides farming activities and selling labour, some members of the family, especially males, collect forest products to sell as raw materials to handicraft producers in Khaos and Samraong villages. People are paid from 50,000 to 65,000 Riels per cubic meter of wood if they are responsible for sawing logs. Those who gather up off-cuts (pieces) are paid from 20,000 to 30,000 Riels per cubic meter. Some villagers work as government officials and rubber plantation workers get 300,000 Riels and 24 kg rice per month.

Some well-off migrant households use their large plots of land for agro-industry and cash crops only. They hire people for cultivation. On private family land, it is common, while the rubber trees are young (not being tapped), to intercrop cassava, soybean, mung bean and even rice in the gaps of rubber tree rows.

Forest resource related activities are declining today because people have longer distances to walk to reach the remaining forest areas. But logging still exists and is an important income source for unemployed people, the poor and destitute. Currently, non-timber forest products are collected by fewer people (only the poor and destitute) as most households have purchasing power to buy everything they need from the local market. Some households are also engaged in raising poultry and livestock (chickens, ducks, pigs and cattle) or do small-scale business such as selling groceries.

4.1.4 Seasonal calendar

The main activity of villagers in Tum Ring Commune is rice cultivation. Cassava, maize, mung bean, soy bean, and sesame are also planted (Figure 4.1) as cash crops or for own consumption.

Timber and non-timber forest products (NTFPs) are also important to villagers. The main NTFPs are wild fruits, vegetables, medicines and firewood.

Figure 4.1: Seasonal calendar of villagers in Tum Ring Commune.

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Lowland rice cultivation												
Upland rice cultivation												
Cassava cultivation												
Soy bean cultivation												
Mung bean cultivation												
Maize												
Non-timber forest product collection												
Selling labour												
Timber harvesting												

For upland rice farming, the period is generally from late April to early November; cultivation is done without ploughing by pounding the earth and putting rice seeds in. This is also done in forestland, where people encroach and burn/cut trees for this kind of farming. Lowland rice farming lasts from June to November or December. Cassava is the major cash crop in the area and the growing season lasts from April to December. July to November is the period of soybean cultivation. Mung bean and maize are planted in May and harvested in July. Selling labour is done throughout the whole year. People, who own plots of land, sell labour only in the period of non-crop activity from January to April. Wages rates are from 10,000 to 12,000 Riels per day or 100,000 Riels per hectare.

Forest resources collection activities are done throughout the year but mostly in the dry season. When rice cultivation and harvesting activities have finished, villagers spend time collecting forest and non-timber forest products. During this time young men cut and collect wood for house construction, especially newly married couples, while older people collect wood to exchange for products the families are in need of. During these months, firewood collection is also common: households stock up during the dry season as they will be busy with wet season rice plantation during the rainy season.

4.1.5 Markets and market access

There is a connecting road from Kampong Thmar (from national road No. 5) to Tum Ring Commune, providing villagers with access to the two main markets in Sandan and Kampong Thmar. Distance to the Provincial capital is 120 km. Higher value environmental products and increasingly agricultural products are sold in Kampong Thmar and transported on to Kampong Thom provincial town and Phnom Penh.

Cash crop products, including cassava, mung bean, and soybean are bought by middlemen village at the farm gate. Logs are sold to handicraft producers, and non-timber forest products, including firewood, are sold at the local market. Earlier, some edible non-timber forest products got spoiled or perished due to lack of good roads and market access. Chup, the rubber plantation company, and government road infrastructure development have improved some former timber roads so that when such products are available, trucks and mini-trucks are ready to carry them to market places.

4.1.6 Forest products

Besides legal and illegal timber harvesting, villagers collect NTFPs including rattans, bamboo shoots, medicinal herbs, wild vegetables, firewood, mushrooms, dry and liquid resin, and wildlife. Poor and destitute households sell NTFPs at the local village market. Villagers, especially newly married couples, harvest timber for house construction - this requires permission from the local forestry administration.

Although commercial forest concessions were suspended in 2002, timbers for local use are continuously harvested. The majority of timber is reported to come from forestland cleared for rubber plantation establishment. There are a few local semi-manual sawmills in Khos and Samrong villages; sawmill owners are reportedly not from the villages but moved in for the purpose of timber sawing. The supply to local handicrafts producers and the timber depots in Tang Krasang and Kampong Cham are from popular tree species like Daun Chem (*Heritiera javanica*), Sro Lao (*Lagerstroemia calyculata*), Kokoh (*Sindora siamensis*), Chher Teal (*Dipterocarpus* sp.), and Phdiek (*Anisoptera costata*).

4.1.7 Major land cover and land uses

Currently, three main land use types are observed in this area: (i) forest land with natural forest cover, (ii) agricultural land, and (iii) rubber plantation. Until 2000, Tum Ring Commune was reported to be covered mainly by dense evergreen forest. Villagers are reported to have practiced slash and burn agriculture for hundreds of year, rotating their crop lands for generations on small plots called *Prey Boh* (re-growth forest).

In 1999, the area was discovered to contain red soil thus providing a good potential for rubber plantation establishment. Chup Rubber Company was granted a license to lease land in previous forest concession areas, as well as low and up-land rice fields; this negatively affected access of local people to shifting cultivation and NTFP collection areas. This process led to clearing of forests as local people established new farming and settlement areas.

4.1.8 Description of conservation areas

Tum Ring Commune is located outside conservation areas. With its productive soils, the official focus has been on development, including the mentioned rubber plantation establishment as well as large-scale agricultural development, rather than conservation.

Phnom Chi and Prey Long, which are of biodiversity significance and located east of Tum Ring, have active NGOs and conservationist groups. Prey Long of Tum Ring Commune is a valuable biodiversity rich hot spot. Several conservation NGOs, including Fauna and Flora International (FFI), Conservation International (CI), Wildlife Conservation Society (WCS) and local NGOs, argue that areas in Tum Ring Commune should be designated for biodiversity conservation. The few available biological surveys support that these areas are important for conservation, but no areas have so far been set aside for this purpose.

Community Forestry (CF) was established in the commune in 2002 to protect the remaining forests, introduce participatory forest resources management, and ensure sustainable livelihoods of local people through firewood, timber, and non-timber forest products supply.

4.1.9 Tenure institutions

Based on the Forestry Law (2002), the management of forest resources in the country is under the general jurisdiction of the Ministry of Agriculture, Forestry and Fisheries (MAFF). Only protected areas are delegated to Ministry of Environment (MOE) for management. The FA is responsible for production forest management.

The FA is in-charge of managing timber and non-timber forest products from Tum Ring areas, typically harvested in connection to forest clearance for rubber plantation establishment or from production forests. Local authorities, including commune councils, district and provincial authorities, and relevant ministries, are responsible to assist the FA as needed. Community forestry in Tum Ring Commune is not yet officially recognized by MAFF. Based on RGC (2003), Sub-decree on community forestry management, community forest is state public property, and the FA must provide official recognition of the demarcation of each community forest boundary.

The management of forest resources in Tum Ring Commune is authorized under the Sangkat Forestry Administration and Sandan Forestry Administration Sections. Local forest related law enforcement is criticised for widespread rent-seeking.

4.1.10. Government and other development/conservation projects

Community Forestry in Tum Ring Commune was established in 2002 with support from the Rural Poor Families Development Partnership Organization (RPFD) and with recognition from local authorities but yet without approval from the central government. The eight villages in Tum Ring Commune (Khaos, Samraong, Ronteah, Leaeng, Tum Ar, Roneam, Srolao Sraong, and Kbal Damrey) have their own group leaders for monitoring and patrolling the community forests.

Community forestry has not been a success in the area: (i) the emphasis is on agricultural development including rubber tree plantation establishment, (ii) the organization (RPFD) that supported community forestry establishment is no longer active, (iii) there is lack of cooperation between stakeholders – local people do not find community forestry useful, have no time or are not familiar with the process and activities of community forestry, or are dependent upon income from logging and processing. So community forestry is mainly on paper and in reality forests continue to disappear through logging, encroachment by local people for farming, and conversion to rubber plantations. Currently, Tum Ring Sangkat Forestry Administration and Sandan Forestry Administration Sections are trying to demarcate community forestry boundaries and support and coordinate community management more effectively with support from an NGO

4.1.11. Calamities

In 2007, the area experienced a storm, destroying dozens of houses in Runteah village. Fortunately, no lives were lost. Such a storm is reported to be the first ever in the recorded history (memory) of the area. It is locally believed that the severe event may due to land clearance for rubber plantation establishment and loss of natural forests.

4.1.12. Other relevant issues

There are conflicts between local people and the rubber company:

- Rubber plantation establishment is said in some instances to have taken place on household land. To deal with this issue, the company agreed to provide three hectares of land to villagers (who lost land) and financial compensation of 50,000 to 400,000 Riels per hectare. Not all affected families have received compensation (and some families, who received land, have already sold the land for fear of losing it or for immediate cash needs) and the conflict continues.
- Local people usually practice free ranging grazing of their cattle. But with the arrival of rubber plantations, people have to be careful with their cattle as they will be fined if the cattle destroy rubber trees. Fines can be up to 150,000 Riels per tree.

On a positive note, the establishment of rubber plantations has provided an opportunity for local people in Tum Ring Commune to work as latex tappers for the company. The company also buys latex from rubber trees grown on local peoples private land holdings.

There are also conflicts between local people and forestry administration officers regarding illegal logging and forestland intrusion. People argue that they do illegal activities in order to survive. So people are very concerned about their livelihoods, including the prospect for maintaining forest derived income, in the future.

4.2 Kampong Speu Province study site

4.2.1 Brief history

Sangke Satob Commune is located in Aural District (the district town lies in the commune), Kampong Speu Province. Aural is the name of the highest mountain (1848 masl) in Cambodia. Aural used to a remote district, used as headquarter for some of the leaders during the Khmer Rouge fighting with the Phnom Penh government in the 1960s and 1970s. During the civil war (1990), all villagers in the commune were moved to Otaki village in Chba Morn District (same province). People were moved back to the current location 7-8 years later. Since then forest products have been exploited widely in the area.

4.2.2 Demographics

Sangke Satob Commune consists of 1362 households with 6635 people (3299 male), the average household size being 4.9 persons (NIS, 2009). The annual population growth rate in Kampong Speu Province from 1998 to 2008 was 1.79%, with the urban population growing 1.26% and the rural population 1.84% per annum.

The area has been home to the *Souy* ethnic people for centuries and is well-known to people of Takeo, Kampot and Kampong Speu provinces for its excellent traditional medicines. The *Souy* population in Sangke Satob, however, is now small due to in-migration of Khmers.

There are two dirt roads leading to Aural: one from Kampong Speu town and from national road number 4 at Treng Traying village. With improvement of both roads in the 1990s, in-migration of Khmers took place. Currently, Khmer language is widely spoken with little or no *Souy* language spoken; all *Souys* speak Khmer nowadays and some have forgotten to speak their ancestral language.

4.2.3 Major economic activities

Villagers in Sangke Satob cultivate rice during the rainy season for subsistence. Most households interviewed reported that their rice fields could only produce enough for own consumption; fields are harvested only once a year with an average yield of two tons per hectare (one ton is valued at USD 250). There are some streams around the villages but they are not used for irrigation; due to irregular rainfall and lack of irrigation, farmers are unable to grow rice during the dry season. Lands are fertile and cultivated without using chemical fertilizer and pesticides. Most households have mechanized hand tractors (*kou yon*) used for ploughing and transport. Households also cultivate soybean, mung bean, yard long bean, maize, pumpkin, etc., as cash crops. They raise cattle, pigs and chickens for sale and consumption; only a few raise cattle for draught power. Fodder for livestock is available but it is difficult to provide veterinary care; farmers spend much money on medicines, vaccination and other veterinary services. Access to grazing land for cattle is essential for local livelihoods.

Local people depend much on environmental resources, especially timber and non-timber products from forests. Chip (2007) reports that wood energy from the Aural area is supplied long distance to areas such as Phnom Penh, Svay Rieng, and Prey Veng. During the surveys, firewood, charcoal, and bamboo were seen transported from Sangke Satob to areas such as Phnom Penh, mainly during the dry season. Producing charcoal and firewood products for sale is popular and the number of middlemen has increased since 2004 as have prices. The average price of charcoal (July 2008) is estimated to be between 200,000 riel to 500,000 riel per kiln and firewood is sold at around 20,000 riel per half square meter. Other popular forest products are bamboos, processed into furniture and sold in the villages, and wild fruits and vegetables – these are not sold but they could be if processed into dried foodstuffs.

During the dry season, people who have their own hand tractors can hire out for transport of timber, firewood and charcoal, bringing in an average income of 15,000 Riels per day. Some households sell agricultural labour at a rate of approximately 12,000 riel per day.

4.2.4 Seasonal calendar

People in this commune are busy with rain fed rice production; planting begins in early June and is harvested in December or early January; these are the two busiest times (beginning and end of the wet season). Villagers harvest and process forest products, with firewood and charcoal being main products, mainly during the dry season. There is widespread engagement in forest product harvesting. Young people of the commune are reported to have jobs in Phnom Penh or in Kampong Speu town, especially during dry season. They spend three to six months in town for construction or daily work in and remit money back home. Figure 4.2 shows the main activities carried out by villagers in Sangke Satob each year.

Figure 4.2: Seasonal calendar of villagers in Sangke Satob Commune

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rice production												
Vegetable and cash crop production												
NTFP collection												
Fishing												
Firewood collection and charcoal production		High	production					Low	production			
Migration to sell labour, seek employment												

4.2.5 Markets and market access

The main market for the Sangke Satob Commune people is Kampong Speu provincial town, about 60 km away. There is a fairly good access to the provincial town along two dirt roads (one going straight there and the other via national road number 4). There is a small market in the commune, selling mostly goods for daily consumption and is only open in the morning. Here middlemen are active buying firewood and charcoal. Some villagers, who have their own transportation, sell charcoal and firewood directly to larger markets (Kampong Speu town and Phnom Penh city).

4.2.6 Forest products

While the availability of timber and non-timber forest products is declining, charcoal kilns are the latest method of gaining benefits from forests. These are built and located in degraded forest areas; firewood and charcoal (and other forest products) are sold at the farm-gate, local market, Aural district town market, in Kampong Speu town, or in mobile markets. Forest mobile markets are set up by traders at the edge of a forest area, where for a couple days timber and other valuable forest products are purchased directly from harvesters. Some 50-60% of households are engaged in such trade. Timber can be openly harvested and used if for household subsistence, e.g. construction purposes.

4.2.7 Major land cover and land uses

Aural District is one of the last districts in Kampong Speu Province with forests in good condition, due to the presence of the Aural Wildlife Sanctuary and relatively low human population density. Since the 1990s, the quality and quantify of forests have decreased due to timber harvesting and conversion for agricultural purposes (both small and large scale agriculture). Forests outside the sanctuary are rapidly degrading - kilns are scattered throughout the landscape. The development of the road network paved the way for development activities (including land speculation) and in-migration. Newcomers convert forest to agriculture and harvest trees for construction of houses and to generate income. Forests are disappearing and wet rice cultivation expanding. The improved access also facilitated increase in environmental product trade, due to the relative closeness to major markets.

4.2.8 Description of conservation areas

Sangke Satob Commune is adjacent to Phnom Aural Wildlife Sanctuary, an area of 253,750 ha of dry dipterocarp, semi-evergreen, and, in smaller parts, evergreen forests. Semi-evergreen and evergreen forests occupy the areas under high rainfall whereas dry dipterocarp forests occur on the opposite drier side. The Aural Wildlife Sanctuary is under the mandate of MoE, while the surrounding forest areas are under FA mandate. Timber and non-timber forest products for local consumption should be harvested only in areas outside the Sanctuary. It is, however, difficult to clearly identify which forest products are coming from inside and which ones from areas outside the Sanctuary. Law enforcement is weak as harvest of commercial firewood, production of charcoal, timber transportation and sale of all three products are openly practiced in the study site.

There is a Community Forest (CF) named O Prean Mork (not in the surveyed villages). As most locals produce firewood and charcoal to earn a living, they expressed some concerns regarding the impacts of degrading forests on their livelihoods. However, forests cannot be protected from over-exploitation by outsiders and the CF lacks finances and management capacity; hence, it remains inactive.

4.2.9 Tenure institutions

There are three government agencies involved in natural resource governance in Sangke Satob Commune: MoE, FA, and local authorities (commune council and commune head, district governor, provincial governor). MoE is responsible for protection inside the Sanctuary, while FA is responsible for all forest related activities outside the Sanctuary. Local authorities have mandate over in-migration, settlement, forestland encroachment, household level natural resource utilization as well as patrolling and conservation activities. According to laws on forestry (2002) and protected areas (2008), local authorities are required to participate in cracking down on illegal activities. Local authorities know who is who and can differentiate between local villagers and outsiders and those doing business in environmental products. Nonetheless, cooperation is not usually smooth among those three government agencies. They tend to blame each other when it comes to responsibilities for natural resource management.

4.2.10. Government and other development/conservation projects

The Sangke Satob Commune and surrounding areas have been technically and financially assisted by NGOs like Lutheran World Foundation (LWF) and M'Lub Baitong (a local NGO). The LWF helped with a village bank project that assisted villagers to pool an amount of seed capital for provision of micro-credit at low interest rate to farmers seeking to start up businesses. The project seems to be working well. With Fauna and Flora International (FFI), the Aural Wildlife Sanctuary Manager, MoE trained sanctuary staff to improve patrolling and increase conservation knowledge and skills. The FA has been involved with forest demarcation, law enforcement, and tree planting activities.

4.2.11. Calamities

Sangke Satob is one of the communes of Aural District that often faces drought. In 2004-2005, farmers faced a very bad drought. Almost all households were forced to collect timber and non-timber forest products for their family survival. Drought contributes not only to a decrease in agricultural production but also to forest fires. The years 2004-2005 were not abnormal as the site has historically been confronted with drought and/or forest fires. Many villages in Sangke Satob Commune were established long ago, but only got peace and stability after the last defection of the Khmer Rouge in 1998. The area experienced fighting between Khmer Rouge guerrillas and Phnom Penh government troops.

4.2.12. Other relevant issues

Widespread illegal harvesting and transportation of timber, commercial sale of firewood and charcoal production by outsiders are negatively affecting livelihoods of local villagers who have relied on forest and non-forest environmental product extraction for many years.

4.3 Kampot Province study site

4.3.1 Brief history

Takaen Commune lies at the conjunction of two rivers called Takaen and Koh Sla; hence it is known as Takaen-Koh Sla. It was one of the last strongholds of the Khmer Rouge guerrilla up until 1997. Previously, the area was known for its deadly malaria and as a source of wooden construction materials for the southern region of Cambodia (Kampot and Takeo provinces) and Vietnamese people living close to the Cambodian border. In 1998, prior to the defection of the regional Khmer Rouge, the Khmer Rouge commanders decided to allocate village settlements and rice fields to their subordinates/followers. As a result, there has been recent widespread deforestation. At time of survey, some families claimed to have degraded forest on their private lands.

The past few years have seen fast infrastructural development in Takaen Commune: accessible roads, bridges, community health centre, school, pagoda, wells and ponds. While some of these may not be in good condition, there has been significant progress since the fearful time of the Khmer Rouge Regime.

4.3.2 Demographics

Takaen commune has the highest population compared to the two other sites mentioned above: it consists of 3125 households with a total population of 13678 people (6931 male), thus an average household size of 4.4 (NIS, 2009). The annual population growth rate in Kampot Province from 1998 to 2008 was 1.03%, with the growth rate of the urban population 0.64% and that of the rural population 1.06%.

Since the road network construction, nearby Khmer people from Kampot and Takeo provinces have migrated into the Takaen-Koh Sla area. Some of these settlements received early migrants during the Khmer Rouge time, while latecomers entered into the areas through relatives or small business

people purchasing homes and rice field lands from earlier settlers. The area was subject to high levels of in-migration during the late 1990s and early 2000s. New comers came to claim agricultural land. There has been some land speculation but such activities have slowed down since 2005.

4.3.3 Major economic activities

Rice, both wet lowland and dry highland rice, is the main staple food. Most inhabitants are farmers involved in rain fed rice production. Besides rice, farmers get supplementary income from collecting non-timber forest products including firewood, bamboo shoots, bamboo poles, wild vegetables and meat, charcoal production, and construction materials. Most people collect wood left over after slash and burn activity in forests, e.g. poles that are sold on the street for use as fence posts. Bamboo may also be an important source of income: members of the Community Forest (CF) are allowed to harvest 200-250 bamboo poles per family for income generation. Firewood is collected by local people to be used as source of energy for daily cooking, while sale of charcoal provides cash for a few households in every village of the study site. Moreover, small-scale fishing is carried out with fish size ranging up to one kg. Younger people move to cities such as Phnom Penh and Kampot in search of employment and wage earning opportunities. However, remittances cannot be considered as a main source of income for those families because wages are very low and cost of living in the cities is high.

4.3.4 Seasonal calendar

There are two main seasons: the wet season lasts for five to six months with increasing rainfall from late May to late October; for the rest of the year from November to April there is little or no rain, except for heavy fog or dew in some forest areas. The main activity of the Takaen Commune people is rice production during the rainy season (soil preparation, planting crops/rice, harvesting, post harvest storage, maintenance). Rice cultivation is only for subsistence and not for sale. Most people are involved in NTFP collection, e.g. bamboo shoots, bamboo poles/canes, mushrooms, rattans, and firewood. Collection is practiced throughout the year with the dry season being the main season. Local people harvest bamboo shoots from July to October for cash and food. Wild vegetables are consumed daily when available. For an overview of seasonal main activities, see Figure 4.3. People are also involved in activities such as job seeking in urban areas, cash crop production (maize, sweet potato, mung bean, water melon, and taro) and fishing.

Figure 4.3: Seasonal calendar of the main activities of villagers in Takaen Commune

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rice production												
Upland rice												
Cash crop production												
Fishing												
NTFP collection												
Timber harvesting												
Job seeking in urban areas												

Most households own 0.5 to 1.5 hectare of land for cultivation and face food shortages during some months of the year, especially in the lean period from transplanting of rice seedlings to the harvest. In that period, people sell labour in exchange of food, borrow rice from other villagers, or buy rice (often using loans) in Chouk District Market. Local rice banks exist in the villages: they lend rice at 20% interest to villagers in the lean period to be paid back in rice (for example a villager borrowing

100 kg of rice pays back 120 kg to the rice bank). Most people get income from selling their labour for harvesting rice, cutting thatch, cutting and burning agricultural areas, while others look for work in Phnom Penh as garment or construction workers. Some people take two to three weeks break from rice cultivation in the middle of the wet season to collect wood. Almost all farmers have idle time (free time) after the wet rice harvest. In the six months of the dry season, people in Takaen spend time collecting poles, firewood, produce charcoal, and carry out small animal hunting while others engage in the business of land speculation.

The villagers provided less information about forest products compared to agricultural crops. Most male adults are active in harvesting, transporting, and rice de-husking. Male adults enter forests to fell logs in the period between late December and early May. Most of the big and valuable trees are found in the mountains at a distance of two days walk whereas small logs can be found at a distance of 25 to 35 km from their homesteads. Cases of animal trapping or hunting during logging have been reported with villagers using flashlights and local wooden homemade gun with sharp arrows. Hunted animals include wild pigs and deer, which were locally consumed or sold.

4.3.5 Markets and market access

As dirt roads have been improved, access to main markets (including Chhuk district and Kampot provincial markets) has improved for the surveyed villages. Chhuk is a district market located around 45 km from the research site. There households can sell or exchange/barter their agricultural products with household materials to meet daily consumption needs. Kampot is a bigger provincial market where villagers can find almost all products.

4.3.6 Forest products

The most important forest product for local people is timber. The price of logs per ox-cart is estimated at about 250,000 – 350,000 riel (approximately 85 USD). Typical species are *Shorea thorelii* (Phcheuk), *Xylia xylocarpa* (Sokram), *Dipterocarpus tuberculatus* (Khlong) and *Dipterocarpus obtusifolius* var. *subnudus* (Tbeng). Most logs are cut and sawn in the forests (Phnom Kamchay and Phnom Bokor). Some 45 to 50 charcoal kilns were estimated in the five selected villages in the Kampot site. The per unit labour returns from timber activities are higher than from charcoal production.

Secondary forest products are firewood and NTFPs such as wild vegetables, mushrooms, and bamboo shoots. Some NTFPs (such as bamboos, rattans, firewood, thatching materials) may be collected in the forest or in the cropland next to the deciduous forest. Logs with round diameter between 0.25 to 0.35m, serving as house pillars, and thin and thick sawn woods for house construction are transported continuously by 50-70 ox-carts everyday in the villages during the dry season. One ox-cart holds 0.5 to 0.6 m^3 of wood. Frogs, toads, shrimps, and fish also play an important role in maintaining local food security as do edible vegetables from crop fields (Chamkar) and home gardens. Processed forest products include charcoal, sawn wood, wooden furniture, and bamboo furniture.

Forest products from Takaen forest areas are not only used locally but also play a very important role in the supply of the southern part of the country. However, supplies are getting scarcer and villagers have to travel longer to access forest products. As there are large deforested areas in southern Cambodia and to some extent the southern region of Vietnam, demand for forest products from Takaen forest areas is likely to persist.

4.3.7 Major land cover and land uses

Four categories of land use can be distinguished in Takaen Commune: (i) farmlands, including rice and crop fields (known as *chamkar*), (ii) mountainous forest lands, (iii) land used for residential and infrastructural purposes, and iv) water bodies, including rivers, streams and ponds. Settlers who arrived in 1997 were provided one ha land for cultivation per household; those who came later were given 0.5 ha. The dominant dry deciduous forest in both mountains and agricultural areas is characterized by an abundance of small Phcheuk (*Shorea thorelii*), Sokram (*Xylia xylocarpa*), Khlong (*Dipterocarpus tuberculatus*) and Tbeng (*Dipterocarpus obtusifolius* var. *subnudus*) – large specimens were logged in 1997-2002. Pioneer species like thatches, tall grasses and bamboos have spread in many logged places in the mountains. Regarding water bodies, noteworthy are the Stung Koh Sla River in Srakaneak village, the Stung Khpob River (70 m wide in the rainy season and with no water in the dry season) in Khpob village, 19 ponds, and numerous small streams.

The past five years has seen significant infrastructure development and an increase in in-migration. There has fuelled demand for settlement and agricultural land with consequent deforestation, a situation further exacerbated by land speculation among the local elites. All forest lands in and near the studied villages, except those in mountains, are now in private ownership. Forest reliant households find it increasingly hard to access and collect forest products. Conversion of the remaining forests is likely in the next few years.

4.3.8 Description of conservation areas

Three Community Forestry (CF) sites (Phnom Chorng Ek, Sammaki Choam Mlu, and Phnom Thom Sammaki) have been established in Takaen Commune with technical and financial support from GTZ (now GIZ). Sammaki Choam Mlu and Phnom Thom Sammaki were not active CFs during the survey period; Phnom Chorng Ek, established in 2005 in Khpob village with an area of 69.25 ha, was actively implemented and small deciduous trees are common in the CF (but medium and big sized trees are absent). Implementation includes: (i) patrolling and arresting illegal loggers – sanctions are warnings, fine (20,000 Riel per log) or arrest for those offenders who repeatedly violate the regulations (but no one has yet been arrested by community members), (ii) harvest of materials for minor daily subsistence use, (iii) harvest of timber for local housing with permission from the head or vice head of the CF, and (iv) commercial purposes, a five percent levy (on cash value of products) is charged and used for CF management activities. In some villages, especially in Trapaeng Bei and Veal Krasang, knowledge of CF rules and benefit sharing mechanisms is scant. Forests outside the CFs have been claimed as private land except the state mountainous forest lands.

Three main groups take part in protecting the forests in Takaen Commune: the CF members, local authorities including local police and armed forces, and MoE rangers. However, there is weak law enforcement and a large number of ox-carts carry logs for sale in urban areas such as Wat Chork, Chum Kiri, Kraeng Sbov, Tani, Kamchay and Touk Meas district in Kampot Province. Every day in the dry season, dozens of buffalo and ox-carts pass through Takaen Commune to log for own consumption and commercial purpose. Rangers of the MoE are responsible for patrolling and protecting the forest in the nearby northern and eastern parts of Takaen Commune where most ox-cart loggers operate. There is widespread rent-seeking with ox-cart owners paying rangers 100,000-300,000 Riel per passing cart. Both villagers and officials seem incapable of managing the commune forests due to the lack of financial, technical and human resources.

4.3.9 Tenure institutions

Land ownerships in Takaen Commune can be categorized in three types: local private ownership of housing and farm land, community ownership of CF, and state ownership of rivers, streams, infrastructure, and forest (non-private forest is state property and managed by the MAFF (FA) except protected areas which are managed by the MoE). The three CFs in Takaen Commune are managed by villagers with support from local authorities. Open and uncontrolled access to rivers and streams result in over-fishing and use of illegal fishing equipment such as electric current and explosives, allegedly by armed forces. Fishing for subsistence is harder and harder as resources become scarce. Crop lands (*chamkar*), on which is still found dry deciduous forest, belong to local households; such areas are not usually demarcated and are likely to be cleared.

4.3.10. Government and other development/conservation projects

In 2005, GTZ helped establish the three above mentioned CFs, covering an area of 1,678 ha and managed by four of the selected villages (excluding Trapeang Bei). GTZ phased out project support during the present survey and handed over management responsibilities to the communities. As noted above, the resulted in two of the three becoming inactive. Households apparently do not regard CF as sufficiently beneficial to invest the required resources in management; presently outsiders appear to be harvesting in the non-active CFs.

One NGO (Children & Women Development Center in Cambodia, CWDCC) has provided health related training to women and supported education. It also provided 20 water tanks using a lucky draw method among the villagers. A local NGO named Peace and Development Aid Organization (PDAO) conducted a PRA in some villages in Takaen Commune in 2006, and UNESCO helped establish informal credit in the villages, dug wells, and built one primary school in 2005. This support finished in 2006.

4.3.11. Calamities

During the dry season, especially in December and January, forest fires occur in some of the mountainous areas in Takaen Commune; some are started intentionally while others happen accidentally. These forest fires may cause burns to hunters and travellers.

In 2008, the rice yields were low due to losses caused by an outbreak of brown plant hoppers (BPH) and associated virus diseases. The households hit by losses and low yields were the ones who had small plots of lands and no money to treat the rice.

4.3.12. Other relevant issues

Since forest land is continuously converted, forest reliant villagers are striving harder to collect forest products and harvesting pressure is increasing in the remaining forest areas. And some villagers sold their lands, gambled away their cash, and as a result became poor.

5. Preliminary results

This chapter provides an overview of commonly reported units, investigates the validity and reliability of data including own-reported values, and presents preliminary findings.

5.1 Commonly used local units

Respondents use a wide range of local units for all types of products (forest, processed forest, non-environmental forest, and agricultural). An overview of commonly used local units is presented in Table 5.1 below (see also Appendices B and C; the latter contains an overview of used unit codes).

Table 5.1: An overview of locally used common units in the three study sites

No.	Local unit	English name	Unit code	Comment
1	Roteah	Ox-cart	16	Firewood, sawn wood or logs are put in the ox-cart equivalent to around 0.6 m³ of timber/ox-cart
2	Phlan	0.1 m³	Usually converted into cubic meter and code **44** is used	Used to measure the volume of timber and processed timber (1 Phlan = 0.1m³)
3	Stere	1 m³	**77**	1 m-long. 1m-wide, 1m-high (1m³) of stacked wood) Firewood is usually measured in Stere when for sale
4	Ka-Re	0.5 Stere	Usually converted to Stere and code **77** is used	0.5 m³ of stacked firewood (1 Kare = 0.5 m³)
5	Thang	Bucket	**9**	Used to measure the weight of rice (1 Thang = 24 kg or 30 kg, depending on location)
6	Tao	12-15 kg	Usually converted to kg and code **2** is used	1 Tao = 12 kg or 15 kg, depending on location
7	Bav	Bag/sack	**8**	Used to measure the weight of rice (1 sack = 80 kg)
8	(Kampong)	Tin	**28**	Refers to items such as rice and seed contained in a can/tin. Approx. 3.5 tins of rice = 1 kg of rice
9	Sleuk	Usually converted to pieces and code **201** is used	1 Sleuk = 400 - 520 pieces	Used for fruits
10	Dambor	Usually converted to pieces and code **201** is used	1 Dambor = 4 pieces	Used for fruits
11	Phlon	Fruit/maize piece	**11**	Used to count fruit or maize cobs (1 Phlon = 44 – 52 fruits or cobs)
12	Dai	Handful	**36**	Used to count fruits or corns (1 Dai = 5 fruits)
13	Stong	Usually converted to bunch and code **26** is used	1 Stong = 4 - 8 bunches	Refers to one cluster of banana. It can be converted to bunches of banana

5.2 Enumerator assessment of data reliability

Collecting income data and data on environmental uses, such as forest products harvested and sold, is difficult. People may have a number of reasons for reporting inaccurate figures or simply being untruthful. Thus, building trust with respondents is important as part of the drive to obtain high quality data. For this purpose, all research teams worked closely with local authorities, such as

village and commune chiefs, and strived to establish good working relationships with households. Enumerators generally reported that data quality improved beyond the first quarter. Table 5.2 provides an overview of enumerator assessment of data quality (after completion of all surveys). In general, the quality of the collected data is estimated to be reasonably reliable.

Table 5.2: Enumerator assessment of data quality

Question	Freq.	Percent
How reliable is the information generally provided by this household?		
Poor	23	4.2
Reasonably reliable	506	92.8
Very reliable	16	2.9
Total	***545***	***100***
How reliable is the information on forest products collection/use provided by this household?		
Poor	67	12.3
Reasonably reliable	467	85.7
Very reliable	11	2.0
Total	***545***	***100***

5.3 Checking own-reported values

In his ground-breaking study of environmental resource use in Zimbabwe, Cavendish (2002) concluded that own-reported values are generally a good measure of the value of environmental resources. Whether this also holds true in the present Cambodian study sites is investigated in this section – basic distributional statistics for unit values of the main forest, non-forest environmental, agricultural and livestock products are presented in Table 5.3. The column "Valuation method" specifies the dominant method used to value each product: local market means that the basis is farm-gate price; substitute valuation is through a close substitute with a local market price; and time means that valuation is done based on labour time multiplied by the relevant local daily wage rate (varies with season and gender). In total, 216 types of products and services have been recorded in the surveys of which 82 are cultivated crops, 61 forest products, 59 environmental products and 14 livestock products and services.

Table 5.3: Own-reported unit values (Riel) of 174 forest, non-forest environmental, agricultural and livestock products and services (n≥5) in study sites in Cambodia

Products	Local unit	N	Mean	Median	Mode	s.d.	Min	Max	Technique
Unprocessed forest products									
Timber	Stick	41	162920	100000	100000	158595	5000	500000	Local market
	m^3	6	456000	418000	400000	174631	200000	700000	Local market
Poles	Stick	57	5319	2500	2000	7307	300	45000	Local market
	Ox-cart	11	58455	50000	50000	49196	10000	200000	Local market
Firewood	Ox-cart	708	22925	20000	30000	13570	3000	70000	Substitute
	Stick	40	1833	1250	1000	1495	200	6000	Substitute
	m^3	30	32767	29000	50000	19695	10000	70000	Local market
	Stere	102	27745	24000	20000	16123	5000	80000	Local market
	Bale	17	1065	1000	1000	247	500	1600	Substitute
	Bundle	202	1459	1000	1000	1119	60	6000	Local market
	Headload	33	3061	2000	3000	3349	500	15000	Substitute
Lianas and vines	Bundle	5	2500	2000	1000	1732	1000	5000	Substitute
Rattan	Stick	16	219	130	100	234	50	1000	Substitute
	Bundle	10	20000	22500	25000	7817	5000	30000	Substitute

Products	Local unit	N	Mean	Median	Mode	s.d.	Min	Max	Technique
Bamboo	Stick	147	1057	300	200	1819	100	8000	Local market
	Ox-cart	12	60667	25000	20000	71107	3000	250000	Local market
	Bundle	12	1683	1750	2000	598	500	2500	Local market
Tree branches	Ox-cart	12	30917	25000	10000	22444	5000	65000	Local market
Logs	Stick	153	56954	30000	30000	67920	1500	350000	Local market
	m^3	57	531579	480000	400000	419382	50000	3200000	Local market
	Ox-cart	48	105000	100000	100000	100557	5000	500000	Local market
	Stere	13	22692	20000	20000	3301	20000	30000	Local market
Fence posts	Stick	119	2945	2000	2000	2338	250	15000	Local market
	Ox-cart	16	64688	50000	50000	50678	15000	200000	Local market
Wild fruits	Kg	78	1960	2000	1000	1096	500	5000	Substitute
Mushrooms	Kg	101	4079	4000	5000	2582	500	10000	Local market
Roots and tubers	Kg	6	4833	2750	2500	3642	2000	10000	Local market
Wild vegetables	Bundle	223	543	500	500	196	100	1500	Substitute
	Stick	39	486	300	500	671	100	4000	Substitute
	Kg	224	1418	1000	1000	930	100	6000	Substitute
	Handful	72	769	500	500	583	200	3000	Substitute
Medicinal plants	Kg	54	5310	5000	5000	3274	500	15000	Substitute
	Kettle	20	3780	3500	5000	2717	1000	10000	Substitute
Latex and resin	Kg	15	920	1000	1000	359	300	1600	Substitute
Thatching grass	Bunch	76	806	800	1000	245	160	1500	Substitute
	Ox-cart	15	28533	20000	15000	20110	5000	80000	Substitute
	Bundle	21	2414	1000	5000	2620	300	10000	Substitute
Game meat – mammals	Piece	78	16212	6000	1000	29552	500	150000	Local market
	Kg	17	11706	12000	15000	5253	3000	20000	Local market
Game meat – reptiles	Piece	56	5946	5000	5000	8172	500	60000	Local market
	Kg	6	9333	10000	10000	3559	5000	15000	Local market
Game meat – birds and bats	Piece	42	4421	1500	1500	6806	100	30000	Substitute
Game meat – insects and worms	Kg	13	4000	3000	2000	2972	1000	10000	Local market
	Bowl	13	1462	1000	1000	803	500	3000	Substitute
Game meat - amphibian	Kg	50	5580	5000	5000	2860	500	12000	Local market
	Piece	14	246	200	200	155	50	500	Substitute
Palm stem	Stick	41	209	200	200	60	100	500	Local market
	Bundle	14	1162	275	250	1372	167	3300	Substitute
	Kg	13	1446	1500	1000	745	300	3000	Substitute
Tamarind	Kg	5	3700	5000	5000	1987	500	5000	Substitute
Heart of palm	Stick	47	266	250	200	126	100	500	Local market
Bamboo shoots	Kg	386	853	600	500	563	200	3000	Local market
Tortoise	Kg	7	9143	10000	10000	4100	2000	15000	Local market
Crab, snail, shrimp and prawn	Kg	83	2612	2000	2000	2148	300	10000	Local market
	Piece	18	89	50	50	56	50	200	Substitute
Processed Forest Products									
Sawnwood	Stick	57	29444	25000	20000	10138	20000	40000	Local market
	m^3	101	748515	660000	600000	379294	200000	3000000	Local market
Charcoal	Heaps	262	322389	300000	300000	169047	6000	1200000	Local market
Wooden furniture	Piece	22	70295	40000	20000	85903	1500	400000	Local market

Products	Local unit	N	Mean	Median	Mode	s.d.	Min	Max	Technique
Other wooden tools/utensils	Piece	6	30000	15000	10000	35214	10000	100000	Local market
Rattan furniture	Piece	10	8800	10000	10000	6642	2500	25000	Local market
Bamboo furniture	Piece	7	5686	4000	300	5324	300	15000	Local market
Roof of house	Bunch (plant material)	11	664	600	600	196	400	1000	Local market
Processed bamboo shoots	Kg	10	6150	5000	1500	5623	500	15000	Local market
Non-forest environmental products									
Firewood	Bale	27	1296	1000	1000	1016	1000	6000	Substitute
	Bundle	97	1422	1000	1000	1007	200	5000	Substitute
	Ox-cart	250	21544	20000	20000	12437	2500	50000	Substitute
	Bunch	8	575	550	500	89	500	700	Substitute
Tree leaves	Stick	15	1240	300	150	1758	150	5000	Substitute
Bamboo	Ox-cart	9	20667	10000	7000	17776	7000	50000	Local market
Tree branches	Stick	15	35967	20000	100000	36955	1500	100000	Substitute
Logs	Stick	6	2250	2000	2000	1173	500	4000	Local market
Fence posts	Piece	87	91	100	100	30	30	250	Local market
Wild fruits	Kg	41	4951	5000	5000	2863	500	10000	Substitute
Mushrooms	Piece	36	117	100	100	78	50	500	Local market
Wild vegetables	Handful	71	539	500	500	461	100	3000	Substitute
	Bunch	33	721	700	600	204	400	1200	Substitute
Thatching grass	Piece	5	7300	1000	1000	9108	500	20000	Substitute
Game meat – mammals	Piece	16	5656	3000	3000	7002	1000	30000	Local market
Game meat – reptiles	Piece	6	1917	2000	2000	665	1000	3000	Substitute
Game meat – birds and bats	Kg	24	3242	3000	1000	2079	1000	10000	Substitute
Game meat – insects and worms	Kg	13	4577	3000	3000	2943	1000	10000	Substitute
Fish	Piece	109	258	250	300	172	50	1000	Local market
Game meat - amphibian	Kg	536	5193	5000	5000	2190	300	15000	Substitute
	Handful	8	1400	750	200	1954	200	6000	Substitute
Eggplant	Kg	15	1747	2000	2000	1127	200	5000	Substitute
Callaloo	Kg	23	1509	1500	1000	928	200	5000	Substitute
Bitter eggplant	Kg	5	2100	2000	2000	224	2000	2500	Substitute
Water spinach	Handful	30	480	300	500	584	100	3000	Substitute
Unspecified vegetables	Bundle	27	478	500	500	150	100	1000	Substitute
	Kg	61	2356	2000	2000	1709	500	7000	Substitute
	Handful	16	400	400	500	213	100	1000	Substitute
Leaves of cultivated crops	Kg	28	1921	2000	2000	1504	500	7000	Local market
	Piece	7	86	50	10	84	10	200	Local market
Tamarind	Bundle	37	349	200	100	797	100	5000	Substitute
	Kg	152	1212	600	500	1168	300	6000	Substitute
Bamboo shoots	Bunch	47	555	500	500	175	300	1000	Local market
Round palm leaves	Piece	203	110	100	100	77	10	500	Substitute
Crab, snail, shrimp and prawn	Kg	1546	2000	1500	1000	1753	30	14000	Substitute
	Piece	15	235	150	100	238	100	1000	Substitute
Crop products									

Products	Local unit	N	Mean	Median	Mode	s.d.	Min	Max	Technique
Rice	Kg	1799	907	800	700	236	700	2520	Local market
	Bucket	303	23708	21000	20000	7817	700	60000	Local market
Maize	Piece	184	231	200	200	107	0	800	Local market
	Bundle	11	9643	10000	10000	1755	5000	12500	Local market
	Kg	30	3312	3750	5000	1480	450	5000	Local market
Cassava/manioc (fresh)	Kg	45	950	1000	1000	432	250	2000	Local market
Sweet potato	Kg	42	1179	1000	1000	618	300	3000	Local market
Cocoyam/taro	Kg	30	1267	1000	1000	655	500	3000	Substitute
Cassava/manioc (dried)	Kg	5	550	550	500	50	500	600	Local market
Soybean	Kg	95	1922	1700	1500	872	200	4000	Local market
Mung bean	Kg	32	3141	3500	4000	1492	200	7000	Local market
Groundnut (peanut)	Kg	18	3517	2750	2000	2155	300	8000	Local market
String bean	Kg	22	2341	2000	2000	808	1500	5000	Local market
Beans	Kg	39	2559	3000	3000	1158	200	5000	Local market
Chilli	Piece	23	18	20	10	9	0	30	Substitute
	Kg	127	4599	5000	5000	2333	500	10000	Substitute
Cucumber	Piece	20	825	1000	1000	524	100	2000	Local market
	Kg	44	1711	1500	1500	976	500	5000	Local market
Eggplant	Piece	37	344	200	200	343	10	2000	Local market
	Kg	43	2074	2000	1000	1325	500	7000	Local market
Pumpkin	Piece	199	1012	1000	1000	542	0	3000	Substitute
Gourd (bitter/spiny)	Piece	226	868	1000	1000	413	200	3000	Substitute
Bitter eggplant	Kg	10	2000	1500	500	1900	500	7000	Substitute
Luffa	Piece	103	500	500	500	253	100	1000	Substitute
Water spinach	Kg	16	1856	2000	2000	827	1000	4000	Local market
Unspecified vegetables	Kg	29	2000	1000	1732	500	7000		Substitute
Banana	Piece	46	620	500	500	257	100	1000	Local market
	Bunch	616	1011	1000	1000	474	100	4000	Local market
Coconut	Piece	350	1252	1000	1000	465	100	2500	Local market
Guava	Piece	31	167	100	100	141	20	500	Local market
	Kg	104	1000	1000	500	594	100	3000	Local market
Jack fruit	Piece	170	5354	5000	5000	3055	100	15000	Local market
Lemon	Piece	72	88	100	100	41	10	200	Substitute
	Kg	39	1162	1000	500	903	300	4500	Substitute
Lime	Piece	8	94	75	30	71	30	200	Substitute
Mango	Piece	113	368	300	200	251	80	1000	Local market
Orange	Piece	14	557	350	100	491	100	1800	Local market
Papaya	Piece	380	617	500	500	300	200	3000	Local market
Pineapple	Piece	27	1352	1300	1500	625	500	3500	Local market
Soursop (sirsak)	Piece	11	1800	2000	2000	787	300	3000	Local market
Watermelon	Piece	19	616	500	500	345	100	1500	Local market
Custard apple	Piece	25	226	200	200	121	10	500	Local market
Cashew seed/nut	Kg	40	1955	2000	2500	734	400	3000	Local market
Mint	Bundle	38	161	100	100	113	100	500	Substitute
Coriander	Bundle	55	196	100	100	148	100	500	Substitute
Lemongrass	Kg	121	2206	2000	2000	940	200	6000	Substitute
	Bundle	419	289	200	200	198	30	1000	Substitute
	Stick	211	72	50	50	37	25	250	Substitute
	Handful	71	427	500	500	218	50	1000	Substitute
Turmeric	Kg	59	2437	2000	2000	1378	300	5000	Substitute

Products	Local unit	N	Mean	Median	Mode	s.d.	Min	Max	Technique
	Bundle	26	110	100	100	37	50	200	Substitute
Sugar cane	Stick	19	457	500	500	230	100	1000	Substitute
Leaves of cultivated crops	Kg	147	2020	1500	1000	1460	300	6000	Substitute
	Bundle	127	312	200	200	241	50	1000	Substitute
Star apple	Piece	16	192	200	100	117	50	500	Substitute
	Bundle	23	3022	3000	3000	898	2000	5000	Substitute
Tamarind	Kg	24	1358	1100	500	1054	500	5000	Substitute
Bamboo shoots	Kg	7	5714	4000	2000	4923	2000	15000	Local market
Planted palm fruit	Piece	28	132	100	100	85	50	500	Substitute
Malay gooseberry	Kg	25	1060	1000	500	607	200	2000	Substitute
Indian jujube	Kg	18	2444	2000	2000	1494	1000	8000	Substitute
Pummelo, shaddock or pomelo	Piece	18	778	500	500	669	500	2500	Substitute
Livestock and livestock products									
Cattle	Piece	2014	1303183	1000000	1000000	729989	1000	5000000	Local market
Buffalos	Piece	583	1789494	1500000	2000000	905496	120000	6000000	Local market
Pigs	Piece	1057	307154	250000	200000	230207	10000	1600000	Local market
Ducks	Piece	161	12791	10000	10000	6488	2000	30000	Local market
Chicken	Piece	1313	15576	15000	15000	9413	1000	250000	Local market
Meat	Kg	52	12288	12000	15000	2607	5000	18000	Local market
	Piece	442	771077	500000	300000	640563	40000	3500000	Local market
Eggs	Piece	357	531	500	500	64	500	1000	Local market
Manure	Bag/sack	9	4967	2000	2000	9435	500	30000	Time
	Ox-cart	332	12843	10000	5000	10138	2000	50000	Time
Draught power	Man-days	193	15912	10000	10000	10545	2500	50000	Time

We would expect a certain variation in prices for most products as: (i) these are not homogeneous, e.g. firewood can be made up of different species and hunted mammals can have different sizes even for the same species; (ii) the presented values vary across the year, e.g. pre and post harvest prices for agricultural crops; and (iii) values may vary across sites, e.g. due to differences in market access. The seasonal variation is further explored in Table 5.6 below while the site variation is investigated in more detail in Table 5.7 that takes a closer look at own-reported values for the key environmental product "Firewood".

If households' own-reported values are used as price estimates, then they should display aggregated unit values with acceptable properties. For most products in Table 5.3 the mean, median and modal units are very close in value showing little skewness, and in general the standard deviation is lower than the mean and in many cases lower than half the mean. The estimates are generally more satisfactory for agricultural products than for forest and non-forest environmental products – probably reflecting that the former are more widely traded and consumed. This indicates that own value estimates reflect resource values (rather than being just arbitrary answers provided by respondents who feel obliged to participate in the research). Products deviating from this pattern (notably poles, logs, some game meat, and wooden furniture) are arguably quite heterogeneous (e.g. size, quality) and as noted above we would expect high variation in unit values. Product differences are reflected in the large differences in minimum and maximum values of many products – a span also influenced by spatial and temporal variability in values. Prices of identical forest and non-forest environmental products were statistically compared: as expected these were generally similar. A notable exception was firewood when measured in headloads and stere: the reason is that headloads are usually small pieces of wood whereas stere is used to measure large solid logs not yet cut into smaller pieces (i.e. product differences). Table 5.4 below presents how many households are collecting or producing each product across the three study sites. The most frequently

collected/produced products are: rice (87% of households), firewood (85%), chickens (81%), lemongrass (77%), Crab, snail, shrimp and prawn (76%) and cattle (68%). Forest and non-forest environmental products are commonly collected by households across all study sites.

Table 5.4: Frequency of household collection/production of products (n≥5) in the three study sites

Product	Kampot		Khampong Speu		Khampong Thom		All sites	
	No. of HH	%	No. of HH	%	No. of HH	%	No. of HH	%
Unprocessed forest products								
Timber	23	11.5	3	1.5	6	3.0	32	5.3
Poles	26	13.0	11	5.5	2	1.0	39	6.5
Firewood	**170**	**85.0**	**171**	**85.5**	**166**	**83.0**	**507**	**84.5**
Lianas and vines	1	0.5	2	1.0	9	4.5	12	2.0
Rattan	1	0.5	0	0.0	16	8.0	17	2.8
Bamboo	64	32.0	36	18.0	1	0.5	101	16.8
Logs	65	32.5	48	24.0	25	12.5	138	23.0
Fence posts	52	26.0	16	8.0	18	9.0	86	14.3
Wild fruits	13	6.5	5	2.5	28	14.0	46	7.7
Mushrooms	17	8.5	36	18.0	13	6.5	66	11.0
Wild vegetables	**80**	**40.0**	**81**	**40.5**	**31**	**15.5**	**192**	**32.0**
Medicinal plants	28	14.0	10	5.0	22	11.0	60	10.0
Latex and resin	1	0.5	0	0.0	12	6.0	13	2.2
Thatching grass	38	19.0	3	1.5	36	18.0	77	12.8
Game meat – mammals	12	6.0	22	11.0	8	4.0	42	7.0
Game meat – reptiles	3	1.5	29	14.5	6	3.0	38	6.3
Game meat – birds and bats	10	5.0	11	5.5	3	1.5	24	4.0
Game meat – insects and worms	1	0.5	23	11.5	2	1.0	26	4.3
Game meat - amphibian	6	3.0	38	19.0	5	2.5	49	8.2
Palm stem	9	4.5	3	1.5	22	11.0	34	5.7
Heart of palm	12	6.0	0	0.0	22	11.0	34	5.7
Bamboo shoots (unprocessed)	**111**	**55.5**	**120**	**60.0**	**23**	**11.5**	**254**	**42.3**
Tortoise	2	1.0	4	2.0	2	1.0	8	1.3
Crab, snail, shrimp and prawn	20	10.0	33	16.5	19	9.5	72	12.0
Processed forest products								
Sawnwood	74	37	27	13.5	31	15.5	132	22.0
Charcoal	6	3	129	64.5	1	0.5	136	22.7
Wooden furniture	12	6	1	0.5	8	4	21	3.5
Other wooden tools/utensils	2	1	0	0	9	4.5	11	1.8
Rattan furniture	4	2	2	1	2	1	8	1.3
Bamboo furniture	4	2	1	0.5	1	0.5	6	1.0
Roof of house	4	2	1	0.5	8	4	13	2.2
Bamboo shoots (processed)	9	4.5	1	0.5	0	0	10	1.7
Environmental products								
Firewood	**121**	**60.5**	**85**	**42.5**	**70**	**35**	**276**	**46.0**
Tree leaves	4	2	7	3.5	0	0	11	1.8
Bamboo	7	3.5	4	2	1	0.5	12	2.0
Tree branches	5	2.5	4	2	0	0	9	1.5
Logs	12	6	1	0.5	1	0.5	14	2.3
Wild fruits	21	10.5	80	40	5	2.5	106	17.7
Mushrooms	21	10.5	5	2.5	3	1.5	29	4.8
Wild vegetables	**98**	**49**	**117**	**58.5**	**45**	**22.5**	**260**	**43.3**
Medicinal plants	2	1	1	0.5	3	1.5	6	1.0
Thatching grass	22	11	0	0	10	5	32	5.3
Game meat – mammals	6	3	1	0.5	0	0	7	1.2
Game meat – reptiles	8	4	11	5.5	0	0	19	3.2
Game meat – insects and worms	5	2.5	27	13.5	2	1	34	5.7
Fish	8	4	2	1	3	1.5	13	2.2

Product	Kampot		Khampong Speu		Khampong Thom		All sites	
	No. of HH	%	No. of HH	%	No. of HH	%	No. of HH	%
Game meat - amphibian	**147**	**73.5**	**145**	**72.5**	**50**	**25**	**342**	**57.0**
Cocoyam/taro	1	0.5	0	0	5	2.5	6	1.0
Eggplant	12	6	1	0.5	0	0	13	2.2
Callaloo	9	4.5	5	2.5	3	1.5	17	2.8
Bitter eggplant	36	18	0	0	0	0	36	6.0
Water spinach	3	1.5	3	1.5	0	0	6	1.0
Unspecified vegetables	70	35	13	6.5	8	4	91	15.2
Leaves of cultivated crops	27	13.5	8	4	7	3.5	42	7.0
Tamarind	72	36	74	37	23	11.5	169	28.2
Bamboo shoots	18	9	77	38.5	28	14	123	20.5
Round palm leaves	16	8	12	6	10	5	38	6.3
Crab, snail, shrimp and prawn	**186**	**93**	**185**	**92.5**	**86**	**43**	**457**	**76.2**
Crop products								
Wild fruits	0	0.0	4	2.0	4	2.0	8	1.3
Rice	**192**	**96.0**	**188**	**94.0**	**143**	**71.5**	**523**	**87.2**
Maize	**60**	**30.0**	**70**	**35.0**	**61**	**30.5**	**191**	**31.8**
Cassava/manioc (fresh)	23	11.5	11	5.5	21	10.5	55	9.2
Sweet potato	35	17.5	4	2.0	4	2.0	43	7.2
Cocoyam/taro	31	15.5	1	0.5	5	2.5	37	6.2
Cassava/manioc (dried)	0	0.0	1	0.5	5	2.5	6	1.0
Soybean	0	0.0	0	0.0	46	23.0	46	7.7
Mung bean	23	11.5	5	2.5	4	2.0	32	5.3
Groundnut (peanut)	14	7.0	0	0.0	0	0.0	14	2.3
String bean	7	3.5	12	6.0	1	0.5	20	3.3
Beans	13	6.5	10	5.0	6	3.0	29	4.8
Chilli	70	35.0	27	13.5	39	19.5	136	22.7
Cucumber	26	13.0	21	10.5	5	2.5	52	8.7
Eggplant	22	11.0	19	9.5	31	15.5	72	12.0
Ginger	3	1.5	2	1.0	3	1.5	8	1.3
Pumpkin	44	22.0	66	33.0	55	27.5	165	27.5
Gourd (bitter/spiny)	47	23.5	59	29.5	73	36.5	179	29.8
Bitter eggplant	10	5.0	1	0.5	2	1.0	13	2.2
Luffa	43	21.5	24	12.0	44	22.0	111	18.5
Water spinach	17	8.5	3	1.5	5	2.5	25	4.2
Unspecified vegetables	21	10.5	5	2.5	15	7.5	41	6.8
Banana	**119**	**59.5**	**83**	**41.5**	**120**	**60.0**	**322**	**53.7**
Coconut	**103**	**51.5**	**65**	**32.5**	**38**	**19.0**	**206**	**34.3**
Guava	66	33.0	25	12.5	10	5.0	101	16.8
Jack fruit	46	23.0	34	17.0	32	16.0	112	18.7
Lemon	34	17.0	28	14.0	7	3.5	69	11.5
Lime	1	0.5	8	4.0	0	0.0	9	1.5
Mango	43	21.5	43	21.5	18	9.0	104	17.3
Orange	4	2.0	7	3.5	3	1.5	14	2.3
Papaya	**73**	**36.5**	**92**	**46.0**	**81**	**40.5**	**246**	**41.0**
Pineapple	12	6.0	4	2.0	4	2.0	20	3.3
Soursop (sirsak)	6	3.0	3	1.5	2	1.0	11	1.8
Watermelon	16	8.0	2	1.0	1	0.5	19	3.2
Custard apple	11	5.5	11	5.5	0	0.0	22	3.7
Cashew fruit	1	0.5	2	1.0	2	1.0	5	0.8
Cashew seed/nut	22	11.0	0	0.0	18	9.0	40	6.7
Mint	18	9.0	38	19.0	1	0.5	57	9.5
Coriander	6	3.0	60	30.0	2	1.0	68	11.3
Lemongrass	**159**	**79.5**	**140**	**70.0**	**162**	**81.0**	**461**	**76.8**
Turmeric	33	16.5	30	15.0	9	4.5	72	12.0

Product	Kampot		Khampong Speu		Khampong Thom		All sites	
	No. of HH	%	No. of HH	%	No. of HH	%	No. of HH	%
Sugar cane	11	5.5	4	2.0	6	3.0	21	3.5
Leaves of cultivated crops	**96**	**48.0**	**55**	**27.5**	**84**	**42.0**	**235**	**39.2**
Star apple	1	0.5	4	2.0	34	17.0	39	6.5
Tamarind	5	2.5	10	5.0	6	3.0	21	3.5
Bamboo shoots	1	0.5	0	0.0	4	2.0	5	0.8
Planted palm fruit	1	0.5	16	8.0	3	1.5	20	3.3
Malay gooseberry	18	9.0	8	4.0	0	0.0	26	4.3
Indian jujube	15	7.5	0	0.0	1	0.5	16	2.7
Pummelo, shaddock or pomelo	3	1.5	3	1.5	8	4.0	14	2.3
Livestock and livestock products								
Cattle	**148**	**74.0**	**190**	**95.0**	**70**	**35.0**	**408**	**68.0**
Buffalos	110	55.0	1	0.5	46	23.0	157	26.2
Pigs	**130**	**65.0**	**142**	**71.0**	**72**	**36.0**	**344**	**57.3**
Ducks	87	43.5	18	9.0	6	3.0	111	18.5
Chickens	**187**	**93.5**	**181**	**90.5**	**116**	**58.0**	**484**	**80.7**
Meat	**120**	**60.0**	**118**	**59.0**	**65**	**32.5**	**303**	**50.5**
Eggs	**137**	**68.5**	**53**	**26.5**	**52**	**26.0**	**242**	**40.3**
Manure	**135**	**67.5**	**116**	**58.0**	**34**	**17.0**	**285**	**47.5**
Draught power	**93**	**46.5**	**65**	**32.5**	**36**	**18.0**	**194**	**32.3**
Honey	0	0.0	5	2.5	1	0.5	6	1.0
Other	6	3.0	7	3.5	1	0.5	14	2.3

Table 5.5 provides an overview of valuation methods used across product groups. Most products could be valued using local market (farm gate) prices (58%), while the remainder were valued using substitute pricing (40%) and opportunity cost of labour (time spent for each product multiplied by the opportunity cost of local labour) (2%). Substitute pricing was done using products that were very similar, e.g. (i) a bundle of wild vegetables was valued by comparing how much *sleuk bas* (a local vegetable with a known value) it can be exchanged for, or (ii) low quality deformed firewood, known as *os muay dom*, was valued by comparing what amount of ready cut (traded) firewood it could be exchanged for. Substitute values are thus dependent on prices for similar products in nearby markets. Agricultural crops valued using substitute pricing were products grown for own consumption, e.g. taro, lemon grass, sweet potato and guava. The value of manure was estimated through time spent to collect the manure; draught power was estimated using substitute pricing of tractor lease (one quarter thereof).

Table 5.5: Overview of us of valuation methods across product groups

Valuation methods / Products	Local market		Substitute		Time		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Forest product	22	21.2	9	8.7	0	0.0	31	29.8
Non-forest environmental	5	4.8	12	11.5	0	0.0	17	16.3
Agricultural – crop	26	25.0	21	20.2	0	0.0	47	45.2
Agricultural – livestock	7	6.7	0	0.0	2	1.9	9	8.7
Total	**60**	**57.7**	**42**	**40.4**	**2**	**1.9**	**104**	**100.0**

5.4 Seasonal variation

Seasonal variation in a string of environmental and agricultural products is shown in Table 5.6: there is significant variation in prices across seasons, e.g. the price of rice paddy is 1062 Riel/kg in the pre-harvest season and only 740 Riel/kg in the post harvest season. Likewise, there are major

seasonal variations in prices for key forest products such as firewood and charcoal. This is interesting as it has consequences for understanding dispersion in aggregated yearly prices and may have policy significance.

Table 5.6: Seasonal variation in product (n ≥ 10 in each quarter) prices (Riel/unit), all three sites

Product	Local unit	Q1			Q2			Q3			Q4			ANOVA
		N	Mean	s.d.	N	Mean	s.d.	N	Mean	s.d.	N	Mean	s.d.	
Firewood (Forest)	Bundle	78	1047	660	42	975	528	45	2060	1187	24	2542	1532	***
	Ox-cart	112	18955	9285	98	22755	15269	206	24466	12763	252	24102	14669	**
Bamboo	Stick	23	322	284	16	409	328	24	446	323	32	2175	2252	***
Fence posts	Stick	21	2190	487	31	4618	3943	17	2176	393	22	2522	1056	***
Sawnwood	m^3	21	587143	248096	29	611034	117149	27	847593	386004	24	944375	536351	***
Charcoal	Heaps	40	282250	85380	92	261098	153591	54	388056	158717	76	371053	195602	***
Firewood (Environmental)	Bundle	23	1339	602	32	1203	712	24	1271	531	14	2250	1919	**
	Ox-cart	34	23529	10115	43	20535	11091	81	21156	12143	88	21659	13882	NS
Game meat - amphibian	Kg	112	3954	1341	137	5688	2375	121	5632	2216	100	5210	2282	***
Crab, snail, shrimp and prawn	Kg	127	1094	932	182	2242	1445	528	2112	1917	592	2051	1864	***
Rice	Kg	669	740	103	426	920	226	373	1055	242	331	1062	210	***
Banana	Bunch	52	624	235	119	940	383	167	965	427	278	1142	517	***
Coconut	Piece	21	952	350	57	1056	423	97	1321	518	175	1313	428	***
Jack fruit	Piece	9	5633	2457	58	5381	2742	63	5586	2836	40	4888	3887	NS
Cattle	Piece	365	1100742	500603	392	1330332	592620	608	1396419	826831	649	1313293	794058	***
Buffalos	Piece	119	1462353	677613	135	1738148	846662	168	1918125	991289	161	1940124	946478	***
Pig	Piece	209	243469	136459	232	325269	216790	276	351511	286360	340	297934	225165	***
Duck	Piece	34	12721	6395	31	12577	5701	19	15553	6902	77	12227	6670	NS
Chickens	Piece	301	14097	17073	311	14901	3879	350	16537	6191	351	16485	5170	***
Meat	Piece	76	625395	523645	139	807590	655537	77	945844	699408	150	721340	631316	*
Egg	Piece	73	500	0	152	533	60	55	569	100	77	531	57	***

Note: NS= level of significance is >5%; * = level of significance is 5%; ** = level of significance is 1%; *** = level of significance is 0.1%

Table 5.7 takes a closer look at the variation in firewood prices across seasons and sites. There is significant seasonal variation in own-reported values for firewood in all three sites (except for ox-carts in Khampong Thom). Firewood prices are generally higher during Q3 and Q4; at this time of year farmers are busy with rice production and other rainy season such as processing (smoking) fish – meaning little firewood collection but high demand. Prices also differ significantly within the same quarter across sites, probably reflecting differences in scarcity and demand (e.g. more fish processing in Kampot in Q3 and Q4 than in the other sites).

Table 5.7: Seasonal variation of firewood prices (Riel/unit) in each quarter in the three study sites

Site	Unit	Q1			Q2			Q3			Q4			One-way ANOVA
		N	Mean	s.d.	N	Mean	s.d.	N	Mean	s.d.	N	Mean	s.d.	
Kampot	Bundle	20	895	1017	13	920	702	3	2667	577	3	1667	577	*
	Ox-cart	57	20070	10025	29	24655	18123	103	28893	12172	100	33880	14929	***
Khampong Speu	Bundle	20	770	408	13	808	435	10	1750	979	2	2000	707	***
	Ox-cart	20	16850	9092	46	26739	14506	51	22275	12501	108	17009	9376	***
Khampong Thom	Bundle	38	1274	427	16	1156	397	32	2100	1278	19	2737	1653	***
	Ox-cart	35	18343	8040	23	12391	5408	52	17846	10776	44	19286	12315	NS

Note: NS= level of significance is >5%; * = level of significance is 5%; ** = level of significance is 1%; *** = level of significance is 0.1%

5.5 Farm, forest and non-farm labour wages

When estimating the opportunity cost of labour, it should be noted that labour wage rates vary across seasons and sex. An overview is presented in Table 5.8. There is a tendency for wage rates to vary across seasons (dry season from December to May, rainy season from June to November), and be higher during the `cultivation season (Q3) – this difference is statistically significant (except for female forest and non-farm labour). There is also a statistically significant difference between the male and female levels of wages but not for forest labour. Forest-related wages are significantly higher, for both sexes, in all seasons; the reason may be relatively high wages in rubber plantations or high wages in connection to illegal forest product harvesting and transport.

Table 5.8: Farm, forest and non-farm labour wage rates (Riel/day) across seasons and sex, all three Cambodian sites

Wage type	Sex	Q1			Q2			Q3			Q4			ANOVA
		Mean	s.d.	n	Mean	s.d.	n	Mean	s.d.	n	Mean	s.d.	n	by quarter
Farm	Male	9172	7712	159	10860	8545	104	15293	11220	105	13936	9858	76	***
	Female	7866	4395	176	7728	2431	120	11610	7817	109	10563	5073	103	***
Forest	Male	27284	18244	122	29258	20128	93	34656	16815	91	29104	17918	75	*
	Female	28275	38370	8	32500	20917	6	29200	15873	10	16714	11470	7	NS
Non-farm	Male	10136	12027	77	14745	16356	72	8755	8038	70	7604	5944	52	**
	Female	9139	4090	35	7075	4688	19	8351	5507	28	7735	5141	25	NS
ANOVA (wage type by quarter)		Male: ***			Male: ***			Male: ***			Male: ***			
		Female: ***			Female: ***			Female: ***			Female: ***			

Note: NS= level of significance is >5%; * = level of significance is 5%; ** = level of significance is 1%; *** = level of significance is 0.1%

The relatively high level of farm wages in Q4 is due to involvement of large numbers of households in cultivation season such as rice, cassava, and soy bean cultivation. Table 5.9 presents an overview of types of farm, forest, environmental and non-farm wage work. The five most common sources of wage work are small-scale agriculture, forest product transportation, government employee, forest product processing, and manufacturing industry.

Table 5.9: Types of wage work reported (n=1743) in the three Cambodian study sites

Wage type	Specific work activities	Freq.	Percent
Farm	**Small-scale agriculture**	**938**	**53.8**
	Large-scale (commercial) agriculture	3	0.2
	Agricultural processing	10	0.6
	Aquatic products processing	1	0.1
Forest	Forestry - logging	37	2.1
	Forest product processing	**94**	**5.4**
	Forest product transportation	**248**	**14.2**
	Forestry - other	5	0.3
	Carpentry	28	1.6
Non-forest environmental	Mining	1	0.1
Non-farm	Transport	43	2.5
	Trade and marketing	12	0.7
	Construction	42	2.4
	Mechanical	2	0.1
	Local cottage industry	3	0.2
	Manufacturing industry	**72**	**4.1**
	Service industry	6	0.3
	Government employee	**123**	**7.1**
	Community employee	49	2.8

Wage type	Specific work activities	Freq.	Percent
	Tailor, shoe maker, or similar	3	0.2
	Blacksmith/goldsmith	1	0.1
	Domestic work	7	0.4
	Guard (non-forest related)	3	0.2
	Cook	4	0.2
	Road construction/maintenance	2	0.1
	NGO worker	1	0.1
	Musician	3	0.2
	Mid-wife	2	0.1
	Total	**1743**	**100**

5.6 Household well-being and satisfaction

At the end of the last household survey, enumerators assessed the well-being of each household. As seen in Table 5.10, most households were assigned to the medium group while the worse-off (24%) was twice as large as the better-off (12%).

Table 5.10: Household (n=545) well-being as assessed by enumerators at end of survey in all three sites

Household well-being	Freq.	Percent
Worse-off	133	24.4
Medium	347	63.7
Better-off	65	11.9
Total	545	100

Additionally, households were asked how satisfied they have been with their lives in the past 12 months, Table 5.11. The majority (50%) were satisfied with their lives. This satisfaction was based mainly on sufficiency of agricultural products, land ownership, and not being confronted with any serious crises in their families. In contrast, unsatisfied households were those that have had to face crises, such as illnesses, owned less land or realised lower rice yields.

Table 5.11: Life satisfaction as reported by households (n=545) in all three study sites at end of survey

How satisfied are you with your life over the past 12 months?	Freq.	Percent
Very unsatisfied	22	4.0
Unsatisfied	67	12.3
Neither unsatisfied or satisfied	158	29.0
Satisfied	270	49.5
Very satisfied	28	5.1
Total	545	100

The results in Table 5.12 show that correlations between household total income and satisfaction and well-being are positively correlated and significant at 0.01 level. This indicates that the richer a household, the better off and more satisfied.

Table 5.12: Correlation of household (n=544) total income, satisfaction and well-being

Correlations				
		Satisfaction	Total income	Well-being
Satisfaction	Pearson	1.000	0.166 **	0.230**

	Correlation			
	Sig. (2-tailed)		0.000	0.000
Total income	Pearson Correlation	0.166**	1.000	0.262**
	Sig. (2-tailed)	0.000		0.000
Well-being	Pearson Correlation	0.230**	0.262**	1.000
	Sig. (2-tailed)	0.000	0.000	

** Correlation is significant at the 0.01 level (2-tailed).

5.7 Household crises and coping responses

By far the most frequent crises are serious illness in family (idiosyncratic) and serious crop failure (common across many households), Table 5.12.

Table 5.12: Types of crises and their frequencies, all three Cambodian sites, 2007-08

Types of crises	How severe?		
	Moderate	Severe	Total
Serious crop failure	100	58	158
Serious illness in family	157	64	221
Death of productive adults	5	10	15
Land loss (expropriation, etc.)	23	21	44
Major livestock loss (theft, drought, etc.)	19	5	24
Other major asset loss (fire, theft, flood, etc.)	4	6	10
Lost wage employment	5	0	5
Wedding or other cost	20	4	24
Other	5	3	8
Total	**338**	**171**	**509**

Crises lead to income loss and/or additional household expenses. Common coping responses included spending cash savings (23%), harvesting more forest products (19%), doing extra casual labour (13%), and selling assets (12%), Table 5.13. This clearly demonstrates that forest is important in dealing with ex-post shocks in Cambodia – in addition to providing an important source of subsistence and cash income.

Table 5.13: Overview of frequency of coping responses to crises, all three Cambodian sites, 2007-08

How did you cope with the income loss or costs?	Freq.	Percent
Harvest more forest products	96	18.9
Harvest more wild products not in the forest	5	1.0
Harvest more agricultural products	28	5.5
Spend cash savings	115	22.6
Sell assets (land, livestock, etc.)	59	11.6
Do extra casual labour work	64	12.6
Assistance from friends and relatives	29	5.7
Assistance from NGO, community org.	7	1.4
Get loan from money lender, credit association	44	8.6
Try to reduce household spending	1	0.2
Did nothing in particular	44	8.6
Other	17	3.3
Total	**509**	**100**

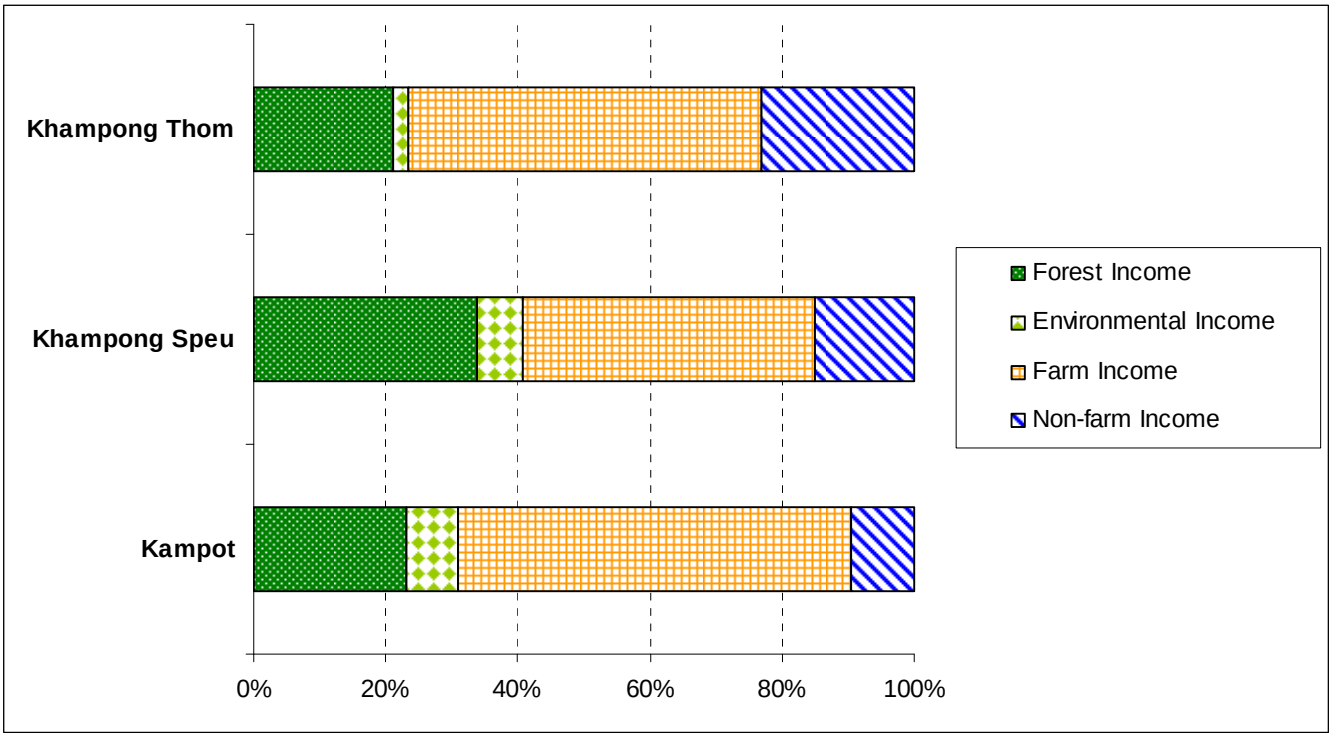
5.8 Household incomes

Household income covers both cash and subsistence income. Net income is here calculated as: value of total output sold and consumed minus input costs for each particular income source. Total income is divided in four broad categories: (i) Forest income (incl. unprocessed forest products, processed forest products and forest-related wage income); (ii) Environmental income (incl. non-forest environmental products, wild fish, and related wage income); (iii) Farm income (incl. income from crops, livestock, aquaculture, and related wage income); and (iv) Non-farm income (incl. non-farm wage income, business income, remittances, pension and other income). Total annual household income is aggregated from the four quarterly income estimates and adjusted using adult equivalent unit.

5.8.1 Overview of total annual household income in the three study sites

The average annual household income ranges from 2.33 million Riel (USD 573) to 2.78 million Riel (USD 684) in the three study sites. Not surprisingly, *farm income* is the major source of income in all three sites, contributing from 44% (Khampong Speu) to 60% (Kampot) of the annual household income. However, *forest income* also plays an important role in income generation; its share accounts for 34% of total income in Khampong Speu and 21-23% in the other two sites. The share of *environmental income* is relatively small in all three sites, accounting for 7-8% of total income in Khampong Speu and Kampot and 2% in Khampong Thom. The share of *non-farm income* varies across the sites; it is highest in Khampong Thom (23%), where it is slightly higher than forest income (21%), while it accounts for much less in Kampot (9%). The figure below shows the composition of the different income sources in each study site.

Figure 5.1: Total annual household share of income by source in the three sites, 2007-08



5.8.2 Total annual household income by income quartiles in each site

In Kampot (Table 5.14), there seems to be an increasing trend in share of forest income from 17% to 26% from the lowest to the top income group; in absolute terms forest income doubles between each quartile (thus being around eight times higher in the top quartile than the lowest quartile. The

major contribution is from unprocessed forest products, making up 51-73% of the total forest income. The importance of processed forest product income increases with total household income. Environmental income decreases with rising total income but is important for poorer half of households (constituting 12-13% of total income) – while the absolute value of environmental income in the top quartile is 2.4 times higher than in the bottom quartile. Farm income makes the biggest contribution to the total income (57% to 64%) in all quartiles. Income from crops is the major source of farm income; however, the relative importance declines with rising total income (from 46 to 30%) while livestock income increases (from 11 to 26%). Non-farm income is generally of less importance in the Kampot site, ranging from 7-11% of total income (with mean non-farm income six times higher in the top than the bottom quartile). Business (trade) income in the top quartile accounts for 69% of its non-farm income, which is 15 times higher in absolute value than the poorest households. Remittances, pension and other income sources contribute 4% of total income to the lowest income group, and are of less importance to other income groups but in absolute terms the top quartile receives more than three times that of the bottom quartile.

Table 5.14: Total annual household **(**n=190) absolute (Riel) and relative (%) income per adult equivalent unit by income source and quartile, Kampot site, 2007-08

Income source	Lowest 25%		25-50%		50-75%		Top 25%	
	Abs	Rel	Abs	Rel	Abs	Rel	Abs	Rel
Forest Income	**186637**	**17**	**382119**	**20**	**650722**	**22**	**1347209**	**26**
-Unprocessed forest products	137017	13	270410	14	361835	12	689959	13
-Processed forest products	43566	4	92723	5	253814	9	616081	12
-Wage (forest)	6054	1	18985	1	35073	1	41169	1
Environmental Income	**134742**	**13**	**236403**	**12**	**193084**	**7**	**317961**	**6**
-Non-forest products	86975	8	148093	8	120806	4	162085	3
-Fish	47767	4	88309	5	72278	2	155876	3
-Wage (environmental)	0	0	0	0	0	0	0	0
Farm Income	**653314**	**61**	**1166772**	**60**	**1869822**	**64**	**2950010**	**57**
-Crop income	495995	46	726559	37	1063772	36	1543172	30
-Livestock income	122561	11	390617	20	794239	27	1368987	26
-Aquaculture income	960	0	2538	0	1373	0	17016	0
-Wage (farm)	33798	3	47058	2	10438	0	20836	0
Non-farm Income	**93511**	**9**	**169688**	**9**	**212257**	**7**	**574199**	**11**
-Business income	26344	2	112389	6	117107	4	396163	8
-Remittances, pension & other	38428	4	26890	1	32310	1	128150	2
-Wage (non-farm)	28739	3	30408	2	62839	2	49886	1
Total income	**1068204**	**100**	**1954981**	**100**	**2925885**	**100**	**5189379**	**100**

In contrast, in Khampong Speu (Table 5.15) forest income plays a very important role and accounts for between 29% and 36% of total household income in the study site. In absolute value, forest income in Khampong Speu is also higher than in the other two sites across all income quartiles. Income from processed forest products is the major contributor (more than 60%) to forest income, except for the lowest quartile where unprocessed forest products are equally important. Environmental income accounts for 9% to 10% across the first three income quartiles, dropping to 4% for the top quartile. Farm income, however, remains the major income source contributing 42% to 46% of total income with a composition as in the Kampot site: declining importance of crop income with rising income and increasing importance of livestock income; in absolute terms, both crop and livestock income increases across income groups. Non-farm income accounts for 12 -16% of total income and is higher in both relative and absolute terms in the Khampong Speu site compared with households in Kampot. Poorer households seem to have less business income opportunities than richer groups and seem to rely more on non-farm wage income.

Table 5.15: Total annual household (n=196) absolute (Riel) and relative (%) income per adult equivalent unit by income source and quartile, Khampong Speu site, 2007-08

Income source	Lowest 25%		25-50%		50-75%		Top 25%	
	Abs	Rel	Abs	Rel	Abs	Rel	Abs	Rel
Forest Income	**269992**	**29**	**567271**	**36**	**817395**	**34**	**1543638**	**34**
-Unprocessed forest products	130553	14	162738	10	228944	9	534274	12
-Processed forest products	118907	13	355021	22	534226	22	958181	21
-Wage (forest)	20531	2	49512	3	54225	2	51182	1
Environmental Income	**80832**	**9**	**153878**	**10**	**208815**	**9**	**190390**	**4**
-Non-forest products	49513	5	82190	5	97416	4	101885	2
-Fish	31319	3	71689	5	111399	5	88504	2
-Wage (environmental)	0	0	0	0	0	0	0	0
Farm Income	**423512**	**46**	**668155**	**42**	**1051110**	**43**	**2043425**	**45**
-Crop income	303420	33	423129	27	574271	24	698701	15
-Livestock income	103882	11	240431	15	461257	19	1315808	29
-Aquaculture income	1	0	99	0	2	0	3	0
-Wage (farm)	16209	2	4497	0	15580	1	28912	1
Non-farm Income	**149052**	**16**	**193180**	**12**	**344412**	**14**	**732197**	**16**
-Business income	59018	6	73957	5	198440	8	558173	12
-Remittances, pension & other	26098	3	38507	2	54078	2	59191	1
-Wage (non-farm)	63937	7	80716	5	91894	4	114833	3
Total income	**923388**	**100**	**1582485**	**100**	**2421733**	**100**	**4509650**	**100**

In the Khampong Thom study site (Table 5.16), forest income also constitutes an important income source and accounts for 20% to 23% of total household income, although representing the lowest absolute value among all three study sites across all income quartiles. The major source of forest income is from unprocessed forest products. Forest related wage income contributes 8% to 10% to the total income in the three lower income groups, which is much higher than in the other two sites. Income from processed forest products gains importance in the top quartile. Environmental income is relatively small and its share drops from the lowest income quartile (7%) to the highest (1%). As in the other two study sites, farm income remains the major income source contributing 52% to 56% of the total income, with absolute farm income in the top income quartile nearly 10 times higher than in the lowest. Khampong Thom shows quite a different pattern in farm income sources, where crop income follows an increasing trend in both relative and absolute terms, while livestock income contributes less (and does not appear particularly important to the highest income quartile). It can also be observed that farm wages are much more important than in the other two sites for the three lower income groups, probably due to relatively large-scale employment in rubber plantations. Non-farm income is also important in Khampong Thom and accounts for 16% to 26% of total income. Business income is highest in share and absolute value among three study sites, making up 58% to 75% of the total non-farm income.

Table 5.16: Total annual household (n=192) absolute (Riel) and relative (%) income per adult equivalent unit by income source and quartile, Khampong Thom site, 2007-08

Income source	Lowest 25%		25-50%		50-75%		Top 25%	
	Abs	Rel	Abs	Rel	Abs	Rel	Abs	Rel
Forest Income	**127048**	**22**	**289235**	**23**	**413961**	**22**	**1136609**	**20**
-Unprocessed forest products	67772	12	138307	11	154486	8	529119	9
-Processed forest products	13227	2	31998	3	63441	3	457797	8
-Wage (forest)	46049	8	118930	10	196035	10	149693	3
Environmental Income	**38132**	**7**	**67901**	**5**	**40473**	**2**	**71304**	**1**
-Non-forest products	23760	4	36449	3	27571	1	35840	1
-Fish	12253	2	31452	3	12901	1	35464	1
-Wage (environmental)	2119	0	0	0	0	0	0	0
Farm Income	**297531**	**52**	**684638**	**55**	**1070174**	**56**	**2936486**	**52**
-Crop income	130748	23	389368	31	657997	35	2440755	44
-Livestock income	21063	4	138828	11	296529	16	406129	7
-Aquaculture income	0	0	127	0	207	0	6	0
-Wage (farm)	145720	25	156315	13	115441	6	89597	2

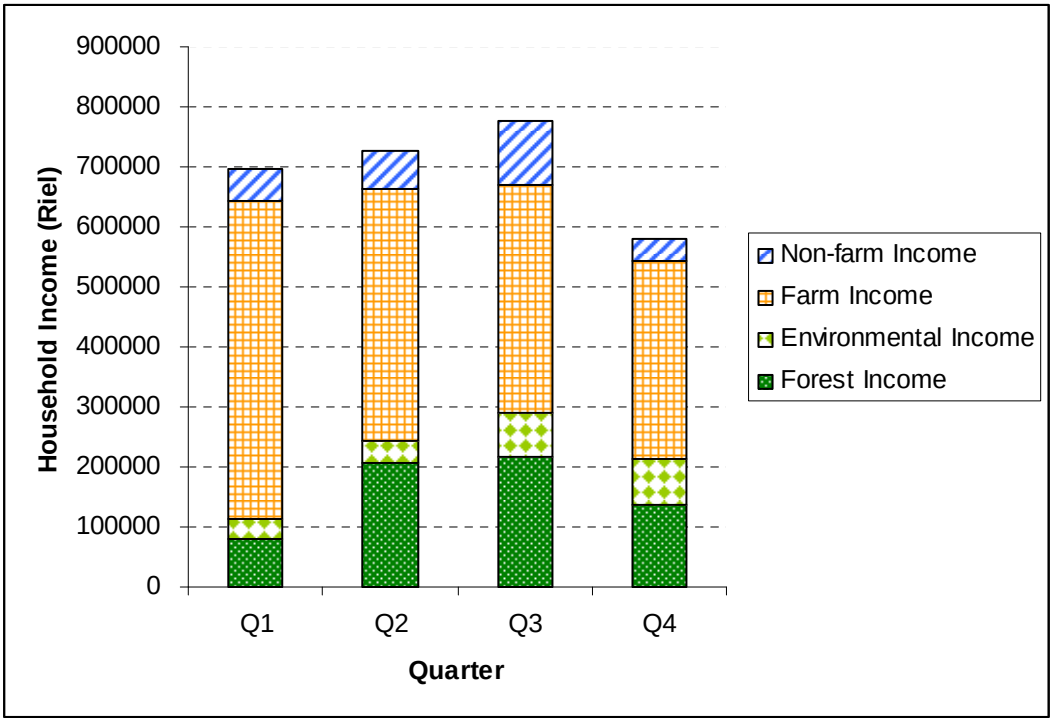
Income source	Lowest 25%		25-50%		50-75%		Top 25%	
	Abs	Rel	Abs	Rel	Abs	Rel	Abs	Rel
Non-farm Income	**112612**	**20**	**204707**	**16**	**374832**	**20**	**1453254**	**26**
-Business income	66314	12	149145	12	262500	14	1093443	20
-Remittances, pension & other	34166	6	30533	2	54924	3	224586	4
-Wage (non-farm)	12133	2	25029	2	57407	3	135224	2
Total income	**575324**	**100**	**1246481**	**100**	**1899439**	**100**	**5597653**	**100**

5.8.3 Seasonal changes in household income (by quarter)

As per the survey schedule (Table 3.2), the quarterly income includes income during the past three months, which means: Q1 (Oct to Dec 2007 – harvesting season and still in rainy season), Q2 (Jan to Mar 2008 – dry season), Q3 (Apr to Jun 2008 – Planting and start of raining season), and Q4 (Jul to Sep 2008 – raining season).

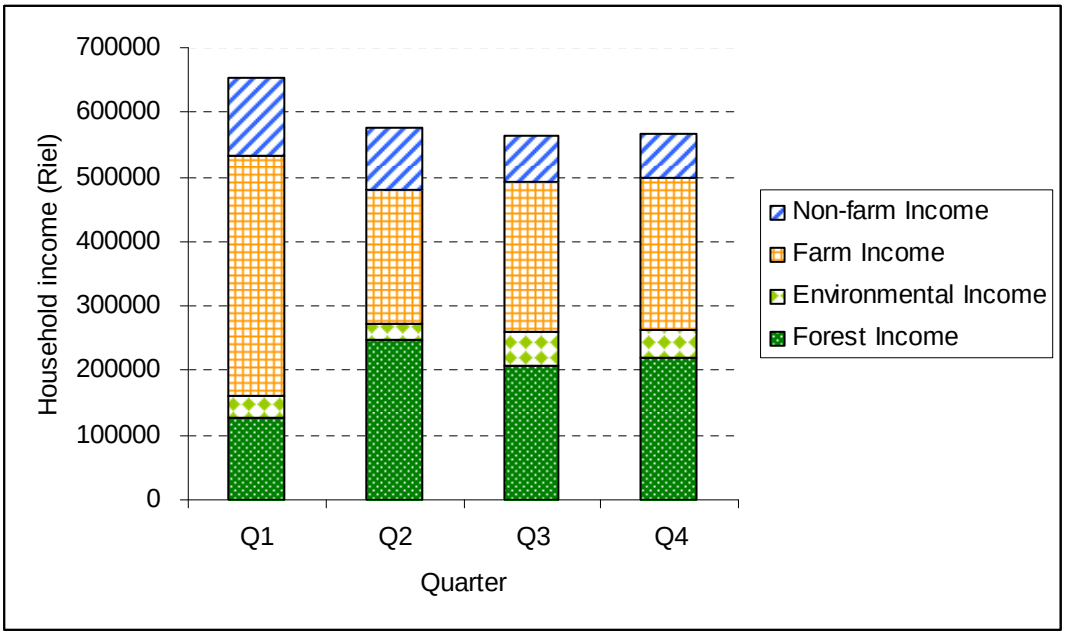
The average quarterly household income in the **Kampot** site is 695,247 Riel (USD 171). The graph (Figure 5.2) shows that total quarterly income increases from Q1 to Q3 where it reaches the highest value of 777,254 Riel (USD 191) with higher levels of forest, environmental and non-farm income, but relatively less farm income. Income drops dramatically in Q4 during the wet season to 580,378 Riel (USD 142) with non-farm and farm income being reduced. However, environmental income is at its highest; forest income also accounts for 23% of the quarterly total income. Household income mainly relies on farm income in all the seasons but its share varies from 49% in Q3 to 76% in Q1, whereas in absolute terms it decreases from Q1 to Q4. Crop income makes up to 84% of quarterly farm income in the harvesting season (Q1) and only about 42% to 46% during the other three quarters; livestock income shows the opposite pattern, increasing (26% to 32%) in quarters Q2, Q3 and Q4 and being lowest in Q1 (10%). Forest income accounts for 28% of total quarterly income during Q2 and Q3, and most probably comes from logging activities and NTFP collection during the dry season and after rice harvesting. Environmental income contributes more to household income in Q3 and Q4, and nearly twice as much in absolute terms compared with Q1 and Q2. It might also imply that livelihoods are more dependent on natural resources during the wet season and before crop harvesting.

Figure 5.2: Total annual household income by income source and quarter, Kampot site, 2007-08



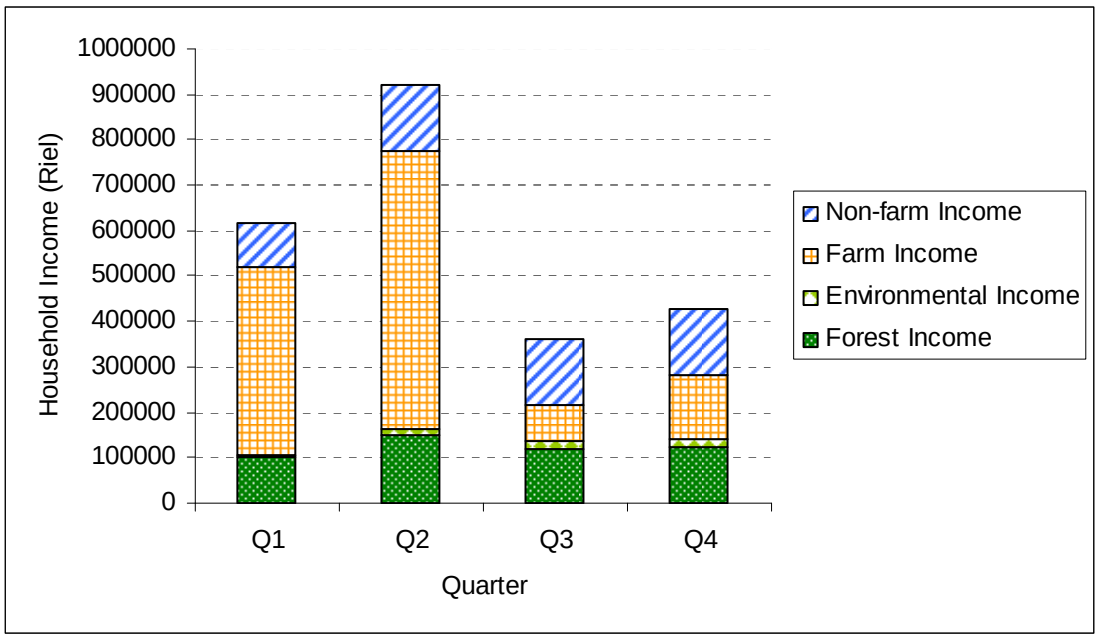
In **Khampong Speu**, survey results show the highest quarterly income (653,223 Riel equivalent to USD 160) during the harvesting season (Q1) with large contribution from farm income (57% of quarterly income) as well as high non-farm income (18%) but relatively less forest and environmental income as compared to other quarters. In subsequent quarters (Q2, Q3 and Q4), household income is maintained at the same level with an average of 568,679 Riel (USD 140); farm income reduces to around 40% of quarterly income with crop income dropping to 14%. Forest income in Khampong Speu plays a very important role during Q2 to Q4 and accounts for 37% to 43% of quarterly income and is even higher than farm income in Q2 and nearly equal in Q3 and Q4. In Khampong Speu, crop and livestock income show a similar pattern as in Kampot. Crop income makes up to 39% of quarterly income in the harvesting season (Q1) and drops to about 14% during the other three quarters, while livestock income is higher (21% to 26%) in later quarters (Q2, Q3 and Q4) than in Q1 (18%). Similarly, environmental income contributes more to household income in Q3 and Q4 compared with Q1 and Q2. It goes to demonstrate that livelihoods are more dependent on natural resources and livestock during the wet season and before crop harvesting. Income from business and trade shows a declining trend in its share from Q1 to Q4.

Figure 5.3: Total annual household income by income source and quarter, Khampong Speu, 2007-08



Data shows notable seasonal changes in the **Khampong Thom** site. The quarterly income (921,490 Riel equivalent to USD 227) achieved in Q2 is the highest among all three sites. However, income drops dramatically to the lowest in Q3 (362,358 Riel equivalent to USD 89) and Q4 (428,360 Riel equivalent to USD 105). This appears to be mainly due to a negative crop net income in Q3 and very little crop income in Q4, possible reasons being large investment costs during land preparation and in planting season. In Khampong Thom, households largely rely on farm income during Q1 and Q2 between harvesting season and the next planting season. During Q3 and Q4, non-farm and forest income contributes significantly to household income, the major source being business or trade income. Livestock income is also important during Q3 and Q4, although not so much in absolute terms. Environmental income has minor contribution throughout the year, though slightly higher in Q3 and Q4. Low forest and environmental income might imply that forest condition and/or accessibility in Khampong Thom is lower compared to the other two sites. The rubber plantation concession could also have an impact on household livelihoods and income inequality (loss of land, cultivation on sandy soils, etc.).

Figure 5.3: Total annual household income by income source and quarter, Khampong Thom, 2007-08



5.8.4 Frequency of participation in income generation activities

Although the relative importance of various income sources varies, it is interesting to note (Table 5.17) a generally high rate of participation (95% to 98%) of households in all sectors, implying high income diversification. Crop cultivation (97.1%), unprocessed forest products (96.9%) and non-forest environmental products (96.3%) are the income sources that are accessed by most households, followed by remittances, pension and other sources (89.5%), livestock raising (84.1%), and fishing (82.9%). In the Khampong Thom site, there is a relatively lower level of participation in farm, forest and environmental activities; however, participation in forest and farm wage labour activities are higher than in the other two sites, most probably due to job creation in rubber production activities.

Table 5.17: Observed access of households (in absolute numbers and percentages) to income sources, all three sites, 2007-08

Income source	Kampot		Khampong Speu		Khampong Thom		All sites	
	No. of HH	%	No. of HH	%	No. of HH	%	No. of HH	%
Forest	**187**	**98.42**	**195**	**99.49**	**186**	**96.88**	**568**	**98.27**
-Unprocessed forest products	188	98.95	192	97.96	180	93.75	560	96.89
-Processed forest products	99	52.11	143	72.96	84	43.75	326	56.40
-Wage (forest)	55	28.95	89	45.41	128	66.67	272	47.06
Environmental	**190**	**100.00**	**195**	**99.49**	**176**	**91.67**	**561**	**97.06**
-Non-forest environmental products	190	100.00	195	99.49	172	89.58	557	96.37
-Fish	182	95.79	178	90.82	119	61.98	479	82.87
-Wage (environmental)	0	0.00	0	0.00	1	0.52	1	0.17
Farm	**190**	**100.00**	**196**	**100.00**	**181**	**94.27**	**567**	**98.10**
-Crop	190	100.00	195	99.49	176	91.67	561	97.06
-Livestock	172	90.53	168	85.71	146	76.04	486	84.08
-Aquaculture	17	8.95	10	5.10	14	7.29	41	7.09
-Wage (farm)	89	46.84	58	29.59	161	83.85	308	53.29
Non-farm	**176**	**92.63**	**190**	**96.94**	**183**	**95.31**	**549**	**94.98**
-Business	76	40.00	84	42.86	95	49.48	255	44.12
-Remittances, pension and other	164	86.32	180	91.84	173	90.10	517	89.45
-Wage (non-farm)	58	30.53	84	42.86	66	34.38	208	35.99

6. Discussion and Conclusion

This working paper describes methods applied in empirical data collection for understanding micro-level livelihoods and forest reliance in Cambodia. It also provides an overview of contextual information from the three study sites and presents preliminary findings (many of which have been disseminated to and discussed with local communities).

6.1 Validity and reliability

Many socio-economic studies, such as those implemented using the PEN (Poverty Environmental Network) approach, use own reported value data for agricultural and environmental products (CIFOR-PEN, 2010). The reliability of these data can be discussed; it may be argued that respondents tend to over-estimate or under-estimate for a number of reasons such as respondent suspicion that data being collected will be used in tax assessment, for identification of households to be included in project to support the poor or the answers might be random guesses to please enumerators.

In order to facilitate the collection of high quality data, the same group of experienced enumerators were trained and employed to carry out the surveys, in the same sites, throughout the data collection process. Trust was built among the households and researchers. The field teams also explicitly shared observations and feedback to standardize and fine-tuning the applied approaches as well as validate answers; the latter was also pursued using the previous quarterly data sheets which were brought along in every round of survey (from Q2). According to the enumerators' post survey assessment, 92.8% of households surveyed were able to provide reliable information.

In total, 216 forest, non-forest environmental, agricultural and livestock products were collected or produced by the local communities studied. Many different units were reported by interviewees, values in local currency (Riel) were used to convert all reported units to standard units; however, measurement of physical quantities is a large task and was not undertaken. It was challenging to value the non-marketed subsistence products, whose values may vary across sites and seasons as well as with non-recorded quality differences, e.g. firewood can be composed of many different species. In general, analysis of distributional statistics for the own-reported values at product-level indicated satisfactory properties and that own-reported values can be used as price estimates.

Some households abandoned participation in the surveys, leading to a reduction of the initial 600 randomly selected households to 578 households with at least three quarterly surveys completed (an attrition rate of 3.6%) at the end of the survey. Attrition was across sites and households and did not appear to result in any systematic bias in the data.

6.2 Forest income and reliance

As shown in the result chapter, rural livelihoods in Cambodia depend very much on agricultural production, especially rice cultivation. However, forest income contributes 26% on average of the total annual household income, ranging from 21% to 34% across the three study sites. This confirms that environmental resources, especially forest products, are important for local livelihoods. Forests directly support current consumption through provision of products for subsistence use and income generation, and provision of job opportunities, e.g. through forest product processing, transport and wage labour. Generally, there is a very high rate (97.9% - 99.5%)

of household participation in forest-related income generation activities throughout the three study sites, collection of unprocessed forest products being particularly common. The main environmental products collected from forests (and other vegetation types) are firewood; wild vegetables; bamboo shoots; game meat (amphibians); and crabs, snails, shrimps and prawns.

As expected, absolute forest income increases from poorer to better-off households, with the top income quartile earning 6 to 9 times more forest income than the bottom quartile. As noted above, forest reliance was high throughout all sites and income quartiles; in Kampot, the relative importance of forest income increased from the lowest income quartile to the highest. And in Khampong Speu the poorest income quartile had the lowest level of forest reliance. It was also observed that forest and non-forest environmental income contributed more to household income in Q3 and Q4, i.e. when the total quarterly income is generally lower during the rainy season. This implies that environmental resources are important in supporting current consumption as well as contributing to food security during the wet season/before crop harvesting.

A number of household-level responses to dealing with shocks and crises were recorded. Interestingly, collection of forest products was mentioned as the second most common coping mechanism, indicating that forests are important to rural households when dealing with unexpected negative income events.

6.3 Policy implications

The results demonstrate the considerable economic significance of forest and non-forest environmental resources to rural livelihoods. They underline the importance of incorporating forest income into rural income accounting in future studies on poverty, and indicate that the role of forests and other environmental resources in preventing and reducing poverty may be far from fully utilize in development interventions.

Further analysis of the data is likely to allow the identification of operational, nation-wide or site specific, interventions for streamlining and integrating forests and non-forest environmental products and opportunities better into development planning processes, policies, and programmes to the benefit of rural communities and households.

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Appendices

A. PEN Khmer questionnaires
B. Common used local units and conversion factors
C. Codebook of units of measurement (unit-code)

Appendix A. PEN Khmer questionnaires

Danida-PEN Nov. 2007

PEN-Danida

Danida-PEN Prototype Questionnaire

*The prototype questionnaire gathers the information required in the common data bank (CDB) of PEN. The questionnaire **must** be used together with the Technical Guidelines, which define key concepts, elaborate and explain the questions, and specify common codes to be used (those in the "code-xxx" format in the questionnaire).*

*The wording of the questions as specified here **must** be maintained, making allowances, of course, for translation into other languages. Some minor wording changes, necessary to account for local circumstances, might be allowed at the discretion of the PEN coordinator and the PEN advisor at CIFOR. An approval is required for such changes. The reason for this rule is that deviations from the wording of the questions may invalidate future pooling, comparison, and contrasts among the various case study data sets.*

If the questions as currently worded do not adequately capture all the information the researchers seeks, it is recommended that one poses additional questions that are not part of this set of questions. Moreover, many researchers would like to add new sections reflecting the particular topic of their research.

Technical notes:
The numbers of the questions and lines and columns in the tables will be used to give each data cell a unique digital code, and should not be changed.
A star (*) indicates that cell information may not be entered into the database, but is used for ease of recording.
The following generic codes shall be used, although not being specified for each question:
– 8 (minus eight) is to be used to indicate that the question "does not apply" to the circumstances of the respondent(s).
– 9 (minus nine) is to be used for the alternative "I don't now" or '"The respondent doesn't know". Naturally, one should aim to minimize use of this response, but in some cases it's unavoidable.
Each PEN survey shall make its own list of appropriate local units (weight and volume), with codes to be used in the survey. See the Technical Guidelines for details.
The PEN Code List contains all the codes to be used, and must be used together with the questionnaire. The exception is the codes that apply only to single questions – these are included in the questionnaire itself.
Several tables in the quarterly survey are "empty", which means you should fill in the locally most relevant products and use as many rows as needed (see instructions in section 5.1 of the guidelines).

Country and Survey Information (C1)

ប្រទេស និង ពត៌មានអង្កេត (C1)

Note: One form should be filled out for each PEN study. (If a study covers more than one country, one should fill in one form per country.)

សំគាល់: កំរងសំណួរមួយ តម្រូវឱ្យបំពេញសំរាប់ការសិក្សាបែនតែមួយ (បើការសិក្សាមួយមានកន្លែងសិក្សាច្រើននៅប្រទេសផ្សេងៗគ្នា គេត្រូវតែបំពេញកំរងសំណួរមួយចំពោះប្រទេសមួយ) ។

1. Please provide the following information about the study area.

សូមផ្តល់ពត៌មានអំពីតំបន់សិក្សា ដូចខាងក្រោម :

1. Name of the country **ឈ្មោះប្រទេស**	Cambodia
2. Name of region(s) (province, state, etc.) **ឈ្មោះតំបន់សិក្សា (ខេត្ត)**	Kampot Province
3. Name of district(s) **ឈ្មោះស្រុក**	Chhouk District

Note: More country information (economic data, poverty, land categories) will be added to the PEN CDB by the PEN coordinators in collaboration with the PEN partners.

សំគាល់: ពត៌មានបន្ថែមអំពីប្រទេស (ទិន្នន័យសេដ្ឋកិច្ច ភាពក្រីក្រ ប្រភេទប្រើប្រាស់ដី) នឹងបញ្ចូលក្នុងមូលដ្ឋានទិន្នន័យរបស់ប្រទេសនោះដោយអ្នក សំរបសំរួលបែន តាមរយៈការសហការ ជាមួយដៃគូបែន ។

2. Please provide the following information about the timing of the surveys.

សូមផ្តល់ពត៌មាន អំពីពេលវេលានៃការអង្កេតដូចខាងក្រោម:

Survey **ការអង្កេត**	**Date** *(yyyymmdd)* ***កាលបរិច្ឆេទ (ឆ្នាំ ខែ ថ្ងៃ)***
Start of surveys **ការចាប់ផ្តើមអង្កេត**	
Completion of all surveys **ការបញ្ចប់វាល់ការអង្កេតទាំងអស់**	
Start of V1 **ការចាប់ផ្តើមអង្កេតភូមិ លើកទី១ (V1)**	
Start of V2 **ការចាប់ផ្តើមអង្កេតភូមិ លើកទី២ (V2)**	
Start of A1 **ការចាប់ផ្តើមអង្កេតគ្រួសារប្រចាំឆ្នាំ លើកទី១ (A1)**	
Start of A2 **ការចាប់ផ្តើមអង្កេតគ្រួសារប្រចាំឆ្នាំ លើកទី២ (A2)**	
Start of Q1 **ការចាប់ផ្តើមអង្កេតគ្រួសារប្រចាំត្រីមាស លើកទី១ (Q1)**	
Start of Q2 **ការចាប់ផ្តើមអង្កេតគ្រួសារប្រចាំត្រីមាស លើកទី២ (Q2)**	
Start of Q3 **ការចាប់ផ្តើមអង្កេតគ្រួសារប្រចាំត្រីមាស លើកទី៣ (Q3)**	

Start of Q4 **ការចាប់ផ្តើមអង្កេតគ្រួសារប្រចាំត្រីមាស លើកទី៤ (Q4)**	

Village Survey 1 (V1)

ការអង្កេតភូមិលើកទី ១ (V1)

Note: See the Technical Guidelines for the appropriate source of information and respondents for the various questions in the village surveys.

សំគាល់: សូមមើលគោលការណ៍ណែនាំបច្ចេកទេស ដើម្បីកំណត់ប្រភពពត៌មាន និង អ្នកឆ្លើយ សំរាប់សំណួរផ្សេងៗនៃការអង្កេតភូមិ ។

Control information

ពត៌មានត្រួតពិនិត្យ

Task **ភារកិច្ច**	**Date(s)** **កាលបរិច្ឆេទ**	**By who?** **ដោយនរណា?**	**Status OK? If not, give comments** **ស្ថានភាព ជោគជ័យ? បើទេ សូមផ្តល់ហេតុផល**
Meeting with officials **ការប្រជុំជាមួយមន្ត្រី**			
Village/focus group meetings **ការប្រជុំជាមួយអ្នកភូមិ ឬ ជាក្រុមបង្គោល**			
Other interviews **ការសំភាសន៍ផ្សេងទៀត**			
Checking questionnaire **ការពិនិត្យពិច័យកំរងសំណួរ**			
Coding questionnaire **ការចុះកូដកំរងសំណួរ**			
Entering data **ការបញ្ចូលទិន្នន័យ**			
Checking & approving data entry **ការពិនិត្យពិច័យនិងអនុម័តទិន្នន័យបញ្ចូល**			

A. Geographic and climate variables

អំពីភូមិសាស្ត្រ និង ធាតុអាកាស

What is the name of the village? **តើភូមិនេះឈ្មោះអ្វី?**	*1. (name)* ***(ឈ្មោះ)***	*2. (village code)* ***(កូដភូមិ)***
What are the GPS coordinates of the centre of the village? (UTM format) **តើកូអរដោនេរនៃចំណុចកណ្តាលភូមិប៉ុន្មាន? (ជា UTM)**		
What is the latitude of the village? **តើរយៈទទឹងរបស់ភូមិប៉ុន្មាន?**		***degrees*** *ដឺក្រេ*
What is the longitude of the village? **តើរយៈបណ្តោយរបស់ភូមិប៉ុន្មាន?**		***degrees*** *ដឺក្រេ*
What is the altitude (masl) of the village? **តើរយៈកំពស់របស់ភូមិ (ធៀបនឹងនីវ៉ូទឹកសមុទ្រ) ប៉ុន្មាន?**		***masl*** *ម៉ែត្រ*
What has been the average annual rainfall (mm/year) in the district during the past 20 years (or less, see guidelines)?		***mm/year***

តើរយៈកំពស់ទឹកភ្លៀង ក្នុងរយៈពេល ២០ឆ្នាំកន្លងមក (ឬពេលតិចជាងនេះ) ប៉ុន្មាន (មើលគោលការណ៍ណែនាំ)? (*មម/ឆ្នាំ*)	*មម/ឆ្នាំ*
What is the coefficient of variation in rainfall for the past 20 years? *(Note: To be filled in if data are readily available.)* តើមេគុណបំរែបំរួលកំពស់ទឹកភ្លៀងក្នុងរយៈ ២០ឆ្នាំកន្លងមកប៉ុន្មាន? (*សំគាល់: បំពេញក្នុងករណី បើមានមិន្នន័យ*)	

B. Demographics

ប្រជាសាស្ត្រ

In what year was the village established in this site? តើភូមិនេះ បានបង្កើតកាលពីឆ្នាំណា?	
What is the current population of the village? តើពេលនេះ ភូមិនេះមានប្រជាជនប៉ុន្មាននាក់?	***persons*** *នាក់*
How many households live currently in this village? តើពេលនេះ ភូមិនេះមានប្រជាជនប៉ុន្មានគ្រួសារ?	***households*** *គ្រួសារ*
What was the total population of the village 10 years ago? តើកាលពី ១០ ឆ្នាំមុន ភូមិនេះមានប្រជាជនប៉ុន្មាននាក់?	***persons*** *នាក់*
How many households lived in the village 10 years ago? តើកាលពី ១០ ឆ្នាំមុន ភូមិនេះមានប្រជាជនប៉ុន្មានគ្រួសារ?	***households*** *គ្រួសារ*
How many persons (approx.) living here now have moved to the village in the past 10 years (in-migration)? តើមានប្រជាជនចំនួនប៉ុន្មាននាក់ (ប្រហែល) បានចូលមករស់នៅភូមិនេះកាលពី ១០ឆ្នាំ មុន (ចំណូលស្រុក)?	***persons*** *នាក់*
How many persons (approx.) have left the village over the past 10 years (out-migration)? តើមានប្រជាជនចំនួនប៉ុន្មាននាក់ (ប្រហែល) បានចេញពីភូមិនេះកាលពី ១០ឆ្នាំ មុន (ចំណាកស្រុក)?	***persons*** *នាក់*
How many different groups (ethnic groups, tribes or castes) are living in the village? តើមានក្រុមមនុស្ស (ជនជាតិភាគតិច អំបូរផ្សេងគ្នា) ចំនួនប៉ុន្មានប្រភេទរស់នៅក្នុងភូមិនេះ?	

C. Infrastructure

សេដ្ឋារមនាសម្ព័ន្ធ

How many households (approx.) in the village have access to electricity (from public or private suppliers)? តើក្នុងភូមិមានគ្រួសារចំនួនប៉ុន្មាន (ប្រហែល) ដែលមានអគ្គិសនីប្រើ (ប្រភពពីរដ្ឋ ឬ ឯកជន)?	***households*** *គ្រួសារ*
How many households (approx.) in the village have access to (= use) piped tap water? តើក្នុងភូមិមានគ្រួសារចំនួនប៉ុន្មាន (ប្រហែល) ដែលប្រើទឹកម៉ាស៊ីន?	***households*** *គ្រួសារ*

2a. How many households (approx.) in the village have access to ground water? **តើក្នុងភូមិមានគ្រួសារចំនួនប៉ុន្មាន (ប្រហែល) ដែលប្រើទឹកអណ្តូង ឬទឹកក្នុងដី?**		***households*** *គ្រួសារ*		
How many households (approx.) have access to formal credit (government or private bank operating in the village)? **តើក្នុងភូមិមានគ្រួសារចំនួនប៉ុន្មាន (ប្រហែល) ដែលទទួលឥណទានពីធនាគារ (ធនាគាររដ្ឋឬឯកជន ប្រតិបត្តិក្នុងភូមិ)?**		***households*** *គ្រួសារ*		
Are *informal*credit institutions such as savings clubs and money lenders present in the village? **តើមានគ្រឹះស្ថានឥណទាន *មិនផ្លូវការ* ឬ បុគ្គលដែលឱ្យខ្ចីលុយនៅក្នុងភូមិឬទេ?**		***(1-0)***		
Is there any health centre in the village? **តើមានមណ្ឌលសុខភាពនៅក្នុងភូមិឬទេ?**		***(1-0)***		
Does the village have at least one road useable by cars during all seasons? ***If 'yes', go to 8.*** **តើភូមិមានផ្លូវយ៉ាងតិចមួយ ដែលអាចអោយរថយន្តបើកបរពេញមួយឆ្នាំឬទេ?** *បើមាន ឆ្លងទៅលេខ ៨*		***(1-0)***		
If 'no': what is the distance in kilometers to the nearest road usable during all seasons? **បើគ្មាន តើផ្លូវដែលអាចអោយរថយន្តបើកបរបានពេញមួយឆ្នាំ ស្ថិតនៅចំងាយប៉ុន្មានគីឡូម៉ែត្រពីភូមិ?**		***km*** *គ.ម*		
Is there a river within the village boundaries that is navigable during all seasons? ***If 'yes', go to 10.*** **តើមានស្ទឹង ដែលអាចអោយកាណូតឬទូកបើកបរបានពេញមួយឆ្នាំ នៅក្នុងបរិវេណភូមិឬទេ?** *បើមាន ឆ្លងទៅលេខ ១០*		***(1-0)***		
If 'no': what is the distance to the nearest river that is navigable during all seasons? **បើគ្មាន តើស្ទឹងដែលអាចអោយកាណូតឬទូកបើកបរបានពេញមួយឆ្នាំ ស្ថិតនៅចំងាយប៉ុន្មានពីភូមិ?**		***km*** *គ.ម*		
What is the distance from the village centre to the nearest … **(in *km* and in *minutes* by *most common means of transport*)** **តើចំងាយប៉ុន្មានពីចំណុចកណ្តាលភូមិទៅកន្លែងដែលជិតជាងគេ ...** *(គិតជា គ.ម. និង នាទី ដោយមធ្យោបាយធ្វើដំណើរដែលនិយមជាងគេ)*		**1. km** គ.ម	**2. min** នាទី	***3. code-transport*** *កូដមធ្យោបាយធ្វើដំណើរ*
	district market **ផ្សារស្រុក**			
	market for major consumption goods **ផ្សារមានទំនិញប្រើប្រាស់សំខាន់ៗ**			
	market where agric. products are sold **ផ្សារដែលអាចលក់ផលិតផលកសិកម្ម**			

	market where forest products are sold **ផ្សារដែលអាចលក់ផលិតផលព្រៃឈើ**			

D. Forest and land cover/use

ព្រៃឈើ និង គំរបដីឬការប្រើប្រាស់ដី

1. Land categories in the village (approx. area in hectares).
Note: See the Technical Guidelines for definition of land and ownership categories.

ប្រភេទប្រើប្រាស់ដីនៅក្នុងភូមិ (ប៉ាន់ស្មានផ្ទៃដី ជាហិកតា)

<u>សំគាល់</u>: មើលគោលការណ៍ណែនាំបច្ចេកទេស អំពីនិយមន័យនៃប្រភេទប្រើប្រាស់ដីនិងម្ចាស់កម្មសិទ្ធិដី

1. Land category *(code-land)* ***ប្រភេទប្រើប្រាស់ដី (កូដដី)***	**2. Total area** (ha) **ផ្ទៃដីសរុប (ហត)**	**Ownership** (ha) **ម្ចាស់កម្មសិទ្ធិ (ហត)**			
		3. State **រដ្ឋ**	**4. Community** **សហគមន៍**	**5. Private** **ឯកជន**	**6. Open access** (*de facto*) ***សាធារណៈ***
Forest: ព្រៃឈើ					
Natural forest **ព្រៃធម្មជាតិ**					
Managed forests **ព្រៃរៀបចំ**					
Plantations **ព្រៃដាំ**					
Agricultural land: **ដីកសិកម្ម**					
Cropland **ដីដំណាំ (ដីស្រែ និង ចំការ)**					
Pasture (natural or planted) **ដីវាលស្មៅសំរាប់សត្វ (ធម្មជាតិ ឬដាំ)**					
Agroforestry **កសិ-រុក្ខកម្ម**					
Silvipasture **វាលស្មៅវិប្បកម្ម**					
Fallow **ព្រៃរេចរិល**					
Other land categories: ប្រភេទប្រើប្រាស់ដីផ្សេងទៀត					
Shrubs **ព្រៃគម្លាត**					

Grassland **ដីវាលស្មៅ**					
Residential areas, infrastructure **ដីលំនៅដ្ឋាន ហេដ្ឋារចនាសម្ព័ន្ធ**					
Wetland **ដីសើម**					
Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**					
Total land *ផ្ទៃដីសរុប*					

2. What are the main forest types, users and products in the village?
Note: The purpose is to link forest types, users and products. See the Technical Guidelines for further elaboration.
Note: The total forest area should be the same as in the above table.

តើមានប្រភេទព្រៃឈើសំខាន់ៗអ្វីខ្លះ, អ្នកប្រើប្រាស់ និង ផលិតផលសំខាន់ៗណាខ្លះ នៅក្នុងភូមិ?

<u>សំគាល់:</u> គោលបំណងនៃសំណួរនេះគឺ ដើម្បីភ្ជាប់ទំនាក់ទំនងរវាងប្រភេទព្រៃឈើ អ្នកប្រើប្រាស់ និង ផលិតផល ។ មើលគោលការណ៍ណែនាំបច្ចេកទេស ដើម្បីទទួលបានសេចក្តីលំអិតបន្ថែម ។

សំគាល់: ផ្ទៃដីព្រៃឈើសរុបត្រូវតែដូចគ្នានឹងផ្ទៃដីព្រៃឈើក្នុងតារាងខាងលើ ។

1.Type of forest *(code- forest)* **ប្រភេទព្រៃឈើ** *(កូដព្រៃឈើ)*	**2.Ownership** *(code-tenure)* **ម្ចាស់កម្មសិទ្ធិ** *(កូដម្ចាស់កម្មសិទ្ធិ)*	**3.Approx. area** *(ha)* **ផ្ទៃដីប្រហាក់ប្រហែល** *(ហត)*	**Main users[1)] (max. 3)** **អ្នកប្រើប្រាស់សំខាន់ៗ** [1] *(ច្រើនបំផុត ៣)*			**Main products (max. 3)** *(code-product)* **ផលិតផលសំខាន់ៗ** *(ច្រើនបំផុត ៣)* *(កូដផលិតផល)*		
			4.Rank1 **លំដាប់ ១**	**5.Rank2** **លំដាប់ ២**	**6.Rank3** **លំដាប់ ៣**	**7.Rank1** **លំដាប់ ១**	**8.Rank2** **លំដាប់ ២**	**9.Rank3** **លំដាប់ ៣**

By "main users" is meant those who have acquired the highest value of forest products (subsistence and cash) from a given forest type ***in the past 12 months****.*

" អ្នកប្រើប្រាស់សំខាន់ៗ " គឺផ្តោតទៅលើអ្នកណាដែលទទួលបានផលិតផលព្រៃឈើដែលមានតម្លៃខ្ពស់ជាងគេ (សំរាប់ផ្គត់ផ្គង់គ្រួសារ និងលក់) ពីប្រភេទព្រៃឈើណាមួយក្នុងរយៈពេល ១២ខែ កន្លងមក ។

Codes: Choose the most appropriate among the following groups (as some do overlap):
villagers that are members of FUG;
villagers not members of FUG;
subsistence oriented users in the village;
small-scale commercial users in the village;
large-scale commercial users in the village;

subsistence oriented users from outside the village;
small-scale commercial users from outside the village;
large-scale commercial users from outside the village;
other, specify:

កូដ: សូមជ្រើសរើសកូដដែលសមស្របបំផុតពី បណ្តាចំណុចខាងក្រោម (មួយចំនួនដូចគ្នា)

១=អ្នកភូមិដែលជាសមាជិករបស់ "ក្រុមប្រើប្រាស់ព្រៃឈើ" (Forest User Group)

២=អ្នកភូមិដែលមិនមែនជាសមាជិករបស់ "ក្រុមប្រើប្រាស់ព្រៃឈើ"

៣=សំរាប់ប្រើប្រាស់ជាលក្ខណៈគ្រួសារនៅក្នុងភូមិ

៤=ប្រើប្រាស់សំរាប់ពាណិជ្ជកម្មខ្នាតតូចនៅក្នុងភូមិ

៥=ប្រើប្រាស់សំរាប់ពាណិជ្ជកម្មខ្នាតធំនៅក្នុងភូមិ

៦=សំរាប់ប្រើប្រាស់ជាលក្ខណៈគ្រួសាររបស់អ្នកមកពីក្រៅភូមិ

៧=ប្រើប្រាស់សំរាប់ពាណិជ្ជកម្មខ្នាតតូចរបស់អ្នកមកពីក្រៅភូមិ

៨=ប្រើប្រាស់សំរាប់ពាណិជ្ជកម្មខ្នាតធំរបស់អ្នកមកពីក្រៅភូមិ

៩=ផ្សេងទៀត សូមបញ្ជាក់

3. Does the village practice any form of active and deliberate forest management?
តើអ្នកភូមិអនុវត្តការគ្រប់គ្រងព្រៃឈើ ដែលគួរឱ្យកត់សំគាល់ឬទេ?

Type of management ប្រភេទនៃការគ្រប់គ្រង	**Code[1)]** **កូដ[1]**
Planting of trees **ការដាំដើមឈើ**	
Cutting down undesired (competing) trees **ការកាប់ប្រភេទឈើដែលមិនចង់បានចោល (ដោយសារការប្រជែងគ្នា)**	
Protecting certain desired (patches of) trees in the forest to promote the natural regeneration of these species **ការពារប្រភេទឈើជាក់លាក់ដែលចង់បាននៅក្នុងព្រៃឈើ ដើម្បីជំរុញឱ្យមានការដុះដើមឈើទាំងនោះឡើងវិញដោយធម្មជាតិ**	
Protecting areas of forest for particular environmental services, like water catchment **តំបន់ព្រៃឈើការពារសំរាប់គោលបំណងសេវាកម្មបរិស្ថាន ដូចជាទីជំរាល**	
Establishing clear use rights for a limited number of people to particular forest products (e.g., honey trees) **ការចែកសិទ្ធិប្រើប្រាស់មានកំណត់ច្បាស់លាស់ចំពោះជនមួយចំនួនលើការប្រើប្រាស់ផលព្រៃឈើ (ដើមឈើសំរាប់ឃ្មុំ)**	
Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**	

1) Codes: 0=no, not at all; 1=yes, but only to a limited extent; 2=yes, they are common.

កូដ: ០=គ្មាន ឬ គ្មានសោះ, ១=មាន ប៉ុន្តែមានដោយកម្រ, ២=មានជាទូទៅ

E. Forest resource base

ទូលដ្ឋានធនធានព្រៃឈើ

Note: The questions should be asked in a village meeting or focus group for each of the categories in turn (i.e. column by column, and not row by row).

<u>សំគាល់</u>:សំណួរនេះគួរសួរនៅពេលប្រជុំក្នុងភូមិ ឬ ប្រជុំក្រុមបង្គោលតាមប្រភេទផលនីមួយៗ (គឺត្រូវបំពេញសំណួរតាមជួរឈរ មិនមែនតាមជួរដេកទេ)

		1. Fire-wood or charcoal អុស ឬ ធ្យូង	2. Timber or other wood ឈើហ៊ុបឬឈើផ្សេងទៀត	3. Food from the forest អាហារទទួលពីព្រៃឈើ	4.Medicine from the forest ឱសថទទួលពីព្រៃឈើ	5.Forage from the forest ចំណីសត្វទទួលពីព្រៃឈើ	6. Other[1)] ផ្សេងទៀត[1]
1. What is the most important product (MIP) for the livelihood of the people in the village (in this category)? [2)] ***(name)*** **តើផលិតផលអ្វីសំខាន់ជាងគេ (MIP) សំរាប់ជីវភាពអ្នកភូមិ (នៅតាមប្រភេទផលនីមួយៗ)**[2] *(ចូរផ្តល់ឈ្មោះ)*							
2. ***(code-product)*** *កូដផលិតផល*							
3. How has availability of the MIP changed over the past 5 years? ***Codes: 1=declined; 2=about the same; 3=increased*** **តើភាពរកបាននៃ MIP មានការប្រែប្រួលយ៉ាងណាក្នុងរយៈពេល ៥ឆ្នាំ កន្លងមកនេះ?** *កូដ: ១=ថយចុះ, ២=នៅដដែល, ៣=កើនឡើង*							
4. If the availability of the MIP in this category has **declined**, what are the reasons? *Please rank the most important reasons, max. 3 (leave rest blank).* **បើ MIP ថយចុះ តើដោយសារមូលហេតុអ្វី?** ***សូមផ្តល់មូលហេតុសំខាន់ជាងគេតាមលំដាប់ចំនួនអតិបរិមា ៣ យ៉ាងច្រើន (ទុក ប្រអប់ផ្សេងទៀតអោយ***	**Reason** **មូលហេតុ**	**Rank** **លំដាប់ 1-3**	**Rank** **លំដាប់ 1-3**	**Rank** **លំដាប់ 1-3**	**Rank** **លំដាប់ 1-3**	**Rank** **លំដាប់ 1-3**	**Rank** **លំដាប់ 1-3**
	Reduced forest area due to small-scale clearing for agriculture **ដីព្រៃឈើថយចុះដោយសារការរុករានធ្វើកសិកម្មខ្នាតតូច**						
	Reduced forest area due to large-scale projects (plantations, new settlements, etc.) **ដីព្រៃឈើថយចុះដោយសារតំរោងអភិវឌ្ឍន៍ធំៗ (ដាំឈើ ការតាំងលំនៅដ្ឋានថ្មីៗ ។ល។)**						
	Reduced forest area due to people from outside buying land and restricting access **ដីព្រៃឈើថយចុះដោយសារអ្នកមកពីក្រៅទិញដី និងឃាត់ឃាំងមិនឱ្យចូល**						

នៅចំហ)	Increased use of MIP due to more local (village) people collecting more **ការប្រើប្រាស់ MIPកើនឡើងដោយសារអ្នកភូមិកាន់តែច្រើនប្រមូលវា**						
	Increased use of MIP due to more people from other villages collecting more **ការប្រើប្រាស់ MIPកើនឡើងដោយសារអ្នកមកពីក្រៅកាន់តែច្រើនប្រមូលវា**						
	Restrictions on use by central or state government (e.g., for forest conservation) **ការរឹតបន្តឹងមិនឱ្យប្រើប្រាស់ដោយសាររដ្ឋាភិបាល (ដូចជាទុកព្រៃដើម្បីអភិរក្ស)**						
	Local restrictions on forest use (e.g., community rules) **ការរឹតបន្តឹងមិនឱ្យប្រើប្រាស់នៅទីងតំបន់ (ឧ. ច្បាប់សហគមន៍)**						
	Climatic changes, e.g., drought and less rainfall **ការប្រែប្រួលធាតុអាកាស ដូចជារាំងស្ងួត មិនសូវមានទឹកភ្លៀង**						
	Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**						
5. If the availability of the MIP in this category has **increased**, what are the reasons? *Please rank the most*	**Reason** **មូលហេតុ**	**Rank** **លំដាប់ 1-3**	**Rank** **លំដាប់ 1-3**	**Rank** **លំដាប់ 1-3**	**Rank** **លំដាប់ 1-3**	**Rank** **លំដាប់ 1-3**	**Rank** **លំដាប់ 1-3**
	Less clearing of forests for agriculture (incl. pastoralism) **ការរានព្រៃសំរាប់កសិកម្មមានការថយចុះ (រួមទាំងការបង្កើនវាលស្មៅ)**						

important reasons, max. 3. **បើ MIP មានការកើនឡើង តើដោយមូលហេតុអ្វី?** ***សូមផ្តល់មូលហេតុសំខាន់ជាងគេតាមលំដាប់ចំនួនអតិបរិមា ៣***	Fewer local (village) people collecting less **ការប្រមូលផលព្រៃឈើដោយអ្នកភូមិថយចុះ**						
	Fewer people from other villages collecting less **អ្នកមកពីក្រៅភូមិមានតិចតួចប្រមូលផលកាន់តែតិចឡើងៗ**						
	Reduced use from large-scale commercial users/projects **ការប្រើប្រាស់ដោយគំរោងពាណិជ្ជកម្មធំៗមានការថយចុះ**						
	Changes in management of forests **ការផ្លាស់ប្តូរលើការគ្រប់គ្រងព្រៃឈើ**						
	Climatic changes, e.g., more rainfall **ការប្រែប្រួលអាកាសធាតុ ឧ. មានភ្លៀងច្រើន**						
	Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**						
6. What would be most important to increase the benefits (use or income) from the MIP? *Please rank the most important reasons, max. 3.* **តើសកម្មភាពណាមួយដែលសំខាន់ជាង**	**Action** សកម្មភាព	**Rank** លំដាប់ **1-3**	**Rank** លំដាប់ **1-3**	**Rank** លំដាប់ **1-3**	**Rank** លំដាប់ **1-3**	**Rank** លំដាប់ **1-3**	**Rank** លំដាប់ **1-3**
	Better access to the forest/MIP, i.e., more use rights to village **ការប្រើប្រាស់ព្រៃឈើ/MIP កាន់តែបើកចំហរ ឧ. ការផ្តល់សិទ្ធិច្រើនឡើងដល់អ្នកភូមិ**						
	Better protection of forest/MIP (avoid overuse) **ការការពារព្រៃឈើ/MIP មានការប្រសើរឡើង (ចៀសវាងការប្រើប្រាស់ហួសហេតុ)**						

គេដើម្បីបង្កើនផលចំណេញ (ការប្រើប្រាស់ ឬ កំរៃ) ពី MIP? ***សូមផ្តល់មូលហេតុសំខាន់ជាងគេតាមលំដាប់ចំនួនអតិបរិមា ៣***	Better skills and knowledge on how to collect/use it **ទេពកោសល្យនិងចំណេះដឹងប្រសើរឡើងក្នុងការប្រមូល/ប្រើប្រាស់ផល**						
	Better access to credit/ capital and equipment/ technology **ការទទួលទុន/ប្រាក់ដើម និងសំភារៈ/បច្ចេកទេសមានការប្រសើរឡើង**						
	Better access to markets and reduced price risk **ការប្រសើរឡើងនៃទីផ្សារ និងការថយចុះហានិភ័យនៃការប្រែប្រួលតម្លៃ**						
	9. Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**						

1) Select the most important product for the village that does not fall into any of the other five categories.
ជ្រើសរើសផលិតផលសំខាន់ជាងគេចំពោះអ្នកភូមិ ដែលមិនស្ថិតនៅក្នុងប្រភេទផលដែលបានរាយក្នុងជួរឈរទាំងប្រាំផ្សេងទៀត ។

2) "Most important" is defined as the most important for the wellbeing of the village, whether it be through direct use in the home, or through sale for cash, or both. MIP can range from a product group (such as firewood) to a single species (such as a very important species used for firewood).
"សំខាន់ជាងគេ" គឺផលិតផលសំខាន់បំផុតចំពោះសុខមាលភាពអ្នកភូមិ បើទោះបីជាវាសំរាប់ប្រើប្រាស់ ឬលក់យកប្រាក់ ឬក៏ទាំងពីរករណី ។ MIP អាចមានតាំងពីក្រុមប្រភេទឈើ (ដូចជាអុស) រហូតដល់ប្រភេទឈើ (ដូចជាប្រភេទឈើសំរាប់ធ្វើអុស) ។

F. Forest institutions

គ្រឹះស្ថានព្រៃឈើ

Note: The questions should be asked in a village meeting or focus group for each of the categories in turn (i.e., column by column, and not row by row).
Note: The MIP in each category should be identical to those in the table above.
<u>សំគាល់:</u> សំណួរនេះគួរសួរនៅពេលប្រជុំក្នុងភូមិ ឬ ប្រជុំក្រុមបង្គោល តាមប្រភេទផលនីមួយៗ (គឺត្រូវបំពេញសំណួរតាមជួរឈរ មិនមែនតាមជួរដេកទេ)

<u>សំគាល់:</u> ចំពោះ MIP នៅក្នុងប្រភេទផលនីមួយៗគួរតែឱ្យមានសង្គតភាព (ស៊ីគ្នា) ទៅនឹងតារាងខាងលើ ។

	1. Fire-wood or charcoal អុស ឬ ធ្យូង	**2. Timber or other wood ឈើប៊ិប ឬ ឈើផ្សេងទៀត**	**3. Food from the forest អាហារទទួលពីព្រៃឈើ**	**4. Medicine from the forest ឱសថទទួលពីព្រៃឈើ**	**5. Forage from the forest ចំណីសត្វទទួលពីព្រៃឈើ**	**6. Other[1)] ផ្សេងទៀត[9]**

What is the most important product (MIP) for the livelihood of the people in the village (in this category)? *(name)* **តើផលិតផលអ្វីសំខាន់ជាងគេ (MIP) សំរាប់ជីវភាពអ្នកភូមិ (តាមប្រភេទផលិតផលនីមួយៗ) *(ចូរផ្តល់ឈ្មោះ)***						
(code-product) ***កូដផលិតផល***						
In what type of forest do you get the MIP? *(code-forest)* **តើអ្នកប្រមូល MIP ពីប្រភេទព្រៃណាខ្លះ? *(កូដព្រៃ)***						
What is the ownership status of this forest *(code-tenure)* **តើស្ថានភាពកម្មសិទ្ធិព្រៃឈើទាំងនេះមានលក្ខណៈបែបណា? *(កូដកម្មសិទ្ធិ)***						
Are there customary rules regulating the use of the MIP in the village? ***Codes: 0=none/very few; 1=yes, but vague/unclear; 2=yes, clear rules exist*** ***If code '0', go to 7.*** **តើមានរបៀបគ្រប់គ្រង ជាប្រពៃណីលើការប្រើប្រាស់ MIP នៅក្នុងភូមិឬទេ?** *កូដ: ០=គ្មាន/មានតិចតួច, ១=មានតែមិនសូវច្បាស់លាស់, ២=មាន មានច្បាប់ច្បាស់លាស់* *បើកូដ ០ សូមឆ្លងទៅលេខ ៧*						
If 'yes': are the *customary* rules regarding forest use enforced /respected by the population of the village?[1)] បើមាន:**តើច្បាប់*ប្រពៃណី*លើការប្រើប្រាស់ព្រៃឈើទាំងនោះ ត្រូវបានអ្នកភូមិអនុវត្ត ឬ គោរពទេ?[1]**						
Are there *government* rules that regulate forest use? ***Codes: 0=none/very few; 1=yes, but vague/unclear; 2=yes, clear rules exist*** ***If code '0', go to 9.*** **តើមានច្បាប់*រដ្ឋ*សំរាប់គ្រប់គ្រងលើការប្រើប្រាស់ព្រៃឈើឬ ទេ?** កូដ: ០=គ្មាន/មានតិចតួច, ១=មាន តែមិនសូវច្បាស់លាស់, ២=មាន មានច្បាប់ច្បាស់លាស់ បើកូដ ០ ឆ្លងទៅលេខ ៩						
If 'yes' (code '1' or '2' above): are the *government* rules enforced/respected by the members in the village?[1)] បើមាន (កូដ ១ ឬ ២ ខាងលើ): **តើច្បាប់*រដ្ឋ*ទាំងនោះត្រូវបានអ្នកភូមិអនុវត្ត ឬ គោរពទេ?[1]**						
Do the villagers require any permission to						

harvest the MIP? ***Codes: 0=no; 1=yes, users have to inform the authorities; 2=yes, written permission needed*** ***If code '0', go to next section.*** **តើអ្នកភូមិត្រូវការការអនុញ្ញាតមុននឹងប្រមូលផល MIP ឬទេ?** *កូដ : ០=ទេ, ១=សុំ, អ្នកភូមិត្រូវជំរាប រដ្ឋអំណាច, ២=អ្នកភូមិត្រូវសុំលិខិតជាលាយលក្ខអក្សរ បើកូដ ០ ឆ្លងទៅផ្នែកបន្ទាប់*						
If 'yes' (code '1' or '2' above): does the user have to pay for the permission? បើសុំ (កូដ ១ ឬ ២ ខាងលើ): **តើអ្នកភូមិ (អ្នកប្រមូល) ត្រូវបង់ថ្លៃសុំលិខិតអនុញ្ញាតឬទេ?**	***(1-0)***	***(1-0)***	***(1-0)***	***(1-0)***	***(1-0)***	***(1-0)***
If 'yes': who issues this permit? ***Codes: 1=village head; 2=FUG; 3=forest officer (forest departments); 4=other government official; 9=other, specify:*** **បើសុំ តើអ្នកណាចេញលិខិតអនុញ្ញាតនេះ?** *កូដ: ១= មេភូមិ, ២=FUG, ៣=មន្ត្រីព្រៃឈើ (រដ្ឋបាលព្រៃឈើ), ៤=មន្ត្រីរដ្ឋដទៃទៀត, ៩=ផ្សេងទៀត សូមបញ្ជាក់*						

1) Codes: 0=no/very little; 1=to a certain extent by some groups of villagers; 2=to a certain extent by everyone; 3=yes, but only by some groups of villagers; 4=yes, by everyone; 9=no particular rules exist.

កូដ: ០=គ្មាន/តិចតួចជាមីបំផុត, ១=ទទួលបានក្នុងកំរិតមួយដោយក្រុមអ្នកភូមិមួយចំនួន, ២=ទទួលបានក្នុងកំរិតមួយដោយអ្នកភូមិគ្រប់រូប, ៣=បាទ ប៉ុន្តែទទួលបានតែក្រុមអ្នកភូមិមួយចំនួន, ៤=បាទ ទទួលបានទាំងអស់គ្នា, ៩=ពុំមានច្បាប់ប្រាកដប្រជាទេ ។

G. Forest User Groups (FUG)

ក្រុមអ្នកប្រើប្រាស់ព្រៃឈើ

1. Existence of forest user groups (FUG).
Note: See the Technical Guidelines for a definition.
អត្ថិភាពនៃក្រុមអ្នកប្រើប្រាស់ព្រៃឈើ (FUG)
សំគាល់: មើលគោលការណ៍ណែនាំ ដើម្បីយល់និយមន័យ

1. How many forest user groups (FUG) are there in the village? **តើមាន FUG ប៉ុន្មាន ក្រុមនៅក្នុងភូមិ?**	

2. Information about each FUG (use one column per FUG).
ពត៌មានអំពី FUG នីមួយៗ

	1. FUG1	*2. FUG2*	*3. FUG3*
When was the group formed? *(yyyy)* **តើក្រុមនោះបង្កើត នៅឆ្នាំណា? (សរសេរឆ្នាំពេញ)**			

How was the group formed? ***Codes: 1=local initiative; 2=initiative from NGO; 3=initiative from government, e.g., Forest Department; 4=other, specify:*** **តើក្រុមនោះបានបង្កើតឡើង យ៉ាងដូចម្តេច?** *កូដ: ១=ផ្តើមគំនិតដោយអ្នកភូមិ, ២=ផ្តើមគំនិតដោយ NGO, ៣=ផ្តើមគំនិតដោយរដ្ឋាភិបាល ខ. រដ្ឋបាលព្រៃឈើ, ៤=ផ្សេងទៀត សូមបញ្ជាក់*				
Is the FUG's main purpose related to the management of a particular forest area or of particular forest product(s)? ***Codes: 1=area; 2=product(s); 3=both*** **តើគោលបំណងសំខាន់របស់ FUG គឺ ការគ្រប់គ្រងតំបន់ព្រៃឈើមួយជាក់លាក់ ឬ ផលិតផលព្រៃឈើជាក់លាក់មែនឬទេ?** *កូដ: ១=តំបន់, ២=ផលិតផល, ៣=ទាំងពីរ*				
If for a product **(code 2 or 3 above)**, what is the (main) product? ***(code-product)*** **បើចំពោះការគ្រប់គ្រងផលិតផល** (កូដ ២ ឬ ៣ ខាងលើ) **តើមានផលិតផលសំខាន់ៗអ្វីខ្លះ?** *(កូដផលិតផល)*				
How many members are there in the group? **តើមានសមាជិកប៉ុន្មាននាក់នៅក្នុងក្រុម?**				
How many times per year does the FUG have meetings? **តើ FUG ប្រជុំប៉ុន្មានដង ក្នុងមួយឆ្នាំ?**				
Does the group have a written management plan? **តើក្រុមមានផែនការគ្រប់គ្រង ដែលសរសេរជាលាយលក្ខអក្សរឬទេ?**		***(1-0)***	***(1-0)***	***(1-0)***
What are the main tasks of the FUG? ***Select as many as appropriate: 1-0 code*** **តើ FUG មានភារកិច្ចសំខាន់អ្វីខ្លះ?** *ជ្រើសរើសច្រើនដែលអាចមាន: កូដ ១-0*	Setting rules for use **បង្កើតច្បាប់សំរាប់ប្រើ**	***(1-0)***	***(1-0)***	***(1-0)***
	Monitoring and policing **ធ្វើការត្រួតពិនិត្យ និង អនុវត្តច្បាប់**	***(1-0)***	***(1-0)***	***(1-0)***
	Silviculture & management **ធ្វើវប្បកម្ម និង ការគ្រប់គ្រង**	***(1-0)***	***(1-0)***	***(1-0)***
	Harvesting forest products **ធ្វើការប្រមូលផលព្រៃឈើ**	***(1-0)***	***(1-0)***	***(1-0)***
	Selling forest products **លក់ផលិតផលព្រៃឈើ**	***(1-0)***	***(1-0)***	***(1-0)***
	9. Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**	***(1-0)***	***(1-0)***	***(1-0)***
Has any development project been implemented in the village **over the past 5 years** using proceeds from the FUG? **ដោយប្រើប្រាស់ច្បាប់របស់ FUG តើមានគំរោងអភិវឌ្ឍន៍ ដែលបានអនុវត្តនៅក្នុងភូមិ**ក្នុងរយៈពេល ៥ឆ្នាំកន្លងមកនេះឬទេ?		***(1-0)***	***(1-0)***	***(1-0)***

Has anyone in the village been violating the rules of the FUG over the past **12 months**? ***If 'no', go to 14.*** **តើមាននរណាម្នាក់បំពានលើច្បាប់របស់ FUG នៅក្នុងរយៈពេល** ១២ខែ **កន្លងមកនេះឬទេ?** *បើគ្មាន ឆ្លងទៅលេខ ១៤*	***(1-0)***	***(1-0)***	***(1-0)***
If 'yes': did the FUG impose any penalties on those violating the rules? ***If 'no', go to 14*** **បើមាន: តើ FUG មានបានដាក់ទណ្ឌកម្មលើជនល្មើសទាំងនោះទេ?** *បើគ្មាន ឆ្លងទៅលេខ ១៤*	***(1-0)***	***(1-0)***	***(1-0)***
If 'yes': what type of penalties? ***Codes: 1=fee (cash payment); 2=returning collected products; 3=labour (extra work); 4=exclusion from group; 9=other, specify:*** **បើមាន: តើទណ្ឌកម្មបែបណា?** *កូដ : ១=ឱ្យបង់ប្រាក់, ២=ឱ្យប្រគល់ផលិតផលត្រឡប់វិញ, ៣=ឱ្យធ្វើពលកម្មបន្ថែម, ៤=ដេញចេញពីក្រុម, ៩=ផ្សេងទៀត សូមបញ្ជាក់*			
Which group of forest users have most commonly violating the rules **over the past 5 years**? ***Codes: 1=members of FUG; 2=non-FUG members in the village; 3=people from other villages; 9=other, specify:*** **តើក្រុមមនុស្សបែបណា ដែលឧស្សាហ៍បំពានច្បាប់**ក្នុងរយៈពេល ៥ ឆ្នាំ កន្លងមកនេះ**?** *កូដ: ១=សមាជិកក្រុម FUG, ២=អ្នកភូមិ ដែលមិនមែនជាសមាជិក FUG, ៣=អ្នកមកពីភូមិផ្សេងទៀត, ៩=ផ្សេងទៀត សូមបញ្ជាក់*			
Overall, on a scale from 1-5 (1 is highest, 5 is lowest) how effective would you say that the FUG is in ensuring sustainable and equitable forest use? **និយាយជារួម លើមាត្រដ្ឋាន ១-៥ (១ ខ្ពស់បំផុត ៥ ទាបបំផុត) តើអ្នកយល់ថា FUG មានប្រសិទ្ធិភាពក្នុងការធានាការប្រើប្រាស់ព្រៃឈើប្រកបដោយនិរន្តរភាព និងសមភាព ដូចម្តេច?**			

(*Note: Any FUGs in the village should be further discussed in the village narrative*)

(សំគាល់: បើមានក្រុម FUG ផ្សេងទៀតនៅក្នុងភូមិ គួរពិភាក្សាបន្ថែមក្នុងការពិពណ៌នាភូមិ)

Village survey 2 (V2)

ការអង្កេតភូមិលើកទី ២ (V2)

Control information

ពត៌មានត្រួតត្រួតពិនិត្យ

Task **ការកិច្ច**	**Date(s)** **កាលបរិច្ឆេទ**	**By who?** **ដោយនរណា?**	**Status OK? If not, give comments** **ស្ថានភាព ជោគជ័យ? បើទេ សូមផ្តល់ហេតុផល**
Meeting with officials **ការប្រជុំជាមួយមន្ត្រី**			
Village/focus group meetings **ការប្រជុំជាមួយអ្នកភូមិ ឬ ជាក្រុមបង្គោល**			
Other interviews **ការសំភាសន៍ផ្សេងទៀត**			
Checking questionnaire **ការពិនិត្យពិច័យកំរងសំណួរ**			
Coding questionnaire **ការចុះកូដកំរងសំណួរ**			
Entering data **ការបញ្ចូលទិន្នន័យ**			
Checking & approving data entry **ការពិនិត្យពិច័យនិងអនុម័តទិន្នន័យបញ្ចូល**			

A. Geographic and climate variables

ពត៌មានអំពីភូមិសាស្ត្រ និង ធាតុអាកាស

What is the name of the village? **តើភូមិនោះឈ្មោះអ្វី?**	**(name)* ***(ឈ្មោះ)***	*(village code)* ***(កូដភូមិ)***
What was the total rainfall in the village for the past 12 months? **តើរយៈកំពស់ទឹកភ្លៀងរយៈពេល ១២ខែកន្លងមកនេះមានប៉ុន្មាន?**		*mm/year* ***មម/ឆ្នាំ***
If rainfall data not available (question 2): How was the rainfall past 12 months compared with a normal year (=average last 20 years)? *Codes: 1=well below normal (< 50 %); 2=below normal (50-90%); 3=normal (90-110%); 4=above normal (110-150%); 5=well above normal (> 150%)* **បើទិន្នន័យទឹកភ្លៀងមិនមាន (សំណួរ ២) តើស្ថានភាពភ្លៀងបែបណាក្នុងរយៈពេល ១២ខែ កន្លងមកធៀបទៅនឹងស្ថានភាពឆ្នាំធម្មតា (= ជាមធ្យមក្នុងរយៈពេល ២០ឆ្នាំ កន្លងមក)?** ***កូដ: ១=ទាបជាងធម្មតាយ៉ាងខ្លាំង (< ៥០%), ២=ទាបជាងធម្មតា (៥០-៨០%), ៣=ធម្មតា (៨០-១១០%), ៤=លើសធម្មតា (១១០-១៥០%), ៥=លើសធម្មតាយ៉ាងខ្លាំង (> ១៥០%)***		

B. Risk

ភាពប្រថុយ

Has the village faced any of the following crises over the past 12	Flood and/or excess rain **ទឹកជំនន់ និង/ឬ ភ្លៀងច្រើនពេក**	

months? *Codes: 0=no; 1=yes, moderate crisis; 2=yes, severe crisis* **តើភូមិនេះមានជួបវិបត្តិណាមួយក្នុង ១២ខែ កន្លងមកនេះឬទេ?** ***កូដ : 0=ទេ, ១=បាទ ជួបបញ្ហាមធ្យម, ២=បាទ ជួបបញ្ហាយ៉ាងខ្លាំង***	Drought **រាំងស្ងួត**	
	Wild fire (in crops/forest/grasslands etc) **ភ្លើងឆេះព្រៃ (ដំណាំ/ព្រៃឈើ /វាលស្មៅសត្វ។ល។)**	
	Widespread crop pest/disease and/or animal disease **ការរាតត្បាតជម្ងឺដំណាំ ឬ សត្វ**	
	Human epidemics (disease) **ជម្ងឺឆ្លងលើមនុស្ស**	
	Political/civil unrest **បញ្ហានយោបាយ/អស្ថេរភាព**	
	Macro-economic crisis **វិបត្តិម៉ាក្រូសេដ្ឋកិច្ច**	
	Refugee or migration infusion **ចលនាជនភៀសខ្លួន**	
	Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**	

C. Wages and prices

ប្រាក់ពលកម្ម និង តម្លៃ

What was the typical daily wage rate for unskilled agricultural/casual adult **male/female** labour during the **peak/slack** season in this village over the past 12 months? *(Lc$/day)* **តើប្រាក់កម្រៃប្រចាំថ្ងៃបុរស/ស្ត្រីពេញវ័យ លើការងារមិនមានជំនាញ (កសិករ /ការងារធម្មតា) ប៉ុន្មានក្នុងរយៈពេល ១២ខែ កន្លងមកនេះ? *(រៀល/ថ្ងៃ)***		**Male** **បុរស**	**Female** **ស្ត្រី**
	Peak **ខ្ពស់បំផុត**	1.	2.
	Slack **ទាបបំផុត**	3.	4.
What is the main staple food in the village? *(code-product)* **តើអាហារប្រចាំថ្ងៃរបស់អ្នកភូមិគឺអ្វី? *(កូដផលិតផល)***			
What was the price of a kg of the main staple food during the past 12 months **before** and **after** the main agricultural harvest? *(Lc$/kg)* **តើអាហារប្រចាំថ្ងៃមានតម្លៃប៉ុន្មានក្នុង ១គក្រ ក្នុងរយៈពេល ១២ខែកន្លងមក នៅមុន និង ក្រោយពេលរដូវប្រមូលផលសំខាន់ៗ? *(រៀល/គ.ក្រ)***		**1. Before harvest** មុនពេលប្រមូលផល	**2. After harvest** ក្រោយពេលប្រមូលផល
What is the sales value of one hectare of good agricultural land in the village? (i.e., not degraded, not too steep, and suitable for common crops, and within 1km of the main road or settlement) *(Lc$/hectare)* **នៅក្នុងភូមិនេះ តើដីល្អសំរាប់កសិកម្មមួយហិកតាមានតម្លៃប៉ុន្មាន?(គឺដីមិនខ្សោះជីជាតិ មិនចោតខ្លាំង សមស្របសំរាប់ដំណាំ និង ស្ថិតនៅចំងាយ ១គ.ម ពីផ្លូវមេ ឬ ផ្ទះ) *(រៀល/ហ.ត)***			

D. Forest services

សេវាកម្មព្រៃឈើ

Has the village (as a community or individuals in the village) received any direct benefits (in kin or in cash) related to forest services over the past 12 months? *Codes: 0=no; 1=yes, directly to households; 2=yes, directly*	

to village (e.g., development project); 3=yes, both to household and village **ក្នុងរយៈពេល ១២ខែកន្លងមកនេះ តើភូមិ (ជាសហគមន៍ ឬ បុគ្គលណាម្នាក់ក្នុងភូមិ) មានបានទទួលផលប្រយោជន៍ដោយផ្ទាល់ (ជាអំណោយឬប្រាក់កាស) ពីសេវាកម្មព្រៃឈើឬទេ?** ***កូដ: ០=គ្មាន, ១=មាន ដោយផ្ទាល់ទៅគ្រួសារ, ២=មាន ដោយផ្ទាល់ទៅភូមិ, ៣=មាន ដោយផ្ទាល់ទៅគ្រួសារនិងភូមិ***		
If the village has received payment (code 2 or 3 above), please indicate the amount the village has received. **បើភូមិបានទទួលការបង់ថ្លៃ (កូដ ២ ឬ ៣ ខាងលើ) ចូរបញ្ជាក់បរិមាណដែលបានទទួល**	**Payments related to:** **កម្រៃបង់សំរាប់សេវាកម្ម:**	**Amount** **បរិមាណ**
	1. Tourism **ទេសចរណ៍**	
	2. Carbon sequestration **មុខងារស្រូបយកឧស្ម័នកាបូនិក**	
	3. Water catchment **ទីជំរាល**	
	4. Biodiversity conservation **ការអភិរក្សជីវៈចំរុះ**	
	5. Compensation from timber company **សំណងពីក្រុមហ៊ុនឈើ**	
	6. Compensation from mining company **សំណងពីក្រុមហ៊ុនជីករ៉ែ**	
	9. Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**	
Has the village received any forestry-related external support (technical assistance, free inputs, etc.) from government, donors, NGOs) over the past 12 months? **តើភូមិមានបានទទួលការជួយគាំទ្រលើវិស័យព្រៃឈើ (ជំនួយបច្ចេកទេស ដើមទុនឥតគិតថ្លៃ ។ល។) ពីរដ្ឋាភិបាល អ្នកផ្តល់ជំនួយ អង្គការមិនមែនរដ្ឋាភិបាល ឬទេ នៅក្នុង រយៈពេល ១២ខែ កន្លងមកនេះ?**	*(1-0)*	

Note: If any such payment or assistance has been received it should be elaborated in the village narrative.

សំគាល់: បើបានទទួលការបង់ប្រាក់ ឬជំនួយបែបណាមួយនោះ គេគួរពិភាក្សាបន្ថែមក្នុងការពិពណ៌នាភូមិ

Annual household survey 1 (A1)

អង្កេតគ្រួសារប្រចាំឆ្នាំលើកទី ១ (A1)

Control information

ពត៌មានត្រួតត្រួតពិនិត្យ

Task **ការកិច្ច**	**Date(s)** **កាលបរិច្ឆេទ**	**By who?** **ដោយនរណា?**	**Status OK? If not, give comments** **ស្ថានភាព ជោគជ័យ? បើទេ សូមផ្តល់ហេតុផល**
Interview **ការសំភាសន៍**			
Checking questionnaire **ការពិនិត្យពិច័យកំរងសំណួរ**			
Coding questionnaire **ការចុះកូដកំរងសំណួរ**			
Entering data **ការបញ្ចូលមិន្នន័យ**			
Checking & approving data entry **ការពិនិត្យពិច័យនិងអនុម័តមិន្នន័យបញ្ចូល**			

A. Identification

អត្តសញ្ញាណ

1. Identification and location of household.

អត្តសញ្ញាណ និងទីតាំងនៃគ្រួសារ

Household name and code **ឈ្មោះនិងកូដគ្រួសារ**	**(name)* ***(ឈ្មោះ)***	***(HID)*** *(កូដគ្រួសារ)*
Village name and code **ឈ្មោះនិងកូដភូមិ**	**(name)* ***(ឈ្មោះ)***	***(VID)*** ***(កូដភូមិ)***
District name and code **ឈ្មោះនិងកូដស្រុក**	**(name)* ***(ឈ្មោះ)***	***(DID)*** *(កូដស្រុក)*
Name and PID (see B. below) of primary respondent **ឈ្មោះ និង អត្តសញ្ញាណ (កូដ) បុគ្គល (មើលចំណុច B ខាងក្រោម) នៃអ្នកឆ្លើយដំបូង**	**(name)* ***(ឈ្មោះ)***	***(PID)*** *(កូដបុគ្គល)*
Name and PID (see B. below) of secondary respondent **ឈ្មោះ និង អត្តសញ្ញាណ (កូដ) បុគ្គល (មើលចំណុច B ខាងក្រោម) នៃអ្នកឆ្លើយបន្ទាប់**	**(name)* ***(ឈ្មោះ)***	***(PID)*** *(កូដបុគ្គល)*
GPS reference point of household (UTM format) **ពតិមានភូមិសាស្ត្រ នៃគ្រួសារ (ជា UTM)**		
Distance of the household from the centre of village (in *minutes of walking* and in *km*)	***1.*** ***min***	***2.*** ***km***

ចំងាយពីផ្ទះរបស់គ្រួសារទៅចំណុចកណ្តាលភូមិ (គិតរយៈពេលដើរជានាទី និងគ.ម)	នាទី	គ.ម

B. Household composition

សមាសភាពគ្រួសារ

1. Who are the members of the household?

តើនរណាខ្លះជាសមាជិកគ្រួសារ?

Note: Recall the definition of households in the Technical Guidelines.

សំគាល់: រំលឹកនិយមន័យគ្រួសារ នៅក្នុងគោលការណ៍ណែនាំបច្ចេកទេស

1. Personal Identification number (PID) **អត្តសញ្ញាណ (កូដ) បុគ្គល** (PID)	*** Name of household member** **ឈ្មោះសមាជិកគ្រួសារ**	**2. Relation to household head[1)]** **ទំនាក់ទំនងនឹងមេគ្រួសារ[1)]** Household head=code 0 **មេគ្រួសារ=កូដ 0**	**3. Year born[2)]** *(yyyy)* **ឆ្នាំកំណើត[2)]**	**4. Sex** *(0=male 1=female)* **ភេទ (0=ប្រុស ១=ស្រី)**	**5.Education** *(number of years completed)* **កិរិតសិក្សា (ចំនួនឆ្នាំដែលបានរៀន)**	**6. Non-formal education** *(number of years completed)* **ការអប់រំមិនផ្លូវការ (ចំនួនឆ្នាំដែលបានរៀន)**	**7. Special skills[3)]** **ជំនាញពិសេស[3)]**
1							
2							
3							
4							
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6							
7							
8							
9							
10							
11							
12							
13							
14							

1) Codes: 1=spouse (legally married or cohabiting); 2=son/daughter; 3=son/daughter in law; 4=grandchild; 5=mother/father; 6=mother/father in law; 7=brother or sister; 8=brother/sister in law; 9=uncle/aunt; 10=nephew/niece; 11=step/foster child; 12=other family; 13=not related (e.g., servant).

កូដ: ១=ប្តី ឬ ប្រពន្ធ (បានរៀបការពេញច្បាប់), ២=កូនប្រុស/ស្រី, ៣=កូនប្រសារប្រុស/ស្រី, ៤=ចៅ, ៥=ម្តាយ/ឪពុក, ៦=ម្តាយ/ឪពុកក្មេក, ៧=បងប្អូនប្រុស/ស្រី, ៨=បងប្អូនថ្លៃប្រុស/ស្រី, ៩=មា/មីង, ១០=ក្មួយប្រុស/ស្រី, ១១=កូនចិញ្ចឹម/កូនចុង, ១២=សមាជិកគ្រួសារផ្សេងទៀត, ១៣=មិនជាប់សាច់ញាតិ (ឧ. អ្នកបំរើ)

2) *One may ask about age, and the calculate 'year born' when entering data.*

គេអាចសួរអាយុ និងគណនា "ឆ្នាំកំណើត" ពេលបញ្ចូលទិន្នន័យ

3) Codes: 1=shop/trade; 2=agric. processing; 3=handicraft; 4=carpentry; 5=other forest based; 6=other skilled labour; 7=transport (car, boat,…); 8=lodging/restaurant; 9=brewing; 10=brick making; 11=landlord/real estate; 12=herbalist/traditional healer/witch doctor; 13=quarrying; 19=other, specify:

កូដ: ១=ហាង/ពាណិជ្ជកម្ម, ២=ការកែកសិផល, ៣=សិប្បកម្ម, ៤=ជាងឈើ, ៥=ផ្សេងទៀតទាក់ទងនឹងព្រៃឈើ, ៦=ការងារជំនាញផ្សេងទៀត, ៧=ការដឹកជញ្ជូន (រថយន្ត, ទូក...), ៨=ផ្ទះសំណាក់/ភោជនីយដ្ឋាន, ៩=ផលិតស្រា, ១០=ផលិតឥដ្ឋ, ១១=ម្ចាស់ដី/អ្នកជំនួញដីធ្លី, ១២=គ្រូឱសថបុរាណ/គ្រូអាគម, ១៣=ប្រមាញ់ឬជីករ៉ែ, ១៩=ផ្សេងទៀត សូមបញ្ជាក់

2. We would like to ask some questions regarding the head of this household.

យើងខ្ញុំសូមសួរពត៌មានខ្លះអំពីមេគ្រួសារនេះ

What is the marital status of household head? **តើស្ថានភាពអាពាហ៍ពិពាហ៍របស់មេគ្រួសារយ៉ាងដូចម្តេច?** ***Codes: 1=married and living together; 2=married but spouse working away; 3=widow/widower; 4=divorced;; 5=never married; 9=other, specify:*** កូដ: ១=បានរៀបការ និងរស់នៅជាមួយគ្នា, ២=បានរៀបការតែដៃគូអាពាហ៍ពិពាហ៍ធ្វើការនៅឆ្ងាយពីគ្នា, ៣=មេម៉ាយ/ពោះម៉ាយ, ៤=លែងលះ, ៥=មិនដែលបានរៀបការទេ, ៩=ផ្សេងទៀត សូមបញ្ជាក់	
How long ago was this household formed (see definition of household) **តើគ្រួសារនេះបានកកើត ប៉ុន្មានឆ្នាំមកហើយ (អានន័យមន័យគ្រួសារ)**	***years*** ***ឆ្នាំ***
Was the household head born in this village? **តើមេគ្រួសារបានកើតនៅភូមិនេះឬ?** *If 'yes', go to 5* បើបាន ឆ្លងទៅលេខ ៥	***(1-0)***
If 'no': how long has the household head lived in the village? បើទេ: **តើគ្រួសារនេះបានមករស់នៅភូមិនេះប៉ុន្មានឆ្នាំហើយ?**	***years*** ***ឆ្នាំ***
Does the household head belong to the largest ethnic group/caste in the village? **តើមេគ្រួសារនេះជាសមាជិកនៃក្រុមជនជាតិភាគច្រើនក្នុងភូមិនេះឬទេ?**	***(1-0)***

C. Land

ដីធ្លី

1. Please indicate the amount of land (in hectares) **that you currently own and have rented in/out**.

សូមបញ្ជាក់ពីទំហំដី (ជា ហ.ត) **ដែលជាកម្មសិទ្ធិរបស់អ្នក** និង **ដីដែលជួលឱ្យគេ** ឬ **ជួលពីគេ**

Note: See definitions of land categories in the Technical Guidelines.

សំគាល់: សូមមើលនិយមន័យប្រភេទប្រើប្រាស់ដី ក្នុងគោលការណ៍ណែនាំបច្ចេកទេស

Category **ប្រភេទ/ចំណាត់ថ្នាក់**	**1. Area** *(ha)* **ទំហំ** **(ហ.ត)**	**2. Ownership** *(code-tenure)* **កម្មសិទ្ធិភាព** **(កូដ-កម្មសិទ្ធិ)**	**Main products grown/harvested in the past 12 months** **Max 3** *(code-product)* **ផលិតផលសំខាន់ៗដែលបានដាំ/ប្រមូលផលនៅក្នុងរយៈពេល ១២ខែកន្លងមក អតិបរមា ៣ (កូដ-ផលិតផល)**		
			3. Rank1 **លំដាប់ ១**	**4. Rank2** **លំដាប់ ២**	**5. Rank3** **លំដាប់ ៣**
Forest: ***ព្រៃឈើ***					
Natural forest **ព្រៃឈើធម្មជាតិ**					

Managed forests **ព្រៃមានការគ្រប់គ្រង**					
Plantations **ព្រៃដាំ**					
Agricultural land: ***ដីកសិកម្ម***					
Cropland **ដំណាំ (ដីស្រែ និង ចំការ)**					
Pasture (natural or planted) **វាលស្មៅសត្វ (ធម្មជាតិឬដាំ)**					
Agroforestry **កសិ-រុក្ខកម្ម**					
Silvipasture **វាលស្មៅសុរុឌ្ឍិកម្ម**					
Fallow **ព្រៃរេចរិល**					
Other vegetation types/land uses (**residential**, bush, grassland, wetland, etc.) **ប្រភេទរុក្ខជាតិផ្សេងទៀត ឬប្រភេទប្រើប្រាស់ដី** (សំរាប់លំនៅដ្ឋាន, **ទុកឱ្យព្រៃដុះ, ដីវាលស្មៅ, ដីសើម** ។ល។)					
Total land owned (1+2+3+…+9) **ផ្ទៃដីកម្មសិទ្ធិសរុប** (១+២+៣+... +៩)					
Land rented out (**included** in 1-9) **ដីជួលឱ្យគេ (រួមទាំង ១-៩)**					
Land rented in (**not included** in 1-9) **ដីជួលពីគេ (មិនបូកបញ្ចូល ១-៩ ទេ)**					

D. Assets and savings

ទ្រព្យសម្បត្តិ និងប្រាក់សន្សំ

1. Please indicate the type of house you have?

សូមបញ្ជាក់ប្រភេទផ្ទះដែលអ្នកមាន?

1. Do you have your own house? [1)] តើអ្នកមានផ្ទះផ្ទាល់ខ្លួនឬទេ? [១)]	
2. What is the type of material of (most of) the walls? [2)] តើជញ្ជាំងផ្ទះ (ភាគច្រើន) របស់អ្នកធ្វើពីអ្វី? [២)]	
3. What is the type of material of (most of) the roof? [3)] តើដំបូលផ្ទះ (ភាគច្រើន) របស់អ្នកធ្វើពីអ្វី? [៣)]	
4. How many m^2 approx. is the house? តើផ្ទះនេះមានប្រហែលប៉ុន្មានម៉ែតការ៉ែ?	***m^2***

1) Codes: 0=no; 1=own the house on their own; 2=own the house together with other household(s); 3=renting the house alone; 4=renting the house with other household(s); 9=other, specify:

កូដ: ០=ទេ, ១=ម្ចាស់ផ្ទះ, ២=ម្ចាស់ផ្ទះរួមគ្នាជាមួយអ្នកផ្សេងទៀត, ៣=ជួលផ្ទះតែតែម្នាក់ឯង, ៤=ជួលផ្ទះរួមគ្នាជាមួយនឹងអ្នកផ្សេងទៀត, ៩=ផ្សេងទៀត សូមបញ្ជាក់

2) Codes: 1=mud/soil; 2=wooden (boards, trunks); 3=iron (or other metal) sheets; 4=bricks or concrete; 5=reeds/straw/grass/fibers; 9=other, specify:

កូដ: ១=ដីឥដ្ឋ/ដីឥដ្ឋ , ២=ពីឈើ (ក្តារ, គល់ឈើ), ៣=ដែកបន្ទះ (ឬលោហៈធាតុផ្សេងទៀត), ៤=អំពឹឥដ្ឋ ឬស៊ីម៉ង់, ៥=ស្បូវ/ស្លឹកឬកូនជាតិផ្សេងទៀត, ៩=ផ្សេងទៀត សូមបញ្ជាក់

3) Codes: 1=thatch; 2=wooden (boards); 3=iron or other metal sheets; 4=tiles; 9=other, specify:

កូដ: ១=ស្លឹក, ២=ពីឈើ (ក្តារ), ៣=ដែកបន្ទះ (ឬលោហធាតុផ្សេងទៀត), ៤=ក្បឿង, ៩=ផ្សេងទៀត សូមបញ្ជាក់

2. Please indicate the number and value of implements and other large household items that are owned by the household.

សូមបញ្ជាក់ចំនួន និងតម្លៃនៃវត្ថុផ្សេងៗទៀតក្នុងផ្ទះ ដែលជាកម្មសិទ្ធិរបស់អ្នក

Note: see latest version of "PEN codes list" for a complete list of items and codes.

សំគាល់ : មើល "បញ្ជីកូដបែ៉ន" ចុងក្រោយសំរាប់បញ្ជីទាំងមូលនៃវត្ថុ និង កូដ

	1. No. of units owned **ចំនួនដែលជាកម្មសិទ្ធិ**	**2. Total value (current sales value of all units, not purchasing price)** **តម្លៃសរុប (ថ្លៃលក់បច្ចុប្បន្ន មិនមែនថ្លៃទិញទេ)**
Car/truck **រថយន្ត/រថយន្តដឹកទំនិញ**		
Tractor **ត្រាក់ទ័រ**		
Motorcycle **ម៉ូតូ**		
Bicycle **កង់**		
Handphone/phone **ទូរស័ព្ទដៃ/ទូរស័ព្ទ**		
TV **ទូរទស្សន៍**		
Radio **វិទ្យុ**		
Cassette/CD/ VHS/VCD/DVD/ player **ម៉ាស៊ីនចាក់កាសែត /CD/VHS/VCD /DVD**		
Stove for cooking (gas or electric only)		

ចង្ក្រានដាំស្ល (ប្រើហ្គាស ឬ អគ្គីសនី)		
Refrigerator/freezer ទូរទឹកកក/ទូរក្លាសេ		
Fishing boat and boat engine ទូកនេសាទ និងម៉ាស៊ីនទូក		
Chainsaw ម៉ាស៊ីនអារ (ឈើ)		
Plough នង្គ័ល		
Scotch cart រទេះគោ		
Shotgun/rifle កាំភ្លើងបាញ់សត្វ		
Wooden cart or wheelbarrow រទេះឈើ ឬ រទេះរុញ		
Furniture គ្រឿងសង្ហារឹម		
Water pump ម៉ាស៊ីនបូមទឹក		
Solar panel ផ្ទាំងថាមពលព្រះអាទិត្យ		
Timber trees outside forests ឈើសំរាប់ឈើហ៊ុបនៅក្រៅតំបន់ព្រៃ		
99. Others (worth more than approx. 50 USD purchasing price) ផ្សេងទៀត (មានតម្លៃទិញលើសពី ៥០ ដុល្លា)		

3. Please indicate the savings and debt the household has.

សូមបញ្ជាក់ប្រាក់សន្សំ និង ប្រាក់ខ្ចីបុលដែលគ្រួសារមាន

How much does the household have in savings in banks, credit associations or savings clubs? តើគ្រួសារមានប្រាក់សន្សំប៉ុន្មាន នៅធនាគារ ឬ សមាគមន៍សន្សំប្រាក់?	***Lc$*** *រៀល*
How much does the household have in savings in non-productive assets such as gold and jewelry? តើគ្រួសារមានទ្រព្យសម្បត្តិរក្សាទុកដូចជា មាស និង គ្រឿងអលង្ការប៉ុន្មាន?	***Lc$*** *រៀល*
How much does the household have in outstanding debt? តើគ្រួសារជំពាក់បំណុលគេប៉ុន្មាននាបច្ចុប្បន្ន?	***Lc$*** *រៀល*

E. Forest resource base

ធនធានព្រៃឈើ

How far is it from the house/homestead to the edge of the nearest natural or managed forest that you have access to and can use? **តើព្រៃឈើដែលអ្នកអាចប្រមូលផលបានស្ថិតនៅចំងាយប៉ុន្មានពីផ្ទះរបស់អ្នក?**	1. … measured in terms of distance (straight line)? **វាស់ចំងាយជ្រុងត្រង់**	***km*** *គ.ម*
	… measured in terms of time (in minutes of walking)? **វាស់ជាពេល (គិតជានាទីនៃដំណើរថ្មើរជើង)?**	***min*** ***នាទី***
Does your household collect firewood? ***If 'no', go to 7.*** **តើគ្រួសាររបស់អ្នកប្រមូលអុសឬទេ?** *បើទេ ឆ្លងទៅលេខ ៧*		***(1-0)***
If 'yes': how many hours per week do the members of your household spend on collecting firewood for family use? (adult time should be reported; child time=50 % of adult time) បើ បាទ: **តើសមាជិកគ្រួសាររបស់អ្នកចំណាយពេលប៉ុន្មានម៉ោងក្នុងមួយសប្តាហ៍ ដើម្បីរកអុសសំរាប់ប្រើប្រាស់ក្នុងគ្រួសារ? (កត់ម៉ោងមនុស្សចាស់ រីឯម៉ោងកូនក្មេង=៥០%នៃម៉ោងមនុស្សចាស់)**		***(hours)*** ***ម៉ោង***
Does your household now spend more or less time on getting firewood than you did **5 years ago**? ***Codes: 1=more; 2=about the same; 3=less*** **តើគ្រួសាររបស់អ្នកចំណាយពេលប្រមូលអុសច្រើនជាង ឬ តិចជាង**កាលពី ៥ឆ្នាំមុន**?** *កូដ: ១=ច្រើនជាង, ២=ប្រហាក់ប្រហែលគ្នា, ៣=តិចជាង*		
How has availability of firewood changed **over the past 5 years**? ***Codes: 1=declined; 2=about the same; 3=increased*** ***If code '2' or' 3', go to 7.*** **តើភាពរកបាននៃអុសប្រែប្រួលឬទេ**ក្នុងរយៈពេល ៥ឆ្នាំកន្លងមកនេះ**?** *កូដ: ១=ថយចុះ, ២=ប្រហាក់ប្រហែលគ្នា, ៣=កើនឡើង* *បើ កូដ ២ ឬ ៣ ឆ្លងទៅលេខ ៧*		
If declined (code '1' on the question above), how has the household responded to the decline in the availability of firewood? *Please rank the most important responses, max 3.* បើថយចុះ (**កូដ ១ នៃសំណួរខាងលើ**) **តើគ្រួសាររបស់អ្នកមានដំណោះស្រាយបែបណា ចំពោះការថយចុះនៃអុស?** ***សូមផ្តល់ចំណែយសំខាន់ជាងគេតាមលំដាប់ចំនួនអតិបរិមា ៣***	**Response** **ដំណោះស្រាយ**	**Rank 1-3** **លំដាប់ ១-៣**
	Increased collection time (e.g., from further away from house) **ចំណាយពេលច្រើនជាងមុន (ឧ. កាន់តែឆ្ងាយឡើងៗពីផ្ទះ)**	
	Planting of trees on private land **ដាំដើមឈើលើដីឯកជន**	
	Increased use of agricultural residues as fuel **ប្រើប្រាស់កាកសំណល់កសិកម្មដើម្បីដុត**	
	Buying (more) fuelwood and/or charcoal **ទិញអុស និងធ្យូងកាន់តែច្រើនឡើងៗ**	

	Buying (more) commercial fuels (kerosene, gas or electricity) **ទិញឥន្ធនៈ (ប្រេងកាត ឧស្ម័ន ឬអគ្គិសនី) កាន់តែច្រើនឡើង**	
	Reduced the need for use of fuels, such as using improved stove **បន្ថយតំរូវការសំរាប់ប្រើប្រាស់ ដូចជាបង្កើនគុណភាពចង្ក្រាន**	
	More conservative use of fuelwood for cooking and heating **បង្កើនការសន្សំអុស ពេលដាំស្លរ ឬ ដុតកំដៅ**	
	Reduced number of cooked meals **បន្ថយចំនួនពេលដាំស្លរ**	
	Use of improved technology **ប្រើប្រាស់បច្ចេកទេសថ្មីៗ**	
	Increased use of non-wood wild products (ex. reeds) **បង្កើនការប្រើប្រាស់អនុផលព្រៃឈើ (ឧ. ស្លឹក)**	
	Restricting access/use to own forest **បន្តឹងការចូល/ប្រើប្រាស់ក្នុងព្រៃឈើផ្ទាល់ខ្លួន**	
	Conserving standing trees for future **ថែរក្សាឈើឈរសំរាប់អនាគត**	
	Making charcoal **ផលិតធ្យូង**	
	19. Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**	
Has your household planted any woodlots or trees on farm **over the past 5 years**? *If 'no', go to next section.* **តើគ្រួសាររបស់អ្នកបានដាំចំការឈើ ឬដើមឈើនៅក្នុងចំការ** ក្នុងរយៈពេល ៥ឆ្នាំកន្លងមកនេះឬទេ?		*(1-0)*
If yes: what are the main purpose(s) of the trees planted? *Please rank the most important purposes, max 3.* បើ បាទ: **តើដាំក្នុងគោលបំណងអ្វីសំខាន់ជាងគេ?** ***សូមផ្តល់គោលបំណងសំខាន់ជាងគេតាមលំដាប់ចំនួន អតិបរិមា ៣***	**Purpose** **គោលបំណង**	**Rank 1-3** លំដាប់ ១-៣
	Firewood for domestic use **អុសសំរាប់ប្រើប្រាស់ក្នុងគ្រួសារ/ភូមិ**	
	Firewood for sale **អុសសំរាប់លក់**	
	Fodder for own use **ចំបើង (ចំណីសត្វ) សំរាប់ប្រើប្រាស់ផ្ទាល់ខ្លួន**	
	Fodder for sale **ចំបើង (ចំណីសត្វ) សំរាប់លក់**	
	Timber/poles for own use **ឈើហ៊ុប/កូនឈើសំរាប់ប្រើប្រាស់ផ្ទាល់ខ្លួន**	

	Timber/poles for sale **ឈើប៊ុប/កូនឈើសំរាប់លក់**	
	Other domestic uses **ការប្រើប្រាស់ផ្សេងៗក្នុងផ្ទះ/ភូមិ**	
	Other products for sale **ផលិតផលផ្សេងទៀតសំរាប់លក់**	
	Carbon sequestration **ការស្រូបយកឧស្ម័នកាបូនិក**	
	Other environmental services **សេវាកម្មបរិស្ថានផ្សេងៗទៀត**	
	Land demarcation **ការកំណត់ព្រំដី**	
	19. Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**	

F. Forest User Groups (FUG)

ក្រុមអ្នកប្រើប្រាស់ព្រៃឈើ (FUG)

Note: The enumerator should first explain what is meant by a FUG, cf. the Technical Guidelines.

សំគាល់ : អ្នកសួរគួរពន្យល់អត្ថន័យនៃពាក្យ FUG ជាមុនសិនមុននឹងសួរ (មើលគោលការណ៍ណែនាំបច្ចេកទេស)

Are you or any member of your household a member of a Forest User Group (FUG)? ***If 'no', go to 11.*** **តើអ្នក ឬសមាជិកណាម្នាក់នៃគ្រួសារអ្នក ជាសមាជិកក្រុមអ្នកប្រើប្រាស់ព្រៃឈើ (FUG) ឬទេ?** *បើ ទេ ឆ្លងទៅលេខ ១១*	***(1-0)***
Does someone in your household normally/regularly attend the FUG meetings? ***If 'no', go to 5.*** **តើមានសមាជិកណាម្នាក់ ក្នុងគ្រួសារអ្នក ចូលរួមប្រជុំ FUG ជាធម្មតា/ទៀងទាត់ ឬទេ?** *បើ ទេ ឆ្លងទៅលេខ ៥*	***(1-0)***
If 'yes': in your household, who normally attends FUG meetings and participates in other FUG activities? ***Codes: 1=only the wife; 2=both, but mainly the wife; 3=both participate about equally; 4=both, but mainly the husband; 5=only the husband; 6=mainly son(s); 7=mainly daughter(s); 8=mainly husband & son(s); 10=mainly wife & daughter(s); 9=other arrangements not described above.*** *បើ បាទ: **តើសមាជិកណាមួយក្នុងគ្រួសារអ្នក ដែលចូលរួមប្រជុំ FUG និង សកម្មភាពផ្សេងៗទៀតរបស់ FUG?*** *កូដ : ១=មានតែប្រពន្ធ, ២=ទាំងពីរ ប៉ុន្តែប្រពន្ធញឹកញាប់ជាង, ៣=ទាំងប្តីនិងប្រពន្ធចូលរួមស្មើគ្នា, ៤=ទាំងពីរ ប៉ុន្តែប្តី* *ញឹកញាប់ជាង, ៥=មានតែប្តី, ៦=កូនប្រុសចូលរួមញឹកញាប់, ៧=កូនស្រីចូលរួមញឹកញាប់ ,៨=ប្តីនិងកូនប្រុសញឹកញាប់, ១០= ប្រពន្ធនិងកូនស្រីញឹកញាប់, ៩=ផ្សេងទៀត*	
How many person days (= full working days) did the household members spend in total on FUG activities (meetings, policing, joint work, etc) **over the past 12**	***days***

months? **តើសមាជិកគ្រួសារអ្នកចំណាយប៉ុន្មានថ្ងៃពលកម្ម (ការងារពេញមួយថ្ងៃ) នៅក្នុងសកម្មភាព FUG (ប្រជុំ យ៉ាមល្អាត ចូលរួមការងារ ។ល។)** ក្នុងរយៈ ១២ខែកន្លងមកនេះ**?**		***ថ្ងៃ***
Does your household make any cash payments/contributions to the FUG? ***If 'no', go to 7.*** **តើគ្រួសាររបស់អ្នកចូលរួមបង់ប្រាក់វិភាគទានដល់ FUG ឬទេ?** *បើ ទេ ឆ្លងទៅលេខ ៧*		***(1-0)***
If 'yes': how much did you pay **in the past 12 months**? ***(Lc$)*** បើ ចូលរួម: **តើអ្នកបង់អស់ប៉ុន្មាន**ក្នុងរយៈពេល ១២ខែ កន្លងមកនេះ**?** *(រៀល)*		
Did your household receive any cash payments from the FUG (e.g., share of sales) in **the past 12 months**? ***If 'no', go to 9.*** **តើគ្រួសាររបស់អ្នកទទួលបានប្រាក់ពី FUG ឬទេ (ដូចជាចំណែកបានពីផ្លែលក់)** នៅក្នុងរយៈពេល ១២ខែ កន្លងមកនេះ**?** *បើ ទេ ឆ្លងទៅលេខ ៩*		***(1-0)***
If 'yes': how much did you receive **in the past 12 months**? ***(Lc$)*** បើ បាន: **តើអ្នកទទួលបានប៉ុន្មាន**ក្នុងរយៈពេល ១២ខែ កន្លងមកនេះ**?** *(រៀល)*		
What are your reasons for joining the FUG? *Please rank the most important reasons, max 3.* **តើមូលហេតុអ្វី ដែលអ្នកចូលរួមជា សមាជិក FUG?** ***សូមផ្តល់មូលហេតុសំខាន់ជាងគេ តាមលំដាប់ចំនួន អតិបរិមា ៣***	**Reason** **មូលហេតុ**	**Rank 1-3** លំដាប់ ១-៣
	Increased access to forest products **បង្កើនការទទួលផលព្រៃឈើ**	
	Better forest management and more benefits in future **ការគ្រប់គ្រងព្រៃឈើប្រសើរឡើង និងមានផលចំណេញច្រើននៅអនាគត**	
	Access to other benefits, e.g., government support or donor programmes **ទទួលបានផលចំណេញផ្សេងទៀត ដូចជា ជំនួយរដ្ឋាភិបាល ឬ កម្មវិធីរបស់អ្នកផ្តល់ជំនួយ**	
	My duty to protect the forest for the community and the future **កាតព្វកិច្ចរបស់ខ្ញុំ គឺការពារព្រៃឈើសំរាប់សហគមន៍និងអនាគត**	
	Being respected and regarded as a responsible person in village **ទទួលបានការគោរព និងរាប់អានថាជាជនមានការទទួលខុសត្រូវក្នុងភូមិ**	
	Social aspect (meeting people, working together, fear of exclusion, etc.)| **ការងារសង្គម (ជួបប្រជុំជាមួយមនុស្សម្នា ធ្វើការជាមួយគ្នា ការបារម្ភខ្លាចគេមិនរាប់អាន ។ល។)**	
	Forced by Government/chiefs/neighbours **បង្ខំដោយរដ្ឋ/ប្រធាន/អ្នកជិតខាង**	

	Higher price for forest product **តម្លៃផលិតផលព្រៃឈើខ្ពស់ជាង**	
	Better quality of forest product **គុណភាពផលិតផលព្រៃឈើល្អជាង**	
	19. Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**	
Overall, how would you say the existence of the FUG has affected the benefits that the household gets from the forest? ***Codes: 1=large negative effect; 2=small negative effect; 3=no effect; 4=small positive effect; 5=large positive effect.*** **ជាទូទៅ តើវត្តមាននៃ FUG មានឥទ្ធិពលយ៉ាងដូចម្តេចចំពោះផលប្រយោជន៍ដែលគ្រួសារអ្នកទទួលបានពីព្រៃឈើ?** *កូដ: ១=ឥទ្ធិពលអវិជ្ជមានយ៉ាងខ្លាំង, ២=ឥទ្ធិពលអវិជ្ជមានតិចតួច, ៣=គ្មានឥទ្ធិពល, ៤=ឥទ្ធិពលវិជ្ជមានតិចតួច, ៥=ឥទ្ធិពលវិជ្ជមានយ៉ាងខ្លាំង*		
If you don't participate in FUG, why? *Please rank the most important reasons, max 3* **បើអ្នកមិនចូលរួមជាសមាជិក FUG តើដោយសារហេតុអ្វី?** ***សូមផ្តល់មូលហេតុ សំខាន់ជាងគេតាមលំដាប់ចំនួន អតិបរិមា ៣***	**Reason** **មូលហេតុ**	**Rank 1-3** **លំដាប់ ១-៣**
	No FUG exists in the village **គ្មានវត្តមាន FUG នៅក្នុងភូមិ**	
	I'm new in the village **ខ្ញុំជាមនុស្សថ្មីនៅក្នុងភូមិ**	
	FUG members generally belong to other group(s) (ethnic, political party, religion, age, etc.) than I do **សមាជិករបស់ FUG ភាគច្រើនជាក្រុមផ្សេង (ជនជាតិ បក្សនយោបាយ សាសនា អាយុ វ័យ ។ល។) ផ្សេងពីខ្ញុំ**	
	Cannot afford to contribute the time **មិនមានពេលគ្រប់គ្រាន់សំរាប់ចូលរួម**	
	Cannot afford to contribute the required cash payment **មិនអាចមានប្រាក់សំរាប់បង់វិភាគទាន**	
	FUG membership will restrict my use of the forest, and I want to use the forest as I need it **សមាជិក FUG តម្រូវឱ្យប្រើប្រាស់ផលព្រៃឈើមានកំណត់ ប៉ុន្តែខ្ញុំចង់ប្រើប្រាស់ព្រៃឈើតាមដែលខ្ញុំត្រូវការ**	
	I don't believe FUG is very effective in managing the forest **ខ្ញុំមិនមានជំនឿថា FUGអាចគ្រប់គ្រងព្រៃឈើមានប្រសិទ្ធិភាពទេ**	
	Lack of forest products **ខ្វះផលិតផលព្រៃឈើ**	
	Not interested in the activities undertaken by existing FUGs **មិនចាប់អារម្មណ៍និងសកម្មភាពនានា ដែលដឹកនាំដោយ FUG បច្ចុប្បន្ន**	

	Corruption in FUG **មានអំពើពុករលួយនៅក្នុង FUG**	
	Interested in joining but needs more information **ចាប់អារម្មណ៍ដែរ តែចាំទទួលបានពត៌មានថែមទៀត**	
	FUG exists in village, but household is unaware of its presence **មានវត្តមានរបស់ FUG នៅក្នុងភូមិ តែគ្រួសារមិនបានដឹង**	
	Forest authorities **អាជ្ញាធរព្រៃឈើ**	
	Would like to but not allowed by FUG **ចង់ចូលរួម ប៉ុន្តែ FUG មិនអនុញ្ញាត**	
	19. Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**	

Annual household survey 2 (A2)

អង្កេតគ្រួសារប្រចាំឆ្នាំលើកទី ២ (A2)

Control information

ពត៌មានត្រូវត្រួតពិនិត្យ

Task **ភារកិច្ច**	**Date(s)** **កាលបរិច្ឆេទ**	**By who?** **ដោយនរណា?**	**Status OK? If not, give comments** **ស្ថានភាព ជោគជ័យ? បើទេ សូមផ្តល់ហេតុផល**
Interview **សំភាសន៍**			
Checking questionnaire **ការពិនិត្យពិច័យកំរងសំណួរ**			
Coding questionnaire **ការចុះកូដកំរងសំណួរ**			
Entering data **ការបញ្ចូលទិន្ន័យ**			
Checking & approving data entry **ការពិនិត្យពិច័យនិងអនុម័តទិន្ន័យបញ្ចូល**			

A. Identification

អត្តសញ្ញាណ

1. Identification and location of household.

អត្តសញ្ញាណ និងទីតាំងនៃគ្រួសារ

Household name and code **ឈ្មោះ និងកូដគ្រួសារ**	**(name)* ***(ឈ្មោះ)***	*(HID)* ***(កូដគ្រួសារ)***
Village name and code **ឈ្មោះ និងកូដភូមិ**	**(name)* ***(ឈ្មោះ)***	*(VID)* *(កូដភូមិ)*
District name and code **ឈ្មោះ និងកូដស្រុក**	**(name)* ***(ឈ្មោះ)***	*(DID)* ***(កូដស្រុក)***
Name and PID (see B. below) of primary respondent **ឈ្មោះ និង អត្តសញ្ញាណ (កូដ) បុគ្គល (មើល ចំណុច B ខាងក្រោម) នៃអ្នកឆ្លើយដំបូង**	**(name)* ***(ឈ្មោះ)***	*(PID)* ***(កូដបុគ្គល)***
Name and PID (see B. below) of secondary respondent **ឈ្មោះ និង អត្តសញ្ញាណ (កូដ) បុគ្គល (មើល ចំណុច B ខាងក្រោម) នៃអ្នកឆ្លើយបន្ទាប់**	**(name)* ***(ឈ្មោះ)***	*(PID)* ***(កូដបុគ្គល)***

B. Crisis and unexpected expenditures

វិបត្តិ និងការចំណាយឥតព្រាងទុក

1. Has the household faced any major income shortfalls or unexpectedly large expenditures during the past 12 months?

តើគ្រួសារបានជួបបញ្ហាខ្វះខាតប្រាក់ចំណូល ឬការចំណាយធំដុំណាមួយនៅក្នុងរយៈពេល ១២ខែកន្លងមកនេះឬទេ?

Event **ព្រឹត្តិការណ៍**	**1. How severe?[1)]** **ធ្ងន់ធ្ងរកំរិតណា?[១)]**	**How did you cope with the income loss or costs?** *Rank max. 3[2)]* **តើអ្នកមានវិធានបែបណា ដើម្បីទប់ទល់នឹងការបាត់បង់ប្រាក់ចំណូល ឬ ការចំណាយទាំងនោះ?** ***ផ្តល់តាមលំដាប់ អតិបរមា ៣***[**២)**]		
		2. Rank1 **លំដាប់ ១**	**3. Rank2** **លំដាប់ ២**	**Rank3** **លំដាប់ ៣**
Serious crop failure **ការខូចខាតផលដំណាំធ្ងន់ធ្ងរ**				
Serious illness in family (productive age-group adult unable to work for more than one month during past 12 months, due to illness, or to taking care of ill person; or high medical costs) **មានជម្ងឺធ្ងន់ធ្ងរក្នុងគ្រួសារ (ដោយសារសមាជិកពេញពលកម្មក្នុងគ្រួសារមានជម្ងឺធ្ងន់ មិនបានប្រកបការងារលើសពី១ខែ ក្នុងរយៈពេល ១២ខែកន្លងមក ឬ ដោយសារវេលាមើលអ្នកជម្ងឺ ឬ ដោយសារចំណាយព្យាបាល ខ្ពស់)**				
Death of productive age-group adult **មរណៈភាពនៃសមាជិកពេញពលកម្មក្នុងគ្រួសារ**				
Land loss (expropriation, etc.) **បាត់បង់ដី (ដោយសារគេដកហូត ។ល។)**				
Major livestock loss (theft, drought, etc.) **បាត់បង់សត្វពាហនៈ (ដោយចោរលួច រាំងស្ងួត ។ល។)**				
Other major asset loss (fire, theft, flood, etc.) **បាត់បង់ទ្រព្យសម្បត្តិសំខាន់ៗ (ភ្លើងឆេះ ចោរលួច ទឹកជំនន់ ។ល។)**				
Lost wage employment **បាត់បង់ការងារ**				
Wedding or other costly social events **ចំណាយអាពាហ៍ពិពាហ៍ ឬព្រឹត្តិការណ៍សង្គមផ្សេងៗ**				
Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**				

1) Codes severity: 0=no crisis; 1=yes, moderate crisis; 2=yes, severe crisis. See Technical Guidelines for definitions.

កូដភាពធ្ងន់ធ្ងរ: ០=គ្មានវិបត្តិ, ១=មាន វិបត្តិមធ្យម, ២=មាន វិបត្តិខ្លាំងក្លា ។ មើលនិយមន័យក្នុងគោលការណ៍ណែនាំបច្ចេកទេស

2) Codes coping:

កូដវិធានទប់ទល់:

1. Harvest more forest products	**១. ប្រមូលផលិតផលព្រៃឈើច្រើនទៀត**
2. Harvest more wild products not in the forest	**២. ប្រមូលផលិតផលធម្មជាតិ មិនមែនក្នុងព្រៃច្រើនទៀត**
3. Harvest more agricultural products	**៣. ប្រមូលផលកសិកម្មច្រើនទៀត**
4. Spend cash savings	**៤. ចាយប្រាក់ដៃលបានសន្សំ**

5. Sell assets (land, livestock, etc.)	**៥. លក់ទ្រព្យដែលមាន (ដី សត្វពាហនៈ ។ល។)**
6. Do extra casual labour work	**៦. ធ្វើការងារបន្ថែម**
7. Assistance from friends and relatives	**៧. ជំនួយពីមិត្តភ័ក្តិ ឬបងប្អូន**
8. Assistance from NGO, community org., religious org. or similar	**៨. ជំនួយពី *NGO* សហគមន៍ វត្តអារាម ឬ ប្រហាក់ប្រហែល**
9. Get loan from money lender, credit association, bank etc.	**៩. ខ្ចីបុលពីគេ ពីសមាគមឥណទាន ឬ ធនាគារ ។ល។**
10. Tried to reduce household spending	**១០. ព្យាយាមកាត់បន្ថយការចំណាយក្នុងគ្រួសារ**
11. Did nothing in particular	**១១. មិនធ្វើអ្វីជាដុំកំភួនទេ**
19. Other, specify:	**១៩. ផ្សេងទៀត សូមបញ្ជាក់ :**

C. Forest services

សេវាកម្មព្រៃឈើ

1. Has the household over the past 12 months received any cash or in kind payments related to the following forest services?

តើគ្រួសារអ្នកបានទទួលប្រាក់កម្រៃជាសាច់ប្រាក់ ឬ ថ្នូ ពីសេវាកម្មព្រៃឈើមានចែងដូចខាងក្រោមឬទេ ក្នុងរយៈ១២ខែកន្លងមកនេះ?

Principal purpose **គោលបំណងសំខាន់**	**1. Have received?** *(1-0)* **បានទទួលឬទេ?** **(១-0)**	**2. If yes, amounts (values) received** *(Lc$)* *(if nothing, put '0')* **បើបាន បញ្ជាក់បរិមាណបានទទួល (ជារៀល)** **(បើគ្មាន សរសេរលេខ "0")**
Tourism **ទេសចរណ៍**		
Carbon projects **គំរោងការបោន**		
Water catchments projects **គំរោងទីជំរាល**		
Biodiversity conservation **អភិរក្សជីវចំរុះ**		
Compensation from timber company **ប្រាក់សំណងពីក្រុមហ៊ុនឈើ**		
Compensation from mining company **ប្រាក់សំណងពីក្រុមហ៊ុនរ៉ែ**		
Others, specify: **ផ្សេងទៀត សូមបញ្ជាក់:**		

D. Forest clearing

ការកាប់ឆ្ការព្រៃឈើ

Did the household clear any forest during the past 12 months? *If 'no', go to 9.* **តើគ្រួសារបានកាប់ឆ្ការព្រៃឈើក្នុងរយៈពេល ១២ខែកន្លងមកឬទេ?**	*(1-0)*

	បើ ទេ ឆ្លងទៅលេខ ៩			
If YES: បើមាន:	How much forest was cleared? **កាប់ឆ្ការបានផ្ទៃដីប៉ុន្មាន?**	*ha* ***ហ.ត***		
	What was the cleared forest (land) used for? *Codes: 1=cropping; 2=tree plantation; 3=pasture; 4=non-agric uses (Rank max 3)* **តើដីព្រៃដែលបានកាប់ឆ្ការប្រើដើម្បីអ្វី?** ***កូដ: ១=ដំណាំកសិកម្ម, ២=ដាំដើមឈើ, ៣=ដាំស្មៅឱ្យសត្វ, ៤=ប្រើសំរាប់ការងារក្រៅពីកសិកម្ម (ផ្តល់តាមលំដាប់ចំនួន អតិបរមា ៣)***	1.Rank1 លំដាប់ ១	2.Rank2 លំដាប់ ២	3.Rank3 លំដាប់ ៣
	If used for crops (code '1' in question above), which principal crop was grown? *(code-product) Rank max 3* **បើប្រើប្រាស់សំរាប់ដំណាំ (កូដ ១ នៃសំណួរខាងលើ) តើប្រភេទដំណាំសំខាន់ណាខ្លះបានដាំ?** ***(កូដ-ផលិតផល) ផ្តល់តាមលំដាប់ចំនួន អតិបរិមា ៣មុខ***	1.Rank1 លំដាប់ ១	2.Rank2 លំដាប់ ២	3.Rank3 លំដាប់ ៣
	What type of forest did you clear? *(code-forest)* **តើព្រៃឈើប្រភេទណាខ្លះដែលអ្នកបានកាប់ឆ្ការ?** ***(កូដ-ព្រៃឈើ)***			
	If secondary forest, what was the age of the forest? **បើវាជាព្រៃបន្ទាប់ តើអាយុវាប្រហែលប៉ុន្មាន?**	*years* ***ឆ្នាំ***		
	What was the ownership status of the forest cleared? *(code tenure)* **តើស្ថានភាពកម្មសិទ្ធិយ៉ាងដូចម្តេចចំពោះដីព្រៃដែលបានកាប់ឆ្ការហើយនោះ?** ***(កូដ-កម្មសិទ្ធិ)***			
	How far from the house was the forest cleared located? **តើដីដែលបានកាប់ឆ្ការនោះមានចំងាយប៉ុន្មានពីផ្ទះរបស់អ្នក?**	*km* ***គ.ម***		
Has the household over the last *5* years cleared forest? *If 'no', go to 11.* **តើគ្រួសារបានកាប់ឆ្ការព្រៃឈើ ឬទេក្នុងរយៈ ៥ឆ្នាំកន្លងមកនេះ?** **បើ ទេ ឆ្លងទៅលេខ ១១**		*1-0*		
If 'yes': how much forest (approx.) has been cleared over the last 5 years? បើបាន: **តើមានផ្ទៃដីប៉ុន្មាន (ប្រហែល) ក្នុងរយៈ ៥ឆ្នាំកន្លងមកនេះ?** *Note: This should include the area reported in question 2.* **សំគាល់: ផ្ទៃដីនេះគួររួម ទំហំដីដែលបានរាយការណ៍នៅក្នុងសំណួរ ២**		*ha* ***ហ.ត***		
How much land used by the household has over the last 5 years been abandoned (left to convert to natural re-vegetation)? **តើផ្ទៃដី ដែលគ្រួសារបានប្រើប្រាស់ ហើយបានបោះបង់ចោលក្នុងរយៈ ៥ឆ្នាំកន្លងមកនេះមានប៉ុន្មាន (ទុកចោលឱ្យព្រៃឈើដុះដោយធម្មជាតិវិញ)?**		*ha* ***ហ.ត***		

E. Welfare perceptions and social capital

ទស្សនៈលើសុខមាលភាព និង ទ្រព្យធនសង្គម

All things considered, how satisfied are you with your life over the past 12 months? *Codes: 1=very unsatisfied; 2=unsatisfied; 3=neither unsatisfied or satisfied; 4=satisfied; 5=very satisfied* **រាប់បញ្ចូលអ្វីៗទាំងអស់ តើអ្នកពេញចិត្តនឹងការរស់នៅរបស់អ្នកបែបណាក្នុងរយៈ ១២ខែកន្លងមកនេះ?** ***កូដៈ ១=មិនពេញចិត្តទាល់តែសោះ, ២=មិនពេញចិត្ត, ៣=ធម្មតា, ៤=ពេញចិត្ត, ៥=ពេញចិត្តណាស់***		
Has the household's food production and income over the past 12 months been sufficient to cover what you consider to be the needs of the household? *Codes: 1=no; 2=reasonable (just about sufficient); 3=yes* **តើផលិតផលអាហារ និងប្រាក់ចំណែលរកបានក្នុងរយៈពេល ១២ខែកន្លងមកនេះ គ្រប់គ្រាន់សំរាប់សេចក្តីត្រូវការរបស់គ្រួសារអ្នកឬទេ?** ***កូដៈ ១=ទេ, ២=សមរម្យ (គ្រាន់តែគ្រប់), ៣=បាទ***		
Compared with other households in the village (or community), how well-off is your household? *Codes: 1=worse-off; 2=about average; 3=better-off* **បើធៀបទៅនឹងគ្រួសារផ្សេងទៀតនៅក្នុងភូមិ តើគ្រួសារអ្នកមានឬក្រ?** ***កូដៈ ១=ក្រជាងគេ, ២=ប្រហែលគេឯង, ៣=មានជាងគេ***		
How well-off is your household today compared with the situation **5 years ago?** *Codes: 1=less well-off now; 2=about the same; 3=better off now* *If 1 or 3, go to 5. If 2, go to 6.* **តើគ្រួសាររបស់អ្នក មានភាពជីវភាពបែបណាបច្ចុប្បន្ន បើធៀបទៅនឹងកាលពី ៥ឆ្នាំមុន?** ***កូដៈ ១=អន់ជាងមុន, ២=ប្រហាក់ប្រហែលគ្នា, ៣=ប្រសើរជាងមុន*** ***បើ ១ ឬ ៣ ឆ្លងទៅលេខ ៥ ។ បើ ២ ឆ្លងទៅលេខ ៦***		
If worse- *or* better-off: what is the main reason for the change? *Please rank the most important responses, max 3.* បើកាន់តែក្រ ឬប្រសើរឡើងៈ **តើដោយមូលហេតុសំខាន់ៗអ្វីខ្លះ ធ្វើអោយមានការផ្លាស់ប្តូរ?** ***សូមផ្តល់មូលហេតុសំខាន់ជាងគេ តាមលំដាប់ចំនួន អតិបរិមា ៣***	**Reason: Change in …** **មូលហេតុៈ ផ្លាស់ប្តូរនៅក្នុងការ...**	**Rank 1-3** **លំដាប់ ១-៣**
	off farm employment **បំរើការនៅក្រៅកសិដ្ឋាន**	
	land holding (e.g., bought/sold land) **កាន់កាប់ដី (ទិញ-លក់ដី)**	
	forest resources **ធនធានព្រៃឈើ**	
	output prices (forest, agric,…) **តម្លៃផល (ព្រៃឈើ, កសិកម្ម ...)**	
	outside support (govt., NGO,..) **ជំនួយពីខាងក្រៅ (រដ្ឋ ឬ NGO)**	
	remittances **ប្រាក់ផ្ញើមកពីក្រៅ**	
	cost of living (e.g., high inflation) **ចំណាយសំរាប់ជីវភាព (ឧ. អតិផរណាខ្ពស់)**	
	war, civil strife, unrest **សង្គ្រាម អសន្តិសុខ ចលាចលសង្គម**	
	conflicts in village (non-violent) **ទំនាស់នៅក្នុងភូមិ (មិនមានហិង្សា)**	

	change in family situation (e.g. loss of family member/a major bread-winner) **ស្ថានភាពក្នុងគ្រួសារផ្លាស់ប្តូរ (ឧ. បាត់បង់សមាជិកគ្រួសារ / អ្នកចិញ្ចឹមគ្រួសារ)**	
	illness **ជម្ងឺតម្កាត់**	
	access (e.g. new road,…) **ស្ថានភាពធ្វើដំណើរ (ឧ. ផ្លូវសង់ថ្មី,...)**	
	19. other (specify): **ផ្សេងទៀត សូមបញ្ជាក់**	
Do you consider your village (community) to be a good place to live? *Codes: 1=no; 2=partly; 3=yes* **តើអ្នកយល់ឃើញថាភូមិ (ឃុំ) របស់អ្នកជាកន្លែងល្អដំគួរឱ្យរស់នៅឬទេ?** ***កូដ: ១=ទេ, ២=ដោយដុំៗ, ៣= បាទ***		
Do you **in general** trust people in the village (community)? *Codes: 1=no; 2=partly, trust some and not others; 3=yes* **ជាទូទៅ តើអ្នកមានជំនឿទុកចិត្តលើអ្នកភូមិ (សហគមន៍) របស់អ្នកឬទេ?** ***កូដ: ១=ទេ, ២=ដោយមនុស្ស ជ្រើខ្លះ មិនជ្រើខ្លះ, ៣=បាទ***		
Can you get help from other people in the village (community) if you are in need, for example, if you need extra money because someone in your family is sick? *Codes: 1=no; 2= can sometimes get help, but not always; 3=yes* **តើអ្នកអាចទទួលបានការជួយជ្រោមជ្រែងពីអ្នកភូមិ (សហគមន៍) ឬទេ ពេលដែលអ្នកត្រូវការ ដូចជាសុំខ្ចីលុយដើម្បីព្យាបាលជម្ងឺ?** ***កូដ: ១=ទេ, ២=ម្តងម្កាល តែមិនជានិច្ចកាលទេ, ៣=បាទ***		

F. Enumerator/researcher assessment of the household

ការវាយតម្លៃរបស់អ្នកសួរ ចំពោះគ្រួសារ

*Note: This is to be completed by the enumerator and/or the PEN partner. If the enumerator doing the A2 (and Q4) is **not** the one who has been doing previous quarterly surveys, those who have had the most exposure to the household should fill in questions 2-5.*

សំគាល់ : ខាងក្រោមនេះនឹងបំពេញដោយអ្នកសួរ ឬដោយដៃគូរបស់ប៉ែន ។ បើអ្នកសួរកំពុងសួរកំរងសំណួរ A2 (និង Q4) មិនមែនជាអ្នកដែលបានសួរ កំរងសំណួរអង្កេតគ្រួសារប្រចាំត្រីមាសពីពេលមុនទេ គេត្រូវរកអ្នកដែលដឹងច្បាស់ពីគ្រួសារនោះជាងគេដើម្បីឱ្យបំពេញសំណួរ ២-៥ ។

During the last interview, did the respondent smile or laugh? *Codes: (1) neither laughed nor smiled (somber); (2) only smiled; (3) smiled and laughed; (4) laughed openly and frequently.* **ក្នុងសំភាសន៍លើកមុន តើអ្នកឆ្លើយញញឹមឬសើច ឬទេ?** ***កូដ: ១=គ្មានអ្វីទាំងអស់, ២=គ្រាន់តែញញឹម, ៣=ញញឹមនិងសើច, ៤=សើចពេញបន្ទុកនិងញ៉ីកញាប់ខ្លៅត***	
Based on your impression and what you have seen (house, assets, etc.), how well-off do you consider this household to be compared with other households in the village? *Codes: 1=worse-off; 2=about average; 3=better-off* **តាមការអង្កេតនិងមើលឃើញរបស់អ្នក (ផ្ទះ ទ្រព្យសម្បត្តិ ។ល។) តើអ្នកយល់ថាស្ថានភាពគ្រួសារនេះមានឬក្របើធ្យើបទៅនឹងគ្រួសារផ្សេងទៀតក្នុងភូមិ?**	

កូដ: ១=ក្រ, ២=មធ្យម, ៣=មាន	
How reliable is the information **generally** provided by this household? *Codes: 1=poor; 2=reasonably reliable; 3=very reliable* **តើពត៌មានដែលអ្នកឆ្លើយផ្តល់អោយ ជាទូទៅអាចជឿបានឬទេ?** ***កូដ: ១=អត់/មិនសូវទេ, ២=អាចយកជាការបាន, ៣=គួរជាទីទុកចិត្តយ៉ាងខ្លាំង***	
How reliable is the information on **forest collection/use** provided by this household? *Codes: 1=poor; 2=reasonably reliable; 3=very reliable* **តើពត៌មានដែលអ្នកឆ្លើយផ្តល់អោយ អំពីការប្រមូលផល/ប្រើប្រាស់ព្រៃឈើ អាចជឿបានឬទេ?** ***កូដ: ១=អត់/មិនសូវទេ, ២=អាចយកជាការបាន, ៣=គួរជាទីទុកចិត្តយ៉ាងខ្លាំង***	
If the forest information is not so reliable (code 1 above), do you think the information provided overestimate or underestimate the actual forest use? *Codes: 1=underestimate; 2=overestimate; 3= no systematic over- or underestimation; 4=don't know.* **បើពត៌មានអំពីព្រៃឈើមិនអាចយកជាការបាន (កូដ ១ ខាងលើ) តើអ្នកយល់ឃើញថាពត៌មាននេះខ្ពស់ឬទាបជាងធៀបនឹងការប្រើប្រាស់ជាក់ស្តែង?** ***កូដ: ១=ទាបជាង, ២=ខ្ពស់ជាង, ៣=គ្មានការប៉ាន់ស្មានត្រឹមត្រូវ អាចខ្ពស់ឬទាបជាង, ៤=មិនដឹង***	

Quarterly household surveys (Q1-Q4)

ការអង្កេតគ្រួសារប្រចាំត្រីមាសលើកទី ១-៤ (Q1-Q4)

Note: All incomes are asked for the past month (past 30 days), except for the last sections on crops, livestock and other income sources where the recall period is 3 months.
Note: The researcher should list the most common products in the various tables, based on RRAs and pre-testing of the questionnaire. After asking about these pre-listed products, the enumerator should ask if there are any other products not mentioned that the household has harvested/collected over the past 1 (3) month(s).

សំគាល់: សំណួរលើប្រាក់កម្រៃទាំងអស់គឺផ្អែកលើពត៌មានក្នុងខែកន្លងមក (៣០ថ្ងៃមុន) លើកលែងតែក្នុងផ្នែកចុងក្រោយ ទាក់ទងនឹងដំណាំ សត្វពាហនៈ និង ប្រភពកម្រៃផ្សេងទៀត ដែលផ្អែកលើពត៌មានក្នុង ៣ខែកន្លងមក ។

សំគាល់: អ្នកស្រាវជ្រាវគួរតែចុះបញ្ជីទូរឬបណ្តាផលដែលសំបូរជាងគេជាទូទៅនៅក្នុងតារាង ដោយផ្អែកលើលទ្ធផល RRAs និង ពេលធ្វើការសាកល្បងសួរ សំណួរនេះ (pre-testing) ។ ក្រោយពីសាកល្បងសួរប្រភេទផលដែលមានក្នុងតារាងនេះរួច អ្នកសួរត្រូវសួរបន្ថែមក្នុងករណីមានប្រភេទផលផ្សេងទៀត ដែលអ្នកឆ្លើយបានប្រមូលក្នុងអំឡុងពេល ១ (ឬ ៣ខែ) កន្លងមក ។

Control information

ពត៌មានត្រួតពិនិត្យ

Task **ការកិច្ច**	**Date(s)** **កាលបរិច្ឆេទ**	**By who?** **ដោយនរណា?**	**Status OK? If not, give comments** **ស្ថានភាព ជោគជ័យ? បើទេ សូមផ្តល់ហេតុផល**
Interview **សំភាសន៍**			
Checking questionnaire **ការពិនិត្យពិច័យកំរងសំណួរ**			
Coding questionnaire **ការចុះកូដកំរងសំណួរ**			
Entering data **ការបញ្ចូលទិន្នន័យ**			
Checking & approving data entry **ការពិនិត្យពិច័យនិងអនុម័តទិន្នន័យបញ្ចូល**			

A. Identification

អត្តសញ្ញាណ

1. Identification of the household.

អត្តសញ្ញាណនៃគ្រួសារ

Household name and code **ឈ្មោះនិងកូដគ្រួសារ**	***(name)** *(ឈ្មោះ)*	***(HID)** *(កូដគ្រួសារ)*
Village name and code **ឈ្មោះនិងកូដភូមិ**	***(name)** *(ឈ្មោះ)*	***(VID)** **(កូដភូមិ)**
District name and code **ឈ្មោះនិងកូដស្រុក**	***(name)** *(ឈ្មោះ)*	***(DID)** *(កូដស្រុក)*
Name and PID (see B. below) of primary respondent	***(name)**	***(PID)**

ឈ្មោះ និង អត្តសញ្ញាណ (កូដ) បុគ្គល (មើល ចំណុច B ខាងក្រោម) នៃអ្នកឆ្លើយដំបូង	*(ឈ្មោះ)*	*(កូដបុគ្គល)*
Name and PID (see B. below) of secondary respondent **ឈ្មោះ និង អត្តសញ្ញាណ (កូដ) បុគ្គល (មើលចំណុច B ខាងក្រោម) នៃអ្នកឆ្លើយបន្ទាប់**	***(name)*** *(ឈ្មោះ)*	***(PID)*** *(កូដបុគ្គល)*

B. Direct forest income (income from unprocessed forest products)

ចំណូលផ្ទាល់ពីព្រៃឈើ (ចំណូលពីផលព្រៃឈើមិនទាន់តែម្ដៃ)

1. What are the quantities and values of raw-material forest products the members of your household collected for both own use and sale over **the past month**?

តើមានបរិមាណ និងតម្លៃប៉ុន្មានពីផលព្រៃឈើ ដែលសមាជិកគ្រួសារបានប្រមូលសំរាប់ប្រើប្រាស់ និងសំរាប់លក់ កាលពីខែមុន?

Note: Income from plantations is defined as forest income, while agroforestry income is categorized as agric. income (H).
Note: The quantities of unprocessed forest products used as inputs in making processed forest products should only be reported in section C, table 2, and not in the table below.

សំគាល់: ផលកម្រៃពីព្រៃដាំចាត់ទុកជាផលពីព្រៃឈើ រីឯផលកម្រៃពីកសិកម្មចាត់ទុកជាផលកសិកម្ម (H)

សំគាល់: បរិមាណផលព្រៃឈើមិនទាន់កែច្នៃ ដែលប្រើជាឧបនសំរាប់កែច្នៃ គួររាយការណ៍តែនៅក្នុងផ្នែក C តារាង ២ ហើយមិនត្រូវរាយការណ៍ក្នុងតារាងខាងក្រោមនេះទេ ។

1. Forest product *(code-product)* **ផលព្រៃឈើ (កូដផលិតផល)**	**2. Collected by whom?[1)] ប្រមូលដោយនរណា?**[1)]	**Collected where?** ប្រមូលនៅទីណា?		**5. Quantity collected (7+8) បរិមាណបានប្រមូល** (៧+៨)	**6. Unit ឯកតា**	**7. Own use (incl. gifts) ប្រើផ្ទាល់ខ្លួន (រួមទាំងអំណោយ)**	**8. Sold (incl. barter) លក់ (រួមទាំងដោះដូរ)**	**9. Price per unit តម្លៃ១ឯកតា**	**10. Type of market** *(code-market)* **ប្រភេទទីផ្សារ (កូដទីផ្សារ)**	**11. Gross value (5*9) តម្លៃសរុប** (៥x៩)	**12. Tran-sport/ marketing costs (total) ថ្លៃដឹកជញ្ជូន/ផ្សព្វផ្សាយ (សរុប)**	**13. Purch. inputs & hired labour ថ្លៃដើម និង ពលកម្ម**	**14. Net income (11-12-13) ប្រាក់ចំណេញ** (១១-១២-១៣)
		3. Land type *(code-land)* **ប្រភេទដី (កូដដី)**	**4. Ownership** *(code-tenure)* **កម្មសិទ្ធិ (កូដកម្មសិទ្ធិ)**										

1) Codes: 1=only/mainly by wife and adult female household members; 2=both adult males and adult females participate about equally; 3=only/mainly by the husband and adult male household members; 4=only/mainly by girls (<15 years); 5=only/mainly by boys (<15 years); 6=only/mainly by children (<15 years), and boys and girls participate about equally; 7=all members of household participate equally; 8=none of the above alternatives.

Note: ***Answers in columns 3 and 4*** *should be consistent with land categories reported in village questionnaire (V1D01) and in the annual household questionnaire (A1C).*

កូដ: ១=មានតែប្រពន្ធ ឬ ស្ត្រីពេញវ័យនៃគ្រួសារ, ២=ទាំងពីរភេទ ប្រុសនិងស្ត្រីពេញវ័យ ចូលរួមស្មើគ្នា, ៣= មានតែប្តី ឬ បុរសពេញវ័យនៃគ្រួសារ, ៤=មានតែក្មេងស្រី (អាយុតិចជាង ១៥ឆ្នាំ), ៥=មានតែក្មេងប្រុស (អាយុតិចជាង ១៥ឆ្នាំ), ៦=មានតែកូន ក្មេង (តិចជាង ១៥ឆ្នាំ) ក្មេងទាំងពីរភេទ ប្រុសនិងស្ត្រីចូលរួមស្មើគ្នា, ៧=សមាជិកគ្រួសារទាំងអស់ចូលរួមស្មើៗគ្នា, ៨=គ្មាន នរណាមួយនៃកូដខាងលើ ។

សំគាល់: *ចម្លើយក្នុងជួរឈរ ៣ និង ៤* ***គួរស៊ីគ្នានឹងប្រភេទប្រើប្រាស់ដីដូចមាននៅក្នុងកំរងសំណួរភូមិ (V1 D01) និងកំរងសំណួរគ្រួសារប្រចាំឆ្នាំលើកទី ១ (A1 C) ។***

2. What are the quantities and values of raw-material forest products the members of your household collected for both own use and sale over **the past three months**?

តើមានបរិមាណ និងតម្លៃប៉ុន្មានពីផលព្រៃឈើ ដែលសមាជិកគ្រួសារបានប្រមូលសំរាប់ប្រើប្រាស់ និងសំរាប់លក់កាលពី ៣ ខែមុន**?**

Note: Income from significant sources of income that are likely to be missed using one month recall period. Use pre-defined product list from RRA and A1.
Note: Income from plantations is defined as forest income, while agroforestry income is categorized as agric. income (H).
Note: The quantities of unprocessed forest products used as inputs in making processed forest products should only be reported in section C, table 2, and not in the table below.
Note: a given product should be included in either B0 or B1 (not in both tables).

សំគាល់: ចំណូលបានពីព្រកពស់ខាន់ៗ ដែលអាចរំលងដោយសំណួរសំរាប់ពេលមាន ១ខែ ខាងលើ ។ សូមមើលបញ្ជីបណ្តាផលិតផល ពេលធ្វើការសាកល្បងសួរសំណួរក្នុង RRA និង A1 ។

សំគាល់: ផលកម្រៃពីព្រៃដាំចាត់ទុកជាផលពីព្រៃឈើ រីឯផលកម្រៃពីកសិកម្មចាត់ទុកជាផលកសិកម្ម (H)

សំគាល់: បរិមាណផលព្រៃឈើមិនទាន់កែច្នៃ ដែលប្រើជាឧបសំរាប់កែច្នៃ គួររាយការណ៍តែនៅក្នុងផ្នែក C តារាង ២ ហើយមិនត្រូវរាយការណ៍ក្នុងតារាងខាងក្រោមនេះទេ ។

សំគាល់: ផលិតផលមួយអាចបញ្ចូលក្នុងតារាងមួយ ក្នុងចំណោមតារាងពីរ B0 ឬ B1 (មិនត្រូវបញ្ចូលក្នុងតារាងទាំងពីរទេ) ។

1. Forest product *(code-product)* **ផលព្រៃឈើ** *(កូដផលិតផល)*	**2. Collected by whom?** [1] **ប្រមូលដោយនរណា?**[1]	**Collected where?** ប្រមូលនៅទីណា?		**5. Quantity collec-ted (7+8) បរិមាណបានប្រមូល (៧+៨)**	**6. Unit ឯកតា**	**7. Own use (incl. gifts) ប្រើផ្ទាល់ខ្លួន (រួមទាំងអំណោយ)**	**8. Sold (incl. barter) លក់ (រួមទាំងដោះដូរ)**	**9. Price per unit តម្លៃ១ឯកតា**	**10. Type of market** *(code-market)* **ប្រភេទទីផ្សារ** *(កូដទីផ្សារ)*	**11. Gross value (5*9) តម្លៃសរុប (៥x៩)**	**12. Tran-sport/ marketing costs (total) ថ្លៃដឹកជញ្ជូន/ផ្សព្វផ្សាយ (សរុប)**	**13. Purch. inputs & hired labour ថ្លៃដើមនិងពលកម្ម**	**14. Net income (11-12-13) ប្រាក់ចំណេញ (១១-១២-១៣)**
		3. Land type *(code-land)* **ប្រភេទដី** *(កូដដី)*	**4. Ownership** *(code-tenure)* **កម្មសិទ្ធិ** *(កូដកម្មសិទ្ធិ)*										

1) Codes: 1=only/mainly by wife and adult female household members; 2=both adult males and adult females participate about equally; 3=only/mainly by the husband and adult male household members; 4=only/mainly by girls (<15 years); 5=only/mainly by boys (<15 years); 6=only/mainly by children (<15 years), and boys and girls participate about equally; 7=all members of household participate equally; 8=none of the above alternatives.

Note: Answers in columns 3 and 4 should be consistent with land categories reported in village questionnaire (V1D01) and in the annual household questionnaire (A1C).

កូដ: ១=មានតែប្រពន្ធ ឬ ស្ត្រីពេញវ័យនៃគ្រួសារ, ២=ទាំងពីរភេទ ប្រុសនិងស្ត្រីពេញវ័យ ចូលរួមស្មើគ្នា, ៣= មានតែប្តី ឬ បុរសពេញវ័យនៃគ្រួសារ, ៤=មានតែក្មេងស្រី (អាយុតិចជាង ១៥ឆ្នាំ), ៥=មានតែក្មេងប្រុស (អាយុតិចជាង ១៥ឆ្នាំ), ៦=មានតែកូន ក្មេង (តិចជាង ១៥ឆ្នាំ) ក្មេងទាំងពីរភេទ ប្រុសនិងស្ត្រីចូលរួមស្មើគ្នា, ៧=សមាជិកគ្រួសារទាំងអស់ចូលរួមស្មើៗគ្នា, ៨=គ្មាននរណាមួយនៃកូដខាងលើ ។

សំគាល់: ចម្លើយក្នុងជួរឈរ ៣ និង ៤ គួរស៊ីគ្នានឹងប្រភេទប្រើប្រាស់ដីដូចមាននៅក្នុងកំរងសំណួរភូមិ (V1 D01) និងកំរង សំណួរគ្រួសារប្រចាំឆ្នាំលើកទី ១ (A1 C) ។

C. Forest-derived income (income from processed forest products)

កំរៃទទួលបានពីផលិតផលព្រៃឈើសម្រេច

1. What are the quantities and values of processed forest products that the members of your household produced during **the past month?**

តើបរិមាណ និង តម្លៃផលិតផលព្រៃឈើកែច្នៃហើយប៉ុន្មាន ដែលសមាជិកគ្រួសាររបស់អ្នក បានផលិតកាលពីខែមុន**?**

1. Product *(code-product)* **ផលព្រៃឈើ** *(កូដផលិតផល)*	**2. Who in the household did the work?[1)] សមាជិកណាជាអ្នកធ្វើការងារ នេះ?**[1)]	**3. Quantity produced (5+6) បរិមាណផលិត បាន (៥+៦)**	**4. Unit ឯកតា**	**5. Own use (incl. gifts) ប្រើផ្ទាល់ខ្លួន (រួមទាំងអំណោយ)**	**6. Sold (incl. barter) លក់ (រួមទាំងដោះដូរ)**	**7. Price per unit តម្លៃ១ឯកតា**	**8. Type of market** *(code-market)* **ប្រភេទទីផ្សារ** *(កូដទីផ្សារ)*	**9. Gross value (3*7) តម្លៃសរុប (៣x៧)**	**10. Purchased inputs & hired labour ថ្លៃដើមនិងពលកម្ម**	**11. Transport/ marketing costs ថ្លៃដឹកជញ្ជូន/ផ្សព្វផ្សាយ**	**12. Net income excl. costs of forest inputs (9-10-11) ប្រាក់ចំណេញ (៩-១០-១១)**

1) Codes: 1=only/mainly by wife and adult female household members; 2=both adult males and adult females participate about equally; 3=only/mainly by the husband and adult male household members; 4=only/mainly by girls (<15 years); 5=only/mainly by boys (<15 years); 6=only/mainly by children (<15 years), and boys and girls participate about equally; 7=all members of household participate equally; 8=none of the above alternatives.

កូដ: ១=មានតែប្រពន្ធ ឬ ស្ត្រីពេញវ័យនៃគ្រួសារ, ២=ទាំងពីរភេទ ប្រុស និងស្ត្រីពេញវ័យ ចូលរួមស្មើគ្នា, ៣= មានតែប្តី ឬ បុរសពេញវ័យនៃគ្រួសារ, ៤=មានតែក្មេងស្រី (អាយុតិចជាង ១៥ឆ្នាំ), ៥=មានតែក្មេងប្រុស (អាយុតិចជាង ១៥ឆ្នាំ), ៦=មានតែកូន ក្មេង (តិចជាង ១៥ឆ្នាំ) ក្មេងទាំងពីរភេទ ប្រុសនិងស្រីចូលរួមស្មើគ្នា, ៧=សមាជិកគ្រួសារទាំងអស់ចូលរួមស្មើៗគ្នា, ៨=គ្មាននរណាមួយនៃកូដខាងលើ ។

2. What are the quantities and values of *unprocessed* forest products used as inputs (raw material) to produce the *processed* forest products in the table above?

តើបរិមាណនិងតម្លៃនៃផលិតផលព្រៃឈើមិនទាន់កែច្នៃប៉ុន្មាន ដែលបានប្រើប្រាស់ជាវត្ថុធាតុដើម ដើម្បីកែច្នៃជាផលិតផលសម្រេច ក្នុងតារាងខាងលើ?

*Note: Avoid double counting with section B: only products used an inputs are recorded in the table below, and these quantities should **not** be included in what is recorded in section B.*

សំគាល់: ជៀសវាងការរាប់/គិត ពីរដងជាមួយនឹងផ្នែក B: មានតែផលិតផលដែលប្រើជាវត្ថុធាតុដើមទេ ទើបកត់ត្រាចូលក្នុងតារាង ខាងក្រោម ហើយបរិមាណទាំងនេះ មិនត្រូវបញ្ចូលម្តងទៀតក្នុងផ្នែក B ទេ ។

1. Processed (final) products *(code-product)* **ផលិតផលកែច្នៃរួច** *(កូដផលិតផល)*	**2. Unprocessed forest product used as input** *(code-product)* **ផលិតផល ដើមប្រើសំរាប់កែច្នៃ** *(កូដផលិតផល)*	**3. Quantity used (5+6)** **បរិមាណដែលបានប្រើប្រាស់** (៥ + ៦)	**4. Unit** **ឯកតា**	**5. Quantity purchased** **បរិមាណដែលបានទិញ**	**6. Quantity collected by household** **បរិមាណដែលបានប្រមូលដោយគ្រួសារ**	**Collected where?** ប្រមូលនៅទីណា?		**9. Who in the household collected the forest product?[1])** **សមាជិកណាជាអ្នកប្រមូលផលព្រៃឈើ[1])**	**10. Price per unit** **ថ្លៃទិញក្នុង ១ ឯកតា**	**11. Value (3*10)** **តម្លៃ** (៣ x ១០)
						7. Land type *(code-land)* **ប្រភេទដី** *(កូដដី)*	**8. Ownership** *(code-tenure)* **កម្មសិទ្ធិ** *(កូដកម្មសិទ្ធិ)*			

1) Codes as in the table above.

កូដដូចកូដខាងលើដែរ

Note: The products in column 1 should be exactly the same as those in column 1 in the table above.
Note: Columns 7,8,9 should be left blank if no collection by household. Column 10 (price) should be asked even if only from collection, but if not available, see the Technical Guidelines on valuation.
Note: Answers in columns 7 and 8 should be consistent with land categories reported in village questionnaire (V1D01) and in the annual household questionnaire (A1C).

សំគាល់: ផលិតផលនៅក្នុងជួរឈរ ១ នៃតារាងនេះ គួរតែដូចគ្នាសុទ្ធសាធ នឹងផលិតផលក្នុងជួរឈរ ១ នៃតារាងដែលបានបង្ហាញខាងលើ ។

សំគាល់: ជួរឈរ ៧, ៨, និង ៩ គួរទុកនៅចំហ បើគ្រួសារគ្មានការប្រមូលទេនោះ ។ ជួរឈរ ១០ (តម្លៃ) គួរតែសួរ បើទោះជាផលិតផលនោះបានមក ដោយសារការប្រមូលដោយកំលាំងក៏ដោយ ។ ប៉ុន្តែបើមិនអាចមានទេ ចូរមើលគោលការណ៍ណែនាំបច្ចេកទេសត្រង់តម្លៃ ។

សំគាល់: ចម្លើយក្នុងជួរឈរ ៧ និង ៨ គួរស៊ីគ្នានឹងប្រភេទប្រើប្រាស់ដីដូចមាននៅក្នុងកំរងសំណួរភូមិ (V1 D01) និងកំរង សំណួរគ្រួសារប្រចាំឆ្នាំលើកទី ១ (A1 C) ។

D. Fishing and aquaculture

ការនេសាទត្រី និង វារីវប្បកម្ម (ការចិញ្ចឹមត្រី)

1. How much fish did your household catch **exclusively from the wild** (rivers, lake, sea) during **the past month**?

តើបរិមាណត្រីចំនួនប៉ុន្មានដែលគ្រួសាររបស់អ្នកនេសាទបានពីធម្មជាតិ (ស្ទឹង ទន្លេ បឹង សមុទ្រ) កាលពីខែមុន?

1. Type of fish (list local names) * ប្រភេទត្រី (ឈ្មោះក្នុងស្រុក)	**Collected where? បានប្រមូលនៅទីណា?**		**4. Total catch (kg) (5+6) បរិមាណសរុបដែលបាននេសាទ (គ.ក្រ) (៥ + ៦)**	**5. Own use (incl. gifts) ប្រើប្រាស់សំរាប់គ្រួសារ (រួមទាំងឱ្យគេ)**	**6. Sold (incl. barter) លក់ (រួមទាំងដូរ)**	**7. Price per kg តម្លៃក្នុង ១គក្រ**	**8. Gross value (4*7) តម្លៃសរុប (៤ x ៧)**	**9. Costs (inputs, hired labour, marketing) ចំណាយ (ថ្លៃជើម, ពលកម្ម, ទីផ្សារ)**	**10. Net income (8-9) ចំណេញសុទ្ធ (៨-៩)**
	2. Land type *(code-land)* **ប្រភេទដី** *(កូដដី)*	**3. Owner-ship** *(code-tenure)* **កម្មសិទ្ធិ** *(កូដកម្មសិទ្ធិ)*							

Note: Answers in columns 2 and 3 should be consistent with land categories reported in the village questionnaire (V1D01) and in the annual household questionnaire (A1C).

សំគាល់: ចម្លើយក្នុងជួរឈរ ២ និង ៣ គួរស៊ីគ្នានឹងប្រភេទប្រើប្រាស់ដីដូចមាននៅក្នុងកំរងសំណួរភូមិ (V1 D01) និងកំរង សំណួរគ្រួសារប្រចាំឆ្នាំលើកទី ១ (A1 C) ។

2. How much fish did your household catch **from ponds (aquaculture)** in **the past month**?

តើបរិមាណត្រីប៉ុន្មានដែលគ្រួសារអ្នកនេសាទបានពីអណ្តូង/ស្រះ (វារីវប្បកម្ម) នៅក្នុង ខែកន្លងមក?

1. Type of fish (list local names)* ប្រភេទត្រីឈ្មោះក្នុងស្រុក)	**2. From where? 1) នេសាទពីទីណា?)**	**3. Total catch (kg) (4+5) បរិមាណសរុបដែលបាននេសាទ (គ.ក្រ) (៤ + ៥)**	**4. Own use (incl. gifts) ប្រើប្រាស់សំរាប់គ្រួសារ (រួមទាំងឱ្យគេ)**	**5. Sold (incl. barter) លក់ (រួមទាំងដូរ)**	**6. Price per kg តម្លៃ ក្នុង ១គក្រ**	**7. Gross value (3*6) តម្លៃសរុប (៣ x ៦)**	**8. Costs (inputs, hired labour, marketing, etc.) ចំណាយ (ថ្លៃជើម,ពលកម្ម, ទីផ្សារ)**	**9. Net income (7-8) ចំណេញសុទ្ធ (៧-៨)**

1) Codes: 1=Pond owned by households; 2=Pond owned by group of which household is a member; 3=Pond owned by community/village; 4=Pond owned by others and persons can buy fishing rights (include costs in column 7); 9=Other, specify:

កូដ: ១= អណ្តូង/ស្រះ ផ្ទាល់របស់គ្រួសារ, ២= អណ្តូង/ស្រះ របស់ក្រុមមួយ ដែលគ្រួសារនេះជាសមាជិក, ៣= អណ្តូង/ស្រះ ជាកម្មសិទ្ធិរបស់សហគមន៍/ភូមិ, ៤= អណ្តូង/ស្រះរបស់អ្នកផ្សេង តែគ្រួសារនេះអាចទិញសិទ្ធិនេសាទបាន (បូករួមទាំងតម្លៃនៅក្នុងជួរឈរ ៧), ៩=ផ្សេងទៀត សូមបញ្ជាក់

E. Non-forest environmental income

ចំណូលបានមកពីបរិស្ថានក្រៅពីព្រៃឈើ

1. In addition to forest products and fish included in the previous tables, how much of **other wild products** (e.g., from grasslands, fallows, etc.) did your household collect **in the past month**?

បន្ថែមលើផលិតផលព្រៃឈើ និងត្រីដូចក្នុងតារាងខាងលើ តើផលិតផលធម្មជាតិអ្វីខ្លះទៀត (ឧ. ពីវាលស្មៅ ព្រៃគម្លោត ។ល។) ដែលគ្រួសាររបស់អ្នកប្រមូលបាន ក្នុង ខែកន្លងមក?

1. Type of product *(code-product)* **ប្រភេទផលិតផល** *(កូដផលិតផល)*	**Collected where? ប្រមូលពីទីណា?**		**4. Quantity collected (6+7) បរិមាណបានប្រមូល** (៦+៧)	**5. Unit ឯកតា**	**6. Own use (incl. gifts) ប្រើប្រាស់ផ្ទាល់ខ្លួន (រួមទាំងឱ្យគេ)**	**7. Sold (incl. barter) លក់ (រួមទាំងដូរ)**	**8. Price per unit តម្លៃលក់ក្នុង ១ ឯកតា**	**9. Gross value (4*8) តម្លៃសរុប** (៤x៨)	**10. Costs (inputs, hired labour, marketing, etc.) ចំណាយ (ថ្លៃដើម, ពលកម្ម, ទីផ្សារ)**	**11. Net income (9-10) ចំណេញសុទ្ធ** (៩-១០)
	2. Land type *(code-land)* **ប្រភេទដី** *(កូដដី)*	**3. Owner-ship** *(code-tenure)* **កម្មសិទ្ធិ** *(កូដកម្មសិទ្ធិ)*								

Note: Answers in columns 2 and 3 should be consistent with land categories reported in the village questionnaire (V1D01) and in the annual household questionnaire (A1C).

សំគាល់: ចម្លើយក្នុងជួរឈរ ២ និង ៣ គួរស៊ីគ្នានឹងប្រភេទប្រើប្រាស់ដីដូចមាននៅក្នុងកំរងសំណួរភូមិ (V1 D01) និងកំរង សំណួរគ្រួសារប្រចាំឆ្នាំលើកទី ១ (A1 C) ។

2. In addition to forest products and fish included in the previous tables, how much of **other wild products** (i.e. non-cultivated products from grasslands, fallows, etc.) did your household collect **in the past three months**?

បន្ថែមទៅលើផលព្រៃឈើ និងត្រីដូចមានរាយក្នុងតារាងខាងដើម តើផលិតផលធម្មជាតិអ្វីខ្លះទៀត (ផលិតផលមិនមែនដាំ) ដែលគ្រួសារអ្នកប្រមូល ក្នុងរយៈ ៣ ខែកន្លងមកនេះ?

Note: Income from significant sources of income that are likely to be missed using one month recall period. Use pre-defined product list from RRA and A1.
Note: a given product should be recorded in either E0 or E1 (not in both tables)

សំគាល់: ចំណូលបានពីព្រភពសំខាន់ៗ ដែលអាចរំលងដោយសំណួរសំរាប់ពត៌មាន ១ខែ ខាងលើ ។ សូមមើលបញ្ជីបណ្តាផលិតផល ពេលធ្វើការសាកល្បងសួរសំណួរក្នុង RRA និង A1 ។

សំគាល់: ផលិតផលមួយអាចបញ្ចូលក្នុងតារាងមួយ ក្នុងចំណោមតារាងពីរ E0 ឬ E1 (មិនត្រូវបញ្ចូលក្នុងតារាងទាំងពីរទេ) ។

1. Type of product *(code-product)* ប្រភេទផលិតផល *(កូដផលិតផល)*	**Collected where?** ប្រមូលពីទីណា?		**4. Quantity collected (6+7)** បរិមាណបានប្រមូល (៦+៧)	**5. Unit** ឯកតា	**6. Own use (incl. gifts)** ប្រើប្រាស់ផ្ទាល់ខ្លួន (រួមទាំងឱ្យគេ)	**7. Sold (incl. barter)** លក់ (រួមទាំងដូរ)	**8. Price per unit** តម្លៃលក់ក្នុង ១ ឯកតា	**9. Gross value (4*8)** តម្លៃសរុប (៤x៨)	**10. Costs (inputs, hired labour, marketing, etc.)** ចំណាយ (ថ្លៃ ដើម, ពលកម្ម, ទីផ្សារ)	**11. Net income (9-10)** ចំណេញសុទ្ធ (៩-១០)
	2. Land type *(code-land)* ប្រភេទដី *(កូដដី)*	**3. Owner-ship** *(code-tenure)* កម្មសិទ្ធិ *(កូដកម្មសិទ្ធិ)*								

Note: Answers in columns 2 and 3 should be consistent with land categories reported in the village questionnaire (V1D01) and in the annual household questionnaire (A1C).

សំគាល់: ចម្លើយក្នុងជួរឈរ ២ និង ៣ គួរស៊ីគ្នានឹងប្រភេទប្រើប្រាស់ដីដូចមាននៅក្នុងកំរងសំណួរភូមិ (V1 D01) និងកំរង សំណួរគ្រួសារប្រចាំឆ្នាំលើកទី ១ (A1 C) ។

F. Wage income

ចំណូលប្រាក់ពលកម្ម

1. Has any member of the household had paid work **over the past three months**?

តើមានសមាជិកណាម្នាក់នៃគ្រួសាររបស់អ្នកទទួលបានកម្រៃពីការងារពលកម្មនៅក្នុងរយៈពេល ៣ ខែកន្លងមក**ឬទេ?**

Note: One person can be listed more than once for different jobs.
*Note: If a person has worked but not yet received payment, the **expected** income is recorded in column 5 while the **actually received** income is recorded in column 6. In cases of pre-payment and/or late payment for work, the actual days worked, the negotiated daily wage rate and the actual amount received are recorded in columns 3, 4 and 6, respectively.*

សំគាល់: សមាជិកម្នាក់ អាចមានមុខរបរច្រើនផ្សេងៗគ្នា

សំគាល់: បើសមាជិកណាម្នាក់មានការងារធ្វើ តែមិនទាន់ទទួលបានប្រាក់ខែ នោះប្រាក់ខែដែលសង្ឃឹមថាបាន ត្រូវកត់ត្រាក្នុងជួរឈរ ៥ ហើយប្រាក់ខែ ដែលទទួលពិតប្រាកដ ត្រូវកត់ត្រាក្នុងជួរឈរ ៦ ។ ចំពោះប្រាក់កម្រៃដែលទទួលបានមុន/យឺតយ៉ាវសំរាប់ការងារ ចំនួនថ្ងៃធ្វើការពិតប្រាកដ អត្រាកម្រៃ ប្រចាំថ្ងៃ និង កម្រៃពិតប្រាកដដែលបានទទួល ត្រូវកត់ត្រាក្នុងជួរឈរ ៣ ៤ និង ៦ បន្តបន្ទាប់គ្នា ។

1. Household member (PID) សមាជិកគ្រួសារ (កូដបុគ្គល)	2. Type of work *(code-work)* ប្រភេទការងារ *(កូដការងារ)*	3. Days worked past 3 months ចំនួនថ្ងៃធ្វើការក្នុង៣ខែចុងក្រោយ	4. Daily wage rate ប្រាក់កម្រៃប្រចាំថ្ងៃ	5. Total (expected) wage income (3*4) សរុបចំណូលប្រាក់ខែ (សង្ឃឹមទុក) (៣x៤)	6. Total wage income actually received សរុបចំណូលប្រាក់ខែពិតប្រាកដ

G. Income from own business (not forest or agriculture)

ចំណូលពីជំនួញផ្ទាល់ខ្លួន (មិនរាប់បញ្ចូលផលិតផលព្រៃឈើ ឬ ផលកសិកម្ម)

1. Are you involved in any types of business, and if so, what are the gross income and costs related to that business over **the past month?**

តើអ្នកមានប្រកបរបរជួញដូរណាមួយឬទេ? បើមាន តើបានចំណូលសរុបប៉ុន្មាន និង ត្រូវចំណាយដើមប៉ុន្មាននៅក្នុង ខែកន្លងមក?

Note: If the household is involved in several different types of business, you should fill in one column for each business.

សំគាល់: ប្រសិនបើគ្រួសារនេះ ប្រកបរបរជួញដូរច្រើនផ្សេងៗ អ្នកសួរត្រូវបំពេញក្នុងជួរឈរមួយ សំរាប់របរជំនួញមួយ ។

	1. Business 1 របរទី ១	2. Business 2 របរទី ២	3. Business 3 របរទី ៣
What is your type of business?[1)] ប្រភេទរបរជំនួញ[1)]			
Gross income (sales) ចំណូលសរុប (បានពីការលក់)			
Costs: **តម្លៃចំណាយ**			
Purchased inputs ថ្លៃដើម (ទិញវត្ថុធាតុដើម)			
Own non-labour inputs (equivalent market value) ទុនដែលមិនមែនកំលាំងមនុស្ស (តម្លៃប្រហាក់ប្រហែលនៅទីផ្សារ)			
Hired labour ជួលពលកម្ម			
Transport and marketing cost ចំណាយដឹកជញ្ជូន និង ចំណាយទីផ្សារ			

Capital costs (repair, maintenance, etc.) **ចំណាយមូលធន (ជួសជុល ថែទាំ ។ល។)**			
Other costs **ចំណាយផ្សេងទៀត**			
Net income (2 - items 3-8) **ចំណូលសុទ្ធ (យក ២ ដក ៣ រហូតដល់ ៨)**			
Current value of capital stock **តម្លៃបច្ចុប្បន្ននៃស្តុកធន**			

1) Codes: 1=shop/trade; 2=agric. processing; 3=handicraft; 4=carpentry; 5=other forest based; 6=other skilled labour; 7=transport (car, boat,…); 8=lodging/restaurant; 9=brewing; 10=brick making; 11=landlord/real estate;
12=herbalist/traditional healer/witch doctor; 13=quarrying; 19=other, specify:

កូដ: ១=ហាង/ពាណិជ្ជកម្ម, ២=ការកែច្នៃកសិផល, ៣=សិប្បកម្ម, ៤=ជាងឈើ, ៥=ផ្សេងទៀតទាក់ទងនឹងព្រៃឈើ, ៦=ការងារជំនាញផ្សេងទៀត, ៧=ការដឹកជញ្ជូន (រថយន្ត, ទូក...), ៨=ផ្ទះសំណាក់/ភោជនីយដ្ឋាន, ៩=ផលិតស្រា, ១០=ផលិតឥដ្ឋ, ១១=ម្ចាស់ដី/អ្នកជំនួញដីធ្លី, ១២=គ្រូឱសថបូរាណ/គ្រូអាគម, ១៣=ប្រមាញ់ ឬ ជីករ៉ែ, ១៩=ផ្សេងទៀត សូមបញ្ជាក់

H. Income from agriculture – crops

កម្រៃទទួលបានពីផលកសិកម្ម - ដំណាំ

1. What are the quantities, uses and values of crops that household **has harvested** during **the past 3 months**?

តើផលដំណាំដែលគ្រួសារបានប្រមូលរយៈពេល ៣ ខែកន្លងមក **មានបរិមាណ ការប្រើប្រាស់ និងតម្លៃប៉ុន្មាន?**

Note: only include crops that were harvested during the past three months. Use of stored crops is booked in table 1a.
Note: remember to probe for and include small quantities of crops that are continuously harvested for subsistence uses.

សំគាល់: គិតចំពោះតែផលដំណាំដែលទទួលបានក្នុងពាក់ខែកន្លងមកប៉ុណ្ណោះ ។ ចំពោះការប្រើប្រាស់ផលដំណាំដែលបានបំរុងពីមុនមក ត្រូវចុះក្នុងតារាង 1a ។

សំគាល់: ចាំថាគួរគិតបរិមាណតិចតួចនៃផលដំណាំ ដែលប្រើប្រាស់ជាប្រចាំសំរាប់ជីវភាពប្រចាំថ្ងៃផងដែរ ។

1. Crops *(code-product)* **ដំណាំ** *(កូដផលិតផល)*	**2. Area of production (m^2) ផ្ទៃដីដំណាំ (ម៉ែ)**	**3. Total production (5+6) ផលិតផល សរុប (៥+៦)**	**4. Unit (for production) ឯកតា (សំរាប់ផលិតផល)**	**5.Own use (incl. gifts) ប្រើប្រាស់ផ្ទាល់ខ្លួន (រួមទាំងឱ្យគេ)**	**6. Sold (incl. barter) លក់ (រួមទាំងដូរ)**	**7. Price per unit តម្លៃក្នុង ១ឯកតា**	**8.Total value ((5+6)*7) តម្លៃសរុប ((៥+៦)x៧)**	**9. To stock (3-5-6) សំរាប់រក្សាទុក (៣-៥-៦)**

1a. What are the quantities and values of **stored** crops that household **has used** (consumed or sold) during **the past 3 months**?

តើបរិមាណ និងតម្លៃនៃផលដំណាំប៉ុន្មានដែលគ្រួសារបានប្រើប្រាស់ (បរិភោគ និងលក់) ក្នុងរយៈ ៣ ខែកន្លងមក?

1. Crops *(code-product)* **ផលដំណាំ (កូដផលិតផល)**	**2. Unit (for storage) ឯកតា (សំរាប់ស្តុក)**	**3. Opening stock (3 months ago) បើកស្តុក (៣ខែចុងក្រោយ)**	**4.Own use (incl. gifts) ប្រើប្រាស់ផ្ទាល់ខ្លួន (រួមទាំងឱ្យគេ)**	**5. Sold (incl. barter) លក់ (រួមទាំងដូរ)**	**6. Price per unit តម្លៃលក់ក្នុង ១ ឯកតា**	**7.Total value ((4+5)*6) តម្លៃសរុប ((៤+៥)x៦)**	**8. To stock (from H1/9) សំរាប់ស្តុក (យកពី H1/9)**	**9. Stock now (3-4-5+8) បរិមាណ ស្តុកបច្ចុប្បន្ន (៣-៤-៥+៨)**

2. What are the quantities and values of inputs used in crop production over **the past 3 months** (this refers to agricultural cash expenditures)?

តើបរិមាណ និង តម្លៃប៉ុន្មាន ដែលគ្រួសារបានប្រើជាមុនសំរាប់ផលិតផលស្រូវ និង ដំណាំ ក្នុងរយៈពេល ៣ ខែកន្លងមក **(ចំណាយកសិកម្ម)?**

Note: Take into account all the crops in the previous table.
Note: See codes-list (section 3.2) for additional codes.

សំគាល់: រាប់បញ្ចូលរាល់មុខដំណាំនៅក្នុងតារាងមុន ។

សំគាល់: មើលបញ្ជីកូដ (ចំណុច ៣.២) សំរាប់កូដបន្ថែម ។

1. Inputs ចំណាយ	**2. Quantity បរិមាណ**	**3. Unit ឯកតា**	**4. Price per unit តម្លៃក្នុង ១ ឯកតា**	**5. Total costs (2*4) ចំណាយសរុប (២ x ៤)**
Seeds **គ្រាប់ពូជ**				
Fertilizers **ជីគីមី**				
Pesticides/herbicides **ថ្នាំសំលាប់សត្វល្អិត/ស្មៅ**				
Manure **ជីអាចម៍សត្វ**				
Draught power **កំលាំងអូសទាញ (សត្វ)**				
Hired labour **ឈ្នួលពលកម្ម**				
Hired machinery **ឈ្នួលយានយន្ត**				
Transport/marketing **ដឹកជញ្ជូន/ទីផ្សារ**				
19. Other, specify:				

ផ្សេងទៀត សូមបញ្ជាក់				
20. Payment for land rental ចំណាយជួលដី				

I. Income from livestock

ប្រាក់ចំណូលពីការចិញ្ចឹមសត្វ

1. What is the number of ADULT larger animals your household has now, and how many have you sold, bought, slaughtered or lost during **the past 3 months**?

តើនៅពេលនេះគ្រួសារអ្នកមានសត្វពាហនៈ ពេញវ័យ ធំៗ **ចំនួនប៉ុន្មាន? ហើយ**ក្នុងរយៈពេល ៣ ខែកន្លងមកនេះ**គ្រួសាររបស់អ្នកបានលក់ ទិញ កាប់ ឬ បាត់បង់អស់ប៉ុន្មាន?**

Note: Only include larger valuable animals; smaller animals are included in table 1a.
Note: See codes-list (section 3.3) for additional codes.

សំគាល់: រាប់តែសត្វពាហនៈធំៗប៉ុណ្ណោះ ចំពោះសត្វតូចៗបញ្ចូលវាក្នុងតារាង 1a ។

សំគាល់: មើលបញ្ជីកូដ (ចំណុច ៣.៣) សំរាប់កូដបន្ថែម

1. Livestock **សត្វពាហនៈ**	**2. Beginning number (3 months ago)** **ចំនួនដែលបានចាប់ផ្តើម (៣ខែកន្លងមក)**	**3.Sold (incl. barter), live or slaught-ered** **លក់ (រួមទាំង ដូរ) រស់ ឬ កាប់លក់)**	**4.Slaught-ered for own use (or gift given)** **កាប់សំរាប់ផ្ទាល់ខ្លួន (រួមទាំងឱ្យគេ)**	**5. Lost (theft, died...)** **បាត់ (ចោរលួច ឬ ងាប់)**	**6. Bought or gift received** **ទិញ ឬ ទទួលអំណោយ**	**7. New from own stock** **កូនកើតថ្មី**	**8. End number (now) (2-3-4-5+6+7)** **ចំនួនចុងក្រោយ (នៅពេលនេះ) (២-៣-៤-៥+៦+៧)**	**9. Price per adult animal** **តម្លៃសត្វពាហនៈពេញវ័យក្នុង ១ក្បាល**	**10. Total end value (8*9)** **តម្លៃចុងក្រោយសរុប (៨ x ៩)**
Cattle **សត្វពាហនៈ**									
Buffalos **ក្របី**									
Goats **ពែម**									
Sheep **ពពែ**									
Pigs **ជ្រូក**									
Donkeys **លា**									
7. Horses									

សេះ									
8. Turkey **មាន់ទោ**									
9. Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**									

1a. What is the number of ADULT smaller animals your household has sold or consumed during **the past month**?

Note: See codes-list (section 3.3) for additional codes.

តើគ្រួសារអ្នកបានលក់ ឬ បរិភោគសត្វពាហនៈពេញវ័យ តូចៗ **ចំនួនប៉ុន្មាន** ក្នុង ខែកន្លងមកនេះ**?**

សំគាល់: មើលបញ្ជីកូដ (ចំណុច ៣.៣) សំរាប់កូដបន្ថែម

1. Livestock សត្វពាហនៈ	**2.Sold (incl. barter), live or slaughtered លក់ (រួមទាំងដូរ) រស់ ឬកាប់លក់**	**3.Slaughtered for own use (or gift given) កាប់សំរាប់ប្រើប្រាស់ខ្លួនឯង (រួមទាំងឱ្យគេ)**	**4. Price per adult animal តម្លៃសត្វពេញវ័យក្នុង ១ក្បាល**	**5. Total value ((2+3+4)*5) តម្លៃសរុប ((២+៣+៤) x ៥)**
Ducks **ទា**				
Chicken **មាន់**				
3. Guinea pigs **ជ្រូកពូជតូច**				
4. Rabbit **ទន្សាយ**				
5. Guinea fowl **មាន់ពូជតូច**				
9. Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**				

2. What are the quantities and values of animal products and services that you have produced during **the past 3 months**?

តើបរិមាណនិងតម្លៃនៃផលិតផល និងសេវាសត្វមានប៉ុន្មាន ដែលអ្នកបានផលិតកាលពី ៣ ខែកន្លងមក**?**

1. Product/service ផលិតផល/សេវាកម្ម	**2. Production (4+5) ផលិតផល (៤+៥)**	**3. Unit ឯកតា**	**4. Own use (incl. gifts) ប្រើប្រាស់ផ្ទាល់ខ្លួន (រួមទាំងឱ្យគេ)**	**5. Sold (incl. barter) លក់ (រួមទាំងដូរ)**	**6. Price per unit តម្លៃក្នុង ១ឯកតា**	**7. Total value (2*6) តម្លៃសរុប (២ x ៦)**

Meat [1)] **សាច់ [១)]**						
Milk [2)] **ទឹកដោះ [២)]**						
Butter **ប័រ**						
Cheese **ឈីស**						
Ghee **ប័រម្យ៉ាងទៀត**						
Eggs **ស៊ុត**						
Hides and skin **ស្បែក**						
Wool **រោម**						
Manure **ជីអាចម៍សត្វ**						
Draught power **កំលាំងអូសទាញ**						
Bee hives **កសិដ្ឋានឃ្មុំ**						
Honey **ទឹកឃ្មុំ**						
Curdled milk **ទឹកដោះគោចំរាញ់**						
Soap **សាប៊ូ**						
Other, specify **ផ្សេងទៀត សូមបញ្ជាក់**						

1) Make sure this corresponds with the above table on sale and consumption of animals.
បញ្ជាក់ឱ្យបានច្បាស់ថា ចំនួនខេះមានភាពស៊ីសង្វាក់គ្នានឹងតារាងខាងលើស្តីអំពីសត្វលក់ និងបរិភោគ ។

2) Only milk consumed or sold should be included. If used for making, for example, cheese it should not be reported (only the amount and value of cheese).
មានតែទឹកដោះគោសំរាប់បរិភោគ ឬលក់ទេ គួរមួមបញ្ចូល ។ បើទឹកដោះគោប្រើសំរាប់ផលិតមុខម៉ាំញផ្សេងទៀត (ដូចជាឈីស) មិនត្រូវបញ្ចូលក្នុង ទីនេះទេ (គឺគ្រាន់តែបរិមាណ និង តម្លៃ) ។

3. What are the quantities and values of inputs used in livestock production during **the past 3 months** (cash expenditures)?

តើបរិមាណនិងតម្លៃ នៃ ដើម (ទុន) ដែលប្រើជាទុនសំរាប់ផលិត ផលិតផលសត្វមានប៉ុន្មាន កាលពី ៣ ខែកន្លងមក(**ប្រាក់ចំណាយ**)?

Note: The key is to get total costs, rather than input units.

ចំណុចសំខាន់ គឺរកតម្លៃចំណាយសរុប, មិនមែនរកដើម (ទុន) ទេ

1. Inputs **ដើម (ទុន)**	**2. Unit** **ឯកតា**	**3. Quantity** **បរិមាណ**	**4. Price per unit** **តម្លៃ ១ឯកតា**	**5. Total costs (3*4)** **ចំណាយសរុប** (៣ x ៤)
Feed/fodder **ចំណី/ចំបើង**				
Rental of grazing land **ជួលដីស្មៅចំណីសត្វ**				
Medicines, vaccination and other veterinary services **ថ្នាំ, វ៉ាក់សាំង, និង សេវាកម្ម ពេទ្យសត្វ ដទៃទៀត**				
Costs of maintaining barns, enclosures, pens, etc. **ចំណាយថែរក្សាជង្រុកចំណី ក្រោលសត្វ ។ល។**				
Hired labour **ឈ្នួលពលកម្ម**				
Inputs from own farm ដើម (ទុន) ពីកសិដ្ឋានផ្ទាល់ខ្លួន				
Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**				

4. Please indicate approx. share of fodder, either grazed by your animals or brought to the farm by household members.

សូមបង្ហាញអត្រាប្រហាក់ប្រហែលជាភាគរយនៃស្មៅ/ចំបើងដែលសត្វរបស់អ្នកបានស៊ីដោយផ្ទាល់ ឬ នាំមកកសិដ្ឋានដោយសមាជិកគ្រួសារអ្នក

Type of grazing land or source of fodder **ប្រភេទនៃវាលស្មៅ ឬ ប្រភពចំណី**		**3. Approx. share** (%) **អត្រាប្រហាក់ប្រហែល (%)**
1. Land type *(code-land)* **ប្រភេទដី (កូដដី)**	**2. Ownership** *(code-tenure)* **កម្មសិទ្ធិ (កូដកម្មសិទ្ធ)**	
Total **សរុប**		100%

J. Other income sources

ប្រភពចំណូលផ្សេងទៀត

1. Please list any other income that the household has received during **the past 3 months**.

សូមរាយបណ្តាចំណូលផ្សេងទៀត ដែលគ្រួសារអ្នកបានទទួល **រយៈពេល ៣ ខែកន្លងមកនេះ** ។

1. Type of income **ប្រភេទចំណូល**	**2. Total amount received past 3 months** បរិមាណសរុបក្នុង ៣ ខែកន្លងមក
Remittances **ប្រាក់ផ្ញើមកពីក្រៅ**	
Support from government, NGO, organization or similar **ជំនួយពីរដ្ឋាភិបាល, NGO, អង្គការ ឬ ប្រហាក់ប្រហែល**	
Gifts/support from friends and relatives **អំណោយពីមិត្តភក្តិ ឬសាច់ញាតិ**	
Pension **សោធននិវត្តន៍**	
Payment for forest services **កម្រៃពីសេវាកម្មព្រៃឈើ**	
Payment for renting out land (if in kind, state the equivalent in cash) **កម្រៃជួលដីឱ្យគេ (បើជាផ្នែរ សូមបញ្ជាក់តម្លៃជាទឹកប្រាក់)**	
Compensation from logging or mining company (or similar) **កម្រៃទូទាត់សង ពីសកម្មភាពកាប់ឈើ ឬ ការជីកយករ៉ែ (ឬប្រហាក់ប្រហែល)**	
Payments from FUG **កម្រៃពី ក្រុមប្រើប្រាស់ព្រៃឈើ (FUG)**	
Other, specify: **ផ្សេងទៀត សូមបញ្ជាក់**	

Attrition (drop out) and temporary absence survey (ATA)

ការអង្កេតលើការអាក់ខាន (ចោះបង់ចោល) និង អចត្តមានបណ្តោះអាសន្ន

Control information

ពត៌មានត្រួតពិនិត្យ

Task **ភារកិច្ច**	**Date(s)** **កាលបរិច្ឆេទ**	**By who?** **ដោយនរណា?**	**Status OK? If not, give comments** **ស្ថានភាព ជោគជ័យ? បើទេ សូមផ្តល់ហេតុផល**
Interview **សំភាសន៍**			
Checking questionnaire **ការពិនិត្យពិច័យកំរងសំណួរ**			
Coding questionnaire **ការចុះកូដកំរងសំណួរ**			
Entering data **ការបញ្ចូលទិន្ន័យ**			
Checking & approving data entry **ការពិនិត្យពិច័យ** **និងអនុម័តទិន្នន័យបញ្ចូល**			

A. Identification

អត្តសញ្ញាណ

1. Identification and location of household.

អត្តសញ្ញាណ និង ទីតាំងគ្រួសារ

Household name and code **ឈ្មោះនិងកូដគ្រួសារ**	**(name)* ***(ឈ្មោះ)***	*(HID)* ***(កូដគ្រួសារ)***
Village name and code **ឈ្មោះនិងកូដភូមិ**	**(name)* ***(ឈ្មោះ)***	*(VID)* *(កូដភូមិ)*
District name and code **ឈ្មោះនិងកូដស្រុក**	**(name)* ***(ឈ្មោះ)***	*(DID)* ***(កូដស្រុក)***
4. Who did you interview[1)] **នរណាជាអ្នកសំភាសន៍ (អ្នកសួរ)**[1)]		
5. Has the household left the PEN survey temporary (one quarterly survey only) or permanently (remaining surveys)? **តើគ្រួសារនេះចាកចេញពីការអង្កេតបែនជាបណ្តោះអាសន្ន (តែក្នុង១ត្រីមាសនៃការអង្កេត) ឬ ជាអចិន្ត្រៃយ៍ (ចំពោះត្រីមាសក្រោយៗទៀត)**	*(1=temporary; 2=permanently; 3=don't know yet)*[2)] ***(១=បណ្តោះអាសន្ន, ២=ជាអចិន្ត្រៃយ៍, ៣=មិនដឹង)***	

1) Codes: 1=member(s) of the household; 2=neighbours; 3=relatives; 4=village headman/leader/officials; 9=others, specify: _____

កូដ: ១=សមាជិកគ្រួសារ, ២=អ្នកជិតខាង, ៣=សាច់ញាតិ, ៤=មេភូមិ/ប្រធានក្រុម/មន្ត្រីរាជការ, ៩=ផ្សេងទៀត សូមបញ្ជាក់

.....

2) Code 3 should only be used temporary; use 1 or 2 in final dataset.

កូដ ៣ គួរប្រើតែជាបណ្តោះអាសន្នប៉ុណ្ណោះ ។ សូមប្រើកូដ ១ ឬ ២ ចំពោះទិន្នន័យចុងក្រោយ

B. Reasons for dropping out

ហេតុដែលបោះបង់ចោល (ឆាក់ខាន)

1. What is the reason for the household to drop out of the PEN survey this quarter? **តើហេតុអ្វី ដែលនាំឱ្យគ្រួសារបោះបង់ ការឆ្លើយនឹងសំណួរបែនៅត្រីមាសនេះ?**	**Reason** **ហេតុ**	**0-1 (quest. 1) or code** **0-១ (សំណួរ ១) ឬ កូដ**
	Moved/migrated permanently **បំលាស់ទី/ទៅរស់នៅកន្លែងផ្សេងជាអចិន្ត្រៃយ៍**	
	Temporarily away from village (work, visit, …) **មិននៅភូមិជាបណ្តោះអាសន្ន (ការងារ ទៅលេងបងប្អូន ....)**	
	Divorce **លែងលះគ្នា**	
	(Re) married **រៀបការ ឬ រៀបការជាថ្មី**	
	Death **ស្លាប់**	
	Illness **មានជម្ងឺធ្ងន់**	
	Child birth **ឆ្លងទន្លេ (កើតកូន)**	
	Refuse because too busy **មិនបានឆ្លើយព្រោះរវល់ពេក**	
	Refuse because don't want to reveal household information **មិនចង់ឆ្លើយព្រោះមិនចង់បង្ហាញពតិមានគ្រួសារ**	
	Refuse because tired of answering the questionnaire **មិនចង់ឆ្លើយព្រោះឆឿីយណាយនឹងសំណួរ**	
	Could not locate the household **មិនអាចរកផ្ទះគាត់ឃើញ**	
	19. Other **ផ្សេងទៀត**	
2. If moved/migrated (response 1), to where? **បើគាត់ផ្លាស់ទីទៅនៅកន្លែងផ្សេង (សំណួរ ១) តើគាត់ទៅទីណា?** *Codes: 1=within village; 2=neighbouring village; 3=to village further away (another rural area); 4=to nearest town; 5=to major town further away; 9=other:_____* ***កូដ: ១=នៅក្នុងភូមិ, ២=ទៅភូមិជិតខាង, ៣=ទៅភូមិឆ្ងាយៗ (ទៅតំបន់ជនបទផ្សេងទៀត), ៤=ទៅជិតទីក្រុង,***		

៥=ទៅទីក្រុងធំនៅឆ្ងាយ។, ៩=ផ្សេងទៀត	
3. If moved/migrated from village, what was the reason for leaving? **បើគាត់ផ្លាស់ទីទៅនៅកន្លែងផ្សេង តើដោយមូលហេតុអ្វី?** *Codes: 1=work or look for work; 2= (government) service, incl. army; 3=study; 4=follow or move (closer) to spouse/family; 5=marriage; 6=separation/divorce; 7= utilize inheritance; 8= seek medical treatment; 9=conflicts in present village; 19=other, _____* ***កូដ: ១=ទៅធ្វើការ ឬរកការងារធ្វើ, ២=បេសកកម្មរដ្ឋ រួមទាំងយោធា, ៣=ទៅរៀន, ៤=ទៅតាមប្តី-ប្រពន្ធ ឬ ជិតគ្រួសារ, ៥=រៀបការ, ៦=លែងលះ, ៧=ទទួលមរតក, ៨=ទៅមើលជំងឺ, ៩=មានទំនាស់ក្នុងភូមិ, ១៩=ផ្សេងទៀត .....***	
4. If the respondent died (response 5), give PID number: **បើអ្នកឆ្លើយទទួលមរណៈ (សំណួរ ៥) ចូរផ្តល់លេខសំគាល់ (កូដបុគ្គល):**	
5. If the respondent died, what was the reason? **បើអ្នកឆ្លើយស្លាប់ តើដោយមូលហេតុអ្វី?** *Codes: 1=illness; 2=old age; 3=accident; 4=violence; 5=suicide; 9=other:_____* ***កូដ: ១=ឈឺ, ២=ជរាពាធ, ៣=គ្រោះថ្នាក់, ៤=អំពើហិង្សា, ៥=សំលាប់ខ្លួន, ៩=ផ្សេងទៀត .....***	

Appendix B. Common used local units and conversion factors

Site 1: Kampot Province

Nº	Unit: Khmer Name	Unit : English Name	Unit Code	Description
1	បាវ ឬ បេ	Sack	8	Local usually put their rice in the sack which weighs 70 to 80 kg
2	រទេះគោ	Ox-cart buffalo	16	Firewood and sawn wood or logs are put in the ox-cart which is around 0.6 m³ of timber/ox-cart
3	ក្បាល (មាន់ ១ក្បាល) ដូង ១ ផ្លែ	Piece, number	201	For example, one chicken, one coconut, one egg, one seed of sesame etc.
4	គីឡូក្រាម	Kg	2	Generally used to weigh agricultural crops such as rice, corn, vegetable and also meat.
5	ស្តែ	Stere	77	1 m-long BY 1m-with BY 1m-high (or 1m3 of stacked wood) Firewood is usually measured in STERE for sale
6	ដើម (បង្គោលរបង ១ ដើម	Stick	34	Used to count numbers of timbers such one log, one bamboo, ect.
7	ម៉ែត្រគូប m³	m³	44	Used to count the volume of timber and sawn wood. e.g. 1 m³ of sawn wood
8	ស្និត	Bunch	26	Used to count number of bunches of fruits or vegetables. e.g. a bunch of banana, a bunch of thatches
9	បាច់ (អុស) ដុំ	Bundle	11	Used for firewood local collected from their crop, rice field, or from the forest. e.g. one bundle of firewood, a bundle of bamboo, a bundle of lemon grass, a bundle of rice seedlings
10	ដង (ចាក់វ៉ាក់សាំងគោ ២ដង ក្នុងមួយខែ)	Dose (*vaccine*)	47	Used for times of injection of vaccines to local cattle
11	នាក់ (ជួលកម្មករ)	People/worker	64	Used to count number of hired persons in harvesting, or cutting and burning in the crop fields
12	ថាំង “Thang”	Bucket	9	Local usually use “Thang” equals 30 kg of rice
13	ឡ	Heaps	32	Used to count the volume of charcoals in one kiln. A small kiln = 12 sacks of charcoals (1 sack= 45 kg) A big kiln = 40 sacks of charcoal
14	ជើង (លើក)	One trip	206	Used to count the numbers of transporting logs, sawn wood, NTFP, etc.
15	កន្ទេល	Heaps	32	Used to measure the volume of rice spread on the mattress which is about 80 to 90 kg
16	ចានចង្កឹះ	Bowl	60	Used to count the volume of small shrimp, wild vegetables, snail, crabs for cooking. e.g. one bowl of shrimps
17	កំស្បៃវ៉ ឬ ឆ្នាំង	Kettle	59	Used to count the amount of medicinal plants boiled in one kettle or one pot
18	កូនថង់	Polythene bag	51	Used to measure the amount of the collected wild vegetables put in the plastic bag
19	មួយក្បង់ដៃ	Handful	36	Used to count the amount of wild vegetables for food
20	រទេះគោយន្ត	Koyun Cart	16	One long cart which is pulled by motor- machine One long motor-cart= 2 ox-cart
21	គ្រឿង	Number (pieces)	33	Use if simple counting, e.g. number of machete, tractors,
22	ម៉ែត្រ	Meter	42	Measuring sawn wood, some wooden tools
23	ពំនូល	Headload	15	Used to measure the amount of firewood the local hold on their head
24	ហិកតា	Hectares	101	Used to count the land size
25	មួយថ្ងៃមនុស្ស	One person-day	203	Used to count the numbers of days person do work, got hired to cut trees in Chamkar, ploughing rice fields, etc.

Site 2: Kampong Speu Province

No.	Unit in Khmer	Unit of Measurement	Unit Code	Description
1	ផ្លែន (Phlon)	Bundle	**11**	Used to count fruit or corn (1 Phlon = 50 or 48 fruits)
2	ដៃ (Dai)	Handful	**36**	Used to count fruits or corns (1 Dai = 5 fruits)
3	ផ្លាន (Phlan)	0.1 m^3	Usually converted into cubic meter and code **44** is used	Used to measure the volume of timbers (1 Phan = 0.1$m^{3)}$
7	ស្តែរ (Stere)	1 m^3	**77**	1 m-long BY 1m-wide BY 1m-high (or 1m^3 of stacked wood) Firewood is usually measured in STERE for sale
4	ការ៉ែ (Kare)	0.5 stere	Usually converted to Stere and code **77** is used	0.5 m^3 of stacked firewood (1 Kare = 0.5 m^3)
5	ថាំង (Thang)	Bucket	**9**	Used to measure the weight of rice (1 Thang = 24kg, 30kg)
6	តៅ (Tao)	12-15kg	Usually converted to kg and code **2** is used	1 Tao = 12kg or 15kg
8	បាវ (Bav)	Bag/sack	**8**	Used to measure the weight of rice (1 sack = 80kg)

Site 3: Kampong Thom Province

No.	**Local Unit**	**Unit : English Name**	**Unit code**	**Description Conversion**
01	រទេះ	Ox-cart buffalo	16	Refers to one cart which local use to contain crops, firewood, and animal manure. It can be converted to kilogram for some case only
02	បេ	Sack/bag	8	Refers to a bag, but it could be small and big bag. It is used with rice. It can be converted to Kilogram. One bag is equal to 80 kg
03	បាវ	Sack/bag	8	Refers to a bag, but it could be small and big bag. It is used with rice. It can be converted to Kilogram. One sack is equal to 80 kg
04	ថាំង	Bucket	9	Refers to a basket of rice. It also can be converted to kilogram. One basket is equal to 24kg or 30kg
05	បណ្តូល	Piece	201	Refers to a bud of some types of wild plants
06	ដុំ	Bundle	11	Refers to a bundle and is used with some types of vegetables
07	ដៃ	Handful	36	Refers to a handful. But it depends on the respondent. Because the ability to hand something is different. It is used with some types of vegetables and plants
08	កំប៉ុង	Tin	28	Refers to something such as rice and seed which is contained by a can/tin. It can be converted to kilogram. 3.5 tins of rice = 1 kg or rice
09	ក្តាប់	Handful	36	Refers to a handful but it is used with rice and seeds. But it also can be used with some types of vegetables

No.	**Local Unit**	**Unit : English Name**	**Unit code**	**Description Conversion**
10	កណ្តប	Bunch	26	It is used with thatching grass which is already be made to thatch roof sheet and refers to a long thatch sheet
11	រំបា	Bunch	26	It is also used with thatching grass but refers to many long thatches. It can be less or much more according to the respondents
12	ផ្លែន	Bundle	11	It is used with fruit. It is between 40-52 pieces
13	ស្លឹក (Sleuk)	Usually converted to pieces and code **201** is used	1 Sleuk = 400 or 520	It is used with fruit. It is between 400-520 pieces
14	ដំប (Dambor)	Usually converted to pieces and code **201** is used	1 Dambor = 4	It is used with fruit. It is 4 pieces
15	ម៉ែត្រគូប	m^3	44	It is used with log and processing wood
16	ពំនូល	Headload	15	Refers to headload. It can be big or small according to the ability of people who head it
17	ស្តង (Stong)	Usually converted to bunch and code **26** is used	1 Stong = between 4 to 8 bunches	Refers to one cluster of banana. It can be converted to bunches of banana
18	ឆ្នាំង (ធ្នាំ) ឬ កំសៀវ	Kettle	59	Refers to a kettle or pot
19	ចានចង្កឹះ	Bowl	60	Refers to a small bowl
20	គល់	Piece	201	Refers to a stump of some kinds of vegetables

Appendix C. Codebook of units of measurement (unit-code)

Unit of measurement	Code	Local name	Metric equivalent (1 unit =x metric units)	Metric unit	Comments
Weight and volume	**(1-100, 301-400)**				
Grams	1		0,001	Kg	
Kg	2		1	Kg	
Tonnes	3		1 000	Kg	
Pound (lb)	4		0.454	Kg	
Litres	5		1	Litre	
Imperial Gallon	6		3.79	Litre	
US gallon (fluids)	7		4.55	Litre	
Bag/sack	8				
Bucket	9				
Bale	10				
Bundle	11				
Cord	12				
Cob	13				
Cup	14				
Headload	15				
Scotch cart	16				
Wheelbarrow	17				
	18	Mana			Weight (Nepal)
	19	Pathi			Weight (Nepal)
	20	Muri			Weight (Nepal)
	21	Quart (liquids)			
	22	Krokis sack (50 lb bag)			Belize
	23	Krokis sack (100 lb bag)			Belize
	24	Bucket (5 lb bucket)			Belize
	25	Bucket (1 lb bucket)			Belize
Bunch	26				Belize, e.g. bunch of bananas (approx 32 fruits)
Ounce	27		28.3	gram	
Tin/Debe	28				
Basket	29				

Unit of measurement	Code	Local name	Metric equivalent (1 unit =x metric units)	Metric unit	Comments
Basin/Bucket	30				
Bunch	31				Same as 26 (sorry!)
Heaps	32				
Number (pieces)	33				Use if simple counting, e.g. number of machete
Stick	34				
Trays	35				
Handful	36				
Cajas	37				For Brazil nuts in Bolivia
Latas	38				For Brazil nuts in Brazil; rice in Bolivia (~11.5 k)
cm	39				
cm^2	40				
cm^3	41				
m	42				
m^2	43				
m^3	44				
Leaves	45				
Boards	46				
Square Beams	46				
Dose (*vaccine*)	47				
Ball of fencing	48				
Jerrycan (5 litre)	49				
Jerrycan (20 litre)	50				
Polythene bag	51				Kavera (Uganda); small plastic bag
Saucepan/plate	52				
Bottle	53				
Lorry (truck load)	54				
Spoon	55				
Rope	56				
Box	57				
Tablet	58				
Kettle	59				
Bowl	60				
Packet	61				
Block	62				
ml (millilitres)	63				
People/worker	64				
Months	65				
Barrica	66				For Brazil nuts in Peru

Unit of measurement	Code	Local name	Metric equivalent (1 unit =x metric units)	Metric unit	Comments
					and parts of Bolivia (70 kg)
Jug	67				
Arroba	68				For rice, corn in Bolivia and Peru (~11.5 k)
Ear of corn	69	Espiga			
Fence	70	Cerca (Braz)			
Stable/Corral	71	Estábulo/ Curral (Braz)			
Veterinarian visit	72				
Package of vitamins	73				
Heads (of cattle)	74				
Fine ($)	75				
Pole	76	Varra (Braz)			
Stere	77	Estéreo			$1m^3$ of stacked wood
Inch	78	Polegada	2.54 cm		
Plat Yoruba	80				A kind of bowl widely used as a measurement in West Africa
Small plastic bag	81				Used in West Africa
50 kg rice bag	82				
100 kg rice bag	83				
Leaves woven together	84	Paños (Bolivia)			Done with Jatata leaves in Bolivia
	85	Hari	10	Kg	Bangladesh
	86	Maund	37.3	Kg	Bangladesh
Roll	87				Lianas and Vines
	88	Plantones			
	89	Hijuelos			
	90	Ramas			
Feet	91	Pie			
Square feet	92	Pie^2			
Cubic feet	93	Pie^3			
	94	Jacá			Large squared basket
	95	Paneiro, cofo			Small rounded basket
Granary	96				The typical granary of Burkina Faso
Canari	97				
Pesticide can	98				
Seed can	99				
Tomato can	100				
Congo 7	301				Plate used in Burkina

Unit of measurement	Code	Local name	Metric equivalent (1 unit =x metric units)	Metric unit	Comments
					Faso
Congo 14	302				Plate used in Burkina Faso
Livestock water trough	303	Bebedouro para criações			
Livestock feeding trough	304	Comedouro para criações			
Hen house	305	Galinheiro			
Arbol	306	Tree			
Maito	307	Maito (Bolivia)			Indigenous term designating quantity hold in two hands
Thurong	308				for fuelwood
Cubic feet	309				for timber
Napo	310				Length of the rope used for measuring the fixed circumference of a bundle of thatch grass
Bhari	311				
Hal	312				
Timba	313				
Doko	314				
Number	315				
Ropani	316				
Glass bottle	317				
can	318	lata	lata		
box	313	caja	caixa		
Maann (Indian)	314				
Gunn (Indian)	315				
Area	**(101-200)**				
Hectares	101		10 000	M^2	
Acres	102		4 047	M^2	
	103	Hal (Plough)			Nepal
	104	*Decimal/ Deci*	.004	Ha	Bangladesh
	105	*Kani*	.16	Ha	Bangladesh
Others	**(201-)**				

Unit of measurement	Code	Local name	Metric equivalent (1 unit =x metric units)	Metric unit	Comments
Piece	201	Unidade (port)			One unit of the products. This is used for, for example, fruits (one coconut), animals, eggs
Dozen	202				Used for selling, for example, eggs.
One person-day	203				One day's work (also called 'man-days')
One animal-day	204				
Hour	205				
One trip	206	Transporte			To transport crops
One hundred units	207	Cento (port)			
One thousand units	208	Milheiro (port)			
Quarter of a hectare	209				Timad (Ethiopia)
Donkey load	210				
Bhari	211				
Tractor hour	212				
Tractor load	213				
Seed kit	214				
Plough (Hal)	215				