Pilot-testing the up-scaled forestry module and sourcebook for the LSMS-ISA Indonesia

Final Report
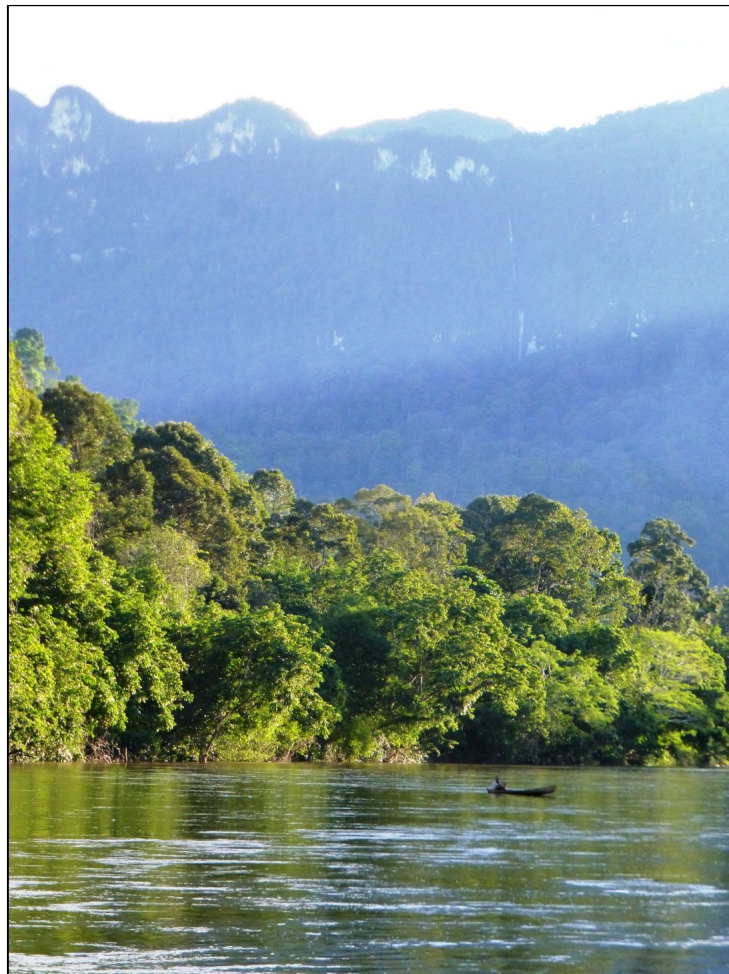Prepared by Indah Waty Bong, Nick Hogarth & Sven Wunder
February 2016

Photo 1. The Mandai River, West Kalimantan, at the most upstream village of Rantau Bumbun. All sample villages in this study are located along this river from upstream to downstream. Photo by Nick Hogarth, February 2015.

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Introduction and background

This report presents the methods used, key results, and recommendations coming from the first of three rounds of field-based pilot-testing of a prototype forestry module and sourcebook. This first pilot was conducted in Indonesia; the others were carried out in Tanzania and Nepal. The forestry module and sourcebook were designed by a steering group from a collaborative project that includes the FAO, CIFOR, IFRI, PROFOR, and the World Bank's Living Standards Measurement Study (LSMS) group. The forestry module was designed, *inter-alia,* for up-scaled uses in integrated household welfare assessment surveys, in conjunction with the World Bank LSMS surveys (or similar kinds of nationally representative surveys). Alternatively, the tool could also be used as a stand-alone survey (see below), i.e. to measure the contribution of forests and wild products to the household economy, as well as a number of other factors affecting the associated benefits of forests to household welfare. This is part of a broader body of work that aims to mainstream the collection of national-scale data on the contribution of the forestry sector to household welfare and, eventually, national income. The intention is to strengthen the evidence base that will inform improved policy and practice recognizing the importance of forests and ultimately leads to poverty reduction.

The objective of this first round of pilot-testing was to field-test the draft forestry module in the context of Indonesia, to provide a detailed assessment of its performance, and recommendations on how to improve the module before being revised and then re-tested elsewhere. The field-testing was conducted throughout February 2015, and was led by CIFOR. We are grateful for funding from a DFID-KNOWFOR grant for the Poverty and Environment Network (PEN) project. The pilot-testing was led by Dr. Nick Hogarth, who coordinated a small team of four experienced local researchers/enumerators who carried out the fieldwork.

Three distinct sub-components of the forestry module were tested:

1) the core household forestry modules (quantitative, designed to be implemented as stand-alone surveys, collecting information on forests and wild products and their absolute contribution to household welfare (without accounting for non-forest income sources),
2) the core community modules (i.e. key Informant Interviews and Focus Group Discussions) to provide the necessary supporting contextual information about the site and about the local use of the most important products, and
3) the optional modules (detailed questions about forest cover changes and clearance, participation in ecosystem service programs and climate change adaptation, and forest-related institutions).

The forestry module was pilot-tested as a stand-alone survey in the Kalis Sub-district of Kapuas Hulu District, West Kalimantan Province, Indonesia (also known as 'the heart of Borneo'). Thirty households were randomly selected from each of the four purposefully

selected villages (i.e. a total of 120 households), to test the module under a range of conditions along a development/ forest-use intensity/ accessibility gradient on the Mandai River. The furthest upstream village had high levels of natural forest cover, traditional swidden agricultural systems and poor accessibility. Conversely, the furthest downstream village had little natural forest, predominantly cultivated landscapes (including smallholder rubber plantations), and was relatively easy to access (being in close proximity to the district capital).

The field team was intensively trained on the specifics of the forestry module before translating it into Bahasa Indonesia, and then conducting the surveys. When then conducting the household surveys, the enumerators used a five-level Likert Scale to systematically record their observations and impressions about the individual survey questions. The results were then analyzed to quantitatively evaluate the structure and flow of the interview, the time taken to complete individual survey modules (and total interview length), and to identify questions that were problematic for the enumerators to deliver, or for the respondents to understand. General observations and timing of the community modules and the Key Informant Interviews were also recorded. Based on these results, suggestions and recommendations were then provided in draft form back to the consortium, so that the forestry module could be revised accordingly before a new version was tested in Tanzania, and later in Nepal.

Methods

Field team composition

The field-team consisted of five people:

- Project leader (Nick Hogarth)
- Field-work coordinator and enumerator (Indah Waty Bong)
- Three field research assistants/enumerators (Firmus P. Juandi, Kharisma Tauhid, and Willy A. Daeli).

The field team members were selected due to their extensive fieldwork experience (including methods such as household survey, key informant interviews and focus group discussions) and familiarity with the study site; having been previously involved in several CIFOR socio-economic studies in Kapuas Hulu District.

Photo 2. The field-team (not including Nick Hogarth, the photographer; from left: Indah Waty Bong, Kharisma Tauhid, Firmus Juandi, Willy Daeli)

Enumerator training

Following two online training sessions for the project leader and field coordinator (with Riyong Kim Bakkegaard; lead consultant developing the forest module and sourcebook), and prior to the commencement of the field work, two full days of classroom-style enumerator training took place. Survey instruments were studied and discussed question-by-question, with detailed discussions about the key concepts and definitions, and about survey structure and flow. Assessment of the survey instrument actually started during these trainings, as some concepts and terms that were unclear to the enumerators were flagged; such as '*access*', '*de jure*', '*de facto*' and '*ecosystem services*'. Enumerator training also included 'role-playing', with enumerators playing the role of respondent and pre-testing the survey instrument. The training was, however, an ongoing process, with the enumerators and field coordinator spending a lot of time discussing issues that arose during the first few days in the field when the surveys were first implemented in 'real-life' conditions.

Site selection

Kapuas Hulu District was selected because CIFOR had been working in the region for many years and had good local connections and knowledge of the area. The district also has broad variety of land covers and socio-economic conditions that make it a good site for pilot-testing the forestry module in a range of conditions. Kalis Sub-district was purposely selected after consulting CIFOR colleagues with a lot of experience in the area. This sub-district had had very little previous activity in terms of research or foreign interventions, and was deemed a good site so as to avoid research fatigue, but at the same time to increase the limited knowledge about the area.

The COLUPSIA vegetation map[1] was used to select the four sample villages along the Mandai River (Figure 1). These villages were selected to represent a gradient of forest covers and accessibilities; from the most upstream village of Rantau Bumbun that has the highest forest cover and the lowest accessibility; to the most downstream village of Semerantau, which is predominated by smallholder rubber plantation and has the closest proximity to the district capital (see Table 1 for basic village characteristics).

The pilot-testing was conducted at the hamlet instead of village level. The villages have two hamlets each that are physically distanced from each other and basically organized as two different settlements. The selected hamlets were the ones that served as the center of village administration (i.e. where the village office is located).

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[1] http://www1.cifor.org/fileadmin/subsites/colupsia/maps/Kapuas_Hulu/Vegetasi/indeksvegetasi.htm

Household sampling

Thirty households per sample village were randomly selected using the lottery method whereby we listed and mapped out all the households in the hamlet (based on our definition of household[2]), assigned a unique number for each household, wrote down each number on a piece of paper, mixed all pieces of papers, and randomly picked 30 pieces. The sample selected represented an average of 47% of the total households in the hamlets. An additional three households were selected as reserves in case the selected households were not available.

Approaching communities and households

Before we went to the field, we ensured we were equipped with necessary documents (i.e. research permit, letters from police office, letter from CIFOR explaining about the study, etc.), and we visited and reported to the relevant offices (police and government) at all levels (i.e. national, provincial, district and sub-district).

At the village level, our point of contact was always the village head. Permission from the village heads was needed before we could do any research activities in the field. The first point of action was to organize a community meeting in each village where we introduced ourselves, the purpose of our visit, and activities, etc. We also asked the community for their permission and willingness to participate in our activities. This process was important and very helpful for the continuity of our work in the villages.

Photo 3. Houses in Rantau Bumbun Village raised on stilts for protection from floods and wild animals. Photo by Indah WB, February 2015.

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[2] A household is a group of people (normally family members) living under the same roof, and pooling resources (labour and income). Labour pooling means that household members exchange work time without any payment, e.g. on the farm. Income pooling means that they "eat from the same pot", although some income may be kept by the household member who earns it (Sourcebook on Forestry Survey, 2014).

Approaching respondents/participants

The pilot-testing was conducted in one of the busiest months of the year for the villages: rice harvesting time. Some of the dry-field rice was ready to harvest, thus the villagers used more time for maintenance and monitoring of pests (e.g. wild pigs and monkeys), and harvesting. Villagers went to the swidden fields early in the morning and didn't return to the village until dusk. Some of them even stayed in their swidden fields for days or weeks until they finished harvesting. This sometimes made it difficult to find respondents for the household surveys and participants for FGDs.

Another challenge was, during this time of the year, before any household could cook the newly harvested rice they should hold a 'new rice' ceremony. The whole village was invited to come eat and drink alcohol when a household was having this ceremony. So, when the household members were at home, they were busy preparing for this whole day festive. During such ceremonies, many villagers were not fit for the interviews due to being under influence of the local alcoholic drink served during the festivity.

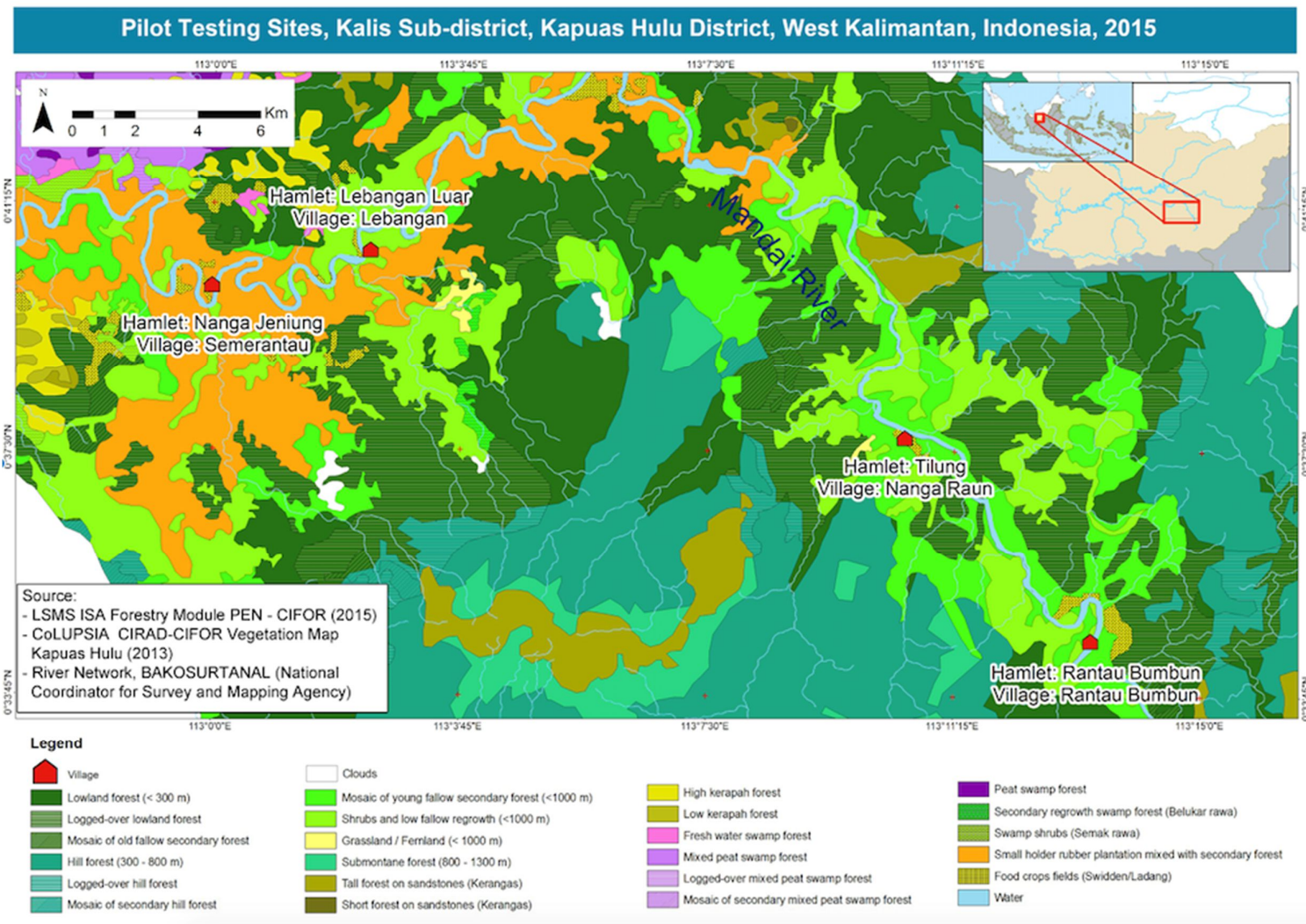**Photo 4. Indah facilitating a focus group discussion in Nanga Raun. Photo by Firmus PJ, February 2015.**

Figure 1. Land cover in the study site

Table 1. Characteristics of pilot-testing sites

No.	Hamlet (village) name	Land cover description	Approx. dist. to district capital of Putussibau (km)	Mobile phone coverage	No. of Hh in the hamlet (based on our definition)	hamlet/village population
1	Rantau Bumbun (Rantau Bumbun)	- Lowland and hill forests - Mosaics of old and young fallow secondary forests - Logged-over hill and lowland forests - Heath forest - Swidden fields	51	None	40	162/394
2	Tilung (Nanga Raun)	- Mosaics of young fallow secondary forest - Shrub and low fallow regrowth - Swidden fields - Logged over lowland forests - Grassland/fern-land	44	Limited to few places and a certain provider	133	815/1196
3	Lebangan Luar (Lebangan)	- Smallholder rubber plantation mixed with secondary forest - Shrub and low fallow regrowth - Swidden fields - Mosaics of old fallow/ secondary forest - Secondary regrowth swamp forest	30	Limited to few places and a certain provider	48	236/456
4	Nanga Jeniung (Semerantau)	- Smallholder rubber plantation mixed with secondary forest - Shrub and low fallow regrowth - Swidden fields	21	Most places outside house and some providers. Limited internet access.	107	740/590

Study region description

The pilot testing was conducted in four hamlets along the Mandai River in the Kalis Sub-district of Kapuas Hulu District in West Kalimantan Province, Indonesia (see Figure 1). Kapuas Hulu is the eastern most district in West Kalimantan; a region also known as '*the heart of Borneo*'. This region is well known for its tropical rainforest and rich biodiversity. The landscape in the southern part of the district - where the pilot testing was conducted - is relatively remote, hilly and mountainous. There are two major ethnic groups in Kapuas Hulu, the Dayak (that consists of more than 30 sub-ethnic groups) and the Malay. The Dayak Pangin Da'an tribe inhabits three out of four of the sample villages in this pilot-testing site (Rantau Bumbun, Nanga Raun and Lebangan), while Malay is the dominant ethnic group in Semeranta Village.

Even though the four sample villages are located along the same river, the forest types vary significantly from upstream to downstream (see Figure 1 for details of the forest types and land use classification in the study sites). The most upstream village, Rantau Bumbun, is a 'forest frontier'. The village is surrounded by dense hilly and lowland natural forests, with patches of swidden fields and swidden fallows that have already grown into varying ages of secondary forests. About 10 km downstream is the second village site of Nanga Raun, which has similar types of forest as Rantau Bumbun, except that there are shrub and grassland located close to the settlement area. The two most downstream village sites, Lebangan and Semerantau, are located in the lowlands, the forests of which are predominantly a mix of rubber plantations and secondary forests, with more shrub-land and secondary swamp forests also in the area compared to upstream.

Common uses of forest and wild products

Swidden cultivation is the main livelihoods for the majority of households in all of the pilot villages. In this swidden system, a small area of natural forest is cleared to grow 'dry-rice' and other vegetables. After one or two years the land is left to fallow and re-grow into secondary forests before repeating the cycle after a period of up to 20 years.

Being located on the Mandai River, villagers also rely heavily on the river to provide fish for both subsistence and cash income. One of the most valued freshwater fish is Ikan Semah (*Tor labeobarbus*), native to Kalimantan and only can be found in the upstream area. This fish, priced at 100 USD per kg, is sold to a middleman from the capital district of Putussibau before being exported to Malaysia.

Photo 5. Swidden landscape with mosaics of dry rice field, grassland, young and old secondary forests, and natural forests, which are common in Rantau Bumbun and Nanga Raun. Photo by Nick Hogarth, February 2015.

Photo 6. Fishing is an important livelihood activity in the villages. Photo by Nick Hogarth, February 2015.

In the two most upstream villages, Rantau Bumbun and Nanga Raun, households rely on the natural forest as an important source of food and timber. Hunting and logging of lucrative Borneo Ironwood are common livelihood activities. Villagers also collect some non-timber forest products (NTFPs) such as forest fruits, rattan, and tubers.

In the two downstream villages, Lebangan and Semerantau, wild animals/hunting is rare because of their close proximity to other villages, and having less natural forest (the areas are predominated by mixed of small rubber plantations and secondary forests). Tapping rubber used to be one of the most important livelihoods in the villages and most of the households had small rubber plantations. However many households left their rubber untapped because of the low rubber price (rubber price had been declining for the past two years from 1 USD per kg to half that price). For cash income, villagers harvest *puri* (Kratom Borneo, *Mitragyna speciosa*) leaves, used for medicinal purposes to reduce pain and uplift mood, as well as for recreational. In Semerantau, many men go to Malaysia, illegally, for months to look for highly valuable *gaharu* (agarwood), a dark resinous heartwood used for perfume and incense (the best quality gaharu, called super king, fetches up to 3,000 USD per kg).

Photo 7. Assorted fruits and vegetables from forests. Clockwise from top left: Gendang leaves and lepang fruits, Jamur kuping (jelly ear mushroom), red beng and tohek fruits, fern. Photos by Indah WB and Willy Daeli, February 2015.

Photo 8. Timber (mainly Borneo ironwood and *Shorea sp.*) were collected and used to build houses or sell for cash. Photo by Nick Hogarth, February 2015.

Prior exposure to socio-economic surveys

The two most upstream villages have limited exposure to socio-economic surveys. Villagers described how some people (Indonesians and foreigners) from certain organizations conducted some sort of discussions several years ago in the villages. The other two downstream villages have more exposure to socio-economic surveys conducted by some non-government organizations and university students in the past.

Results: Evaluation of forestry modules

Household modules

Average time

An average of 1 hour and 50 minutes was spent conducting the household surveys (n = 120). Within the household modules, Module A (Income) took the longest time (50 minutes), while Module C (Forest resource – energy, health, construction) took the least time to finish (7 minutes). An average of 21 minutes was spent on Module F (Ecosystem services), but this was mostly used to introduce the concept of ecosystem services and explain the questions. It is suggested that this part could benefit from being re-structured to reduce the time.

Table 2. Average time spent conducting household modules (n = 120)

Household modules (HH surveys)	Average time (minutes)	Standard Deviation
A. Income	50	3.78
B. Assets	8	0.70
C. Forest resource – energy, health, construction	7	1.17
D. Food shortage and crises	12	2.28
E. Forest changes and clearance	16	6.70
F. Ecosystem services	21	2.97
TOTAL	110	9.64
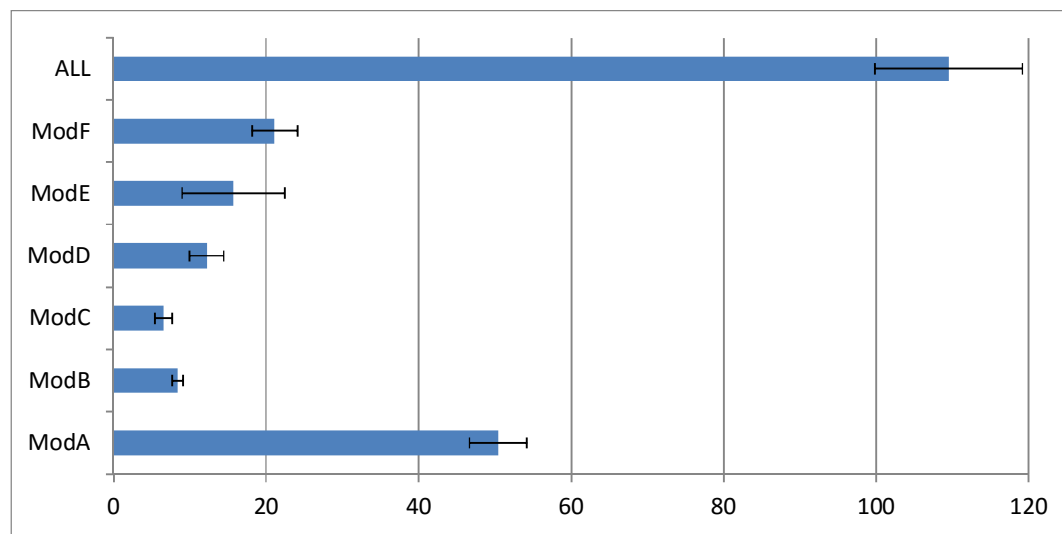
Main reflections and evaluation of the household modules

After each household survey, enumerators recorded their observations and impressions in the 'Enumerator observation records' document. The objective of this was to record the enumerators' immediate insights/observations about problematic questions (i.e. questions that were confusing or difficult to ask/explain by the enumerator, or confusing or difficult to answer by respondents), and to provide data that could be used to evaluate the structure and flow of the survey instrument.

1. General evaluation of the interview flow and process

A five-level *Likert Scale* was used by enumerators at the end of each survey to capture their observations and impressions. The results were used to systematically and quantitatively evaluate the following aspects of the survey instrument:

1) <u>The flow of interview</u>: This assesses the enumerator perception on how good or bad the interview process is. Was there any disruption during the interview? Do the questions flow well from one to another? Was there any disconnected questions/sections where enumerators/respondents got stuck while asking/answering the questions, etc.

2) <u>Rapport with respondent</u>: This assesses the ease/comfort level of the respondent with the enumerator, and how willing the respondent was to respond to the questions asked by the enumerator.

3) <u>Language and translation</u>: The section assesses both the complexity/advanced Indonesia language/terms/words used in the survey and the Indonesian translation.

4) <u>Level of understanding of concept</u>: This assesses the perceived level of understanding of the respondent.

5) <u>Length of interview</u>: This captures enumerator perception on the adequacy of time it took to conduct the interview (ranges from "very good" to "very bad"). This was based on enumerator perception of the fatigue level of the respondent during the interview.

6) <u>Structure/sequence of interview</u>: How well structured was the interview? Does the sequence of questions lead to a good flow of interview?

7) <u>Perceived reliability/accuracy of respondent's answers</u>: Assesses the enumerator's perceived reliability/accuracy of respondent's answers, based on cross-checking of the logic and consistency of answers provided during the interview.

A summary of the results for the 120 households across the four sample sites is presented in Figure 2 below. In general, the flow of the interview, rapport with respondent, and seriousness and attentiveness of respondents were considered good (54%, 57%, and 55% respectively). Improvements are, however, needed in terms of language and translation, length of interview, and structure/sequence of interview. Better language and translation and interview structure/sequence might lead to an increase in the respondents' level of understanding of concepts and accuracy of answers. More details and examples of cases are presented below.
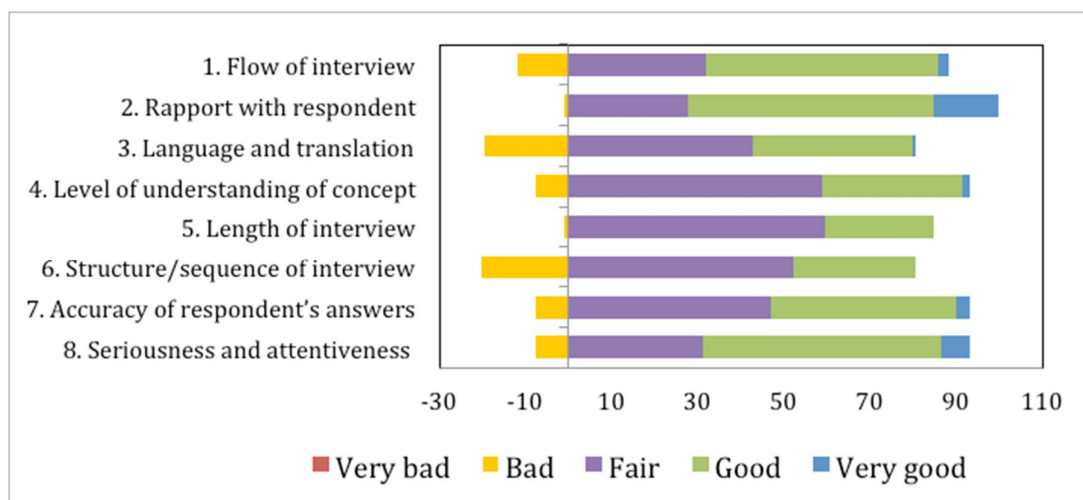

Figure 2. General evaluation of the interview flow and process (in percentage, n = 120)

2. Confusing or difficult questions to ask/explain by enumerators

A total of 116 cases of questions that were confusing/difficult to ask/explain from the enumerator's perspectives were recorded (Figure 3). Out of these cases, 66% (i.e. 77 cases) were found in Module F (Ecosystem Services), 16% (i.e. 18 cases) in Module A (Income), and 10% (i.e. 11 cases) in Module D (Food Shortage and Crises).
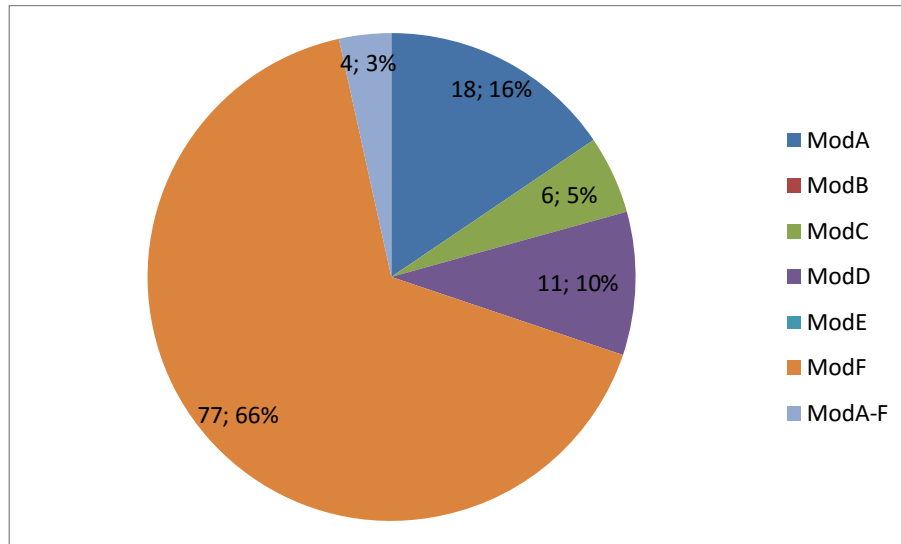

Figure 3. Confusing/difficult questions to ask/explain by modules (No. of cases; % of total)
Note: ModA = Income, ModB = Assets, ModC = Forest resource – energy, health, construction, ModD = Food shortage and crises, ModE = Forest changes and clearance, ModF = Ecosystem services.

Most of the problematic questions in Module F are related to question formulation (R1) and unclear concepts (R2), or a combination of both (R1, R2) (see Figure 5). While within Module A (Income), the problematic questions are mainly associated with the questions' formulation (R1) and other reasons (R7) that are elaborated below.

There were no problems recorded for questions in Module B (Assets) or Module E (Forest Changes and Clearance).

Some of the main reflections on household modules for confusing/difficult questions to ask/explain by enumerators are outlined below.

Module A. Income
- The most problematic questions in Module A were in part 1 (Income from Forest and Wild Products). They were not really confusing/difficult questions to ask/explain, but the respondent answers were found to be a bit difficult to record/estimate by the enumerators (Figure 4, R7 = others). These cases were particularly for answers given for questions 1.6 - 1.10, for example when the unit of collection is different from the unit of use and selling (e.g. a respondent hunted 1 wild pig, the household consumed about 10 kg of the meat, and sold 5 kg of pure meat, 5 kg of mixed meat and bones, 5 kg of mixed meat and skin etc.). Other cases were related to the difficulty in estimating labour (Q 1.5), especially when household members such as children were also opportunistically involved in the collection.

- Enumerators also experienced difficulties to ask questions in A.1 for processed products because the questions (1.2 - 1.14) are structured to collect information on the collection and use of products, but not processing of products.
- See Table 3 (below) for attribution/distribution of the 18 recorded problematic questions in Module A to individual sections and questions.
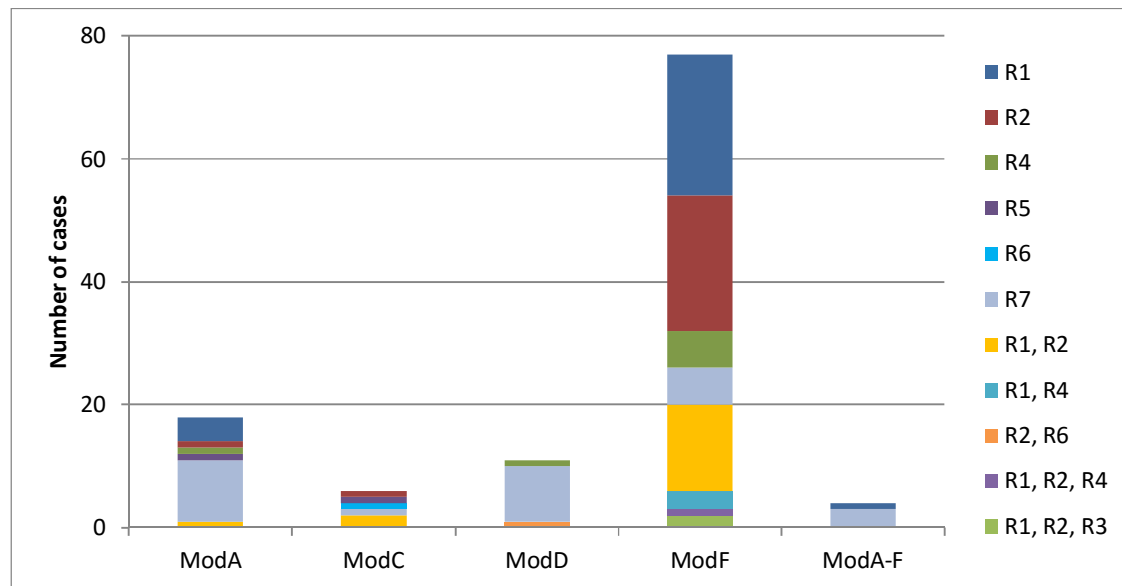

Figure 4. Reasons (R) for confusing/difficult questions to ask/explain by enumerators
Note: R1 = question formulation, R2 = concept(s) was unclear, R3 = translation was unclear, R4 = sequence of question, R5 = question too sensitive, R6 = question was embarrassing, R7 = others.

Module D. Food Shortage and Crises
- Difficulties were recorded in answering questions in Module D, part 1 and 2, when respondents coped with food shortage and crises by working in forest-related activities.
- Questions in Module D part 1 and 2 are structured only to capture collection and use of forest products for self-consumption and/or selling when households experienced food shortage and crises. Wage income is captured in Module A.2, but it cannot be determined whether or not it is part of a coping strategy in times of crises.

Module F. Ecosystem Services
- In general, difficulties were encountered in asking/explaining the questions in module F. Direct questions (i.e. reading the questions directly as written in the survey) did not work; and so explanations were needed. On the other hand, respondents were not familiar with the ecosystem services concepts and terms, as there were no ecosystem service schemes/projects in any of the sample villages.
- There were too many inter-related questions within and between part 1 (climate change and variability) and part 2 (adaptation strategies), while the questions' formulation were unclear to the enumerators. This influenced the flow from one question to another (i.e. disconnected).

- Some of the concepts in part 3 (Forest Services) were difficult to explain; e.g. pollination of agricultural crops by insects from forest, control of agricultural pests by proximity to forest, and climate regulation.
- See Table 3 (below) for attribution/distribution of the 77 recorded problematic questions in Module F to individual sections and questions.

Table 3. Cases of confusing or difficult questions to ask/explain by enumerators

Confusing or difficult questions to ask/explain by enumerators	No. of CASES
Module A in general	2
Module A.1. Income from Forest and Wild Products	4
Module A.1. code F. Processed	4
Module A.1. question 1.5.c	2
Module A.1. question 1.6	1
Module A.1. question 1.7	2
Module A.1. question 1.10	1
Module A.1. question 1.13	1
Module A.4. code 2	1
Module C in general	2
Module C.4. Forest and Construction	1
Module C.2A. Forest and Energy – Fuelwood consumption	2
Module C.2B. Forest and Energy – Charcoal	1
Module D in general	3
Module D.2. Shocks and Crises	1
Module D.2 question 2.1 code 112	1
Module D.2 question 2.3	5
Module D.2 question 2.3 code 112	1
Module F in general	11
Module F.1. Climate Change and Variability	14
Module F.1 question 2	1
Module F.2. Adaptation Strategies	32
Module F.2 code 5, 6, and 7	4
Module F.2 questions 1, 2, and 4	1
Module F.2 question 2	9
Module F.3. Forest Services	5
Module A-F	4
Total	**116 cases**

3. Confusing or difficult questions to answer, by respondents

A total of 156 cases were recorded in which enumerators got the impression that respondents felt the questions were confusing or difficult to be answered. Out of these cases, 66% (102 cases) were found within Module F - Ecosystem Services, 15% (23 cases) within Module A - Income, and 10% (16 cases) within Module B - Assets (see Figure 5).
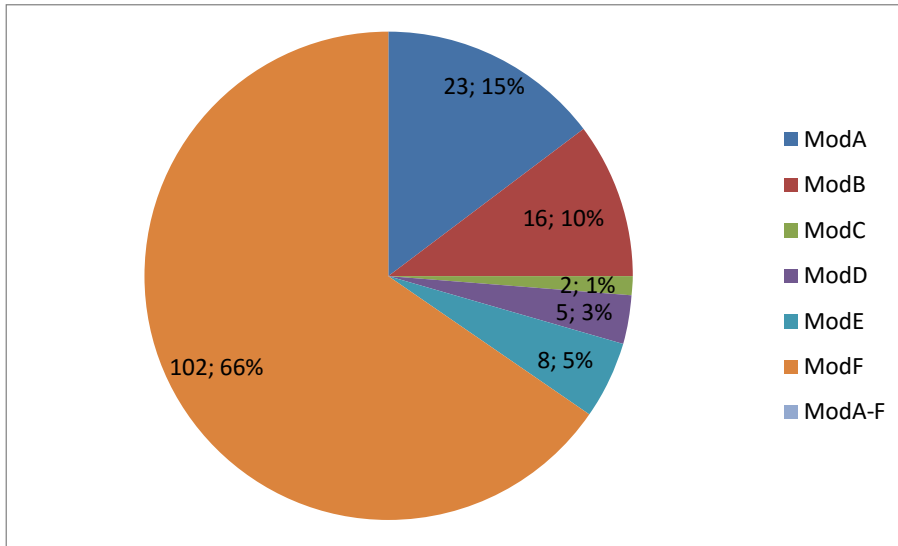
Figure 5. Confusing/difficult questions to be answered by respondents (No. of cases; %)
Note: ModA = Income, ModB = Assets, ModC = Forest resource – energy, health, construction, ModD = Food shortage and crises, ModE = Forest changes and clearance, ModF = Ecosystem services.

Most of the problematic questions in Module F are related to difficulties to grasp the concept (R1), and a combination of having difficulty to grasp the concept with difficulty to understand the enumerator (R1, R2; Figure 6). While within Module A (Income) and Module B (Assets), the problematic questions are mainly associated with the respondents' lack of knowledge (R5).
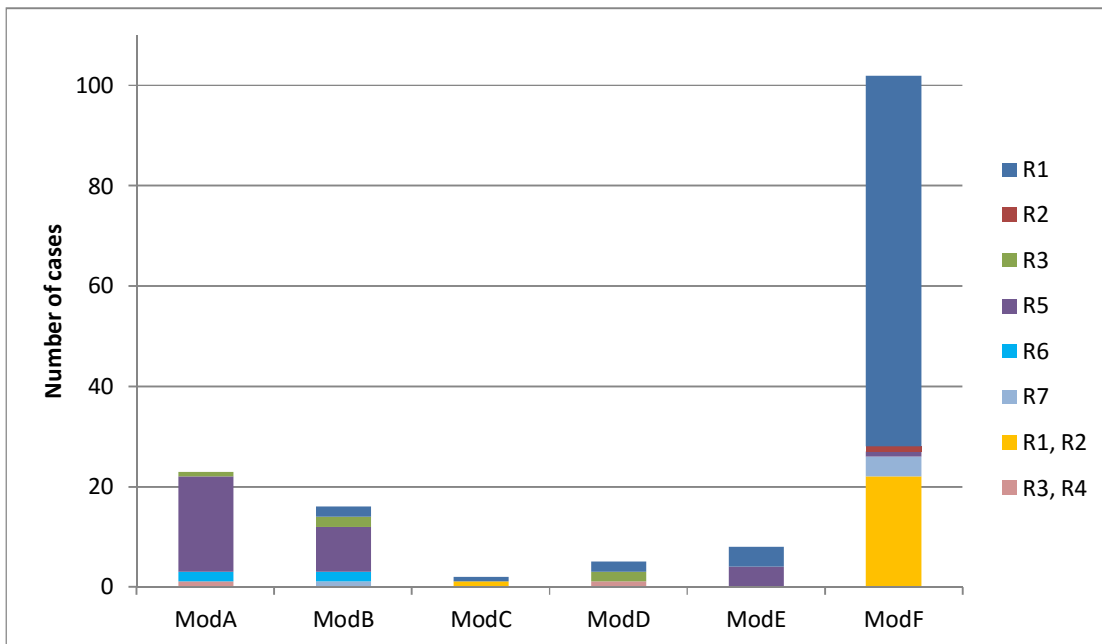

Figure 6. Reasons for confusing/difficult questions to be answered, by modules
Note: R1 = concept hard to grasp, R2 = did not understand enumerator, R3 = sensitive question, R4 = question was embarrassing, R5 = don't know, R6 = cannot recall (i.e. forget), R7 = others.

Some of the main reflections on household modules for confusing/difficult questions to answer by respondents are outlined below.

Module A. Income
- All problematic questions in Module A were in part 1 (Income from Forest and Wild Products). These cases mainly related to respondents' lack of knowledge on the price of products. Respondents rarely sell the forest or wild products that they collect.
- Respondents also encountered difficulty to recall time spent for collection of products that they did not do regularly.

Module B. Assets
- Most problematic questions in this module were related to difficulties to estimate the value of assets (question 1.5).

Module F. Ecosystem Services
- In general, enumerators got the impression that respondents had a lot of difficulties/confusion to answer questions in this module. The concept of 'ecosystem services' and related terms were new for the majority of the respondents, and so the concepts were difficult to grasp. Even after being carefully explained, the enumerators still felt that respondents didn't really understand.
- Enumerators got the impression that respondents found it difficult to make connections between variables; e.g. effects of climate variability on forest (Q1.2) and the subsequent questions (Q1.3 and Q1.4). Another confusing part was when respondents were asked to link between adaption strategies in response to climate change and variability (Part 1 and 2).
- Some of the concepts in part 3 (Forest Services) were difficult for respondents to understand (e.g. pollination of agricultural crops by insects from forest, control of agricultural pests by proximity to forest, and climate regulation). Respondents also found it difficult to select the three most importance forest services.

See Table 4 for attribution/distribution of the 102 recorded problematic questions in Module F to individual sections and questions.

Table 4. Cases of confusing or difficult questions to be answered by respondents

| 2. Confusing or difficult questions to be answered by respondents	No. of CASES
Module A.1. Income from Forest and Wild Products	6
Module A.1. question 1.5	2
Module A.1. question 1.10	15
Module B in general	1
Module B.1 question 1.4	1
Module B.1 question 1.5	14
Module C.1. question 1.1a	1
Module C.2A. question 2A.10	1
Module D.2 question 2.1 code 105 and 112	3
Module D.2 question 2.2	2
Module E in general	2
Module E.1. question 1.1	1
Module E.2. question 2.2, 2.11	4
Module E.2. question 2.9	1
Module F in general	8
Module F.1. Climate Change and Variability	6
Module F.1 question 1.2	4
Module F.1 and F.2	36
Module F.2. Adaptation Strategies	26
Module F.2 code 5 and 6	3
Module F.3. Forest Services	9
Module F.3. code 3, 7, 8, 12	6
Module F.3. question 3.1	4
Total	**156 cases**

Community Modules

1. Focus Group Discussions (FGDs)

Average length

The average time spent for each module is presented in Table 5 below. The FGDs (community modules) on 'most important forest and wild products' and 'seasonal calendar' each took around 70-75 minutes to finish, while the 'forest institutions' FGDs took significantly less time (~37 minutes).

Table 5. Average time spent conducting community modules (i.e. FGDs)

Community modules (FGDs)	Average time (minutes)	Standard Deviation
A. Most important forest and wild products (n=4)	71	17
B. Seasonal calendar (n=4)	74	31
E. Forest institutions (n=2)	37	4
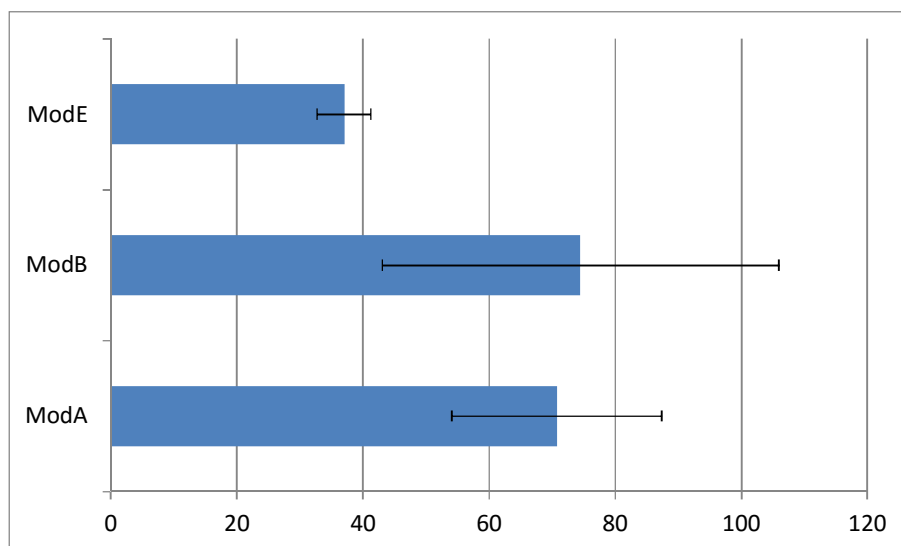
Participants

- The number of participants in the community modules ranged from 11 to 16. In each village, the FGDs were conducted one after the other (Module A and B in the 1st and 2nd villages, and Module A, B and E in the 3rd and 4th villages). The average number of participants in the FGDs was 13; which the field-team felt was a good number of participants to allow for effective and inclusive discussion.
- Participants of the FGDs were invited to attend during the initial community meetings, where the purpose of our activities and the objectives of the FGDs were explained. After explaining what kind of participants were expected to attend (i.e. gender balance, experience etc.), the community then suggested some people among themselves to participate.
- Although females were actively encouraged to participate in the FGDs, few did. We suggest having an additional FGD organized specifically for women in such cases.
- There was some concern that the most relevant people in the village - i.e. those whose livelihood strategy mainly involves the collection of forest and wild products – may not have been participating, because they tend to be in the forests for several days up-to weeks at a time. It was, however, noted that most villages have a good understanding of the livelihood activities of others in the village, although not in great detail. It is suggested that enumerators would need to spend more time in samples villages in order to ensure that FGDs were attended by people with the most relevant knowledge pertinent to the forestry module (whether or not this would be possible for the future LSMS enumerators needs to be determined).

Table 6. Number of participants in the community modules (FGDs)

Community modules (FGDs)	No. of participants
A. Most important forest and wild products	
1. Rantau Bumbun (Rantau Bumbun)	11
2. Tilung (Nanga Raun)	16
3. Lebangan Luar (Lebangan)	13
4. Nanga Jeniung (Semerantau)	13
B. Seasonal calendar	
1. Rantau Bumbun (Rantau Bumbun)	11
2. Tilung (Nanga Raun)	13
3. Lebangan Luar (Lebangan)	13
4. Nanga Jeniung (Semerantau)	13
E. Forest institutions	
1. Rantau Bumbun (Rantau Bumbun)	N/A
2. Tilung (Nanga Raun)	N/A
3. Lebangan Luar (Lebangan)	13
4. Nanga Jeniung (Semerantau)	13

Consensus, process and main reflections

FGDs were always started with a brief description on the objectives. It is suggested that a brief introduction to the FGD objectives are added to the start of each module.
FGD on Most Important Products: It is suggested that a clear set of criteria for what products are counted as being the 'most important' are included; e.g. the number of people depending/collecting the products. A product can have a very high economic value, but if only a few people collect it, it might not be considered the most importance product in the village.

FGD on seasonal calendar: Participants mentioned many products, some of which were products currently collected and used, while others were collected in the past only. There was a suggestion to consider setting limits on product inclusions. Also, some products only fruit once every several years (e.g. Borneo Illipe nut), and could be missed if not specifically asked about (requires prior knowledge). In cases where less than 15 products were listed (such as in the first village; Rantau Bumbun), the list of products was helpful in recalling seasonal products in the HH surveys. However, when the lists of products were more than 50 (such as in the third and fourth villages of Lebangan and Semerantau), it was too long to be used in the HH surveys. In these cases, categories of products were created to help in recalling seasonal products.

FGD on forest institutions: This optional module was only conducted in the last two villages, where the discussions were mainly dominated by the customary leader and village officials. This was to be expected, since the discussion aimed to collect information on rules and regulations related to the use and collection of forest products and people; a topic on which these two institutions had the most knowledge about.

2. Key Informant Interviews

Average length

The average amount of time that was spent conducting key informant interviews on 'unit and pricing', 'community benefits', and 'community ecosystem services' is presented in Table 7.

Table 7. Average time spent for community modules (key informant interviews)

Community modules (key informant interviews)	Average time (minutes)	Standard Deviation
C. Units and pricing (n=4)	23	6
D. Community benefits (n=4)	9	5
F. Community ecosystem services (n=4)	17	13
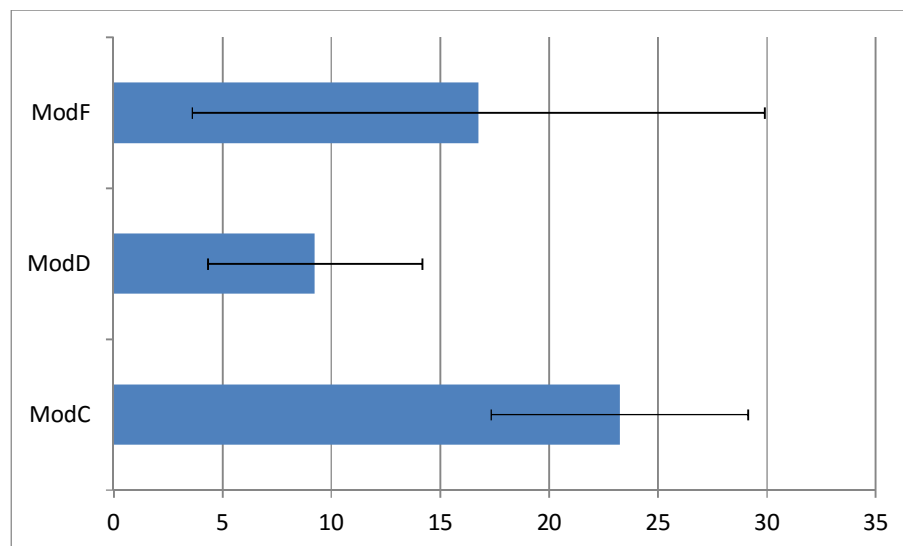
Respondents

The head of each village was selected as respondents for these three key informant modules (C, D, and F).

Process and main reflections

- It is suggested that the units and pricing section might be considered for inclusion as a FGD rather than as a key informant interview. This suggestion is based on an experience whereby two key informants were not able to provide information on pricing because they had never collected or sold the products in question. The respondents suggested us to ask other people in the village who were actively involved in the collection and/or sale of those products.

- Very few community benefit projects were reported in the sample villages, from either government or non-government organizations. This might be because most of the villages were opposed to conservation organizations such as WWF. They refused

the presence of these types of organizations in the villages because they thought that such organizations wanted to restrict their access to their own forests. There was also a common understanding among villagers that conservation organizations and forestry services were against a road development that was taking place in the area, which was strongly supported by the locals who wanted better (faster and cheaper) access to the outside world.

- The interview on community ecosystem services was quite time-consuming (~17 minutes) even though there were no ES schemes or projects implemented in the study sites. Most of the time was spent to introduce the concept of ecosystem services and explain the questions. Therefore it is suggested that skipping this module entirely should be considered in places where it is known that no ES initiatives are present.

Data checking, entry and coding

We cross-checked each household survey in the field to ensure completeness and quality of the surveys. Cleaning and clarification were made in the field, either through re-listening the voice recorder or re-visiting the respondents for clarification or additional information. After the fieldwork, we entered the data into a Microsoft Excel based database. A process of re-checking was conducted during this data entry also.

One of the main challenges in the data entry and coding was when we have different levels of details for the forest and wild products collected by the households. For instance, in one household we recorded 'animal' as one of the products the household collected. In other households, we got more specific data of animals collected i.e. deer, mouse deer, bird, wild pig, etc. We think this also will be a challenge later when doing the data analysis.

Another challenge in data entry - and possibly analysis - was related to the different units used for collection, use and selling of products (the same issue we encountered during the data collection of household survey Module A.1 Income from forest and wild products, see Evaluation on Forestry Modules, Household Modules Part above). When units are different, we couldn't count the gross sales and net income.

Use of local terms is another challenge in data entry and coding. We ended up with more variables or codes that might be the same because of our lack of understanding of the local language. For instance, ironwood is 'kayu besi' in Indonesia, but it is also called 'belian', 'ulin' or 'tebelian'.

Conclusions and next steps

In addition to the suggestions made above, a great many detailed suggestions for changes to improve survey clarity, logic and flow were made in a version of the module that included track changes and comments. This included the following observations:

- Give every table throughout the module a unique identifier table number, at least for the purpose of this pilot-testing exercise, so it is easier to refer to the tables in question; e.g. the first three tables in Module A would be A1, A2 & A3 etc.
- We followed the original order in two villages (Community Module A – MIP – first, then followed by Community Module B - Seasonal Calendar), and then we tried the opposite order in the other two villages (i.e. Module B first, followed by Module A). We felt the latter flows better (i.e. seasonal calendar first, then the MIP).
- We provided several suggestions to add new rows and columns (or categories) to various tables, to improve the data collection (e.g. the table on forest products & wild products in the household core survey)
- Inconsistent coding, e.g. code 4 in the table on forest products and wild products in the household core survey, needs to be rectified.
- Some clarifications needed about which codes to use (e.g. the table on forest products and wild products in the household core survey)
- Some suggested changes to question sequence: e.g. table on forest products and wild products (in the household core survey); for places with timber illegality issues, it may be better to re-organize the product list starting with a less 'sensitive product', such as forest vegetables/fruits, instead of timber. Likewise for 'Assets', not starting with chainsaw and rifle.
- Suggestions to clarify the definitions of certain terms in the sourcebook; e.g. "mineral" (from the forest product & wild product table), or add new definitions to the sourcebook or embedded in the survey where relevant (e.g. "access", climate change related terms, Ecosystem service terms etc.).
- Suggestions to add some new tables/split current tables into two, in order to improve the clarity; e.g. the table on forest products & wild products (in the household core survey).

The way that the questions are ultimately structured should depend on what recording method will be used to implement the survey (e.g. tablet vs. old-fashioned handwritten survey forms), and the level of training/capacity of the enumerators. Will the LSMS enumerators, for example, have any specific forestry experience? Will the future enumerators be trained to skillfully dig for answers, cross-check/challenge answers that do not make sense? Or are they more likely to just ask the question exactly as it is written, and then just write down whatever answer comes, so as to move to the next question? If the latter is the case, then the survey questions need to be designed accordingly, and made simpler, with more drop-down answers and box ticking etc. As it is now, the surveys were quite challenging to implement, even for seasoned and experienced enumerators with university educations and a background in forest-livelihoods research.

For example, in Module A in the Core Household Survey, the leading question is:

"1.1 DURING THE PAST 12 (TWELVE) MONTHS HAVE YOU OR ANY MEMBER OF YOUR HOUSEHOLD COLLECTED ANY *FOREST PRODUCTS* OR *OTHER WILD PRODUCTS* (E.G. FROM GRASSLANDS, FALLOWS, ETC.), OR *PROCESSED FOREST PRODUCT*S FOR EITHER YOUR OWN USE OR SALE?"

To which the respondent can answer Yes or No. If the answer is "Yes", then further details about the products collected, and who collected them, and from where, and the units and prices etc. are collected. If the answer is "No", then the enumerator is instructed to skip to the next question. The first sample village in Indonesia (Rantau Bumbun) was deep in the forest, inhabited by a semi-traditional indigenous people whose livelihoods were very clearly intertwined with the use of forest and wild products, and yet a surprising number of respondents answered "No" to the simple question above. Of course, with a little digging and rephrasing of the question, the real answer was actually yes, but my concern is that untrained or careless enumerators might just take a "No" for an answer, and then skip to the next section, thus completely missing the very core of information that we are interested in!

As a next step, the data that we collected in Indonesia should be analyzed to see if we are getting consistent and reliable data, and to see if further issues related to the forestry module are flagged as part of that process.

Acknowledgements