Research article

Socio-Economic Assessment for Proposing Alternative Livelihood Strategy of Minority Villagers, Ratanakiri and Stung Treng Provinces

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Received 15 December 2011 Accepted 12 March 2012 (*: Corresponding Author)

Abstract Ratanakiri and Stung treng provinces are located in northeast of Cambodia. There are riches of natural landscape which is abundant with many rice fields, lakes, waterfalls, rivers as well as vast areas of forest. This research was focused on relative importance of activities related to farming and natural resources collection in terms of revenue and occupation at the household level and the way people benefit from communities and natural resource. 120 samples were selected for household survey. Stratified random sampling was used to interview rich, medium and poor households. Other primary data collection methods including questionnaire survey, observation; key informant interviews were also implemented. This study showed that rice farming and shifting farm (Chamkar) are the main sources of food consumption and supplementary income for their living in the four villages. But non-timber forest product (NTFPs) collection and wildlife poaching are the main sources of income for the rural livelihoods in remote village in the forest. Local communities in the village studied preferred to poach the wildlife by dog hunting and crossbow and collecting malva nut tree by cutting down in average 10 malva nut tree per household in year round. However, livestock production was the other livelihood activities because local communities can raise chicken, duck, pig, cow and buffalo for selling, household consumption, agricultural activities and spirit Areak (Kavet people). The income that came from natural resource was high but this trend was not sustainable for the future. The natural resource is decreased day by day due to the illegal activities, the local communities do not know how to harvest or collect in the sustainable way. By the way, improvement of agriculture sector in the targeted area is the good way to improve their livelihood and avoid the negative affected to the natural resources.

Keywords minority, socio-economic, assessment, natural resource.

INTRODUCTION

Ratanakiri and Stung treng are located in northeast of Cambodia. There are riches of natural landscape which is abundant with many rice fields, lakes, waterfalls, rivers as well as vast areas of forest. Those provinces are place of ethnicities such as Kavet, Lao, Tumpun, Kachock, Jarai, Kroeung, Preo, Kouy, Lun, Islam, Chinese, and Khmer (Ian et al., 1996). Most of them are farmer, who like to live on the mountain and in the forest. They are doing shift culture, hunting, finding NTFPs for their livelihood (Sopheap 2004). Their livelihood depend on forest resource are decrease and start change to agriculture instead (Chea, 2008). The villagers who do not possess domestic animal are involved most in poaching to feed their families. This research need to do base line survey in four

villages. It conducted to the Socio-Economic Assessment for proposing alternative Livelihood Strategy of Minority villagers, Ratanakiri and Stung treng provinces.

Three hypotheses have been set in this research. First, natural resources are contributes significantly to the households' livelihood and income living in the target village. Second, natural resources are managed in such a way that it does not contribute to the development of local communities and conservation in a sustainable manner. Third, income from natural resources use is higher than income from agriculture activities in the village.

Accordingly, the objectives of this study are to assess the relative importance of activities related to farming and natural resources collection in terms of revenue and occupation at the household leve and to describe the way people benefit from communities and natural resource.

The studied topic focuses on socio-economic of the local people get from natural resources (NTFPs, wildlife), farming, and other activities, farming practice and natural resource management. Due to the time and human resource constraints, sample size of the research is not statistically computed. Only 120 households will be randomly selected from the four villages which 2 in Ratanakiri and 2 in Stung Treng provinces.

METHODOLOGY

Site selection: The study (thus) corresponds to a baseline survey. Other justification for selecting these target villages include: high-dependence of local communities on natural resources associated with a depletion of natural resources caused by various causes including illegal activities. Richness in terms of biodiversity makes this area of high priority for conservation: high occurrence of endangered mammals.

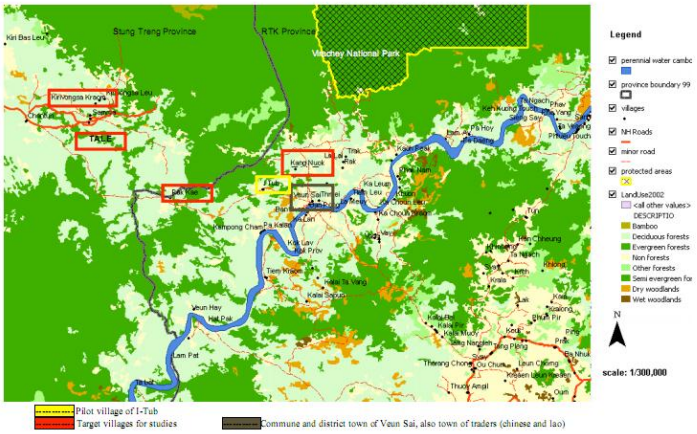

Fig. 1 Map of study area

Household selection: The first step was to do a wealth ranking exercise whereby each village was divided into three wealth levels, namely "poor", "medium" and "better-off". A random sampling approach was randomly selected among four villages (Table 1).

Table 1 Sample size for study

Village	Total households	Sample size	Percentage
Talae	123	30	25
Kapin	88	30	34
Backae	77	30	39
Kang Nuok	84	30	36

Source: field survey, 2010

One hundred twenty households were selected by using the following formula (Yamane, 1967):

$$n = \frac{N}{1+N(e)^2}$$

n: Total numbers of samples to be selected for interview
N: Total number of household
e: Acceptable bias (±7.5%)

Key informants: After the observations have been conducted, key informants have been interviewed by semi-structure questionnaires and the checklist had been used to interview 4 key informants at different institutional levels as forestry officer (2 people), elder people (12 people), village leader (4 people), and trader in the village and in Banlung (6 people).
Primary data collection: Followings have conducted as primary data collection.
- Semi-structured interviews with key informants
- Group discussion with key-informants and transects walk of the area
- Structured interviews with individual households

Secondary data collection: The secondary data has been collected from other reports of both previous and current related study which may be found in the NGOs offices, Department of Agriculture and Forestry, academic and research institutions, journals, and the internet sources.
Data analysis: Data from the quantitative like household asset, labor used natural resource used income and expensed was computerized using Microsoft Excel software.

Qualitative data have been reviewed, summarized and categorized in priory defined parameters which were determined and then entered in a database. In particular, a database for ecosystem services combining both quantitative and qualitative data has been created.

RESULTS AND DISCUSSION

Socio-economic situation

This section presents basic data and information about villages studied, in order to characterize activities in each village. Livelihood activities are economic activities that household takes on to meet their basic needs, including food, clothing and shelter. Most of people in the study area rely on a number of different occupations (Table 2).

Table 2 Main occupation of local people in the villages studied

Occupation/Village	Backae (%)	Kapin (%)	Kang Nuok (%)	Talae (%)
Farmer	3		7	3
NTFPs collector		3		3
Small business		3		
Farmer, NTFP collector	70	80	73	77
Farmer, Small business	7		20	10
NTFPs collector, Small business		4		
Farmer, NTFPs collector, Small business	17			
Farmer, NTFPs collector, Other	3	10		7
Total	100	100	100	100

Note: Other occupation, there are: worker, teacher, trader, and craftworker

Animal production

Animal production is less important in livelihood since farmers are very busy with doing farming and shift culture. Chicken are mostly raised conventionally. Chicken is offered to the spirit, consumed and sold. Duck are raised to get eggs for household consumption and selling in the village. Pig rising is popular in the study area even though they are no plenty of feed stuffs. Cattle are important labor for agriculture for rice farm and also for their cart to transport the rice, crop products, etc.

Local villager benefit from community and natural resource

Right to access natural resource is as follows.
- Utilization on dry wooden, wild forest fruit, honey, resin, and other NTFPs

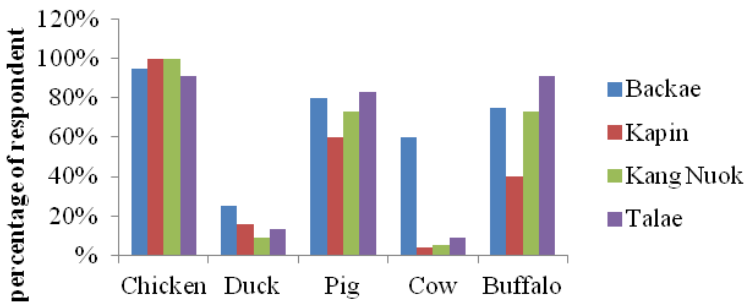

Fig. 2 Percentage of local communities raising animals in the village studies

- Usage of timber for house building, fence, stables for animals, and for making agricultural equipment and harvesting grass or freeing the animal in to the forest
- Utilization of other non-timber forest products consistent with traditional use of minority or family and NTFPs were selling or traded by no need approved latter if is trade affected to the sustainable of the forest.

Table 3 Average income of local communities get from NTFPs in the village studied/year

Source	Backae	Kapin	Kang Nuok	Talae
	Income (US$)	Income (US$)	Income (US$)	Income (US$)
Resin	230	228	96	145
Malva nut	329	363	605	297
Total	559	591	701	442

Note: Resin = 0.30 US$/ L, Malva nut = 4.70US$/ kg, 1 US$ was equivalent to 4250 Riel in 01 June 2010

Table 4 Average income of timber forest product/year

Sources	Backae		Kapin		Kang Nuok		Talae	
	Income (US$)	Expense (US$)	Income (US$)	Expense (US$)	Income (US$)	Expense (US$)	Income (US$)	Expense (US$)
Timber	572	188	180	50	1115	230	1153	187
Luxury wood	800		-		-		282	
Total	1372		180		1115		1435	
Profit	1184		130		885		1248	

Note: 1 US$ = 4250 Riel in 01 June 2011

Household income

There are many kinds of income that the villagers can receive per year such as by farming (paddy rice, shifting culture (Chamkar)), NTFPs (the main are risen, malva nut), wildlife hunting, wood logging, livestock production (cattle, chicken and duck), small business, rice mill, handicraft, and trader (Fig 2).

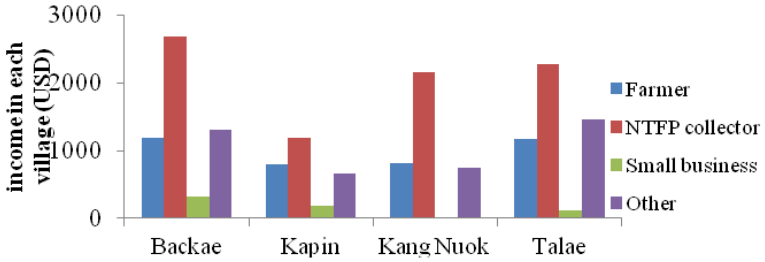

Fig. 3 Average income from each activity (village study)

DISCUSSION

Access right to natural resources: Natural resources that are accessible as common property provide an important livelihood, especially for the poor, as a source of food and additional income. Nowadays, local people still have their own traditional utilization right on that natural resource in the sustainable way, for example, the local community have their traditional ownership on resin tree even though it is not recognized by authority but at the household level, villagers are approved. Similar results were showed in Chea (2008), where the ethnic minority is respected spirit in the forest.

Land use and land tenure: The research found that forest land allocation was open for those who want to do agriculture or shifting cultivation as well as for those who would be affordable to develop plantation by themselves. However, forest land allocation to households entirely depends on the production capacity and the social networks of each household. In other words, the forest land allocation was favored to households who have either financial capital available to cover input costs for plantations or have social networks to gain access to free input supply from plantation. The proportion of forest land received by three different wealth groups and state forest owners as discussed in the result. The poor group gained least from the land allocation process. Lack of capital to invest in plantations is the most critical factor hampering the poor people in gaining allocated forest land. This finding corresponds to those of Tam.V. Le (2008).

Natural resource elimination: Natural resource has plummeted as a result over-exploitation for both legal and illegal export to neighboring country and china for making furniture, other masteries, traditional medicine, domestic consumption and local sale (Luy, 2008). A similar study in Chum (2009) and Chea (2008) reported that the rural community in the forest area commonly logging luxury wood and other value kind of tree, harvest wildlife such as turtle, water monitor, Bengal monitor, Burmese python, cobra, wild pig, red muntjac, Sam bar Pangolin and main NTFPs such as Malva nut tree by cutting down the trees, resin, in the forest, nearby the rice fields, shifting culture, streams.

CONCLUSION

According to research findings in the village studied, it can be concluded that rice farming and shifting farm (Chamkar) are the main sources of food consumption and supplementary income for their living in the four villages. Villagers who lived in Backae, Kapin, Kang Nuok and Talae village can make income in average 420-700 US$ from NTFPs collection per household, especially 300-600 US$ from malva nut collection and 100-230 US$ from resin tree collection in year round.. Besides, local communities in Backae can make income in average 904 US$ from wildlife poaching, especially Sam bar, turtle, Bengal monitor, water monitor, cobra, wild pig and red muntjac. But villager in the Kang Nuok and Talae village can make income in average 550US$ from wildlife hunting, whereas Kapin village can make income in average 442 US$ per household in year round. Moreover, villager can make income from Timber forest product in average 885 $-1154 $ per families. The income that came from natural resource is high but this trend is not sustainable for the future. The natural resource is decreased day by day due to the illegal activities, the local communities do not know how to harvest or collect in the sustainable way. By the way, improvement of agriculture sector in the targeted area is the good way to improve their livelihood and avoid the negative affected to the natural resources.

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