

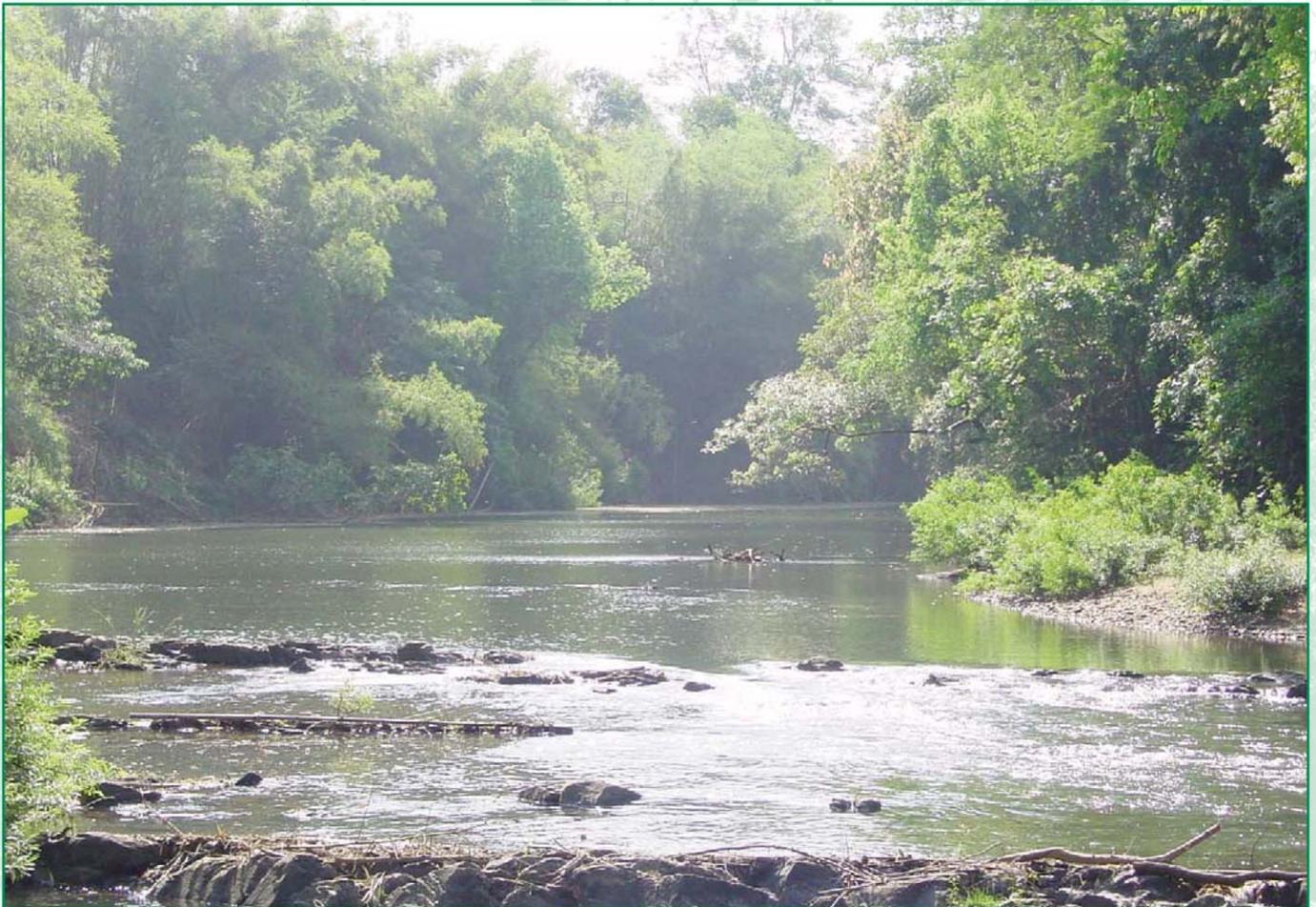


**Biodiversity Conservation  
Corridors Initiative  
Cambodia Eastern Plains**



# LIVELIHOODS SUSTAINABILITY ANALYSIS

## IN MONDULKIRI PROVINCE



2008



## Acknowledgements

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# 1 INTRODUCTION

Mondulkiri is a remote province in the eastern part of Cambodia where people are poor and natural resources are abundant. Fifty nine (59) per cent of the 50,000 population of Mondulkiri are below the poverty line. The poverty incidence of the province is much higher than the national average of 36 per cent (McKenney *et al.* 2004, CSD 2001). People are poor in spite of the rich natural resources of Mondulkiri.

The area covers a wide range of forestland – from lowland deciduous to montane evergreen. The province is composed of high-value forests where evergreen and semi-evergreen forests hold high levels of biodiversity and high economic potentials of forest products (Mc Kenney *et al.* 2004). However, this natural endowment is susceptible to degradation when there are limited forest management initiatives in these high-value forests (Mc Kenney *et al.* 2004). It was found that these forests in Mondulkiri have open access, not just to villagers, but to outsiders as well.

Seventy percent of the population of Mondulkiri is Pnong, an ethnic minority group of northeastern provinces of Cambodia. Ethnic Pnong are considered indigenous people in Mondulkiri Province and adjacent parts of Vietnam. Ethnic Pnong usually live in the form of collective as groups and develop as a village ruled by a leader (Mosaic 2003). They have traditionally practiced shifting agriculture and harvested forest resources.

The twin problems of chronic poverty and continuous unsustainable harvesting from the forest perpetuate a cyclical trap wherein people get poorer while the resources continue to be endangered (Emerton 1998). An analysis to further understand why the people are suffering from such poor economic predicament and are prone to further degrading their forest resources was needed to be able to identify natural resource economic interventions that will help address these problems.

The Sustainable Livelihoods Framework (DFID 2001) was used as the theoretical foundation of this analysis.

## 1.1 The Study

The goal of the Eastern Plains Biodiversity Corridor Initiative, being implemented by WWF (in Mondulkiri Province, Cambodia), is to restore and maintain ecological integrity of the Eastern Plains landscape, through improved management of Mondulkiri Protected Forest (MPF) and Phnom Prich Wildlife Sanctuary (PPWS). One of the five objectives of the project is to support poverty alleviation in the area through sustainable use of natural resources and development of livelihoods (GMS Biodiversity Conservation Corridors Initiative 2005). Before identifying and implementing any livelihood projects, WWF deemed it necessary to study first the feasibility of any livelihood development interventions. This study was commissioned to identify the factors and relationships influencing the livelihoods of the people, to analyse the current situation of their lives, and identify feasible interventions based on existing livelihoods to augment their livelihoods in relation to the attainment of the Project Objective stated above.

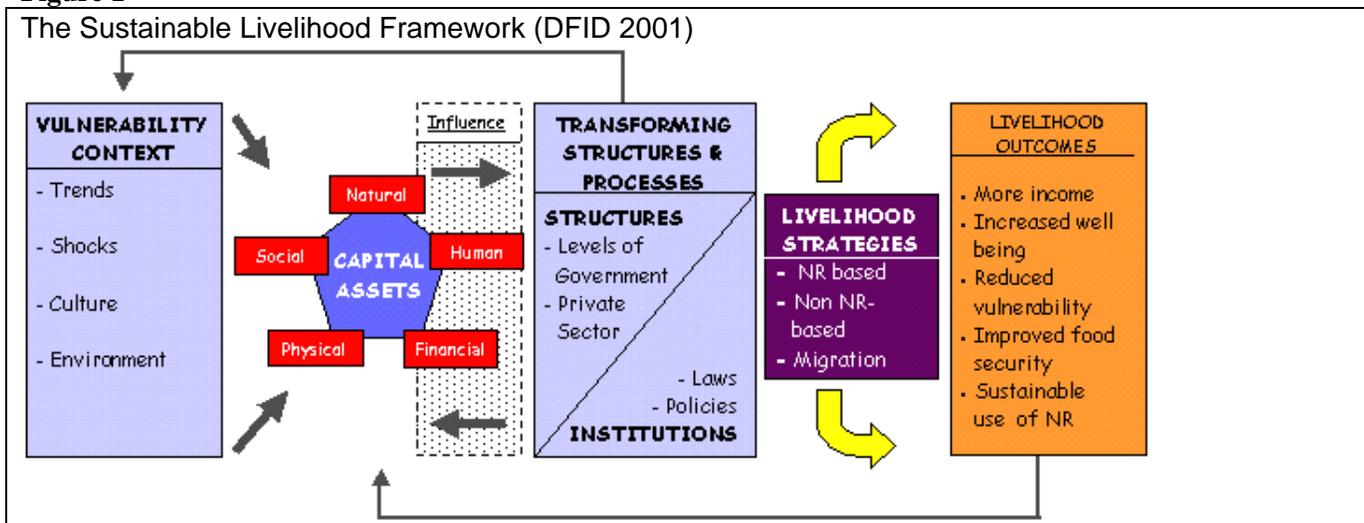
The methodology used for this study is the Sustainable Livelihoods Framework (DFID 2001). This approach identifies the key elements, factors and relationships that affect the lives of the poor and the various feedback loops among these components. Sustainable Livelihood Framework suggests that the quality and sustainability of Livelihoods Outcomes depend on the Livelihood Strategies that communities develop and implement. In doing this, people use and combine the Capital Assets, which

are largely under their control, within an environmental Vulnerability Context and institutional processes over which they have little control. The conduct of Sustainable Livelihood (SL) analysis in the project areas was used in identification of the existing and potential livelihoods and understanding whether these are gainful and sustainable (DFID 2001).

The Framework holds five major components as shown in Figure 1 below:

1. Vulnerability Context
2. Livelihood Capital
3. Transforming Structures and Processes
4. Livelihood Strategies; and
5. Livelihood Outcomes

**Figure 1**



DFID defines **vulnerability context** as the external environment in which people exist. Livelihoods are affected by critical trends, shocks, seasonality and changes, over which people have limited or no control.

**Livelihood capital** or assets are as follows:

1. Human capital represents the skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood strategies.
2. Social capital is the social resources upon which people draw in pursuit of their livelihood objectives developed through networks and connectedness, rules and norms of organizations, and relationships of trust, reciprocity and exchanges.
3. Financial capital is the financial resources that people use to achieve their livelihood objectives.
4. Physical capital is the basic infrastructure and producer goods needed to support livelihoods.
5. Natural capital is the natural resource stocks from which resource harvests and services useful for livelihoods are derived.

**Transforming structures and processes** within the SL framework are the institutions, organizations, policies, and processes that influence livelihoods. These determine people's access to resources or capital, the terms of exchange between types of capital, and returns to any given livelihood strategy.

**Livelihood strategies** are the range and combination of activities and choices that people make / undertake in order to achieve their livelihood goals.

**Livelihood outcomes** are the achievements or outputs of livelihood strategies. These outcomes could be more income, increased well-being, reduced vulnerability, improved food security, and more sustainable use of natural resource base.

The study focus groups were undertaken in the following villages (see Figure 2 for location details):

- Putang and Mepai, Pu Chrey commune, Picheda district  
Putang village is situated in the southern part of Mondulkiri Protected Forest (MPF) and Mepai just south of the boundary. They are located about 25 kms north of the provincial town (Sen Monorum). There has been increasing immigration to area, particularly to Mepai village. Cham people from the lowlands have been migrating to the area since the late 1990's. Chams are now the dominant ethnic group in Mepai village, which presently has 214 families. Putang village has 178 families, mostly ethnic Pnong. A range of cash crops, such as soybean, sesame have been introduced into this area by the immigrants.

- Koh Minhe Leu and Koh Minhe Kroam, Nangkhi Leuk commune, Koh Nhek district  
These two villages are situated in the northern most part of Mondulkiri province bounded by province of Ratanakiri. They are approximately 125 kilometers from the provincial town. In the dry season it is a days travel by motorbike or car from the provincial town. During the rainy season, access is difficult by road but they can be accessed by boat along the O'Chbar (one of the major streams running to Srepok river).

Composed of 157 families, these two villages are mostly fishing communities located along the Srepok River and its tributaries. They have the most diverse ethnic grouping compared to other villages in the area, six in all. Lao and Pnong comprise the majority followed by Khmer groups. Other minority groups are Toum poun, Rode, and Charay.

Effect of migration is not yet strongly felt in this part of the province but there is already a recognized need for more agricultural land because of population growth.

- Sre Thom, Sok San commune, Koh Nhek district  
Sre Thom village was established in 1951 and is predominantly ethnic Pnong, comprised of 134 families. It is located in MPF adjacent to Phnom Prich Wildlife Sanctuary (PPWS), around 100 Km north of the provincial town. During the dry season, travel is generally by motorbike, taking half a day from the provincial town. During the wet season travel is difficult as there are rivers and streams to be crossed.

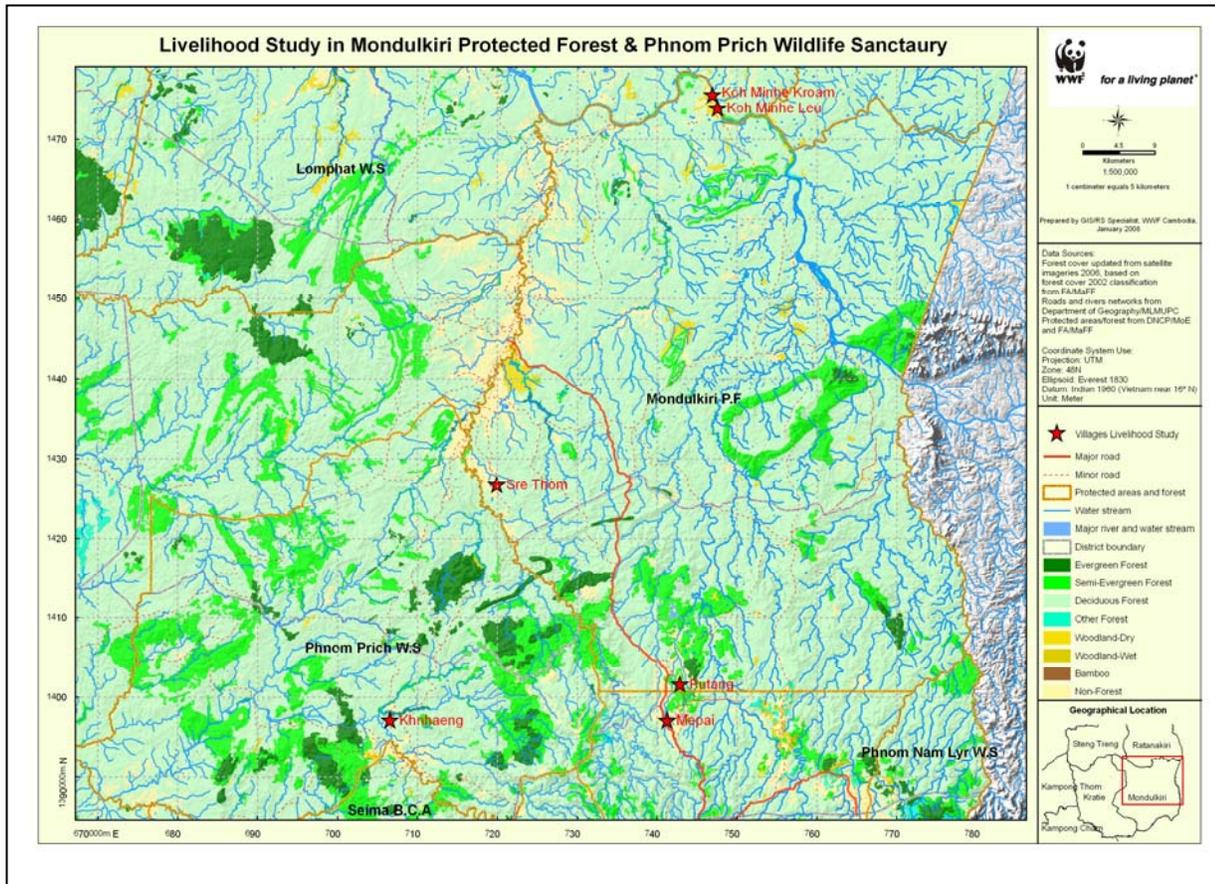
During the Pol Pot Regime (1975-1979) lowland deciduous forest was clear cut and altered to rice paddy. Dams and irrigations were built to supply water for dry season farming. Permanent wet rice cultivation has replaced upland rice cultivation as the main occupation.

- Khnheng, Chong Plah commune, Keo Sema district  
Khnheng village is located along the O Ronuh stream within PPWS in the south. The village includes 2 sub-villages, predominantly ethnic Pnong (98%) and is comprised of 77 families.

The village is 54 Km west of the provincial town and is a half days travel by motorbike. During the rainy season, travel is difficult and people usually have to walk. The villagers have closer access to a market at Prey Meas which has established because of an influx of people mining gold.

The main occupation of the village is permanent wet rice cultivation. This is supplemented by a number of other occupations such as upland rice cultivation, NTFP collection and fishing.

**Figure 2** Location of Livelihood Study



Focus group discussion (FGD) workshops involving 10 to 15 members of the community were done for each village. Balance in gender, ethnicity, and positions in the community associations, was observed in selecting the participants. See the appendix for the guide questions used for the workshops and FGDs.

The data collected from the workshops and FGDs were organised and analysed by the WWF staff. Two sets of 3-day workshop were done to process the data and collectively infer based on the information collected. Data gathering and processing activities were all done in the period of April to July 2007.

The study limits its findings and recommendations herein on the primary data and information generated during the said study period and on the secondary data and information from a relevant literature.

## 1.2 Organisation /Outline of the Report

The presentation of the analysis is composed of three major parts. It starts with statement of the current livelihood conditions of the people and the strategies through which people achieve these livelihood outcomes. This also explains how people use the different resources or capitals available to them to achieve their livelihood objectives. The second part is the analysis of the various external factors affecting the livelihoods of the people. This includes the transforming structures and policies as well as the vulnerability contexts and how these factors influence the use of livelihood resources. The third part is the conclusion and synthesis of the study through the analysis of internal and external factors that affect the livelihoods of the people. This also draws the relevant recommendations to address the current situation of the villages.

# 2 THE LIVELIHOODS OF THE PEOPLE

The livelihoods of the people in the villages of Putang, Mepai, Koh Moyeul Leu, Koh Minhe Kroam, Sre Thom, and Khnheng hardly provide for their basic needs and are not sustainable.

## 2.1 The State of the People's Livelihoods

When people were asked whether they have “sustainable livelihoods” (based on the SL indicators), the responses had not been enlightening. The current livelihoods of the communities were assessed to be mostly unsatisfactory in all indicators. The five fundamental indicators of sustainable livelihood state that an activity is a livelihood if it provides: 1) food security; 2) increased income; and 3) enhanced well-being; and this livelihood is sustainable if it 4) reduces the vulnerability to threats and problems; and 5) adopts sustainable use of natural resources.

Food security is the most important requirement and determinant if people were to refer to their livelihoods as “sustainable”. Food security is the ability of the families to have access to right amount and kind of food (calorie and nutrition requirements) and to sustain this access on a regular basis. During the consultations and interviews, the villagers shared that they give much importance on wanting to have food security as this (lack of food) remains the biggest problem. For example, 97 per cent of the people in Khnheng do not eat enough rice. The unanimous opinion of all villages on this issue clearly reflects the state of extreme poverty in the area. People have not yet secured even the most basic need of survival (i.e. food). With average production of \$1.57 per day per household, families in these villages do not earn enough even just to make sure that they have sufficient food.

Table 1 below further shows how people in all six villages would want to achieve sustainable livelihood. After being able to produce food for their families, they want to have additional income. Interestingly, the desired additional income is still to buy them more food, particularly those not produced on their farms. Additional income is also important to enable them to have cash savings. Next important is the ability to use their income and resources to contribute to the improvement of the well being of their families – children being sent to school, parents being able to improve their skills, and the communities being free from dreadful diseases, etc. Having more emphasis and higher importance on the descriptions of a livelihood (i.e. food security, more income and increased well-being) than those that describe its sustainability (i.e. reduced vulnerability and sustainable use of resources) shows that people would rather say “we need a livelihood” without regarding whether it is going to be sustainable, instead of saying “we want our livelihood to be regular and continuous”. The emphasis is on having livelihood regardless of whether this is sustainable or not. For example, they would already be satisfied to have a farm wherein they can produce rice rather than they would further desire for this farm to be safe and secure even during floods and droughts.

While the results of the perspective mapping of livelihood and its sustainability revealed commonality that shows extreme poverty of the people, the differences may be reflective of the respective economic conditions of the areas. Among all villages, Koh Minhe Leu and Koh Minhe Kroam reported the highest household income of \$906 per year (and thereby have higher level of income satisfaction compared with other villages). The villagers of Koh Minhe Leu and Koh Minhe Kroam would rather give importance on using their income to improve their well-being and sustaining their livelihoods.

**Table 1**

Ranking of Sustainable Livelihood Indicators per Village					
Village	More income	Increased well- being	Improved food security	Reduced vulnerability	Sustainable use of natural resources
<b>Putang</b>	2 <sup>nd</sup>	3 <sup>rd</sup>	1 <sup>st</sup>	5 <sup>th</sup>	4 <sup>th</sup>
<b>Mepai</b>	2 <sup>nd</sup>	3 <sup>rd</sup>	1 <sup>st</sup>	5 <sup>th</sup>	4 <sup>th</sup>
<b>Koh Moyeul Leu</b>	5 <sup>th</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	4 <sup>th</sup>	3 <sup>rd</sup>
<b>Koh Minhe Kroam</b>	5 <sup>th</sup>	2 <sup>nd</sup>	1 <sup>st</sup>	4 <sup>th</sup>	3 <sup>rd</sup>
<b>Sre Thom</b>	2 <sup>nd</sup>	3 <sup>rd</sup>	1 <sup>st</sup>	5 <sup>th</sup>	4 <sup>th</sup>
<b>Khnheng</b>	2 <sup>nd</sup>	3 <sup>rd</sup>	1 <sup>st</sup>	4 <sup>th</sup>	5 <sup>th</sup>

Generally, people feel that they have not experienced “sustainable livelihoods” over the past five years and are presently hopeful that whatever they have and do now for their living will give them at least the minimum provision. In a scale<sup>1</sup> of 1 to 5 (5 being the most desirable), a score of 5.00 would mean that people have had livelihood activities that provide them food, income, and contribute to their well-being in the last five years and are likely to continue being sustainable in the future. All villages scored a general weighted average of 3.00 considering all their present livelihood activities, which means that they have not seen their livelihoods with much outcome in the last five years although they are hoping that they would be more productive this year (see figure 3 below).

More specifically, they opined that their livelihoods are not contributing to the enhancement of their well being. This is manifested by poor sanitation condition in the village, high incidence of malnutrition among children, rampant water-borne diseases due to lack of potable water, and high morbidity especially among pregnant mothers and those afflicted with malaria.

In Figure 3 below, an ideal situation where livelihoods of the people are sustainable, would be that all bars are extended until 5.00 on the scale. Given that the average (dotted line) is just 3.00 with varying levels across different indicators, the challenge now is how to extend these bars through 5.00 on the scale by helping these people work for the minimum desirable state of their livelihoods.

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<sup>1</sup> 5 – yes, the activity (e.g. farming) has influenced sustainability of the livelihood consistently in the last 5 years

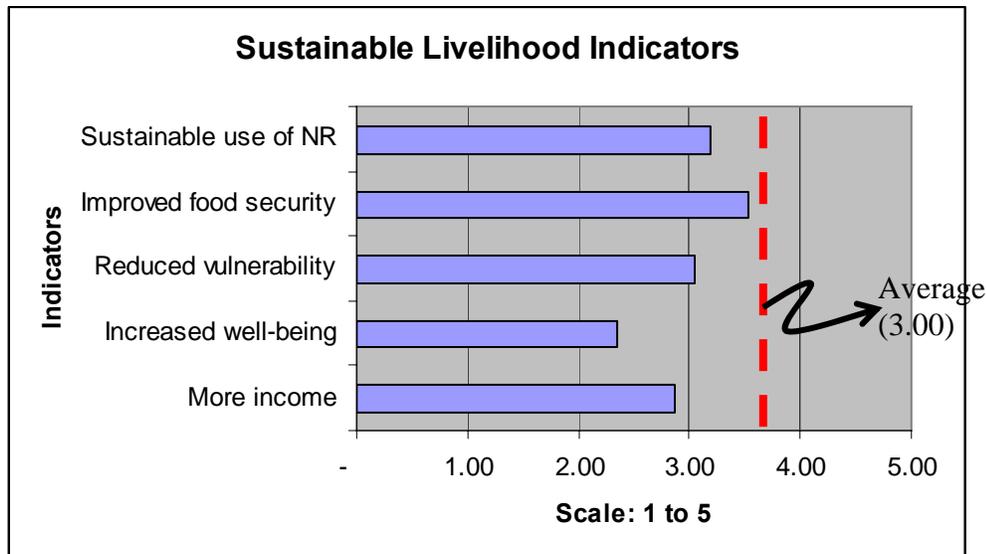
4 – yes, it has contributed to sustainability of the livelihood, though not consistently, in the last 5 years

3 – yes, it has started to provide sustainable livelihood only this year

2 – no, for this year, it hasn’t shown any indication of sustainable livelihood

1 – no, it has not contributed to sustainability of the livelihood in the last 5 years

Figure 3



## 2.2 Household Income and Expenses

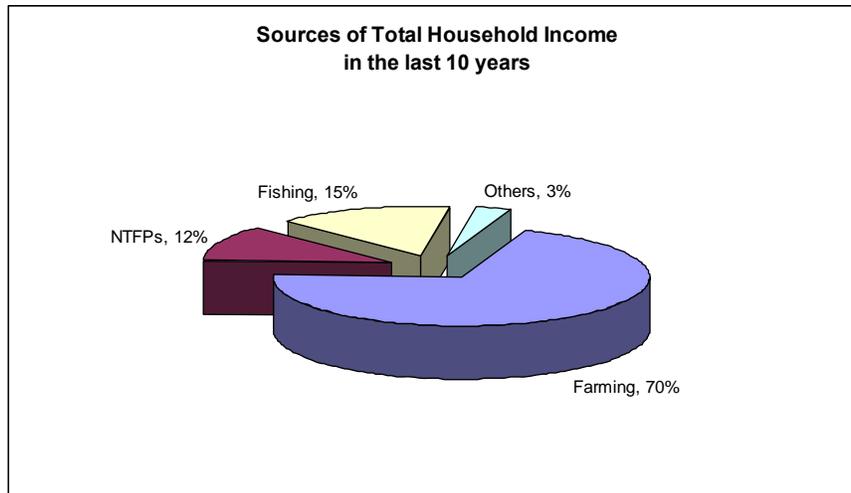
A closer look at the condition of the household economy<sup>2</sup> shows that the livelihoods of the people produce minimal income and since people find savings as an imperative requirement to their survival (especially during emergency cases, they said), they have small amount left for their household and farm expenses. A typical family earns \$572<sup>3</sup> per year and spends 89 per cent, and saves \$63 for the year. Those in Putang and Mepai said that they do not even have anything to save and need to spend more than they earn. Borrowings are immediate and long term solutions for this problem.

People earn their living mainly through farming (including livestock raising) while other sources include fishing and NTFP collection. Figure 4 shows these sources of earnings, and how these are combined, on average for all villages. Figure 5 shows the trend of these sources over the last 10 years. These means of livelihoods are discussed in detail later.

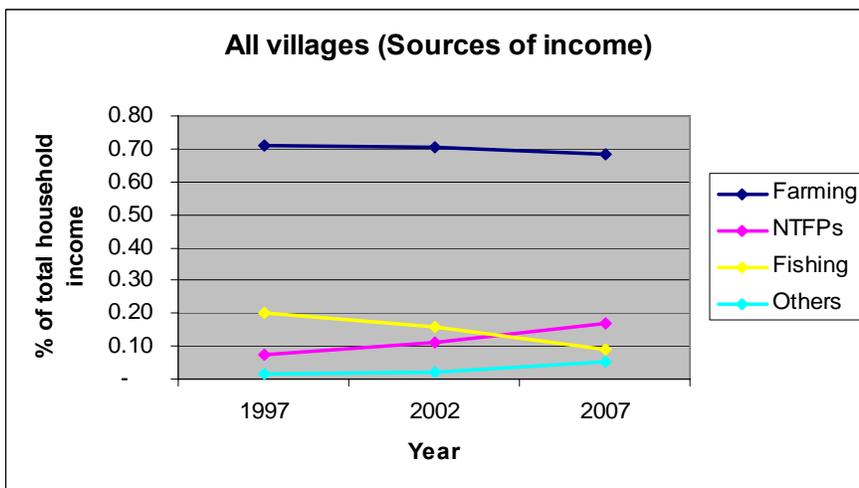
<sup>2</sup> For the purpose of this study, household economy is defined as how much a household generates revenue and how these are allocated to their various basic and auxiliary needs. Revenues are the production outputs (farm produce, NTFPs, etc) which are either consumed as food, farm inputs, gifts and other uses, and are sold for cash. Expenses are defined as all spending and consumption (whether cash or non-cash) of the household to continue their livelihood (production needs) and to keep the subsistence and development needs of their family members (reproduction needs). The difference between their produced revenues and expenses are their savings that they use for investment (e.g. draught animals), long-term needs (e.g. house construction, education), and emergencies. To determine the revenues, expenses and savings of the families, respondents were guided in coming up with cash and non-cash statements of these financial items (revenues, expenses and savings) based on actual experience of average families. Where there are mentions of one general average (Figure 5), this is the common figure considering all villages selected for this study.

<sup>3</sup> US\$1 = 4,000 Riel

**Figure 4**



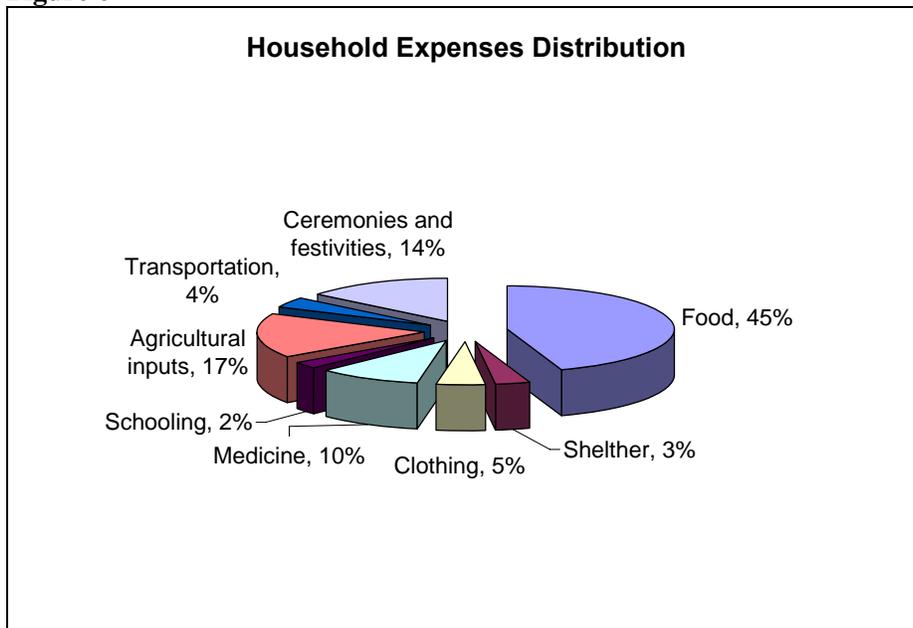
**Figure 5**



With these various means for families to generate their livelihood, it is interesting but not surprising to note that they spend most of their earnings on food (45%). Half of their spending for food is for rice alone, while the rest is for seasoning (salt and MSG), sugar, etc. Only the villages of Koh Minhe Leu and Koh Minhe Kroam reported food expense lower than 50 per cent of their total household spending. The food expenses in all of the rest of the villages range from 50 per cent (Sre Thom) to 64 per cent (Khnheng) of their total earnings.

Figure 6 further describes how families spend their revenues. At 17 per cent of the total household expenses, livelihood inputs such as cattle rental, seeds, fishing gears, and other supplies are one of the priorities of the people. Also, it is interesting to note how people pay much attention to their cultural festivities and ceremonies (mostly weddings) where they spend around 14 per cent of their earnings.

**Figure 6**



Significantly, only Koh Minhe Leu and Koh Minhe Kroam indicated regular cost for house repair and maintenance. For schooling needs of their children, only Sre Thom, Koh Moyeul Leu, and Koh Minhe Kroam allotted budget for this. The contrast in spending among different villages shows the level of livelihood situations that were highlighted in earlier discussions. While most of these villages are still focusing much of their earnings for food, those who have indicated relatively higher scores in the SL outcome indicators are already spending small amounts of their money for other needs. However, although these instances (investing in house repair and schooling) may show positive indicator of livelihood development, this happens only in a very small part of the population across all communities in this study. It can still be inferred that almost all of the people in all villages remain impoverished. This situation could be further understood by analysing the livelihood strategies through which people acquire these earnings.

### **2.3 Means of Livelihood**

The major livelihood strategies of all six villages are farming (including livestock raising), fishing, NTFP collection and handicrafts. Table 2 shows what livelihood activities are present in each of the villages.

**Table 2**

Livelihood Strategies	Putang & Mepai	Koh Minhe Leu & Koh Minhe Kroam	Sre Thom	Khnheng
<b>Farming (including livestock)</b>				
Upland rice	√		√	√
Lowland rice	√	√	√	√
Corn	√		√	√
Banana			√	√
Fruits & vegetables	√	√	√	
Soya	√			
Peanut	√		√	
Cassava	√		√	√
Sugarcane			√	
Livestock		√	√	√
<b>Fishing</b>	√	√	√	√
<b>NTFPs</b>				
Rattan & other vines			√	√
Resin	√	√	√	√
Honey	√		√	√
Wild fruits/bamboo shoots	√	√	√	√
Sleng seeds		√	√	√
Wildlife hunting	√	√	√	√
Handicrafts	√	√	√	√
<b>Others</b>				
Mining/metalcraft		√		
Farm labour	√		√	√

Farming is the main source of income; it provides 70 per cent of the total household revenue over the last 10 years although the villagers have experienced a slight decline.. Rice (upland and lowland) is the predominant crop

While vegetables and livestock are also among the important sources of income. Figure 7 shows that farming is most significant in Khnheng where it averaged 75 per cent over the last ten years although in a declining trend (78% in 1997, 77% in 2002 and 70% in 2007).

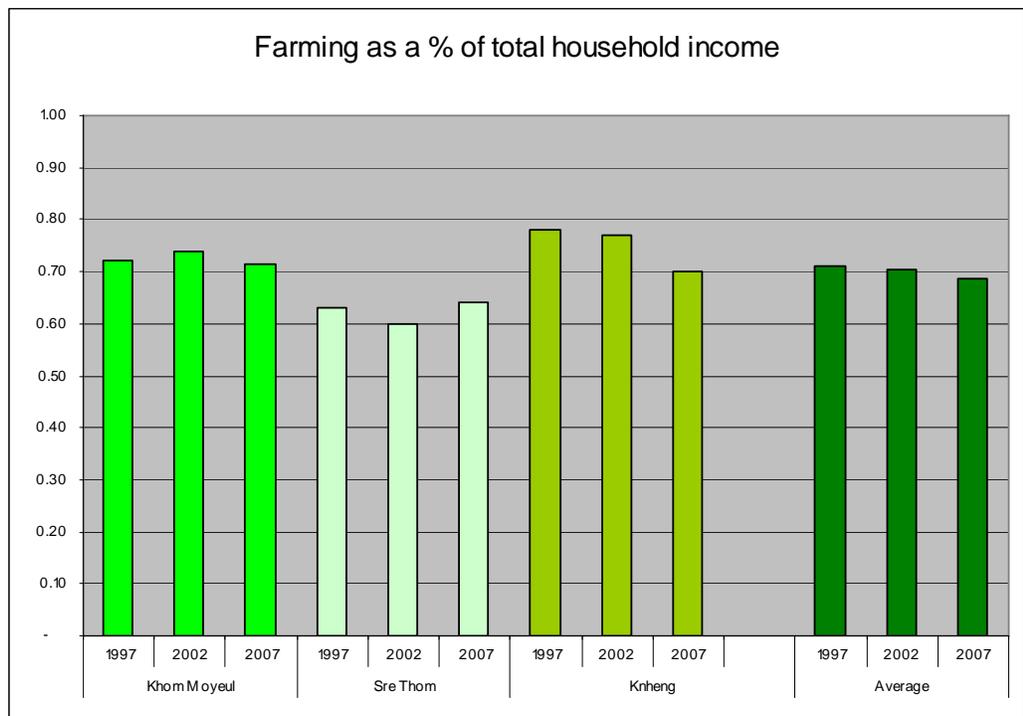
Fishing is a far second livelihood (to farming) in terms of income contribution. It provides an average of 15 per cent of total household income across all villages in the last ten years and at a declining rate – it was 20 per cent ten years ago and only nine per cent in the current year. Declining fish catch (due to destructive fishing practices) is one of the factors why fishing as a livelihood is becoming less popular.

Sre Thom was a predominant fishing village in 1997 contributing a high of 26 per cent to total household income. While the other villages have been experiencing a declining contribution from fishing, Sre Thom has managed to gain back fishing's contribution to total household but only slightly.

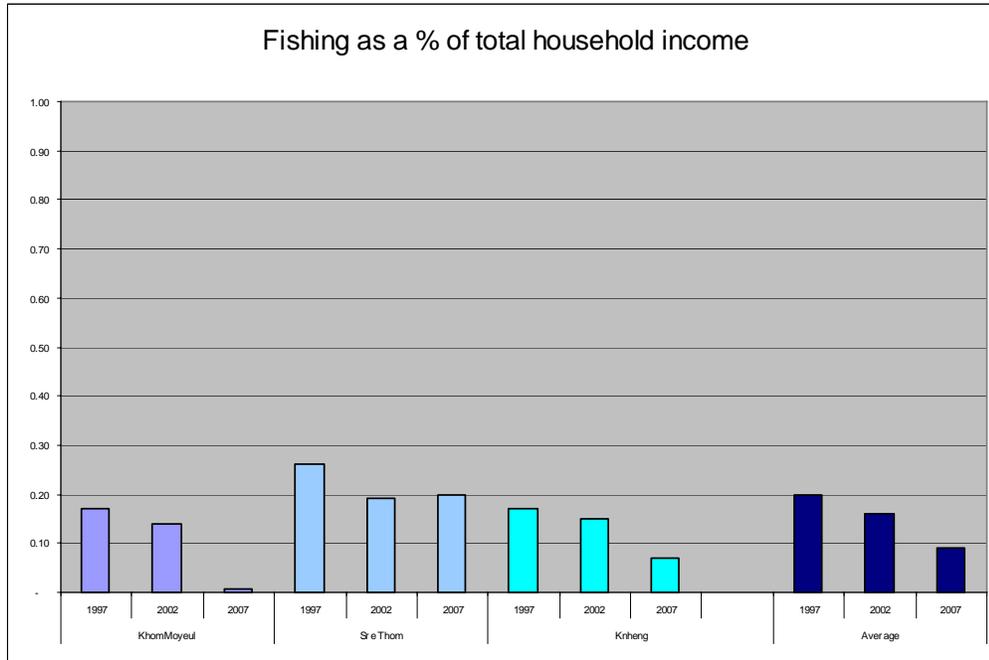
Livelihood activities related to collection, harvesting and processing of NTFPs are also a major source of income; this group of activities contributes 12 per cent to the total household income across all villages in the last 10 years. Such activities include collection of sleng (*Strychnos nux-vomica*) seeds (sold for uses as a bitter flavouring in pharmaceuticals ), harvesting of dry and wet resins, honey collection, gathering of rattan and other vines, handicrafts mainly baskets, wildlife hunting, and collection of edible wild fruits. Contrary to the trends of farming and fishing, NTFP activities have been increasing and providing improving contributions to the total income over the last ten years, especially in Khnheng. However, this has decreased in Sre Thom from 20 per cent in 2002 to 15 per cent in 2007.

Other livelihood activities have contributed 3 per cent over the last 10 years; this has been increasing, albeit insignificant. These activities include labour-for-rent in farms and mining companies.

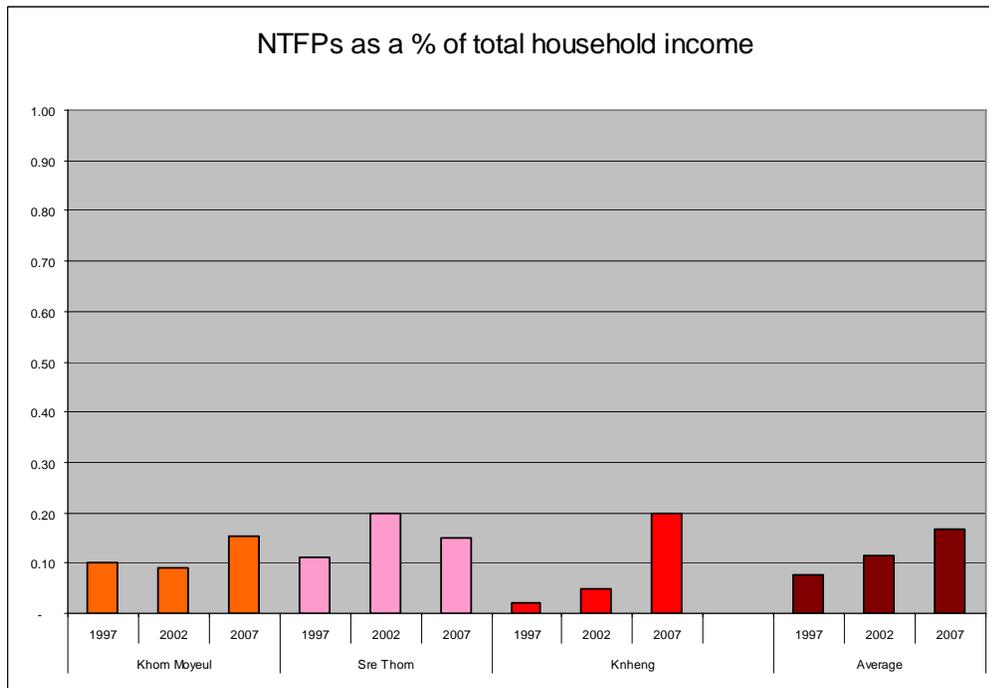
**Figure 7**



**Figure 8**



**Figure 9**



The contribution of farming to household income in Koh Møyeul Lue and Koh Minhe Kroam has been stable in the last 10 years; fishing has been declining while NTFPs has been increasing. The people of both villages are now more dependent on NTFPs than fishing for their secondary source of income. NTFPs include sleng seeds, materials for handicrafts, resin, edible mushroom and wild fruits. Also noteworthy is the presence of mining-related livelihood opportunities and about 10 families are involved in this.

The villagers of Koh Moyeul Lue and Koh Minhe Kroam, while still feeling inadequate in their lives, opined most positively about the “sustainability” of their livelihoods compared with those from other villages (although their self-assessed rating of 3.59 was still far from 5.00, which is the assigned rating for the minimum livelihood condition. They reported an average household income of \$906 per year while other villages have lower amounts than this.

In Sre Thom, both farming and fishing have U-curves in terms of their percentage contributions to income over the last 10 years; both livelihoods went down five years ago and have regained back their levels of income by the current year. While people had low incomes from farming and fishing, they did additional NTFP activities (rattan and other vines, wildlife hunting, honey collection, and basket making). This village was among those who self-rated their livelihoods very low (2.71). An average household earns \$505 and saves \$25 per year (savings usually allotted for medicines in times of sickness in the family, for house construction and to buy buffalo).

There has been a significant decline in farming and fishing over the last 10 years in Khnheng. However, people have an alternative source of income, collection of sleng seeds – about 90 per cent of families undertake this activity. The average earning per household is \$755 while savings is at \$104 (which are higher than those in Sre Thom). Despite that fact that their income and savings levels are better than the other village, people in Khnheng still had the lowest appreciation of their livelihood situation as evidenced by the low scores in expressing their livelihood outcomes.

People achieve (or do not achieve) their livelihood objectives through these strategies (farming, fishing, NTFPs). They use different resources or capitals to be able to implement such combinations of various livelihood strategies. The succeeding discussion explains how these mixtures of resources affect the current state of the people’s livelihoods.

## **2.4 Livelihood Capital**

“Capital assets” are the most fundamental factors of the livelihoods of the people; these are what they combine and use in order for them to implement their means of living. These sets or combinations of capitals are important sources of livelihood improvement because these capitals are, by and large, under the control of the people.

The different types of livelihood capital in all villages are summarised as follows:

**Table 3 Summary of Livelihood Capitals**

<p><b>Human Capital:</b>  Average of 110 families per village, 5 children per family  70 – 98% of the population are IP Pnong  50% children  35% working age (19 to 40 years old)  Almost equal numbers of females and males, females slightly more than males (53%:47%)  Only 7% are literate  Traditional knowledge and skills in farming</p>
<p><b>Social Capital:</b>  Government services (partial and irregular): health, education, police, commune council  NGOs: mostly on environmental management and poverty alleviation (basic services)  Community groups and informal leaders / elders  Traders, financiers</p>
<p><b>Financial Capital:</b>  Acleda bank – community members usually not loan-eligible with the bank criteria and requirements; 3.6% pa interest rate  Traders and financiers – more accessible for loans but with 200%pa interest rate  Commune fund – for resource management but not all communities are familiar with this  Borrowing from neighbours selectively practiced in different villages  Savings – a number of people do save for emergency purposes</p>
<p><b>Physical Capital:</b>  Roads – not good condition  Motorbikes – a few are available for public transport  Boat – only about 10% of the people possess boats  Draught animals  Dikes in ricefields but defective  Well pumps  Schools  Police stations  Health centers</p>
<p><b>Natural Capital:</b>  Agricultural land : 70% of people have less land; average farm size 0.5 to 3.0 hectares  Forest resources. Forestry law 2006 recognising local communities to have customary user rights to collect timber and NTFPs.  Major NTFPs already being commercialised: resin, honey, sleng seeds, bamboo, rattan, wildlife, handicraft  Streams</p>

## 2.5 Capacity of the People

People do have capacities but these are very limited to have sufficient access to necessary forms of livelihood capital. Very few of the people are literate and most of them have not had any level of schooling. Except for older people, Khmer language is commonly spoken. , Their strenuous farm work might have made their bodies resilient to hard physical work but they still fall ill frequently (especially from malaria). Most causes of death are preventable diseases (malaria, respiratory problems, dehydration, and other water-borne diseases), which indicates that the health situations of the villages are a major restriction in building their human capacities.

Financially, people save money (which is especially allotted for emergency and for long-term investment such as house repair or motorbike) but this is not without spending very frugally or insufficiently for their basic needs. For most emergency cases, they still end up borrowing from their neighbours when they run out of savings. The next best means to obtain money is to take interest-burdened loans from traders; but this is usually only for their agricultural needs.

Social relationships result in better capacities of the people. Transacting with traders has become an important means of building their social capital whereby, aside from borrowing, they learn technologies and other information from outside their villages. Especially for those who do not belong to any formal or informal associations, traders are the only means of networking outside their groups. Within their groups, people build their connectedness among each other through social activities. It is noted earlier that people spend for ceremonies and festivities and these are where they develop their social relationships. Those who are more active in project activities are able to build common social connections with NGOs and government bodies that are providing services in the areas.

There are very few and limited infrastructure that could be used for the people's livelihoods. Often, the centres (health post, school) have no sufficient services.

Agricultural lands are the most fundamental natural asset of the people. Lands are acquired by asking permission from the Village chief after acquisition, sometimes land is rented from neighbours who have previously occupied and cleared the area. A family can have from 0.5 to 4.0 hectares of farmland. The Srepok River, streams and other bodies of water are also an important source of their products. The forest resources that people can use for livelihood are abundant. Like fishing, these significantly serve as a secondary means of income for the people aside from agriculture.

## **2.6 Factors Affecting Poor Human Capital**

With agriculture as the fundamental source of their livelihood, people recognise that lack of adequate agricultural technologies and support mechanism on financial and marketing systems are among the major factors why they could not improve their farming. Low rice yield is the result of poor technology and inadequate production facilities. Farmers use traditional agricultural methods in farming and often times without support of draught animals. Most farm activities are done manually and with very modest tools (e.g., machete). They do not know adaptive techniques on maintaining their fields and improving their harvest (e.g. sustainable agriculture, system of rice intensification). In fact in Sre Thom, the farming technology that the people used nowadays for lowland rice-farming was said to be brought in to Sre Thom by two families from a nearby province, Kratie in the 1960's. There is no support to improve the capabilities of the farmers in marketing their products, either from the government or from the NGO sector. Farmers could not therefore gain competitive bargaining positions in dealing with buyers.

At an average of 1,250 kg/ha of palay (unhusked rice) per cropping (note that in the Philippines it's 4,000 kg/ha), families do not get enough rice supply even for their own consumption. Most farms are even smaller than a hectare. In most of the villages, 50 per cent of the farmers do not have enough land. The average farm size is less than a hectare only. At bad times, harvest could even be as low as 700 kg/ha and therefore leaves with only 350 kgs (and processed/milled to 315kgs rice) – this translates to not even a kilogram of rice for a day's consumption. For an average family with 5 children, they would need to buy more rice.

For fishing, only 10 per cent of the families have boats and only 30 per cent have fishing gears (hook and line) which they share among their neighbours.

Lack of support system on the production technologies and skills also affects non-sustainability of this livelihood.

As noted earlier, the farmers' inability to employ farming technologies that could adapt with the challenges in agriculture (drought, market competition) is among the most significant reasons why

people remain in the vicious cycle of capital regression and increasing requirement to produce food. This situation is also true for fishing and NTFP collection. In Khnheng, for example, access to forest resources particularly harvesting of sleng seeds has been compromised as people do not have or do not employ appropriate techniques in collecting the seeds. Similarly, their financial capital invested in livestock has also been put at risk due to absence of appropriate veterinary care in times of disease outbreaks.

Farmers regard their lack of knowledge on appropriate technologies as a high-impact disability in terms of advancing their present livelihoods; they therefore view education (as the source of modern knowledge, skills and attitude) as a major means to improve their children's capacities to undertake their own livelihoods in the future.

Considering these incapacities in most components of the livelihood capital, people are mostly affected in terms of their physical strength, knowhow, and attitude towards their work. Although communities also complain about the insufficient infrastructure and services, and lack of financial resources, people complain most about human resources.

People get sick especially during rainy season when 1) the road is bad and access to medication is difficult .and 2) when outbreaks of diseases such as malaria occur. During these difficult times, the financial incapacities of the people worsen their situations. Except for Koh Minhe Leu and Koh Minhe Kroam where villagers said that they could borrow money from neighbours and relatives, all other respondents said that they have to seek loans from outside the villages (indicating homogeneity among village people – that most of them do not have enough cash). Instead of getting support to improve their already low human capital, people are more worried about abating the deterioration of their human capacities.

In this situation, people no longer seek what they truly need in order to implement their livelihoods well (e.g. farming skills and technologies). As observed in Mepai and Putang, for example, people just take whatever forms of capital support that are available to them (e.g. training on human rights) instead of proactively informing their government of what can help them in their livelihood.

## **2.7 Problems with Other Livelihood Resources**

Other forms of inadequacy of the people's capacity include lack of the following forms of capital: infrastructure services, market opportunities, and resource use regulation policy.

The bad road condition is a major difficulty for all villages (although less for Putang and Mepai). Inaccessibility to these villages highly affects the basic services for the people: teachers do not come regularly; there is no doctor or midwife coming to the health posts and NGO workers seldom visit the areas. Livelihood activities are also very much dependent on the road condition. People cannot transport their produce especially in the rainy season. Traders' preference in buying and transacting business with producers depends on whether the road is good (more than it is on the kind and prices of products being transacted). In Sre Thom, people have to cross dikes through rice fields and sometimes could not get to health posts and schools during the rainy season.

While there are sufficient market opportunities for their products, people simply cannot access and tap these opportunities (e.g. high-end market for their wild, organic honey) due to lack of expertise and financial capital.

Since NTFPs and fishing are important secondary sources of income, proper regulation on the use of these resources is very important. The poor implementation of regulatory policies is already a big threat to the sustainability of the resources and thereby to the livelihoods of the people. In Sre Thom and Khnheng, the reported cases of illegal, destructive fishing and cutting down of trees to get sleng seeds

show that people find these natural resources valuable. These cases also prove that the resources may benefit the people only for a short time if not sustained through improvement of other forms of capital (i.e. social capital through regulation of harvests and implementation of protective and rehabilitative measures).

## **2.8 Wasted Capital Investment of the Government**

There are several government projects particularly infrastructure facilities but these do not have appropriate services. These could eventually waste the government's investment as these do not serve their purpose for the people. School and health centres are the most common types of this problem across all villages. If the facilities have services, these could be a good set of physical capital for the people.

## **2.9 Positive Points Contributing to the Implementation of their Livelihoods**

Amidst their difficulties, the villages also recognize the strengths within their livelihood resources; these are mostly pertaining to their utilisation of forest resources. In general, the people have very good natural capital. This has been evidently true as manifested by growing interests of outsiders to go into the villages and invest in and benefit from their natural resources. The communities have access to abundant forest resources, particularly NTFPs, and these could bring high economic potentials to the NTFP collectors.

People also feel that they have improved their knowledge and understanding about the technical aspects of managing their resources and this is particularly through the WWF project.

People may eventually employ social marketing and gain a premium on the relevance of the products to resource management. For the local people, this could be a very good entry point towards building their overall capacities to conduct their livelihoods. They maximise the outputs of the natural resources and establish sustainable means of utilisation, and use this as a reason (capitalise on this) to improve their other sets of capital (human, financial, social – to include market, and physical). The improvement of their other resources should complement the gains from the natural resources. However, a caveat that people seem not to worry about at this point is the lack of implementation of policies and laws to regulate the harvesting of NTFPs. Whether there are already existing laws is not clear to the people, much less the obligation for them to follow sustainable use.

The ability of the people to use forest and freshwater resources to supplement their livelihoods, produces improvement in their household resources, mainly food and financial income. This ability is used to improve the primary livelihood, i.e. agriculture. From the people's perspective, this is an important means to help them secure their livelihood. It should be noted people emphasise and prioritise agriculture as their main source of living – even though they fish and collect NTFPs, their livelihood security lies with agriculture. Although security may also lay in the forest as a source of emergency food. (See Economic Value of NTFPs, chapter 3.)

In summary, the internal capacities of the people (use and combination of their available resources) are not sufficient to provide sustainable livelihoods. People do not have sufficient access to most livelihood capitals and the effects of are manifested by stunted development of their human capacity (lack of skills and knowledge, inability to use technologies, worsening health etc.).

The following sections describe how the external factors affect the use and combination of these capitals and the livelihoods of the people.

# 3 EXTERNAL FACTORS AFFECTING PEOPLE'S LIVELIHOODS

This part of the analysis shows the influences of institutions and vulnerability context on how people utilize their livelihood resources or capital assets. This also explains how the institutions affect the situations within the vulnerability context. These relationships are illustrated in Figure 1, Page 3.

## 3.1 Impact on the Livelihood Capital (Transforming Structures and Processes)

Transforming Structures and Processes within the livelihoods framework are the institutions, organizations, policies and legislation that shape livelihoods. These determine access to resources and terms of exchange between different types of capital.

Table 4 lists the different institutions and organizations operating in the villages.

**Table 4**

Institutions and Organisations	Putang & Mepai	Koh Minhe Leu & Koh Minhe Kroam	Sre Thom	Khnheng
<b>Government</b>				
Department of Agriculture	√		√	√
Department of Education	√	√	√	√
Department of Health	√	√	√	√
Ministry of Environment (PPWS)			√	√
District, Commune, Village Authority	√	√	√	√
Commune Police Post	√		√	√
Seila Program	√	√	√	√
NRML committee	√	√	√	√
<b>Non-Government</b>				
WWF	√	√	√	√
Action Contre La Faim (ACF)	√	√	√	√
Plan			√	
NOMAD		√	√	
Flora and Fauna International				√
CLEC	√			
ADHOC	√			
Health Net	√			
Cambodian Red Cross	√			
<b>Religious</b>				

Christian church	√			
<b>Civil Society/ Community Groups</b>				
Community Protected Area com			√	√
Elder group	√		√	
<b>Private Sector</b>				
Traders/Financiers	√	√	√	√
Mining companies				√
Plantation companies	√			

### 3.2 Service Providers: Government vis-à-vis NGO

People build their human capital mainly through the developmental services they derive from the government and the NGO sector. Both institutions provide basic services that could improve their production and reproduction capacities; these services include education, primary health care, water pump and well construction, malaria treatment, etc. While people recognize the positive results of the government services, these are still not enough to benefit the majority of the people. In Sre Thom, the schools accommodate only 10 per cent of the children while their health post could only attend to very minor ailments. In Koh Minhe Leu and Koh Minhe Kroam, schools started only around 2004, with three irregular teachers and conducting classes up to Grade 4 only, and have not improved since then. Their health post was built only in 2006 and could only be accessed by those who have money to buy medicine. In Putang and Mepai, people are aware that their Commune Council has natural resources management fund but this money is both inaccessible to the people and are not evident in any projects implemented.

The fact that the NGO sector also delivers basic services such as primary health and education only shows that the government, being the primary service provider, lacks the minimum capacity to deliver public service. Instead of seeing this as a problem, people are somehow satisfied that they are getting support regardless of whether their government is capable and improving. When the community in Khnheng appreciates the decrease in percentage of people suffering from malaria, from 20 per cent in 1997 to only 5 per cent at present, because of the social services of an NGO, they would not bother anymore whether their local government will be able to sustain this kind of service to the people when the NGO finishes its project and leaves the area.

However, this kind of developmental approach (of NGOs fulfilling the role of the government) is not sustainable in the long term; the government is the institution that operates in the area inter-temporally while the NGOs are project-based and are therefore not permanent in the community. If NGO services are done without building the government's institutional capacity, the opportunity of the people to further develop their human capital in the long term also becomes uncertain. For example, while NOMAD has actively campaigned and provided extension services for prevention of malaria, people still get sick and die of preventable diseases such as diarrhea because the health post fails to provide the very basic services. And since people are most vulnerable on their human capital compared with their other livelihood assets, the influence of institutional support (especially that of the government) through basic social services could have a great impact on the development (or underdevelopment) of the people's livelihoods.

### **3.3 Negative Impacts on the Livelihood Assets of the People**

Because the social services that were supposed to be for the public are insufficient, these services gravitate to a few in the community who have the edge over others (usually those who have money). For many, the obvious manifestation of their lack of privilege is on their social capital – they do not have enough social networks and connections from which they could draw access to resources and benefits.

The disadvantaged access to social network then leads to similarly problematic availability of other forms of capital, i.e. financial, natural and physical. As already mentioned earlier, the local health services have already become for-fee advantage for those who can buy medicines. There is also noted corruption of land-use law whereby people in power are allowed to arbitrarily distribute lands in Putang and Mepai. Without the benefit of clear (or even legal) implementing procedures, people are sometimes surprised to learn that their farms are already actually redistributed to other claimants. This causes people much trouble especially for those farmlands that are already developed by the current tillers. The “rules of the game” such as this explain why people complain about how the government policies have become disadvantageous to the people. People are also citing the occurrence of rampant illegal harvesting and selling of state lands to private firms and individuals.

The availability of financial resources through formal and informal loans is superficially beneficial to the disadvantaged sector of the community. At one hand, people regard this positively as no one would dare say that availability of money, no matter what cost it takes, is undesirable especially during the hungry season. On the other hand, the absence of socially responsible financing programs leave the people nothing but to be subservient to financiers imposing as high as 200 per cent interest rate. Whether people pay in cash or produce or livestock, the interest expense only makes them borrow more money in the coming planting season. Nonetheless, the relationships with traders-financiers are regarded by the people as very instrumental in the development of their social capital; most of the interrelationships of the people are done with the trader-financiers.

This situation explains why there are differences across villages in terms of ability of the people to negotiate and transact. It is the presence (or absence) of trader-financiers that mainly influence the local economic and financing activities. At this point, the transportation access to and from the area is also a major factor, either for the people or for trader-financiers. In Sre Thom, there are no local traders in the area so people have to travel outside the village to borrow money or sell their produce – and they could not do this when the road is bad.

#### **Lack of programs to improve road facilities**

The lack of any policy or program to provide sufficient road services is also one of the biggest issues brought out by all communities; although Putang and Mepai are relatively satisfied compared with other villages.

In Khnheng, Koh Minhe Leu and Koh Minhe Kroam, there has been a proposal to the commune councils to improve the roads but until this plan is implemented, road problems will continue to cause decreasing prices of the local products (because it takes longer time to bring these products to the markets) and increasing costs to transport and sell their produce.

#### **Impacts on natural resource management and utilization**

The programs, policies, and processes that affect how people use their natural resources as a source of livelihood are also mostly disadvantageous if viewed from the people’s paradigm. The government policies are regarded unfavourable for the improvement of the people’s capabilities. Meanwhile, people view NGO support to the sustainable use of natural resources with both positive and negative effects on their livelihood capital.

The government policies that allow mining firms to operate in the forests are seen by the people, as having immediate and direct impact, on their natural capital – they could no longer access the forest (non-timber) resources the way they used to utilize. In Khnheng, mining companies have been operating for three years already and they do not just drive the people out of the forests, they also compete for other resources. There are miners who undertake illegal fishing, thereby decreasing the fish stock that would have been accessed by the villagers. Poisoning of the streams due to gold mine toxic effluent has also been reported.

In addition to mining, it is also observed that there are tracts of forestland being sold to private firms and individuals. The programs and/or policies that allow for such land distribution deflate the communities' opportunity to manage and utilize their forest resources.

When it comes to NGO policies and programs on natural resources management, people are sometimes confused about how these implicate their use of the resources. The NGO policies and programs clearly advocate for sustainable use of natural resources (and therefore reduced, regulated harvesting of NTFPs and fish). People appreciate this as a form of developing their awareness, knowledge, skills and attitude towards implementing nature-based livelihoods – it improves their human capital and the manner by which they dispose this. However, they also complain about the reduced access to these resources (fish catch, NTFP collection, wildlife hunting). They observe this as reduction of their natural capital and therefore reduced livelihood opportunities. This reaction is expected because the people have not satisfied yet their basic requirement for survival (i.e. food and other basic needs). They would not truly appreciate the importance of keeping their forest healthy while they remain hungry.

Clearly, there is a need to reconcile these opinions if this policy (natural resource management) truly aims to improve people's long-term access to these resources. This is more important when considering the growing need of people to depend on forest resources especially every season of hunger and sickness. But first, people have to be reassured that sustainable livelihoods (and food security) will actually be part of the long-term effort of keeping natural resources sustainable.

### Positive impacts of institutions

While many issues and concerns have been raised about how people access support from various institutions, there are also programs and policies where people are appreciative of the positive effects to their livelihood.

Apart from the issue of reduced NTFP utilization, the programs on natural resource management of WWF and other environmental NGOs are appreciated by the people as these improve their awareness on the importance of resource management and their knowledge on the strategies to implement this (e.g., community land-use planning). However, this does not necessarily mean that illegal harvesting and cutting of trees have already stopped. For Koh Minhe Leu and Koh Minhe Kroam, the communities made specific mention how the policies and programs on resource management contribute additional improvement in their natural capital whereby fish stock has improved and contributed to their health and ability to labour (noting that fish is a source of protein and nutrition).

Compared with other villages, Khnheng has a higher appreciation of the programs on basic services (health, well pump, school) and the importance of these programs to their capacities to sustain their livelihoods.

The networking with traders that was mentioned earlier has improved the ability of farmers to do business outside their area (Sre Thom) and this complements their knowledge and skills on farm production. The new acquired knowledge enhances their indigenous skills that were learnt from their parents and neighbours.

### 3.4 Impact on the Livelihood Capital (Vulnerability Context)

The Vulnerability Context shows the external environment in which the communities subsist. The livelihoods of the people and the manner by which they use their assets and resources are basically affected by critical trends as well as by shocks, changes and seasonality. The people have limited or no control over these situations.

The factors in the vulnerability context should be crucially analysed as these directly impact the people's capital status and the options that are available to them to pursue their livelihood objectives. It is important to understand the links between assets and vulnerability context because assets are both destroyed and created as a result of the trends, shocks, changes, and seasonality.

Table 5 highlights the common situations across the villages:

**Table 5**

<p>Trends:</p> <ul style="list-style-type: none"> <li>• Population increasing (both natural and migration)</li> <li>• Decreasing fish catch</li> <li>• Decreasing soil productivity, lesser yield</li> <li>• Decreasing incidence of malaria</li> <li>• Increasing awareness on the commercial uses of NTFPs</li> <li>• Climate change; long dry season</li> </ul>	<p>Shocks:</p> <ul style="list-style-type: none"> <li>• Cattle and livestock disease outbreak</li> <li>• Forest fire</li> <li>• Flooding</li> </ul>
<p>Seasonality:</p> <ul style="list-style-type: none"> <li>• Rainy season – difficulty in transporting, malaria outbreak</li> <li>• Dry season / hungry season – low agricultural yield, rice farm infestation, wildlife hunting</li> <li>• Harvest season – no mining work</li> <li>• Products in season: farm crops during rainy season; fish and NTFPs in dry season</li> </ul>	<p>Change:</p> <ul style="list-style-type: none"> <li>• New road constructed (Putang and Mepai)</li> <li>• Fewer farm lots now (taken by the private companies or individuals and sold to others)</li> <li>• Livestock raising for sale</li> <li>• Establishment/declaration of protected areas</li> </ul>

Table 6 shows the livelihood activities of the people across all villages in each month of the year highlighting the wet (May to October) and dry (November to April) seasons. This shows the common peak times of each of the livelihood activity. For example, fishing happens all year round but people are most active with this activity in dry season as highlighted in the table. This indicates inflow of food produce and cash revenues on a monthly basis; it also shows which products are the sources of livelihood in each particular season.

**Table 6**

Seasonality Calendar												
Livelihood Strategies	Months											
	Jan-Mar			Apr-Jun			Jul-Sep			Oct-Dec		
<b>Farming (including livestock)</b>												
Upland rice												
Lowland rice												
Corn												
Banana												
Soya												
Peanut												
Cassava												
Sugarcane												
Livestock												
<b>Fishing</b>												
<b>NTFPs</b>												
Rattan & other vines												
Resin												
Honey												
Wild fruits/bamboo shoots												
Sleng seeds												
Wildlife hunting												
Handicraft												
<b>Others</b>												
Mining/metalcraft												
Farm labour												

People, and the way they use and combine their capitals, are highly vulnerable to shocks, trends and seasonality. The resources of the people are too limited to cope and adapt with the effects of the livestock disease outbreak, the difficulties of transporting during rainy season, decreasing agricultural yield, and many other critical situations. Building and improving their assets have always been difficult for the people due to the negative impacts of these trends, shocks, seasonality, and changes. The communities also noted that even during better times, such as the rainy season where they would have better crop production, negative conditions would still be more evident. The benefits gained during the

season (e.g. increased harvest) are often not enough to off-set the problems (e.g. bad road and no access to external support and facilities) that hinder their capacity to undertake their livelihood.

### **Effects on human capital**

The effects of the vulnerability context to the people's human capital are the most direct to the people's being. People see and feel directly how they become incapacitated due to malaria and other dreadful ailments, how their children die of water-borne diseases due to worsening sanitation condition and decreasing per-capita supply of potable water. The increasing population has also necessitated people to produce more. In Sre Thom, children as young as 10 years old are already being sent to farm work to be able to contribute to their household income.

With this condition, people recognize that "they are still lucky" because they know that they have not yet had any "big" disasters (e.g. flashflood, drought) compared to what they hear from outside their areas. Although they presently survive with their existing livelihoods and belongings, they believe that they are vulnerable to "bigger shocks".

### **Effects on social capital**

The effects of the vulnerability context to the people's social capital are a mixture of positive and negative effects. At one hand, the problematic situations of the people have become the stimuli for supporting organizations (NGOs) to come to the area and work with the communities. The increasing incidence of malaria brought in NOMAD, the worsening poverty was responded by ACF, and the depleting forest and wildlife resources necessitated WWF to work in the area, etc. Apart from addressing these particular issues (malaria and natural resources), the communities are also able to have the opportunity to deal with other people and work with these NGO organizations. In Sre Thom, they acknowledge that communication and networking systems are available and working. People are able to build relations with communities outside the area (with traders in nearby Toul village) because they need to borrow money. On the other hand, the vulnerability context also sets conditions that prohibit the people from enhancing their social networks. People have the general feeling of being far away from the source of services (due to the difficulties of reaching them); government services therefore are insufficient – this therefore worsens their poverty. The challenge is to balance these negative and positive impacts and work for the best interest of the communities and their resources.

### **Effects on financial capital**

The effects of the vulnerability context to the people's financial capital would have been the best for their situation, but it is expectedly difficult for the people to attain financial resources. There are favourable conditions and situations that provide opportunities for the people to acquire financial capital. The increasing market prospects for their products, especially NTFPs could have been a good opportunity. Prices are increasing, demands are growing, and more markets could be explored. This opportunity brings them good income and therefore increased financial resources. In Khnheng, sleng seeds were not given any value until 2004 when people started collecting and selling these. Now this NTFP could fetch 2,000R to 3,000R per kg. However, this opportunity may dissipate when problems in the vulnerability context are not abated. One of the main challenges are the inaccessibility of the areas especially during wet season and worsening road condition; fewer traders are coming in and it is becoming more and more difficult for the village people to travel out of their areas. Thus, the declining trend of buyer-producer networking has also affected the chances of the communities to sell more products and generate higher revenues. In Sre Thom, prices of agricultural crops are lowest in the rainy season. Worse, the difficulties of traveling to sell produce requires them to spend more money.

Spending more money (and therefore draining financial assets) also takes place when contending with other the critical situations such as livestock disease outbreaks and increase in fuel prices, etc. In 1992, half of the total population of cattle in Khnheng died. In Sre Thom, about 25 animals die almost every year in March and April. All other villages also suffer from occasional cattle disease and, because the

government does not have sufficient support, people sometimes spend all their savings and borrowings just to survive the disaster.

### **Effects on physical capital**

The effects of the vulnerability context to the people's physical capital are not much recognized by the people, not because their critical situations do not change their capability to use physical capital for their livelihoods, but more because of the reality that there is not much infrastructure and services operating in the area. People do not recognize, though, that this situation (the absence or lack of infrastructure) may already perpetuate the negative condition in the vulnerability context.

### **Effects on natural capital**

The effects of the vulnerability context to the people's natural capital are the most critical, both in the short term and in the long term. Most of the impacts of trends, shocks, seasonality and changes are evidently leading to destruction and depletion of natural resources (mainly forest and fishery) if not contained. These negative impacts on the people's capacities are most manifested in

- 1) increasing need to produce more and harvest more from the forest especially during hungry and sickness seasons;
- 2) increasing demand for sleng seeds in Khnheng, while there is no application of appropriate harvesting methods, results in cutting of trees (to get sleng seeds);
- 3) people have no other way to cope during shocks (widespread cattle-kill due to diseases, drought, flooding) but to get products from the forest and sell these for immediate relief, and
- 4) increasing incidence of land acquisition (from farmers) and redistribution (to outsiders) in Putang and Mepai.

The main reason why such critical situations adversely affect the natural capital of the communities is the lack of regulation and non-imposition of sustainable uses of these resources. In return, the problems in policy implementation are also causing the worsening of this vulnerability context. In Khnheng, Koh Moyeul Lue and Koh Minhe Kroam, the increasing demands for fish (especially when agricultural harvests are low) require the villagers to increase their fishing effort through destructive means (in absence of protection and regulation policies). Because people are not protecting the resources and there is no program or policy being implemented, the situation (of declining fish catch) further degrades and thereon sets a vicious cycle of endangering the resource base. With similar impact, a dam in Vietnam overflowed and its runoff destroyed many farms and NTFPs in Koh Moyeul Leu. Most farmers were not able to cope with the situation and government support was not enough to help them recover in time.

Given these incidences, properly addressing the critical conditions' impacts on the people's use of the resources may actually provide them enhanced capacities not just on the natural capital but on the other assets as well, especially financial.

The impacts of the vulnerability context to the livelihood capital could also be complex. The shocks, trends, seasonality and changes affect the people's livelihood not just through single means but rather through compound situations wherein two or more factors jointly influence the capacities of the people. For example, the cattle disease outbreak in Sre Thom in 1992 that killed half of their cows during the low agricultural production season made the already impoverished situation of the people even worse. People got hungrier and went more frequently to the forest to get NTFPs and collected more than usual.

### **3.5 Impacts on the Vulnerability Context (Transforming Structures and Processes)**

The transforming structures and processes directly and indirectly affect the vulnerability context. Programs, processes and policies established and implemented through the organizations can help mitigate the impacts of external shocks, seasonality and changes. In contrast, these could also make the people suffer more from the negative consequences of these shocks, seasonality and changes.

#### **Positive influences present but not enough**

First of all, people do believe that the institutions working in their areas indeed have positive influences on the vulnerability context. Among the most evident support from the organizations pertains to raising and enhancing their awareness about sustainable management of their natural resources. People foresee these interventions as a way to help them become more knowledgeable on the impacts of declining forest and fishery resources. The communities could also notice that there seems to be an added value when the government and NGOs are both working on the same cause (e.g., protected forest management) as compared when they have individual programs. This is expected particularly if the joint project allows rationalization and complementation of organizational efforts and that it requires accountability to the other party.

However, people also believe that these changes are not enough to improve their situation. For example, even with the achievements of the awareness raising campaign on improved forest management, the intervention could not directly influence, at least in the short term, the increasing pressure on the forest resources if the other required actions (e.g., mining regulations, land conversion policies) are not in place. The same situation is true for the fishing and agriculture. In Sre Thom, while people appreciate that the medicines they receive for their sick cows could contribute to the prevention of the disease outbreak they are also quick to say that the absence of sufficient education means that people are uninformed of how to prevent such an epidemic.

Secondly, although there are efforts to address the vulnerability of the people, these are still not at a level where the communities can withstand the negative effects of these shocks, trends, changes, and seasonality. The support of the institutions for vulnerability factors and situations such as cattle disease, malaria incidence, worsening health and sanitation problems, and others, are not yet enough to make the villages risk-free from any disasters that might be caused by such problems. There have been veterinarian services but not adequate to make them free from cattle disease. There are support to abate malaria through provisions of medicines and mosquito nets, to which the lowering of number of malaria cases is being attributed, but these are still not sufficient and the communities could even be susceptible to an outbreak. There were water pumps established but the need to make the people safe from water-borne diseases is still enormous. Even just for the requirements of children and those most prone to sickness (e.g. nursing mothers, malaria patients), the vulnerability of the people has hardly improved.

#### **Worsening vulnerability**

But more than worrying about the institutional support being insufficient to make them capable to cope and adapt with the vulnerability situations, people would like to express more the worsening vulnerability context that they are facing. From the SL perspective, this tells what policies and processes from the government and NGO organizations are weak to address such situations – thereby shifting the focus from what the institutions are currently doing to what they should actually be implementing. Among those that are frequently mentioned by the communities are the occurrence of livestock epidemic (especially in Koh Moyeul Lue, Koh Minhe Kroam and Sre Thom), natural resources degradation particularly the presence of mining threats (especially in Khnheng), and increasing

monopoly of traders in the market. Noting that all these concerns pertain to the people's livelihood assets, people therefore regard their wealth as most important in protecting their lives in any vulnerable situations.

### **NGO and government support**

While there are services from the government and the NGOs, and that people do recognize the initial achievements of both institutions, there is a general opinion that there are more services from the NGOs than from the government. This is not to say, however, that the NGO support is more sufficient (in which case, it has been established in earlier discussion that most services are not efficient and sufficient, regardless of institutions espousing and implementing). In almost all villages, the "improving situations" are attributed to NGOs. These include the decrease in illegal fishing, enhanced knowledge on forest management, improving handling of malaria, and improved access to water supply amongst others. NGOs offering these "improved situations" are NOMAD, WWF, Danish Red Cross and ACF

On the contrary, the "problematic situations" are being attributed to the lack of government services. These include increasing cost of selling products due to bad road condition, proliferation of preventable disease due to inefficient health posts, low quality of education due to irregular school operation, and decreasing productivity in farming and livestock raising caused by inefficient agricultural extension services.

The communities have this common perspective as they are aware of the differences in principles behind government and non-government services. They value the responsibility of the government to provide its constituency basic services. People are not satisfied when they see their government agencies failing in what they are supposed to give to the people. On the contrary, people perceive the NGO services as voluntary support.

In summary, the expected influence of institutions and their processes to help reduce the vulnerability of the villages is still not evident. The communities continue to strive through the negative impacts of the vulnerability context; there are support from the government and other institutions but not sufficient to help them cope with shocks and adapt with seasonality, changes, and trends. Interestingly, people see differently between the government and the NGOs in terms of the influence of their respective programs and policies.

# 4 RECOMMENDATIONS

The results of the analysis of each of the components in the Sustainable Livelihoods Framework were synthesised by organising these as 1) internal factors (strengths and weaknesses) and 2) external factors affecting the livelihood of the people (opportunities and threats). These factors were cross-analysed to produce general program-strategy recommendations addressing the main issue of non-sustainability of the livelihoods of the people.

The following are key points of the people's strengths, weaknesses, opportunities, and threats in relation to their livelihoods.

## 4.1 Strengths

### **Factors contributing to the implementation of their livelihood**

- Abundant and accessible natural resources (forest, agricultural land, and fishery)
- Increasing awareness on natural resource management among the people
- Indigenous technologies and practices in farming and collecting NTFPs
- Increasing awareness and participation among communities to take advantage of whatever support facilities present in their areas.

## 4.2 Weaknesses

### **Incapacity of the people**

- People do have capacities but these provide very limited access to capital
- Very low human capacity in terms of access to knowledge and technology and to external support that may provide significant change in their knowledge.
- Poor health, vulnerability to sickness (therefore inability to work) and not enough access to preventive measures and immediate medication.

### **Undeveloped agriculture and natural resources utilisation**

- Lack of adequate agricultural technologies
- Lack of financial resources and marketing expertise and system
- Insufficient transportation and communication capabilities to adapt to bad road conditions
- Non-implementation of natural resource use regulations

## 4.3 Opportunities

### **Context to Capital**

- Many NGOs come to the area to respond to the various issues
- NTFPs have good prices and markets.

### **Institutions to Capital**

- Government and NGOs provide developmental services to the people
- NGO support also tackles basic services (health, sanitation, birth registration), which are government functions

- Awareness raising on forestland management deters illegal activities
- Networking with traders outside the area, a major source of capacity building in selling products.

### **Institutions to Context**

- Awareness raising on forestland management to abate further degradation of forest resources
- Greater impacts of joint project implementation of government and NGO (rationalising of organisational resources and accountability to the other party)
- Communities have high appreciation of the NGO support (credibility to introduce and implement developmental projects).

## **4.4 Threats**

### **Context to Capital**

- People are highly vulnerable to shocks, trends, changes and seasonality. Even for those that have positive impacts (e.g., rain) , there are negative results that most likely off-set the positive gains
- Impacts on human capital are most direct and could readily incapacitate the people from pursuing their livelihood objectives
- Vulnerability context sets conditions that prohibit the people from enhancing their social networks
- Wet season difficulties set high cost of producing and transporting products
- Depleting natural resource base; lack of regulation and no-imposition of policies on sustainable use
- Not enough infrastructure facilities and services causes inability of the people to build their capacities.

### **Institutions to Capital**

- Although people recognise that government and NGO provide basic services, they still see this as not enough for all or most of them
- Government policies used for the disadvantage of the people and the forests (illegal harvesting, illegal selling of land to private firms)
- Physical isolation (bad road) is a major factor of lack of development
- Bad road condition results in (and perpetuates) poor condition of the village (agriculture, education, exposure to other societies)
- Public health services informally becoming per-fee services therefore discriminating against those without money
- Limited knowledge and skills worsen by weak services support from the government (commune council, education, health post)
- Mixed perceptions about NGO services on natural resource management: decreasing their production capacities but improving their understanding about the environment
- NTFPs seen as a solution at times of hunger and sickness but without the benefit of sustainable harvesting
- People in mining companies competing with the community livelihoods and their (miners') activities are destructive (miners do illegal fishing).

### **Institutions to Context**

- There are programs of various institutions that address the situation but are not enough to solve the problem or reduce the people's vulnerability to poverty
- Major vulnerabilities (especially livestock disease and flood) are not abated by institutions and programs
- Basic government services are not enough to help the people cope with shocks
- Traders monopolise trading and market
- Mining companies worsen forest degradation and habitat destruction.

**Table 7 Strengths vis-à-vis Opportunities**

<p><b>Factors contributing to the implementation of their livelihood</b></p> <ul style="list-style-type: none"> <li>• Abundant and accessible natural resources (forest, agricultural land, and fishery)</li> <li>• Increasing awareness on natural resource management among the people</li> <li>• Indigenous technologies and practicing in farming and collecting NTFPs</li> <li>• Increasing awareness and participation among communities to take advantage of whatever support facilities present in their areas</li> </ul>	<p><b>Context To Capital</b></p> <ul style="list-style-type: none"> <li>• A few NGOs come to the area to respond to the various issues</li> <li>• NTFPs have good prices and markets</li> </ul> <p><b>Institutions to Capital</b></p> <ul style="list-style-type: none"> <li>• Government and NGOs provide developmental services to the people.</li> <li>• NGO support also tackles basic services (health, sanitation, birth registration), which are government functions</li> <li>• Awareness raising on forestland management deter illegal harvesting</li> <li>• Networking with traders outside the area, a major source of capability building in selling products</li> </ul> <p><b>Institutions to Context</b></p> <ul style="list-style-type: none"> <li>• Awareness raising on forestland management to abate further degradation of forest resources</li> <li>• Greater impacts of joint project implementation of government and NGO (rationalising of organisational resources and accountability to the other party)</li> </ul> <p>Communities have high appreciation of the NGO support (credibility to introduce and implement developmental projects)</p>
<p><b>Strengths-Opportunities Strategy</b>          Use NTFP livelihoods with high market and income potentials as a means of sustainable forest management</p> <ul style="list-style-type: none"> <li>• Capitalising on the enthusiasm of the people (organise group enterprises) and active support of the NGO, involve the government to at least approve the initiative</li> </ul>	

**Table 8 Strengths vis-à-vis Threats**

<p><b>Factors contributing to the implementation of their livelihood</b></p> <ul style="list-style-type: none"> <li>• Abundant and accessible natural resources (forest, agricultural land, and fishery)</li> <li>• Increasing awareness on natural resource management among the people</li> <li>• Indigenous technologies and practicing in farming and collecting NTFPs</li> <li>• Increasing awareness and participation among communities to take advantage of whatever support facilities present in their areas</li> </ul>	<p><b>Context To Capital</b></p> <ul style="list-style-type: none"> <li>• People are highly vulnerable to shocks, trends, changes and seasonality. Even for those that have positive impacts (e.g., rain) also have negative results that mostly likely to off-set the positive gains</li> <li>• Impacts on human capital are most direct and readily incapacitate the people from pursuing their livelihood objectives</li> <li>• Vulnerability context sets conditions that prohibit the people from enhancing their social networks</li> <li>• Wet season difficulties set high cost of</li> </ul>
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- producing and transporting products
- Depleting natural resource base; lack of regulation and no-imposition of policies on sustainable use
  - Not enough infrastructure facilities and services causes inability of the people to build their capacities

#### **Institutions to Capital**

- Although people recognise government and NGO provides basic services, they still see this as not enough for all or most of the needy
- Government policies used for the disadvantage of the people and the forest (illegal harvesting, illegal selling of land to private firms)
- Physical isolation (bad road) is a major factor in lack of development
- Bad road condition results in (and perpetuates) poor condition of the village (agriculture, education, exposure to other societies)
- Public health services informally becoming per-fee services therefore discriminating against those without money
- Limited knowledge and skills worsen by weak services support from the government (commune council, education, health post)
- Mixed perceptions about NGO services on NR management: decreasing their production capacities but improving their understanding about the environment
- NTFPs seen as a solution at times of hunger and sickness without the benefit of sustainable harvesting
- People in mining companies competing with the community livelihoods and their (miners') activities are destructive (miners do illegal fishing).

#### **Institutions to Context**

- There are programs of various institutions that address the situation but are not enough to solve the problem or reduce the people's vulnerability to poverty
- Major vulnerabilities especially livestock disease and flood are not

abated by institutions and programs

- Basic government services are not enough to help the people cope with shocks (e.g., livestock epidemic).
- Traders monopolise trading and market
- Mining companies worsening forest degradation and habitat destruction

### **Strengths-Threats Strategies**

Work first on improving people's capital to make them more adaptable to vulnerable situations, and which later on will help them proactively deter threats to the protected sites .

- Organise themselves and strengthen their networks that will establish them access to support services (communication, transporting, transacting with buyers, health services)

Liaise with the government to improve programs and policies, at least for the "corrigible" social services

**Table 9 Weaknesses vis-à-vis Opportunities**

<p><b>Incapacity of the people</b></p> <ul style="list-style-type: none"> <li>• People do have capacities but these provide very limited access to capital</li> <li>• Very low human capacity in terms of access to knowledge and technology and to external support that may provide significant change in their knowledge</li> <li>• Poor health, vulnerability to sickness (therefore inability to work) and not enough access to preventive measures and immediate medication.</li> </ul> <p><b>Undeveloped agriculture and natural resources utilisation</b></p> <ul style="list-style-type: none"> <li>• Lack of adequate agricultural technologies</li> <li>• Lack of financial resources and marketing expertise and system</li> <li>• Insufficient transportation and communication capabilities to adapt to bad road condition</li> <li>• Non-implementation of natural resource use regulations.</li> </ul>	<p><b>Context To Capital</b></p> <ul style="list-style-type: none"> <li>• Many NGOs come to the area to respond to the various issues</li> <li>• NTFPs have good prices and markets.</li> </ul> <p><b>Institutions to Capital</b></p> <ul style="list-style-type: none"> <li>• Government and NGOs provide developmental services to the people.</li> <li>• NGO support also tackles basic services (health, sanitation, birth registration), which are government functions</li> <li>• Awareness raising on forestland management deter illegal activities</li> <li>• Networking with traders outside the area, a major source of capability building in selling products.</li> </ul> <p><b>Institutions to Context</b></p> <ul style="list-style-type: none"> <li>• Awareness raising on forestland management to abate further degradation of forest resources</li> <li>• Greater impacts of joint project implementation of government and NGO (rationalising of organisational resources and accountability to the other party)</li> <li>• Communities have high appreciation of the NGO support (credibility to introduce and implement developmental projects).</li> </ul>
<p><b>Weaknesses-Opportunities Strategy</b></p> <p>Agriculture development to provide the most direct improvement of their livelihood</p> <ul style="list-style-type: none"> <li>• Technology transfer and adoption, farm system planning and management, financial support, marketing services</li> <li>• Capitalise on NGO support in improving their agriculture</li> </ul>	

# 5 RECOMMENDED PROGRAM STRATEGIES (all or nothing)

Summarising the results of the SWOT analysis, the following program strategies were identified:

1. Use NTFP livelihoods with high market and income potentials towards forest management (1. honey, 2 resin., and 3. sleng seeds)

Capitalising on the enthusiasm of the people (organise group enterprises) and active support of the NGO, involve the government to at least approve of the initiative

Utilisation of NTFPs as a livelihood strategy was recommended because:

- It has good potentials in the market
- People have access to natural resources
- It is a means to manage and protect the forest in a sustainable manner

2. Work first on improving people's capital to make them more adaptable to vulnerability situations, and which later on will help them proactively deter possible problems with their livelihoods.

Organise themselves and strengthen their networks that will establish them access to support services (communication, transporting, transacting with buyers, health services)

Building people's capacity in livelihood development and group-enterprise management was recommended because:

- The people's very poor access to capital and resources renders individual families almost totally incapable to uplift their current livelihood state
- The limited government services would not be of help to make the people's livelihood sustainable
- There are NGO services that could be tapped for capacity building
- But capacity-building intervention has to be "wholesale" (focused, high-impact, wide-coverage) otherwise it will eventually deplete the NGO's capacity to support if the services will be "retailed" because the needs of the people are very enormous.

3. Liaise with the government to improve programs and policies, at least for the "corrigible" social services

Improving government services that have very direct implication to the people's implementation of their livelihood was recommended because:

- The inappropriateness and insufficiency of the government services are a systemic disease that any livelihood projects would be difficult to achieve unless the government services are improved
- These government services that people fail to access are very institutional (long-term); although these needs could be responded by alternate NGO-services, but not for very long
- But mind only those services that have very direct implication (e.g., use of commune funds) and those that can still be possibly improved.

4. Agriculture development to provide the most direct improvement of their livelihood

Technology transfer and adoption, farm system planning and management, financial support and marketing services.

Capitalise on NGO support in improving their agriculture

Improvement of agricultural activities was recommended because:

- Agriculture is the basic foundation of their livelihood; it is a high-impact area (food) given their current state
- This is where little efforts mean a lot; improve the productivity of their current farm size – and **not** to expand and clear more land.
- This is where people can immediately realise improved livelihood impacts.

The NTFPs recommended (in order of viability) are limited to: 1) honey. 2) resin, and 3) sleng seeds . Honey is already currently being collected and sold by almost all of the villages.

Aside from the point that these recommendations respond to the need to improve the people's economic status, this strategy-mix also – and equally important at that – deals with ensuring protection and sustainable management of the forest because:

- the intensive agriculture development will make people rationalise their farming effort by getting higher yield (volume and value) in the **same farm size**. There will be no need for them to go further into the forest and clear more land for farming
- the use of NTFPs as an alternate source of living, especially for cash income, is a potent scheme for forest management so long as there is proper education of the people. Stop telling the people that they need to protect the forest so that habitats are not lost and therefore we can keep this planet healthy. Just simply tell them that they need to keep the trees if they want to keep the honey flowing and earn money. The most direct way to the people's heart and mind is through their stomachs.

These recommendations compose the general program strategies if the overall goal is to improve the livelihood of the people and ensure sustainable management of forest resources. These are the general sets of interventions that answer the specific needs of all the communities covered by the study. From the perspective of the Sustainable Livelihood Framework, the four strategies must be all implemented as each of these will complement each other and will contribute to the overall solution to improve the current livelihood status of the villages. These will be the basis of the program planning that has to be done for each of the communities. The program planning will lay out specific objectives and target outputs for each of the four recommendations, which will also depend on the target improved situation in each of the area. Using the Logical Framework approach, corresponding sets of expected outputs and activities with timeline necessary to implement the strategies could be laid out next.

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# APPENDIX

## STEPS IN CONDUCTING SUSTAINABLE LIVELIHOODS (SL) ANALYSIS

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### PART 1 Select a community

- Step 1        Discuss with the team and other concerned stakeholders. Select a community for this evaluation. Use the following parameters in selecting a community to be analysed.
- Poor people
  - Living in or near critical natural areas (e.g., protected area)
  - Special sectoral concern (e.g., indigenous peoples)

### PART 2 Gather data from the community

Gather a good selection of participants from the community who could provide sufficient data and information about the topics. A total of 20 community members can be divided into 5 groups of 4 members each. When dividing the group, make sure of balance in gender, age, position in the community, and ethnicity when dividing the groups. The 5 groups will be assigned to discuss the following:

- Group 1 – Human and Social Capital
- Group 2 – Natural, Physical and Financial Capital
- Group 3 – Vulnerability Context
- Group 4 – Institutions, Policies, and Processes
- Group 5 – Livelihood Strategies and Outcomes

It is important to use the attached questionnaire in doing focus group discussions at the community. To just list the following is not enough detail for the analysis. For samples of each of the components, refer to the powerpoint slides.

- Step 2        Identify the livelihood capital of the people and how they use these for their livelihoods.
- Human capital
  - Social capital
  - Natural capital
  - Physical capital
  - Financial capital
- Step 3        Describe the vulnerability context of the community in relation to their livelihoods.
- Seasonality
  - Trends
  - Changes
  - Shocks
- Step 4        Identify the structures present in the area and the processes they used in operating in the community and relating with the people.
- Institutions
  - Policies

- Practices

Step 5 Enumerate and explain the various livelihood strategies of the people.

- Current livelihoods that people do for their living
- Percentage of each livelihood to the total family income (Income Pie)
- Time and duration of each of the livelihoods (Seasonality Calendar)
- Note if each of these have been existing for long time already (since their parents' generation) or just recently (a few years back)
- Income and Expenses %

Step 6 Enumerate and rank their livelihood outcomes.  
Ask people to rank the following outcomes according to importance and urgency of need (1<sup>st</sup> being the highest and 5<sup>th</sup> as the lowest)

- Increased income
- Improved well-being
- Food security
- Reduced vulnerability
- Sustainable use of natural resources

Step 7 Product selection matrix

### **PART 3 Analyse the data**

After gathering all data from the community, each of the FGD groups will present their respective outputs to the entire team. All members of the team should have a full grasp of all data and information gathered from the community members and not just those of the topic assigned to them.

Step 7 Using all the data gathered during FGDs at the community level, the next step is to explain positive and negative links and relationships among different SL components

- Livelihood capital (analyse links among the five (5) Capital)
- Vulnerability context and Livelihood capital
- Transforming structures (Institutions) and processes (policies, regulations and 'rules of the game') and Livelihood capital
- Transforming structures (Institutions) and processes (policies, regulations and 'rules of the game') and Vulnerability context

Step 8 Synthesise and highlight key findings (samjok), both positive and negative, for each of the links

- Explain connection (link) of these key findings (samjok) to the Livelihood strategies (.. explaining why people opt to have such combination of different livelihood strategies because of the key findings)

- Step 9 Analyse the livelihood outcomes of these strategies to the people
- Cross-tabulate and cross-analyse the ranking of Livelihood outcomes with the Livelihood strategies (matrix analysis)
- Step 10 Generate conclusions on the state of the people's livelihood based on this matrix analysis and the key findings of the different links.

## **PART 4 Identify possible areas of intervention**

- Step 11 Identify possible sources of interventions (improve existing and/or develop new livelihood strategies considering..)
- *Strengths* – positive links between sets of *capital*
  - *Weaknesses* – negative links between sets of *capital*
  - *Opportunities* – positive effects of *Vulnerability context* on capital; positive influence of *Transforming structures and processes* on *Vulnerability context*; positive influence of *capital* and *Transforming structures and processes* to each other.
  - *Threats* – negative effects of *Vulnerability context* on capital; negative influence of *Transforming structures and processes* on *Vulnerability context*; negative influence of *capital* and *Transforming structures and processes* to each other
- Step 12 Cross-tabulate Strengths and Weaknesses against Opportunities and Threats and identify interventions
- Strengths – Opportunities (SO) – use strengths to maximise opportunities
  - Strengths – Threats (ST) – use strengths to minimise threats
  - Weaknesses – Opportunities (WO) – maximising opportunities to address weaknesses
  - Weaknesses – Threats (WT) – avoid threats and downplay weaknesses

## **PART 5 Feedback results of the analysis**

- Step 13 Hold a meeting to share the results of the analysis with various stakeholder-groups concerned and who were involved in the exercise. Discuss and validate new related information and integrate with the analysis.

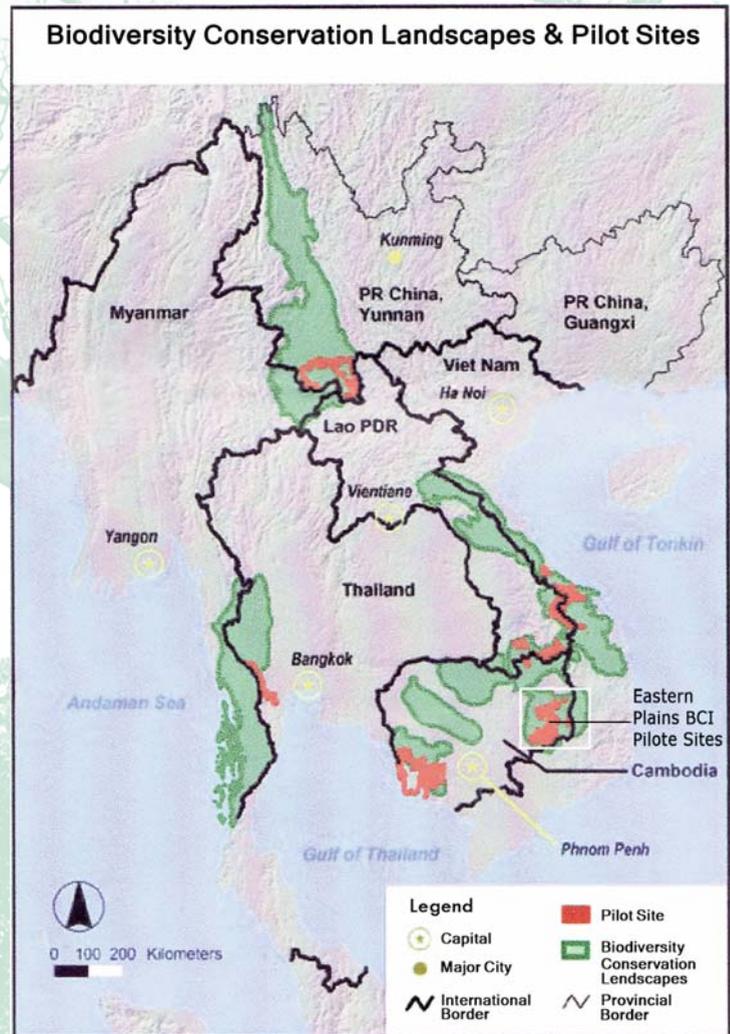
# The Biodiversity Conservation Corridor Initiative (BCI)

The Greater Mekong Subregion (GMS) covers six countries sharing the Mekong River: Vietnam, Cambodia, Thailand, Laos, Myanmar, and China. The subregion's rich forests, wetlands and waterways harbour globally outstanding biodiversity, and provide home to over 300 million people.

The BCI was set up by the countries and the Asian Development Bank to balance infrastructure development with biodiversity conservation, livelihood improvement and community empowerment. It covers nine Biodiversity Conservation Landscapes with five BCI pilot sites.

Biodiversity conservation corridors are forest areas linking protected areas. The BCI works to restore and protect the fragmented ecological landscapes and biodiversity.

WWF assists governments in managing the BCIs in Laos, Cambodia and Vietnam. The BCI is being carried out by government agencies with support from non-governmental organizations like WWF. In Cambodia the Eastern Plains pilot is being implemented by WWF and WCS.



WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by:

- conserving the world's biological diversity
- ensuring that the use of renewable natural resources is sustainable
- promoting the reduction of pollution and wasteful consumption.

For more information, please contact:

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Or visit our website at:  
[www.panda.org/greatermekong](http://www.panda.org/greatermekong)



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