IMPROVEMENT OF THE MANAGEMENT AND UTILIZATION OF NON-TIMBER FOREST PRODUCTS IN CAMBODIA
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TECHNICAL REPORT
SOCIO ECONOMIC

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IMPROVEMENT OF THE MANAGEMENT AND UTILIZATION OF NON-TIMBER FOREST PRODUCTS IN CAMBODIA PROJECT

Host Government

FORESTRY ADMINISTRATION MINISTRY OF AGRICULTURE FORESTRY AND FISHERIES

Executing Agency
Community Forestry Office
Forestry Administration

Sponsored By
International Tropical Timber Organization (ITTO)

Start from: May, 2008
Duration of the Project: 24 Months

Contents

Abstract

None Timber Forest Products (NTFPs) play an important role in Cambodia's rural economy. People live depend on natural resources especially NTFPs such as resin, rattan ,bamboo, fuel wood, honey bee, spider, medicinal plan and other vegetable plan for their own consumption. Moreover NTFPs also contribute to the sources income of the household. The percentage of household collected NTFPs for market is around 44 percent in Kampong Chhnang , 62 percent in Kampong Thom, 83 percent in Mondulkiri and 12 percent in Ratanakiri. Socio-economic reveal that the gross income per annual of household in Kampong Chhnang is around 763 UDS, Kampong Thom is 887 USD, Ratanakiri is 212 USD and Monsulkiri is 581 USD. According to the project survey in 2008, about 80 percent of total household collected NTFPs for household use such as for food, kitchen instrument, fishing instrument etc. In Kampong Thom Province, NTFPs contribute 31 percent of total household sources income and it contributes about 22 percent of sources income for people live in Mondulkiri. Otherwise, the contribution of NTFPs to the household sources income is less for the people live in Kampong Chhnang (7%) and Ratanakiri (2%).Much remains unclear about the conditions under which none timber forest product (NTFPs) are traded in Cambodia, and how such conditions may affect rural livelihoods. Likewise, it is unclear what value and what volume of non-timber forest products (NTFPs) is traded within Cambodia and across the border and to other countries (CDRI, 2004). To explore the opportunities, issues and the role of NTFPs for supporting livelihoods, this study focuses on the selection of NTFPs species which trade in local and regional market, local role of villagers on market channel and help to propose management plans to local and national authorities, to get adequate authorization for the collection and selling of NTFPs. Moreover, the project aims to improve the management of the resource, including plantation and processing and make up the network between collector and trader.

1. Introduction

This project focuses on poverty alleviation, in the forest areas in four Cambodian provinces: Kampong Chhnang, Kampong Thom, Mondulkiri and Rattanakiri. We aim to improve the benefit that local population can get from Non-Timber Forest Products (NTFPs) collection and selling, in a sustainable way in terms of environmental impact. The project will use information provided by the pre-project phase to work, in collaboration with all stakeholders, on the organization of more efficient local collectors/sellers groups and market channel for NTFPs. The actors of the project will be national and provincial forest agencies, local communities belonging to four ethnic groups (Khmer, Charay, Phnorng, and Cham), and all actors playing a role at every step of the market channel (depot keepers, businessmen, middlemen). The project will help to develop better management of NTFPs resource, adapted to each situation and will give guidelines for other projects on NTFPs management in areas where people are strongly depending on natural forest resources.

2. Objectives of the project

The objectives proposed in the frame of this project are:

1. Local communities empowerment: to help reorganizing local management of NTFPs in its social and legal aspects. Associations of villagers will be strengthened that will improve local role in the market channels and help to propose management plans to local and national authorities, to get adequate authorization for the collection and selling of NTFPs.

2. Amelioration of the NTFP management and trading: to improve the management of the resource, including plantation and processing, when it is necessary.

3. Methodology

The approach to developing estimates of sources income from NTFP within each of the four provinces consisted of the following steps:

Step-1: Reviewing Previous Socio-Economic Condition

Previous socio-economic condition report were reviewed and evaluated as to their sufficiency and suitability for development of commune socio-economic profile. The section below summary the general characteristics of several major large-scale surveys reviewed by the consultant in the preparation of this report. It is important to bear in

mind that these surveys have different characteristics, and scale of information, as they focused on different groups of people in the country and were designed to fulfill different purposes.

Cambodia National Census 2008: The Census of 2008 provides the first aggregate numbers on the demographics of the present day Cambodia. This database serves as a useful tool especially for better understanding the structure of the national labor force. Useful information at village level on age, sex, literacy and education and housing amenities are obtainable from the Census CD ROM.

The Cambodia Atlas: These documents provide the information on housing characteristics, education, health, water and sanitation, transportation & communication, Agricultural resources, crop production, livestock and fish farming, local enterprises and employment, housing assets, and community based organizations.

Pre-Project document: Provide information on general living condition of the villager, resources available, NTFPs market condition, seasonal calendar of NTFPs collection and NTFPs trade information.

Step-2: Area Specific Data collection and Surveys

Additional field research was conducted to support the analysis of the existing data and previous surveys. An area-specific data was collected on general condition of household, poverty classification, type of resident, income and expenditure, occupation, etc. of the targeted village to support the analysis and evaluation key issues of community development and indicators of project benefits and outcomes. The survey was complementary to the review of the previous surveys in step-1and to provide the project with sound understanding of the project areas. A combination of qualitative and quantitative research methods was used in the assessment.

a)- Qualitative Methodology:

The qualitative study was conducted using semi-structured interviews and mixed group discussions with key informants and stakeholders. The evaluation was made also through field inspections by consultant and interviewing with local people at different geographical location in the target villages. The assessment was centralized to the following main items:

- General environmental condition
- Sanitation and Health condition
- General local perception on NTFPs usage

- Local perception on poverty and forest management
- Roles and commitments of Local Government Units in forest management
- Constrain on collection of NTFPs
- Community resources and development key problems

b)- Quantitative Survey:

The household survey was used in the quantitative study. These household has selected based on the location of forestry community. The survey contains two sections related demography datasheet and sources of household income that contained the information about household occupation, valuable goods, how big household income per months, how much household income from forest resources, how many member of families earn the money, etc.

Table 1.2 provides a description on the survey coverage and sample and census statistics for the target province composing the present report.

Table 1- Results of the household interviews

	Kampong Chhnang	Kampong Thom	Ratanakiri	Mondulkiri
Census Households	1065	440	466	367
Total No. Villages interviewed	5	3	3	4
Survey Result				
Total beneficiaries Households	734	377	466	367
Sample Household Interviewed	145	89	85	106

- Development of a set of survey questionnaires to collect household information (English and Khmer versions of these questionnaires were provided in Pre-project document , attached with Annex 1);
- Development of a systematic methodology for administering the questionnaires to a random sample of household in each of the targeted villages. The primary objective in each of the surveys was to administer the questionnaires to a representative sample that consisted of 25% of the

number of families in each of the targeted villages that belonged to a community forestry group and identify those who collect NTFPs. Each of the samples was obtained through systematical random selection of families along each of the village roads which villagers in a targeted area live or farm;

The analysis of the information collected in the questionnaires. The results of those analyses are provided in this report. The supporting tables that were developed on the basis of the questionnaires that were administered in each of the targeted provinces provide the sample results as well as the resulting estimates expanded to the total populations of community forestry families, or village families, in each village. These estimates were obtained from the sample results by using the following formulations:

(1) Annual NTFPs Average Income $= \Sigma$ (Annual NTFPs Income) / N

Where:

N= the number in the sample of community forestry families (village families) in a particular village that collect a particular NTFP.

*** We can not estimate the net income from NTFPs due to difficulty of collection the transaction fee such as transportation fee, stored fee, informal fee etc…*

(2) Average Total Household Income$= \Sigma$ (Total Household Income) / N

Where:

N= the number in the sample of community forestry families (village families) in a particular village that collect a particular NTFP.

4. Data

Data and information is available from

- Surveys conducted under the present study in July-November 2008.
- Previous studies carried out by Pre-Project on Improvement of the Management and Utilization of Non-Timber Forest Product (NTFPs)

in Cambodia ;

- Secondary data from a variety of sources including the National Institute of Statistics and the Ministry of Agriculture, Forestry, and Fisheries (MAFF), commune databases and various projects; and

- Government reports, official publications by various ministries, consultant reports, and other relevant available literature.

Related data	*(submitted electronically)*
Household sources income in Kampong Chhnang 2007.xls	*Household sources income (2007), by project survey*
Household sources income in Kampong Thom 2007.xls	*Household sources income (2007), by project survey*
Household sources income in Ratanakiri 2007.xls	*Household sources income (2007), by project survey*
Household sources income in Mondulkiri 2007.xls	*Household sources income (2007), by project survey*

5. Socio economic context

The Improvement of the Management and Utilization of Non-Timber Forest Product (NTFPs) in Cambodia Project have implemented in four provinces of Cambodia: Kampong Chhang, Kampong Thom, Mondulkiri and Ratanakiri. The targeted areas that were selected in a pre-project information-gathering phase of the project include three villages in Kampong Thom province (Cheam Svay, Sam Orng, and Tum Or), five villages in Kampong Chhnang province (Kanchorng, Svay Bakav, Saray Andet, Oroung, and Svay Kroam), three villages in Rattanakiri province (Somkul, Somtrak, and Somkaninh), and four villages in Mondulkiri province (Pou Kreng, Pou Kroch, Pou Radet, and Pou Loung). These collectively represent a broad diversity of NTFP resource and market conditions throughout the country.

5.1. Kampong chhnang

Kampong chhnang is one of the poor provinces in Cambodia. The project focus in Kampong Tralach district, Taches and Chres commune with 5 village : Kanh Chorng, Saray Andet, Oroung, Svay Krom and Svay Bakav. Prevailing socio-economic conditions within the target area are described briefly below.

5.1.1 Population and beneficiaries household

The estimated of total household for the target area around 1,065 which is projected to grow at an average annual rate of around 2.5% (compared with the national rate of 2.5%).The average household size is 5 person per household.

Table 1.1: Beneficiary household in Kampong Chhnang Province

District	Commune	Village	CF member	Total Household	Total Population	Male	Female
Kg Tralach	Taches	Svay Bakav	241	435	2058	1042	1016
Kg Tralach	Taches	Svaykrom	127	216	1125	521	604
Kg Tralach	Taches	Oroung	58	66	269	131	138
Kg Tralach	Chres	Saray Andet	104	112	590	294	296
Kg Tralach	Chres	Kanchorng	204	236	1237	555	682
Total			**734**	**1,065**	**5,279**	**2,543**	**2,736**

5.1.2 Income and poverty

Kampong Tralach is the poor district in Kampong Chhnang. It is estimated that around 28% of the household are below the poverty line (WFP, 2004) and 35% of households in the province fall into the poorest two national quintiles of national consumption. These households will struggle to have enough cash available to buy food needs on the market and to meet other expenditure needs such as health services. Mean total per capita household daily per capita consumption is 3,010 Riel.

Table 1.2: Indicators of Consumption Poverty in Kampong Chhnang

| Consumption Poverty Indicator	This Province	National
Mean Total per capita HH daily per capita consumption in riel	3010	3247
% of households in the lowest Q1 and Q2 (i.e. 40%) of national consumption quintiles	35	37
Consumption poverty line in riel	1778	1836
% of households below the poverty line	28	32
The poverty line value as a percentage of total consumption	59	49

Source: CSES Knowles analysis & VAM analysis

Average gross household cash income among households surveyed in Taches and Chres commune is US$763 per year (or US$153 per person) compared to average national GDP per capita in 2004 of around US$363 (ADB, 2006).

The Source of cash income generated from rice crop, sale labor, other business and NTFPs collection. According to the survey, the income from NTFPs is only 7% of total income. This indicator shows that NTFPs is not the main source of household income in the target area. Live stock – although not often sold or traded – is clearly an important store of value, providing some form of security to households in times of need.

Table 1.3: Sources of cash income

Income source	Kampong Chhnang
	US$ per household per year
Rice Crop	139
Paid Work	233
NTFPs	56
Other sources	335
Total:	**763**

Composition of household income in Kampong Chhnang
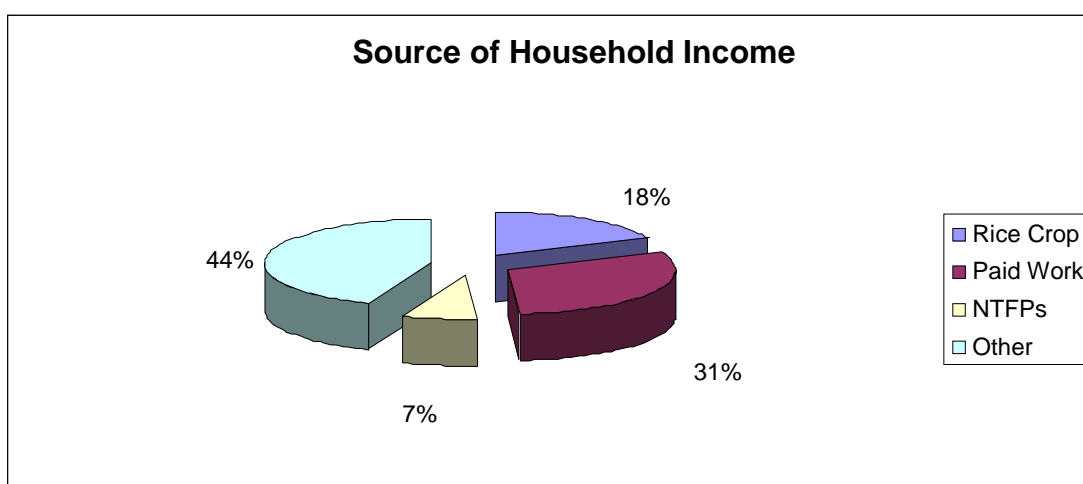
Source: Project survey 2008

Another important dimension of poverty is a lack of physical assets with which to generate household income. Table1.4 contains indicators of the prevalence of a lack of physical assets among households in Kampong Chhnang in comparison to national rates. Households lacking economic assets of their own will be more exclusively dependent

upon wage labor or common property resources to generate cash income to buy food and other basic needs.

Table 1.4: Indicators of Household Asset Poverty in Kampong Chhnang

Asset Poverty Indicator	Kampong Chnnang	National
% rural households with no crop land-landless 0 ha.	10	15
Average crop land area cultivated for all annual crops ha./rural hh	1.2	1.2
% households with thatched roof houses	43	34
% HH not owning any cattle or buffalo	39	49
% HH not owning any pigs-CDB 2004	46	54
Mean no. of households per car	51	39
Mean no. of households per moto	6.5	5.4
Mean no. of households per oxcart	2.1	4.0

Sources: CDB aggregates from village data all individual provinces.

5.1.3 Employment

Employment either in the form of wage labor or operating a business enterprise can be a very important source of cash income to Cambodian households. Unfortunately, we lack information on this important aspect of food security and poverty. This is because most Cambodians generate wage and business cash income outside the "formal sector" of the economy, in what is know as the "Informal sector". The limitation of most existing statistics is that they do not distinguish between formal sector (more regulated, more secure, and often higher income activities) and informal sector activities in statistics collection.

Wage labor in the informal sector is unregulated, casual and often low paid. A very typical example is agricultural casual wage labor. Businesses in the informal sector are commonly household based micro-enterprises, unregistered, unregulated and often with poor access to credit, business and legal services. These micro-enterprises are diverse including agro and natural resource processing, small scale industrial/ handicraft and service enterprises.

Table 1.5 contains indicators of the characteristics of the labor force and employment in Kampong Chhnang in comparison to national rates. Total and female adult literacy rates are a good proxy indicator for access to productive employment and higher incomes. The indicator on percentage of the labor force <=10 days/ month gives some indication of the problem of underemployment, a major limitation to income generation from wage labor in the informal sector.

Table 1.5: Employment and Labor Force Indicators in Kampong Chhnang

Employment and Labor Force Indicator	Kg Chhnang Province	National
Literacy Rate > 15 years % total population	64	67
Literacy Rate > 15 years % females	57	60
% of the labor force in the primary sector incl. Agriculture	71	60
% of the labor force in the secondary sector/ Industry	12	13
% of the labor force in the tertiary sector/ Services	17	25
% of the labor force <=10 days/ month	26	29

Source: CSES Kanol analysis (NIS)

5.1.4 Access to water and sanitation

Safe water is defined by UNICEF as a supply of water through household connection, public standpipe, protected dug well, protected spring or rainwater collection, with a minimum quantity of 20litres/person/day within one hour of people's residences (UNICEF, 2002).
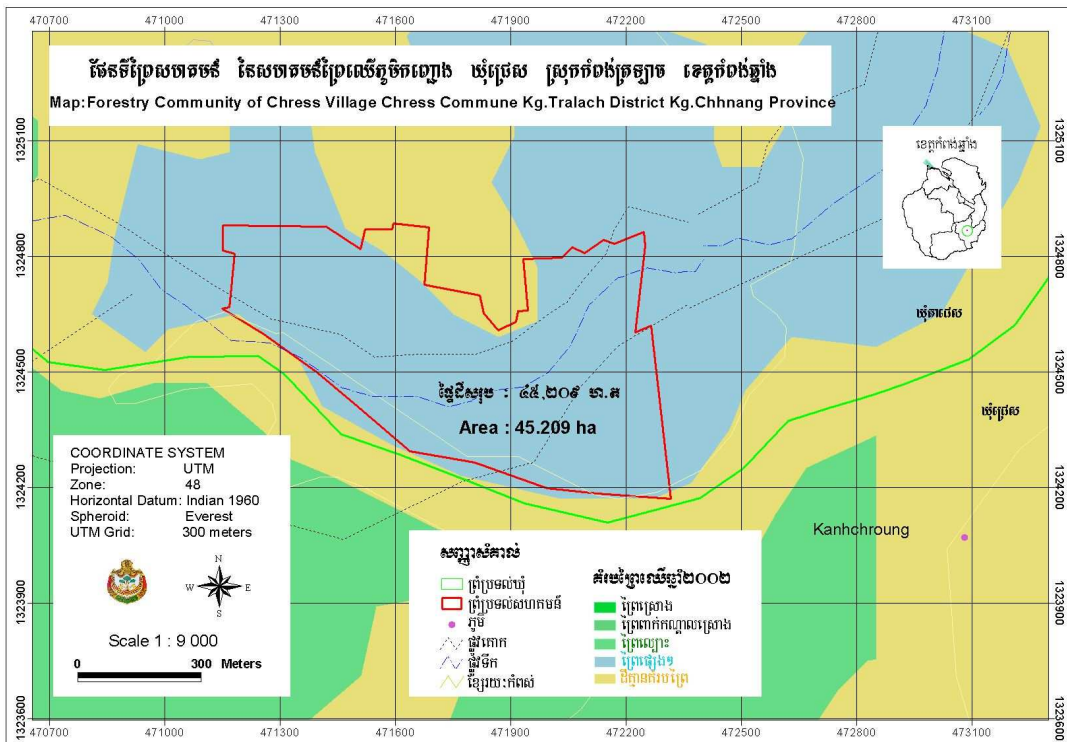
In table1.6 shows that about 26% of Households **not** having access to a safe source of drinking water at, or within 150 meters, of their house.

The majority of the target area population harvests rainwater during the wet season which is stored in large jars (200-300 liter). This is supplemented with water collected from nearby pond, well.
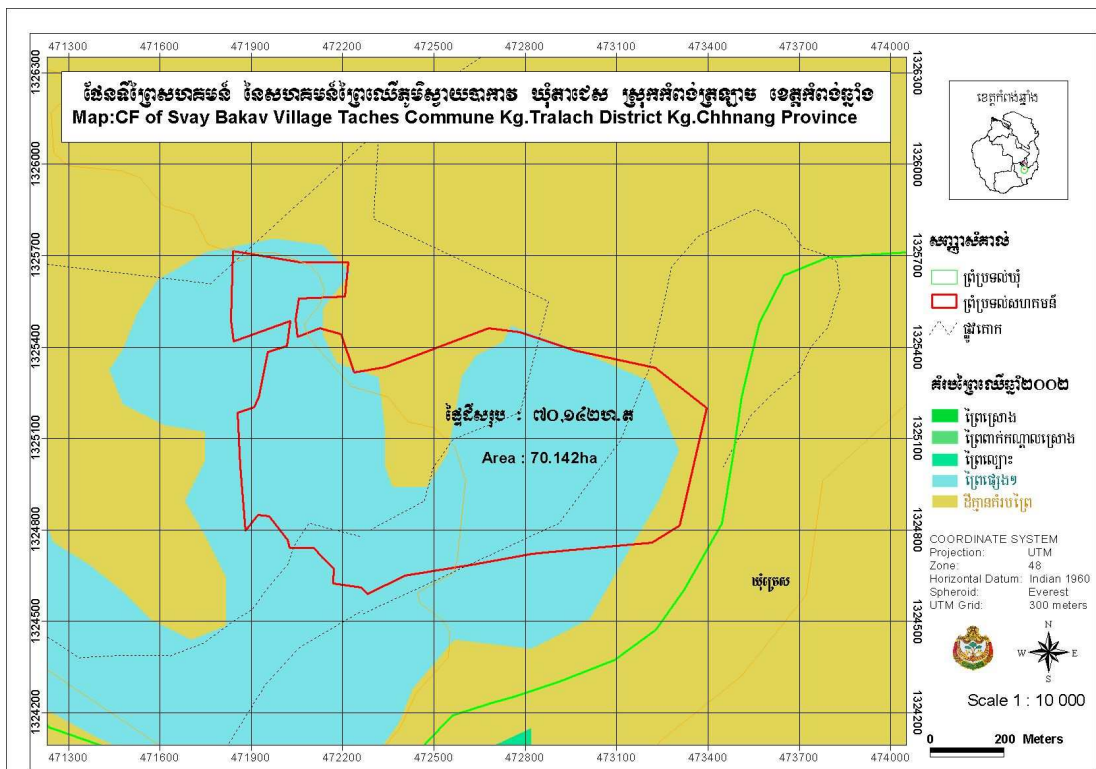
Table 1.6: Sanitation and safe drinking Water

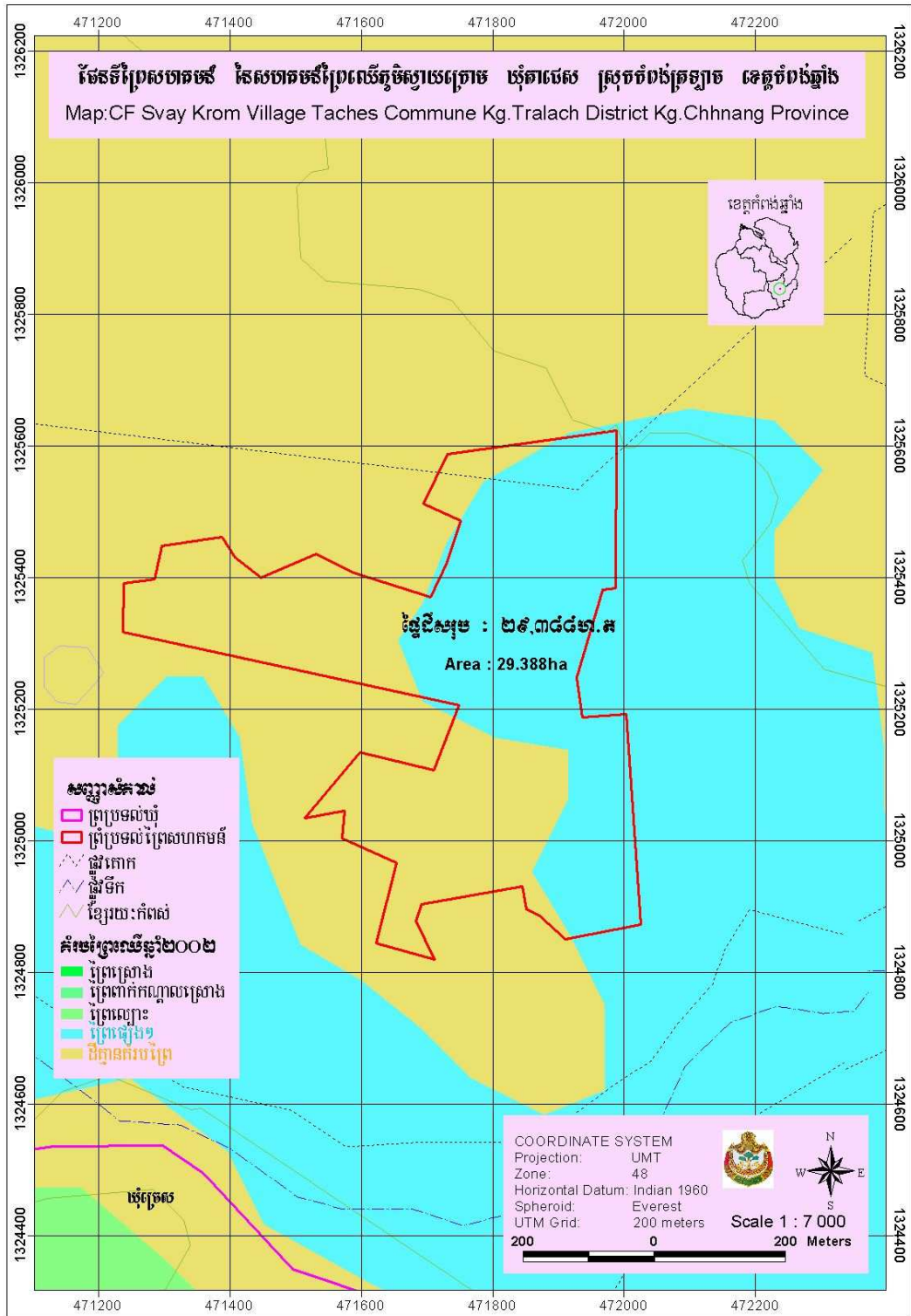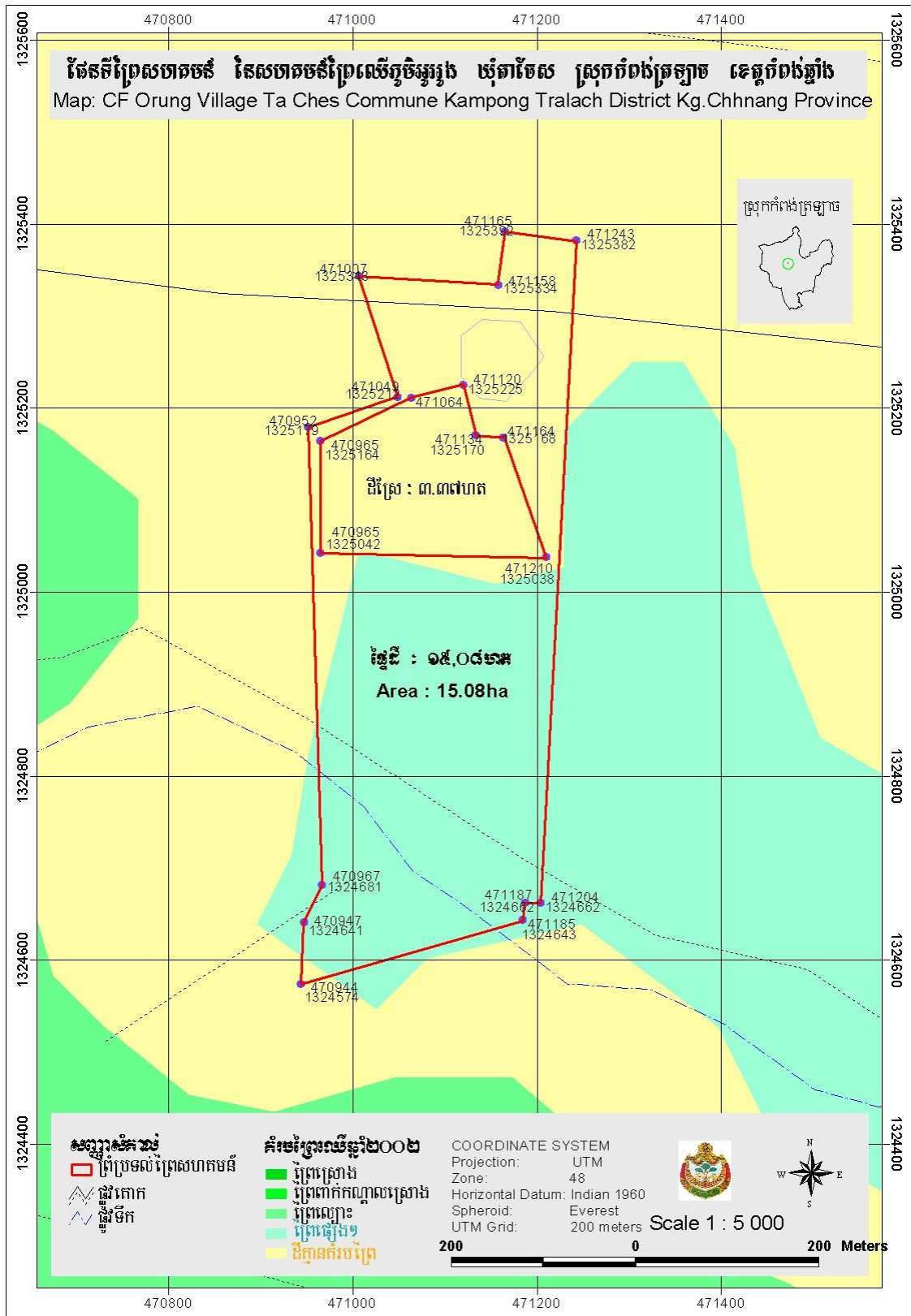| Sanitation and Safe Drinking Water Access Indicators	% of Households in Kg. Chhnang	% of Households National
Households **not** having a sanitary toilet	90%	81%
Households **not** having access to a safe source of drinking water at, or within 150 meters, of their house	26%	34%

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COMMUNITY FORESTRY MAP FOR KANCHORNG VILLAGE

Map:Forestry Community of Chress Village Chress Commune Kg.Tralach District Kg.Chhnang Province

Area : 45.209 ha

COORDINATE SYSTEM
Projection: UTM
Zone: 48
Horizontal Datum: Indian 1960
Spheroid: Everest
UTM Grid: 300 meters

Scale 1 : 9 000

COMMUNITY FORESTRY MAP FOR SVAY BAKAV VILLAGE

Map:CF of Svay Bakav Village Taches Commune Kg.Tralach District Kg.Chhnang Province

Area : 70.142ha

COORDINATE SYSTEM
Projection: UTM
Zone: 48
Horizontal Datum: Indian 1960
Spheroid: Everest
UTM Grid: 300 meters

Scale 1 : 10 000

COMMUNITY FORESTRY MAP FOR SVAY KROAM VILLAGE

COMMUNITY FORESTRY MAP FOR OROUNG VILLAGE

ផែនទីព្រៃសហគមន៍ នៃសហគមន៍ព្រៃឈើរភូមិអូរុង ឃុំតាចេស ស្រុកកំពង់ត្រឡាច ខេត្តកំពង់ឆ្នាំង
Map: CF Orung Village Ta Ches Commune Kampong Tralach District Kg.Chhnang Province

ដីព្រៃ : ៣.៣៣៧ហត

ផ្ទៃដី : ១៥,០៨ហត
Area : 15.08ha

COMMUNITY FORESTRY MAP FOR SARAY ANDET VILLAGE
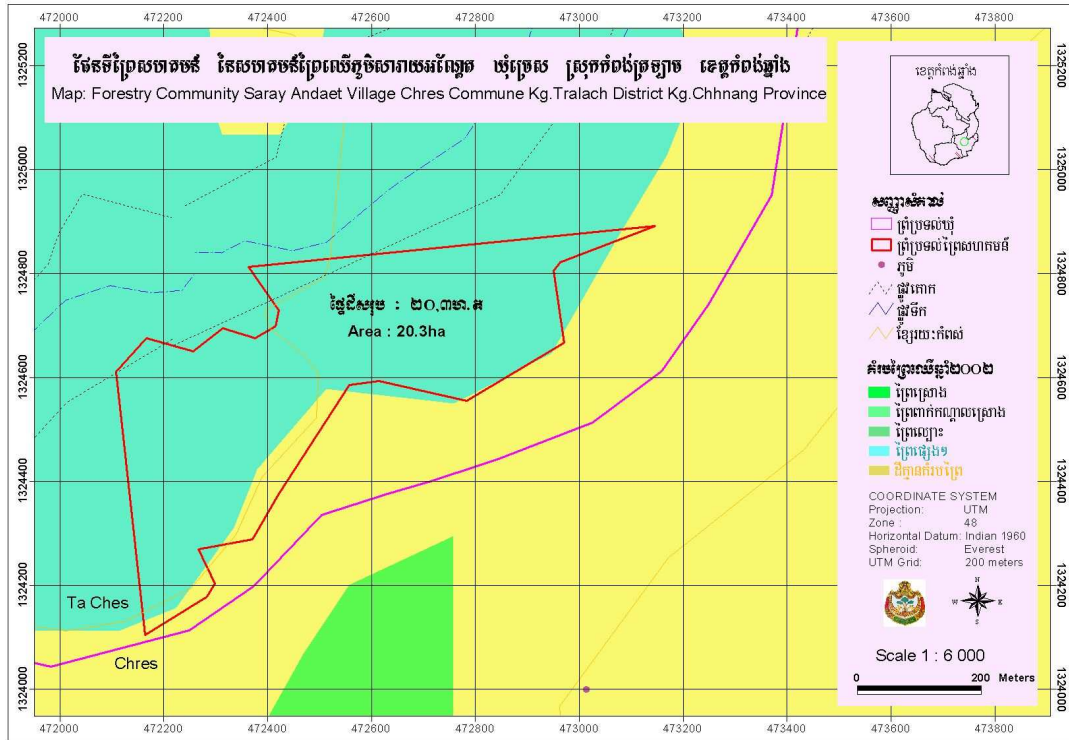
5.2 Kampong Thom

The target areas located at Meanrith and Tumrin Commune of Sandan district. The Project selected two villages, Samorng and Cheamsvay in Meanrith and one village, Tumor, in Tumrin. Prevailing socio-economic condition of the target area are showed as bellow:

5.2.1 Population and beneficiaries household

The estimated of total household for the target area around 440 with the average household size is 5.4 person per household. The population density of the target area is 44 persons/km2 compared to an average population density for Cambodia of 75 persons/km2.

Table 2.1: Beneficiary household in Kampong Thom Province

District	Commune	Village	CF member	Total Household	Total Population	Male	Female
Sandan	Meanrith	Samorng	143	116	372	240	132
Sandan	Meanrith	Cheamsvay	120	128	599	301	298
Sandan	Tumrin	Tumor	114	196	832	403	429
Total			**377**	**440**	**1,803**	**944**	**859**

5.2.2 Income and poverty

The consumption poverty indicator show that 48% of households are below the consumption poverty line and 52% of households in the province fall into the poorest two national quintiles of national consumption. These households will struggle to have enough cash available to buy food needs on the market and to meet other expenditure needs such as health services. Mean total per capita household daily per capita consumption is 2438 Riel in 2004.

Table 2.2: Indicators of Consumption Poverty in Kampong Thom

Consumption Poverty Indicator	Kg.Thom	National
Mean Total per capita HH daily per capita consumption in riel	2438	3247
% of households in the lowest Q1 and Q2 (i.e. 40%) of national consumption quintiles	52	37
Consumption poverty line in riel	1785	1836
% of households below the poverty line	48	32
The poverty line value as a percentage of total consumption	73	49

Source: CSES Knowles analysis & VAM analysis.

Average gross household cash income among households surveyed in the target area is US$887 per year (or US$164 per person) compared to average national GDP per capita in 2004 of around US$363 (ADB, 2006).

The Source of cash income generated from rice crop, sale labor, other business and NTFPs collection. According to the survey, the income from NTFPs is around 31% of total income. This indicator shows that NTFPs is main source of household income in

the target area. Live stock – although not often sold or traded – is clearly an important store of value, providing some form of security to households in times of need.

Table 2.3: Source of cash income

Income source	Kampong Thom
	US$ per household per year
Rice Crop	323
Paid Work	143
NTFPs	271
Other sources	150
Total:	**887**

Composition of household income in Kampong Thom
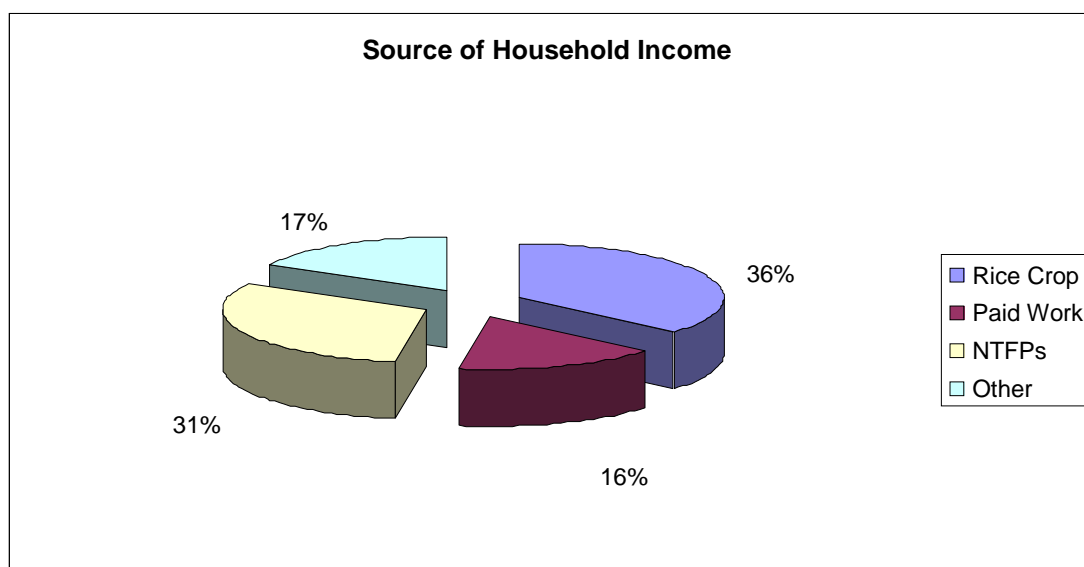
Source: Project survey 2008

Table 2.4 contains indicators of the prevalence of a lack of physical assets among households in Kampong Thom in comparison to national rates. Households lacking economic assets of their own will be more exclusively dependent upon wage labor or common property resources to generate cash income to buy food and other basic needs.

Table 2.4: Indicators of Household Asset Poverty in Kampong Thom

Asset Poverty Indicator	Kg.Thom	National
% rural households with no crop land-landless 0 ha.	7	15
Average crop land area cultivated for all annual crops ha./rural hh	1.5	1.2
% households with thatched roof houses	45	34
% HH not owning any cattle or buffalo	35	49
% HH not owning any pigs-CDB 2004	48	54
Mean no. of households per car	61	39
Mean no. of households per moto	7.2	5.4
Mean no. of households per oxcart	2.1	4.0

Sources: CDB aggregates from village data all individual provinces.

5.2.3 Employment

Table 2.5 contains indicators of the characteristics of the labor force and employment in Kampong Thom in comparison to national rates. Total and female adult literacy rates are a good proxy indicator for access to productive employment and higher incomes. The indicator on percentage of the labor force economically active <=10 days/ mth gives some indication of the problem of underemployment, a major limitation to income generation from wage labor in the informal sector.

Table 2.5: Employment and Labor Force Indicators in Kampong Thom

Employment and Labor Force Indicator	Kg.Thom	National
Literacy Rate > 15 years % total population	58	67
Literacy Rate > 15 years % females	53	60
% of the labor force in the primary sector incl. Agriculture	62	60
% of the labor force in the secondary sector/ Industry	13	13
% of the labor force in the tertiary sector/ Services	24	25
% of the labor force <=10 days/ month	34	29

Source: CSES Kanol analysis (NIS).
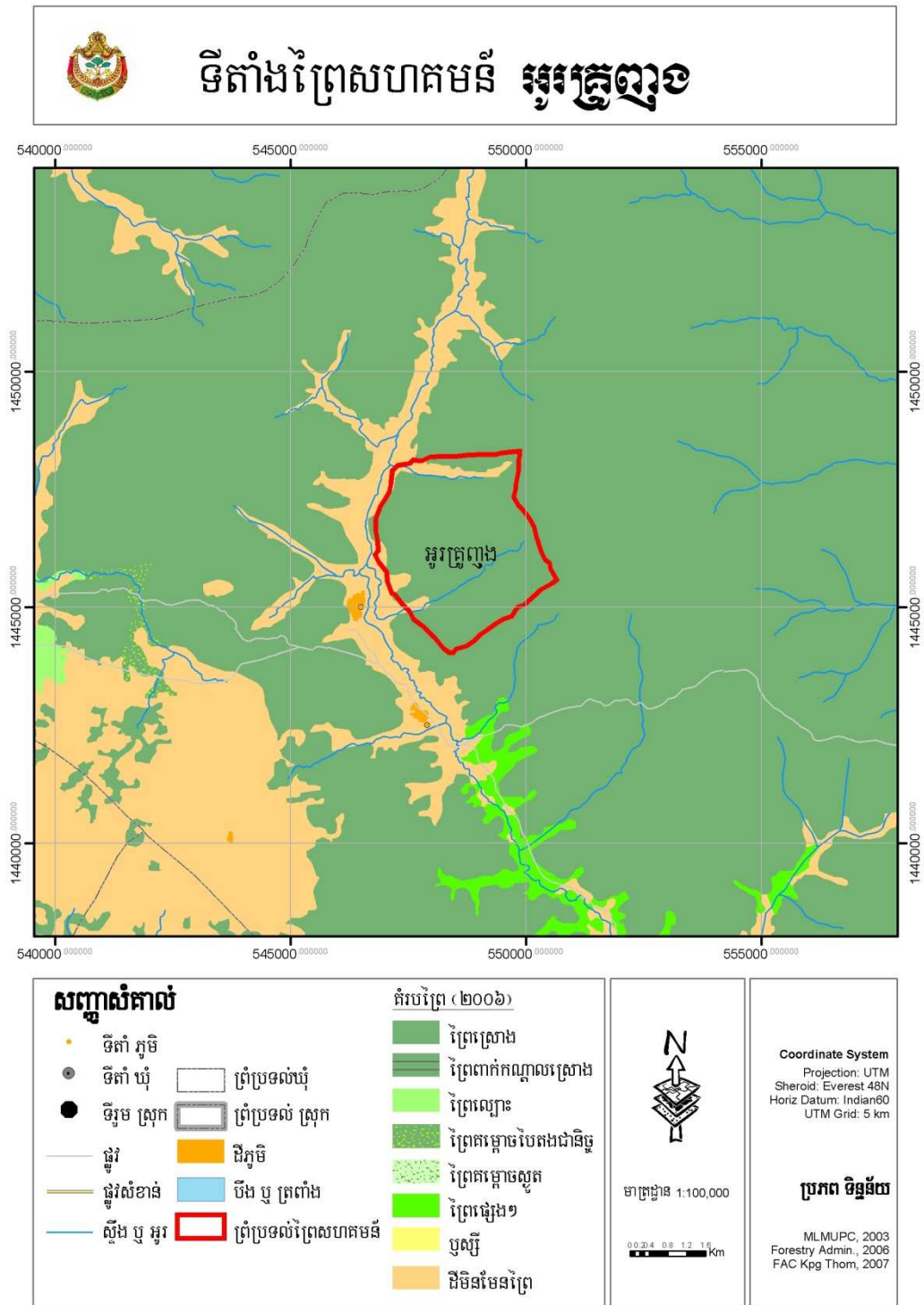
5.2.4 Access to water and sanitation

Table 2.6 shows the percentages of households **not** having access to sanitary toilets and **not** having access to safe drinking water in the year 2004. Among these households, members and particularly children are exposed to poor hygiene and sanitation conditions which will increase risks of infections including diarrhea, and which will in turn increase risks of child death, and levels of child malnutrition. Compared to the national level, a **higher** percentage of households in this province did not have a sanitary toilet. The percentage of households not having access to safe drinking water in this province was **lower** than the national average. More needs to be done particularly to promote sanitation, and to further improve access to safe drinking water in this province, to reduce the risks of child death, and to reduce existing levels of child morbidity and malnutrition.

Table 2.6: Access to sanitation and safe drinking water in Kampong Thom

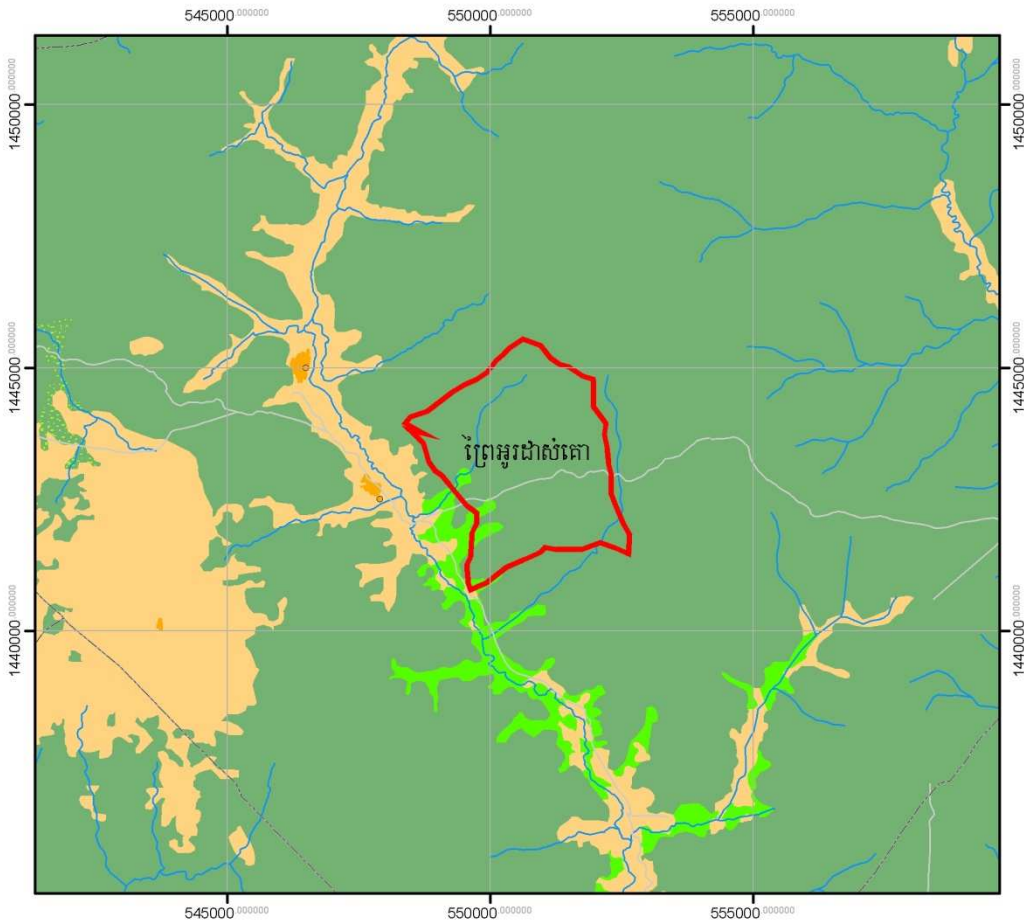| Sanitation and Safe Drinking Water Access Indicators	% of Households in Kg. Thom	% of Households National
Households **not** having a sanitary toilet	89%	81%
Households **not** having access to a safe source of drinking water at, or within 150 meters, of their house	27%	34%

Source: Commune Database

COMMUNITY FORESTRY MAP FOR CHEAM SVAY VILLAGE

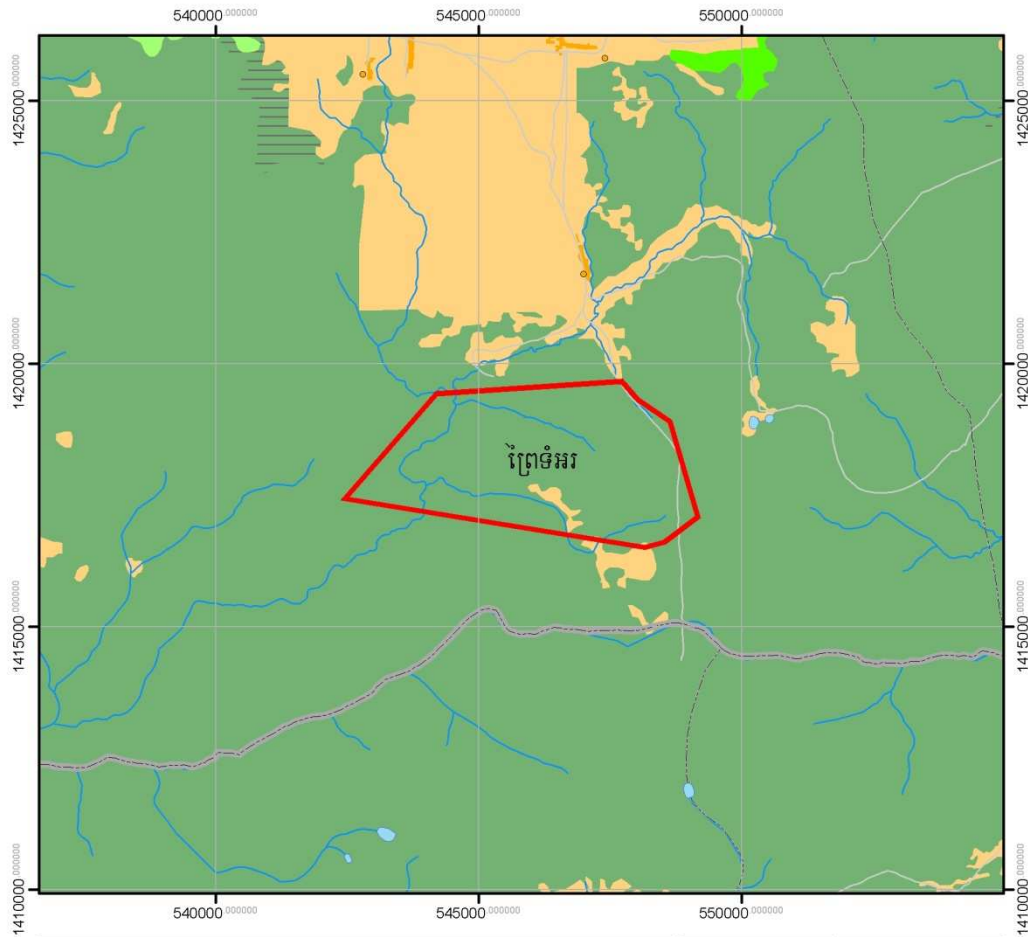COMMUNITY FORESTRY MAP FOR SAMORNG VILLAGE

COMMUNITY FORESTRY MAP FOR TUM OR VILLAGE

5.3 Ratanakiri

The Project implement in three villages of Somthom Commune, OyadavDistrict .The target village are: Somkanihn, Somtrak and Somkoul. The socio-economic conditions are described as following:

5.3.1 Population and beneficiaries household

The estimated of total household for the target area around 466 with the average household size is 5.8 person per household.

Table 3.1: Beneficiary household in Ratanakiri Province

District	Commune	Village	CF member	Total Household	Total Population	Male	Female
Oyadav	Somthom	Somkaninh		218	1087	519	568
Oyadav	Somthom	Somtrak		145	659	431	228
Oyadav	Somthom	Somkoul		103	529	297	232
Total				**466**	**2,275**	**1,247**	**1,028**

5.3.2 Income and poverty

Average gross household cash income among households surveyed in the target area is US$212 per year (or US$37 per person) compared to average national GDP per capita in 2004 of around US$363 (ADB, 2006).

Table 3.2: Sources of Cash income

Income source	Ratanakiri
	US$ per household per year
Rice Crop	0
Paid Work	166
NTFPs	5
Other sources	41
Total:	**212**

Composition of household income

Source of Household Income

19%   0%

2%

	Rice Crop
	Paid Work
	NTFPs
	Other

79%
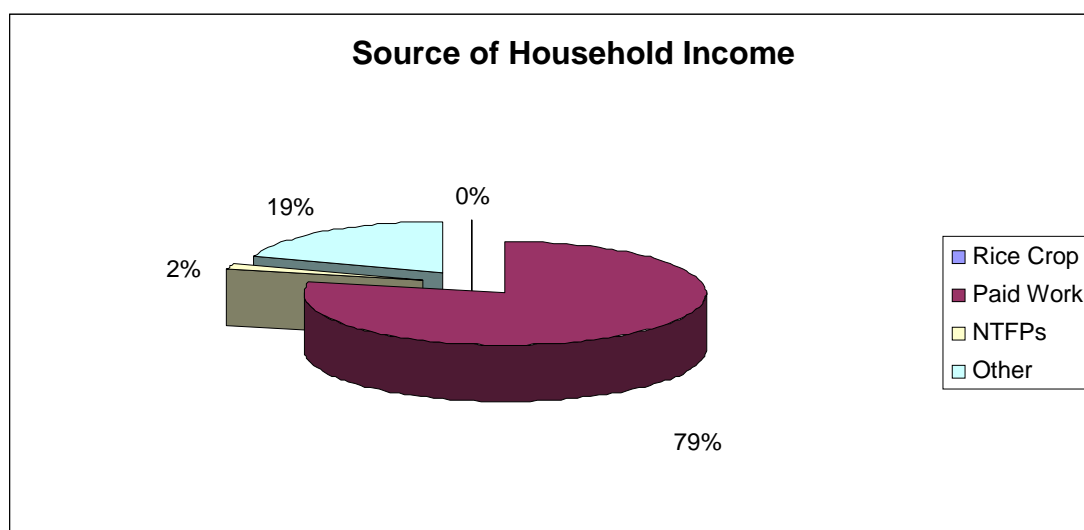
Source: Project survey 2008

The Source of cash income generated from sale labor, other business and NTFPs collection. According to the survey, income from NTFPs is around 2% of total income. This indicator shows that NTFPs is not the main source of household income in the target area. People collect NTFPs only for their own consumption. The most important source income is sale labor to the rubber farm. In this area people do not cultivated for their income. They do shifting agriculture that just provide rice crop for their food. In time of food shortage people go to the forest to collect potato or vegetable for their daily food.

Table 3.3: Indicators of Consumption Poverty in Rattanakiri

Consumption Poverty Indicator	Ratanakiri Province	National
Mean Total per capita HH daily per capita consumption in riel	2697	3247
% of households in the lowest Q1 and Q2 (i.e. 40%) of national consumption quintiles	43	37
Consumption poverty line in riel	1807	1836
% of households below the poverty line	44	32
The poverty line value as a percentage of total consumption	67	49

Source: CSES Knowles analysis & VAM analysis.

Table 3.3 contains indicators of the prevalence of consumption poverty in Rattanakiri in comparison to national rates. Results show that 44% of households are below the consumption poverty line and 43% of households in the province fall into the poorest two national quintiles of national consumption. These households will struggle to have enough cash available to buy food needs on the market and to meet other expenditure needs such as health services.

5.3.3 Employment

Table 3.4 contains indicators of the characteristics of the labor force and employment in Rattanakiri in comparison to national rates. Total and female adult literacy rates are a good proxy indicator for access to productive employment and higher incomes. The indicator on percentage of the labor force economically active <=10 days/ mth gives some indication of the problem of underemployment, a major limitation to income generation from wage labor in the informal sector.

Table 3.4 Employment and Labor Force Indicators in Rattanakiri

Employment and Labor Force Indicator	Ratanakiri	National
Literacy Rate > 15 years % total population	53	67
Literacy Rate > 15 years % females	47	60
% of the labor force in the primary sector incl. Agriculture	70	60
% of the labor force in the secondary sector/ Industry	6	13
% of the labor force in the tertiary sector/ Services	18	25
% of the labor force <=10 days/ month	27	29

Source: CSES Kanol analysis (NIS).

5.3.4 Access to water and sanitation

Table 3.5 shows the percentages of households **not** having access to sanitary toilets and **not** having access to safe drinking water in the year 2004. Among these households, members and particularly children are exposed to poor hygiene and sanitation conditions which will increase risks of infections including diarrhea, and which will in turn increase risks of child death, and levels of child malnutrition.

Compared to the national level, a **higher** percentage of households in this province did not have a sanitary toilet. The percentage of households not having access to safe drinking water in this province was **much higher** than the national average. Much more needs to be done to promote sanitation and access to safe drinking water in this province, to reduce the risks of child death, and to reduce existing levels of child morbidity and malnutrition.

Table 3.5: Access to sanitation and safe drinking water in Rattanakiri

Sanitation and Safe Drinking Water Access Indicators	% of Households This Province	% of Households National
Households **not** having a sanitary toilet	92%	81%
Households **not** having access to a safe source of drinking water at, or within 150 meters, of their house	60%	34%

Source: Commune Database

People in target area of Ratanakiri do not access to safe drinking water. There have a well in each target village but it was broken because of not resources for maintenance. So people still use bad quality of water from pond, stream.

COMMUNITY FORESTRY MAP

សហគមន៍ព្រៃឈើលើសាមធី ឃុំសាមធី ស្រុកអូរយ៉ាដាវ ខេត្តរតនគីរី

មាត្រដ្ឋាន 1:45,000
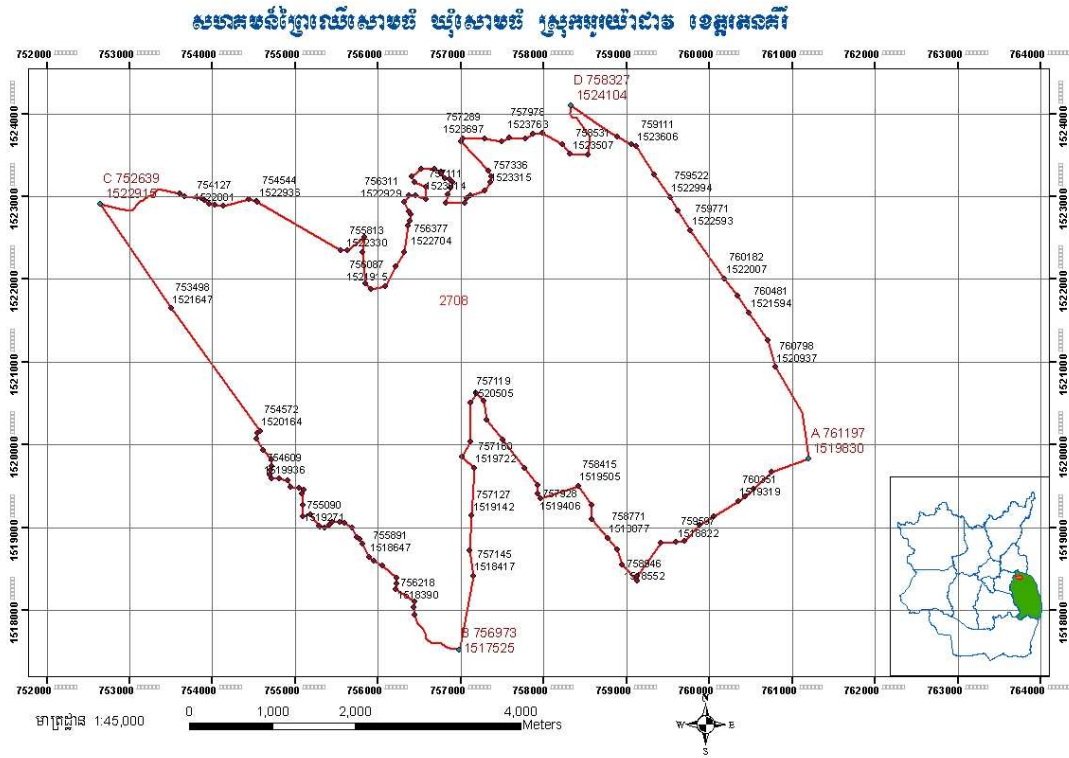
5.4 Mondulkiri

The project implement in three villages of Sre Ampoung Commune, Pechada District and one village of Rumanear Commune, Senmonorom Distric. The socio-economic indicator are showed as following:

5.4.1 Population and beneficiaries household

The estimated of total household for the target area around 367.The average household size is 4.7 person per household. The population density of the province is 3 persons/km2 compared to an average population density for Cambodia of 75 persons/km2.

Table 4.1: Beneficiary household in Mondulkiri Province

District	Commune	Village	CF member	Total Household	Total Population	Male	Female
Pechada	Sre Ampum	Poukruch		65	284	155	129
Pechada	Sre Ampum	Pouradeth		83	359	185	174
Pechada	Sre Ampum	Poukreng		85	349	169	180
Senmonorom	Rumanear	Poulourng		134	501	283	308
Total				367	1,493	792	791

5.4.2 Income and poverty

Table 4.2 contains indicators of the prevalence of consumption poverty in Mondulkiri in comparison to national rates. Results show that 37% of households are below the consumption poverty line and 43% of households in the province fall into the poorest two national quintiles of national consumption. These households will struggle to have enough cash available to buy food needs on the market and to meet other expenditure needs such as health services.

Table 4.2: Indicators of Consumption Poverty in Mondulkiri

Consumption Poverty Indicator	Mondulkiri Province	National
Mean Total per capita HH daily per capita consumption in riel	2549	3247
% of households in the lowest Q1 and Q2 (i.e. 40%) of national consumption quintiles	43	37
Consumption poverty line in riel	1819	1836
% of households below the poverty line	37	32
The poverty line value as a percentage of total consumption	71	49

Source: CSES Knowles analysis & VAM analysis

Table 4.3: Sources of Cash income

Income source	Mondulkiri
	US$ per household per year
Rice Crop	0
Paid Work	274
NTFPs	126
Other sources	181
Total:	**581**

Composition of household income in Mondulkiri

Source of Household Income
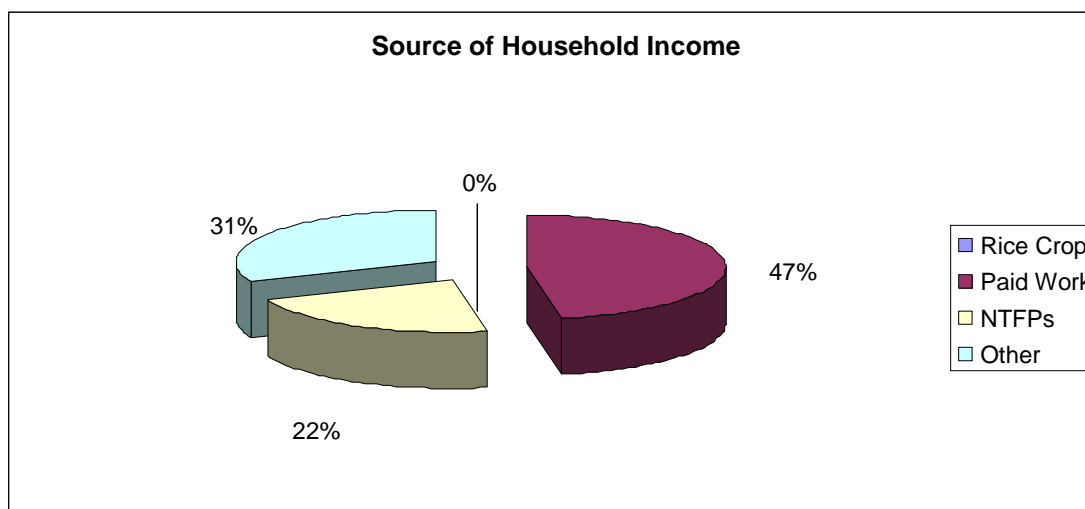
Source: Project survey 2008

cash income among households surveyed in the target area is US$581 per year (or US$124 per person) compared to average national GDP per capita in 2004 of around US$363 (ADB, 2006).

The Source of cash income generated from sale labor, other business and NTFPs collection. According to the survey, income from NTFPs is around 2% of total income. This indicator shows that income from NTFPs is amount 22% of total source income. People in the target area live depend on collection of NTFPs. Another important sources income is sale labor to the farm. In this area people do not cultivated for their income. They do shifting agriculture that just provide rice crop for their food. In time of food shortage people go to the forest to collect resin tree sale to wholesaler in the village and collect potato or vegetable for their daily food.

5.4.3 Employment

Table 4.4 contains indicators of the characteristics of the labor force and employment in Mondulkiri in comparison to national rates. Total and female adult literacy rates are a good proxy indicator for access to productive employment and higher incomes. The indicator on percentage of the labor force economically active <=10 days/ month gives some indication of the problem of underemployment, a major limitation to income generation from wage labor in the informal sector.

Table 4.4 Employment and Labor Force Indicators in Mondulkiri

Employment and Labor Force Indicator	Mondulkiri	National
Literacy Rate > 15 years % total population	53	67
Literacy Rate > 15 years % females	47	60
% of the labor force in the primary sector incl. Agriculture	70	60
% of the labor force in the secondary sector/ Industry	6	13
% of the labor force in the tertiary sector/ Services	18	25
% of the labor force <=10 days/ month	27	29

Source: CSES Kanol analysis (NIS)

5.4.4 Access to water and sanitation

Table 4.5 shows the percentages of households **not** having access to sanitary toilets and **not** having access to safe drinking water in the year 2004. Among these households, members and particularly children are exposed to poor hygiene and sanitation conditions which will increase risks of infections including diarrhea, and which will in turn increase risks of child death, and levels of child malnutrition.

Compared to the national level, **almost the same** percentage of households in this province did not have a sanitary toilet. The percentage of households not having access to safe drinking water in this province was **higher** than the national average. Much more needs to be done to promote sanitation and access to safe drinking water in this province, to reduce the risks of child death, and to reduce existing levels of child morbidity and malnutrition.

People in the target area do not access to safe drinking water. In raining season household use jar to store the water and in the dry season they use the water from the well, pond or stream for drinking, cooking and washing.

Table 4.5 Access to sanitation and safe drinking water in Mondulkiri

Sanitation and Safe Drinking Water Access Indicators	% of Households in Mondulkiri	% of Households National
Households **not** having a sanitary toilet	80%	81%
Households **not** having access to a safe source of drinking water at, or within 150 meters, of their house	44%	34%

Source: Commune Database

6. Conclusion and Recommendation

The finding of social economic indicated that NTFPs is an important sources income for each target area. In Kampong Chhnang household collect NTFPs for their own consumption like fuel wood, mushroom, rattan and other vegetable. Moreover, NTFPs contribute about 7% of total household income. In Kampong Thom, the most important of household income from NTFPs is resin tree that contribute 31% of total gross income. In Ratanakiri people live mostly depend on NTFPs for their daily food such as bamboo, rattan, mushroom and other vegetable but there have no local market to sale NTFPs. Villagers collect fuel wood for their cooking. Through the data survey NTFPs contribute only 2% of total household income but people still want to develop their community forestry for their own consumption and also want to improve their livelihood through NTFPs if market available. In Mondulkiri, NTFPs contribute about 22% of total household income. People live depend on NTFPs for the main source income. Most of families member go to the forest every day to collect dry or liquid resin. When the food shortage they sale the resin for buying rice.

Summary socio-economic indicators for target areas are presented in Table 6.1 below.

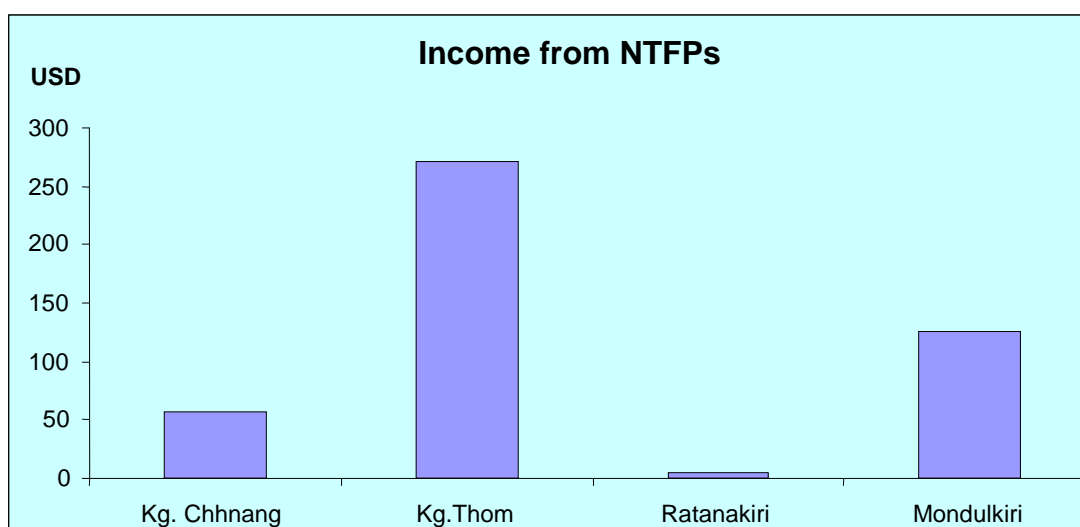**Table 6.1: Summary socio-economic indicators in the study area**

Indicator	Kg. Chhnang	Kg.Thom	Ratanakiri	Mondulkiri
Number of household beneficiaries	1,065	440	466	367
Average household size	5	5.4	5.8	4.7
Mean daily per capita household consumption (Riel)	3,010	2,438	2,697	2,549
HH below poverty line (%)	28	48	44	37
Average Annual HH income (USD)	763	887	212	581
Average annual household income from NTFPs (USD)	56	271	5	126
Literacy rate>15years %total population (%)	64	58	53	53
Share of the labor force in the primary agricultural sector (%)	71	62	70	70
Share of the labor force in the secondary industrial sector (%)	12	13	6	6
Share of the labor force in the tertiary service sector (%)	17	24	18	18
Share labor force<=10 days/months (%)	26	34	27	27
HH not have sanitation toilet	90	89	92	80
HH not having access to safe source drinking water	26	27	60	44

Through the household survey conducted by the project in year 2008 indicated that the percentage of people who collect NTFPs for marketed within each target village in table 6.2 as following:

Table 6.2: Percentage of villagers collected NTFPs for market in each target villages

Province	Village	Total Sample	NTFPs collectors for market (%)
Kg. Chhnang	Svay Bakav	30	90
Kg. Chhnang	Svaykrom	29	14
Kg. Chhnang	Oroung	26	12
Kg. Chhnang	Saray Andet	30	73
Kg. Chhnang	Kanchorng	31	29
Kg.Thom	Samorng	29	79
Kg.Thom	Cheamsvay	30	93
Kg.Thom	Tumor	30	13
Ratankiri	Somkaninh	30	3
Ratankiri	Somtrak	30	3
Ratankiri	Somkoul	25	28
Mondulkiri	Poukruch	25	100
Mondulkiri	Pouradeth	25	68
Mondulkiri	Poukreng	24	83
Mondulkiri	Poulourng	32	75

Comparison of the income from NTFPs between the sites

Income from NTFPs

USD	

(Bar chart showing income from NTFPs in USD for four sites)

- Kg. Chhnang: approximately 55
- Kg.Thom: approximately 270
- Ratanakiri: approximately 5
- Mondulkiri: approximately 125

According to the survey finding, Project should focus on improvement and management of NTFPs resources in Kampong Chhnang and Ratanakiri. However, Project should prepare the management plan for the community forestry in Kampong Thom and Mondulkiri especially resin tree which kind of NTFPs that provide more source income for household livelihood. Resin is tapped mainly from the evergreen tree species such as Dipterocarpus alatus and other species. It may be harvest in liquid and solid forms. Resin tree used domestically for sealing and waterproofing boat. Moreover, it exported to neighboring country for these uses as well as for paint and varnish manufacturing (CDRI 2003). Based on the study, forest resources have seriously degraded. People have complained about the resources shortage from their community forestry and it affect to their livelihood. Most of NTFPs trade in raw material to the market and villagers have no skill on processing. So, the development of processing skill for villagers is necessary to improve the income of household and it benefit to the sustainable use of NTFPS.

ANNEX 1

HOUSEHOLD SURVEY (1): DEMOGRAPHY DATASHEET

Collector:	Date:		Place:
Informant(s):	Page:	Of:	

Household name:	Ethnic group:	Age of informant:

Name	Family relationship	Age	Gender	Ethnic group	Education	Occupation/job	
						Primary	Secondary

Valuable goods				Remarks
Kind of goods	Number (unit)	Year of buy	Price	
1.				
2.				
3.				
4.				
5.				
6.				

HOUSEHOLD SURVEY (2): SOURCE OF INCOME

Collector:	Date:		Place:
Informant(s):	Page:	Of:	

Household name:	Ethnic group:	Age of informant:

1.Where does your income come from, besides from forest, rice field and *chamkar*?

2. How big is your actual income in *Riel* per month:

    a. From the forest resources?

    b. Besides from forest resources?

3. Are there any other household members who work and earn money?

If 'yes' then:

a. Who?

b. What job?

c. How much do they earn?