

# **MINISTRY OF Natural Resource and Environmental Conservation**

## **Forest Department**

### **TANINTHAYI NATURE RESERVE PROJECT (TNRP)**

#### **Consultancy Report on Socioeconomic Survey in Taninthayi Nature Reserve**



by

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## Acknowledgement

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## Executive Summary

Taninthayi Nature Reserve (TNR) was established in 2005 and notified as a protected area. The area is 1,700 square kilometer and situated between Yebyu and Dawei Townships, Dawei District, Taninthayi Region. Four main ethnic groups Karen, Mon, Dawei and Burmar reside in the area. Taninthayi Nature Reserve Project (TNRP) is a cooperative project between the Forest Department under Ministry of Natural Resources and Environmental Conservation and three private partner companies: the Mottama Gas Transportation Company Limited (MGTC), Taninthayi Pipeline Company LLC (TPC) and Andaman Transportation Limited (ATL). The project has been implementing to conserve tropical rainforests and its constituent biodiversities through livelihood development of local communities at Taninthayi Region since 2005. TNRP has been assessing the socio-economic conditions of local communities in the project area since first phase of the project (2005-06 to 2008-09). To understand the socio-economic conditions and opportunities of livelihood development, TNRP is continuously conducting socio-economic survey in each two year of the project phase. In order to conserve the protected area, the role of communities is important to perform the conservation activities effectively. This socio-economic survey was carried out-

- To take all the possible management measures based on scientific findings of socio-economic data in the study area of TNR.
- To inform potential management measures and to monitor the ongoing success of the TNRP for community development.
- To give recommendations for alternative development strategy based on socio-economic survey and livelihood monitoring.

To achieve these objectives, a survey was carried out in sixteen villages within the area. A series of interviews, discussions and study on the communities' livelihoods were done. The majorities of the livelihood depend on the horticulture farming and grow betel, cashew, and rubber. There are CF forests in seven of the sample villages and the CFs are usually aimed to store water. In addition, the communities who have participated in CF establishment are willing to conserve the forest for their future generation. Collecting of non-timber forest products is only carried out in a few villages. The influence of the ethnic armed force groups was also seen and the communities are confused by two administrations sometimes.

The survey recommends an effective forest management, law enforcement, effective stakeholder communication and development of alternative livelihood plan to achieve the livelihood goals.

## Abbreviation

ATL	Andaman Transportation Limited
CF	Community Forestry
CFI	Community Forestry Instruction
FD	Forest Department
KNU	Karen National Union
NMSP	New Mon State Party
MONREC	Ministry of Natural Resources and Environmental Conservation
MGTC	Mottama Gas Transportation Company
NTFP	Non Timber Forest Products
TNR	Taninthayi Nature Reserve
TNRP	Taninthayi Nature Reserve Project

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## 1. Introduction

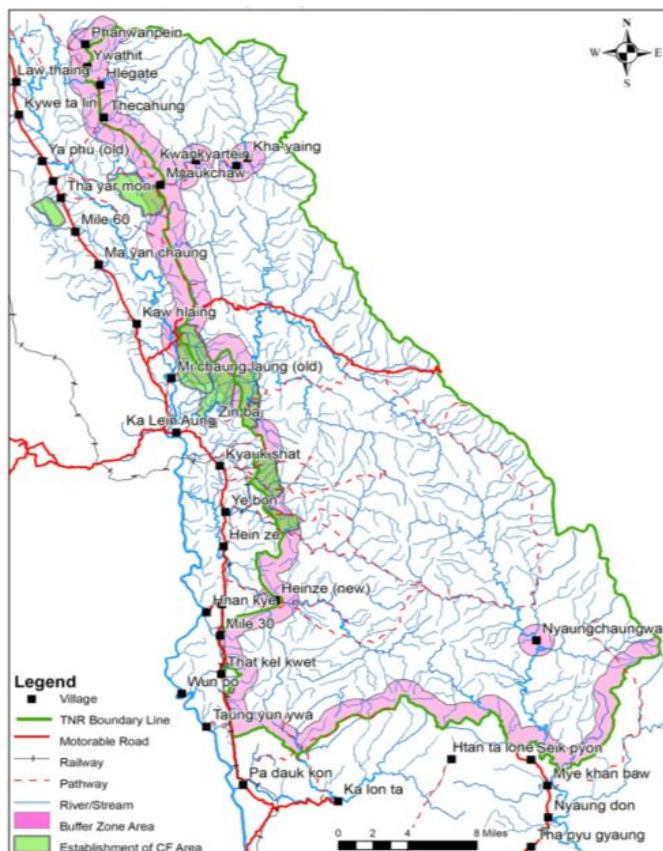
### 1.1 Terms of Reference for Consultant of Socio-economic Survey

1.	Title of Job	Consultant for Socio-economic Survey
2.	Nature of Job	Socio-economic Survey
3.	Duration of the work	Two Months
4.	Duty Station	Project Director Office, Taninthayi Nature Reserve Project, Yangon, Myanmar and TNRP project site, Ye Phyu Township, Dawei District upon necessary of the work
5.	Objectives of the Work	<ul style="list-style-type: none"> <li>• To take all possible management measures based on scientific findings of socio-economic data in the study area of TNR</li> <li>• To inform potential management measures and to monitor the ongoing success of the TNRP for community development</li> <li>• To give some recommendations for alternative development strategy based on socioeconomic survey and livelihood monitoring</li> </ul>
6.	Responsibility	<ol style="list-style-type: none"> <li>1. Compile socio-economic data collected during previous phases and first two years of third phase of the TNRP collaboration with project staff</li> <li>2. Compare changes recorded to date and inform the development of a monitoring system with the participation of project staff</li> <li>3. Develop and implement a standardized survey method for systematically collecting key socio-economic data with consultation of senior project staff</li> <li>4. Monitor changes of livelihood within TNRP communities, including a standardized socioeconomic information collection form with TNRP staff</li> <li>5. Train TNRP staff to collect socioeconomic information from communities in TNRP area</li> <li>6. Collect, collate and analyze socioeconomic data from Phase 1, Phase 2 and Phase 3 of TNRP with TNRP staff</li> <li>7. Analyze all data collected to date to show livelihood changes and project progress across all three phases of the project with TNRP staff</li> <li>8. Review and evaluate monitoring mechanism used by the TOTAL Socio-Eco Project and determine if this system can be used or adapted for use by TNRP</li> <li>9. Compare between of new findings and previous findings of socioeconomic data of TNRP</li> <li>10. Impart and share socioeconomic survey techniques and livelihood monitoring knowledge to all TNR staff</li> <li>11. Prepare and submit the regular monthly reports on</li> </ol>

		surveys to TNR project director
		12. Submit the final report after 30 days of data collection with a full list of all compiled and collected data in a single format and description of monitoring system and clear instructions for future data collection and analysis (The report should also include management recommendations for conservation related opportunities to improve local socio-economic conditions)

## 1.2 Background of the Survey

The establishment of Taninthayi Nature Reserve (TNR) was begun in 2005 and it was notified as a protected area under prevailing policies and laws by the Ministry of Natural Resources and Environmental Conservation (MONREC). (Maung Maung Than, 2016) Taninthayi Nature Reserve Project (TNRP) was financially supported by Mottama Gas Transportation Company (MGTC) and Taninthayi Pipeline Company (TPC), joined by Andaman Transportation Limited (ATL) in 2013. The total area of TNR is 1,700 square kilometres and is comprised of two forest reserves, the eastern part of Heinze/Kaleinaung Reserve Forest and the Luwaing Reserve Forest. Located in the northern part of Taninthayi Region in Southern Myanmar, the reserve area lies in the Yephyu and Dawei Townships of Dawei District. There are four main ethnic groups residing that include Karen, Mon, Dawei and Burmar (Saw Win, 2015).



For the sustainable tropical rainforest conservation and biodiversity conservation, one distinct approach TNR carry out is through the community participation. In order to perform for the effective community participation, the project has been assessing the socio-economic survey to understand more about the livelihood conditions of the local community. The consultancy for the socio-economic was assigned for the phase 3 periods to collect and analyze current baseline data and conditions to contribute to the developing the sustainable management plan for phase 4.

**Figure 1 : Location Map of**



## TNRP

### 1.3 Objectives of the survey

The consultancy of the socio-economic survey is for the understanding on socio-economic conditions of the villages in the project site to achieve the following key objectives.

- To take all the possible management measures based on scientific findings of socio-economic data in the study area of TNR.
- To inform potential management measures and to monitor the ongoing success of the TNRP for community development.
- To give recommendations for alternative development strategy based on socio-economic survey and livelihood monitoring.

### 1.4 Limitation of the survey

In Taninthayi Nature Reserve area, there are about 29 villages within the area. Due to the short duration given for the assessment, only sixteen villages were selected according to their locations and recommendation of the TNR staff. While conducting the assessment, a few limitations were encountered as follow.

- **Local security** is the main concern during the study. Many of the villages are under the administration of ethnic armed forces and thus, there were constraints on implementing all the planned operational activities.
- **Time limitation** is another problem as the villagers have to struggle with daily livelihood routine and could not give much of their time for assessment activities and could not reach the exact respondents sample size due to the unavailability of their times as it was the harvesting season.
- **Language barrier** can be considered as one big limitation to access to the more concrete information, as there is a medium between the interviewers and interviewees. Even if the village uses the same language, the difference in dialects prevent from clear understanding.
- Some of the villagers were not willing to participate in survey due to their **concern for their security**. In that case, the information given is unreasonable to the ground situation and it is a challenge to analyze.
- The consultancy requires **the previous socio-economic survey report** which is yet not been published, to perform the comparison between the past years and current year.
- It also has some limitation regards with comparing with previous studies as those studies are mainly focused on Community Forests rather than socio-economic situation.

## **2. Methodology**

The survey villages are selected based on their locations within TNR: core, buffer and vicinity, and based on the recommendation of the field project staff. The field survey was conducted during the period, from 19<sup>th</sup> February 2017 to 10<sup>th</sup> March 2017. During the field visit, the survey team carried out the assessment of the following sixteen villages in the project area.

1. Myae Khan Baw
2. Kalat Phado
3. Seik Phylene
4. Myauk Chaw
5. Nagar Ai
6. Kyauk Shat
7. Ye Bon
8. Zimbar
9. Hein Ze
10. Hnan Kyal
11. Thet Kel Kwat
12. Ka Lone Htar
13. Kyay Zu Taw
14. Mi Chaung Hlaung ( Old )
15. Thayar Mon
16. Kywe Ta Lin

Review of the secondary data was done before the field survey in order to collect the required information to prepare for the assessment. The tools for the assessment included – village and household questionnaires, key informant interviews, and PRA. The PRA tools included village focus group discussion, the resource mapping, seasonal calendars and vann diagrams. Regard with the household interviewed, 10% of the total households was randomly selected for the assessment. The findings were analyzed by SPSS software for the quantitative results. For quantitative analysis, the study was analyzed by documenting and categorizing information into theme, information collected from key informants, individual and household interviews, focus group discussions and participant observation.

### **2.1 Key Informant Interview**

The survey used key informants semi-structured open-ended questions to ask people of different social groups and livelihood groups from Taninthayi Nature Reserve Project (TNRP) area. This survey selected key informants such as village leader, village elder, and village women group leader. The study generally based on open-ended questions with the key informants. Further enquires depended on the answers initially received from the interviews.

### **2.2 Individual and Household Interview**

This interview provided to get specific information on the condition of livelihood and living conditions in all project phases. It also helped to understand the situation, experiences and social relation of the village. The study interviewed different situation of people for

example gender, age, livelihood, and social positions. These interviews mostly based on the informal discussions.

### **2.3 Focus Group Discussion**

Focus group interviews were very useful indeed for capturing people's responses and feelings, their records of experiences, and so on. According to Wisker, with several people present in a focus group, ideas and issues tend to shape themselves as people speak, and the subjects start to form an understanding as participants debate certain points (Wisker 2009). Focus group interviews were used to conduct to different livelihood groups as well as different gender group in order to understand their different situations.

### **2.4 Participant Observation**

During the field visit, the consultant tried to participate as much as possible in household and community life. Participant observation method is useful in order to hear, see and experience the everyday life of the community from TNRP area. Based on the observation, the consultant tried to identify the nature of the communities' daily activities.

### **2.5 Resource Mapping**

Resource Mapping was used to gather range of issues and concerns. Through mapping, the villagers could produce the documentation to see the structure of the village, the resource allocation, geographical location and land use.

### **2.6 Vann Diagram**

The vann diagram was used to describe the social relationships of the communities with external and internal organizations. From this approach, it found out what kinds of organizations were involved in a community, their level of influence, and their contribution to the community.

### **2.7 Seasonal Calendar**

In order to understand the seasonal issues, trends and how things change throughout the year for one village, seasonal calendar was applied. It was done to gather information on the availability of crops per season, the amount of time the village allocated for the livelihood and other activities in the village.



**Figure 2: Key Informant interview**



**Figure 3: Focus Group Discussion**

### 3. Quantitative Household Research Results

#### 3.1 Demographic characteristics

This household survey was conducted with 197 sample households and it covered the information of 1928 village households. For each village, 10 percentage of each village household was observed as sample size, see in Table 1.

**Table 1: Population and sample of the household survey**

<b>Sr. No.</b>	<b>Village</b>	<b>No. of Population</b>	<b>No. of HH</b>	<b>No. of Respondent</b>
1	Kyauk Shat	1200	200	20
2	Ye Bon	759	140	14
3	Hein Ze	353	58	6
4	Hnan Kyal	757	200	20
5	Myauk Chaw	600	100	10
6	Nagar Ai	300	67	7
7	Seik Phyone	595	80	8
8	Myae Khan Baw	870	149	18
9	Kalat Phado	410	70	7
10	Thet Kal Kwat	154	35	4
11	Ka Lone Htar	989	240	24
12	Kywe Ta Lin	674	161	16
13	Tharyar Mon	448	97	10
14	Zimbar	968	170	17
15	Mi Chaung Hlaung Old	500	110	11
16	Kyay Zu Taw	220	51	5
	<b>Total</b>	<b>9,797</b>	<b>1,928</b>	<b>197</b>

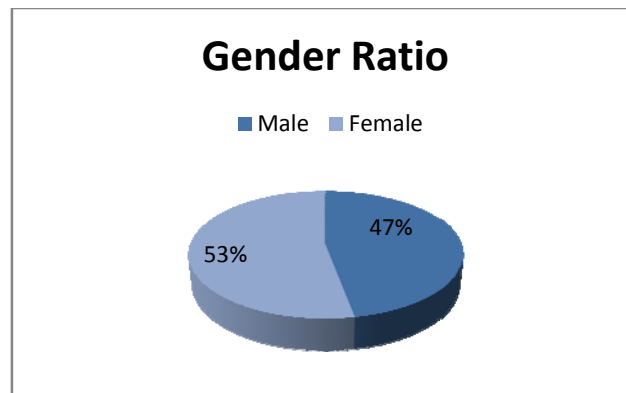
It should be noted that in certain villages, due to the availability of the respondents, the number slightly exceed than the sample size.

##### 3.1.1. Gender Distribution of the villages

As of 1,928 household numbers, number of population size is 9,797 number which includes female and male in which gender distribution could be observed as the average 53 percent of female and 47 percent of male; see in Table 2 and Figure 4. Except Ka Lone Htar village and Zimbar village, other (14) villages are higher sex ratio in female population than male population.

**Table 2: Sex ratio of residents in each village**

Village	Kyauk Shat	Ye Bon	Hein Ze	Hnan Kyal	Myauk Chaw	Nagar Ai	Seik Phyone	Myae Kan Baw	Kalat Phado	Thet Kel Kwat	Ka Lone Htar	Kywe Ta Lin	Tharyar Mon	Zimbar	Mi Chaung Laung (Old)	Kyay Zu Taw	Total
Male	550	378	123	363	280	140	295	400	200	70	511	300	200	515	200	90	<b>4,615</b>
Female	650	381	230	394	320	160	300	470	210	84	478	374	248	453	300	130	<b>5,182</b>

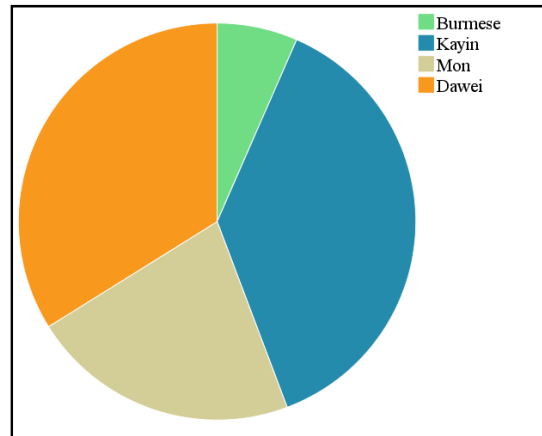
**Figure 4 : Gender distribution chart**

### 3.1.2. Ethnic Composition of Project Affected Village (PAP)

Main ethnic groups observed around target area within 16 surveyed villages were Dawei, Mon, Karen and Burmar as the survey results. As general analysis results, see Table 3, Figure 5. Karen and Dawei groups can be recognized as the most dominant or forerunners in these areas while there are very few number of Burmar ethnic group. Mon group also stands as secondary one compared within four main groups.

**Table 3: Ethnic numbers of the area**

Ethnic group	Number	%
Burmar	12	6.6
Karen	69	37.7
Mon	40	21.9
Dawei	62	33.9
Total	183	100.0



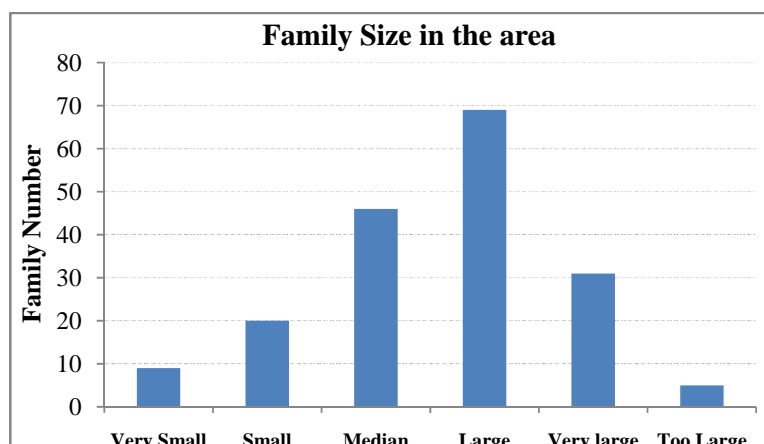
**Figure 5: Ethnic composition of all surveyed villages**

Specifically at site surveying, Karen groups were mostly founded in Myay Khan Baw, Kalat Phado, Kyay Zu Taw and Seik Phylene villages in which most were Karen people and followed by a few Dawei and Mon. Myauk Chaw and Nagar Ai are Mon ethnic group dominant villages.

### 3.1.3. Condition of village family size

Household members are classified into six types of family size with the aim to know about whether or not population control exists in these areas that based on the answer of respondents See

Figure 6. A family with one to three household members is considered a small family. These families consist of parents and children or only parents. As median family size, there are three to six household members. But, large, very large and too large family sizes are regarded as around 10 or more household members group, which includes extended families.

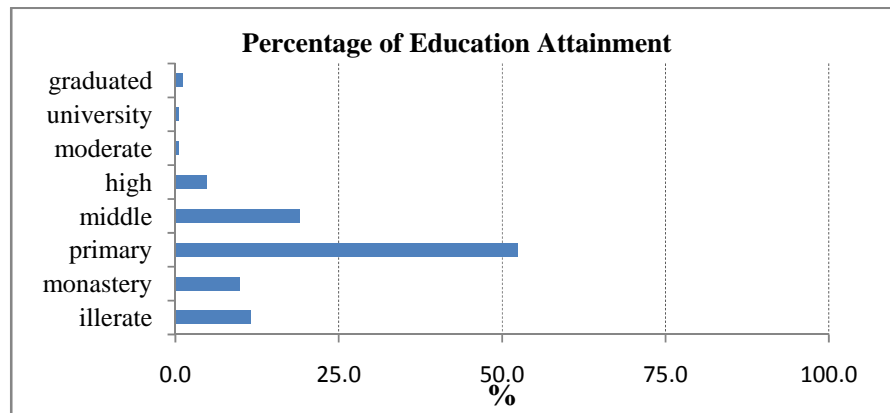


**Figure 6: Family size of surveyed villages**



### 3.1.4. Education Status

According to the analysis result, over 50 percent of population is primary education level. Graduate level and university level are rarely observed in the area. Some of residents and adult people touched the monastic education and some are unwilling to continue education level because of their livelihood. See Figure 7.



**Figure 7: Education Attainment**

### 3.1.5. Land owned of the villages

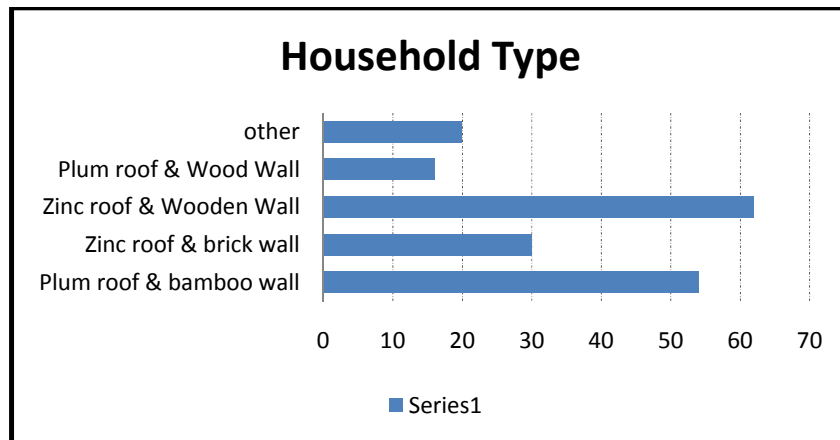
Only 1.9 percent of household sample does not have owned land for farming. Among 197 sample household, 10 households do not have land ownerships. Therefore, they hire and work on another land to get income. It is to note that the lands are, in fact, legally not registered. They are only traditional landownership.

**Table 4 : Land owning of households**

Name of village	Land Owned	
	Yes	No
Myay Kan Baw	18	0
Thet Kal Kwat	3	1
Hein Ze	6	0
Ka Lone Htar	24	0
Hnan Kyal	17	3
Ye Bon	14	0
Kyauk Shat	20	0
Zimbar	15	2
Kalat Phado	7	0
Seik Phylene	8	0
Tharyar Mon	9	1
Kywe Ta Lin	15	1
Nagar Ai	7	0
Myauk Chaw	8	2
Mi Chaung Laung (old)	11	0
Kywezu taw	5	0
<b>Total</b>	<b>187</b>	<b>10</b>

### 3.1.6. Type of houses

As of observation in housing of the surveyed villages, some of households constructed their house with Plum roof and wall by structuring wall. Most of people own their household and some are not. Roof using zinc and wooden-wall house are widely occurred in there. Unlike from cities, renting house is not common in the area. See Figure 8.



**Figure 8 : Dominant housing types in the area**

### 3.1.7. Electricity Availability

There is no electricity availability by national grid line in all surveyed villages.

## 3.2 Livelihood Assets Status

### 3.2.1 Vehicles Types in the area

Because the area is very close to Thailand boundary, Thai products and vehicles are plenty, especially motor bike vehicles are dominant types. Ka Lone Htar village widely use motorbike vehicles rather than other village. As the overall, using vehicles in the area have very few conditions.

**Table 5 : Showing vehicles type in the area**

Name of village	Occupied vehicles types				
	Bike	Motor bike	Car	Other	No Occupied
Myay Kan Baw	1	9	2	0	6
Thet Kel Kwat	0	4	0	0	1
Hein ze	0	4	0	0	2
Ka Lone Htar	0	20	2	0	0
Hnan kyal	0	8	0	0	4
Ye Bon	0	11	0	0	3
Kyauk Shat	2	11	1	0	1
Zimbar	0	13	0	1	3
Kalat Phado	2	3	0	0	2
Seik Phyon	0	7	1	0	2
Tharyar Mon	3	7	0	0	0
Kywe Ta Lin	1	11	0	0	3
Nagar Ai	0	3	0	0	4
Myauk Chaw	1	4	0	0	3
Michaunglaung(old)	0	11	0	0	0
Kyay Zu Taw	0	3	0	0	2
<b>Total</b>	<b>10</b>	<b>129</b>	<b>6</b>	<b>1</b>	<b>36</b>

*Missing value: 1*

### 3.2.2 Farm Equipment

All the villages focus on horticulture farming. Depending on farming vehicles usage, all of surveyed villages focus on farming activities but 7 villages (Ka Lone Htar, Hnan Kyal, Ye Bon, Kyauk Shat, Zimbar, Kywe Ta Lin and Mi Chaung Hlaung) has occupied more farming equipment, especially threshers. Only few numbers of water pump and cart for farming activities means that most of them depend on monsoon period for crop planting as well as rice and other rainwater influence crops.

**Table 6: Farm Equipment Used**

Name of village	Occupied farming Equipment				
	Cart	Water pump	No occupied	Other	Thresher
Myaykanbaw	4	4	5	0	5
Thetkalkwat	0	0	2	0	3
Hein zal	0	0	0	0	6
Ka lone htar	1	2	1	6	12
Hnankyal	0	0	1	0	11
Yay pone	0	0	0	0	14
Kyauk shat	0	0	0	0	15
Zin bar	0	0	3	0	14
Kalatpha do	3	0	2	0	2
Seikphyon	4	0	5	0	1
Tharyarmon	0	1	1	1	7
Kywe ta lin	1	1	3	0	10
Nagar ai	0	0	6	0	1
Myaukcahw	0	0	4	0	4
Michaunglaung(old)	0	0	0	0	11
Kywezu taw	0	0	1	0	4
<b>Total</b>	<b>13</b>	<b>8</b>	<b>34</b>	<b>7</b>	<b>120</b>

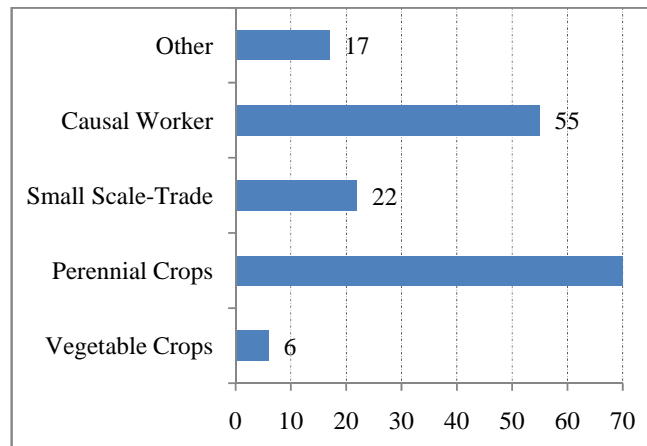
### 3.3 Income and Expenditure

#### 3.3.1 Income Sources of the Household

Among the surveyed sample, 70 of the respondents mainly depend on perennial crops (horticulture) and about 55 are dependents on casual work for main livelihood. The most common second source of income is also the horticulture farming, but those farms are still immature for production. Many of the household around 43 in number do seasonal non timber forest products collecting and selling, migrant workers and bamboo selling for second income.

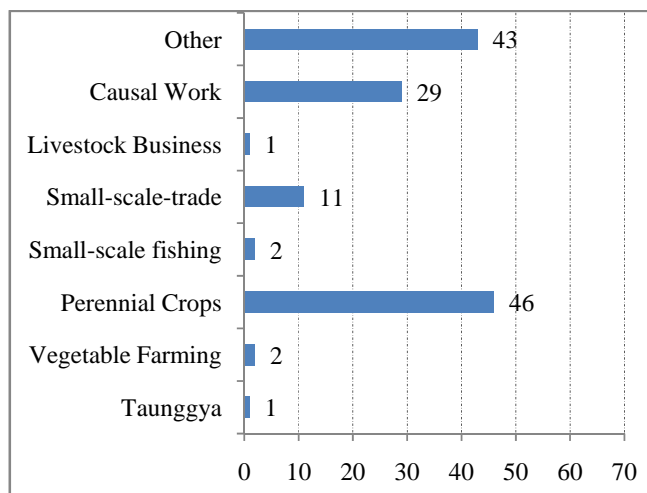
It should be noted that among the total number of 197 respondents, only 170 respondents responded for this question.

### Main Income source:



**Figure 9: The number main income sources of respondents**

### Secondary Income source:



**Figure 10: The number of secondary income sources of the respondent**

### 3.3.2 Income differences for previous and current year

Depending on the monthly income of households, financial level of village people have divided into 4 classes. They are poor (around 1 lakh), medium (not more than 3 lakhs), rich (around 10 lakhs), and very rich (around 50 lakhs).

As of the interviewed households results, income rate recently possibly becomes increasing since year 2016 than in the previous years, see below Table 7. However, it should be noted that the increase in income cannot catch up with the increasing basic commodity price.

**Table 7 : Monthly Income Rate**

Type	Monthly Income Rate (kyat)	Number of households	
		Previous year	Current year
Poor	0	1	-
	<100,000	49	14
Middle	100,000-200,000	61	101
	>300,000	18	31
	500,000	4	8
Rich	500,000-1,000,000	10	15
	1,000,000-3,000,000	7	9
Very Rich	3,000,000-5,000,000	1	1
	>5,000,000	3	3

### 3.3.3 Monthly Expenditure of household

Monthly expenditure rate is the range between 0 to 10 lakhs. During the survey, most of expenditure rate is around 2 lakhs, as observed in survey results, especially in 96 numbers of households. There are also over 50 households that can spend nearly 5 lakhs as monthly expenditure.

**Table 8: Household Expenditure**

Monthly Expenditure Rate (kyat)	Number of households
0	1
<100,000	16
100,000-200,000	96
>300,000	35
500,000	18
500,000-1,000,000	14
1,000,000-3,000,000	1
3,000,000-5,000,000	0
>5,000,000	0

## 3.4 Diseases Characteristics within Survey area

### 3.4.1 Types of diseases in the area

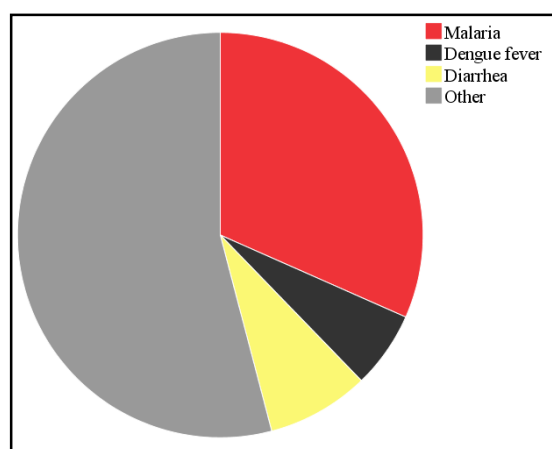
Malaria event occurs approximately 31 percent of the area; see Table 9, while there are 6 percent of dengue fever and 8 percent of diarrhea diseases. Ordinary fevers, small infections, and common cold and flu are included in other events. About 45 percent of the residents have suffered from certain kind of diseases including fever, intestinal problem, TB, typhoid, high blood sugar and other small scale fever. Insufficient medical specialists and being far to access location to health care centers may be common problem of residents.



**Table 9: Influencing diseases in the area**

Type of diseases	Frequency	%
Malaria	31	31%
Dengue fever	6	6%
Diarrhea	8	8%
Other	55	55%

*(Others are fever, small infection diseases, and usual small scale diseases)*



**Figure 11: Percentage of diseases events in the area**

### 3.5 Nature Resources Use Pattern

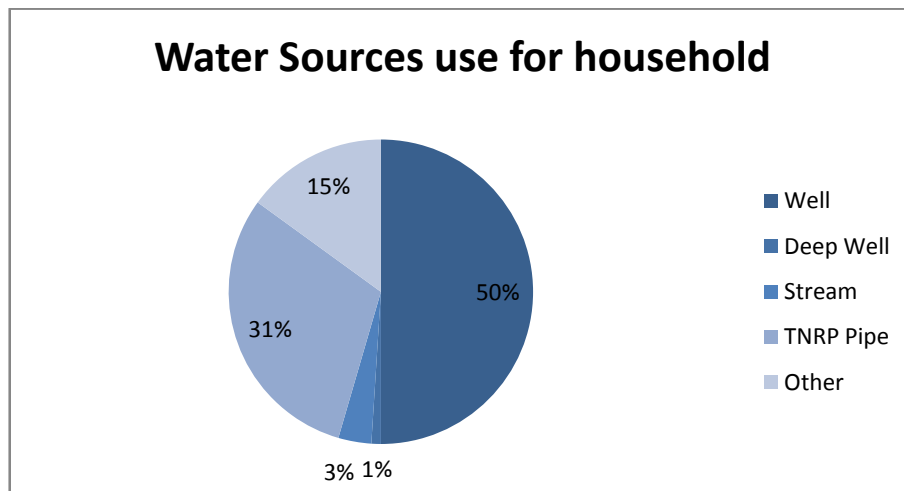
#### 3.5.1 Water Availability

According to the results and observation by study team, most of the water utilization including drinking purposes and other domestic uses are obtained from well, Taninthayi Friends and TNRP project water pipe line in the area. Very few households use stream and deep well.

Significantly, TNRP project water pipe support for 30.5 % of surveyed community. The other 69.5 % of water using from well, deep well and stream.

**Table 10: Water source used**

	Community	%
Well	98	50
Deep well	2	1
Stream	7	3.5
TNRP Pipe	60	30.5
Other	30	15

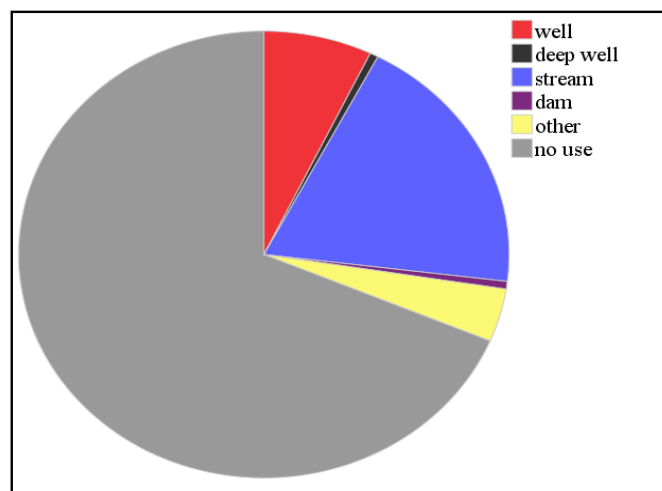


**Figure 12: Water sources in the area**

### 3.5.2 Water Use for Farming Purpose

Only less than 40% of the population possesses the well and access to the stream water for their farms. For those who have difficulty to access water from those sources, they only have to depend on the rain water. If there is no rain water, they do not use any water for their farming at all.

Therefore, because horticulture farming for perennial cropping is one of the main jobs for all of villages, water availability is included in essential aspects.

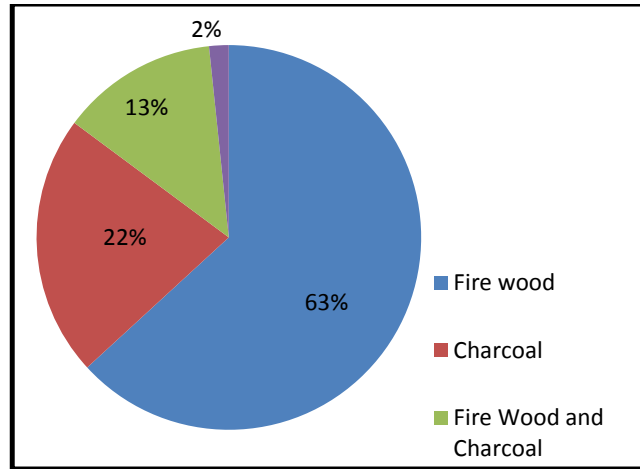


**Figure 13: Water sources using in agricultural activities**

### 3.5.3 Fuel consumption in the area

As observed in Figure 14, most of the villages around the TNRP project area mainly used fire wood. The firewoods are obtained from their farms as mentioned by the

respondents. The second source of fuel is charcoal. Usually the household with poor and medium income level obtain the fire wood from their farms and others' farms in some cases. Households with high income use petroleum but that's very few. Nevertheless, since there is no electricity from national grid line, majority of the households depend on fuel wood.



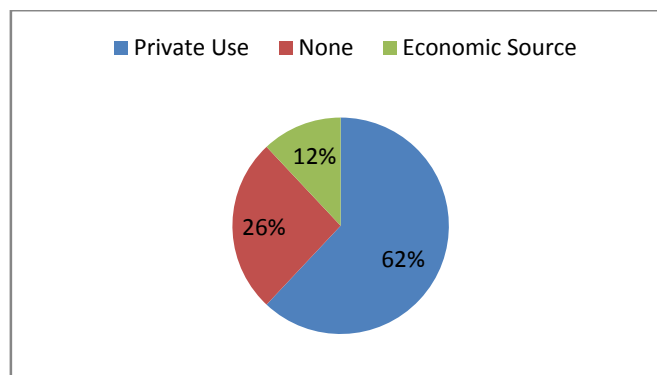
**Figure 14: Fuel consumption type in the area**

#### 3.5.4 Types of forest products and use patterns in the area

**Private use of forest products:** Most of the household utilize forest products mainly for cooking and other domestic requirement such as upgrading or maintenance of their houses.

**Economic source of forest products:** It includes collecting non-timber forest products, such as bamboo, dog fruits, yam etc. Based on the information of respondents, it can be supposed that there were many other illegal logging and trading processes in some villages' areas.

Even though 26% of the households are supposed not using the forest products, it should be noted that they indirectly buy the supply, especially bamboo and wood, from the other consumers of forest products.



**Figure 15: Percentage of forest products utilization**

## **4. Qualitative Livelihood Research Results**

### **4.1. Livelihood Capitals**

#### **4.1.1. Natural Capitals**

The survey area is situated in the location which is surrounded by the forests. The residents consider their surrounding natural environment as their nature capitals. The village lands, the farm lands and the forest areas are the primary nature assets of the villages. The forests provide with water source, non-timber forest products and fishery and animals. They also provide the ecosystem services that store water, regulate climate, prevent landslide and flood and also the ecotourism opportunities. Cash crops and food crops grown in farm land can be considered as natural capitals. Cash crops include betel, cashew, lime, and rubber. The food crops can be considered as sesame, rice, and vegetables.

#### **4.1.2. Human Capitals**

Regards with the human capitals, according to the assessment, in general, all the villages have human capital that can handle hard labour such as work in infrastructure or farm work. Even the young people can assist in collecting cashew nuts and betel nuts. Men are usually the influential one in farming work and women are usually the one who lead business and trade.

#### **4.1.3. Social Capitals**

During the assessment, it is found out that there is at least one society group that helps with village's affairs; for example funeral service. In certain villages with one dominants ethic group, there is an ethnic armed group involved in the villages. NGOs including TNRP are involved in village affairs but do not have high influences, except Taninthayi's Friends. Internal social groups such as Community Forest User's Group Committee, women groups, and social groups have high involvement in village development.

#### **4.1.4. Financial Capitals**

It is regretful to learn that only a few of the respondents have the opportunities to keep saving, as they have to struggle with the loans and household expenses. There are two different assess to loans in villages, the revolving fund loan and individual loans. Even though the revolving fund loans are low interest rate, because the villagers are weak in financial management, eventually they still have to borrow from the individual loans to repay the revolving fund loan. The only investments in most of the cases are in the farming business and to their household needs.



**Figure 16: A business invested by the capital received from Mya Sein Yaung Project**

#### **4.1.5. Physical Capitals**

During the assessment, typical physical capitals are found out as below

1. Primary school
2. Elementary school (not in every village)
3. Village owned Concrete Tanks
4. Tracks
5. Well
6. Threshers
7. Library (not in every village )



**Figure 17: Village Library in Heinze Village**

## 4.2. Livelihood Activities

There are two main livelihood activities in the villages in TNR area. The most common livelihood is the horticulture farming. Perennial crops such as betel nuts, cashew, and rubber are mainly grown. There are also farms that grow citrus, banana, and cocoa but they are only in small scales. There is not even any market for cocoa yet even though some farms are ready to be yielded.

Apart from the horticulture farming, the villagers usually do the casual work for the extra income (in some cases, the casual works are main income source for community). There are several different casual works such as working in someone's farm on daily wages.

In certain villages, some household practice a bamboo business and mining business for the livelihood. The productions of these works depend on their farm land, the community forest and the TNR area. However, these still remain as second livelihood.

It can be clearly seen that the fundamental livelihood of all villages is the horticulture. The villagers are asked if they see any different livelihood opportunities from this project and the majority of the respondents say that they would prefer to improve their horticulture farming rather than starting the new business. However, they would need a support for financial, horticulture technique and inputs, and access to the market, for farming business development.



**Figure 18 : Cashew nuts and Betel nuts harvested from the farms**





**Figure 19: A woman cutting betel nuts on daily wages in Kalat Phado**

### 4.3. Activity Calendars

The study shows that cash crops are mainly betel nuts, cashew nuts and rubber and in some villages include sesame. The growing pattern can be seen as below. However, the pattern may vary a bit according to the weather and the landscape.

**Table 11: Activity calendar of main horticulture farms**

Types of Crops	Month											
	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Paddy		Land clearing (Site Preparation)			Growing Paddy (Sowing seeds)					Harvesting Paddy		
Betel Nut	Harvesting (Picking Betel Nut)				Preparing Betel & Mulching		Weeding	Flowering & Fruiting (Also Weeding during November)				Harvesting (Picking Betel Nut)
Rubber	Rubber Tapping			Rubber Tapping			Growing Rubber	Landing Clearing (Site Preparation) And Also rubber tapping from old plants			Rubber Tapping	
Cashew Nut	Flowering	Collecting Cashew Nut					Weeding					Flowering

Apart from the horticulture crops, the products such as Kant Zaw, Dog Fruit, Cardamom, and Wa U are collected from the forests and the production can be seen as follow.

**Table 12: Production Calendar of Horticulture Products and Non-Timber Forest Products (NTFP)**

Sr. No.	Name of Products	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Re-marks
1.	Paddy													
2.	Sesame													
3.	Betel Nuts													
4.	Cashew													
5.	Lime													
6.	Rubber													
7.	Kant Zaw													
8.	Dog Fruit													
9.	Cardamom													
10.	Wa U													

#### 4.4. Vulnerability and Shocks

The study learnt that the year 2016 was a very struggling year as they encountered many difficulties. The reasons for the difficulties are as below.

**Decreased in crop production** - According to all respondents, the crop production has decreased last year in 2016 due to the high temperature. According to them, both betel nuts and cashew nuts production were decreased to two third of previous year production. Even though the prices of the products are a bit higher than last year, production rate is very low that the villagers said they had no coping strategies to encounter this situation.

**Health expenses** – If a family member encounters a major health issue in one family, their economy falls as they have to provide intensive health care. In this case, they tend to borrow loans or trade their crops in undervalue price to solve the immediate health problems.

**Wildfire** – Even though the villagers build fire prevention tracks, fire outbreaks still occur every year. The reasons of fire outbreak are reckless discard of cigarettes, track clearing by hunters, and land clearing with no caution. When a farm has been caught in fire, the farm owner has to start all over again. In some villages with strong social relation, the neighbor support with seedlings to the fire victim.

**No regular job** – According to the respondents, majority of the households depend on the casual works, especially the seasonal casual works on the farms, for their main or second income. Due to the decline in economy, the farm owners cannot offer as many casual works as previous years. Those who do not have any farms with or immature farms, it affects on their monthly incomes

**Flood** – Especially in rainy season, for the villagers whose farms are near the stream or river, they have a difficult access to go to their farms due to the flood. During that period, their farms are likely to be invaded by the animals and the crops can be stolen.

**High Interest Rate** - Apart from the revolving loans, in the villages, the interest rates for the regular loans range between 5 to 10 times of the loans which are too high for the villagers to return. The villagers cannot solely depend on the revolving loans as the business invested by revolving loans, for example livestock farming, are usually unsuccessful and they still need to borrow money from other sources to repay for that loans. Thus, it is difficult for them to keep any savings and instead they are trapped in the viscous cycle.

**Outside loggers** – This conflict especially happens to the CF communities where they try to conserve the forests but there are outside loggers whom they cannot stop and whose action also destroys the community forest's environment.

During the assessments, the villagers were asked if they had any special strategies to cope with the shocks and threats and it was learnt that they had very little traditional means to address them and thus, most of the time just simply accept them.

#### **4.5. Influential Institution**

The assessment was done to understand the involvement of institutions and their influence on the villages' administration, social, or economic condition. There are three kind of influential institution, 1) Local armed forces, 2) Development Organization and 3) Religious Institution.

**Local Armed Forces** – are the administrative bodies in some village, especially in Karen villages and Mon villages. The two major forces are Karen National Union (KNU) and New Mon State Party (NMSP). These armed forces have higher influence over the villages than the governments does. They provide infrastructure, and they set rules.

**Development Organizations** – such as Mya Sein Yaung, Ye Ta Khon, Yadanar provide revolving fund loans. Thaninthayi's Friends is highly involved in the village by distributing solar panels, setting up water pipe and processing land ownership. TNRP is mostly known by the water pipe line they provided. In fact, the communities are more aware of Taninthayi's Friends' activities than TNRP.

**Religious Institution** – During assessment, it is learnt that the religious institutions especially the monastery has a big influence over the village social's activities.



**Figure 20: The announcement board by KNU in Kimber**



**Figure 21: The water received from TNRP water pipe system in Kyay Zu Taw**

#### **4.6. Community Forests**

Out of sixteen villages where assessment was done there were seven villages that have established community forests. The management of community forest is different from each village. The main purpose of the catchment management is to store the water source and distribute the water for the village use. Some villages allocate lands in CF for farming. The non-timber forest products are also available, but not abundant in every village. The CF committees manage the revolving funds mostly in the form of loans.

#### **4.7. Community's knowledge and attitude towards TNRP and forest conservation**

This part of assessment was done to understand about how effective the performance of TNRP in engaging with the local communities and the communities' values over the forests.

During the assessment, the respondents were asked whether they were aware of the activities that TNRP is performing. There were responses that showed that the villagers learnt about TNRP through Water Pipe establishment, community forest establishment and distribution of timber seedling. However, there are still a large number of people in the communities who are not highly aware of the TNRP's activities in detail. Apart from that, TNRP is known for their conservation activities and water pipe line support by the various villages.

Regards with the forest conservation, the majority of the community welcome it as they believe that the forests are the source of water, the sources of non timber products for their livelihood and for the next generation. However, this is the knowledge only based on their experience and traditional knowledge. More concrete knowledge about forest management, ecosystem, and policies are limitation for the common villagers. True, that there are workshops and seminars that deliver about those knowledge but, again, those programs are mostly accessed by the network of people who are closely engaged with TNRP administration. In generally, if given chance, the villagers welcome the environmental education to enhance their knowledge on forest. Nevertheless, they want the trainings to be taken place in their villages.

### **5. Findings and Recommendations**

#### **5.1. Key Findings**

- (1) The Karen majority villages are supposed to have a strong internal social relationship than other ethnic majority villages.
- (2) Both Horticulture Farming with perennial crops and casual work are the main livelihood of the communities for their financial and human capitals.
- (3) The crop production of both betel nuts and cashew nuts were declined in this production season. Both crops could produce only one third of last year production. (In this case we don't have the record of temperature). It could cause in a debt trap to poor and daily wage labor and even to some middle class family.
- (4) Only a few villages depend on NTFPs for their livelihood.
- (5) The numbers of massive wildfire outbreaks have been reduced during the project period because the project helps with building fire breaking line and raise awareness concerning to forest fire.
- (6) The scarcity of land has increased due to more orchards and restriction of land encroachment in reserved forest area.
- (7) Malaria outbreak has declined.

- (8) The water pipe line provided by the project is not fully cover to all houses and the communities cannot afford the cost for the additional piping.
- (9) There are some conflicts in community forests, such as the weak management of CF and logging from outsiders who the community cannot take action against.
- (10) Illegal logging is still happening and the villagers have no power to prevent it.
- (11) The villagers are confused which administrative bodies they should inform to and work with when certain issues raise. It also leads to the resignation of CF members and most of the members have lost their hope for future conservation.
- (12) The community do not understand their right and responsibility of CF.
- (13) The seedling species distributed such as Mahaw Gani (*Swefenia macrophylla spp*) and Pyinkado (*Xylia xylocarpa*) are not very much wanted by the community. They prefer to receive the cash crops species.
- (14) The community aware that establishment of CF and conservation of Natural Water Sources that can provide sufficient water source during hot season.
- (15) Majority of community extracted timber and bamboo for the household use but a few uses as commercial.

## 5.2. Recommendations

- (1) The effective communication and collaboration between the TNRP, the local armed forces and the communities are required for the successful conservation activities.
- (2) Lack of job opportunity is the major issue for local community. Some community advised that it would be better if the project creates some job opportunity to them. The alternative livelihood plan such as production of end product from the cash crops or bamboo resource is suggested.
- (3) There are potential eco-tourism areas in the TNR. However, with the conflict in administration bodies, it should be considered that safety of the tourists is assured.
- (4) TNRP needs more monitoring and consultation with User Group members.
- (5) TNRP should provide more awareness training and educational talks concerning to Community Forest Establishment as well as the role and responsibility of User Group for the sustainable forest management.
- (6) TNRP needs to extend the extension works in order to develop close engagement with the community and to better understand their needs.
- (7) TNRP should also provide the noticeable and tangible support to community to encourage them to involve more with TNRP's activities.
- (8) TNRP should provide basic financial management training to the community so that they will have better understanding of how to manage the loans they receive from revolving funds effectively.
- (9) The need assessment is required before implementing certain activities.
- (10) Even though the distribution of timber species seedling is a good purpose, TNRP should mix the cash crops seedlings to encourage the communities to participate more.
- (11) Law enforcement is required to prevent illegal logging within TNRP.



### 5.3. Potential Economic Activities

Even though the villages are mainly depend for the horticulture farming for the main livelihood, there are possible income generation activities learned during the assessment. Processing of End product is the most considerable one, for example bamboo products and brooms. TNR is also rich in those raw materials and the villagers have a wide knowledge on how to harvest them. The only thing missing is the technology to upgrade those raw materials into value added end product and markets for the products. In order to provide those requirements, intensive product and market research need to be done. There are prospective villages that have human resource to join this activity for example, Thet Kel Kwat. Nevertheless, it is important to note that the training will be more effective and participative if it is taken place in the respective villages. At the same time, it is a good thing to focus on the pressure on the resource availability. A proper management for the sustainable extraction of raw material should be developed.

Ecotourism is also the one of the incoming generation activities. However, the investment for the infrastructure and local security for the tourists are high challenge to be considered.



**Figure 22 : Bamboo products sample from Ka Lone Htar and Ye Bon**

### 6. Conclusion

Taninthayi Nature Reserve is rich in diverse biodiversity, culture values and ecological values. The reserve forests play an important role in conserving these social, cultural and ecological values. However, one should not omit the presence of the local communities' lives in the forest areas. The forests and the communities are interrelated with each other. The forests provide the communities with lands, forest products and services for their livelihood and the communities help with controlling wild fire, better forest management. Nowadays, due to the growing population of the mankind, the consumption of

forest products and converting forest lands into farm lands have increased dramatically. Unless this over-utilization is taken into account and the effective forest management is applied, the degree of forest degradation will increase and grow impact for the environment and livelihood

This study has shown that the socio-economic relates highly with the ecological condition. The rural communities depend on the forests for their farm lands, the water source and forest product. The community needs to be aware of the interrelation of the forests and their livelihood and must be inclusive in forest management. The alternative income generating activities should be developed and introduced as they will encourage the community to use less land from forest and increase income. To conclude, as the economy of the community is highly depend on the farming business and forest and the conservation of forests required community participants, it is important to develop the socio-economic condition of the economy , by utilizing the natural assets less and by providing the opportunities to create end products and markets.

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## **Annex**

**Tanintharyi Nature Reserve Project  
Socioeconomic Survey**

**Questionnaires for Village Administrator**

Date -----  
 Time -----  
 Interview-ended time -----  
 Name of interviewer -----  
 Name of Survey Team leader -----  
 Signature -----

1. Name of village -----

2. Year of village establishment -----

3. Population ----- Male, ----- Female

3.1 Above 18 years, Under 18 years

3.2 Above 10 years, Under 10 years

4. Race

4.1 Karen -----

4.2 Dawei -----

4.3 Mon -----

4.4 Burmese -----

4.5 Others -----

5. Religions

5.1 Christian

5.2 Spiritual

5.3 Buddhist

5.4 Hindu

5.5 Islam

5.6 Others

6. No. of households -----

7. Information about households

Household Condition	Number	Remark (indicator)
Very poor		
Poor		
Moderate		
Rich		
Very Rich		

8. No. of houses

9. Village Structure

9.1 Long chain

9.2 Square

9.3 Rectangle

10. Occupation of Households

	<i>Types</i>	<i>No. of households</i>
10.1	Lei/Yar	
10.2	Gardening	
10.3	Fisheries	
10.4	Handcraft	
10.5	Trading	
10.6	Shops	
10.7	Others	

11. Educational Standard

No. of students ----- (Male ----- | Female -----)

- 11.1 Primary school
- 11.2 Pre-Middle school
- 11.3 Middle school
- 11.4 Affiliated High School
- 11.5 Monetary Education

- 12. Health
  - 12.1 Health Care Officer
  - 12.2 Village Clinic
  - 12.3 Nurse (Maternal)
  - 12.4 Other
- 13. Religion & Social Standard
  - 13.1 Monastery (Buddha)
  - 13.2 Church
  - 13.3 Pagoda
  - 13.4 Library
  - 13.5 Others
- 14. Village developmental Organizations
  - 14.1 Red Cross Association (First Aid)
  - 14.2 Fire Brigade
  - 14.3 Women organization
  - 14.4 Trustee
  - 14.5 Others
- 15. Access to Electricity
  - 15.1 Village generator
  - 15.2 Own generator
  - 15.3 Public generators
  - 15.4 Battery
  - 15.5 Candle/Land
  - 15.6 Other
- 16. Reason of Electricity utilization
  - 16.1 Television
  - 16.2 Electric Fans
  - 16.3 Lighting florescent light
  - 16.4 Others
- 17. Fuel Use
  - 17.1 Diesel
  - 17.2 Petrol
  - 17.3 Others

**18. Total Land Area (Farm land)**

- 18.1 Lei (Farm Land or low land)
- 18.2 Yar (Semi-barren land)
- 18.3 Gardens (perennial crops)
- 18.4 Community forestry
- 18.5 Others

Total land area : -----

---

**19. Which types of farming do you cultivate?**

- 19.1 Lei (Farm Land or low land)
- 19.2 Yar (Semi-barren land)
- 19.3 Gardens (perennial crops)
- 19.4 Community forestry
- 19.5 Others

**20. Types of main crops**

---

- 20.1 -----
- 20.2 -----
- 20.3 -----

**21. Water source for farming**

- 21.1 -----
- 21.2 -----
- 21.3 -----

**22. Which types of NTFPs do you collect from forest most?**

- 22.1 -----
- 22.2 -----
- 22.3 -----

**23. Where (Which market) do you export your products -NTFPs most?**

- 23.1 -----



23.2 -----

23.3 -----

24. Where (which market) do you import your products most? What kind of product?

24.1 -----

24.2 -----

24.3 -----

25. Do villagers use land for livelihood in reserved forest?

☐

Yes

☐

No

26. If yes, how?

-----

27. Do village stakeholders understand TNRP activities?

☐

Yes

☐

No

28. Do village stakeholders have chances or opportunities to participate in TNRP activities?

☐

es

☐

No

29. If there is a chance to participate, what parts of activities do you participate in?

-----

30. Has your village established Community Forest?

☐

Yes

☐

No

31. If yes, how many acres of CF do your village have?

32. Do you think community forest is beneficial for the village?

☐

Yes

☐

No

33. If yes, how?, -----

34. Disaster events
- |                 | Yearly | Times of event |
|-----------------|--------|----------------|
| 34.1 Flood      |        |                |
| 34.2 Storm      |        |                |
| 34.3 Drought    |        |                |
| 34.4 Wild fire  |        |                |
| 34.5 Land slide |        |                |
| 34.6 Others     |        |                |
35. Causes of wild fire
36. What are the loss caused by wildfire?
37. Do your village get revolving fund for community forestry?
38. If yes, how many households does the fund support?
39. How does the fund support the household?
40. Are there any households that do not receive revolving funds?
41. If no received, why ?
42. Other suggestions?
-

**Tanintharyi Nature Reserve Project  
Socio-economic Survey**

**Questionnaire about households**

Question No.

**Date** -----  
**Survey Time** -----

**Village Name** -----  
**Village Track** -----

-----  
**Interviewer**

-----  
**Supervisor**

-----  
**Editor**

Section - 1

**1. Family Information**

1. Family Information	Before Project		During Project	
Household-head	Male	Female	Male	Female
Respondent				
Household Head (or) family member				
Age of respondent				
Male/Female				
Race				
No. of household members	Male	Female	Total	
No. of students (Current)	Higt	Middle	Primary	Total
No. of Migrant workers	Male	Female	Total	
N0. of dependent HH members				
Occupation of economically active HHmembers				

## 1.1 Socio-economic status of members

Name of Household members	Ethnic	Age	Sex M/F	Education Level						Occupation
				1	2	3	4	5	6	

**Education level:** 1. Illiterate, 2. Monastery education, 3. Primary education, 4. Secondary education, 5. High school education, 6. University education.

**Occupation;** 0= No job, 1=Livestock rearing, 2=Fishery, 3=Casual labor, 4=Commerce, 5=Private employment, 6=Government staff, 7=Money lender, 8=Dependent, 9=Student, 10=Farming, please specify

## 2. Household Assets

2.1	Ownership	own	Not own	Other	Types of House	Remark
2.1.1	Own House?	1	2	3		
2.1.2	Own Land?	1	2	3		
2.1.3	Other					

**House Type:** (1) Tarpaulin/Tarpaulin, (2) Tarpaulin/Palm, (3) Tarpaulin/Bamboo, (4) Tarpaulin/Wooden, (5) Palm/Palm, (6) Palm/Tarpaulin, (7) Palm/Bamboo, (8) Palm/Wooden, (9) Palm/Brick, (10) Zinc/Zinc, (11) Zinc/Wooden, (12) Zinc/Brick, (13) Zinc/Bamboo, (14) Zinc/Palm, (15) Project House

**2.2** What kinds of transportation assets do you have?\_\_\_\_\_.

2.2.1 Bicycle

2.2.2 Motor Cycle

2.2.3 Car

2.2.4 Others: Specify -----

2.2.5 Not occupied

**2.3** What kinds of Farming assets do you have?\_\_\_\_\_

2.3.1 Cart

2.3.2 Pump

2.3.3 Tractor

2.3.4 Thresher

2.3.5 Other: Specify -----

2.3.6 Not occupied

**2.4** What kinds of livestock assets do you have? \_\_\_\_\_

2.4.1 Cattle

2.4.2 Swine

2.4.3 Poultry

2.4.4 Goat

2.4.5 Other: specify -----

2.4.6 Not occupied

**2.5** Is the electricity available in your house? -----

If yes,

2.5.1 National grid line,

2.5.2 Own generator,

2.5.3 Community generator,

2.5.4 Bio process,

2.5.5 Other sources

### 3. Household Income

no			
3.1	Total Income of the household	Before project -----	
		During project-----	
		Current -----	
3.2	How many household members earn?	Before project -----	
		During project-----	
		Current -----	
3.3	The main income earner		Before Current
		Male	
		female	
3.4	How much the main income earner earns daily/monthly	Before project -----	
		During project-----	
		Current -----	
3.5	Have you lost anything because of the project?	yes	
		no	
		If yes, what are they-----	
		Their value -----	
		--	

### 4. Household Expenditure

No.	Individual Cost	Monthly Cost	Yearly Cost	Remark
4.1	Clothing			
4.2	House repair			
4.3	Medical cares			
4.4	Educational fees			
4.5	Transportation			
4.6	Social Welfare			
4.7	Electricity cost			
4.8	Other			

### 5. Land Ownership

Types of land	Area(Acre)	Land Status	Land Title	Land Quality
Lei				
Yar				
Khaing				
Horticulture				
Other				

**Land Status** - HH hold = 1, Rent from other = 2, Rent out to other = 3

**Land Title** - No title = 0, temporary title = 1, permanent title = 2, Forest's user certificate = 3

**Land Quality** - Poor = 1, Moderate = 2, Good = 3 (respondent's answer)

### 6. Household Food Consumption (Main Staple Food)

Types of Food	Purchasing		Cost of Staple food purchased/year(MMK)
	Cost per day	Quantity	
Rice, Oil, Salt			
Cereals, Bean			
Other			

### 7. Household health

No.	Disease	Duration	Remark
7.1	Malaria		
7.2	Dengue fever		
7.3	Diarrhea		
7.4	Other		

### 8. Main Need (Support) for Family

Do you have any immediate need for your family?	Yes	
	No	
8.1 Main Need	<div></div>	
8.2 Secondary Need	<div></div>	
8.3 Other after Secondary need	<div></div>	

## 2. Main Livelihood

### Section – 2

1	Level of household economic condition		Before project	During project
		poor		
		moderate		
		Rich		
		No change		

### 2. Main Income Source

	Before Project	During Project	Remark
Monsoon Agriculture (rice)			
Shifting Cultivation			
Winter Crops (Beans, Cereals)			
Vegetable			
Perennial Crops (Betel Nuts, Cashew Nutt Rubber)			
Hunting			
Fisheries			
Mining			
Vendor			
Livestock Farming (Poultry, Goat, Pig)			
Causal Worker			
Other .....			

### 3. Secondary Income Source

	Before Project	During Project	Remark
Monsoon Agriculture (rice)			
Shifting Cultivation			
Winter Crops (Beans, Cereals)			
Vegetable			
Perennial Crops (Betel Nuts, Cashew Nutt Rubber)			
Hunting			
Fisheries			
Mining			
Small-scale Trading			
Livestock Farming (Poultry, Goat, Pig)			
Causal Worker			
Other .....			

### 4. Land (lei, Yar)

4.1	Do You have land to grow paddy?	Yes		
		No		

4.2	If no, is there any of the household member works in someone's farm?		Before project	During project
		Yes		
		No		
4.3	If yes, how much is he/she paid for work ?	Baskets of rice received as wages-----		
		Daily wages		

Rice Production				
4.4	How Many acres did you have to grow before project?		----- Acres	
4.5	Cost to growing paddy (Plowing, Sowing, Harvesting)		-----Kyats	
4.6	Acres of land you grow currently		----- Acres	
4.7	Cost to grow paddy currently		-----Kyats	
4.8	Rice production before & after project	Past rice production	-----Basket	
		Past yield per acre	-----Basket	
		Current rice production	-----Basket	
		Current yield per acre	-----Basket	
4.9	Farming capital to produce rice	Land preparation	Number	
		Plowing tractors		
		Handle tractor		
		cattles		
		Others -----		
		Farming equipments		
		Water pumps		
		Others		
4.10	Have you grown two seasons crops in one year?	Yes		
		No		
4.11	If grown, which types of second season crops did you grow?	Paddy		
		Bean		
		Cereals		
		Vegetables		
		Others -----		
4.12	Total yield	-----Baskets/No.		
4.13	Fertilizer use?	Yes		
		No		
4.14	Pesticide use?	Yes		
		No		



Input Requirements for rice production				
4.15	Do you think you can grow rice on all of your farm land?	yes		
		no		
4.1.6	If no, what are the challenges you have to face?	Financial capital		
		Agriculture loan		
		Water requirement		
		To manage farm land		
		cattle		
		Farming vehicle requirement		
		Daily wages		
		seedlings		
		fertilizers		
		pesticide		
		Technology for agriculture		
		Access to price		
		Access to market		

5. Shifting Cultivation				
5.1	Do you cultivate paddy in shifting system?	Yes		
		No		
5.2	Which types of crops do you grow?	Rice		
		Crops		
		Vegetables		
		Perennials		
		Others		
5.3	How long do you grow in one patch of land?	-----	Period	
		-----	Acres	
5.4	Cost for site preparation (land clearing)	-----	MMK	
5.5	How many acres do you grow in current state?	-----	Acres	
5.6	Cost to cultivate	-----	MMK	
5.6	Past yield per acre	-----	Basket	
5.7	Current yield per acre	-----	Basket	
5.8	Do much capital do you need to for shifting cultivation per year now?	-----	kyats	
5.9	Crop production	Last year	-----	basket
		Current year	-----	basket
5.10	capital for shifting cultivation	Land preparation	Number	
		Plowing tractors		
		Handle tractor		
		cattles		
		Others -----		
		Farming equipments		
		Water pumps		
		Others		

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5.8	Where do you cultivate?	Inside Tanintharyi Nature Reserves	
		Vicinity of Forest	
		Out of reserved forest	
		Other .....	
5.9	Fertilizer use?	Yes	
		No	
5.10	Pesticide use?	Yes	
		No	
5.11	Do you think you can do shifting cultivation next year?	yes	
		no	
5.12	If no, what are the challenges you have to face?	Financial capital	
		Agriculture loan	
		Water requirement	
		To manage farm land	
		cattle	
		Farming vehicle requirement	
		Daily wages	
		seedlings	
		fertilizers	
		pesticide	
		Technology for agriculture	
		Access to price	
		Access to market	
5.13	What do you do during taung yar break?		

6. Farm Land (Vegetables, Perennial crops)				
6.1	Do you own to grow vegetables?		Before project	After project
		Yes		
		No		
6.2	If you donot own, Do you have one of family members who are working as a causal worker under other farms.	Yes		
		No		
6.3	Income, vegetables & fruits from other farms	Vegetables obtained from other farms		-----
		Income before project		----- Ks
		Daily wages per day before project		----- Ks
		Income from selling vegetables		----- Ks

		Income from selling during project	----- Ks
		Daily wages per day	----- Ks

Crop production			
6.4	How many acres of crop did you grow in the past?	-----acres	
6.5	How much did it cost?	----- kyats	
6.6	How many acres of crop did you grow this year?	----- acres	
6.7	How much did it cost?	----- kyats	
6.8	Crop production rate and price	Crop Production in the past	----- (numbers)
		Average income from past years	----- kyats
		Crop Production in current years	----- (numbers)
		Average income in current year	----- kyats
6.9	capital for Farming ( vegetables and perennial crops)	Land preparation	Number
		Plowing tractors	
		Handle tractor	
		cattle	
		Others -----	
		Farming equipments	
		Water pumps	
		Others	
6.10	Do you think you can do expend the farms next year?	yes	
		no	
6.11	If no, what are the challenges you have to face?	Financial capital	
		Agriculture loan	
		Water requirement	
		To manage farm land	
		cattle	
		Farming vehicle requirement	
		Daily wages	
		seedlings	
		fertilizers	

		pesticide		
		Technology for agriculture		
		Access to price		
		Access to market		

7. Hunting				
7.1	Which animals do you hunt?		Before Project	During Project
		Goat		
		Deer		
		Others .....		
7.2	Do you have any hunting tools?	Samll bow		
		Net		
		Knife		
		Others.....		
7.3	Do you think your economic condition improves than previous state (before project)?	Yes		
		No		
7.4	If not improved, any difficulties?	Loan		
		Hunting tools		
		Technology		
		Debt		
		Other		
7.5	Income from hunting per month	----- Ks		
7.6	Made dried meat from hunting?	Yes		
		No		
7.7	Income from selling dried meat	----- Ks		
8. Fishing				
8.1	What do you catch?		Before Project	During Project
		Fish		
		Shrimp		
		Crab		
8.2	Do you work in other fishing enterprise?	Yes		
		No		
8.3	Income from working in other fishing enterprise?	.....kyats		
8.4	Fishing tools	Net		
		Boat		
		Boat with engine		
		Other.....		

8.5	Do you think your economic condition improves than previous state (before project)?	Yes	
		No	
8.6	If not, Any difficulties?	Loan	
		Net	
		Boat	
		Net Mending	
		Boat repairing	
		Paying wages to workers	
		Technique	
		Debt	
		Other .....	
8.7	Income from selling fishes & shrimps per month	----- Ks	
8.8	Made dried fishes & shrimps?	Yes	
		No	
8.9	Income from dried process	----- Ks	

### 9.Small Trading

9.1	How do you trade?		Before Project	During Project
		Shops		
		Vendors		
9.2	Trader	Head of the house (Male)		
		Head of the house (Female)		
		Other family members		
		Others.....		
9.3	Which types of commodity do you trade/sell?	Groceries		
		Dry Groceries		
		Meat & Egg		
		Food		
		Fish, Shrimp & Crabs		
		Clothing		
		Others .....		

### 10. Mining

10.1	Do you extract metals in small scale ?		Before Project	During PProject
	Types of Metals	Gold		
		Others .....		
10.2	Who works in mining?	Male (Household Head)		
		Female (Household Head)		

		Other family members		
		Others .....		
10.3	Income from mining per month			
10.4	Do you work in Mining Enterprise?	Yes	No	
	Working Hours			
	Reason why working in Mine			
	Monthly income from working in mine			

### 11. Livestock Farming

11.1	Number of cattles		Before Project	After Project
		buffalo		
		cow		
11.2	Number of other livestock	pig		
		hans		
		duck		
11.3	Are there any vet in the village?	Yes		
		No		
11.4	Are they helpful for your work?	Yes		
		No		
11.5	If there is no vet in the village, do you want one?	Yes		
		No		
11.6	Any Challenges for livestock farming	Yes		
		No		
11.7	What challenges?	loans		
		Livestocks capital		
		Livestocks food		
		Maintaining livestock farms		
		Technology for livestock farming		
		others.....		

### 12. Participation & Collaboration in TNR project

12.1	Do you participate & collaborate in project?	Yes	
		No	
12.2	Daily wages from project	..... Ks	
12.3	Salary from project	..... Ks	
12.4	No. of working days in one month	.....	Total income
		Days	..... Ks
12.5	Does you daily income (wages) cover your daily expenditure?	Yes	
		No	
12.6	Your jobs before project		
12.7	Daily income before project	----- Ks	

12.8	Working days in your previous jobs (Before projects)	..... Days	Total income ..... Ks
12.9	What kind of job do you have to work after project?	No	Have to plan

<b>15. Secondary income</b>			
15.1	Secondary income?	Yes	
		No	
15.2	Secondary income sources	Horticulture (Vegetables & home gardening)	
		Causal Worker	
		Small-scale trading	
		Carpenter	
		Others	
		.....	
15.3	Average secondary income	----- Ks	

<b>16 Village Development Organization</b>			
16.1	Are there any organizations for your livelihood improvement in your village?	Yes	
		No	
	Do you get any support from this organization?	Yes	
		No	



## Section – 3

### 1. Natural Resource Availability From Tanintharyi Nature Reserve

#### 1.1. Water Availability

No.	Places (Source of water)	Water Quality	Condition of water availability
1.	Well		
2.	Deep well		
3.	Stream		
4.	Other		

Water Quality& Condition of availability – 1. Poor, 2. Moderate, 3. Good

#### 1.2 Water availability for agriculture

No.	Places (Source of water)	Water Quality	Condition of water availability
1.	Well		
2.	Deep well		
3.	Stream		
4.	Dam		
5.	Other		

Water Quality – 1. Poor, 2. Moderate, 3. Good

Condition of water – 1. Abundant, 2. Moderate, 3. Rare

#### 1.3 Household Fuel wood Consumption

No.	Name of fuel	Monthly Consumption (per tons)	Consumption during project
1.	Fuel wood		
2.	Charcoal		
3.	Petroleum		
4.	Others		

#### 1.4 Fuel consumption for business

No.	Name of fuel	Monthly Consumption (per tons)	Consumption during project
1.	Fuel wood		
2.	Charcoal		
3.	Petroleum		
4.	Others		

#### 1.5 Non-timber forest products production from TNR forests

N o.	Item	Harvestin amount per one time	Period (harvestable/colle ctable)	Availability from forest during project	Methods by which NTFPs are harvested/collected
	Bamboo				
	Bamboo shoot				
	Rattan				
	Dry fruits				

	Vegetables				
	Orchids				
	Medicinal Plants				
	Animals				
	Fishes, Shrimps				
	Others				

## 2. Use of non-timber forest products

No.	Item	Domestic Use	Commercial Use	Harvester (NTFPs collector)
	Bamboo			
	Bamboo shoot			
	Rattan			
	Dry fruits			
	Vegetables			
	Orchids			
	Medicinal Plants			
	Animals			
	Fishes, Shrimps			
	Others			

## 3. Are you a member of community forestry?

☐ Yes

☐ No

### 3.1 If so, which business or which plantation or which types of CF do you carry out?

No.	Types	Monthly income	Yearly income	Remark
	Fuelwood plantation			
	Horticultural Farming			
	Agroforestry			
	Bamboo business			
	Rattan business			
	Wa-U business			
	Fisheries			
	Taung yar			
	Other			

### 3.2 Methods of revolving fund allocation

No.	Types	Amount of funding	Methods of allocation (Funding)	Role of funding usage
	Fuelwood plantation			
	Horticultural Farming			
	Agroforestry			
	Bamboo business			
	Rattan business			
	Wa-U business			
	Fisheries			

	Taung yar			
	Other			

### 3.3 Disaster Event before & during project

No.	Disaster	Events	
		Before project	During Project
	Flood		
	Wild fire or Forest fire		
	Drought		
	Storm		
	Land slide		
	Other		

### 3.5 Difficulties local people undergo before & during project

No.	Difficulties	Before project	During project	Remark
1.	No regular job			
2.	Land scarcity			
3.	Restriction in encroachment			
4	Water availability			
5	Restriction in hunting			
6	Decreasing crop production			
	Higher basic commodity price			
	Local conflict			
	Others			

### 3.6 Opportunities/Benefits from Project

No.	Opportunities	Remark
1.	Establishment of Community Forestry	
2.	Receive more farming Land	
3.	Market Assess	
4.	Production of finished products	
5.	Farming technology	
6.	Improvement of Ecotourism	
7.	Better transportation	
8.	Production of NTFPs with good quality	
9.	Good water availability	
10.	Other	

4. Do any changes occur during Tanintharyi Reserve Projects? (If so, to answer or respond the followings)  
-----
5. Do you understand about the objectives & activities of Tanintharyi Nature Reserve Project? (If so, to answer or respond the followings)  
-----
6. What types of other economic opportunities do you think TNRP can provide?  
-----
7. What are benefits obtained from establishment of community forestry?  
-----
8. Other suggestions

-----  
-----  
Interview ended .....

Time taken .....Minutes

**Thank You for responding**