



**ASIA-PACIFIC NETWORK FOR SUSTAINABLE
FOREST MANAGEMENT AND REHABILITATION**

**COMMUNITY-BASED SUSTAINABLE FOREST MANAGEMENT
OF SUNGAI MEDIHIT WATERSHED, SARAWAK
(PROJECT SERIAL NO: APFNet /2013 /PP /05)**

PROJECT COMPLETION REPORT
Activity 2.1 & Activity 2.2
Alternative Livelihood Activities
Infrastructures and Facilities Development
by
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STATEMENT

This is a Project Completion Report submitted to Asia-Pacific Network for Sustainable Forest Management and Rehabilitation (APFNet) secretariat through International Tropical Timber Organization (ITTO) by the Executing Agency in partial fulfilment for the requirements of: “Community Based Sustainable Forest Management of Sungai Medihit Watershed, Sarawak, MALAYSIA” with specific reference to Project Output 2 : Capacity of the Community on Development Enhanced and sub-activities under Activity 2.1 : Alternative Livelihood Activities

and Activity 2.2 : Infrastructures Improvement Contributing to Sustainable Forest Management (Project Serial No. APFNet/ 2013/ PP/ 05)

DISCLAIMER

The views, recommendations, advice, descriptions and methods in this report are presented solely for economic, educational and statistical purposes. The writers, publishers and Executing Agency assume no liability whatsoever for any loss or damage or criticism that results from the use of any material in this report. The views of the authors do not necessarily represent the views and recommendations of the Executing Agency, namely; Sarawak Forest Department.

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I am very thankful to the kind assistance, encouragement and support of Tuan Haji Sapuan Ahmad, Director of Forests Sarawak, Mr Mohd Shahbuddin Hj Sabki, Senior Assistant Director, and Mr Suliman Hj Jemahari, Executing Agency counterpart. I would also like to thank Dr Ma

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Lastly, I would like to express my appreciation and gratitude to our Field Assistants, Mr Panai Libut and Mr Ajang Gabar for their kind help and cooperation. I wish them all the best, good health and enjoy their retirement.

EXECUTIVE SUMMARY

1. The Project Area is in Sungai Medihit Watershed which is approx. 35, 400 ha. It is located in Ulu Limbang in northern-Sarawak, MALAYSIA. The Sungai Medihit is approx. 48 km is flowing north-northwest from its source to its confluence with Sungai Limbang at Long Napir in the north as shown in ANNEX A of the Project Site Map of the area. Most of the area is hilly and flatlands are very limited and they are found in patches along river banks and streams.
2. There are two ethnic communities occupy the catchment, the Kelabits of Long Napir and Penans of Kampung Bahagia. They were defined by the Project as target communities. The Kelabits were the first inhabitants of Sungai Medihit watershed. Based on the community's past and current use of forestlands and oral histories the Kelabits have been living in Sungai Medihit watershed for more than 100 years. Evidence of occupation of the catchment are

remnants of old settlements, burial sites, old tombs and monuments. Old farmlands with overgrown vegetation and big trees are found in various places. Lands were cleared for hill paddy, maize, yam and tapioca cultivation much earlier than 1958 records. The Kelabits were non-nomadic tribe who lived in a traditional long house. They depended heavily on jungle resources, hunting and fishing for their living. Clearing of forestlands and burning for shifting agriculture are still in practice today.

3. The Penans have been living a nomadic life in the catchment for many generations. They moved from place to place in search of food, wild sago and wild fruits. Their life in the jungles was simple, easy going and they lived a free life. Their movements in the forests were restrictions free. In 1970, the Penan nomadic life came to an end when they were resettled by the government in a modern village of Kampung Bahagia. The newly built long houses were provided with basic amenities and Penan children attended school for the first time at SK Long Napir. The transition in the “*nomadic life to a sedentary life*”, has been most difficult for the Penans to adopt. However, after more than four decades they realized their nomadic way of life can no longer sustainable due to continued destruction and depletion of forest resources. Living as nomads in the wild forests of Sungai Medihit is not a viable option any more.
4. The Kelabits and Penans were introduced to alternative livelihood activities, infrastructures and facilities development contributing to sustainable forest management. “*The first part of demonstration activities was income generating activities while the second part was infrastructures and facilities development contributing to sustainable forest management.*” The Project design was aimed to improve the living standards of target communities. The local communities were happy with APFNet Projects. They expressed their full cooperation and to participate in the Projects. Activities are community driven and are assured of their support and success. The second part of the activities were upgrading of infrastructures and facilities development. These are access roads and a guesthouse for the community school.
5. The village meetings were held to elect households to represent each target community. The selected households were briefed on activities under alternative livelihood demonstrations, infrastructures and facilities development. It is important participating households know all

activities before they were implemented. The Project Manager who chaired the village meetings also explained a very important requirement regarding the Projects. Participating households were prohibited from leaving the Projects uncompleted while they are in progress of implementation. Participating households are free to consult the Project consultant in the event of uncertainty or comments.

**COMMUNITY-BASED SUSTAINABLE FOREST MANAGEMENT
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(Project Serial No: APFNet/2013/PP/05)**

1 INTRODUCTION

The Community-Based Sustainable Forest Management of Sungai Medihit Watershed, Sarawak, MALAYSIA is the first and the only APFNet Project in the country. The Project which commenced on 01 July 2015 is due for closure on 30 June 2017 but extended for another 7 months starting from 01 January 2018. The extension of time without additional funding was initiated to compensate for loss time caused by unavoidable delay in the preparation and submission of First Project Progress Report (FPPR) and Annual Work Plan for Project Year II (AWPII).

The signing of the tripartite Agreement on the funding and implementation of the Project is a milestone in international cooperation and assistance. The two-year Project received substantial funding from the Government of CHINA through APFNet (Asia-Pacific Network for Sustainable Forest Management and Rehabilitation). The Project Agreement was signed at a launching ceremony on 23 March 2015, Mega Hotel Miri, SARAWAK officiated by a Minister of Resource Planning and Environment with guests attendance of more than 150. Prof Qu Guilin, Executive Director and Mr Takeshi Goto, Assistant Director of ITTO were among state dignitaries in attendance.

The Project has two main outputs. Output 1: Improvement in Community Forest Management and Output 2: Capacity of the Community on Development Enhanced. These outputs have a combined total of twelve different Project sub-activities. The Executing Agency and target communities applaud APFNet and ITTO for their genuine intentions and desires to improve economic life of indigenous communities living in Sungai Medihit watershed. It is hoped this Project will be but the first step in many future Projects in rural Sarawak. The Project has done much for the target communities. But more need to be done. The commitment of the Executing Agency to improve the

standards of living of local communities through the implementation of APFNet Projects is commendable and acknowledged.

2 PROJECT OBJECTIVES

This report provides discussions on implementation of demonstration activities, presentation and analysis of data on income generating activities under Activity 2.1 which are alternative livelihood activities. Discussions on activities implemented under Activity 2.2 included Infrastructures' and facilities development contributing to sustainable forest management. All of these activities are under Output 2 of the Project, namely, capacity of the community on development enhanced. The report also provide a brief background information and life history of Kelabits and Penans communities as they were defined by the Project as target communities. The definitive statement means some degree of attention would be directed at target communities in their involvement and participation. It would appear a missing link occurs if narratives on local communities were excluded. The report highlights outstanding roles and responsibilities of Executing Agency in the overall operations, organization and Project implementation.

[Statement: Asia-Pacific Network for Sustainable Forest Management and Rehabilitation (APFNet) is an international organization with its headquarters in Beijing, CHINA. The principle missions of the organization are: promoting forest rehabilitation to meet multi-functional objectives; improving sustainable forest management to reduce forest loss and forest degradation; enhancing socio-economic benefits of forests; and monitoring progress towards APEC 2020 forest cover objective (PIIM 2013, 2pp). The organization currently provides funding to Projects mostly located in Asia Pacific region including the funding of ongoing Community-Based Sustainable Forest Management of Sungai Medihit Watershed (Project Serial No: APFNet /2013 /PP/05)]

3 INDIGENOUS COMMUNITIES

There are two ethnic communities living in the Project area, the Kelabits of Long Napir and Penans of Kampung Bahagia. The Kelabits were the first inhabitants of Sungai Medihit watershed. They lived in remote areas in the upper reaches of Medihit River.

The Kelabits were non-nomadic tribe. They lived a sedentary life in a traditional longhouse while the Penans lived nomadic life in the forests. They moved from place to place in search of jungle produce, wild sago and animals. Their way of life was simple, easy going, and they lived a free life without any restriction or hindrance in their movements.

Barter trading was a system which involved non-cash transactions in the buying and selling of goods which took place in the forests. This was an exchange of goods between the two communities. The barter system enabled the nomadic Penans obtained their loin clothes, women clothes, cooking pots, machetes, knives and salts from the Kelabits in exchange for their blowpipes, solidified tree latex, traditional medicines, gawangs, rattan mats and wild sago from palm trees.

The “exact days and place of meetings” were pre-determined. Appointments were made through rattan knots which were kept by both sides. The rattan knots tied to one of their legs (calf) to prevent loss or misplacement were untied daily, one knot represents one day. When all the rattan knots were almost opened or untied, everyone must proceed to the proposed “meeting place” bringing whatever goods one can carry. The barter trading was held for one or two days. A new set of rattan knots, one for the Kelabits and one for the Penans were made before leaving the place, thus, a new appointment is set and a barter system begins. In 1970, the Penan nomadic life ended when the whole community was resettled by the government in a modern village of Kampung Bahagia. The practice of barter system was also ended.

4 SUBSISTENCE AGRICULTURE

The Kelabits and Penans were subsistence farmers who practiced shifting agriculture. They plant hill paddy, tapioca, maize and yam including other tropical crops. Planting of wet paddy is uneconomical because of limited flatlands. Most of the area is hilly and mountainous. Perhaps, this is part of the reason yield from hill farming is low and hill rice were insufficient for a family’s own consumption. Both communities depended heavily on jungle resources, fishing and hunting for economic gain to supplement their diet and poor yield from hill farming. High value forests are now gradually depleted and

degraded due to timber harvesting and other economic activities in the forests. Hunting during the day including night hours, often yield nothing. This indicates animals are now scarce in the wild forests of SMW. Wild animal meat is difficult to come by and incomes from the sale of exotic meat is negligible. Streams and rivers are frequently turbid even during a slight drizzle of rain due to surface runoffs. Forest roads' construction, skid trails and landings constructions including skidding operations are the leading causes of disturbances to the forest floor which in turn causes streams and rivers' turbidity. The frequent turbidity of streams and rivers are not conducive to marine life development and growth of fish population.

5 PARTICIPATING HOUSEHOLDS

Participating households are families or individuals elected at a village meeting to represent the community. The Project Manager who chaired most of the meetings also explained the roles and responsibilities of participants in the Project implementation. Successful candidates were given clear directives to implement the Projects faithfully until completion. Participants were prohibited from leaving the Projects uncompleted while they are in progress of implementation. Participants were directed to keep proper records of work done each day. The various records to be kept are; sales and cash, materials, transportation and costs, mortality, loss due to thief, damages, date and time of events. Records are important as part of work evaluation, supervision, work organization, monitoring and progress. Participants were advised to follow instructions so that activities are implemented on tract and in line with Project document.

6 DEMONSTRATIONS AND FACILITIES' DESCRIPTIONS

These are activities under; Alternative livelihood activities and; Infrastructures and facilities improvement contributing to sustainable forest management. All sub-activities are under Project Output 2, which is; "Capacity of the Community on Development Enhanced."

6.1 Alternatives and Livelihood Descriptions

(a) Fish Raising Demonstration

All four sub-activities have been successfully initiated. After an initial delay due to the 2015 monsoon season, a site for a ngifang system for each village was identified at Sungai Medihit. The ngifang system is the feeding of fish in Sungai Medihit. The system has three important requirements known as zones. Fish were fed twice a day in these feeding zones. The feeding times were in the morning and in the afternoon at an “exact time” and at a “fixed location” in each zone. Zone 1 which is upriver is acting as a source of fish supply or fish storage area. Fishing is completely prohibited in Zone 1. Zone 2 area is immediately below Zone 1 and allows community fishing in the area at least twice a year. However, Zone 3 which is down river below Zone 2 allows collective fishing at least three times a year. Any catch during collective fishing is shared equally among all village households.

The fish feeding sites at Long Napir were destroyed completely by falling debris from the construction of 1.5 km of new road to Kampung Bahagia. The feeding sites have been in operation for more than six months prior to their destruction. Footpaths along the river banks to the feeding sites in the three Zones were also destroyed. As a result, the ngifang system was abandoned and the feeding of fish shifted to the long house in huge water containers equipped with round the clock running oxygen pump.

The fish feeding sites for the ngifang system in Kampung Bahagia were not affected by road construction. The fish feeds were purchased in Limbang at a cost of RM150 per bag (USD72.80) excluding transportation charges. A bag of fish feed lasts for two months.

(b) Poultry Raising Demonstration

This is the rearing of broiler chicken for consumption and sale. Before the arrival of chicks the construction of the chicken house must be completed. The location of the chicken house must be properly selected to avoid exposure to a strong wind direction. Its construction has to be in a safe location within the vicinity of the village to avoid thief and animals' attacks during the night. All surrounding grasses are cut short to keep snakes away. A fence is erected around the chicken house to provide security and protection of chicken from thief. The construction also included provisions for safe keeping of chicken feeds, hand tools, plates, lighting facilities and other essential items. Chicken droppings are collected as fertilizers for vegetables cropping demonstration. The pungent smell of chicken wastes must be prevented from causing nuisance to others.

Chicks and their feed were purchased in Limbang town and transported to demonstration sites in a double cab truck. Chicks were well taken care of during their transportation to minimise mortality due to rough road, overloaded, extreme weather condition and fighting. The truck owner must be requested not to overload his vehicle. Chicks' boxes or containers must have airy rooms in the vehicle for their survival.

(c) Vegetable Cropping Demonstration

This is the growing of vegetables for sale and consumption. Vegetables gardens were within walking distant of the village. Vegetable beds were made with basic tools such as hoes and spades. Rattan baskets were used to carry soil. Wire mesh fences were erected to keep away dogs and cats. A black sheet cover materials were stretched, spread and tied 4ft high to minimise effects of sunlight on vegetable beds. It may be necessary, a correct amount of organic fertilizers be applied to improve vegetable growth. Water were sprayed or sprinkled on vegetables to minimise severe effects of sunlight during dry and hot weather.

A variety of vegetable seeds were obtained from the Department of Agriculture, Limbang. These seeds were planted at both villages without pest or disease problems. Vegetable seeds were mustard green, bitter mustard green, long bean, lady's finger, bitter gourd, potato leaves, eggplants, chilli and corn. Vegetables were harvested and bunched in packets according to types and sold in both villages. There is an economic potential for the growing of vegetables to meet domestic demand.

(d) Develop Homestay for Ecotourism

This is the renovations of a room in a PH house for guests or tourists to stay. Bedrooms must be cleaned, tidy and without owners' clothes. A single bed may be put into the room plus a clean mattress, pillows and pillow cases, blankets and towels. The bedroom must be mosquito free by windows fixed with fine wire mesh. The room must be safe, thief free and equipped with a cloth line or hangers including mineral waters. Be friendly and entertaining to guests or visitors. You may consider present tourists with small gifts, if you do have, when you say goodbye to one another. "If you can do this, I am sure your tourists will come back with more tourists in future. This means your ecotourism business grows...you are successful."

Dinner must be prepared and served on time and at the right time, say at 6.30pm in the evening. A late dinner is discouraged because people are hungry, thirsty and tired after travelling the whole day. Serve visitors well with whatever you have in the house such as coffee, tea, milo and/or milk. Do not forget to put soaps in the bathroom and toilets. Most tourists are clean people and therefore, ecotourism facilities must be made available and they are kept clean too.

If visitors are free, talk to them on their programs where do they want to go, how long they want to stay, what do they want to do and see etc. and

discourage them from taking bath or swim in Medihit or Limbang Rivers because of the presence of unfriendly crocodiles. It would be very sad and unfortunate, if a tourist return to his far away land with only one leg after visiting the village. Certainly, this is not a good way of promoting ecotourism in Long Napir and Kampung Bahagia. Tourists must be safe, either they are on land or in the river. Our reputations for being simple and friendly people, good village safety and security and community's hospitality must be protected at all costs.

6.2 Infrastructures and Facilities' Descriptions

(a) Gravel 7 km (part) of Road from Camp Kilo O to Long Napir and Construction of 1.5 km of Road to Kampung Bahagia

All four sub-activities were initiated and progressed well. Gravelling of road started in the first week of July 2016 through September 2016. Gravels were brought in from Jukut Quarry at Long Selidung on the way to LN. Three trucks with a capacity of 10 tons each were employed full time to transport road stones. Truck operators were locals and they were engaged on contract basis aimed at enhancing economic returns of the local community. Gravels were poured at a pre-determined spots marked on the road such as at potholes, heavily damaged road surface, muddy and slippery sections of the road. The heaps of road stones were manually spread by a group of young men while waiting for the materials to be properly spread and compacted by a crawler tractor of a timber company operating in the area. The standard size of road stones was an average diameter of 2 inch, spread and compacted ideally to a depth of 2 inch thick. A fully gravelled road of 7 km in length, 7.85 m of carriageway width and 7 cm thick require a rock volume of more than 38,000 cu. m excluding void volume. The transportation charges were expensive due to unfavourable factors such as steep road gradients between Jukut Quarry and Camp Kilo O, both adverse and favourable, slippery road surfaces, difficulty in negotiating tight curves, avoiding landfalls and slow travelling time of more than 4 hours per round trip.

The Executing Agency has arranged for the construction of 1.5 km of village road from Long Napir to Kampung Bahagia starting in the month of April 2016 at a cost of more than RM2 million (exceeding USD500,000). The volume of earthworks were estimated LCM of more than 200, 000. The road construction equipment involved two tract excavators with 115HP and 220 HP and one D7 crawler tractor with 170HP. Four machine operators were employed full time for a period of more than 8 months. The carriageway of 7.86m wide was more than 80% gravelled and compacted with road stones to a depth of 6 cm thick. Road side ditches were properly constructed in terms of width and depth according to design standard and practice. Two re-enforced concrete pipe culverts with a diameter of 45 cm each were installed and covered with compacted materials of 38 cm thick. Two steel bridges were constructed, one at Sungai Kibut and one at Sungai Napir, each has a span of more than 10 meters and a load tolerance of more than 20 tons and a life span projected at exceeding 30 years each. Two welding machines were used in the bridge construction. Road gradients were 14 and 19%, respectively for favourable and adverse gradients.

“The comments of target communities, Kelabits of Long Napir and Penans of Kampung Bahagia must be recorded that the successful construction of 1.5 km of road linking Long Napir to Kampung Bahagia was and is the most important, admired and highly appreciated and acknowledged of all Projects...

(b) Build Multi-functional Meeting Hall for the Community

The proposed construction of a multi-functional meeting hall is to provide the local community with a place for holding meetings, or discussions, or dialogues either, among themselves or with government officials on any subject matter of interest to the community. Solemnization of weddings, Christmas and New Year celebrations and/or any other functions can be

organized at the multi-functional meeting hall (MFMH). The location of the MFMH has to be strategic and within the compound of the long house and/ or close to the church hall. The site location was important because foods, plates, pots and cooking utensils can be easily brought into the hall during village functions.

*Following a general meeting early in January 2016, a suitable site was given and earmarked for the construction of a MFMH. The site location of the land was in the compound of the long house not far from the church building. The proposed land was subsequently surveyed and architectural drawings of the proposed MFMH were drawn by an architect firm Messrs Akitek Abadi. The land was very suitable for the construction of a multi-functional meeting hall for the community.

However, there were outstanding disputes among land owners over compensation claims and their change of mind. They were unwilling, or refused to part with the land after one month of verbal agreement despite of a preliminary survey was done. It was impossible to convince land owners. In the end, continued negotiations were futile and to acquire the land were abandoned.

*A second alternative was found. The land owner was willing to give his land at a low price. However, the land was quite a walking distant from the long house and quite isolated as well. This makes the land unsuitable for the construction of MFMH. The offer was rejected after consultations and discussions with other members of the long house.

*The third land was found to be the most suitable in terms of locality, land size, and it's distant from the long house. After consultations and discussions with all the brothers and sisters who were join owners, an Agreement was drafted. After one month, one of the brothers of the land owners changed his mind and refused to talk about the land anymore. Compensation claims were raised and became very excessive and

unreasonable. The building of a multi-functional meeting hall for the community was tabled at the 2nd Project Steering Committee meeting on 11th March 2017. The PSC decided the construction of the MFMH be abandoned

(c) Build Guesthouse for the Community School

The guesthouse for the community school was built by the District Office, Limbang more than ten years ago. The building was rarely occupied over the last several years and recently, it was found to be in poor conditions and unsafe for occupation. As a result of deteriorating conditions of the building as in the staircase, outside boards, handrails, and exterior floors, the Executing Agency arranged for it to be renovated and repaired to meet building conditions under Output 2 of the Project activity. Fine river stones and river sand collected earlier by Penan women from Kampung Bahagia early in 2016 were used in concrete works for the ground floors.

The extension of the building by 3.0 m lengthwise, its renovations and repairs were undertaken by the Penan community under the guidance and directions of officers and staff of the EA following architectural drawings drawn by Mssrs Akitek Abadi. The building extension has created more rooms for occupation. Hardwood columns were used in the extension part of the building. The ground floors were concrete with side walls made of red bricks and plastered. The guesthouse will continue to be a temporary shelter to the Penan community when they come down with their children to SK Long Napir. The parents of Penan children will return to their huts once their children settled down at the school. "It is hoped the guesthouse for the community school would continue to exist and plays an important role in the provision of a temporary shelter to the Penans who are sending their children to Sekolah Kebangsaan Long Napir." The guesthouse was built near the secondary jungle so that fire wood for fuel can be easily gathered from nearby forests.

(d) Alternative Energy Facilities Demonstration

The first two solar power systems were installed at the Headman's house at each village (Pun Alan @ Tamin Sepuluh Ribu of Long Napir and Lejo Rigung of Kampung Bahagia). The systems were tested and they were functioning well. The Project consultant continued conducting and analysing usage data to determine the system performance and efficiency. The solar power systems were functioning well. Arrangements for the delivery of the other 8 units were subsequently made in the following months. Four units were installed at the house of needy families in Long Napir and the other four in Kampung Bahagia. Recipients of the solar power systems were decided through the village elections.

The solar power system is a portable set. It is capable of powering LED light bulbs and charging compatible hand phones. The whole system is light weight, mobility and battery durability. The solar panels were installed on roofs of houses to allow maximum exposure to sunlight and were connected to the battery components placed in the house. The energy from the sunlight is absorbed by the solar panel and transformed into power. During the day, the battery is recharged through the cable connected to the solar panel fixed on the roofs. This is a very simple set up where there is no charge controller available to keep the vintage within limit.

The recharged battery will light up LED light bulbs whenever light is needed. However, the set-up do not have power inverter as the overall installations were direct current components. In an alternating current system, the inverter converts direct current into alternating current and lights alternating current components.

There are many houses in Kampug Bahagia that have no sufficient entry of sunlight to the panels. The outdoor environment is dimmed or still quite dark or under shadow during daylight hours. This means the solar panels

are not fully exposed to sun light, underutilized and batteries are not fully charged for indoor purposes. The system only supply direct current to light LED light bulbs to enable limited house work to be carried out

7 DATA PRESENTATION AND ANALYSIS

The data on alternative livelihood activities were provided by participating households while analytical statements on demonstration activities were the views of the Project consultant.

7.1 Fish Raising Demonstration.

The household in Long Napir is rearing red tilapia fish in huge water containers. A fish fry weighs an average of 50 to 70 gram and takes 6-7 months to grow into a harvestable size. A fish weighs an average of 450– 550 gram at the time of its harvest with a price of RM10 – RM12 (USD2.50-USD3) per kg in Limbang. The participating household reported 16 fish fries died leaving 14 fries for raising demonstration purposes.

The participating household in Kampung Bahagia have no interest in fish rearing. The fish feeding sites were neglected, undeveloped and full of over grown vegetation. It may be necessary that a willing household be appointed to take over so that the concept of ngifang system can be materialized. Penan households are more interested in chicken raising demonstration instead of raising fish.

Long Napir household	Raja Langit
Total fish fries	30
Expired in captivity	16
Remain in captivity	14

7.2 Poultry Raising Demonstration

Two cycles of 50 chicken pc were initially raised by each participating household. The Long Napir household has sold two cycles of 48 and 46 chicken

pc with a net income of more than RM2,000 (USD500). The supply for the third cycle of 100 chicks have been arranged to ensure continuity. The supply of chicks seemed to be very slow and not constant. This was because chicks were purchased from Miri and Bintulu Divisions. The Kampung Bahagia household has sold two cycles, with less than 30 chicken pc due to high mortality rate. There were no records kept on the sale transactions. A chick costs RM3.50 and takes about 4-5 weeks to grow for sale and consumption. A chicken weighs an average of 1.70 kg (RM20.40) to 3.50 kg (RM42.00) and are sold at a fixed price of RM12 .00 (USD3) per kg. On the average chickens were sold with a body weight of 3.7 kg each and for an equivalent price of RM45.00 (USD12).

Poultry demonstration requires care as chicks may die during transportation or in captivity due to exposure to extreme temperatures and infighting. Households were faced with problem such as lack of chicken feeds. Chickens are in limited supply in the village. Chickens in Kampung Bahagia need to be relocated to another chicken pent which is smaller due to land issues and complete lack of support and cooperation exist between households and others.

Chicks, 1 st cycle	50 (48)*	50 (30)*
2 nd cycle	50 (46)*	50 (39)*
3 rd cycle	100 (93)*	none
Total chicken sold	187	69
Price p kg	RM12 p kg	RM12 p kg
Incomes, 1 st cycle	RM 2,130 (USD533)	RM 780 (USD195)
2 nd cycle	RM 1,915(USD479)	RM1,020(USD255)
3 rd cycle	RM 2,750(USD688)	none

7.3 Vegetable Cropping Demonstration

Vegetable cropping demonstrations were given to PH with land within a walking distant from the village. Vegetable beds were prepared followed by planting

.Planted vegetables were in demand in the village. The common ones were mustard green, bitter mustard green, long bean, lady's finger, bitter gourd, potato leaves, eggplants, chilli and corn. These Vegetables were bunched in small batches according to types and prices. Vegetables were sold in both villages and in timber camps. A batch of vegetable was sold for RM2.00 each. The price for chillies was high at RM4.00 per small batch. An individual corn was sold for RM1.00. A small batch of vegetable consisted up to 5 stalks of its own variety. Vegetable cropping demonstrations in Kampung Bahagia were successful whereas the HH in Long Napir abandoned the activity due to lack of commitment. The PH seemed to start very well and was distracted by other economic activities which resulted in the vegetable farm not attended and neglected. Records of progress by both households were also lacking. Households from both communities faced water problem in their vegetable growing. There were no live streams and the pumping of a river water was not a practical solution. The solution to water shortage was collection of rain water which was employed by vegetable growers. It was encouraging that participating household in Kampung Bahagia earned an average gross income of RM1,500- RM2,800 (USD375-USD700).

	Noh Megih (Kpg Bhg)
Vegetable price	RM2 p small batch
Chilli price	RM4 p small batch
	RM1 p ear
Gross income ranges	RM1, 500-RM2, 800. (USD375-USD700)
Vegetable grower (LN)	neglected

7.4 Develop Homestay for Ecotourism

This is the renovations of a room in the house of a participating household for guests or tourists. The concept of homestays for ecotourism is new in the village.

The room for tourists must be swept, cleaned, tidy and equipped with a single bed. Most importantly, the room must be thief free. A clean mattress, blanket, pillow cases, pillows, and NO SMOKING sign be placed in the room. Light fixtures, mosquito nets, storage rack and clothe line may be provided in the room. The house in general has to be cleaned and cleared of any local clothing or belongings. The exit door has been improved. The kitchen is in working order and can produce delicious home cook meals for everyone. Bathrooms and toilets are separated units and in good working condition. A homestay package may include three days and two nights' accommodation, three meals a day and outdoor activities such as a tour of the community village lifestyle, jungle hiking and river activities. This package costs RM120 per person, excluding transportation charges to and from Limbang town. Any extra activity will demand extra fee payable to the household in return for his service as a tour guide or as a porter.

It is hard to introduce homestays to the outside world due to no internet lines. Lack of access to the internet limits any marketing activities. Any campaign via word of mouth is not effective. Today business marketing relies heavily on internet and emails. A household in Kampung Bahagia had a tourist recently or guest for their homestays and profited RM200 for a 4 day stay. Homestay Package: RM120 per person. [3 days and 2 nights; + 3 meals a day + one outdoors activities excluding transport charges, LMG/LN/LMG]

7.5 Handicrafts Manufacture

At the beginning of 2016 a number of Penan women of Kampung Bahagia came to see the Project Manager for financial assistance so that they can buy materials to make handicrafts. The women explained the modern plastic materials made in China were beautiful and suitable as raw materials for the manufacture of handicrafts for economic gain. Materials are available in varying colours, sizes and thickness. The materials came in as a packed and coiled materials with a total length of 28 meters per coil. The plastics materials are purchased according to desired length, split into required sizes and edge trimmed for smoothness. The

materials are rather expensive and their purchase are made on piece meal basis. A coiled of the coloured plastic products cost more than RM500 (USD125) in Limbang town. Making handicrafts is the expertise of the Penan tribe in Sarawak.

In respond to a sympathetic request of four women, a very limited fund in the amount of RM400 (USD100) each were disbursed to them as a “starting fund”. The starting fund were used to buy raw materials and rattans for handicrafts making. The Project Manager admitted that the giving of Project funds for “handicraft making” contravenes APFNet guidelines as the activity is not prescribed in the Project document. Any Project fund for the development and implementation of a non-prescribed activity requires a written approval.

With a starting fund of RM400 (USD100) each or a total of RM1, 600 (USD400) the handicrafts making began. Rattans were purchased from their neighbours while multi-coloured materials of varying sizes and lengths were purchased from Limbang. Handicrafts were made in many different patterns, sizes and colours such as nicely woven rattan mats and multi-coloured gawangs, multi-coloured baskets with unique patterns and designs, and flower pot covers, just to name a few. The handicrafts business of Penan women started small, and today, it is a big income earner for the community. It is reported that Mdm Nomie earns an average income of RM3, 000 (USD750) per month from the sale of her handicrafts. No proper statistics on revenues from the other three women were available. However, their combined incomes were reported at RM6, 500 – RM9, 000 (USD1625 – USD2250) per month. Handicrafts were sent down to Limbang every Sunday and collected by ready buyers from neighbouring country Brunei Darussalam, Miri and Bintulu Divisions. The recipients of the starting funds were very grateful to APFNet without the “starting fund” the handicrafts manufacture would not be able to commence. Handicraft business is growing and there is no sign of it slowing down.

7.6 Gravel 7 km (part) of Road from Camp Kilo 0 to Long Napir and Construction of 1.5 km of Road to Kampung Bahagia

The construction and completion of 1.5 km of village road linking Long Napir and Kampung Bahagia is a great achievement. The village road is viewed as the most important single Project in term of its importance in the life of local community. “Nobody in the village of Long Napir and Kampung Bahagia ever dream that one day a village road exists and walking up and down, tired and exhausted with human backs and shoulders laden with goods, manoeuvring through narrow and winding foot paths in secondary forests between these two villages ends for eternity.” There will be an increase in movements of goods and services between the two communities. This auger well for the growth of local economy.

The long term effect of the VR is enormous. The road has the potentials to spur economic growth in the area under the control of the two communities. Business transactions increase, village economy grows, and standard of living of local communities improves. “The involvement of households in any income generating Project can provide a considerably good financial returns. “But the village road is unique and a great Project for all people for all time.” The Executing Agency may arrange to officially hand over the village road to the local community any time soon. This means the road known as village road will be maintained and owned by both Kelabit and Penan communities of Long Napir and Kampung Bahagia.

The VR will not be subject to exclusive rights of use by any party, or control by any party, or group. The VR is OUR ROAD which means DALAN TAUH. The operations and management of the VR is the responsibility of all. Road maintenance and its security must be executed by a joint committee that may be set up for the purpose. Local residents of both villages are free to travel the road at any time of the day or night without fear of harassment or intimidation because the road is defined as “dalan tauh.” Blockage of the village road and collection of tolls for whatever reason are prohibited and construed as illegal. Any offender can be subject to fines and punishments based on local customs and traditions.

7.7 Build Multi-functional Meeting Hall for the Communit

The purpose of building this facility is to provide the Kelabit community with a proper place to hold a meeting. It is a building where meetings, or discussions, or dialogues, or forums, or any other village functions are held without any disturbance, or interference, or harassment from anyone. The building acts as “an independent centre” for meaningful discussions on domestic issues of interest to the community. The seemingly non collaborative attitudes, individualistic spirit, non- supportive hearts, divisive and unfavourable comments of local community, the proposed building for the multi-functional hall cannot be erected. There exist serious disagreements and unresolved disputes over land matters. In the end the proposed construction of the MFMH was abandoned, a decision of the 2nd Project Steering Committee meeting on 11 March 2017

7.8 Build Guesthouse for the Community School

The guesthouse for the community school was built by the District Office Limbang for the exclusive use of Penan community while they are sending their children to SK Long Napir. The building was constructed more than ten years ago. It is a temporary shelter for Penan parents who will be returning to the forests once their children are settled down at the school. The concept of a temporary shelter for the community is interesting. It is a facility that gives some kind of convenience and encouragement to the community which can be an issue to persuade and motivate their children to go to school. There is no time limit for parents of Penan children stay at the guesthouse because it is their facility. It is a building that was built for them.

The building was rarely used during the last several years. As a result, many parts of the building were deteriorated which made it unsafe for occupation. The guesthouse is now in good condition and fit for human occupation after repairs and renovations were done by the Penan community supervised by officers and staff of the Executing Agency in the months of October to early November 2017. The renovations and repairs also involved the extension of the building by 3 m long. The new extension gives more rooms to potential occupants.

7.9 Alternative Energy Facilities Demonstration

This is the installations of a portable solar power system both in Long Napir and Kampung Bahagia. Five units were installed in each village and tested to determine their efficiency and reliability. The solar power systems were functioning well. However, they were incapable of providing the required light intensity for the long house. Most of long house rooms were unlighted at night due to insufficient power. A unit can only light a LED light bulb and charges a compatible hand phone. The solar panels were installed on roofs of houses to allow maximum exposure to sun lights. The systems were connected with cables to the battery components placed in the house. It is the common view of all recipients that a bigger power solar system be installed which can provide light to: 1 veranda, 1 seating room, 2 bedrooms, 1 kitchen/dining room, 1 bathroom/washroom and 2 chargers for H/P and a freezer.

8. OBSERVATIONS AND INTERPRETATIONS

Demonstration activities were monitored and observed during the course of their implementation. The following are the findings and observations on each demonstration activity;

8.1 Alternatives and Livelihood Demonstrations

(a) Fish Raising Demonstration

Participating households exhibited lack of interest in fish raising demonstration. They preferred chicken raising as compared to raising fish. Potential participants were initially interested in raising fish but after several months, their interest weaned. They discovered fish fries took 6-7 months to grow into marketable size. A chick will require slightly more than a month to grow into suitable size for consumption and sale. The economics of rearing chicken is therefore, much superior due to shorter rearing cycle as compared to rearing fish.

The protection and management of a “ngifang system” is difficult. Its success depends very much on the cooperation and support of everyone in the longhouse to obey “fishing and no fishing rules” of the system. The

FANFR requires strict observations on the frequency of FANFR in each zone. There is no group fishing or collective fishing permitted in zone 1 at any time of the day or even during night hours. However, group fishing or collective fishing is permitted once a year in zone 2, and collective fishing is allowed at least two times in a year in zone 3. It is a mandatory requirement for all villagers to commit themselves to the observance of fishing rules all the time. The success and failure of a ngifang system rests entirely on faithful compliance with “fishing and no fishing rules” that are constantly in place. The seemingly difficult to enforce any “conservative and protective rules” makes the ngifang system a doubtful venture and unattractive income generating activity. The non-commitment of villagers to the system are due to their concern over the distant of the river from their houses. They are concern with: thievery, flash flood, strong river current, the need to carry fish feed to the same spot at fixed hours every day. Other problems are damaged and slippery foot paths, lacked of cooperation from other villagers. No willing participants to form a “Ngifang System Committee, no enforcement and no adherence to ngifang system rules. Without commitment from all villagers to adhere to the system rules, implementation and protection cannot be developed.

Kampung Bahagia households were not committed to raising fish in captivity due to no suitable place to setup the fish tank. They prefer to focus on other livelihood activities that yield faster results. The fish demonstration activity is far and vulnerable to disturbance from animals, children or thievery from other villagers. Any activity which requires constant supervision and involves much time may not be a good economic venture.

The household in Long Napir started late in demonstrating fish raising in captivity due to meeting upon meeting in which the villagers are indecisive and are looking for faster way of generating income and also easier to implement. Fish fries were raised in huge water containers within the house premises. Due to lack of care, many fish fries died. Other

members of households also showed lack of support and fish rearing did not get optimal care. Fish feed were in limited supply in the village due to transportation problem. The constant supply of electricity were not reliable during the day time to power a water pump for the fish tank. Nevertheless, the remaining fish fries were raised in captivity and sold to villagers with a gross income ranging from RM112.00 – RM168.00 (USD28-USD42).

(b) Poultry Raising Demonstration

Participating households in both villages were committed to chicken raising. This was due to domestic demand for chicken meat and rearing cycle was shorter. Chicken were a popular dish to be served during special occasions along with pork. Both households worked hard in looking after their chicken to ensure a successful demonstration. Chicken were given food, water, and their shelters were protected from thief and animals attacks. Chickens were caged all the times. They were not released and roamed freely in the village compound. During the demonstration, a total of 150 chickens were reared and sold by participating households with a combined income of RM1, 800.00 (USD450). Both households had shown good management and commitment. The chicken weight were good which produced higher purchase price.

(c) Vegetable Cropping Demonstration

The Long Napir household started well in vegetable cropping. A variety of vegetables were planted and sold with good prices to long house dwellers. The business was good with an opportunity of earning a steady monthly income. It was unfortunate, the vegetable farms were abandoned and eventually neglected due to distractions and business activities that they believed yield better income from vegetable sales. It was further discovered they lack commitment and focus. The Project was abandoned to pursue other economic activities without any communication with

consultant. It was revealed that arrangements with a middleman to buy their vegetables faced some difficulties due to long distance from Limbang town. The grower decided to pursue other economic activities which he thought would yield better income.

The household in Kampung Bahagia in contrast has shown tremendous commitment in vegetable cropping demonstration. The household ploughed their vacant land into a thriving vegetable farm and grew varieties of vegetables. The vegetable grower worked hard with support from others which resulted in successful demonstrations. Although they faced a serious challenge which is water shortage due to long dry season the work continued successfully. Fungus infestation and fencing failures were under controlled with household shown resilience to continue with the demonstration. It was reported the vegetable grower from Kampung Bahagia made a total revenue of more than RM3, 000. 00 (USD750) from vegetable sales in the village and from surrounding areas.

(d) Develop Home-stay for Ecotourism

Homestays for ecotourism were developed in both villages. Rooms were renovated and improved to meet the requirements for homestays for guests or tourists. The lack of communication facilities restricted contacts and slow development pace of homestays for ecotourism endeavours. Households were unable to connect with outside world due to no internet connections. Online advertisements of tourists facilities were not possible. Efforts to market their home-stays to other cities, states or other countries were hindered. Local promotions of the facilities can only be done through newspaper advertisements which was not very effective as online marketing. All homestay facilities were not yet operated due to marketing problem.

The concept of homestays for business purposes were something new to local communities. They were in difficulty talking about it due to their

limited understanding of the concept, its development and management. The home-stays are considerably far and reachable in a 4 hour drive from Limbang. There is an urgent need for both villagers to be fully connected to outside world through internet connection. Communications via emails on inquiries for potential clients, daily rates, bookings and payments were normally done through internet. Communications via emails are the norms of the day.

(e) Handicrafts Manufacture

It is a common knowledge the Penan community makes beautiful handicrafts to meet demand for domestic and foreign markets. This includes making blowpipes using hard and durable timbers. I would even consider rating the Penans as the best blowpipes makers in the world even though very primitive tools were used. Rattans are the main raw materials commonly used in the manufacture of a variety of handicrafts. Rattans are split into very fine threads, flattened, smoothed and dyed into black and red colour prior to weaving them into rattan mats, decorative gawangs, ajats, hats, and baskets. Rattans are now in a serious shortage of supply due to the destruction of their habitats. Thanks to availability of decorative plastics in the markets regarded as perfect substitutes to rattans in the continuity efforts of handicraft manufacture. Today, the combined starting funds of four Penan women in the amount of RM 1, 600 (USD 400) [RM 400 (USD 100) each], are now generating a monthly revenue estimated at RM 6,500-RM 9,000 [USD 1625-USD 2250]. These women were very focus in their handicraft making while their men busied looking for rattans and buying coloured plastics materials. The Project would be doing a great service to the community if similar funding can be expanded and to benefit other women in the village. This is a true story and a success story of Penan women in Kampung Bahagia in handicrafts making.

8.2 Infrastructures and Facilities' Demonstrations

(a) Gravel 7 km (part) of Road from Camp Kilo O to Long Napir and Construction of 1.5 km of Road to Kampung Bahagia.

The gravelling (part) of 7 km of access road from Camp Kilo O to Long Napir was successfully carried out due to tactful negotiations with truck owners on the transportation of crushed stones from Jukut Quarry at Long Selidung to required sections of the road. Transportation of road stones seemed to be an easy task, but that was not the case due to arguments of rough road conditions, excessive adverse and favourable gradients at Sungai Setuan including many other sections of the road. A slight drizzle of rainfalls can cause the road unpassable and extremely dangerous. In view of these extreme factors, transportation charges were seemingly inflated to an amount of RM1, 200 (USD300) per round trip. The truck operators were very committed and focussed which enable a successful delivery of road stones on sites where they were spread and compacted using a borrowed D7 crawler tractor.

(b) Build Multi-functional Meeting Hall for the Community

The proposed MFMH is to provide the Kelabit community with a place where they can have a decent facility to hold their village meetings. As of now, village meetings were held in a longhouse veranda of the Headman's house. The MFMH would be a natural ground where important issues are deliberated openly without fear or favour. Knowing the important and relevant of the building, a piece of prime land within the vicinity of the longhouse was earmarked and surveyed. The structural drawings of the proposed MFMH were drawn by an architect firm called Akitek Abadi. The land was initially shown and agreed to by majority of local communities including the Headman's himself as the land for building the multi-purpose meeting hall. About one month later, the Project Manager was informed that the approval of the land was withdrawn due to unresolved disputes and misunderstandings among themselves. The Headman of the village also has withdrawn his support. The land issue

was presented at the 2nd meeting of Project Steering Committee meeting on 11 March 2017. It was decided the building of MFMH be abandoned.

(c) Build Guesthouse for the Community School

The guesthouse is to provide a temporary shelter for the Penans who are sending their children to SK LN. The concept of a guesthouse for the semi-nomadic community is brilliant. The facility promotes the school and attracts Penan children to stay in a better facility such as the school. Penan children to attend as a means of These are Penans coming from far away places and return to their places/huts once their children are settled down at the school. The GH for the community school is near a secondary forest so that they can collect firewood for fuel. The occupants of the GH must be given with clear instructions so that the place is kept clean all the time. Rubbishes, fruit skins, seeds, papers, leftover food, wrappers, must not be thrown anyhow into the compound but nicely put into containers or dustbins.

(d) Alternative Energy Facilities Demonstration

The solar power systems were installed as alternative sources of light energy to selected households. The first two units were installed at the Headman's house in each village. The solar power set is a portable unit with efficient performance and reliability. The system is capable of charging LED light bulbs and a compatible hand phone but unable to charge other units such as a freezer or an icebox. The solar panel is installed on a roof of a house to allow maximum exposure to sun light and is connected through a cable to the battery component placed inside the house. The sun light energy which is absorbed by the solar panel, charges the battery component of the system and converts the power into light energy. The whole set up is simple.

During the day the battery which is placed inside the house is recharged through the cable which is connected to the solar panel. There is no charge

controller which keeps the vintage within limit. The recharged battery will provide power to the connected LED light bulbs whenever they need. There is no power inverter connected to the overall installation only direct current components. Many of the houses did not allow the roof fully exposed to sunlight during the day. As a result, solar panels are not fully exposed to sunlight and the batteries are not fully charged and there will be no light at night.

9 CONCLUSIONS

The conclusions and recommendations are economically viable and feasible. It is in the long term economic interest that participating households continue with the implementation of income generating activities. These economic activities can be implemented at their own pace without subject to any specific volume and outside pressure.

- 9.1** The conceptual design and formulation of income generating activities are viewed as outstanding and unchallenged international Projects. Local communities were the targets of successful implementation. Their involvement in the Project is aimed at improving their economic life as target communities.
- 9.2** The capabilities of PH continue with alternative livelihood demonstrations beyond the current duration depends on their experience, knowledge capacity, finance, commitment and desire for economic success. The continued on the ground presence of a consultant is helpful in this continuity effort.
- 9.3** Households should be discouraged from involving in many activities besides subsistence farming. They have other alternative sources of income such as odd jobs and sale of jungle produce or game meat. They were not focus on income generating activities and they end up with low economic returns.
- 9.4** Households may require longer time to grow in knowledge capacity, confident, commitment, dedication and capability of adaptation to new economic activities.

- 9.5** Households exhibit involvement in many non-farming activities, distractions and daily routines were heavily mixed. HH were occupied with many non- productive activities which results in no proper economic returns.
- 9.6** Poor communication facilities and infrastructures are obstacles to development of homestays for ecotourism. There is no village attraction due to poor agriculture and poultry productions. No online business can be done for promotions because no internet access. Business activities are run very much on word of mouth and good will support of surrounding communities.
- 9.7** The sale of meat, fish and vegetables may increase during year-end holiday when many villagers return home. The increased in economic returns is for a short period only due to temporary demand at year end gatherings and Christmas celebrations.
- 9.8** Business promotions may encounter resistance from their own community due to jealousy, envy, personal issues between households and their community. This may results in lack of support and non-buying their products.
- 9.9** The village road of 1.5 km from Long Napir to Kampung Bahagia has been successfully constructed. The road maintenance must be executed with immediate effect. There shall be no tract machines allowed on the road unless the tracts are moving on planks. A 10 ton truck must be barred due to excessive ground pressure caused by the wheels' rotation which creates groves and damage the carriageway. Side ditches are to be cleared of any blockage to promote free flow of water all the time and cause damage free to the carriageway. Any road side vegetation and trees have to be cleared to allow maximum exposure of sunlight and keep the road surface dry all the time
- 9.10** The guesthouse for the community school was renovated and repaired by officers and staff of the Executing Agency in October 2017. The building also extended lengthwise by 3.0m to provide more rooms for the increasing number of occupants. The guesthouse was built by the District Office Limbang more than 10

years ago. It is a temporary shelter for the Penans sending their children to school. It is proposed the SK Long Napir prepares basic guidelines on the use of the building especially with respect to cleanliness, fire safety, security of tenants, properties and the security of the building itself.

9.11 There are many challenges in running demonstration activities at Long Napir and Kampung Bahagia as listed below;

- Logistic due to long distant from Limbang,
- Both villages are approx. 150 km upstream,
- Travelling time from Limbang to DS takes four hours in a 4WD vehicle,
- Demonstration activities are very remote and isolated,
- The demand for any produce is not strong due to small village population,
- No reliable internet access for promoting DA or facilities in the village,
- Communication signals at demonstration sites are poor,
- PH lack in knowledge capacity in demonstrations activities,
- Interference from other villagers who are sceptical, community politics,
- PH lack commitment, direction and focus.
- PH require management training, encouragement, motivation,
- PH need more exposures and collaborative support,
- Both villages need economic activities for sustainability, and collaborative support,
- PH requires knowledge capacity, time management, work organisation, manpower and resources are recipes for success.

10. RECOMMENDATIONS

The recommendations proposed are activities feasible and practical. They are set within the frame work of income generating demonstrations, infrastructures and facilities development, participating households and target communities.

- 10.1** The ability of participating households to continue beyond the current Project duration depends largely on their initiatives, work experience, finance and capacity. The continued presence of a Project consultant on site can be a motivating factor and helpful in continuity efforts. It gives encouragement to potential participating households to continue with the activities.
- 10.2** Households from both communities should be given basic training on management practices. The training schedules may have to be tailored to meet specific needs such as implementation, work expansion, coordination, work organization and Project management.
- 10.3** Capacity building of PH should continue and strengthened. A greater flexibility of operations to meet on the ground situations be emphasised, a recipe for successful operations. The ability to adapt to change and moves forward is part of good management and expansion.
- 10.4** Improve and update agriculture training, management and entrepreneurship skills. Training be conducted at both villages, on site demonstrations, monitoring procedures of demonstration activities to improve incomes. Refresher courses be organized from time to time to keep them activity focus.
- 10.5** Encourage “Village Development and Security Committee (VDSC)” to continue endorsing livelihood activities. This creates an environment of trust among villagers and garners support of others towards participating households. And they themselves can be participants as well.
- 10.6** Demonstration activities require strong support from local communities. Continued management and operations with more participants spur development of other economic activities. These activities may include transportation

providers, guides and porter services. The setting up of new alternative livelihood activities, supply of variant complementary food, selling of arts and handicrafts and groceries can be initiated.

- 10.7** Households are encouraged to supply their products beyond village level. The supply of fresh vegetables should focus at SK Long Napir, timber workers camps, villages along timber roads and Limbang town. Making business trips to Limbang will increase awareness and promotions among other villagers and Limbang residents of the existence of livelihood activities in Long Napir and Kampung Bahagia.
- 10.8** Develop logistic solution with priority consideration to households to transport their produce such as poultry and agriculture produce to the market place. Transportation charges for tourists and homestay costs be worked out for profitability and sustainability
- 10.9** Priority be given to improving electric supplies, water supplies, village land use planning and communications. Land use planning allows certain locations to be allocated as “tourism place” and others removed from land use for animal rearing. This will encourage and promote an environment of cleanliness and tourist friendly, separated from livestock living area.
- 10.10** Long Napir and Kampung Bahagia need improved communication facilities to run their activities. At the same time households can be contacted paving for a two way communications conducive to generating profits from their livelihood activities.
- 10.11** Local guide services be improved to enhance eco-tourism activities. Young villagers be trained as tourist guides and be knowledgeable of the surrounding forest area. It would be awkward if guides get lost in the forest in the presence of tourists. TG must know names of important trees and plants.

10.12 Identify jungle trekking sites, historical sites, scenic locations and fun challenging activities for tourists as part of eco-tourism efforts. Tourist related facilities and places of interest be developed, highlighted and promoted to encourage more visitors to the village. Village cleanliness and beauty of rivers and surrounding forest areas can attract visitors. Proper guidelines must be formulated to keep the village compound clean and separate from community living and livestock.

Prepaid and Submitted By

[DEREK PARAN]

Project Consultant
PROJECT COMPLETION REPORT
for Activity 2.1 & Activity 2.2
30 October 2017

ANNEX A: MAP OF PROJECT AREA

ANNEX B: PLATES



Plates 1: Early Stage of Fish Raising Activity



Plate 2: Consultant Inspecting Household's Chicken Housing



Plate 3: Chickens for Sale



Plate 4: Vegetables for Sale at Long Napir



Plate 5: Vegetable Growing at Kampung Bahagia



Plate 6: Household and their Homestay Facility at Long Napir



Plate 7: Setting Up a Guest Room for Homestay, Kampung Bahagia



Plates 8: Gravelled road heading to Long Napir



Plate 9: Compacted Road Stones



Plate 10: Steel Bridge and Gravelled road connecting Long Napir and Kampung Bahagia



Plate 11: Materials for improvement of the guest house



Plate 12: Meeting on improvement of guest house



Plate 13: Handing over a solar set to one of the households



Plate 14: Installation of a solar panel at Long Napir



Plate 15: Testing the LED light from a solar set

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