

Growing Up Together With the Forest: the unique
relationship between the forest and indigenous Karen
people of Kamoethway

Research Paper

Kamoethway, Myitta Township, Dawei District, Tanintharyi Region.
January 2018

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Map of Kamoethway

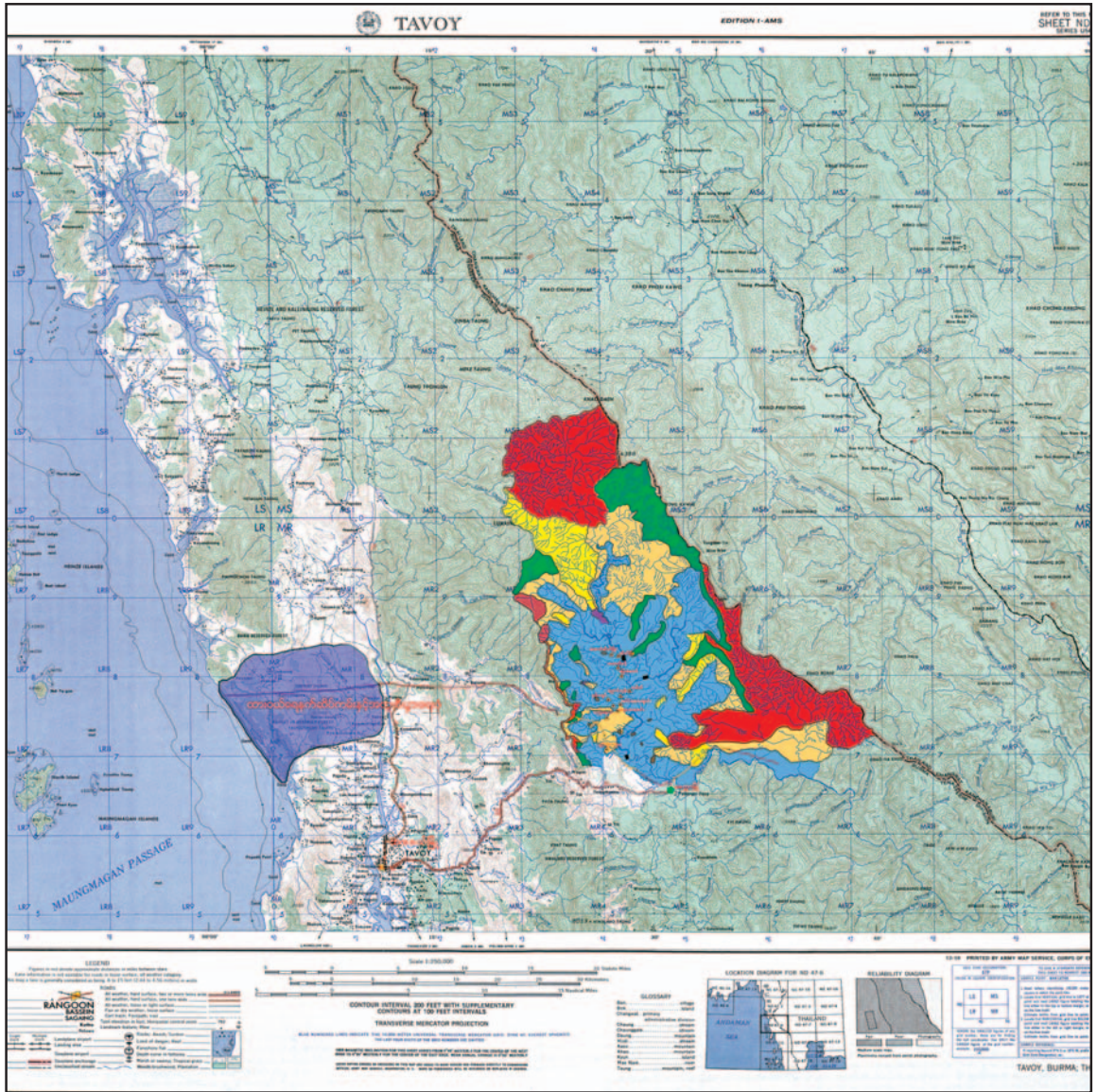


Figure 1. Map of Kamoethway

Summary of the “Strengthening Forestland Community Tenure Through Policy, Pilots and Law: A Multi-Stakeholder Approach to Change” project

Forests are essential for the livelihoods of rural communities all around Myanmar, and are central to many cultural traditions.

Strengthening community forest tenure rights is essential to empower communities to conserve, sustainably manage, and restore Myanmar’s forests. Recognizing tenure rights is also part of the process to harmonize laws with the National Land Use Policy, and to fulfill the policy imperatives of the National Forest Policy for public participation and to provide for local needs.

A series of national and regional multi-stakeholder dialogues are being held during 2017 and 2018 to create a roadmap together to strengthen community forest tenure. This process is supported by MRLG, and the project steering committee is chaired by MONREC, with representatives from 12 government departments, 6 civil society organizations, and 2 forest sector businesses.

Three regional dialogues were held in 2017 in Mon State, Bago Region, and Tanintharyi Region to select case studies to document and discuss further in a second series of regional dialogues.

Kamoethway was selected as the case study for Tanintharyi, and this research was conducted to learn together how these communities live interdependently with their forests and manage them through customary tenure.

In Mon State the case study is on community management of sacred limestone caves, and in Bago Region the case study focuses on the challenges of communities living within the Permanent Forest Estate.

National-level dialogues are also being held to assess policies and law, learn from case studies around the country, and host a broader, inclusive national dialogue on forest tenure. The first dialogue was held in May 2017, an Expert Roundtable in November 2017, and additional dialogues are planned for 2018.

Acknowledgement

We wish to express our great appreciation to the many people who contributed to the completion of this research project. Regardless of being required to travel long distances over difficult terrain and in spite of being in the midst of the busiest period of the harvest season, the research was successfully accomplished only because of the good will and kind heartedness of the respective participants.

Firstly, we express our deepest gratitude and appreciation to the indigenous Karen people of Seik Pyone and Ka Meik villages for their active participation. Without their effort, this research paper would not have been published. Here we give credit to the indigenous Karen people from those villages.

Secondly, we would like to give special thanks to the team members from Rays of Kamoethway Indigenous People and Nature (RKIPN) for their devotion and assistance in the smooth completion of the field research.

Thirdly, we wish to express our deep gratitude to each and every student of Tanintharyi Volunteer Service (TVS) program for their hard work collecting data throughout the field research process.

Last but not least, our special thanks goes to the lead researchers for their patient advice and mentoring of the TVS students throughout every step of the research process. Their supervision and guidance was crucial to the successful completion of this research paper.

Rays of Kamoethway Indigenous People and Nature – RKIPN
Tanintharyi River and Indigenous People Network – TRIP NET
January 2018

Abstract

The findings of this research paper are based on field research data collected from Seik Pyone and Ka Meik villages situated in the Kamoethway area of Myitta Township, Dawei District, Tanintharyi Region, Myanmar. The people of Seik Pyone and Ka Meik live together in harmony with their forest, and the villages can be considered forest dependent communities.

The research findings show that the creation and implementation of policies dealing with the conservation and management of forests in Myanmar must include and consider the communities who live together with the forest. The policy creation process must include the full participation of indigenous communities through formalized structures, and forest dwelling indigenous people must be given a central position within any institutions or processes developed to implement the new policies.

Throughout the paper, numerous concrete examples of the complex interrelations between indigenous people and forests are provided. These examples are evidence that healthy forests directly benefit indigenous communities and that the lifestyles of indigenous people support the preservation of healthy forests. The key finding from this research project is that indigenous communities should be given the opportunity and legal recognition to fully participate in the conservation and sustainable management of forests in Myanmar.

Prior to the ceasefire agreements between the Karen National Union (KNU) and the Myanmar government signed in 2012 and 2015, the Kamoethway area had been under armed conflict for decades. The impact of this ongoing legacy of conflict on forest conservation in the area is addressed in this paper.

The people of Kamoethway – like communities across Myanmar – are currently facing numerous challenges related to unfolding political and economic transformations taking place in Myanmar. In Tanintharyi Region, an influx of private sector investment—often in extractive industries – and the interests of international conservation organizations raise important new challenges for local people. The pressures that local communities experience when caught between these two external forces, and strategies that local communities use to respond to them, are also examined in this paper.

Kamoethway is a unique community in that it has been very active in recent years struggling for a seat at the table – with government and other external actors – regarding forest management and conservation policy. The people of Kamoethway understand that they need to work to promote their own interests and protect their rights by themselves. Towards this end, the Kamoethway community has been documenting and publicizing its sustainable forest management and conservation practices through conducting local knowledge-based research initiatives and implementing community-protected conservation zones. This research paper can be considered a small contribution to this effort.

Introduction

In the process to development of a country or a community, we can see different forms of development types, which are based on the geographical conditions, available resources, climate conditions, and culture and tradition of the local people. Within a country, we can see diverse communities scattered throughout the urban, rural, mountain, coastline, border and flat regions. These diverse communities lead to different forms of developments depending on different resources available. Generally, we may distinguish the communities into industrialised urban community and agricultural rural community, however, things will not be as simple as these if we study in closer details. Even within the rural community, which is of 70% of the country's population, there are many diverse communities with different characteristics, so are the lifestyles and cultures.

This research paper is titled "Growing up together with the Forest". It means that this study emphasizes on the community living and growing up together with the forest. In this research field, we can see the characteristics such as: the research area is situated in the border; it is of rural indigenous people; it has cultural and traditional value and so on. Nonetheless, the most important characteristic of the study would be that it is about "inhabiting and growing up together with the forest". For the survival of the community, it is very important of how we preserve and maintain the sustainability of the resources. Only if the indigenous people have opportunity to preserve and protect their local resources for generations, the development and survival of their community would be meaningful.

This research paper systematically studies and records the hope, concerns and difficulties of the communities, who are of beneficial from the forest for generation by generation and who are of preserving the sustainability of the forest. We truly hope and believe that the findings and results from this study would be helpful in designing the People-centered Forest Conservation and Management policies, which consider and protect the survival of indigenous people living and growing up with the forest.

This research paper emphasizes on the forestry "Kamoethway area" situated in Myitta Township, Dawei District, Tanintharyi Region of southern Myanmar, and it studies and discusses of how indigenous Karen people living together with the forest, how the forest benefits the native community and how these native people conserve the forest for long-term sustainability. Inhabiting together with the forest means both the forest and the native community need one another for their long-term survival, and one cannot stand alone without the other.

Recommendations

The findings outlined in this research paper show the unique relationship between the forest and indigenous forest dependent communities in the Kamoethway area of Tanintharyi Region, the southern-most Region of Myanmar. Based on these research findings, we suggest the following recommendations in order to assist and support the Myanmar government to create effective and people-centered Forest Conservation and Management policies.

1. The forest provides Life Security to indigenous people who live interdependently with the forest. Any new Forest Conservation and Management policies in Myanmar should formally recognize this unique relationship, and include protections to ensure that it is maintained in the future.
2. The forest provides Food Security to indigenous people who live interdependently with the forest. Any new Forest Conservation and Management policies in Myanmar should formally recognize this unique relationship, and include protections to ensure that it is maintained in the future.
3. The forest provides Economic Security to indigenous people who live interdependently with the forest. Any new Forest Conservation and Management policies in Myanmar should formally recognize this unique relationship, and include protections to ensure that it is maintained in the future.
4. The forest provides Ecosystem Security to indigenous people who live interdependently with the forest. Any new Forest Conservation and Management policies in Myanmar should formally recognize this unique relationship, and include protections to ensure that it is maintained in the future.
5. To ensure the sustainability of the above-mentioned four securities, there should be formal time-bound processes and platforms for indigenous forest dependent communities to be able to participate in every step of the design and implementation of Forest Conservation and Management policies.
6. In opposition to the present policy strategy of separating the forest from local indigenous forest dependent communities, future Forest Conservation policies in Myanmar should incorporate the full participation of these communities in all forest conservation initiatives.
7. For the successful implementation of people-centered Forest Conservation and Management policies, and for the sustainability of the forest, local knowledge-based and community-centered forest research initiatives should be promoted and supported.
8. We strongly recommend that Myanmar should establish a network of Living Forest Museums – which store and exhibit forest resources and biodiversity – as an effective education tool that promotes the preservation of the forest.

Objectives of the research project

1. To recognize the crucial role that forest resources play in the survival and development of indigenous people who live interdependently with the forest.
2. To show that the survival and development of forest dependent indigenous communities is directly proportional to the long-term sustainability of the forest resources.
3. To demonstrate the importance of recognizing the interests of and ensuring the full participation of indigenous people in the design and implementation of sustainable Forest Conservation and Management policies.

Methodology

This this research paper is based on participatory community-based research. While designing and conducting the field research, we prioritized the participation of the indigenous Karen people from the Kamoethway area.



The Research Team

A Research Team was organized; consisting of two Lead Researchers and a group of active Karen youths who were attending the 2017 Tanintharyi Volunteer Service (TVS) program. After receiving training from the Lead Researchers, the group systematically implemented the field research processes step-by-step

under their supervision. Throughout the entire process, the Research Team received guidance and assistance from Kamoethway-based peoples organizations and community-based organizations the Rays of Kamoethway Indigenous People and Nature (RKIPN), the Community Sustainable Livelihood and Development – Kamoethway (CSLD-K), and the Tanintharyi River and Indigenous Peoples Network (TRIP NET).

This research project was successfully completed within the duration of three months, with the field research taking place from 11th to 17th November, 2017. Each step of the research process is explained below.

Step 1: Organizing the Research Team. The Research Team was composed of fourteen (14) youths attending the 2017 Tanintharyi Volunteer Service (TVS) program in the Kamoethway area. Three Supervisors facilitated and supported the work of the Team. Two Lead Researchers led the Team; providing training beforehand and guidance during the field research.

Step 2: Selecting the Research Sites. The Kamoethway area is (264,151.75) acres and it is composed of twelve (12) villages. The above mentioned Kamoethway peoples organizations and community-based organizations have experience implementing community-based research initiatives throughout the Kamoethway area, and they chose suitable research sites based on their expert knowledge of the area. Two Kamoethway villages – Seik Pyone and Ka Meik – were selected based on their unique characteristics. Located in the northern part of Kamoethway, Seik Pyone village is the area of Kamoethway where most of the forestry takes place. Located in the eastern part of Kamoethway, Ka Meik village is an area where shifting cultivation and orchard tending are the dominant livelihood activities.

Step 3: Determining Research Scope. There are approximately 200 households in the two selected research villages: approximately 150 households in Seik Pyone village and approximately 50 households in Ka Meik village. Therefore it was decided that a suitably large yet realistic sample size for this study would be approximately 100 households (50% of the combined total number of households in the two selected villages). A representative number of households from both of the villages was selected: 68 households from Seik Pyone village and 38 households from Ka Meik village. From these 106 households, data was collected from 682 people.

Step 4: Developing the Research Questionnaire. Before developing a new questionnaire, the Lead Researchers compiled and reviewed all of the research data previously collected by RKIPN, CSLD and TRIP NET. Based on the scope of these previous research findings, the Lead Researchers worked with the fourteen Research Team members to design a new

research questionnaire. To fill a gap in knowledge, the questionnaire focused on the agriculture sector and local practices related to non-timber forest products. Feedback on the draft questionnaire was received from RKIPN members from two selected villages, and incorporated into the final version of the questionnaire.

Step 5: Data Collection. The interviews were conducted by all members of the Research Team, with assistance from the local members of RKIPN. The research questionnaire included both quantitative and qualitative methods of data collection; including Household Survey tables and semi-structured interviews.

Step 6: Systematically Classifying the Results. To make efficient use of time, and to maintain strict data entry standards, the collation of answers from the questionnaires and classification of the data was done immediately after interviews were completed.

Step 7: Writing the Research Paper. After research questionnaires were completed at all of the 106 selected households, the Researchers analysed the data and wrote this paper.

Challenges In Research

The biggest challenge throughout the research process was identifying and correctly documenting the names of products from the forest (e.g. names of vegetables, fruits and medicinal herbs). Local people usually gave the Karen language name for these products, and the Burmese language names were not always immediately obvious. Fortunately, local community groups – RKIPN, CSLD and TRIPNET – have all conducted research on Kamoethway NTFP in the past, and had already had records showing the names of many of the forest products in multiple languages. These records were invaluable in organizing the NTFP listed by respondents, and enabled us to overcome this language challenge to a large extent. Ultimately, we were not able to translate all the forest product names into Burmese language, so some of the forest product names are only given in Karen language. To avoid this challenge in the future, local organizations are planning to produce a comprehensive list of local NTFP names and useful facts in Karen, Myanmar and English languages.

Research Findings and Analysis

The goal of the field study was to examine the forest-human relationship in Kamoethway, and identify what benefits forest dependent communities receive from the forest. The comprehensive documentation and evaluation of the importance of forests for local communities is a crucial first step in the design and implementation of sustainable forest conservation and management policies.

The research questionnaire focused on two forest-related sectors in which people from Kamoethway earn their livelihood: agriculture and non-timber forest products. The section on the agricultural sector, in turn, examined three specific sub-sectors: shifting cultivation, livestock, and orchards. The non-timber forest products section examined three specific sub-sectors: wildlife, aquatic species, vegetables and firewood.

Table 1 provides a high-level overview of the findings from the 106 household questionnaires, showing the breakdown by sector and the estimated annual value. The respondents identified 187 different products across the agriculture and NTFP sectors. An important finding is that among the 187 categories of products, 90% were identified as being used for daily family consumption and only 10% were identified as being only sold to generate income. In total, these 187 products had an estimated annual value of 494,556,000 Kyats. This estimated value represents an estimated annual value per household of 4,667,000 Kyats. Put another way, the estimated value of these two sectors for households in Kamoethway is nearly 400,000 Kyats per month.

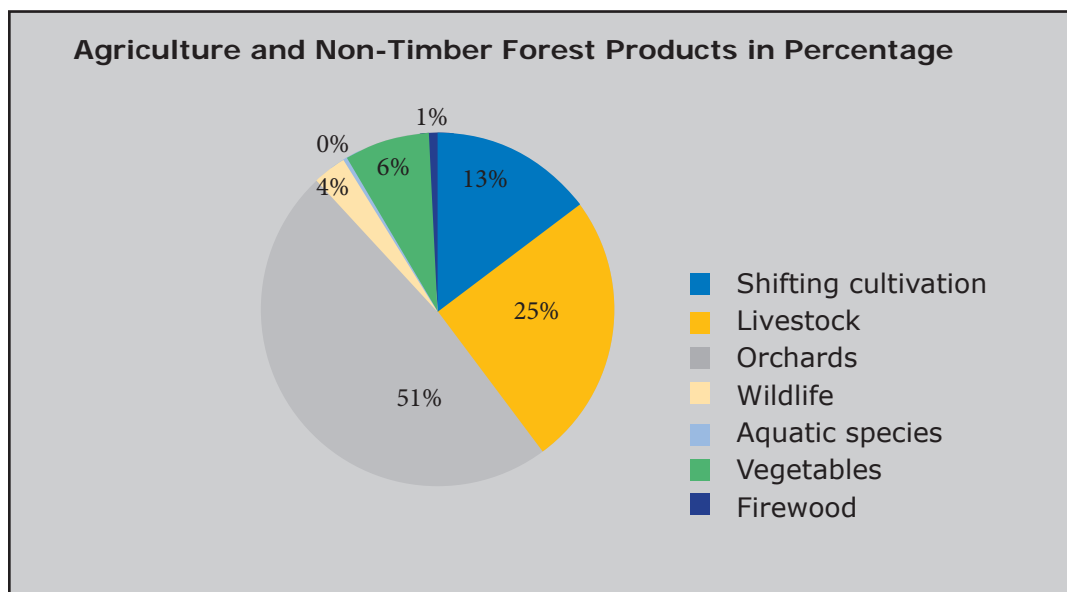
Table 1. Estimated Annual Value of Agriculture and NTFP Sectors

Sector	Sub-sector	Total Number of products	Estimated Annual Value	Estimated Annual Value per Household ["Estimated Annual Value" divided by 106 households]
Agriculture	Shifting cultivation	52	65,396,000	617,000
	Livestock	6	122,829,000	1,159,000
	Orchards	24	249,180,000	2,351,000
Non-Timber Forest Products	Wildlife	17	18,112,000	171,000
	Aquatic species	48	1,855,000	18,000
	Vegetables	80	31,387,000	296,000
	Firewood	2	5,797,000	55,000
	Total	187	494,556,000	4,667,000

Resource: Field Research Data, TRIPNET

Table 2 shows the ratio of estimated annual values across the seven sub-sectors. The Orchard sub-sector has the highest estimated value, contributing 51% of the total estimated annual value. The Livestock and Shifting cultivation sub-sectors contribute 25% and 13% respectively. These three sub-sectors – Orchards, Livestock and Shifting cultivation – all fall into the Agriculture sector and contribute 89% of the total estimated annual value. The remaining four sub-sectors from the NTFP sector – Vegetables, Wildlife, Firewood and Aquatic Species – contribute only 11% of the total estimated annual value. This is a significant finding because it shows that local people depend on the Agriculture sector to a much greater extent than on the NTFP sector.

Table 2. Estimated Annual Value across Agriculture and NTFP sub-sectors



Resource: Field Research Data, TRIPNET

Total number of products in Agriculture sector show that the NTFP sector represents a greater number of different categories of products in comparison to the Agriculture sector. The higher level of bio-diversity in the NTFP sector is significant for both the sustainability of the natural environment and local food security. The respondents identified over one hundred products in the NTFP sector, and almost all of these products were said to be essential for the families’ food security. While the income earned from those products may be small, it is clear that the forest is important for the food security of the people from Kamoethway. These findings show the importance of forest products for the livelihoods of indigenous Karen people. They know that they will be pushed into food insecurity if their forest is over-exploited. It can be said that this interdependent relationship is what motivates them to be active in forest preservation.

Findings from the Agriculture Sector

Orchard Sub-Sector

Examining the Orchard sub-sector of the Agriculture sector in greater detail, Table 3 shows that there are 24 types of different products found in this sub-sector. Among these 24 products, the betel nut (areca nut) tree can be considered the most important for people in the Kamoethway area.

Kamoethway is one of the highest betel nuts producing areas in Dawei district. As betel nuts are an export product that fetch a good price, betel nut orchards are often referred to as "gold farms." Betel nut orchards are usually planted in close vicinity to villages, with local people often building their houses within the betel tree orchards themselves. Betel nut orchards in Kamoethway have an "Agroforest" appearance, because edible fruit trees (such as lemon, lime, pomelo, jack fruit, mango, coconut, and pepper) and other useful species (such as thingan, iron-wood, lagerstromia, and mountain palm) can be cultivated within the betel nut orchards. This agroforestry feature of betel nut trees makes them significantly different than rubber tree orchards, which are also prevalent across Tanintharyi Region.

Table 3. Varieties of species in Orchard sub-sector

No.	Fruits from Orchard	No.	Fruits from Orchard	No.	Fruits from Orchard
1.	Betel Nut	9.	Durian	17.	Rubber
2.	Elephant Yam	10.	Pomelo	18.	Mangosteen
3.	Cashew Nut	11.	Jack Fruit	19.	Pepper
4.	Banana	12.	Papaya	20.	Orange
5.	Coconut	13.	Pineapple	21.	Coffee
6.	Mango	14.	Rambutan	22.	Cardamon
7.	Lemon	15.	ပုသိမ်	23.	Custard Apple
8.	Lime	16.	Betel Leaf	24.	Guava

Resource: Field Research Data, TRIPNET

Another interesting product in the Orchard sub-sector is 'elephant yam'. This species is not cultivated, but grows naturally in the area. Karen people do not eat this type of yam, and in the past there was no market for them in the area and no one had any interest in them. During the past decade it became known that this species of yam was being used in the production of faux-meat products in China, it has become an increasingly important export product for people in Kamoethway. Yam is now in second place after betel nuts in terms of amount of export income earned from the Orchard sub-sector.

Livestock Sub-Sector

Almost every household in the Kamoethway area raises animals for food security. The estimated annual value of the livestock sub-sector is the second highest after the Orchard sub-sector. Table 4 shows the various types and quantities of livestock documented through the research questionnaires. The types of livestock listed from greatest to least are chickens, cows, pigs, ducks, goats, and elephants.

Table 4. Types and quantities of livestock documented

Type of Livestock	Quantity
Chicken	815
Cow	180
Pig	147
Duck	94
Goat	24
Elephant	2

Resource: Field Research Data, TRIPNET

Chickens, ducks and pigs are raised for household consumption as a source of protein-rich food, as well as for sale. In Kamoethway, 'household consumption' also refers to community-level consumption because local people generally share food with one another. For example, if a pig is butchered by a household, they will share it with their neighbours, and so the neighbours do the same. This is a valuable tradition that plays an important role in food security in the Kamoethway area. Other notable findings related to the livestock sub-sector are that cows are raised mainly for transporting agriculture products rather than for food, and that goats are considered a hazard for people who engage in orchard cultivation and shifting cultivation (upland farming) as they eat leaves and plants. In addition, we found out that there are two businessmen in the area who each own an elephant used for pulling felled tree trunks.¹

1. Local concerns about forest exploitation by these two businessmen will be discussed further below.

Shifting Cultivation Sub-Sector

Many varieties of vitamin-rich fruits and vegetables are cultivated through shifting cultivation, yet rice is the most crucial crop since it is the dominant staple food for people in the area. Table 5 lists the 52 varieties of grain, fruits and vegetables identified through the questionnaires.

Table 5. Varieties of grain, fruits and vegetables produced by shifting cultivation

No.	Name	No.	Name	No.	Name	No.	Name
1.	Rice	14.	Sugar Cane	27.	Kidney Vetch	40.	စဝဲသီး
2.	Cucumber	15.	Squash	28.	Watercress	41.	ကြက်မောက်ပန်း
3.	Chili	16.	Coriander	29.	ဟော်စွီး	42.	ရွှေဒဂီးပန်း
4.	Yellow Pumpkin	17.	Bitter Gourd	30.	ပိန်းရှည်	43.	စိမ်းစားပင်
5.	Bean	18.	Tapioca	31.	Spinach	44.	ဖွတ်သီး
6.	White Pumpkin	19.	Sesame	32.	Marian	45.	Salad
7.	Roselle	20.	Gourd	33.	Tumeric	46.	Sticky Rice
8.	Eggplant	21.	ဖောသီး	34.	ဖန်ကဗာ	47.	စည်ဘာပင်
9.	Taro	22.	မျောက်ဥ	35.	ကကြူး	48.	လှရင်းရွက်
10.	Lady's Finger	23.	Ridge Gourd	36.	Pennywort Leaf	49.	မယ်တရု
11.	ကြက်ချေးပြန်း	24.	ပေါက်ပေါက်ပင်	37.	Rose Apple	50.	သွီး
12.	(ဖီယဲ)	25.	ဟော်တို	38.	Watermelon	51.	Vine
13.	Lemongrass Corn	26.	Turnip Greens	39.	ပန်းလင်းမွေသီး	52.	Chinese Potato

Resource: Field Research Data, TRIPNET

In the Kamoethway area, upland rice cultivation is conducted through dibbling.² The average yield is 40-60 baskets of rice per acre. In this area, upland rice is cultivated only for household consumption, not for sale. In Seik Pyone and Ka Meik villages, besides rice, the most common crops are cucumber, chilli, yellow pumpkin, bean, white pumpkin, roselle, eggplant, lady's finger, lemon grass, coriander, bitter gourd, gourd, ridge gourd, taro, watermelon, squash, maize, sugar cane, turnip greens, watercress and spinach. All of the abovementioned crops are also available in other regions of Myanmar, however there are a number of crops which are said to be rare outside of the Kamoethway area. These crops include: ကြက်ချေးပန်း(ဖီယဲ), ဟော်စွီး, ဟော်တို, ပိန်းရှည်, ဖန်ကဗာ, ကကြူး, စဝဲသီး, မယ်တရု, လှရင်းရွက်, စည်ဘာပင် and ပေါက်ပေါက်ပင်. These crops are normally used only for household consumption, and are only sold in the market if they are in great abundance.

2. For an explanation of the dibbling method see https://gardening.tips.net/T010580_What_is_Dibbling.html

Shifting Cultivation & Deforestation



Paddy is grown on available and appropriate land

Indigenous Karen people in Kamoethway have practiced shifting cultivation for many generations, and consider the practice an important element of their culture. Here, it is important to say a few words about the perception that deforestation is caused by shifting cultivation. The kind of shifting cultivation practiced by indigenous Karen people in the Kamoethway area is one that needs to be conducted within the boundaries of a predetermined area, so that a well-managed shifting cultivation cycle can be maintained. A well-managed shifting cultivation cycle enables certain areas to be left fallow for extended periods of time once the soil is exhausted and its fertility starts to decline. This system of continual rotation means that areas are left fallow for periods of time long enough to allow the forest to grow back. The locations of fallow areas are recognized within the community and no one is allowed take over a fallow area as if it is abandoned land. This rotational system is managed so that fallow lands are given enough time to regenerate and rebuild soil fertility. The system is also designed so that people can access the fallow land for other livelihood purposes during the fallow period. For example, since this region does not have access to grid electricity the use of wood fuel for cooking is common. With the traditional shifting cultivation system local people are able to harvest firewood for household consumption when re-clearing cultivation areas that have been left fallow for a sufficient period of time, optimally 10-15 years. In Kamoethway, the clearing of fallow land does represent a type of deforestation, but it should be understood as an integral part of a well-managed shifting cultivation cycle.

Findings from the Non-Timber Forest Products sector

The questionnaire respondents identified 80 different variety of vegetable consumed by the indigenous Karen people in Seik Pyone and Ka Meik villages.

Vegetable Sub-Sector

The findings on the vegetable sub-sector are similar to the findings of previous research conducted by the Kamoethway community-based organization RKIPN. In the past, RKIPN Working Groups members have systematically documented 91 varieties of vegetables in the forests of the Kamoethway area. The number of vegetables identified in this field study represent approximately 90% of the total number that RKIPN had previously identified through their participatory research (see Figure 2), and thus validates our findings.

Figure 2. Herbal Plant Species found in Kamoethway Area



Table 6 presents the 80 vegetable varieties identified through the questionnaire, categorized according to the season of harvest. Nine varieties are harvested in the summer, 25 varieties are harvested in the rainy season, eleven varieties are harvested in the cold season, and 35 varieties are harvested all year round.

Table 6. Varieties of seasonal NTFP vegetables

No	Summer	No	Rainy Season	No	Cold Season	No	All Three Seasons
1.	ပေါင်ဂေါ်ရို	1.	Daga	1.	Water Fig	1.	တညင်းရွက်
2.	ရေခဲငေါက်	2.	Bamboo Shoot	2.	Trumpet Fruit	2.	Fiddlehead fern
3.	Red Silk Cotton Flower	3.	Mushroom	3.	နီတီရွက်	3.	ဒါရင်ကောက်ညွန့်
4.	ခွဲဘောသီး	4.	သပြေသီး	4.	သာဘီဘော	4.	Banana Bud
5.	သိုးစည်းရို	5.	ကမိတ်သီး	5.	ကျက်ဆီးရွက်	5.	ကြိမ်ဖူး
6.	ကျောက်ကပေါက်	6.	တောကြက်ဟင်းခါး	6.	နွယ်အီး	6.	ကင်မွန်းချဉ်
7.	သစ်ပုတ်ရွက်	7.	ပေါ်စူးရို	7.	ဖတ်ချော့	7.	ငရက်ငှောက်
8.	မရမ်းချဉ်သီး	8.	သစ်တတ်စေ့	8.	ဟောတို	8.	တောဟင်းချိုရွက်
9.	သပြေရွက်	9.	ရေခမ်းသီး	9.	တောသလေးရွက်	9.	ရေခဲငေါက်
		10.	ပေါ်ထခေါ	10.	Pennywort Leaf	10.	ကတောချဉ်
		11.	ရေဆံစု	11.	ပိန်းဖူး	11.	ခရမ်းစပ်သီး
		12.	ရက်မျောသီး			12.	ဟော်သေနား
		13.	ပေါ်စက်ခွ			13.	ခွဲငုတ်
		14.	သစ်တိုသီး			14.	Ginger
		15.	ပေါ်ဘူးဆို			15.	ညာလီဖလိုးဒွက်
		16.	ရေသိုက် (ထိုသွံ)			16.	Marian Seed
		17.	ကြောင်လျှောသီး			17.	မုဆိုးလင်ရွက်
		18.	မော်ပေါ်ဒူ			18.	တောထန်းဖူး
		19.	ဝချောင်း			19.	သွေးဘိုးရို
		20.	ကြိမ်နီဖူး			20.	ရင်အေးနွယ်
		21.	ကြိမ်သီး			21.	ခွေးသေးပန်း
		22.	ကျော်ဒေါက်			22.	သစ်လုံးငယ်
		23.	စာကွ			23.	မဲက်
		24.	တောသရက်			24.	စိမ်းစားပိန်း
		25.	ပေါ်လောဒူ			25.	ဖီးဖူးရွက်
						26.	ကရယ်ဒေါ့
						27.	ဖက်
						28.	တာဘဲဒွက်
						29.	ပခတ်ပွဲ
						30.	အူဘော ပွေဒွက်
						31.	ဖာစောဒွက်
						32.	သေဒိုဒွက်
						33.	နောဝါးပိုဖော
						34.	တာဘဲရို
						35.	တိုးပရာချိုဒေါ့
	9 Varieties		25 Varieties		11 Varieties		35 Varieties

Resource: Field Research Data, TRIPNET

The list of 80 varieties of vegetables shown in Table 6 shows that the harvesting of vegetables from the forest is an important element of food security for people in Kamoethway. According to local people, most of these vegetables are only found in the Kamoethway area and are not normally consumed for food in other regions or by other communities.

Some interesting findings related to the NTFP vegetables sub-sector are explained below. The indigenous people of Kamoethway area believe that wild-growing forest djankol beans are gifts given by the forest to their community. These beans can be sold for a premium price and can provide a significant income for local people. Other forest vegetables which provide a source of income for local people are တညင်းရွက် and Fiddlehead fern. The green-coloured Fiddlehead fern is very soft and silky, and is an essential vegetable in family meals of Kamoethway people. Bamboo shoots and mushrooms are available in the rainy season, and are widely eaten by Kamoethway households as well as being an income source.



Fiddlehead fern

Aquatic Species Sub-Sector

In addition to the wide variety of vegetables growing naturally in the forest, indigenous Karen people in Kamoethway depend on local aquatic species for their food security. The abundance of aquatic species inhabiting the streams and rivers flowing through the Kamoethway forests guarantee the food security of local people. The questionnaire conducted in Seik Pyone and Ka Meik villages identified 48 different fish species, shown in Table 7.

This finding overlaps with previous participatory research on aquatic species conducted in Kamoethway by RKIPN. A local knowledge based research project in the Kamoethway river documented the presence of 108 fish species. Photos of the range of species were displayed in a poster listing the names in Burmese, Karen and English languages (see Figure 3). These local knowledge based research findings were the result of the dedicated effort of the RKIPN team, who are enthusiastically leading the long-term development of Kamoethway area and the conservation of its forests.

Table 7. List of Fish Species found in the Kamoethway River

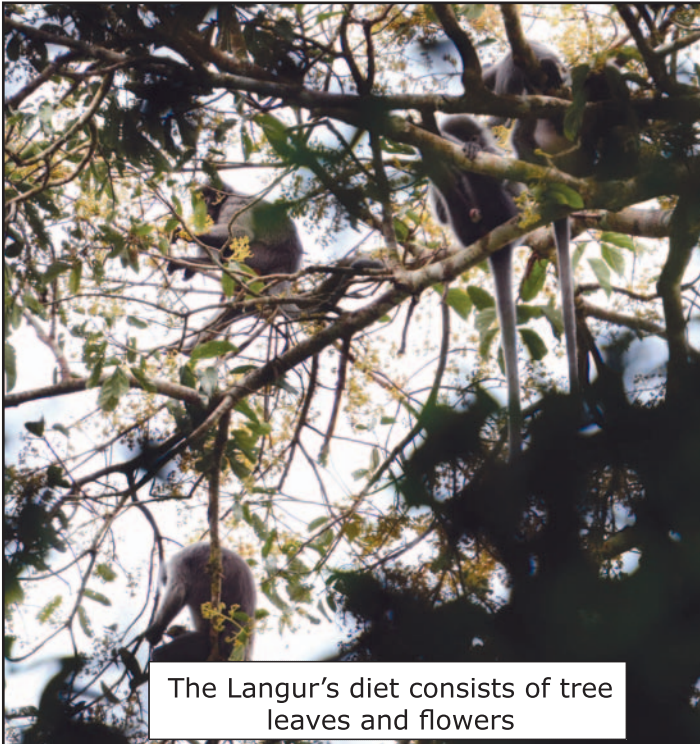
No.	Type of Fish	No.	Type of Fish	No.	Type of Fish
1.	<i>Pristolepis fasciatus</i>	17.	<i>Salmostoma sardinella</i>	33.	<i>Anguills bengalensis</i>
2.	<i>Ompok krattensis</i>	18.	<i>Danio kerri</i>	34.	<i>Bagarius yarrelli</i>
3.	Tor SP	19.	<i>Systemos stolizkaenuz</i>	35.	<i>Opsarius koretensis</i>
4.	<i>Xenentodon cancilla</i>	20.	<i>Clarias macrocephalus</i>	36.	<i>Chagunius SP</i>
5.	<i>Channa lucius</i>	21.	<i>Morulius chrysophekadon</i>	37.	<i>Macragnathus Sp</i>
6.	<i>Chamma gachua</i>	22.	<i>Ompok pabo</i>	38.	<i>Labeo dyocheilus</i>
7.	<i>Hypsibarbus vernayi</i>	23.	<i>Cyprinus SP</i>	39.	<i>Raiamas guttatus</i>
8.	<i>Crossocheilus SP</i>	24.	<i>Labiobarbus leptocheilus</i>	40.	<i>Mastacembelus fevus</i>
9.	<i>Channa marulis</i>	25.	<i>Macragnathus zerinus</i>	41.	<i>Lepidocephalichthys berdmorei</i>
10.	<i>Chagunius balleyi</i>	26.	<i>Puntius chola</i>		
11.	<i>Cyclocheilichthys apogon</i>	27.	<i>Neolissochilus vittatus</i>		
12.	<i>Labiobarbus Leptocheiluss</i>	28.	<i>Hemibagrus variegatus</i>		
13.	<i>Cyprinus Sp</i>	29.	<i>Neolissochilus stracheyi</i>		
14.	<i>Labeo dyocheilus</i>	30.	<i>Danio Kerri</i>		
15.	<i>Opsarius koretensis</i>	31.	<i>Hypsibarbus SP</i>		
16.	<i>Rasbora SP</i>	32.	<i>Cirrhinus SP</i>		

Resource: Field Research Data, TRIPNET

Figure 3. Fish Species found in Kamoethway River



Wildlife Sub-Sector



Indigenous Karen people living in Kamoethway have practiced the tradition of hunting for generations. Similar to the harvesting of wild vegetables and aquatic species from the forests of Kamoethway, the hunting of wildlife is predominately for household consumption and generally not for sale on the market.

According to the data collected from Seik Pyone and Ka Meik villages using our questionnaire, in present times there are 17 varieties of wild animals commonly encountered by hunters in the area.

These 17 species are shown in Table 8 below. Among the most commonly caught animals are boar, brown monkey, sambar deer, wildfowl, and muntjac. Local hunters typically consume all parts of the wildlife they catch, leaving little unused. For example, the small intestine of the leaf-eating Brown Monkey is considered a delicacy for Karen people as it contains a bitter-tasting semi-digested leaf mash similar to the popular fermented tea eaten across Myanmar.

Table 8. Species of Wildlife found in the Kamoethway Area

No.	Wildlife species	No.	Wildlife species	No.	Wildlife species
1.	Boar	7.	Porcupine	13.	Python
2.	Langur	8.	Monitor lizard	14.	မြူကြက်
3.	Slow loris	9.	Squirrel	15.	Bear
4.	Sambar	10.	Rabbit	16.	လိပ်သစ်ကောင်
5.	Wildfowl	11.	Serow	17.	Birds
6.	Muntjac	12.	Wild Cat		

Resource: Field Research Data, TRIPNET

Of the two villages where this field research was conducted, Seik Pyone is closer to the forest and local villagers practise hunting more regularly. In Ka Meik village, shifting cultivation and orchard tending are the main livelihoods so it is rare to find people who practice hunting regularly. Accordingly, the data regarding wildlife largely came from respondents living in Seik Pyone village.

The estimated annual value of these 17 species of wildlife is 18,112,000 Kyats. Based on this estimated value, the approximate value of an average household's annual wildlife consumption is 170,000 Kyats.

Summary of research findings section

In summary, our research shows that the lives of the people in Kamoethway are closely interlinked with the forest. People in Kamoethway depend on the forest for their survival, and their livelihood is intimately connected to the health for their forest. While most people use products from the forest for their subsistence not for earning an income by selling them on the open market, the value of the products that they receive from the forest is significant. Indigenous Karen people in Kamoethway do not have a market-based culture, and are more likely to share what they have with each other than to sell things to each other. Local people say that they do not even need or want to engage with the 'market' for their livelihood, as God gives them the forest as a gift and they receive everything they need through farming and by harvesting from the forest.

The key finding of this field research study is that the people in Kamoethway truly want to protect their traditional culture and way of life which is interdependent with the forest, and thus are highly motivated to conserve their forests.

The Forest provides a "home" for people in Kamoethway

Shelter is recognized as one of the three basic needs of all human beings. And more than just a shelter, people desire a 'home' which provides protection and comfort. Families in the Kamoethway area build their homes using locally-sourced timber, bamboo and leaves. Generally, three types of houses can be seen in Kamoethway.



House in Kami village
(First Type)

Typical Kamoethway houses

The first type of house is one in which the pillars, walls and floor are all constructed with timber while the roof is made of corrugated iron sheeting. This type of house is sturdy and long lasting. In the second type of house the pillars and the floor are constructed of timber, while the walls consist of woven bamboo and the roof is made with the leaves of mountain palm trees. The third type of house uses timber or big bamboo stalks as the pillars, the floor and the walls are built with bamboo and the roof is made with the leaves of mountain palm trees.

The multiple uses of mountain palm trees



Mountain palm trees are similar to the palm trees found in tropical regions, with large thick leaves that are strong and durable. In the Kamoethway area, the leaves of mountain palm trees are widely used as roofing material for houses since they are more durable than the nipa palm. Roofs made from mountain palm tree leaves keep a house cool in the summer, so people prefer them to corrugated iron roofs. Mountain palm tree leaves are not as durable as corrugated iron roof, but roofing made of them typically last from to five to seven years.

Villagers harvest palm leaves to use for roofing material

Local artisanal craftsmanship using timber and bamboo

RKIPN have conducted local knowledge based research on the varieties of timber, bamboo, and rattan found in the forests of Kamoethway. These studies have documented 165 varieties of timber, 18 varieties of bamboo, and 10 varieties of rattan. In this region, the most widely used timber varieties for house construction are iron-wood, lagerstromia, ကညင်, သင်္ကန်း, gum-kino tree, frangipani tree, ကပိုသွေးသစ်, ကင်းနီ, ကန်းစွန်, ပထူး, သစ်ချို, သစ်ကတုံး and ဆီပင်.

Local people use timber and bamboo not only for building houses, but also for making furniture, kitchen appliances and farming equipment. In the Kamoethway area households typically provide a furniture maker with the timber required to produce large pieces of furniture such as chairs, cupboards, tables and boxes. Small kitchen appliances and farming equipment will usually be produced by households themselves.

A significant finding from our field research is that in Kamoethway building materials harvested from the forest are used for both house construction and for important household items including furniture and farming equipment. Table 9 outlines the house components and types of furniture and farming equipment that local people in Kamoethway produce from timber harvested from the forest. It is clear that local people depend on the forest to provide for most of their housing and household items needs, rather than purchasing imported manufactured goods from the market. This finding provides yet another example of the unique relationship between the forest and forest-dependent communities.

Table 9. List of house components and household items produced from wood, bamboo and leaves harvested from the forest

No.	Components of a House	No.	Furniture	No.	Farming Equipment
1.	Pillar	1.	Table	1.	Cart
2.	Floor	2.	Chair	2.	Boat
3.	Roof	3.	Cupboard	3.	Rice Grinder
4.	Wall	4.	Bed	4.	Fish catching equipment
5.	Ceiling	5.	Box	5.	Plow
6.	Ladder	6.	Dish Stand	6.	Knife Handle & Sheath
7.	Window	7.	Pestle	7.	Crossbow
8.	Door	8.	Mortar	8.	လင်းလေး
		9.	Ladle	9.	Grinder
		10.	Basket	10.	Grinder with paddle
		11.	Strainer	11.	Axe / Hammer Handle
		12.	Mat	12.	Yoke
		13.	Broom	13.	Traditional Cup
		14.	Bowls	14.	Traditional Water Bottle
		15.	Traditional Helmet	15.	Handle of Reaping-Hook

Resource: Field Research Data, TRIPNET

Artisanal craftsmanship & deforestation

Some may question to what extent the timber required by local people for the construction of their housing and household items may be causing deforestation in Kamoethway. While this is a sensible question, our field research suggests that these local timber requirements are not large enough to be counted as a cause of deforestation.

The amount of timber required by people in Kamoethway for housing and household items is not large because new houses and furniture are built infrequently. The most significant part of local houses that requires frequent replacement are the roof shingles made from mountain palm trees leaves. Mountain palm leaves can be harvested from the forest without causing deforestation.

During the course of our field research in Seik Pyone and Ka Meik villages, we did not witness the construction of any new houses nor did we see any houses that appeared to be newly built. We did not see any evidence of people stockpiling logs or cut timber planks. In our interviews, local people told us that if a house needs to be repaired, the villagers will only cut the specific amount of timber necessary for the repair. Therefore, our field research indicates that the local timber requirements for house construction and furniture building are not significant drivers of deforestation.

Forest Conservation and Management: Changes and Challenges

The Kamoethway area of Tanintharyi region was once covered with dense forests which were geographically contiguous with forests in Kanchanaburi province of Thailand. According to local people, in the past it was common to see rare wild animals such as tiger, rhinoceros, tapir and elephant in these forests. Following the creation of numerous national parks in Kanchanaburi in the 1980s and the imposition of a logging ban in 1989, the incidence of illegal logging in the forests of Myanmar increased significantly. Areas of Myanmar bordering Thailand, such as Kamoethway, were disproportionately impacted by this increased illegal logging activity. As a result of this destruction of wildlife habitat, many wild animal species became endangered, some even close to the point of extinction. For example, wild elephants could no longer live peacefully in the forests of Tanintharyi Region, and many were moved to wildlife sanctuary forests in Kanchanaburi, Thailand.

In recent years, Myanmar has experienced political and economic reforms which have led to changes in laws and policies related to forest management and environmental conservation. Other political developments have also impacted the forest conservation and management context for people in Tanintharyi Region. Elections were held in 2010 and 2015. The Myanmar government and Karen National Union (KNU) entered into a bilateral Ceasefire Agreement in 2012, and the KNU signed Nationwide Ceasefire Agreement in 2015. This period of political transi-

tion has created an opportunity for indigenous Karen people to again take the lead in forest conservation and management within their territories.

Indigenous Karen people from the Kamoethway area, who had previously lived under the oppression of a military government, have now taken the opportunity to re-establish their Karen community solidarity with the aim of promoting their culture and conserving their natural environment. With the signing of the ceasefire agreements, local people were able to access their ancestral land which they had previously abandoned because of the armed conflict. The impact of this evolving conflict situation for local people in Kamoethway is described in the following excerpt from the report titled *We Will Manage Our Own Natural Resources*:

“Kamoethway (or Kamaungthwe in Myanmar language) has experienced decades of violent conflict, including a heavy military offensive by the central government in 1997. For many years, the river roughly served as a dividing line between KNU and government territory, with civilian villagers caught in the middle of the fighting. Under successive offensives by the Myanmar military, villagers suffered forced labor and conscription, extortion, looting of property, destruction of homes and food supplies, and arbitrary killings. Suspecting villagers of colluding with KNU forces, the Myanmar military targeted villages on the Eastern side of the river, forcing many people to abandon their homes and live as IDPs on the Western side of the river. Since the ceasefire was signed in 2012, fighting has stopped in Kamoethway and some villagers have tentatively returned to farm their old land on the Eastern side of the river.” (Page – 8)

The cessation of armed conflict due to the ceasefire agreements and the opening of greater political space due to democratic reforms has meant that local communities are able to formally organize themselves. Many communities in Tanintharyi Region have formed new peoples’ organizations and community-based organizations. Under the previous military government these types of organizations were banned, and local people were afraid to speak out to loudly for their rights. At present, these peoples’ organizations and community-based organizations are taking the lead in movements for community-led natural resource management, forest conservation and environmental protection.

The major organizations working in the Kamoethway area – CSLD-K, RKIPN and TRIP NET – were founded just after the signing of the 2012 ceasefire agreement between the Myanmar government and the KNU. The leaders of these new community organizations have survived decades of war and are now keen to work for the development their communities and the protection of their environment and forests.

In this time when local people are now able to actively work to cure the social injuries from decades of war and the oppression of successive military governments, a new set of challenge has arisen. Tanintharyi Region is facing a flood of private investment, much of it in extractive industries, as well as an influx of international conservation organizations who have the goal of conserving the forest, often at the expensive of the people who are living in the forest. Forest dependent communities are increasingly being squeezed between the pressures from these two external forces. The indigenous people of Kamoethway have realized that they need to protect and conserve the sustainability of their forests themselves. Local people have initiated the conservation of the environment in the Kamoethway area under the motto "We Will Manage Our Own Natural Resources."

Related to the arrival of these two powerful external actors – private sector investors and international conservation organizations – is the biggest challenge that local people are facing at present: the imposition of top-down laws and policies affecting their territories, designed and implemented without local participation or even knowledge that the process is happening.

For the people of Kamoethway an important example of these sorts of externally-designed and top-down initiatives is the Tanintharyi Nature Reserve Project (TNRP). This project was implemented without local consent as part of the Corporate Social Responsibility program of a natural gas pipeline project in the area. The boundaries of the TNRP reserve were designated along the pipeline route, which passes through the forests in Yay Phyu township and the Kamoethway area. Local people in Kamoethway only learned about the restrictions which were to be imposed on them when the boundary markers for the TNRP reserve were installed on their ancestral lands. Indigenous people in Kamoethway prefer to implement their own forest conservation and natural resource management systems, and continue to struggle against top-down initiatives such as the TNRP.



Seik Pyone villagers were not consulted before this signboard was installed in the center of their village

The work by local community-based organizations for the sustainable management and conservation of the forests in the Kamoethway area has never been easy. However, they know that their goal is not impossible, and are dedicated to continue their struggle. Local people have come to realize that for them to effectively exert their rights to conserve and manage their forests, and demand a seat at the table with government and external actors, they must clearly document and publicize their traditional forest management and conservation systems. To achieve this aim, these organizations have conducted multiple participatory research initiatives relating to their local forests. This research study itself is also a small contribution to achieving the aims of local people in the Kamoethway area.

Voices from the indigenous people of Kamoethway

The philosophy and structure of RKIPN

In the course of conducting this research, we interviewed RKIPN team leaders who are managing their forest conservation initiatives. These environmental activists spoke at length about the philosophy driving the work of RKIPN, which is that “conserving and managing the forest should be done by indigenous people themselves”.

The following list highlights some direct quotes taken from our interviews with RKIPN members that are representative of their philosophy:

- No one can have better knowledge than the indigenous people themselves about the forests in the Kamoethway area.
- No one understands the importance of implementing necessary forest conservation rules and regulations better than the indigenous people themselves.
- Changes in the political positions of government authorities and their forest management plans come-and-go, but we indigenous people have been living and sustainably managing the forest in Kamoethway area for generations.
- The respective government authorities need to recognize and value the indigenous peoples’ traditions and cultures relating to forest conservation.
- There is a presumption among government authorities that they need to train indigenous people in the systematic conservation of the forest, but this is misguided.
- The most important thing is to give indigenous people the opportunity to manage and conserve the forest.

The unique relationship between Kamoethway people and the forest

For the people living in Kamoethway, the forest means everything. The following direct quotes from villagers are representative of how local people feel about their interdependent relationship with the forest:

- ◇ Our forest is the number one priority for us. Without the forest, we won't be able to earn our living and we won't survive. That is why we acknowledge that our forest is our life saviour. We can't live without our forest.
- ◇ The forest provides us the materials needed to construct our homes. We don't need to go far to get the necessary timber to build our houses.
- ◇ Without the forest, we will lose everything including food, shelter, good atmosphere, and sources of clean water.
- ◇ The forest supports us to meet our livelihood needs free of charge. If the forest is gone, it will cost us a lot to live. We will have to struggle. Without the forest, it won't be peaceful. The forest is essential for us. We will need to conserve and protect our forest for the future of our children.
- ◇ If the forest is gone, it will affect our income. We will lose our food source. We will be in debt. It will make us upset, and we will be in trouble.
- ◇ These days, it is harder to find water than before. That's why we don't cut trees near the streams. We come to realize that there will be water if there are trees. Without the trees, the streams will dry up.
- ◇ We survive together with our forest. The forest provides us food and medicinal herbs. We get necessary timber to build houses, and also firewood from the forest. The forest provides us everything. We can't survive without our forest. We must conserve and protect our forest.

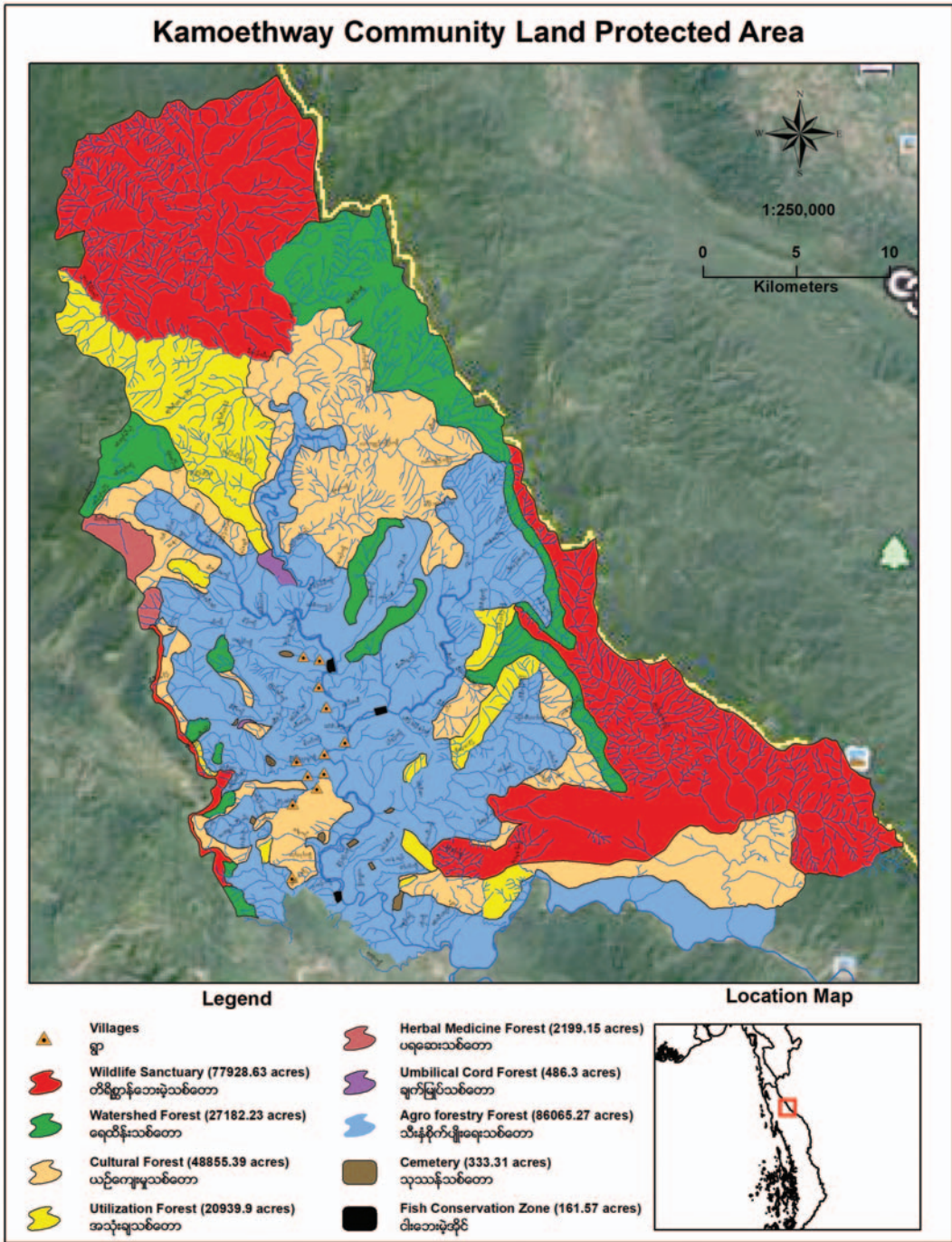
Examples of Indigenous forest management and conservation systems

Community forest conservation zones

RKIPN has led a process of documenting and demarcating community forest conservation zones in the Kamoethway area. Through a process of participatory research in the forests of Kamoethway, the RKIPN team documented nine Conservation Zones observed by the local people. While each of the 12 villages in Kamoethway does not necessarily have all of these nine zones nearby, the nine zones exist in the wider Kamoethway area for the benefit of all people living in Kamoethway. The nine conservation zones are: (1) Wildlife Sanctuary, (2) Watershed Forest, (3)

Herbal Medicine Forest, (4) Cultural Forest, (5) Umbilical Cord Forest, (6) Utilization Forest, (7) Agroforestry Area, (8) Fish Conservation Zone, and (9) Cemetery. Figure 4 shows the map of the nine zones. More details on the intentions behind the establishment of these nine Conservation Zones, and the rules and regulations applied to each can be found in Annex 3.

Figure 4. Map of Community Protected Area



Demarcating boundaries and mapping

One of the biggest challenges faced by local communities in Myanmar is the demarcation of village boundaries and issues related to land tenure. This is especially so for the Kamoethway area, which was under the control of armed forces as an active conflict zone for decades. Kamoethway is presently considered a dual-administration zone, meaning that the authority of the Myanmar national government and the Karen National Union government overlaps in the area. This makes the demarcation of boundaries more complicated. Compounding this complication is the fact that due to decades of armed conflict, people abandoned their ancestral lands for many years and were not able to conduct forest conservation activities. Therefore, extra careful steps need to be taken in handling this delicate situation regarding boundary demarcation and land tenure rights. Because every small step can significantly impact the lives of local people, the opinions and traditions of the native inhabitants must be considered in all matters related to mapping of boundaries.

During the field research, we discovered an interesting traditional practice for managing land tenure. In the past, the sixty households of Ka Meik village were on the east side of the Kamoethway river. Because of the escalation of armed conflict in the area in 1997, the whole village had to move to west side of the river and has remained there ever since. The residents of Ka Meik village had to abandon their houses as well as their farms and orchards. However, in 2012, the Myanmar government and KNU entered into a ceasefire agreement, and people could gradually return to their previous abandoned farms and orchards. Since it had been 15 years since they last worked there farms and orchards, we asked them how they determined the boundaries of the lands of different households. Ka Meik villager Daw San Shein explained as follows:

"In our region, land property is handed-down within families generation to generation. Between the natives of this area there is no such thing like land documentations, we just have "loyalty". The whole village knows which family owns which land property. The land boundaries are usually marked using distinct big trees, streams or slopes. Everyone accepts it. There is no such thing like dispute arising from land property. If we don't want to work this year, we just let other people work in our farms for a year. During the wars, we had to move to this side of the stream. We encountered many difficulties. Families were separated. Some family members moved to refugee camps in Thailand, and from there, they were sent to other countries. However, no one come and seize other people' properties. We have "loyalty". Even if we want to work in other people' farms, we ask for their permission first. I am now back working back on my farm which had been abandoned for 15 years. Our villagers accept the traditional practices, and so we have no problems with the land property.

The case of Ka Meik village shows the importance of ensuring the full participation of local indigenous people in all decisions regarding land tenure and boundary demarcation in this pre-post-conflict setting.



Interviews conducted at Seik Pyone village

Conclusion

In Myanmar it is all too common for important forest-related laws, policies, rules and regulations to be promulgated and imposed by government authorities living far away from the forests. The demarcation of land for private sector concessions and conservation areas are often done on maps in distant offices without even visiting the actual land under discussion. This top-down approach to forest conservation and management lacks consideration for the livelihood, way of life, culture and concerns of indigenous forest dependent communities.

If a policy is beneficial for the lives of local people then it will lead to country's development, but if the imposed policy has negative effects on local people it will only promote poverty and instability. Before imposing any new forest conservation and management laws, policies, rules or regulations, the government of Myanmar should systematically conduct participatory research with forest dependent communities and include the concerns and desires of local people.

This research paper has shown that the lives of the indigenous Karen people from the Kamoethway area cannot be separated from their forests. They live interdependently with the forest. The forest provides forest dependent communities with Life Security, Food Security, Economic Security and Ecosystem Security. These Securities are interrelated, and if one of them vanishes then the whole community in Kamoethway area will encounter difficulties maintaining their way of life.

In conclusion, any future forest conservation and management laws, policies, rules or regulations should be established without interrupting the ability of the forests to provide all of these four securities to forest dependent communities. If this is done, then we can say that Myanmar's forest conservation and management system is truly people-centered and sustainable for the forest and indigenous people from forest dependent communities.

Annexes

Annex 1. About RKIPN

The idea to form a people’s organization was first suggested at a community meeting facilitated by the Tenasserim River and Indigenous Peoples Networks (TRIP NET) in October 2014. The villagers had invited Chai Prasert, a well-known Thai-Karen community leader and expert on traditional rotational farming practices and protection of forest ecosystems. At the meeting, Chai Prasert shared the experience of Karen communities living in the forested uplands of Thailand, many of whom have been deemed illegal occupants in national parks, despite having lived there for generations prior to the formation of the parks. Karen villagers in Thailand have been battling the Thai forest department for decades to secure community land rights and prevent evictions from their homes and farmland, and Karen people in Tanintharyi are beginning to feel similar pressures. So it was at this meeting that the idea came about to form a village committee dedicated to environmental conservation, as a way of proving that the local indigenous people can indeed effectively manage their own natural resources without government intervention, and thus preventing land grabs and evictions in the name of conservation. The response by the community was enthusiastic. At this meeting alone, 77 participants volunteered to take part in the new committee, villagers began brainstorming about its structure and approach to conservation, and a new people’s organization began to take shape.

The organization grew organically, with participants deciding on everything from its name, its structure, and its leadership democratically. After several rounds of voting and discussion, villagers agreed on the name: Rays of Kamoethway In-



Monthly Meeting

digenous People and Nature (RKIPN or Kamoethway Mu Yay in Karen). Rays of sunlight, which are represented on the Karen flag and in many other places in Karen culture, are an important symbol of Karen freedom, and a fitting name for the organization.

One year later, RKIPN has grown to 94 members, representing each of the 12 villages in Kamoethway. More members are free to join at any time, as villagers feel everyone has something important to contribute. The group is led by a volunteer committee consisting of a chairperson, vice chairperson, secretary, vice secretary, and accountant – all elected democratically based on their leadership skills and understanding of community issues. Each village also has a coordinator, to facilitate communication between RKIPN and other villagers. RKIPN formed six working groups, according to the traditional knowledge of the villagers. These are Vegetables, Herbal Medicine, Wild Animals, Handicrafts, Forest, and Rotational farming. Women’s participation is especially strong in the vegetables and herbal medicine groups, but still only about one fourth of the overall participants are women.

Annex 2. Interview with RKIPN’s Herbal Medicine Working Group

The following interview with members of the Herbal Medicine Working Group provides an overview of the responsibilities of this Working Group.

Question: Why we need to organize Herbal Medicine working group?

Answer: It is to re-identify the herbal medicines that have been using since the time of our Karen ancestors. These medicinal plants can be found in the forest, mountain, streams and even within the village. Without these medicinal plants, we can’t have medicine, which is necessary for health care of the villagers. That’s why we organize this Herbal Medicine group.

Question: What is the objective of organizing this group?

Answer: We would like to recover the Karen traditional practices of boiling medicine and taking bath culture. Once a year, during the hottest time of Thingyan period, we used to go up to the mountain to collect herbal leaves. After that, we boil all these leaves to drink, and also to take a bath with it. This is the traditional practice. It is to be healthy for the whole year.



Interviews conducted at Seik Pyone village

We want our new generations to value these cultural practices. We would like to forward and teach them the way to locate the herbal plants, and the method of managing and using by themselves. Protecting the medicinal plants also means protecting our forest. We value our culture practices, and so we want the outsiders the same as we do.

Poor people cannot afford to go to clinics in the City. Herbal medicines are of low-cost, and have no side-effects. It is very advantageous.

Question: How they usually manage the Herbal Medicine Forest conservation? What are the challenges they encounter?

Answer: We conduct researches together with the herbal medicine practitioners in the forest. We educate the locals on the way. We determine and establish the Herbal Medicine Forest zone. We mark the medicinal plants, which are about to be extinct, and protect them. We re-plant the plants within our compound. We re-plant the herbal plants from other regions. However, we still cannot do many things.

Another challenging thing is that we cannot make the medicines durable after making it. We need technology. There are very few records about traditional herbal medicines. There are professional herbal medicine practitioners. But, they do not want to share their knowledge of what plant is good for what disease and so on. They do not wish to share their techniques. So, we need to think of how to make improvements from this situation.

Annex 3. Rules and Regulations for Kamoethway's 9 forest conservation zones

In Kamoethway, RKIPN with input and agreement by villagers has established 9 categories of community-protected forest areas based on indigenous knowledge and practice.

1. Wildlife Sanctuary



Hunting the Great Hornbill is strictly prohibited in Kamoethway.

Objectives

1. Ensure a safe habitat for wildlife.
2. Increase the populations of endangered species.
3. Protect the value of the tropical rainforest ecosystem.
4. Protect the co-existence of indigenous peoples and wildlife.

Rules and Regulations

1. It is prohibited to harm wildlife for any reason, including scientific research.
2. Logging, mining, and farmland expansion are prohibited.
3. It is prohibited to harvest non-timber forest products (NTFP) for selling (personal use is allowed).
4. Development projects such as infrastructure, roads, bridges, electricity,

and permanent buildings are prohibited.

5. Burning the forest for any purpose is prohibited.
6. Before the wildlife working group goes to monitor this area they must inform other working groups.
7. Any outside organizations that would like to conduct surveys or research in this area must inform RKIPN.

2. Watershed Area

Objectives

1. Conserve the water source in order to utilize water and its resources sustainably in the future.
2. Obtain adequate, clean and safe water.
3. Restore the watershed ecosystem.
4. Obtain sufficient water for household consumption and domestic agriculture.

Rules and Regulations

1. It is prohibited to collect, harvest, or clear any plants or flowers in the watershed area.
2. It is prohibited to clear land for mining, agriculture, or private expansion.
3. Burning the forest for any purpose is prohibited.
4. Brick making, charcoal making, and earth-extraction are prohibited.
5. Any activities harmful to water creatures in the watershed area are prohibited.
6. It is prohibited to hunt any wildlife species classified as restricted by the community.
7. No construction is allowed except for community-managed eco-tourism.
8. Non-native tree species are not allowed to be used for reforestation in this area.
9. Native tree species can be planted at the watershed area after agreement by the community.
10. Water supply system for domestic use shall not harm the watershed ecosystem.
11. Water from the watershed area shall not be used for private business.
12. NTFP can be collected for household consumption only, not for sale.
13. Non-prohibited wild animals can be hunted for household consumption.

3. Utilization Forest

Objectives

1. Benefit the local indigenous peoples, future generations, and wildlife.
2. Obtain local construction materials such as timber, bamboo, rattan, etc.
3. Obtain firewood, food, and herbal medicine.
4. Show that, with good management, people can utilize forest resources to meet their needs in a sustainable way.

Rules and Regulations

1. Timber cannot be traded to outsiders.
2. Burning the forest for any purpose is prohibited.
3. Doing rotational farming or any agriculture is prohibited.
4. A family can harvest only 5 tons of timber (raw log) for house construction. If more is needed they need to ask permission from the community.
5. Anyone harvesting timber must ask permission and consult with the local environmental group.
6. In order to show responsibility and accountability, those who cut trees must cut in locations where there will be less impact. They must also replant trees to replace those that they cut.
7. Those who cut trees in this area must be aware not to waste any part of the tree.
8. Permission from the community is required to collect NTFP.
9. It is prohibited to cut trees less than 6-feet in girth.

4. Herbal Medicine Forest

Objectives

1. Maintain valuable medicinal plants.
2. Utilize these plants for health purposes when needed.
3. Benefit wildlife.
4. Maintain traditional healing practices.
5. Develop and package herbal medicinal plants for convenient medical treatment.



Once a year the villagers go to the herbal forest for a healing ceremony.

Rules and Regulations

1. Any form of destruction or clearing is prohibited in this area.
2. It is prohibited to harvest more than what you need.
3. Burning the forest for any purpose is prohibited.
4. Certain medicinal plants may be transplanted in the forest area to increase their number, according to the traditional knowledge.
5. Outsiders are strictly prohibited from conducting research in this area for any purpose. If they would like to do so, they are required to get permission from the community and collaborate with the local people's representatives.

5. Cultural Forest

Objectives

1. Provide an opportunity to practice rotational farming which illustrates Karen tradition and culture.
2. Pass on knowledge about rotational farming to the next generation.
3. Maintain biodiversity and save seeds to improve food security for people and wildlife.
4. Maintain Karen culture and tradition through unity and working together.



Traditional rotational farming is a way of conserving biodiversity and promoting forest regeneration.

Rules and Regulations

1. It is prohibited to plant permanent crops.
2. It is prohibited to use chemical fertilizer, pesticides, or Genetically Modified Organisms (GMOs).
3. The rotation period must be at least 7-8 years before returning to a fallowed field.
4. When burning a field, steps must be taken to ensure the fire will not spread beyond that area.
5. It is strictly prohibited to sell this land.
6. Clearing the forested/fallow land outside of the normal rotation is prohibited.
7. Monoculture is prohibited.

6. Agroforestry Area

Objectives

1. Maintain food security for the community and to protect the forest ecosystem.
2. Rehabilitate the forest in a way that also generates income for the community.
3. Integrate planted food crops according to local forest type.
4. Maintain climate stability and groundwater supply.

Rules and Regulations

1. It is prohibited to establish agroforestry near a steep slope, stream, or salt lick.
2. It is required to integrate many species of trees.
3. It is required to practice ecological agriculture.

7. Fish Conservation Zone



Fish from the Kamoethway River are an important source of food for local people

Objectives

1. Ensure food security of the local people.
2. Increase the population of water creatures.
3. Achieve recognition of indigenous customs by practicing traditional conservation methods.
4. Restore utilization and protection practices amongst local communities.
5. Conserve the water and river ecosystem and rehabilitate degraded ecosystems.
6. Conserve the water source and maintain good quality water in order to improve the quality of life of the local community.

Rules and Regulations

1. Catching fish or any water creature is prohibited in this area.
2. It is prohibited to cut forest trees which give shade.
3. It is prohibited to destroy or harm this ecosystem for any purpose.
4. Any activity, such as mining or agriculture, which causes water to flow into the fish conservation zone is prohibited.
5. Destructive methods of catching fish, such as using electric shock, are prohibited above and below the fish conservation zone.
6. It is prohibited to damage the water quality in this protected area.

8. Cemetery

Objectives

1. Provide trees for making coffins as needed.
2. Provide materials for building community shade structures as needed.
3. Restore the forest.

Rules and Regulations

1. Farming is prohibited in this area.
2. Trees and bamboo can only be cut to be used for dead people.
3. Burning the forest for any purpose is prohibited.
4. It is strictly prohibited to buy or sell land in this area.
5. It is required that the community plants more trees in this area.

9. Umbilical Cord Forest

Objectives

1. Maintain and restore Karen traditional culture.
2. Provide adequate forest trees for the traditional umbilical cord ceremony.
3. Rehabilitate forest sustainably in the local area.



The 'umbilical cord forest' is where the soul of a new born baby is attached to the soul of a tree by placing the umbilical cord into a piece of bamboo and tying it to a tree.

Rules and Regulations

1. It is prohibited to cut or destroy trees in this area.
2. Burning the forest for any purpose is prohibited.
3. Building or construction in this area is prohibited.
4. It is prohibited to collect firewood or charcoal from this area.
5. It is permitted to collect vegetables and herbal medicine for household use from this area.

Field Research Activity



The Research Team is ready to go to the field.



Researchers go door-to-door collecting data.



At night, the collected data is transferred to a central data bank to keep it secure.



The Research Team



A public consultation was conducted before the research started.



TRIP NET presents the community-driven natural resource management model.

