



**Collecting Proverbs, Old Sayings and  
Community Rules related to Climate  
Change and Forest Management in  
ASEAN Countries**

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APAFRI would like to record our appreciation to colleagues from the region who had responded to our calls to conduct the surveys and produced the reports for this compilation: Prof. Ervival Amzu, Bogor Agricultural University (IPB), Bogor, Indonesia; Dr Lim Hin Fui, Forest Research Institute Malaysia (FRIM), Kepong, Peninsular Malaysia; Mr Julius Kulip, University Malaysia Sabah (UMS), Sabah, Malaysia; Dr Antonio M. Daño, Ecosystems Research and Development Bureau (ERDB), Philippines; and Dr Pham Duc Chien, Research Institute for Forest Ecology and Environment, Vietnam.

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# Collecting Proverbs, Old Sayings and Community Rules related to Climate Change and Forest Management in ASEAN Countries

## Introduction

The human race had learned much wisdom from their co-existence with the natural surroundings of the Mother Earth. The wisdom had enriched their knowledge and capability to thrive and weather through numerous calamities and disasters for many centuries on this planet.

By closely observing the nature, our ancestors had learned how to manage the resources and deal with severe situations such as climatic disturbances. Much of the knowledge had been adsorbed into modern sciences and technologies contributing to the wellbeing of the modern societies today. However, there are still lots of this knowledge which modern sciences have difficulties to explain convincingly.

These knowledge which have been handed down the generations, is collectively known as Traditional Ecological Knowledge (TEK), which has been defined as “a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment”. TEK are typically encrypted in proverbs, old sayings or rules. Many of these had survived the centuries, and were widely accepted and adhered to in modern societies.

The Indigenous People, of which there are 260 million in Asia alone with more than 2,000 civilizations and languages, live in diverse environment over the continent. Some of them live in high mountains, some in or next to the forests, or along rivers, and in coastal regions. Their TEK are therefore linked to ecosystem stewardship which varies in relation to the environment that they live in. For example, the *Hakka's* tradition of maintaining *fengshui* forest and tomb forest contributed to changing landscape restoration in China (Zhang *et al.* 2015), and traditional weather forecasting enables sustainable agroforestry in Ilocos Norte Province of the Philippines (Galacgac & Balisacan 2009). The United Nations (2014) also stated that Indigenous People can contribute their traditional knowledge for the effective use and preservation of the environment. Indigenous knowledge could inspire the world in climate change and disaster risk reduction.

While Mason (2000) indicated that oral tradition is not trustworthy as it depends on memory and verbal transmission; Hong *et al.* (2016) however stressed that proverbs, old sayings and community rules have validity by their nature. Proverbs and old sayings are expressions of basic truths or practical percepts that based on common sense or cultural experiences. The community rules, on the other hand, have been

established based upon the communities' philosophy and beliefs to regulate and guide communal behaviours and activities. Documenting proverbs, old sayings and community rules are therefore an effective way to learn about the TEK of the Indigenous People. A better understanding of the proverbs, old sayings and community rules can contribute to solving the problems of modern society.

As an extension to a preliminary study in Korea, the National Institute of Forest Science (NIFoS, formerly known as Korea Forest Research Institute (KFRI)), had proposed to conduct similar studies in Southeast Asia. The initial proposal was discussed during a workshop in Kuala Lumpur, organized by the Asia Pacific Association of Forestry Research Institutions (APAFRI), 2–4 March 2016; and participated by colleagues from four SEA nations: Indonesia, Malaysia, Philippines and Vietnam.

## **Methodology**

Adapting from Hong *et al.* (2016), the study shall comprise the following two components:

### *1. Gathering of proverbs, old sayings and community rules of Indigenous Peoples*

- a. Interview the elders in each village/community to gather proverbs, old sayings and community rules following the steps in the field note (Annex 1).
- b. Document the proverbs, old sayings and community rules in the native language, and translate into official language and English.
- c. Note the literary meaning in English and state the subject/keywords of the proverbs, old sayings and community rules. For example, for the proverb “tree dies when it is moved, man lives when he is moved”, the subject could be ‘tree and man’.
- d. Categorize the proverbs, old sayings and community rules. For the Korean proverb “tree dies when it is moved, man lives when he is moved”, it is categorized as ‘Plants, and principles for management’.
- e. Check the spatial range of the proverbs, old sayings or community rules. If it is only by a person or a family, it is classified as ‘personnel level’. When it is common in a village or community, it is ‘community level’, and if it is known to many communities, then it is ‘regional level’ and to the whole nation, it is ‘national level’.
- f. Explain the TEK which implicated in the proverbs, old sayings or community rules and its applicability to modern society.

### *2. Recognition Survey*

This questionnaire (Annex 2), adopted and modified from Brown & Wright-Harp (2011), aims to understand:

- a. if the respondents know the proverb/old saying/community rule;

- b. how they recognize it;
- c. if they know it, then provide the meaning correctly
- d. respondents are asked the validity as stated in the proverb/old saying/community rule.

### **Participating countries**

Five researchers from four Southeast Asian countries were invited to carry out the studies in their respective countries:

- Ervival Amzu, Bogor Agricultural University (IPB), Bogor, Indonesia
- Lim Hin Fui, Forest Research Institute Malaysia (FRIM), Kepong, Peninsular Malaysia
- Julius Kulip, University Malaysia Sabah (UMS), Sabah, Malaysia
- Antonio M. Dano, Ecosystems Research and Development Bureau (ERDB), Philippines
- Pham Duc Chien, Research Institute for Forest Ecology and Environment, Vietnam

The studies were completed by the end of 2016, and their reports were submitted to APAFRI Secretariat for compiling into a single volume.

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**Field Note**

1. *Proverbs / Old sayings / Community rules*
  - a. (In native (local) language) 제비가 낮게 날면 비가 온다
  - b. (In official language) 제비가 낮게 날면 비가 온다
  - c. (In English) If swallows fly low, it will rain.
  
2. *Meanings*
  - a. Meaning: People believed if swallows fly low, it will rain.
  
  - b. Subjects (keywords): swallow, rain
  
  - c. Scientific interpretation:  
Just before it rains, the air pressure would be lowered and insects would fly nearer to the ground. The swallows would need to fly nearer to the ground to catch prey insects.
  
3. *Types of Ecosystem Services*  
Provisioning / Regulating / Cultural / Supporting
  
4. *Source of knowledge*  
Where / Whom did you learn this from?  
Parents / elders / friends / media / literature / others (            )
  
5. *Applicability to modern society (researcher's comments)*  
The abnormal behaviour of animals could mean changing microclimate, and could thus be used to forecast the weather.

## Recognition Survey

This survey is designed to see which are the proverbs, sayings or community rules one recognizes. People know different sayings depending on where they grew up, how old they are, and many other reasons. Some people may recognize very few of the sayings below, while others may recognize many more.

### Instructions

1. Please put an X next to proverb/old saying/community rule that you have heard before.
  2. It is alright if a word or two is different from the way you have heard before. For example, if you have heard "Don't bite more than you can chew" then you can check off "Never bite off more than you can chew."
  3. Do not guess the meaning of proverbs/old sayings/community rules that are unfamiliar. Only mark proverbs/old sayings/community rules that you have heard before.
  4. If you know the meaning of the proverbs/old sayings/community rules, write down the meanings below.
  5. If you agree with the meaning, check **yes**. If not, check **no** and please write down the reasons. ....
- 
1.    1) When swallows fly low, rain comes.  
       means :
  - 2) Do you agree with it?  
            yes    no (why? \_\_\_\_\_ )
  
  2.    1) Rice ripen well when the summer is sweltering.  
       means :
  - 2) Do you agree with it?  
            yes    no (why? \_\_\_\_\_ )
  
  3.    1) If it rains often in spring, the hand of women becomes bigger.  
       means :
  - 2) Do you agree with it?  
            yes    no (why? \_\_\_\_\_ )
  
  4.    1) Trees with deep roots sustains drought.  
       means :
  - 2) Do you agree with it?  
            yes    no (why? \_\_\_\_\_ )

# Indonesia Oral Tradition Collecting: Proverbs, Old Sayings and Community Rules of the *Kerinci* and *Manggarai* Communities

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## Introduction

Indonesia is a mega cultural country, comprises of more than 550 ethnics that spread from Sabang in the eastern most region to Merauke in the western most region of the country. These ethnic groups, with over 73,798 villages (350,000 hamlets or *kampung*), live and interact with the surrounding forest environment (Baplan 2013). Each community shows varied level of knowledge. In addition to the differences in environmental conditions, their knowledge is also influence by the level of advancement of their culture. The level of knowledge of a community is the accumulation of their interactions with the natural environment in which they live.

These people live in various types of environments such as in mountainous areas, in or near forest areas, along the rivers and in coastal areas, and co-exist with the surrounding nature. They observe and study the natural processes carefully, learn how to manage resources, and adapt to the changing environment such as climate change. Such knowledge has been passed down for generations, and is commonly known as the Traditional Ecological Knowledge.

Traditional ecological knowledge is the accumulative body of knowledge, practices and beliefs of a community that describes the relationships of living beings (including humans) with one another and with their environment. The knowledge has developed through adaptive processes by means of cultural transmission from one generation to the next. Traditional ecological knowledge is useful to analyse all aspects of traditional knowledge about the environment, including the perceptions and conceptions of the environment and the inherent natural resources, to analyse the formative influence of local perception on the environment and the development of knowledge (Anderson *et al.* 2011).

Some studies have indicated that traditional ecological knowledge can contribute to environmental protection. Helida *et al.* (2016) stated that the tradition of *pelak*, a type of agroforestry system of the *Kerinci* community, is able to preserve the forest and simultaneously improve the lives of the *Kerinci* people. In the same line, research by Iswandono *et al.* (2016) showed that the *Manggarai* community can conserve their forests and the environment. Zhang *et al.* (2015) found that the *hakka* tradition of the local Chinese community has contributed in the restoration process

of their forest areas, and Galacgac and Balicasan (2009) also found that weather forecasting by the local community of Ilocos Norte Philippines, has contributed in the success of their agroforestry activities.

These results prove that traditional communities have good knowledge on the management of their environment. This is also highlighted by the United Nations (2014) which stresses that local people can contribute their traditional knowledge for the effective and sustainable management of the environment. This statement shows that traditional knowledge can inspire the world in facing environmental changes and reduce disaster risks.

Traditional ecological knowledge is passed down for generations through oral traditions, in the form of messages delivered by words of mouth for certain period of time until the message disappears. Therefore, an oral tradition is a version in its time, an element in the process of oral development, which was initiated by the elder generation of a local community (Vansina 1985). Mason (2000) argued that oral tradition is not always trustworthy as it depends on memory and oral transmission. However, unlike proverbs, old sayings and community rules have higher validity by nature. Proverbs and old saying express some basic truth or practical perception which is based on common sense or cultural experience.

Proverbs, old sayings and community rules, are effective ways to learn about traditional ecological knowledge. Differences or similarities in the knowledge system can be found by contrasting and comparing the oral traditions of various ethnics. For example, two ethnic groups with the same geographical location, may have different ways of managing the environment, or similar ways, but expressed differently. A better understanding of the proverbs, old sayings and community rules, can contribute to solving the problems of modern community.

Therefore, the study of proverbs, old sayings and community rules of a community, becomes important in order to reveal their knowledge on natural resources and the environment. Unfortunately, in general, not much research has been conducted on this. Therefore, this study is very important to acquire knowledge and understanding of the proverbs, old sayings and community rules as means of documenting traditional ecological knowledge.

Generally, the philosophies of life governing traditional communities are oriented toward nature, and are reflected in the old saying *alam terkembang jadi guru* (a *Minangkabau* proverb translated into “nature is the best teacher”). For them, nature is the source of knowledge that they must learn from, as a valuable system that is believed to be true. The natural philosophy that they believed in, are reflected in their expressions of proverbs, old sayings and community rules. Therefore, the objectives of this study are to:

1. Document the oral traditions in the form of proverbs, old sayings and community rules of the indigenous people of Indonesia.
2. Analyse the meanings of the oral traditions as a source of knowledge and the benefits they provide in environmental services.

## Methodology

The study was conducted for three months from July to September 2016 in two indigenous communities: the *Kerinci* community of Baru Lempur Hamlet, Gunung Raya Sub-district, within the District of Kerinci in Jambi Province; and the *Manggarai* community which live in the mountains of Ruteng, Kupang District of East Nusa Tenggara Province (Figure 1).



Figure 1. Study sites (●)

The data collected comprised of expressions in the form of proverbs, old sayings and community rules, related to Mother Nature, in native languages which were commonly spoken by the *Kerinci* and *Manggarai* communities. The methodology for data collection followed the procedures below:

1. Gathering of proverbs, old sayings and community rules of *Kerinci* and *Manggarai* communities:
  - a. Interview with the elders of each community to gather their knowledge on proverbs, old sayings and community rules.
  - b. Document the proverbs, old sayings and community rules in the native language, and translate into official language (*Bahasa Indonesia*) and English.
  - c. Note the literary meaning in English and state the subject/keywords of the proverbs, old sayings and community rules.

- d. Categorize the proverbs, old sayings and community rules.
  - e. Check the spatial range of the proverbs, old sayings or community rules. If it is only by a person or a family, it is classified as 'personnel level'. When it is common in a village or community, it is 'community level', and if it is known to many communities, then it is 'regional level' and to the whole nation, it is 'national level'.
  - f. Explain the TEK that were implicated in the proverbs, old sayings or community rules and the applicability to modern society.
2. Recognition Survey
- This survey was designed to identify which proverbs, old sayings or community rules were recognized. People knew different sayings depending on where they grew up, their age, and many other reasons. Some people might recognize very few of the sayings, while others might recognize many. The questionnaires were adopted and modified from Brown and Wright-Harp (2011) to understand:
- e. If the respondents knew the proverb/old saying/community rule;
  - f. How they recognized it;
  - g. If they knew, then provide the meaning correctly;
  - h. Respondents were asked about the validities stated in the proverb/old saying/ community rule.
3. Presentation of the data
- Proverbs, old sayings and community rules; that have been collected were presented in tabular form in accordance with the purpose of the research.

### **General conditions of the study sites**

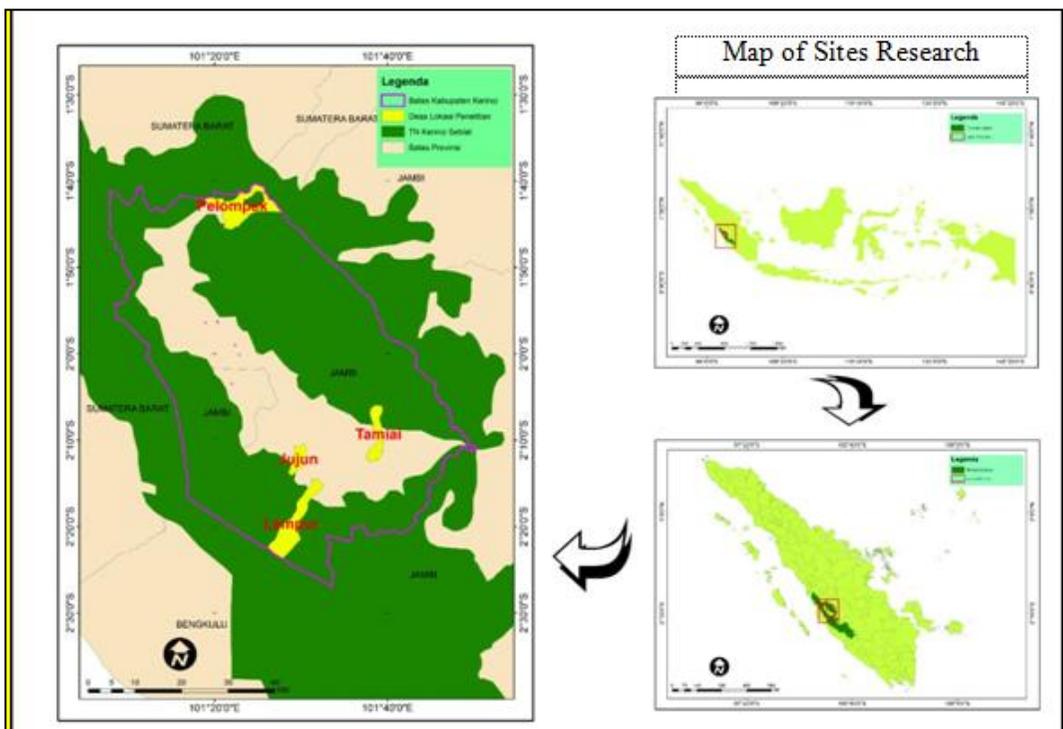
#### *Kerinci* community

The *Kerinci* community of Jambi Province is one of the oldest ethnics on the Island of Sumatra, and had inhabited the island since the megalithic era. This was marked by the discovery of tools made of obsidian on the shore of Lake Kerinci, similar to the tools found in Bandung, West Java, which was the centre of the megalithic culture (Van der Hoop 1937, in Zakaria *et al.* 2012).

Similar finding was also stated in Kahar (1981) that the *Kerinci* ethnic is part of the Old Malay ethnic, considering that: (1) the physique of present day *Kerinci* showed many similarities to those of the Old Malays which also shown some similarities to the *Mongolids*, with their slanted eyes like most of the eyes of the Chinese, and (2) the *Kerinci* language belonged to the West Austronesia language, that is the Old Malay. Such findings suggested that the *Kerinci* ethnic is an Old Malay ethnic, parallel and as old as the *Bontog* and *Igorot* ethnics of the Philippines; the *Tayal* ethnic of Thailand; *Kren* ethnic inhabiting the mountains of Burma and Thailand;

*Wajo* ethnic of Lingga Islands, Cebu, the Philippines; *Toraja* ethnic of Sulawesi; and *Batak* ethnic of Tapanuli (Kahar 1981).

Geographically, Kerinci is located at 101°08' – 101°50' East longitude and 1°41' – 2°26' South latitude with a total area of approximately 3 808.50 km<sup>2</sup> and at an altitude between 450-1500 m above sea level. The District of Kerinci is located on the western part of the Province of Jambi, with a distance of about 450 km from the provincial capital. It is bordered in the north by the District of Solok, West Sumatra Province, south by the District of Sarko of Jambi Province and North Bengkulu District of Bengkulu Province, east by the District of Bungo Tebo, Jambi Province and west by the District of Pesisir Selatan of West Sumatra Province (Figure 3).



**Figure 3.** Study site in Kerinci

Yakin (1986) stated that there are four opinions about the origin of the name *Kerinci*. The first opinion stated that a character named *Datuk Paduko Berhalo* who lived by the Kerinci Lake (now a village called *Sanggaran Agung*), lost a key in the river and struggled to finally got it back, hence he named the river *batang kunci* which later became popular as *batang kerinci* (*batang* = river). The second opinion stated that *Kerinci* was derived from the Sundanese words "*kering*" and "*ci*", which means dry river. The word "*keringci*" evolved to "*kerinci*". The third opinion stated that since the Kerinci area lies on a plateau surrounded by Bukit Barisan, where in the summer it is "dry" (*kering*) and in rainy season it became "liquefied" (*cair*) thus it becomes "dry

liquid" (*kering cair*), which was later changed to "*kerinci*". The fourth opinion stated that due to its natural location that is bounded by hills from north to south with towering peaks and dense forests, making the area inaccessible and thus hidden or "locked" (*terkunci*), and this eventually became "*kerinci*".

Meanwhile, Zakaria *et al.* (2012) stated that the *Kerinci* ethnic originated from Hindia Belanda (Southeast Asia) and Mongolia, who came together with other ethnics and spread to all corners of the archipelago. They arrived in Kerinci through the Malay Peninsula (now Malaysia), crossed the Strait of Malacca, travelled along the east coast of Sumatra to the south, turned to the Batang Hari River, continued on to Batang Merangin River and up to the upper reaches, which is the current location of the Kerinci area. When they arrived, the area was already inhabited by a group of people whose origin was never known. This reinforced the notion that the *Kerinci* ethnic is older than the *Incas* of America, which has existed since the Palaeolithic Era.

The local language of *Kerinci* differed from the languages of other regions in Sumatra, but still has its core in the Old Malay language (Austronesia), spoken in *Kerinci* dialect. Such specific dialect was due to the remote location of Kerinci, although in general, they understood Malay or *Bahasa Indonesia*. The characteristics of *Kerinci* language are reflected in its various dialects, spoken differently in each region.

Results of this research showed that each original hamlet within Kerinci has its own dialect (about 177 dialects based on the number of the original hamlets). Among the factors that have caused these differences, territorial genealogical relationship was the most dominant, despite the fact that neighbouring villages were only bordered by road or river. However, the differences in dialects did not cause any miscommunication between the hamlets, because they mutually understood each other's dialects.

In addition to the different dialects in each original hamlet, *Kerinci* also has its own alphabet or letter: the *Incung* script. The *Incung* script has a distinctive shape, and has been used by the people of Kerinci since ancient times. The existence of *Incung* script could be found in old *Kerinci* documents.

In communicating and speaking, the *Kerinci* people are familiar with the term 'four-times-four' (*adat bakato* or *bakeramo*), governing the manners in speaking where one should pay attention to the position of the person whom he/she is speaking to. 'Four-times-four' consists of four elements: message, nature, command, and manners. These can be described as follows:

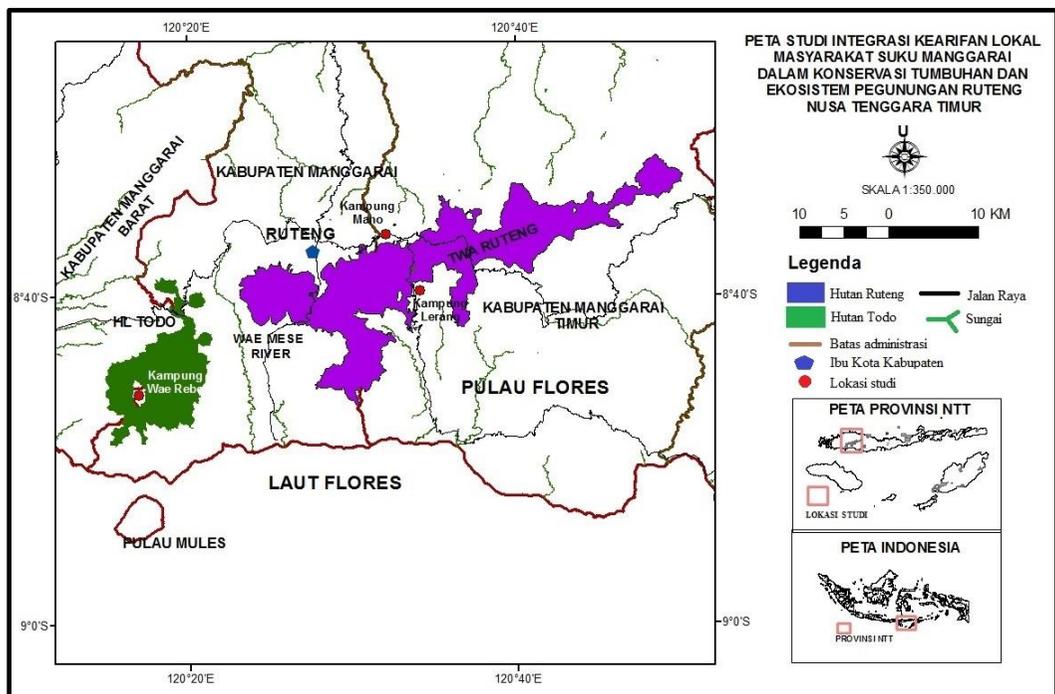
- a. The element of message is used for words related to heritage, similar words between one or two *kampung*, as well as explicit and implicit words.

- b. The element of nature is used for words that convey the truth, issues, and words of plead.
- c. The element of command is used for words by decision makers, words of formulation, advice, and strengthening.
- d. The element of manners is used by the customary leaders to their descendants, words spoken among one generation, and words of specific meaning but not directly conveyed.

Besides having *Incung* script and a diversity of dialects, the *Kerinci* community often speak using proverbs to convey a point. These proverbs are commonly used in communication between family members or among family members of social relations. The expressions used by the people of Kerinci, described the knowledge they have on the management of natural resources and the environment. The knowledge were processed and passed down from one generation to the next.

#### *Manggarai* community

For a long time, the *Manggarai* community lived and interacted with their environment, which is mountain ranges, commonly known as Ruteng Mountain situated in the Province of East Nusa Tenggara (Figure 4).



**Figure 4.** The Manggarai study sites

Ruteng Mountain can be reached within 1 hour 15 minutes by air from Kupang, the capital of the province, or a 23-hour travel by boat. The mountain range of Ruteng

consists of seven peaks: Ranamese with an altitude of 1,790 m above sea level (asl), Poco Nembu of 2,030 m asl, Poco Mandosawu of 2,350 m asl, Poco Ranaka of 2,140 m asl, Poco Leda of 1.990 m asl, Ponte Nao of 1,920 m asl, and Golocurunumbeng of 1800 asl. Most of the Ruteng Mountain region is an area with an altitude of over 1,000 m asl with undulating topography, steep and uneven, with slope of more than 40% (Simbolon 1998).

The village under study is located at an altitude between 900 to 1300 m asl, with hilly topography ranging from flat to steep slopes. The community managed their land and forests using traditional management system. The traditional land use is divided into several functions: *beo* (village), *roas* (home yard), *lingko* (communal gardens), *rami* (secondary forest reserved for agriculture), *puar* (forest), *pong* (sacred forest) and *cengit* (sacred area).

The *Manggarai* community has six languages: *Komodo*, *Waerana*, *Rembong*, *Kempo*, *Rajong* and *Manggarai kuku* (Verheijen 1991). The *Manggarai* people who live in the Ruteng Mountains, including the three research sites, spoke in *Manggarai kuku*. Most of them, especially the elderly do not use *Bahasa Indonesia*. The *Manggarai* language is used when communicating with each other, while *Bahasa Indonesia* is used when communicating with outsiders or officials. The language itself is divided into two levels, the polite *Manggarai* language used by the older people and respected figures, and the less polite *Manggarai* language. These language levels are only parts of the *Manggarai* vocabulary. For example, in the polite language, the pronoun 'you' is *ite* while for the less polite form, it is *hau*. Wae Rebo Village has a somewhat different dialect due to the influence of West Manggarai Kempo. Each letter with the prefix 's' will be replaced by 'h', for example: *wase* (liana) is pronounced as *wahe*.

The *Manggarai* ethnic also is also rich in oral traditions such as proverbs, old sayings and community rules that they still obey. These traditions described their knowledge on the management of natural resources and the environment. They are able to read the signs and predict natural events based on a variety of local indicators such as animals, plants and climate.

## **Results and discussions**

### Oral traditions of Indonesian community

Based on the literature studies and field observations conducted at the two research sites, the Indonesian people have a variety of oral traditions in the form of proverbs, old sayings or customary laws relating to the management of natural resources and social relations among members of the community. A total of 60 oral traditions of Indonesian community were documented, comprising 30 from the *Kerinci* community and 30 from the *Manggarai* community.

Results of the analysis showed that these oral traditions have significant meanings related to ecosystem services. The Millennium Ecosystem Assessment (2005) classified ecosystem services into four categories: supporting, provisioning, cultural and regulating.

1. Supporting services are necessary for the production of all other ecosystem services. These include services such as nutrient recycling, primary production, and soil formation. These services make it possible for the ecosystem to provide services such as food supply, flood regulation and water purification.
2. Provisioning services are products obtained from ecosystems, included food, raw materials, genetic resources, water, minerals, medicinal resources and ornamental resources.
3. Regulating services are benefits obtained from the regulation of ecosystems processes such carbon sequestration, climate regulation, waste decomposition and detoxification, purification of water and air, pest and disease control.
4. Cultural services are nonmaterial benefits that people obtained from ecosystem through spiritual enrichment, cognitive development, reflection, recreation and aesthetic experiences.

#### Oral traditions of *Kerinci* community

Based on literatures and field studies, the people of *Kerinci* have many oral traditions associated with the universe and social relations within the social system. This study has been able to document as many as 30 oral traditions as presented in Table 1.

The *Kerinci* community's ability to use expressions either in the form of proverbs, old sayings or community rules, indicated that they are knowledgeable in the management of their environment.

The proverb “*Adaik nan ndak lejang dek panas, dak lapuk dek hujan, titian teras batango batu, jalan barambah nan diturut, baju bajait nan dipaka*” means that cultural inheritance should be implemented so as not to be reprehensible in the eyes of others. This expression states that the *Kerinci* community should maintain their traditional customs. Such oral tradition is a form of agreement among the *Kerinci* community, hence could be categorized as cultural services.

The proverb “*mano tambilang taentak, disitu tanaman tumbuh, mano bumi dipijak disitu langik dijunjuang*” translated into “where the hole digger pounded, that is where the plants would grow, where the earth is trodden, the sky is upheld”, states that life encompassed adaptation processes and strategies, to be able to live and survive wherever we are. The process of adaptation to the environment is reflected from the ability of the *Kerinci* people to manage their land resources based on topography and slope, as shown in Figure 5.



**Figure 5.** Land management in Kerinci based on altitude as an adaptation strategy

The saying “*kalo samo tinggi kayau di rimbo mano pulo tanpaik angin lalau*”, can be translated as ‘life’s ups and downs should not complicate the life, but instead, should bring mutual benefits to many people’. This saying indicated that the *Kerinci* people are knowledgeable about nature; they understood well that there is a symbiotic relationship between living things and the surrounding ecosystem. This saying became provisioning for those performing daily activities, as reflected in the harmonious relationship between the *Kerinci* people and their surrounding natural environment, as shown in Figure 6.



**Figure 6.** Life symbioses between *Kerinci* farmers with Egrets (*Bubulcus* sp.) of Ardeidae family

The proverb “*simbai ekornya, tajam tajinya, nyaring kokoknya*”, is an expression about a leader. Leaders must possess certain characteristics, both materially and non-materially (education), brave and articulate, and respected by their people. This expression is a customary law (cultural) for the people of *Kerinci* in choosing a *depati* (their traditional leader).

The proverb “*adaik pulei batingkat naik, adaik manusia batingkat turun*” refers to the growing nature of *pulai* that increases, while human habits decrease denoting regeneration process. The older a *pulai* tree grows, the taller is its trunk and would leave many knots. This saying when applies to humans means that each generation should always leave something as characteristics.

#### Oral traditions of *Manggarai* community

The research showed that the *Manggarai* community possessed various oral traditions that are associated with the universe. This study was able to document as many as 30 oral traditions as presented in Table 2.

The *Manggarai* community understood that protecting the forest would benefit in supplying sufficient water for daily needs as shown in the proverb “*Mboas wae woang, kembus wae teku*” (When the flow of water into the reservoir is torrent, so will the flow into places to draw water). Efforts to preserve springs were culturally manifested by the customary tradition of “*barong wae*” and sacred forests around the springs (Figure 7). This proverb has supported the *Manggarai* community in preserving their surrounding ecosystems, and became the basis for sustainable traditional land management as seen in their land distribution patterns: protecting forests at high altitude, practicing agroforestry in hilly areas and building settlements on flat areas.



**Figure 7.** High mountain areas are sacred as expressed in the proverb “*Mbau eta temek wa, tela galang pe'ang kete api one*”

The direct benefits that could be gained from the ecosystem are shown in their seven provisioning proverbs, which have been taken as lesson-learned from organizing and daily lives. For example, the sayings " *cimang neho rimang cama rimang rana, kimpur neho kiwung cama kiwung lopo* " (Hard as a stout bristle found among the *ijuk* fibres (*lidi ijuk*), the bristles from managed sugar palm, hard as the seeds of sugar palm, the old sugar palm seeds) referred to maintaining strong will and determination to achieve success.

The direct ecosystem benefits, which were experienced in the daily life of the community, were expressed in these proverbs:

1. *Porong neho worok eta golo, pateng wa wae* – hopefully, sturdy as the *worok* (*Dysoxylum densiflorum*) tree on hilltop, and terraced when in water; referred to something that is strong / legal / legitimate as the "worok" tree found on hilltops.
2. *Asam ndusuk tana ru, konem lalen tana sale* – although homeland is overgrown by shrubs while other lands with abundant treasures; means that homeland is still better than other lands with abundant treasures.
3. *Temek wa mbau eta, jengok le ulu, wiko lau wai* – marshes below, shelter above, *jerangau* (sweet flag) upstream, *wiko* (*elatostema*) downstream; referring to people who live abundantly prosperous.

The strong interactions with the surrounding environment, has created as much as eight *Manggarai* proverbs that were related to the benefits of natural processes (regulating). Observing the natural processes had provided valuable guidance for the community to live together in order to survive, which could be learned from the following saying, " *Muku ca pu'u neka woleng curup, teu ca ambong neka woleng lako, ipung ca tiwu neka woleng wintuk, nakeng ca wae neka woleng tae*" (Banana from one family should not differ in words, cane clump should not differ in rods, *ipung* fish in one pond should not differ in taking actions, fish in the river should not differ in giving statements), suggesting the importance of descendants from one clan must remain united and should not be separated.

The difference in the microclimates under the trees is captured in the proverb "*eme kolang lesu bombang ili laing mbau konang*" (Under the hot sun, shelter under a *konang* tree), which was an advice to protect shady trees for shelter.

The advantage of understanding natural processes has provided the basis to believe in a supreme being, which in the local dialect is called *Mori Keraeng*. This could be traced to the following sayings: *Mori agu pukul par agu kolep* (God makes the sun rises and sets) meaning God has infinite power; and *Ame rinding mane ine rinding*

*wie* (a father is a protector at night, a mother is a paragon at midnight) relates to the protection of God as a supreme being.

*Manggarai* community also has proverbs associated with physiology and emotional benefits derived from their interactions with the ecosystem (15 proverbs), of which some have crucial links to forest conservation. Forest management is always based on the value of a forest as *anak rona*, referred to the family of the wife who is respected, as in the proverb: “*puar hitu anak rona*” (forest is *anak rona*). This concept originated from the traditional belief that earth is the mother and heaven that produced rain is the father. Forest is regarded as the daughter of heaven and earth. Earth is the mother of all creatures including humans, thus trees in the forest should not be randomly cut but its felling should be initiated with a traditional ceremony of “*roko molas poco*”, a ritual to ask the *worok* tree (*Dysoxylum densiflorum*) to be the main pillar of their traditional house, a tradition just like proposing to a girl.

Another proverb: “*gendang one, lingko pe'ang*”, signified that land surrounding a traditional house is considered as communal land (*lingko*) so that people bring back the history of the existence of their ancestors who used to live in the forest. Existence of old village (*bangka*) in the forest could be identified by the piles of stones offerings (*compang*) or the village circular foundations as seen in Figure 8.



**Figure 8.** Traditional village of *Manggarai* community

## Conclusion

This study found that the indigenous ethnics of Indonesia possessed some knowledge expressing the truths, wisdoms, or lessons, on nature and morality. These were based on common sense and practical experiences of the community

members, and expressed as proverbs, old sayings and community laws which have been passed down the generations.

The research showed that these expressions also have spread from one ethnic to another, especially the expressions that were appropriate and beneficial to the culture of the ethnic concerned.

Many of these oral traditions proved to have scientific significance, and could be categorized into one of the following ecosystem services: supporting, cultural, provisioning and regulating services. Therefore, oral traditions of a community are important and should be studied and communicated more broadly to preserve them.

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**Table 1.** Proverbs, old sayings and community rules of *Kerinci* community

No	Oral traditions	Bahasa Indonesia	English	Keywords	Meaning	Scientific interpretation	Types of ecosystem services
1	<i>Adat bumbun menyelaro, adat padang kepanasan</i>	<i>Adat bumbun menyelara, adat tanah lapang kepanasan</i>	Custom is a heavy work, terrain custom is to heat	Bumbun, terrain	Conclusions without any process.	Need research to get results	Regulating
2	<i>Adaik nan ndak lekang dek panas, dak lapuk dek hujan, titian teras batango batu, jalan barambah nan diturut, baju bajait nan dipakai</i>	<i>Adat tidak lekang oleh panas, tidak lapuk oleh hujan</i>	Local custom will not melt due to heat, nor rot due to rain	Custom, melt, rot	Local customs that have been passed down are better if implemented so as not to be reprehensible in the eyes of others	Consistent with local customs	Cultural
3	<i>Adaik pulei batingkat naik, adaik manusia batingkat turun</i>	<i>Kebiasaan pulai meningkat naik, kebiasaan manusia meningkat turun</i>	The growing nature of pulai increases, human habits decreases	Pulai, human	The older a pulai tree gets, the higher is its trunk and the more internodes and nodes it produces. Similarly for humans, each generation would leave legacy as characteristics	Natural succession	Provisioning
4	<i>Aman ndak ngina ' padi njadi , ina la padi di kampung bente</i>	<i>Kalau mau melihat padi menjadi, lihatlah di daerah yang banyak lumpurnya</i>	To see rice field becomes rice, look in muddy areas	Rice, mud	Every effort will be successful if it is implemented in the right way and in the right place	Land suitability	Supporting

No	Oral traditions	Bahasa Indonesia	English	Keywords	Meaning	Scientific interpretation	Types of ecosystem services
5	Ambil benih campak sarap	<i>Ambil benih buang sampah</i>	Take the seeds, throw the garbage	Seed, garbage	Take only the best and the useful	Natural selection	Supporting
6	Apo digaduh pengayuh samo di tangan biduk samo di aek	<i>Duduk sama rendah tegak sama tinggi</i>	Equally low when seated, equally tall when standing	Low, tall	Have equal rights and obligations	Equal	Supporting
7	Bajalan kincie karno ayiek, bagoyang dahan karno angin	<i>Berjalan kincir karena air, bergoyang dahan karena angin</i>	Windmill spins because of water, branches sway because of wind	Windmill spins, water, branch, wind	Something happens because of the occurrence of something causes	The law of causation	Regulating
8	Bak membelah betung, sebelah dipijak, sebelah lagi diangkat tinggi-tinggi	<i>Bagaikan membelah bambu betung, sebelah diinjak sebelah lagi diangkat tinggi-tinggi</i>	Like splitting bamboo, one side is trampled and the other is lifted high	Betung, trampled, lifted	People are willing to sacrifice others to achieve their goals	Unfair, Injustice and parasitism	Supporting
9	Cupak diisei gantei diliit aduek dituhaak	<i>Cupak diisi gantang diratakan adat diturut</i>	Cupak (rice container) is filled, <i>gantang</i> (bushel) is levelled, custom if followed	Cupak, bushel	Wherever you are, always follow the local customs and obey the local laws	Adaptation process and survival strategy.	Cultural
10	Elok secanting asal bernih daripada segantong ampo galou	<i>Elok sedikit asal bernas, daripada banyak kosong semua</i>	Little but meaningful rather than many but worthless	Meaningful, worthless	Better to have little with goodness than to be rich and dishonest.	Quality is more important than quantity	Supporting

No.	Mukim	Proverbs	Old sayings	Community rules
		<p>3. <b>Dusun words</b>  Mara-gara golitting no gapit di awan, iso no kotolombus ra'an ponong ilo.  <b>Direct translations</b>  Noisy thunder in the sky, only one way.  <b>Meaning</b>  Many friends went to a male house, one person is left behind.</p>		

No	Oral traditions	Bahasa Indonesia	English	Keywords	Meaning	Scientific interpretation	Types of ecosystem services
17	<i>Kabut nan dalam lah terang, aik nan keruh lah jernih, lah buli bebiuk laju, berantau selesai</i>	<i>Kabut yang tebal sudah terang, air yang keruh sudah jernih, sudah boleh bebiuk laju sampai rantau .</i>	Thick fog has ceased, cloudy water has cleared, you may sail faster to inland	Fog, water, cloudy, clear	The problem is clear and has found a solution	There is a solution to every problem	Supporting
18	<i>Kalau dak tembilang patah tanaman tekalk</i>	<i>Kalau tembilang patah tanaman tercabut</i>	When the pot is broken, the plants will be uprooted	Pot, plants	Assertive and brave in solving problems that one cannot be solved alone	Must be brave and resolute	Supporting
19	<i>Kalau pandai membeli sirih. Jangan dibeli sirih udang. Kalau pandai meniti buih, selamat badan hingga seberang.</i>	<i>Kalau pandai membeli sirih</i>	If you are clever in buying betel, do not buy shrimp betel. If you are good at passing the sea foam, you will land safely	Betel, shrimps, froth	People who can take care of themselves will survive in life	Law of nature	Supporting
20	<i>Kalo samo tinggi kayau di rimbo mano puloampaik angin lalau</i>	<i>Kalau sama tinggi pohon di hutan, dimana pula tempat angin lalau</i>	If the trees in the forest are of the same height, where would the wind blow	Trees, wind, blow	Life's ups and downs should not complicate the life, but instead, should bring mutual benefits to many people	Symbiosis	Provisioning
21	<i>Keruh ayiek diilite priksa di ulunyo, senak aik di ulu priksa ka muaro</i>	<i>Keruh air di hilir, periksa di hulunya, dalam air di hulunya periksa di muaranya</i>	Turbid water in downstream is caused by the upstream condition	Downstream, upstream	Investigate all events closely while researching places and causes of the incident.	Genetic decline, natural process	Regulating

No	Oral traditions	Bahasa Indonesia	English	Keywords	Meaning	Scientific interpretation	Types of ecosystem services
22	<i>Laksano kayu di dalam utan, patah tumbuh ilang beganti</i>	<i>Laksana kayu di dalam hutan, patah tumbuh hilang berganti</i>	Like wood in the forest, it will grow and be replaced	Wood, forest	Everyone is expected to prepare and be responsible for smooth process	Overview regeneration	Provisioning
23	<i>Mano tambilang taentak, disitu tanaman tumbuh, mano bumi dipijak disitu langik dijunjung</i>	<i>Dimana tambilang terhentak, disitu tanaman tumbuh, dimana bumi dipijak disitu langit dijunjung</i>	Where the hole digger pounded, that is where the plants would grow, where the earth is trodden, the sky is upheld	<i>Tembilang</i> (traditional hole digger), ground, sky	Must adapt and create strategies with their surroundings	Adaptations and strategies	Supporting
24	<i>Mati kuman sama dicecah, mati gajah sama dilapah</i>	<i>Mati kuman sama dicecah, mati gajah sama dilapah</i>	Germs die through thinly sliced, elephants die through thickly sliced	Germs, elephants	An even and fair division	Justice	Provisioning
25	<i>Simbai ekornya, tajam tajinya, nyaring kokoknya</i>	<i>Simbai ekornya, tajam tajinya, nyaring kokoknya</i>	Long tail, sharp spurs, loud crowing	Tail, spurs, crowing	Wise leaders become role model for the community	Characteristics of a leader	Cultural

No	Oral traditions	Bahasa Indonesia	English	Keywords	Meaning	Scientific interpretation	Types of ecosystem services
26	<i>Siso angin nan memuput, siso gelombang nan mengempoh</i>	<i>Sisa angin yang memuput, sisa gelombang yang menghempas</i>	The rest of the wind that blows, the rest of the wave that crashes	Wind, waves	Something events that leave a mark	Natural process	Supporting
27	<i>Tebing runtuh tepian beranjak, tanjung putus teluk beralih</i>	<i>Tebing runtuh tepian beranjak, tanjung putus teluk beralih</i>	Cliff crumbled ledges moved, cape broken, bay changed	Cliff, cape	Every event will bring change, whether it's large or small, pleasant or miserable, one must be ready to accept it.	The dynamics of life	Provisioning
28	<i>Tuauh umah buuha tuauh nagrei batunggau</i>	<i>Tuah rumah berorang, tuah negeri berpenghulu</i>	A house has occupants, a country has people	House, country	A house will be maintained if occupied, a country will prosper and crowded if well taken care by its people	A country is said to be beautiful when its inhabitants	Supporting
29	<i>Urang kayo bertabur urai, urang mulio bertabur budi</i>	<i>Orang kaya bertabur emas, orang mulia bertabur budi</i>	Rich people studded with gold, noble person studded with gratitude	Rich, noble	Rich people give to charity, noble people overwhelm with gratitude	Acting in accordance with the ability	Regulating

No	Oral traditions	Bahasa Indonesia	English	Keywords	Meaning	Scientific interpretation	Types of ecosystem services
30	<i>Perahu lentik dak do bepanggar, kurang lajunyo. Awak cerdas dak ndak belajar, kurang tahunyo</i>	<i>Sampun tidak punya pagar, kecepatannya akan lambat. Walaupun cerdas tapi tidak belajar, kurang pengetahuannya</i>	<i>Sampun (a traditional boat) has no fence, it has slow speed. Even though someone is smart but if one does not study, she/he would lack knowledge</i>	<i>Sampun, slow, smart, study</i>	Adequate and complete facilities and infrastructures are required to achieve a goal	Pre-requirements are necessary to achieve a goal	Supporting

**Table 2.** Proverbs, old sayings and community rules of Manggarai community

No	Proverbs	Bahasa Indonesia	English	Keywords	Meaning	Scientific interpretation	Types of ecosystem services
1.	<i>Alo dalo, pulu wungkut</i>	<i>Delapan ruas bambu, sepuluh buku tangan</i>	Eight segments of bamboo, ten segments of hands	Segments, bamboo, hands	Kinship that has been handed down among families between the wife's family and the husband's family	Natural conditions	Cultural
2	<i>Ame rinding mane ine rinding wie</i>	<i>Ayah pelindung di malam hari, ibu pengayom di tengah malam</i>	A father is a protector at night, a mother is a paragon at midnight	Father, mother, night	An expression of God's protection as a form of the highest being	Natural process	Regulating
3	<i>Asam ndusuk tana ru, konem lalen tana sale</i>	<i>Walaupun kampung halaman ditumbuhi semak dan tanah orang berkeimpahan harta</i>	Although homeland is overgrown by shrubs and other lands with abundant treasures	Hometown, shrubs	Hometown is still better than migrant's land abundant with treasures	The state of nature is better than the artificial nature	Provisioning
4	<i>Bom toambo le run rukus, bom tura le run kula</i>	<i>Kepiting tidak bicara sendiri, musangpun tak memberitakan warna kulitnya</i>	Crab does not talk to itself, ferret does not tell the colour of its skin	Crab, ferrets, skin	Although people do not tell their origins, but it can be seen from the way they speak and their behaviour	Natural conditions	Cultural
5	<i>Cala te'e neho muku, tara lando neho teu</i>	<i>Akan masak seperti pisang, berbunga seperti tebu</i>	Will ripe like banana, flower like sugarcane	Banana, sugarcane	Every action has consequences	Natural process	Supporting

No	Proverbs	Bahasa Indonesia	English	Keywords	Meaning	Scientific interpretation	Types of ecosystem services
6	<i>Cimang neho rimang cama rimang rana, kimpur neho kiwung cama kiwung lopo</i>	<i>Keras seperti lidi ijuk, lidi ijuk enau yang dipelihara, keras seperti biji enau, biji enau yang sudah tua</i>	Hard as a stout bristles found among the <i>ijuk</i> fibres ( <i>lidi ijuk</i> ), the bristles from managed sugar palm, hard as the seeds of sugar palm, the old sugar palm seeds	Palm stick, palm fibre, palm	A strong will and a strong determination to achieve success	Morphology of palm tree	Provisioning
7	<i>Eme wakak betong, asa manga waken nipu tae</i>	<i>Jika induk rumpun bambu tumbang, akarnya akan tumbuh melanjutkan kehidupan yang sama</i>	If the main bamboo groves were uprooted, the roots will grow in the same manner	bamboo groves, roots, grow	When the parents die, the descendants shall succeed them	Regeneration	Supporting
8	<i>Eme kolang leso b ombang ili laing mb au konang</i>	<i>Bila ada panas matahari maka berteduhlah pada rindangan pohon konang</i>	Under the hot sun, shelter under a <i>konang</i> tree	Sunshine, sun, <i>konang</i> tree	Take refuge under something strong when trouble comes	Microclimate under a shady tree	Regulating
9	<i>Gendang one lingko pe'ang</i>	<i>Bila ada rumah adat (gedang) di bagian dalam, di sebelah luarnya ada tanah komunal (lingko).</i>	If there is a traditional house ( <i>gedang</i> ), around it is the communal land ( <i>lingko</i> )	<i>Gendang, lingko</i>	Land surrounding a traditional house is considered as communal	Land-use zoning	Cultural

No	Proverbs	Bahasa Indonesia	English	Keywords	Meaning	Scientific interpretation	Types of ecosystem services
10	<i>Kantis rai nai ati</i>	<i>Mengasah hati dan paru-paru</i>	Sharpen the heart and lungs	Heart, lungs	Diligent in working and striving	Natural process	Provisioning
11	<i>Lalong pondong du ngo, lalong rombeng du kole</i>	<i>Ayam jago berekor pendek pada waktu pergi, ayam jago berekor panjang pada waktu pulang</i>	A rooster has short tail when it left and long tail when it came back	Short-tailed rooster, the long-tailed rooster	When one left his hometown with nothing, he came back as a successful man	Natural growth	Regulating
12	<i>Mbau eta temek wa, tela galang pe'ang kete api one</i>	<i>Bila di puncak gunung berwarna hijau maka di bawah gunung ada banyak air, di tungku memiliki cukup kayu bakar, di atas tungku cukup makanan untuk dimasak.</i>	When the top of the mountain is green, underneath it sufficient water, enough firewood in the furnace, on top of furnace, enough food to be cooked	Mountain, furnace, firewood, food	Protecting the forest will ensure that daily life takes place properly.	System-use zoning of land for welfare	Supporting
13	<i>Mboas wae woang, kembus wae teku</i>	<i>Bila aliran air ke penampungan mata air deras, maka akan deras pula aliran air ke tempat menimba air</i>	When the flow of water into the reservoir is torrent, so will the flow into places to draw water	Reservoirs, well springs, water flow	Maintaining the flow of water from the springs by protecting the forest will ensure abundant water supply in reservoirs near the village	Forest conservation	Supporting
14	<i>Mempo neho elong, puta neho munak</i>	<i>Hancur bagai batang pisang, punah bagai batang pisang</i>	Destroyed like banana palms, rot like banana stem	Banana, stem	Condemn someone who commits a crime	Natural process	Regulating

No	Proverbs	Bahasa Indonesia	English	Keywords	Meaning	Scientific interpretation	Types of ecosystem services
15	<i>Mori agu pukul par agu kolep</i>	<i>Tuhan yang membuat terbitnya matahari sampai tenggelam</i>	God makes the sun rises and sets	God, sun, sets, rises	God has infinite power	Natural cycles	Regulating
16	<i>Muku ca pu'u neka woleng curup, teu ca ambong neka woleng lako, ipung ca tiwu neka woleng wintuk, nakeng ca wae neka woleng tae</i>	<i>Pisang satu rumpun tidak boleh berbeda dalam perkataan, tebu satu rumpun tidak boleh berbeda dalam menentukan jalan dan ikan ipung satu kolam tidak boleh berbeda dalam mengambil tindakan, ikan satu sungai tidak boleh berbeda dalam bersuara</i>	Banana from one family should not differ in words, cane clump should not differ in roads, <i>ipung</i> fish in one pond should not differ in taking actions, fish in the river should not differ in giving statements	Banana, cane, fish	Brothers of the family (the descendants) should remain united and should not be split	Gregarious nature for survival	Regulating
17	<i>Neka bea betan, ngampang be wan</i>	<i>Tanah rata diatas, jurang di bawah</i>	Flat on the ground, gorge below	Flat, ground, gorge	One should talk what is in one's heart	Land-use zoning	Cultural
18	<i>Neka nepo leso, neka ringing tis</i>	<i>Jangan lelang karena terik matahari, jangan demam karena hujan rintik</i>	Do not cracked due to the hot sun, do not caught fever because of rain	Sun, favour, rain	Never give up on life's obstacles	Natural process	Supporting

No	Proverbs	Bahasa Indonesia	English	Keywords	Meaning	Scientific interpretation	Types of ecosystem services
19	<i>Ngong ata lombong lala, kali weki run lombong muku</i>	<i>Mengatai orang lain ibarat pucuk pisang hutan, padahal dirinya sendiri seperti pucuk pisang</i>	Calling other people as wild banana shoot, yet he himself is like a banana shoot	Banana, leaf tip, forest	People like to blame someone else when actually he has an even bigger mistake	Natural conditions	Cultural
20	<i>Nio loda do waen oke sale</i>	<i>Buah kelapa yang jatuh, airnya akan terbuang</i>	The water from fallen coconut will be wasted	Coconut, water, fall	Descendants who have migrated (spread) to many places	Natural conditions	Supporting
21	<i>Pong dopo ngalor masa</i>	<i>Daerah angker ada di daerah berawa-rawa, palung air yang dalam</i>	Haunted places in the swampy areas and deep water trough	Haunted, swampy, deep water	Sacred area for the ritual in certain areas	Zone / core block in the management area	Regulating
22	<i>Porong neho worok eta golo, pateng wa wae</i>	<i>Semoga kokoh seperti worok diatas bukit dan semakin berteras bila berada di dalam air.</i>	Hopefully, sturdy as the worok ( <i>Dysoxylum densiflorum</i> ) tree on hilltop, and terraced when in water	Worok, hill	Something that is already strong / legal / legitimate as worok tree on the hill	Strong and durable class of wood	Provisioning
23	<i>Puar hitu anak rona</i>	<i>Hutan adalah anak rona (keluarga pemberi isteri)</i>	Forest is anak rona (family of wife giver)	Forest, anak rona	Forests must be respected or appreciated as "anak rona", the respected family of the wife	Forest conservation	Cultural

No	Proverbs	Bahasa Indonesia	English	Keywords	Meaning	Scientific interpretation	Types of ecosystem services
24	<i>Wae de ase, agu wae de kae</i>	<i>Air dari adik dan air dari kakek</i>	Water from younger brother and from older brother	Water, brother	Descendants of older brother and younger brother	Natural process	Provisioning
25	<i>Rekok reme lebon, roe lari ngoen, gencok neho gentok, loda neho wela</i>	<i>Patah ketika sedang mekar, dipetik ketika masih muda, dipetik seperti buah ketela muda, jatuh seperti pucuk bunga ketela</i>	Broken while blooming, picked while young, plucked as a young cassava fruit, fallen like cassava flower	Bloom, flower, cassava	A child who died at a young age (school age)	Natural process	Regulating
26	<i>Tekur cai retuk, lawo cai bao</i>	<i>Burung tekukur yang baru menetas, tikus yang baru lahir</i>	Newly hatched doves, new born rats	Doves, hatched, rats	People who are inexperienced in their jobs	Natural process	Supporting
27	<i>Temek wa mbau eta, jengok le ulu, wiko lau wai</i>	<i>Rawa-rawa di bawah, lindungan diatas, jerangau di hulu, wiko di hilir</i>	Marshes below, shelter above, <i>jerangau</i> (sweet flag) upstream, <i>wiko</i> ( <i>elatostema</i> ) downstream	Marshes, upstream, downstream	People who live abundantly prosperous	Good natural conditions provide for the welfare of the community	Provisioning
28	<i>Tiwu lele, lewing lembak</i>	<i>Danu yang lebar, panci yang besar</i>	Wide lake, large pot	Lake, large pot	Praise for someone who is patient and thoughtful in addressing social problems	Natural conditions	Cultural

No	Proverbs	Bahasa Indonesia	English	Keywords	Meaning	Scientific interpretation	Types of ecosystem services
29	<i>Neka hemong kuni agu kalo</i>	<i>Jangan lupa periuk nasi dan pohon kalo</i>	Do not forget rice pot and kalo tree	Rice pot, kalo tree	Love of homeland	Origin of life	Cultural
30	<i>Toe manga ata bengkar one mai belang</i>	<i>Tidak ada manusia yang berkembang dari bambu belang, bertunas dari betung</i>	No human develop from striped bamboo, sprout from bamboo	Bamboo, striped, sprout	No child is born without parents	Natural process	Supporting

# **Proverbs, Old Sayings and Community Rules Related to Climate Change and Forest Management in ASEAN Countries: The Case of Indigenous *Temuan* Community in Peninsular Malaysia**

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## **Introduction**

Out of the population of 31 million in Malaysia in 2016, it is estimated that about 26% are living in the rural areas (from coastal to mountain), comprising various ethnic groups. Depending in varying degree on forest resources to sustain daily livelihood, over time, they had developed and nurtured cultures from their co-existence with the forest environment.

While their ancestors had interacted with the forest, they had observed it closely and learned how to manage the forest resources and deal with severe situations such as climatic disturbances. These knowledge which have been handed down the generations, is collectively known as Traditional Ecological Knowledge (TEK), which has been defined as “a cumulative body of knowledge and beliefs, handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment. Further, TEK is an attribute of societies with historical continuity in resource use practices; by and large, these are non-industrial or less technologically advanced societies, many of them indigenous or tribal” (Berkes 1993).

Proverbs, old sayings and community rules are therefore an effective way to learn about the TEK of rural population in Malaysia. A better understanding of the proverbs, old sayings and community rules can contribute to solving the problems of modern society, especially in terms of sustainable forest management. However, globally and in Peninsular Malaysia, there is very little research done on collecting and understanding proverbs, old sayings and community rules.

This study focuses on the proverbs, old sayings and community rules of the aborigines, commonly known as *Orang Asli*, in Malaysia. *Orang Asli* community totaling about 207,000 people in 2016 is comprised of 18 sub-ethnic groups. To have a better understanding on the proverbs, old sayings and community rules, the study chose *Temuan* sub-ethnic group within the state of Selangor.

This study was conducted with three specific objectives, namely

- 1) To gather proverbs, old sayings and community rules of *Temuan* living within or near the forests;
- 2) To examine the extent of understanding on proverb/old saying/community rule among *Temuan* youths in society; and
- 3) To analyze proverbs, old sayings and community rules of the *Temuan* community.

## **Methodology**

The welfare and matters related to the aboriginal communities is the responsibility of Department for *Orang Asli* Development (JAKOA) in Peninsular Malaysia. In June 2016, the research team wrote to JAKOA seeking permission to conduct study in *Orang Asli* villages and was given the approval in July.

A literature search of secondary materials (books and media hubs) on the existing proverbs, old sayings and community rules of the *Orang Asli* showed that there is limited record. This is due to the general lack of research in this specific area. The *Orang Asli* community passes down the existing proverbs, old sayings and community rules orally from one generation to another. This posed a challenge to the research team in gathering such information.

Other than available secondary information, the research visited *Temuan* elders in the state of Selangor. We began by communicating with *Orang Asli Temuan* elders and friends on their knowledge of proverbs, old sayings and community rules. From the discussion, we were able to list down some of the proverbs, old sayings and community rules. It was noted that the *Temuans* are more familiar with the community rules, i.e. the “do” and “don’t” while they are interacting with the forest environment.

Gathering of the required information took place in August 2016 where a total of 20 knowledgeable elders comprising 50% males and 50% females. These elders included *twobatin* (village head) and one expert on *Temuan* customs and beliefs. Data was collected from personal interview, focus group discussions were held in three *Kampung* (Kg.) *Orang Asli* (indigenous people villages): Kg. *Orang Asli Sungai Buloh*, Kg. *Orang Asli Bukit Lagong* and Kg. *Orang Asli Sungai Rasau*, Puchong. The data gathered include the followings (Questionnaire 1):

- a) The proverbs/old sayings/community rules related to the forest environment;
- b) The meanings of these proverbs/old sayings/community rules ;
- c) The source of knowledge about these proverbs/old sayings/community rules; and

- d) Their awareness on the level of use of these proverbs/old sayings/community rules (individual, family, community, regional, national).

The next step was to prepare a questionnaire and drafting free prior informed consent (FPIC) form which were tested in two villages (*kampong, Kg.*), namely Kg. Orang Asli Sungai Buloh and Kg. Orang Asli Bukit Lagong where villagers resided within and at the fringe of forest reserve. With assistance of three *Orang Asli* staff in FRIM, the questionnaire and FPIC form were amended and finalized (Photo 1).



**Photo 1.** Dr Lim (left) finalizing questionnaire and FPIC with three *Orang Asli* staff in FRIM

The survey (Appendix 2) was conducted in three *Orang Asli* villages (Kg. Orang Asli Bukit Lagong, Kg. Orang Asli Sungai Buloh and Kg. Orang Asli Rasau) to examine the extent that the youths

- a) have heard of proverbs, old sayings and community rules as provided by the *Temuan* elders;
- b) Understand the meanings;
- c) Whether they agree with the proverbs, old sayings and community rules;
- d) Reasons for disagreeing.

The survey was conducted with assistance from local *Temuan* youths. The data collected in this study are based on information provided by 20 *Temuan* elders aged 50 and above. It does not claim to provide all proverbs, old sayings and community rules related to climate change and forest management. Be that as it may, the information does provide understanding on these oral traditions and to what extent they are passed down to the younger generations.

## **Temuan social and culture life**

The proverbs, old sayings and community rules related to climate change and forest management are linked to the socio-economic and cultural life of the *Temuan* community.

### *Temuan* population

The *Temuan* are Austronesian (Malay-Polynesian) speakers of the *Proto-Malay*, one of the three main *Orang Asli* groups. The *Orang Asli* in Peninsular Malaysia totalled approximately 92,529 people in 1994 (Lim 1997) and this increased to 141,230 people in 2008. The population consists of three main groups, i.e. 3% *Negrito*, 54% *Senoi* and 43% *Proto-Malays*. The *Temuan* sub-ethnic belongs to Proto-Malays. *Temuan* population increased from 16,070 in 1994 to 22,736 in 2008. Close to half (45%) the *Temuan* population is found mainly in the state of Selangor while the rest are in the states of Negeri Sembilan (28%), Pahang (18%), Malacca (5%) and Johore (3%) as shown in Table 1.

**Table 1.** Distribution of *Temuan* by state in Peninsular Malaysia, 1994

<b>State</b>	<b>Population in 1994</b>	<b>Population in 2008</b>
Selangor	7,138 (44)	10,200 (45)
Negeri Sembilan	4,527 (28)	6,465 (28)
Pahang	2,829 (18)	4,086 (18)
Malacca	808 (5)	1,199 (5)
Johore	666 (4)	625 (3)
Perak	96 (1)	149 (1)
Kelantan	6 (0)	12 (0)
<b>Total</b>	<b>16,070 (100)</b>	<b>22,736</b>

Source: JAKOA.

### Residence and language

The word "*Temuan*" has its origin in another word "*temu*" (meeting). It means the meeting of aborigines from various areas. The *Temuan* live in small villages, spread over a wide area, normally surrounded by the Malay and Chinese population (Carey 1976). Before independence (1957) *Temuan* lived in traditional built bamboo huts (only now most of them use zinc as roofing instead of bertam) or nondescript wooden shanties knocked together from recycled planks, usually with prefab brick lower walls to prevent rot from rain splash. As society becomes more urbanised, many *Temuan* now lives in government-built concrete houses as in the case of residents in Bukit Lanjan, Bukit Lagong, Sungai Buloh and Ulu Serendah. The community has generally maintained their own culture, even though a minority

married the Malays and Chinese. The cultural maintenance is possible as *Temuan* villages are linked by ties of marriage and kinship. Moreover, the system of leadership, which links the various *Temuan* villages, has strengthened their ethnic identity and facilitated culture transmission.

The *Temuan* have their spoken language but not a written one. *Temuan* and Malay grew from the same linguistic roots, hence the similarity of common everyday terms, differentiated only by regional variations in pronunciations. However, over the years of mixing with their non-*Orang Asli* neighbours, some new words are added to the community's vocabulary. Far from being a moribund language, *Temuan* has continued to develop. In the last couple of hundred years, the *Temuan* have picked up some refinements from the more urbanised Malays. The *Temuan* vocabulary has included words borrowed from Chinese dialects.

*Original Temuan words:*

*Jain/On* (you), *ink* (aunt), *mama* (uncle), *nap* (cannot), *menu gal* (to plant), *twain* (laugh), *dui* (torn), *teaming* (blow pipe), *on* (you), *kobo* (butterfly), *gelato* (treading), *canto* (lurch), *hang* (orang), *air* (hair)

*Words shared with Malay language: barang, atau, malam, daun, ladang, di atas*

*Words pronounced slightly different from Malay:*

*Adak* (*ada* in Malay), *akuk* (*aku* in Malay), *buruuk* (*memburu* in Malay), *ikann* (*ikan/fish* in Malay), *kamik* (*kami* in Malay), *itok* (*situ* in Malay), *meken* (*makan* in Malay), *senjak* (*senja* in Malay), *borong* (*burung* in Malay), *gonong* (*gunung* in Malay), *gimau* (*harimau* in Malay), *natang* (*binatang* in Malay), *pegik* (*pergi* in Malay), *dilagang* (*dilarang* in Malay), *kaluk* (*kalau* in Malay),

*Words learned from Chinese: Tokay* (entrepreneur), *seng sea* (Chinese shop)

**Economic activities**

In the past, many of the *Temuan* grew wet rice, tapioca and vegetables to meet subsistence needs (Carey 1976). Wet rice was grown either once a year or once every two years, although some practised double cropping in a year (Gomes 1982). They also planted rubber on their traditional land, which provided an important source of cash income. The *Temuan* also planted fruit trees and vegetables in their home gardens, both for own consumption and for sale (Gomes 1982).

Although the *Temuan* occupy the lowland plains and are settled agriculturists, they also engage in forest economic activities such as hunting and gathering of non-timber forest products such as rattan, bamboo and *petai* (*Parkia speciosa*) is another source of household cash income. The *Temuan* also gather wild plant materials for medicinal purposes and house construction. When they go into the forest, they normally brought their wives and children (Gomes 1982).

The above description of the *Temuan* economic activities is general true with some changes. Wet cultivation is relatively insignificant compared to the past. In the last few decades, they have also gradually engaged themselves in non-forestry wage-earning activities to generate cash income. In the state of Selangor, some of them work as labourers in the estate and construction sectors. A minority of them is also employed in the various government agencies. This implies lesser dependence on the forest for livelihood compared to the past. It also means the young children also have less interaction with the forest. The implication is the tendency in gradual erosion of TK related to the forest and the use of forest resources.

### Social organisation

Ethnic identity and cultural maintenance are possible as the *Temuan* have a clear system of leadership and social organisation. The basic unit is the nuclear family. A number of related families form a village and it is common to find families in the village bound by kinship and affinal ties. The nuclear family is responsible both procreation and socialisation of children, inculcating them with the basic cultural values of the *Temuan* (Gomes 1982). In short, "The *Temuan* child continues the life-long process of educating himself by progressively being involved in all other spheres of life in the village as well as in the forest, with members of the older generation as well as with others who may play with him and who take the products of the forest as the "natural" items to use in daily life (Dunn 1975). The residential unit of the family is the household, which usually include adopted children and elderly relatives. Household leadership is usually in the hands of the senior man of the family (Lee 1976).

The *Temuan* social organisation is complex with seven leadership ranks: *batin*, *pemangku batin*, *menteri*, *jukra*, *jenang*, *penghulu balai* and *panglima* (Figure1). The *batin* is the headman of a number of small villages in a specific area, consisting of people spread over various villages in a region and who can trace descent through a common ancestor. The *batin*, who has supreme authority, is responsible for overall administration of the villages, ranging from settling dispute to acting as a *bomoh* (shaman) i.e. the traditional medicine man. He is assisted by the *pemangku* or deputy headman (Carey 1976).

The administrator for the community is the *menteri* who is also responsible to the *batin*. *Menteri* handles official matters for the villagers. He is regarded the middleman between the villagers and the *batin* on the one hand, and middleman between the community and JAKOA on the other.

*Batin* (headman of a group of villages)  
*Pemangku batin* (deputy headman)  
*Menteri* (home and foreign minister)  
*Jinang* (custom advisor)  
*Jukra* (assistant to *Jinang*)  
*Penghulu Balai* (ceremony advisor)  
*Panglima* (security head)

**Figure 1.** Ranks in *Temuan* social organisation in Selangor, 2016

The *jinang*, the customs advisor and his assistant, the *jukra* also assist in the administration of village affairs in the absence of the *batin* and *pemangku*. In the past, the main function of the *jinang* was to lead and to supervise co-operation work, especially the opening of new land for cultivation (Carey 1976). At present days, since land cultivation is relatively insignificant, the tasks of the *jinang* and *jukra* now provide advice on marriage (customs, preparation and ceremony), burial (customs and ceremony), property and fruit harvest distribution among children after the parents pass away.

In general, the management and supervision of village feasts and ceremonial occasions (such as marriage and death) is the responsibility of the *penghulu balai*. The *penghulu balai* is also to check on improper behaviour (e.g. disturbing other's wife) during the occasions.

The community's security matters are handled by the *panglima* who were the village military leaders in the past. Currently, there is only one *panglima* and his main responsibility to handle natural disasters and fights between villagers and outsiders. The *panglima* usually brings the matters to the attention of *batin*, *pemangku batin*, *menteri*, *junang*, *jukra* and *penghulu balai*.

In the past, another village leader was *pangawal*, who was responsible for trade and relations with outside world as well as looking after visiting strangers (Carey 1976). This position no longer exists as *Temuan* now trade directly with outsiders and there is less need to look after visitors.

Together, the *batin*, *pemangku batin*, *menteri*, *junang*, *jukra*, *penghulu balai* and *panglima* form the *Lembaga Adat*(Custom Board) of the *Temuan* community in a particular area.

The existence of these social ranks amongst the *Temuan*, however, varies with location. In Bukit Lanjan, all social ranks and *Lembaga Adat* are functioning till today. However, in Ulu Selangor, there is only *batin* but no *pemangku batin*, *menteri*, *jinang*, *jukra*, *penghulu balai*, *panglima* and *Lembaga Adat*. In such places where the

most of the social ranks and *Lembaga Adat* are not in existence, the JAKOA rather than the community appears to have more say in appointing the *batin*.

Besides traditional social organisation, there is the *Jawatankuasa Kemajuan and Keselamatan Kampung* (JKKK) or Village Development and Security Committee, whose members are appointed by the JAKOA. As the name of the committee suggests, this committee handles all development and security matters, especially involving government agencies.

#### Religious beliefs

The *Temuan* basically believe in the existence of a high god, i.e. *Tuhan*. They also believe certain large stones, rivers, tall trees and mountains are the abodes of the unseen ghosts and spirits, referring to as *nenek-moyang*, *penunggu*, *datuk*, *hantu* (ghost). Diseases and sicknesses are related to the evil spirits and their activities. The *Temuan* normally approach the medicine man or ritual curing specialist for treatment (Gomes 1982). Other additional aspects with regards to *Temuan's* religious beliefs are listed below.

- (a) The *Temuan* believe they were placed on the earth by *Tuhan* (God) to be guardians of the rainforest and if they fail in their sacred duty, the whole world will turn upside down and humanity will perish.
- (b) The river, hill, stream, rock, tree and shrub are animated by a guardian spirit. Rivers are guarded by *naga* (dragons) and *ular* (snakes) which often cause mayhem if their homes are desecrated.
- (c) The *Temuan* have a great reverence for all hills and mountains and the rivers and streams that flow from them. Their most sacred landmark is *Gunung Raja* (Royal Mountain) on the borders of Selangor and Pahang. They believe their ancestors, *Mamak Bongsu* and *Inak Bongsu* (human manifestations of God), survived the Great Flood by climbing to the top of a *gaharu* (eaglewood) tree on *Gunung Raja*. When the waters subsided they descended and seeded the present race of *Manusia* (humanity).
- (d) The *Temuan's* culture reflects their belief in these natural spirits. This takes the form of taboos, herbal remedies, ritual ceremonies and magic. They have *dukun* (healers) and a village *bomoh* (shaman) who, in a trance state, communicates with the nature spirits. The *bomoh* leads the tribe in the annual *sawai* – an ancient earth healing ritual to honour their ancestors and appease their guardian spirits.

Within the *Temuan* community, the *bomoh* exercises considerable influence on the religious affairs of the community. Very frequently, although not necessary, the task of the *bomoh* and the *batin* are in the hands of one person. The *bomoh* is usually

succeeded by his eldest son. The *bomoh* are concerned with spirits and ghosts who are related to the occurrence of illnesses and ill fortunes. The role of the *bomoh* is to propitiate these spirits and ghosts by incantations and prayers. To find a solution to the illnesses and overcome ill fortunes, a *bomoh* often go into trance (Carey 1976). Even though villagers often seek western medication for common illnesses such as cold, flu and cough, this role of the *bomoh* remains, especially in times where the illnesses are related to the act of spirits and ghosts.

For the *Temuan* community, the forest has come to be identified with distinct modes of human survival and ways of life that have evolved into distinct cultural systems (Hood 1993). The socio-economic, cultural and religious life of the *Temuan* reflects a general situation for the aborigines. The dependence of these aborigines has concerning the living plant environment and the animals and birds made the forest their home and environment for subsistence (Dunn 1975). In general, it can be said that *Temuan* continues to hold to traditional beliefs. Their religious beliefs are based on customs. Even though a minority of the community has converted to Muslims and Christians over the years, being part of the *Temuan* community, they continue to abide to *Temuan* customs and rules. In short, the *Temuan* community continue to maintain proverbs, old sayings and community rules related to forests and the use of forest resources.

#### Socio-demographic background of elders

This section presents the findings on some selected socio-demographic characteristics of 20 *Temuan* elders who provided knowledge and use of proverbs, old sayings and community rules. These 20 *Temuan* elders aged 50 and above, 10 males and 10 females, were from six *Temuan* villages, namely Kg. Orang Asli Bukit Lagong, Kg. Orang Asli Sungai Buloh (Photo 2), Kg. Orang Asli Bukit Lanjan, Kg. Orang Asli Kuang, Kg. Orang Asli Sungai Rasau and Taman Orang Asli Puchong.

Of the total 20 elders aged 50 and above, eight were from Kg. Orang Asli Rasau, four from Kg. Orang Asli Bukit Lagong, four from Kg. Orang Asli Sungai Buloh, two from Kg. Orang Asli Kuang, one from Kg. Orang Asli Bukit Lanjan and another from Taman Orang Asli Puchong. Of the 20 elders, 15 have stayed in the current village of residence for more than 20 years while another five have resided 20 years or less. Half of these 20 elders lived near to Bukit Lagong Forest Reserve, nine near Ayer Hitam Forest Reserve while one near Kota Damansara Forest Reserve. Among the 20 elders, 11 of elders aged between 50-59 years old, six aged 60-69 years old while three were 70 years and above. Out of 20 elders, 18 were married while the remaining two were widow/widower.

Eleven of these elders did not attend any formal education while two attained primary education and seven were secondary educated. Be that as it may, in general they were able to share their knowledge on proverbs, old sayings and community rules. Those with formal education were instrumental in helping to spell

out the oral tradition words used by the *Temuan* and provided further explanation on their meanings.



**Photo 2.** Discussion with a *Temuan* elder couple (second and third from left) at the their farm

All 10 female elders were housewives. Among the 10 males, two were retirees. This does not mean that the housewives confined their time to household chores only. For the *Temuan* married females, going to the forest looking for vegetable and helping to collect fruits (especially durian) are important role. This is equally true for the retired males. Their interaction with the forests enables them to learn and pass down oral tradition from one generation to another. Among the eight males in employment, six were farmers, one non-timber forest product collector while another wage earner.

### **Analysis of oral traditions by ecosystem services**

The analysis on the oral traditions related to proverbs, old sayings and community rules of the *Temuan* community is based on information gathered was from 20 elders in six *Temuan* villages. For ease of reference, old saying (OS), community rules in the form of taboo (T), and proverb (P) are explained in in Appendices 1–5.

A total of 73 oral traditions were gathered from the 20 elders:32 old sayings, 28 rules and regulations and 13 proverbs (Table 2).

**Table 2.**Types of oral traditions

Type	Number
Proverbs	13
Old sayings	32
Rules and regulations	28
<b>Total</b>	<b>73</b>

Oral tradition by ecosystem services

To facilitate discussion, the oral tradition gathered from *Temuan* elders was classified into four types of ecosystem services, namely Provisioning, Regulating, Cultural and Supporting Services outlined by Millennium Ecosystem Assessment (MEA, 2005).

Cultural services emerge as the highest percentage (78%) of all oral traditions, followed by regulating services (12%). These two services account for 90% of all 73 oral traditions. Oral traditions for provisioning services and supporting services comprised 10% of the oral traditions gathered as shown in Table 3.

**Table 3.** Types of oral traditions by ecosystem services

Type of ecosystem services	Frequency			
	Old sayings	Proverbs	Community rules	Total
Provisioning service	3	1	0	4 (6)
Regulating service	9	0	0	9 (12)
Cultural service	18	11	28	57 (78)
Supporting service	2	1	0	3 (4)
<b>Total</b>	<b>32</b>	<b>13</b>	<b>28</b>	<b>73 (100)</b>

Note: Figure in parentheses is percentage

#### *Provisioning services (4)*

Provisioning services are goods obtained from ecosystems. These include food, raw materials, genetic resources, water, minerals, medicinal resources, energy and ornamental resources.

There are four *Temuan* oral traditions related to provisioning services, comprising three old sayings and one proverb. These four oral traditions focus on the use of forest resources to carry out forestry activities (Appendix 1).

i) Tools and materials (OS1 & OS2)

This first old saying is related to the use of forest resources for hunting tools/materials. As the *Temuan* community believes that they are part of the forest ecosystem, it is only natural for them to make the simple hunting equipment such as blow pipe, bullet and trap from forest resources. The blow pipe is made from bamboo; the blow pipe bullet is coated with the poisonous sap of the *Ipoh* tree. Hunting trap is made from bamboo, rattan, tree branch and leaves. The use of these forest materials makes sense as they are not sensitive and conspicuous to the animals. The use of forest materials in making hunting tools also shows the practice of sustainable hunting. Blow pipe and traps are simple tools that ensure the necessary animals are hunted and trapped. This avoids over hunting thus, indirectly helps to conserve the animals.

The second old saying is related to maize cultivation. *Temuan* community believes that when planting maize, the planting tool should not be placed upside down as it means poor yield.

ii) Road sign materials (OS3)

This old saying educates the *Temuan* community to use forest resources as road signs. To the *Temuan* community, it is not uncommon to find villagers losing their way in the forest. One way of assisting them to find their way out of the forest is making road signs as they go into the forest to hunt or to gather non-timber forest products. Such road signs are normally made from small tree or tree branches. Removing them does not adversely affect the forest ecosystem and it also does not pollute the environment.

iii) Food source (P1)

This provisioning service proverb shows the wisdom of the *Temuan* community demonstrated through the practice of fishing. Traditionally the *Temuan* community depends on river fish as an important source of food, especially at a time where lesser animals were hunted. It is essentially important to know where the fishes are. Fishing also uses *tuba* ('poison' from forest plants) which causes the fish to faint. Therefore, if one wishes to have good fishing yield, he/she has to place the 'poison' at the appropriate part of the river.

*Regulating services (9)*

These are benefits obtained from the regulation of ecosystem processes, such as carbon sequestration and climate regulation; waste decomposition and detoxification; purification of water and air; and pest and disease control.

The animals in the forest play an important role in indicating/predicting weather conditions, beginning of flowering season, the best time to plant/fish; and also time of the day. These nine old sayings are explained below and detailed in Appendix 2.

i) Flowering indication (OS4)

In this old saying, the *Temuan* believes that the *kerarai* insect is a very good indicator on the commencement of flowering and fruiting season. When the *kerarai* insects are making noise in the morning or afternoon, this indicates that the forest trees are going to flower soon. This is important for the *Temuan* to plan their daily activities ahead, especially for the fruits that have high commercial value such as durian (*Durio zibethinus*) and *petai* (*Parkia speciosa*). The *Temuan* would pray to the unseen spirits to seek blessing that the flowering of trees would ensure good fruiting later. Therefore, the noise made by the *kerarai* insects is important to the *Temuan* community.

ii) Weather indication (OS5, OS6, OS7)

In these three old sayings regarding weather indication, three types of animals are particularly important for the *Temuan*: *riang-riang* (an insect), frog and monkey. The noise made by the *riang-riang* indicates good weather condition guide the *Temuan* that activities could be carried out in the forest for a longer time. When the monkey is making noise, it indicates weather is getting cooler. This also indicates that activities in the forest should be finished as fast as possible. When the *kangkang* frog starts to make noise, it indicates that rain would fall soon. In this situation, the *Temuan* working in the forest needs to stop work and go home soonest.

iii) Planting time (OS8, OS9, OS10)

Traditionally, crop cultivation among the *Temuan* community is guided by the moon. When it is the new moon period, there should not be any crop cultivation. As the full moon begins to emerge, the community perceives that this is time when crop cultivation may begin. It is also a suitable time to build a house during full moon. This practice is culturally related. The *Temuan* community interprets that full moon would bring full harvest.

iv) Fishing time (OS11)

The *Temuan* follows the law of nature whereby man should be active in the forest during day time and rest at night. Fishing is a daily activity where *Temuan* does not spend a night in the forest. In the late afternoon, the *Temuan* stops fishing and gets ready to go home. The fishing location could be a distance from home and the *Temuan* might not be able to find his way home after night falls. Moreover, it is also not safe to walk in the dark as he might be attacked by animals.

v) Time indication (OS 12)

According to the elders, the lizard could indicate the passing of time. In the past, not having a watch to keep time, they depend on the noise made by these lizards. When lizards start making noise for a while, it indicates that about one hour has already passed. After hearing the noise made for a number of times, it provides an indication the estimated hours spent in the forest and a guide that perhaps it is also time to go home.

*Cultural services (57)*

Cultural services are nonmaterial benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences.

There are a total of 57 cultural services comprising 18 old sayings (Appendix 3), 28 community rules (taboo) (Appendix 4) and 11 proverbs (Appendix 5).

i) Respecting and appeasing the unseen spirit (OS13, OS14, OS15, OS16, OS17, OS22, OS26, OS27, OS29)

There are nine old sayings related to the cultural and religious practices of the *Temuan* community. These old sayings clearly reflect the relationship between the *Temuan* community and the unseen spirits which affect every aspect of their daily life.

These nine old sayings are rooted in the traditional *Temuan* belief that there are unseen spirits in the forest. These unseen spirits could decide their agricultural yield and safety while in the forest. It is therefore important for *Temuan* community to seek permission before doing something, such as crop cultivation, in the forest. The unseen spirits could also help them to find lost items. Appeasing the unseen spirits in the forest is thus important, such as serving the spirits some food before eating themselves. The *Temuan* community also attempts to keep away the unseen spirits from their home such as planting certain plants (*jerangau*, *serai* and *kunyit*) and also place sharp objects such as scissor on the ceiling.

ii) Observing strange behaviours of animals (OS18, OS19, OS20, OS21)

Behavior of animals is also culturally related. When villagers are in the forest, they take note of animals and their behaviours. The four old sayings indicate the danger sign from unique birds or noise made by monkey. The same is true when *murai* bird is making noise or fish is jumping, both indicating something, such as death, has occurred at home.

- iii) Carving image on blow pipe for good yield and protection (OS23, OS24, OS25)

Hunting animals was important for the *Temuan* community in the past. How the hunters take care of the blow pipe is important in ensuring good yield and safety. Three old sayings indicate how carving images of leaf, orchid, bird or butterfly, mountain, tiger and snake could meet these needs.

- iv) Signals from human behaviour in the forest (OS28, OS30)

These two old sayings concern human behaviour that has cultural meanings. Placing tree stump at the central of the farm indicates loneliness and it is like waiting for someone who did not turn up. In another situation, if a villager accidentally kicked something in the forest, it is regarded as bad sign. This indicates unfortunate event could happen and the person should not stay in the forest any longer. Other than these old sayings, there are certain rules and regulations, especially in the form of taboo where the *Temuan* community must not do or forbidden to do. If members act against these rules, unfortunate things might happen to the members as well as the community as a whole. These 28 taboos (Appendix 4) are explained below.

- v) Taboo related to unseen spirits (T1, T2, T3, T4, T6, T7, T10, T11, T14, T16, T24)

There are 11 taboos related directly to the unseen spirits residing in the natural environment. Respect with fear and forbidden to do something which might annoy the unseen spirits are important in daily life, particularly in the forest. If these rules are not observed, the *Temuan* community believes that misfortune and even death might follows. Among the forbidden things include doing something, play, urine/move bowel, cross an area, laugh at certain animals/objects, harvest fruits, hunt big animals, and boasting while in the forest. If one wishes to do something in the sacred areas, permission must be sought from unseen spirits.

- vi) Taboo related to animals (T5, T8, T9, T12, T13, T15, T17, T18, T19, T20, T21, T22, T23, T25, T26, T27, T28)

The *Temuan* community does not only respect the unseen spirits, it is equally important to respect the animals residing in the forests. It is believed that such animals could be related to the unseen spirits. Among the 17 forbidden things to do to the animals in the forests include laughing at them, responding to strange noise, torturing animals, belittle animals, taking food remain of animals, expecting good harvest, and hunting big animals.

- vii) Proverbs related to cultural services (P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12)

There are 11 proverbs related to the forests which have specific cultural meanings that guide the socio-cultural behaviours of the *Temuan* community

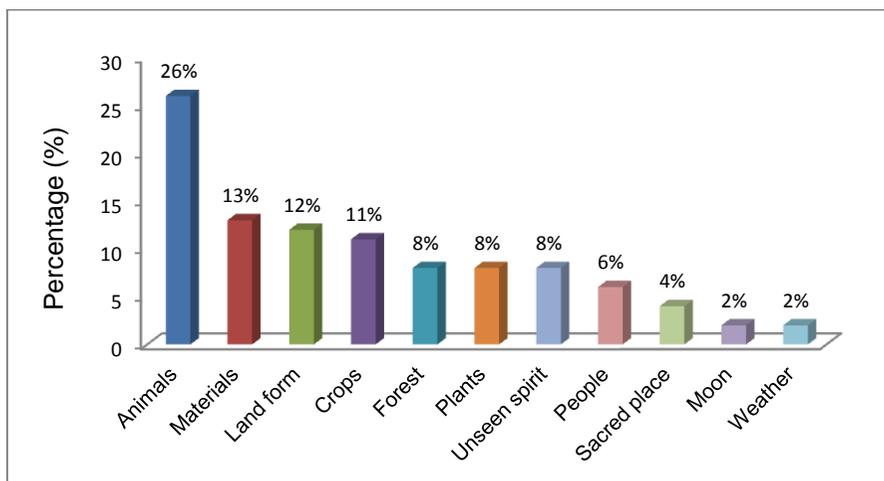
(Appendix 7). These cultural behaviours include performing good deeds, provide freedom, getting the suitable people to work together, team work and choosing right team members in performing a task.

#### *Supporting services (OS31, OS32, P13)*

Supporting services refer to services that are necessary for the production of all other ecosystem services. These include services such as nutrient recycling, primary production and soil formation. These services make it possible for the ecosystems to provide services such as food supply, flood regulation and water purification. Supporting services are related to soil, nutrients and habitat for both plants and animals. There are two old sayings and one proverb of *Temuan* community that are related the supporting services of the ecosystem (Appendix 6). These three oral traditions are indicator of soil fertility, harvest and mutual dependence between soil and plant to avoid soil erosion.

#### Subject/key words of oral traditions

This study has classified the 141 subject/key words into 11 categories as shown in Figure 2. These categories show the below characteristics. One-fifth of the total 141 subjects in oral traditions concerning animals or related to animals. This is followed by keywords concerning materials (blow pipe, clayey, poison, pot, tools, trap, wood, wooden scissor, torn), land form (cave, downstream, farm, housing site, land, mountain, objects, river, river bank, soil, valley, upstream), crops, forests, plants, unseen spirits, people, sacred place, moon and weather.



**Figure 2.** Categories of subjects in oral traditions

## Source of knowledge and level of use

The *Temuan* community is categorized as one of the six sub-ethnic groups of Proto-Malays. They are closely related to the Malays in terms of language used, i.e. Malay language and also socio-cultural beliefs. When asked about their source of knowledge on various oral traditions, the respondents (both elders and the youths) revealed that they are passed down orally from generation to generation via daily livelihood practices. The main source of knowledge is from community elders (grandparents and parents). It appears that the most effective way of this form of cultural transmission is when children follow their parents or grandparents to the forest for various activities.

From the total of 73 oral traditions gathered, 60% is used only by the *Temuan* community (Table 4). Discussion with elders in the different villages showed that they are aware of the oral traditions practised. A main reason for this common use of oral traditions is the transmission from one generation to another. Another reason is marriage among *Temuan* of different villages which means the wider use of such traditions.

**Table 4.** Level of use of oral traditions

Type of ecosystem services	Frequency			Total
	<i>Temuan</i> community	<i>Temuan</i> & Malay communities	<i>Temuan</i> , Malay and Chinese communities	
Provisioning service	2	1	1	4
Regulating service	6	0	3	9
Cultural service	34	3	20	57
Supporting service	2	0	1	3
<b>Total</b>	<b>44 (60)</b>	<b>4 (6)</b>	<b>25 (34)</b>	<b>73 (100)</b>

Note: Figure in parentheses is percentage

Four out of the total 73 oral traditions were also used by the rural Malay community in Peninsular Malaysia. In addition, one-third of the oral traditions used by the *Temuan* are practiced by both rural Malays and Chinese (Table 5).

### *Oral traditions used by Temuan community only (44)*

Of the 44 oral traditions used only by the *Temuan* community, two were classified as provisioning services, six regulating services, 34 cultural services and two supporting services:

- 1) Provisioning Services (2): OS1, OS2
- 2) Regulating Services (6): OS4, OS5, OS7, OS9, OS11, OS12

- 3) Cultural Services (18 Old sayings, 14 Taboo and 2 Proverbs)
- (a) 18 Old Sayings: OS13, OS14, OS15, OS16, OS17, OS18, OS19, OS20, OS21, OS22, OS23, OS24, OS25, OS26, OS27, OS28, OS29, OS30
  - (b) 14 Taboo: T11, T12, T13, T16, T17, T18, T19, T20, T21, T22, T23, T26, T27, T28)
  - (c) 2 Proverbs: P9, P12

- 4) Supporting Services (2): OS31, OS32

*Oral traditions used by Temuan and Malay communities (4)*

A total of four oral traditions were used by both *Temuan* and Malay communities: 1 provisioning service (P1) and three cultural services (P6, P7, P11).

*Oral traditions used by Temuan, Malay and Chinese communities (25)*

The local Chinese (especially in the rural areas) also use certain oral traditions shared by the *Temuan* and Malay communities. The 25 oral traditions shared by these three ethnic groups comprise 1 provisioning service, 3 regulating services, 20 cultural services and 1 supporting service:

Provisioning Services (1): OS3

Regulating Services (3): OS6, OS8, OS10

20 Cultural Services (14 Taboo and 6 Proverbs):

(a) 14 Taboo: T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, T14, T15, T24, T25

(b) 6 Proverbs: P2, P3, P4, P5, P8, P10

Supporting Service (1): P13

P 13: *Like bamboo and the river bank.*

### **Scientific interpretation and application to modern society**

The *Temuan* oral traditions were further interpreted with reference to modern sciences. Their relevance and applicability to the modern society were also examined.

Provisioning services (4): OS1, OS2, OS3, P1

The use of forest resources in making hunting tools (OS1) is a demonstration of sustainable hunting. Traditional hunting tool and materials ensures that necessary animals are hunted and trapped to avoid over hunting. The spirit and practice of sustainable hunting helps conserve animal population in the forest.

This is a cultural belief related to agricultural production, such as maize (OS2) since maize is an important source for the traditional forest-dependent society. People must act in such a way that ensures there is a good harvest. Hence, it is important to place planting tools properly as it may hurt a person directly but it is also interpreted as bringing the opposite of a good yield.

Using a small tree in the forest to make a road sign (OS3) does not damage or pollute the forest environment. It is important to have a road sign when entering a forest area. Removing forest resources must be minimized in sustainable forest harvesting.

The practice of fish poisoning (P1) is only effective if it is done at the place where they are fishes. It is important to do the right thing at the right place.

Regulating services (9): OS4, OS5, OS6, OS7, OS8, OS9, OS10, OS11, OS12  
Four old sayings (OS4, OS5, OS6, OS7) show that certain animals (insects, frogs and monkeys) are sensitive and aware of the flowering, fruiting season in the forest, weather condition. If one wants to know when the flowering begins, just listen to the insects or frogs. These could be used as indicators in conducting forestry activities.

Three old sayings related to the moon and cultivating (OS8, OS9, OS10) provide advice on the best days to cultivate crops. It takes 28 days for the moon to fully orbit Earth and during this period it goes through four main phases: the full moon, the waning moon, the new moon ("dark of the moon") and the waxing moon. There is increasing light from new moon to full moon while decreasing light from full moon to new moon. According to Isaac Newton's laws of gravity, the tides are affected by the gravitational pull of the moon. There is more moisture in the soil during full moon. This increased moisture induces the seeds to sprout and grow. Plants also absorb more water during full moon. It therefore follows that tree planting activities are best done during full moon days, as the seeds and trees would have adequate moisture to grow well.

When it is getting dark, a person may not be able to see things and animals clearly (OS11). Hence, no forestry activity is to take place during night time. The lizard could serve as a time keeper to *Orang Asli* who may not have a watch (OS12).

Cultural services (18 Old Sayings): OS13, OS14, OS15, OS16, OS17, OS18, OS19, OS20, OS21, OS22, OS23, OS24, OS25, OS26, OS27, OS28, OS29, OS30  
The above listed 18 old sayings are related to the unseen spirits. They simply mean that there is a need to respect and seek permission from these unseen spirits while conducting activities in the forests.

Cultural services (28 Taboo)  
These 28 cultural services (Appendix 6) could not be explained scientifically. However, they do have certain applications for the modern society especially in the

cultural sphere. These modern applications include respect special animals/objects/food in the forest, protect and conserve big trees, animals and sacred religious sites in the forest. All these aspects are part of modern sustainable forest management where animals, trees and site of socio-cultural and religious significance are to be demarcated and protected in forest certification schemes.

Cultural services (11 proverbs)

This proverb on yield and fertile soil (P2) could be explained by Isaac Newton (1643-1727)'s third law: For every action, there is an equal and opposite reaction. It is important for human to do good deed as it would bring positive impact.

Scientifically one may explain that bird kept in cage (P3) cannot fly. It is important to provide freedom to bird whose home is the natural environment. Culturally, we must not treat a person like keeping the bird in the cage.

The physical outlook of sparrow and horn bill is very different, it is difficult to place them together (P4). It simply means that it is important to get the right people to work together as people from different background normally do not get along well.

Climbing up the hill or going down the valley is not easy, team work is important to ensure safety and success (P5). Hence, togetherness and team work is important in achieving an easy or difficult task.

The monitor lizard looked lazy as it moves very slowly (P6). It is thus important to choose the right team members to avoid expecting someone who is too dependent on others.

Some monkeys like to be alone (P7). We must accept that some people do not like to mix with other members of the community.

When a snake's tongue flicks out (P8), the two tines of the fork spread as wide as they can. Reptiles smell using the tip of their tongue, and a forked tongue allows them to sense which direction a smell is coming. Culturally, forked tongue is an analogy as it indicates a person who speaks different things to different people. Therefore, do not believe the words of a trouble maker.

Some monkeys are shy to mix around (P9). Those who are shy to ask will not acquire knowledge.

The thorn is very minute, once it is in the flesh, it is difficult to remove it (P10). Yet, the thorn in the body causes pain. This indicates that something minute could bring a strong negative impact.

A nipped dog (P11) is in pain and it may not recognize and even bite the person rearing it. Culturally, it is important to remember that helping a person who could turn out to be ungrateful.

The faeces could remain on tree trunk for some time (P12). Culturally, it carries the meaning that they are people who are ready to admit and claim responsibility for the fault of other people.

### Supporting services (3)

It is difficult to explain scientifically the noise made by forest birds (OS31, OS32) and its relation to solid fertility and good yield. However, we may apply this as an indicator of soil fertility that could possibly bring good harvest. The proverb P13 on relationship between bamboo and the river bank could be explained that the roots hold the soil together. This is important as bamboo could be used to strengthen river bank preventing erosion.

## **Recognition of oral traditions by *temuan* youths**

The *Temuan* community has generally experienced social-cultural and economic transformation since Malaysia's independence in 1957. One of such obvious change is lesser dependence on the forest ecosystem for livelihood. The community is gradually moving away from forest dependence to that of engaging in non-forestry activities. In general, the living standard of the community has improved. Children have better chance to attend schools compared to their parents. Their ties with the forests become loose. This section examines to what extent such change has affected the transmission of oral traditions from one generation to another. The focus is on 68 *Temuan* youths between 15 and 49 years old from three *Temuan* villages (Photo 3).

### Socio-demographic characteristics of respondents

The 68 youths comprised one-third each from Kg. Orang Asli Bukit Lagong (23 respondents), Kg. Orang Asli Sungai Buloh (22 respondents) and Kg. Orang Asli Rasau (23 respondents).

Forty-four or two thirds of the 68 respondents were females while the rest of the respondents were males. This was because the surveys were conducted during the day time while some of the adult males were at work. The role of the females is to take care of household chores. Part of this responsibility is to collect forest vegetables to meet household subsistence needs. The females thus have good interaction with the forest and have also learned and practised the oral traditions.

Of the 68 youths surveyed from the three villages, the percentage distribution by age group was 18% (12 respondents) 15–19 years old, 31% (21 respondents) 20–29

years old, 28% (19 respondents) 30–39 years old and 23% (16 respondents) 40–49 years old.



**Photo 3.** Interviewed a *Temuan* youth at Kg Orang Asli Sg Buloh

A total of 49 of the 68 respondents were married, while 17 were single and two were widow/widower.

Out of 68 respondents, 16 had not attended any formal education. The rest of the respondents included 19 primary educated, 22 secondary educated, 11 completed upper secondary education while one attended college. This shows that the majority had some level of formal education. Even though 23% of the respondents did not have any formal education, they were found to be able to answer the questions raised during the survey.

Forty four of the 68 respondents were not in employment, comprising 33 housewives, 10 students and one retiree. Of those in employment, six were farmers, three non-timber forest product collectors while 15 wage earners. The fact that about one-fifth of these young respondents were wage earners in non-forestry sector indicating that the *Temuan* community do not totally dependent on forest resources in terms of income generation.

Have heard of the oral traditions

*Provisioning Service (4): OS1, OS2, OS3, P1*

The study findings show that between 62 to 97% of 68 respondents have heard of these four oral traditions related to provisioning services. In general, as age group increases, the percentage of respondents who have heard of the four oral traditions also rises. This shows that older generation has heard of the traditions than the younger generations.

*Regulating Service (9): OS4, OS5, OS6, OS7, OS8, OS9, OS10, OS11, OS12*

In general, 69 to 96% of 68 respondents have heard of these nine oral traditions related to provisioning services. For OS 8, OS 9 and OS 10, respondents in the age group of 15–19 has shown slightly higher percentage (75%) in terms of whether they have heard of three oral traditions related to the regulating service compared to elders in the age group of 20–29 (62–71%). Nevertheless, it is found that for other six oral traditions, the percentage increases as age rises. For OS12, the percentage increased from 50% among those in the age group 15-19 years old to 88% for those in the age group 40-49.

*Cultural Services (57)*

The analysis on whether respondents have heard of oral traditions related to 57 cultural services is divided into three tables, old sayings, taboo and proverbs.

*18 Old Sayings: OS13, OS14, OS15, OS16, OS17, OS18, OS19, OS20, OS21, OS22, OS23, OS24, OS25, OS26, OS27, OS28, OS28, OS29, OS30*

Of these 18 old sayings, those in the age group of 15–19 have shown lower percentage (42-83%) in terms of whether they have heard the old sayings compared to the 40-49 age group (75-100%). In general, between 44 to 96% of all 68 respondents has heard of the old sayings.

*28 Taboo: T1–T28*

It appears that there was a higher percentage (73 to 100%) of the 68 respondents who have heard of the cultural service related to the taboo. Among those in the age group of 15–19, 50-100% have heard of the 28 taboo. The percentage for those in the age group of 40-49 was higher, i.e. 75-100%.

*11 Proverbs: P2–P12*

The percentage of 68 respondents that have heard of 11 proverbs related to cultural service is between 50 to 95%. In general, for respondents in the age group of 15–19, the percentage was lower (50-91%) compared to those in the 40-49 age group (62-100%).

*Supporting Services (3): OS31, OS32, P13*

On supporting service, between 63 and 82% of total 68 respondents has heard of the three oral traditions. In general, those in the age group 15–19 showed slightly lower percentage (52-83%) have heard of the other two traditions compared to elders in the 40-49 age group (81-93%).

*Understanding the meanings of oral traditions*

For respondents who have heard of the oral traditions, they generally understand their meanings. This understanding was expressed orally rather than in the written form. The respondents could provide the meanings without much hesitation, even though the meaning might differ a little. They could provide further explanation on

the consequence if a villager were to go against the taboo in the *Temuan* community. The examples below illustrated their understanding of oral traditions.

*Old saying 1: During full moon day, it is good to start planting crops during the day time.*

Explanation 1: Full moon will bring full harvest. (Sample 7, aged 46)

Explanation 2: Full moon is a good sign for many things. (Sample 39, aged 35)

Explanation 3: Full moon day is not for cultivation only, anything we do is good. (Sample 32, aged 29)

*Taboo 1: It is forbidden to play in area regarded and resided by unseen spirits*

Explanation 1: There are unseen spirits in the forests and they must be careful in whatever they do in the forest. If a villager did not abide this taboo, their children in the village would be disturbed by the unseen spirits. (Sample 30, aged 22)

Explanation 2: Misfortune will happen. (Sample 32, aged 29)

Explanation 3: Will fall sick. (Sample 6, aged 30)

*Taboo 2: Do not laugh at or belittle abnormal objects/animals/insects clayeys.*

Explanation 1: If such rule is not followed, i.e. there will be storm and heavy rain. (Sample 64, aged 38)

Explanation 2: There will be misfortune. (Sample 40, aged 49)

Explanation 3: The person will have illness. (Sample 46, aged 25)

*Taboo 3: After hunting trap is set in the forest, it is forbidden to eat food cooked in earthen ware cooking pot for three days.*

Explanation 1: Neglecting this taboo would result in no animal trapped. (Sample 39, aged 35)

Explanation 2: No animal will go near the trap. (Sample 3, aged 27)

Explanation 3: The effort to set trap will be wasted. (Sample 35, aged 33)

*Proverb 1: Bird in cage.*

Explanation 1: The bird was imprisoned. (Sample 46, aged 25)

Explanation 2: No freedom for the bird. (Sample 40, aged 49)

Explanation 3: It is like controlled by husband. (Sample 30, aged 22)

*Proverb 2: Together we climb the hill, together we go down the valley*

Explanation 1: Face difficulty or comfort together. (Sample 7, aged 46)

Explanation 2: Face difficulty together. (Sample 32, aged 29)

Explanation 3: Difficulty together, comfort together. (Sample 33, aged 32)

*Proverb 3: Like bamboo plants and the river bank*

Explanation 1: Close relationship. (Sample 6, aged 30)

Explanation 2: Depend on each other. (Sample 64, aged 38)

Explanation 3: Good relationship. (Sample 33, aged 32)

Extent of agreeing to the oral tradition

*Provisioning Service (4): OS1, OS2, OS3, P1*

Most of the youths (94–100%) agreed to the four provisioning service oral traditions heard by age group. There were only four respondents who disagreed to these provisioning service oral traditions and the reasons given are listed below.

*OS 2: When planting maize, the planting tool should not be placed upside down.*

Reason: “Not logical that there is relationship with position of tool and yield” (Sample 10 aged 39); No reason given (Sample 21 aged 17).

*P1: Fish at upstream, fish poisoning at downstream.*

Reason: No reason given. (Sample 12 aged 46, Sample 13 aged 22 & Sample 17 aged 16).

*Regulating Service (9): OS4, OS5, OS6, OS7, OS8, OS9, OS10, OS11, OS12*

Youths generally agreed to the nine regulating service oral traditions they have heard of. Between 93 to 100% of youths belonged to this category. A few disagreed.

*OS 5: When riang-riang insects are making noise during the day, it is the sign of good weather for the day.*

Reason: *Kerarai* is not an indicator for unseen spirits (Sample 23, aged 31 years)

*OS 7: When the monkey is making the noise “woh woh” in the morning, it is sign of cool weather condition/getting dark*

Reason: The monkey’s sound in the morning is because they are getting some fruits for eating. (Sample 25, aged 15 years)

*OS 9: During new moon, no planting of crop is to take place.*

Reason: No comment (Sample 25, aged 15 years)

*OS 11: No fishing when it is getting dark*

Reason: There is more fish in the evening. (Sample 2, aged 30 years)

*OS 12: When lizard is making noise, an hour has passed.*

Reason: Chicken is telling the time, not lizard (Sample 5, aged 22 years)

*Cultural Services (57)*

*18 Old Sayings: OS13, OS14, OS15, OS16, OS17, OS18, OS19, OS20, OS21, OS22, OS23, OS24, OS25, OS26, OS27, OS28, OS28, OS29, OS30*

Between 90 to 100% of youths who have heard of cultural service oral traditions 18 (old sayings) agreed to them. The reasons for not a minority of those disagreeing some of these oral traditions are explained as below.

OS 16: *Serve food to the unseen spirit when opening new land.*

Reason: Not all Orang Asli will do that (provide some food) (Sample 21, aged 17 years)

OS17: *When kerarai insects are making noise at night, it indicates the unseen spirits are around.*

Reason: Not Kerarai insects but dog (Sample 62, aged 21 years)

OS19: *When monkeys make noise, it is a sign of danger.*

Reason: The sound is made when the monkey gets some fruits to eat. (Sample 31, aged 21 years)

OS21: *When fish is jumping in the river or fishing has no yield, it indicates something sad (death) is happening or there is visitor in the village.*

Reason: No reason given (Sample 12, aged 46 years)

OS22: *Before planting paddy, a shaman has to pray and burn kemian/cabok/kedondong wood.*

Reason: No reason given (Sample 14, aged 29 years)

OS23: *Carving images of leaf, orchid, bird or butterfly on bamboo blow pipe will succeed in hunting.*

Reason: Carving images on bamboo blow pipe are for decoration only (Sample 16, aged 19 years)

OS25: *Carving image of tiger and snake on bamboo blow pipe avoid attack by these animals*

Reason: Carving images on bamboo blow pipe are for decoration only (Sample 43, aged 28 years)

OS27: *Place crossed wooden scissor on the ceiling to keep away the unseen spirits*

Reason: No reason given (Sample 35, aged 38 years)

OS29: *If something is lost in the forest, place some rice around a piece of young wood, then recite "kindly return our item, good unseen spirits".*

Reason: Sometimes this practice does not work as the lost item could not return (Sample 9, aged 20 years)

OS30: *In the process of entering the forest, if the leg accidentally kicked something, it is a bad sign that unfortunate thing would happen and we should go home.*

Reason: If accidentally kicked something, it is not a bad sign but a sign that there is visitor will come to our house and hence we have to go home. (Sample 9, aged 20 years)

28 Taboo: T1–T28

Almost all (97–100%) youths agreed to the cultural service oral traditions (taboo) they have heard of them while a few disagreed.

*T8: Forbidden to laugh when seeing animals copulate.*

Reason: No reason given (Sample 9, aged 20 years)

*T11: Forbidden to consume fruits from tree that grows on sacred tree.*

Reason: No reason given (Sample 35, aged 38 years)

*T19: Forbidden to expect good harvest when going hunting*

Reason: Do not believe it is true (Sample 8, aged 30 years)

*T20: After hunting trap is set in the forest, forbidden to eat food cooked in earthen ware cooking pot for three days.*

Reason: Do not believe it is true (Sample 8, aged 30 years)

11 Proverbs: P2–P12

More than 95% of youths agreed to the cultural service oral traditions (11 proverbs) heard. Only a minority disagreed to the proverbs and their reasons are given below.

*P4: Sparrow and horn-bill are not the same, cannot match well.*

Reason: No reason given (Sample 17, aged 16 years)

*P8: Like snake/lizard with forked tongue.*

Reason: Do not believe it is true (Sample 17, aged 16 years)

*P9: Shy Kukang (monkey)*

Reason: Do not believe it is true (Sample 12, aged 46 years)

*P10: Torn in the body*

Reason: Do not believe it is true (Sample 13, aged 22 years)

*P11: Releasing a nipped dog*

Reason: Do not believe it is true (Sample 17, aged 16 years)

Supporting Services (3): OS31, OS32, P13

For the three oral traditions on supporting service, between 98 to 100% of youths who have heard of them also agreed to them. Only two respondents disagreed to the supporting service oral traditions heard with the below reason.

*OS32: When kelicap bird is making the noise “cap, cap”, it is a sign of good harvest (fish, fruits or hunted animals)*

Reason: Do not believe it is true (Sample 6, aged 30 years)

P13: Like bamboo and the river bank

Reason: Do not believe it is true (Sample 13, aged 22 years)

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**Provisioning services:  
Four oral traditions (3 old sayings and 1 proverb)**

<b>OS 1</b>	<i>Alat-alat memburu seperti temiang (sumpit) dan bulu harus dibuat daripada sumber hutan</i>
In English	Hunting tools and materials such as blow pipe and bullet must be made from forest resources
<b>OS 2</b>	<i>Bila tanam jagung, mata kayu alat menanam nyap boleh terbalik pada waktu rehat.</i>
In English	When planting maize, the planting tool should not be placed upside down.
<b>OS 3</b>	<i>Patahkan pokok kecil dalam perjalanan masuk ke hutan sebagai tanda arah keluar hutan</i>
In English	Take a small tree or tree branch to make road sign to enable easy exit from the forest
<b>P 1</b>	<i>Ikan di hulu, tuba di hilir</i>
In English	Fish at upstream, fish poison at downstream.

**Regulating services:  
Nine oral traditions (old sayings)**

<b>OS 4</b>	<i>Apabila serangga kerarai berbunyi pagi dan petang, tanda musim pokok hutan bermula berbunga dan berbuah.</i>
In English	When <i>kerarai</i> insect makes noise in the morning or afternoon, it is the beginning sign of forest tree flowering and fruiting.
<b>OS 5</b>	<i>Apabila serangga riang-riang berbunyi waktu pagi dan petang, tanda cuaca hari itu elok.</i>
In English	When riang-riang insects are making noise during the day, it is the sign of good weather for the day.
<b>OS 6</b>	<i>Katak kangkang hutan berbunyi, itu tanda hujan.</i>
In English	When the <i>kangkang</i> frog are making noise, it is sign of raining.
<b>OS 7</b>	<i>Monyek siamang (ungka) berbunyi “woh woh” pada waktu pagi, itu tanda cuaca mendung/sejuk/hampir malam</i>
In English	When the monkey is making the noise “woh woh” in the morning, it is sign of cool weather condition/getting dark
<b>OS 8</b>	<i>Apabila bulan penuh, bagus untuk menanam apa-apa jenis pada waktu siang.</i>
In English	During full moon day, it is good to start planting crops during the day time.
<b>OS 9</b>	<i>Pada masa bulan kecil, sebarang tidak boleh ditanam.</i>
In English	During new moon, no planting of crop is to take place.
<b>OS 10</b>	<i>Masa bulan timbul, sesuai untuk bercucuk tanam atau buat rumah.</i>
In English	As full moon begins to emerge, it is suitable to cultivate crop or build a house
<b>OS 11</b>	<i>Nyap boleh menjala ikan pada waktu senjak</i>
In English	No fishing when it is getting dark
<b>OS 12</b>	<i>Bila cicak tokek berbunyi, itu tanda waktu jam.</i>
In English	When lizard is making noise, an hour has passed.

## Cultural services: 18 oral traditions (old sayings)

<b>OS 13</b>	<i>Kuasa nenek-moyang bertanggungjawab ke atas hasil pertanian di hutan.</i>
In English	The good unseen spirit is responsible for agricultural yield in the forest.
<b>OS 14</b>	<i>Semasa di hutan, minta izin daripada nenek-moyang sebelum laku sesuatu</i>
In English	While in the forest, seek permission from the unseen spirit before doing something
<b>OS 15</b>	<i>Sebelum makan di hutan, bagi sedikit makanan kepada nenek-moyang dahulu</i>
In English	Provide some food to the unseen spirit before eating in the forest.
<b>OS 16</b>	<i>Pembukaan ladang baru perlu beri makanan kepada nenek-moyang.</i>
In English	Serve food to the unseen spirit when opening new land.
<b>OS 17</b>	<i>Serangga kerarai berbunyi malam, tanda makhluk halus di sekeliling kita.</i>
In English	When kerarai insects are making noise at night, it indicates the unseen spirits are around.
<b>OS 18</b>	<i>Nampak borong pelik, nyap boleh jalan, ada sesuatu yang tidak baik akan berlaku.</i>
In English	When seeing a unique bird in the forest, stop proceeding as misfortune will happen.
<b>OS 19</b>	<i>Monyek/siamang/ungka berbunyi siang atau malam, tanda bahaya.</i>
In English	When monkeys make noise, it is a sign of danger.
<b>OS 20</b>	<i>Borong murai berbunyi tak henti, tanda ada orang datang ke rumah atau ada orang meninggal.</i>
In English	When magpie birds are making noise, it indicates there is a visitor at home or someone just passed away.
<b>OS 21</b>	<i>Jika ikan melompat atau memancing tak berhasil, di kampung ada hal yang berat (kematian di kampung) atau ada pelawat</i>
In English	When fish is jumping in the river or fishing has no yield, it indicates something sad (death) is happening or there is visitor in the village.
<b>OS 22</b>	<i>Sebelum menugal (menanam) padi, bomoh membaca jampi serapah dan membakar kemian/cabok/kedondong.</i>
In English	Before planting paddy, a shaman has to pray and burn kemian/cabok/kedondong wood.

<b>OS 23</b>	<i>Ukiran gambar-gambar daun, orkid, borong atau kebok (ramar-rama) di atas buluh sumpitan akan mendapat binatang buruan.</i>
In English	Carving images of leaf, orchid, bird or butterfly on bamboo blow pipe will succeed in hunting.
<b>OS 24</b>	<i>Ukiran gambar gunung di sumpit mengelak sesat dalam hutan</i>
In English	Carving image of mountain on bamboo blow pipe could avoid losing direction in the forest
<b>OS 25</b>	<i>Ukiran gambar gergasi dan ular di sumpit mengelak binatang ini menyerang.</i>
In English	Carving image of tiger and snake on bamboo blow pipe avoid attack by these animals
<b>OS 26</b>	<i>Tanam pokok jerangau, serai dan kunyit di sekeliling rumah sebelum buat rumah bagi mengelakkan gangguan makhluk halus</i>
In English	Plant jerangau, serai and kunyit around the new housing site to avoid disturbance by unseen spirits.
<b>OS 27</b>	<i>Letak kayu silang gunting di atas siling rumah bagi menghalau makhluk halus</i>
In English	Place crossed wooden scissor on the ceiling to keep away the unseen spirits
<b>OS 28</b>	<i>Macam tunggul di tengah ladang, kita tunggu, tapi orangnya nyap datang.</i>
In English	Like placing tree stump in the central of the farm, we wait but the other person did not turn up
<b>OS 29</b>	<i>Jika barang hilang di hutan, ambil anak kayu, dan letak beras di sekeliling kayu, ucap serapah "pulanglah barang kami, nenek-moyang i".</i>
In English	If something is lost in the forest, place some rice around a piece of young wood, then recite "kindly return our item, good unseen spirits".
<b>OS 30</b>	<i>Ketika masuk hutan, tiba-tiba kaki jelanto (tersadung), petanda ada perkara nyap baik akan berlaku dan kita harus pulang/balik.</i>
In English	In the process of entering the forest, if the leg accidentally kicked something, it is a bad sign that unfortunate thing would happen and we should go home.

## Cultural services: 28 oral traditions (taboo)

<b>T 1</b>	<i>Nyap boleh melakukan sesuatu di atas batu, pokok, sungai, gua, baning (banih) besar, cantop (lurah) dan bukit sebab adak penunggu.</i>
In English	Must not do something on big rock, tree, river, cave, buttness, valley and hill as there are unseen spirits there.
<b>T 2</b>	<i>Nyap dibenarkan bermain di kawasan yang dianggap keras dan adak penunggu</i>
In English	It is forbidden to play in area regarded sacred and resided by unseen spirits
<b>T 3</b>	<i>Nyap boleh mihak (kencing/buang air besar) di tempat yang ada penunggu.</i>
In English	Forbidden to urine or move bowel di places with unseen spirits
<b>T 4</b>	<i>Nyap boleh laluk tempat yang bisak/ada penunggu tanpa izin</i>
In English	Cannot cross a sacred area without seeking permission from unseen spirits
<b>T 5</b>	<i>Nyap boleh menegur bunyi-bunyi yang pelik dalam hutan atau di waktu gelap keranak akan dimakan oleh gimau (harimau).</i>
In English	Cannot respond to abnormal noises while in forest or at night as the person will be eaten by tiger.
<b>T 6</b>	<i>Nyap boleh memainkan pokok-pokok besar dan tempat-tempat sembahyang</i>
In English	Cannot play in area with big trees and religious ceremonial place
<b>T 7</b>	<i>Tidak boleh tawai (ketawa) atau mempersendakan (mengejek) benda-benda/haiwan/serangga/tanah liat yang berbentuk pelik, nanti celau (ribut)</i>
In English	Do not laugh at or belittle abnormal objects/animals/insects/clayeys
<b>T 8</b>	<i>Nyap boleh tawai (ketawa) apabila melihat binatang menu (mengawan).</i>
In English	Forbidden to laugh when seeing animals copulate.
<b>T 9</b>	<i>Nyap boleh menyesak (menyiksa) natang (binatang).</i>
In English	Forbidden to torture animals.
<b>T 10</b>	<i>Nyap boleh kencing dalam batang-batang kayuk (kayu) berlobang</i>
In English	Forbidden to urine in hollow tree trunk
<b>T 11</b>	<i>Dilarang memakan buah-buahan yang pokok berbisak (ada penunggu)</i>
In English	Forbidden to consume fruits from tree that grows on sacred tree.
<b>T 12</b>	<i>Nyap boleh gata/mengeji/main-main kepada benda makanan nanti terkena cikap (penyakit perut)</i>
In English	Forbidden to belittle or say something negative on or play with food

<b>T 13</b>	<i>Nyap boleh ambil sisa makanan binatang buas</i>
In English	Forbidden to take food remain of fierce animals
<b>T 14</b>	<i>Nyap boleh menunjuk atau menegur sesuatu benda yang besar, ganjil atau keras</i>
In English	Forbidden to point at or comment on big, unique and sacred thing
<b>T 15</b>	<i>Nyap boleh tawaikan natang yang menggelikan hati</i>
In English	Forbidden to laugh at animals that looked ugly
<b>T 16</b>	<i>Pasangan yang dalam pertunangan dalam 7 hari tidak boleh masuk hutan sesuka hati</i>
In English	Newly engaged couple (within 7 days) cannot simply go into the forest
<b>T 17</b>	<i>Dilagang berpesan kepada uang yang keluar memburu dengan sumpit dan jerat</i>
In English	Forbidden to request a share from people going hunting with blow pipe and trap
<b>T 18</b>	<i>Kalau pegik (pergi) buruuk (memburu), nyap boleh ditanya mana nak pegik.</i>
In English	Forbidden to ask people going hunting where they are going.
<b>T 19</b>	<i>Dilagang mengharapkan hasil tangkapan yang banyak</i>
In English	Forbidden to expect good harvest when going hunting
<b>T 20</b>	<i>Selepas kitak pasang perangkap, nyap dibenarkan makan di dalam periuk/ kualiti selama 3 aik (hari).</i>
In English	After hunting trap is set in the forest, forbidden to eat food cooked in earthen ware cooking pot for three days.
<b>T 21</b>	<i>Binatang gagah seperti beruang nyap boleh disumpit</i>
In English	Forbidden to shoot huge animals with blow pipe
<b>T 22</b>	<i>Uang baru belajar menyumpit, nyap boleh makan binatang buruan sendiri.</i>
In English	A new blow pipe user is forbidden to eat the animal hunted.
<b>T 23</b>	<i>Daging natang (binatang) yang diguna bersama racun ipoh nyap boleh digoreng</i>
In English	Animal meat cannot be mixed with ipoh poison when frying
<b>T 24</b>	<i>Nyap boleh bercakap besar dalam hutan.</i>
In English	Boasting is forbidden in the forest.
<b>T 25</b>	<i>Nyap boleh mengejek bekas-bekas najis binatang buas.</i>
In English	Forbidden to comment on the faeces of fierce animals.
<b>T 26</b>	<i>Nyap boleh tegur uang yang hendak memasang jerat.</i>
In English	Forbidden to greet those going to set hunting trap.
<b>T 27</b>	<i>Kaluk (kalau) pegik (pergi) Kalau pergi mencari ikan, nyap boleh ditanya hendak mana nak pegik.</i>
In English	Forbidden to ask where people is going for fishing.

<b>T 28</b>	<i>Nyap boleh tegur semasa uang nak pegik nyolo (memancing) atau nyap boleh minta zekik (rezeki).</i>
In English	Forbidden to request a share from people going fishing.

## Cultural services: 11 oral traditions (proverbs)

<b>P 2</b>	<i>Ada ubi ada batas, ada budi ada balas.</i>
In English	There is yield when there is fertile soil, there is good deed there is reward.
<b>P 3</b>	<i>Borong dalam sangkak.</i>
In English	Bird in cage.
<b>P 4</b>	<i>Borong pipit tak sama enggang, nyap padan sama.</i>
In English	Sparrow and hornbill are not the same, cannot match well.
<b>P 5</b>	<i>Ke bukit sama didaki, ke lurah sama dituun (diturun)</i>
In English	Together we climb the hill, together we go down the valley
<b>P 6</b>	<i>Macam Dukung biawak hidup</i>
In English	Like carrying a monitor lizard
<b>P 7</b>	<i>Macam kea (kera) sumbang</i>
In English	Like a monkey that has done wrong.
<b>P 8</b>	<i>Macam lidah bercabang</i>
In English	Like snake/lizard with forked tongue.
<b>P 9</b>	<i>Jangan jadi macam kukang</i>
In English	Shy kukang (monkey)
<b>P 10</b>	<i>Macam duik (duri) dalam badan</i>
In English	Thorn in the body
<b>P 11</b>	<i>Melepaskan anjing tersepit</i>
In English	Releasing a nipped dog
<b>P 12</b>	<i>Mengaku tahi atas batang</i>
In English	Admitting the faeces on tree trunk

## Supporting services: 3 oral traditions (2 old sayings and 1 proverb)

<b>OS 31</b>	<i>Borong taguk berbunyi semasa buat kebun, tanda tempat itu subur dan banyak berhasil.</i>
In English	When the taguk bird is making noise during land preparation, it is a sign that the land is fertile and will bring good yield.
<b>OS 32</b>	<i>Borong kelicap berbunyi “cap, cap” semasa masuk hutan, tanda ada zeki (ikan, petai, buruan)</i>
In English	When kelicap bird is making the noise “cap, cap”, it is a sign of good harvest (fish, fruits or hunted animals)
<b>P 13</b>	<i>Macam aur dengan tebing.</i>
In English	Like bamboo and the river bank

# Proverbs, Old Sayings and Community Rules Related to Climate Change and Forest Management in Tambunan District, Sabah, Malaysia

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## Introduction

Indigenous people lived in harmony with nature since time immemorial and this is no exception for the people in the Tambunan District of the State of Sabah, Malaysia. They work in their land following and observing the proverbs and old saying of their fore fathers. To avoid repeating mistakes, community rules were developed and enforced to make sure the sustainability of resources in their surroundings.

Tambunan is a district in the interior of Sabah, East Malaysia on the Borneo Island. It is situated about 90 km east of the state capital of Kota Kinabalu. Geographically Tambunan is hilly with an elevation from 750 m to 2,645 m above sea level at the summit of Mt. Trus Madi. It covers about 1,347 sq. km. The natural vegetation ranged from Lowland Mix Dipterocarps Forests, Hill Mix Dipterocarps Forest, Lower Montane Forest, Upper Montane Forest and Summit Scrub Forest (Kitayama 1992). At present the population is about 35,667 (Dept. of Statistic Malaysia 2010). The district has a mild tropical climate all year long. The valley is peppered with terraced paddy fields and dense forests of bamboo.

The majority of the indigenous peoples residing here are known as *Tambunan Dusuns*. *Tambunan Dusuns* belong to a *Dusunic* family. In the early 20th century, the social structure of the *Tambunan Dusuns* was based on seven sub-tribes: *Tuwawon*, *Tagahas*, *Tibabar*, *Bundu*, *Ganah*, *Palupuh* and *Kohub*. Three out of the seven sub-tribes, *Tuwawon*, *Tagahas* and *Tibabar* are still residing in the Tambunan District to date (Low, 2006). The *Dusun Ganah* is still exists and they are distributed in the central area of the district such as in the villages of Timbou, Botung, Gagaraon, Nouduh, Karanaan and Pomotodon. They are farmers planting mainly rice paddy, rubber and vegetables to sustain their livelihoods.

The objectives of this survey are to document all proverbs, old sayings and community rules of the *Dusun* people in Tambunan District and to relate them to their adaptation to climate change and forest management in their everyday lives.

## Materials and methods

Surveys of the proverbs, old sayings and community rules in relations to the climate change and forest management in Tambunan District were conducted from October till November 2016. The survey included semi-structured interviews following the procedures as described by Martin (1995). Survey form used is as shown in Figure 1 below:

Proverbs, old sayings and forest management of Tambunan		
No.:		
Mukim:		
Village:		
Name of respondent:		
Sex:		Age:
Name of Proverbs/Old Sayings/Community Rules (in <i>Dusun</i> Tambunan language):		
Translated (literally) into English:		
Meaning in English:		
Advice:		
Is the Proverbs/Old Sayings/Community Rules still being practiced?		
What is the use of these Proverbs/Old Sayings/Community Rules in modern world nowadays?		
Other note:		
Name of Data Collector		Date

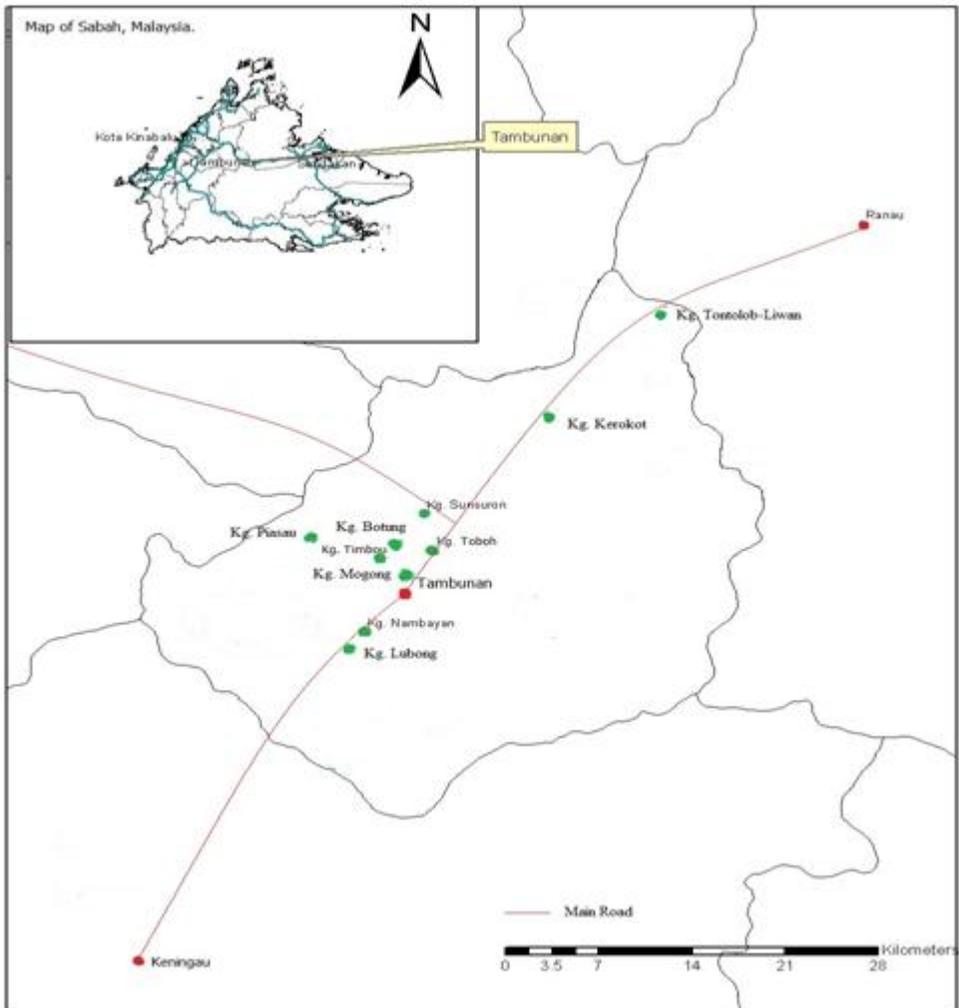
**Figure 1.** Survey form

Five Mukim (Sub-districts) were surveyed which include (Figure 2):

1. MUKIM TOBOH
  - a. Kg\*. Timbou
  - b. Kg. Piasau
  - c. Kg. Botung
  - d. Kg. Toboh
  - e. Kg. Kituntul
2. MUKIM KEROKOT
  - a. Kg. Tontolob – Liwan
3. MUKIM NAMBAYAN
  - a. Kg. Nambayan
  - b. Kg. Lubong
4. MUKIM SUNSURON
  - a. Kg. Sunsuron

(Note: \*Kg. = *Kampung* = Village)

Figure 2 below is the locality of villages studied:



**Figure 2.** Map of Tambunan District, Sabah, Malaysia

## Results

Table 1 below shows the data obtained from the survey.

**Table 1.** Data on Proverbs, Old Sayings and Community Rules in Tambunan District

No.	Mukim	Proverbs	Old sayings	Community rules
1.	NAMBAYAN Kg. Nambayan  Two respondents age 64-70 years old.	<p>1. <b>Dusun words</b> Monguni koting-koting monikid toun, ingga nopo koting nga ingga nodi poullion. <b>Direct translation</b> 'Koting-koting' sounds every year, if no 'koting-koting' sounds mean no harvest. <b>Meaning</b> Hard working paddy farmer will get bountiful harvest every year. No harvest if they are lazy.</p>	<p>1. <b>Dusun words</b> Tawang wulan nopo, auu osonong do momutanom-tanom. <b>Direct translation</b> Whenever it is full moon, it is not advisable to plant. <b>Meaning</b> It is advisable not to plant any thing during full moon days. It is belief that the plants will be attacked by insects and animals.</p>	<p>1. <b>Dusun words</b> Mononduk Poring id disan tanah it pingoros waig. <b>Direct translation</b> Erecting Poring poles near stream. <b>Meaning</b> Erecting Poring (bamboo) poles near stream to prevent the sand being eroded by floods.</p>
		<p>2. <b>Dusun words</b> Agayo nogi apalasan ko pinalasan. <b>Direct translation</b> The naturally peeled off areas are bigger than the area peeled off by a person. <b>Meaning</b> A person who worked hard but gained/ received little wage/return.</p>	<p>2. <b>Dusun words</b> Katang wulan nopo, osonong do momutanom. <b>Direct translation</b> A half- moon is good for planting. <b>Meaning</b> Half-moon (new moon) days are good for planting. The harvest would be bountiful.</p>	<p>2. <b>Dusun words</b> Madsalud. <b>Direct translation</b> Removing spirit. <b>Meaning</b> Removing/shifting the spirit of an area to other area. This is done to open/clear an area for agriculture etc....</p>

No.	Mukim	Proverbs	Old sayings	Community rules
		<p>3. <b>Dusun words</b>            Koruba ko nopo kolikongkom, mongongom nogi muli.  <b>Direct translation</b>            If you encountered a millipede along the way, quickly return home.  <b>Meaning</b>            If someone predicts that a project/work would have problem then better cancel the project/work.</p>	<p>3. <b>Dusun words</b>            Katang tolikud wulan nopo, osonong momutanom-tanom it monguaa siriba tanah.  <b>Direct translation</b>            A half-moon is suitable to plant edible root plants.  <b>Meaning</b>            A half-moon is suitable to plant edible root plants such as tapioca, yam etc...</p>	<p>3. <b>Dusun words</b>            Monubak tudan.  <b>Direct translation</b>            Praying and respecting hill water.  <b>Meaning</b>            The purpose of this prayer is to protect the hill water source.</p>
		<p>4. <b>Dusun words</b>            Korongou nopo tuni tagarangan, ongoi noh mongimpori.  <b>Direct translation</b>            When you hear the wind blowing, go and start working.  <b>Meaning</b>            The time/season for harvesting rice paddy has come. Everybody should be busy harvesting.</p>	<p>4. <b>Dusun words</b>            Busilow om ramaas tawan.  <b>Direct translation</b>            Yellow and golden sky.  <b>Meaning</b>            The sign of a long period of drought is coming.</p>	<p>4. <b>Dusun words</b>            Muli mantad lamin namatai.  <b>Direct translation</b>            Return home after visited a funeral.  <b>Meaning</b>            A person is not permitted to walk through the middle of a paddy field after visited a funeral. It is belief that the paddy will die.</p>

No.	Mukim	Proverbs	Old sayings	Community rules
		<p>5. <b>Dusun words</b> Nuumba noh totodok, ingga di pinotodok. <b>Direct translation</b> The poles are ready but none of them erected. <b>Meaning</b> A person has a large land but did not work/plant anything on it hence no benefit from it.</p>	<p>5. <b>Dusun words</b> Seworok-worok tawan. <b>Direct translation</b> Colorful sky. <b>Meaning</b> A sign of fine weather. Not going to rain.</p>	<p>5. <b>Dusun words</b> Monumbaranai tayam <b>Direct translation</b> Make fun of an animal. <b>Meaning</b> If someone makes fun of an animal, a curse will be bestowed upon him/her.</p>
		<p>6. <b>Dusun words</b> Sumunsulag nopo nga milo akanon, mingkakat nopo nga auu milo akanon. <b>Direct translation</b> It is edible if grows horizontally but not edible if grows vertically. <b>English meaning</b> A type of plant ie. <i>Alcocacia</i> sp. (Yam) of which the rhizome/root is edible but not the stem and leaves.</p>	<p>6. <b>Dusun words</b> Tuni tombolog Tompipi. <b>Direct translation</b> Bunyi burung Tompipi. <b>Meaning</b> A person who works on his land will gain profits.</p>	<p>6. <b>Dusun words</b> Tondu bandaton auu buli mogkotu nuu nopo kokotuaan. <b>Direct translation</b> Woman is forbidden to harvest any fruits during her menstruation period. <b>Meaning</b> A woman harvesting any fruits during her menstruation period would kill the plants. .</p>

No.	Mukim	Proverbs	Old sayings	Community rules
		<p>7. <b>Dusun words</b> Liwatong okoro kada koiyai inturu korondom. <b>Direct translation</b> Small stream but seven times dark. <b>English meaning</b> Small stream but very deep.</p>	<p>7. <b>Dusun words</b> Tuni tombolog Kopioteki. <b>Direct translation</b> Kopioteki bird calls. <b>Meaning</b> A sign of bad weather at late evening ie. Heavy rain fall and flood will come.</p>	<p>7. <b>Dusun words</b> Popouli Bambarayon. <b>Direct translation</b> Returning home of the paddy spirit (Bambarayon) <b>Meaning</b> To bring back home the spirit of paddy (Bambarayon) and a thanksgiving prayer is performed.</p>
		<p>8. <b>Dusun words</b> Agayo-gayo galum nga agayo-gayo polingkurmon. <b>Direct translation</b> The larger the mat is the larger it is to be rolled up. <b>Meaning</b> The larger the land is, the larger the area to be planted.</p>	<p>8. <b>Dusun words</b> Kokito tumulud asawat potiukan. <b>Direct translation</b> Bees fly high. <b>Meaning</b> A sign that heavy rain will come soon.</p>	<p>8. <b>Dusun words</b> Koyomutan talun. <b>Direct translation</b> The dirt of forest. <b>Meaning</b> It is forbidden to bury a dead person inside a forest, if he/she died during a hunting trip.</p>
		<p>9. <b>Dusun words</b> Okoro daa tiasok, sakali nga kopo nu lingkut. <b>Direct translation</b> The paddy nursery is small but the harvest filled up the barn. <b>English meaning</b> Even though the land is small but the harvest is bountiful.</p>	<p>9. <b>Dusun words</b> Kokito tumulud osuriba potiukan. <b>Direct translation</b> Bees fly low. <b>Meaning</b> A sign of a long drought will come soon.</p>	<p>9. <b>Dusun words</b> Mengimbelit tanah. <b>Direct translation</b> Restoring soil. <b>Meaning</b> Restoring the fertility of the agricultural land that had been continuously worked on.</p>

No.	Mukim	Proverbs	Old sayings	Community rules
		<p>10. <b>Dusun words</b> Sembasung nogi tapoi, sewakid no tonsii. <b>Direct translation</b> The husks are plenty, the fruits are few. <b>Meaning</b> A person gained more failure compare to success.</p>	<p>10. <b>Dusun words</b> Monguni badtak sasaron. <b>Direct translation</b> Frogs sound early morning. <b>Meaning</b> A sign of bad weather will be coming ie heavy rain fall early in the morning.</p>	<p>10. <b>Dusun words</b> Memantang turu tatau. <b>Direct translation</b> Seven days observation. <b>Meaning</b> If a member of a family in a village passed away, the villagers are forbidden to work in their land or their plants will die.</p>
			<p>11. <b>Dusun words</b> Mosubak <b>Direct translation</b> A traditional prayer for forest area. <b>Meaning</b> 1. A Mosubak prayer is performed in one particular area of forest, or river, to bar people from harvesting the forest products. 2. To protect a portion of forest or a river.</p>	

No.	Mukim	Proverbs	Old sayings	Community rules
2.	KEROKOT Village Tontolob Liwan	<p>1. <b>Dusun words</b> Ogumu nopo tagahiis do monguni do tatau nga tantad do magadau oh pomogunan.</p> <p><b>Direct translation</b> When lots of Black Cicada sound heard in the afternoon, it is a sign that the drought season is coming.</p> <p><b>Meaning</b> When there are lots of Black Cicada noises in the afternoon, it is a sign that the drought season is coming.</p>	<p>1. <b>Dusun words</b> Maganu nopo wawaal do walai nga ontok misarawang oh wulan.</p> <p><b>Direct translation</b> Collecting things in the forest for tools must be during the full moon period.</p> <p><b>Meaning</b> The best time to collect forest products for making tool is during the full moon period.</p>	<p>1. <b>Dusun words</b> Au obuli mintanga toi ko maya iid tanga do parai soira ki nibabo do dupot.</p> <p><b>Direct translation</b> It is forbidden to pass through a paddy field or walk in the middle of a paddy field when carrying a wild animal.</p> <p><b>Meaning</b> Carrying a hunted wild animal and pass through a paddy field, would kill the paddy.</p>
		<p>2. <b>Dusun words</b> Oyopos-yopos oh bulud ngaa oyopos-yopos noh oh kabang.</p> <p><b>Direct translation</b> Wet feet wet mouth.</p> <p><b>Meaning</b> Whoever works hard will get foods.</p>	<p>2. <b>Dusun words</b> Maganu nopo do tinata, tolig om suliuu mantad do Poring ngaa ontok do rondom oh wulan.</p> <p><b>Direct translation</b> Collecting things in the forest for house flooring/walling must be during dark moon phase.</p> <p><b>Meaning</b> Best time to collect forest products for making house flooring/walls is during the dark (new) moon period.</p>	

No.	Mukim	Proverbs	Old sayings	Community rules
		<p>3. <b>Dusun words</b> Monguni nopo Kotutuvong nga tantad do tumuvong sosodopon. <b>Direct translation</b> When the Green Small Cicada sounds, it is a sign that dusk is near. <b>Meaning</b> The sound of Green Small Cicada means it is going to be dark soon.</p>	<p>3. <b>Dusun words</b> Ontok mimbulai tanak wulan, mimbulai ngawii oh dupot mantad tiyonon diolo. <b>Direct translation</b> When the new moon appears, many animals come out. <b>Meaning</b> When the new moon appears, many animals come out as they forgot the danger of out in the open.</p>	
		<p>4. <b>Dusun words</b> Kowulaii nopo ii tombolog Sarangkil nga tantad do gumompus oh pomogunan. <b>Direct translation</b> When groups of Sarangkil birds appear, it is a sign of continuous bad weather. <b>Meaning</b> When groups of Sarangkil birds appear, it is a sign that continuous heavy rain is coming.</p>	<p>4. <b>Dusun words</b> Nung mamananau maso rumasam om milang-silang oh tadau, nga maganu noh do Monompuru om posisipon idd tolingoh. <b>Direct translation</b> When walking in 'sun shine' rains, take Monompuru (a type of fern) and insert at the upper part of the ear. <b>Meaning</b> By inserting the Monompuru leaves at the ear, it could avoid someone from getting sick due to the rain in a sunny day.</p>	

No.	Mukim	Proverbs	Old sayings	Community rules
		<p>5. <b>Dusun words</b> Manamis nopo pomogunan ngaa tantad magadau do tanaru. <b>Direct translation</b> Cold weather sign of a long drought. <b>Meaning</b> Sudden lowering of temperature indicates that long drought is coming.</p>	<p>5. <b>Dusun words</b> Korongou nopo do kayu do humaba maso manau-panau moi tumoh ngaa poguliaan nopo. <b>Direct translation</b> When you hear a tree falling on the way to field, return home. <b>Meaning</b> The falling tree is indicating that a bad omen is in front.</p>	
		<p>6. <b>Dusun words</b> Tombutasan nopo do tombolog, Lintugi, Paus nga kogulii mantad madpanau/ moi porobuat in tumoon. <b>Direct translation</b> When encountered bird, deer, millipede during journey to forest, return home at once. <b>Meaning</b> When encountered bird, deer, millipede during the journey to forest, return home at once. This is to avoid untoward accident.</p>	<p>6. <b>Dusun words</b> Manganu noh vonod do maan do rusap ngaa ponong idd susuabon noh. <b>Direct translation</b> Harvest sap of a tree for medicine in early morning. <b>Meaning</b> Harvesting the sap of a medicinal wood in early morning to ensure its quality and quantity.</p>	

No.	Mukim	Proverbs	Old sayings	Community rules
		<p>7. <b>Dusun words</b> Monguni nopo paus nga, koguli toi tumingkod noh do kumaraja. <b>Direct translation</b> When a deer barks, return home or stop work. <b>Meaning</b> When a deer barks, return home or stop work. It is a sign of bad omen.</p>	<p>7. <b>Dusun words</b> Kada pangasok do parai maso misarawang oh wulan. <b>Direct translation</b> Do not sow paddy seeds during the full moon period. <b>Meaning</b> Rats will eat the seeds of the paddy when sowed during the full moon period.</p>	
		<p>8. <b>Dusun words</b> Moningorud nopo di ologod kopiyo miampai do darun nga tantad do monguavaa of kouvaan do toruhai. <b>Direct translation</b> A loud thunder follows by heavy rain, signal that the fruiting season is round the corner. <b>Meaning</b> A loud thunder and heavy rain, bring the fruiting season.</p>		

No.	Mukim	Proverbs	Old sayings	Community rules
9.		<p><b>Dusun words</b>  Millohok nopo Paus do  kosuabon ngaa tantad do  magadau oh pomogunan.  <b>Direct translation</b>  When a deer barks in the early  morning, drought season is  coming.  <b>Meaning</b>  A deer barks in the early  morning a sign that the drought  season is coming.</p>		
10.		<p><b>Dusun words</b>  Modu-sodu panahon nga  momok-somok pamalabangan.  <b>Direct translation</b>  The further one travels the  closer one is to the grave.  <b>Meaning</b>  The further you travel the more  problems you may face.</p>		

No.	Mukim	Proverbs	Old sayings	Community rules
11.		<p><b>Dusun words</b> Posulakan nopo do havun nga dumarun, mugus nopo havun nga magadau oh pomogunan.</p> <p><b>Direct translations</b> When the clouds go to the mountain it will be raining, but when the clouds go to the sea it will be drought.</p> <p><b>Meaning</b> The movement of the clouds indicated the changes of climate. Rains will come if the clouds go up hill, it will be a drought if it go towards the sea.</p>		
12.		<p><b>Dusun words</b> Potilbon nopo vusak do Tombung ngaa tantad do magadau.</p> <p><b>Direct translations</b> When the flowers of Tombung flying, it is a sign that the drought season is coming.</p> <p><b>Meaning</b> The flowers of Tombung are indicator of climate change. When they are flying everywhere, the drought season is near.</p>		

No.	Mukim	Proverbs	Old sayings	Community rules
13.		<p><b>Dusun words</b>            Ogumu nopo rombituon hilo tawan do mimbulai nga sumalakoi oh sada Manahu mongoi pogontolu.</p> <p><b>Direct translation</b>            When many stars appear in the sky, the Manahu fishes are in breeding season.</p> <p><b>Meaning</b>            Clear nights with many stars are the Manahu fishes breeding season.</p>		
14.		<p><b>Dusun words</b>            Sumuni nopo Tomburung ngaa tantad do magadau do pomogunan.</p> <p><b>Direct translation</b>            When the Tomburung mushrooms grow, it is a sign of dry season.</p> <p><b>Meaning</b>            The Tomburung mushrooms are the indicators that dry season is coming.</p>		

No.	Mukim	Proverbs	Old sayings	Community rules
3.	<p><b>TOBOH</b></p> <p>Kg. Piasau. Kg. Timbou.</p>	<p>1. <b>Dusun words</b> Napatai noh Idi, kanou uruk-urukai tokou. <b>Direct translation</b> The mother has died, let us gathered around her. <b>Meaning</b> Tree that fell, the coppice grows in the surrounding.</p>	<p>1. <b>Dusun words</b> Nung mamantau maso rumasam om milang-silang oh tadau, nga maganu noh do Monompuru om posisipon idd tolingoh. <b>Direct translation</b> When walking under sun shine rains, take Monompuru (a type of fern) and insert at the upper part of the ear. <b>Meaning</b> By inserting the Monompuru leaves at the ear, it could avoid someone from getting sick due to the rain.</p>	<p>1. <b>Dusun words</b> Mogin tahuu noho, oluan noh do wokou. <b>Direct translation</b> During hunting in the forest, spare for someone else. <b>Meaning</b> When you hunt animal in the forest, just take what you need. Leave the rest of the animals for someone else.</p>
		<p>2. <b>Dusun words</b> Au noho oyopos oh takod nga au noh oyopos oh munung. <b>Direct translation</b> If the feet are not wet, the mouth also will not be wet. <b>Meaning</b> Someone who is lazy will be hungry.</p>	<p>2. <b>Dusun words</b> Maganu noho do tinata, tolig om suliuu mantad do Poring ngaa ontok do rondom oh wulan. <b>Direct translation</b> Collecting things in the forest for house flooring/walling must be during dark moon phase. <b>Meaning</b> Collecting thing in the forest for house flooring/walling must be during dark moon phase so that it wouldn't decay fast.</p>	<p>2. <b>Dusun words</b> Mongoi oku noho tahuu nga kaansau oku, mongoi oku noho bawang nga tohonon oku do buayo om mongoi oku noho dumoh nga apatai ngawii parai ku. <b>Direct translation</b> When I go to the forest I will be lost, when I go to the river I will be eaten by the crocodile and when I go to my paddy field the paddy will die.</p>

No.	Mukim	Proverbs	Old sayings	Community rules
		<p>3. *<b>Dusun words</b> = Moki gayo-gayo subak.  <b>Direct Translations</b> = Requested large portions of things.  <b>Meaning</b> = Someone who has requested large amount of inheritance from his/her father.</p>	<p>3. <b>Dusun words</b>  Misarawang nopo wuhan nga au obuli maganu poring toi kayu.  <b>Direct translation</b>  When the moon is in the full phase, cannot harvest bamboo or any trees.  <b>Meaning</b>  1. The water buffalo's eyes are blur during this time and any fence/house erected during this time will be hit by the buffalo.  2. The bamboo/tree that were harvested during full moon will decay fast.</p>	<p><b>Meaning</b>  During a trail, an oath must be read out by the accused that. He/She must tell the truth. If he/she lied, he/she will be in trouble in his/her everyday life. When he/she go to the forest, he/she will be lost; when he/she go to the river, he/she will be eaten by the crocodile, when he/she go to the field, all plants will die.</p>

No.	Mukim	Proverbs	Old sayings	Community rules
		<p>4. <b>Dusun words</b> Gumayo totud. <b>Direct translation</b> Knee getting bigger. <b>Meaning</b> Big feast organised by a family.</p>	<p>4. <b>Dusun words</b> Okito nopo Lintugi tumahib id tindahanon nga guhi noh. <b>Direct translation</b> When encountered a milipede during field trip, return home at once. <b>Meaning</b> The milipede is a sign of bad omen. To avoid injury and death during field trip, one should return home immediately.</p>	
		<p>5. <b>Dusun words</b> Mogijum do sasad topoit. <b>Direct translation</b> Looking for a bitter "Sasad" or yeast. <b>Meaning</b> Looking for soul-mate.</p>	<p>5. <b>Dusun words</b> Korongou nopo tuni do Hokiou nga poguhian noh. <b>Direct translation</b> When one hears the Hokiou bird sing, return home at once. <b>Meaning</b> Hokiou bird song is a sign of a bad omen. Someone will get hurt if he/she continue going to the forest if he/she heard the bird's song.</p>	

No.	Mukim	Proverbs	Old sayings	Community rules
			<p>6. <b>Dusun words</b>  Mongoi oku nopo tahun nga kaansau oku, mongoi oku nopo bawang nga tohonon oku do buayo om mongoi oku nopo dumoh naga apatai ngawii parai ku.</p> <p><b>Direct translation</b>  When I go to the forest I will be lost, when I go to the river I will be eaten by the crocodile and when I go to my paddy field the paddy will die.</p> <p><b>Meaning</b>  This sentence is used by the Native Chiefs of Tambunan during trail court. An accused person is asked to say this sentence before the trail begins.</p> <ol style="list-style-type: none"> <li>1. This is to remind the accused person to be 100% honest in his answers.</li> <li>2. If the accused person did not tell the truth, he will be killed by this curse.</li> </ol>	

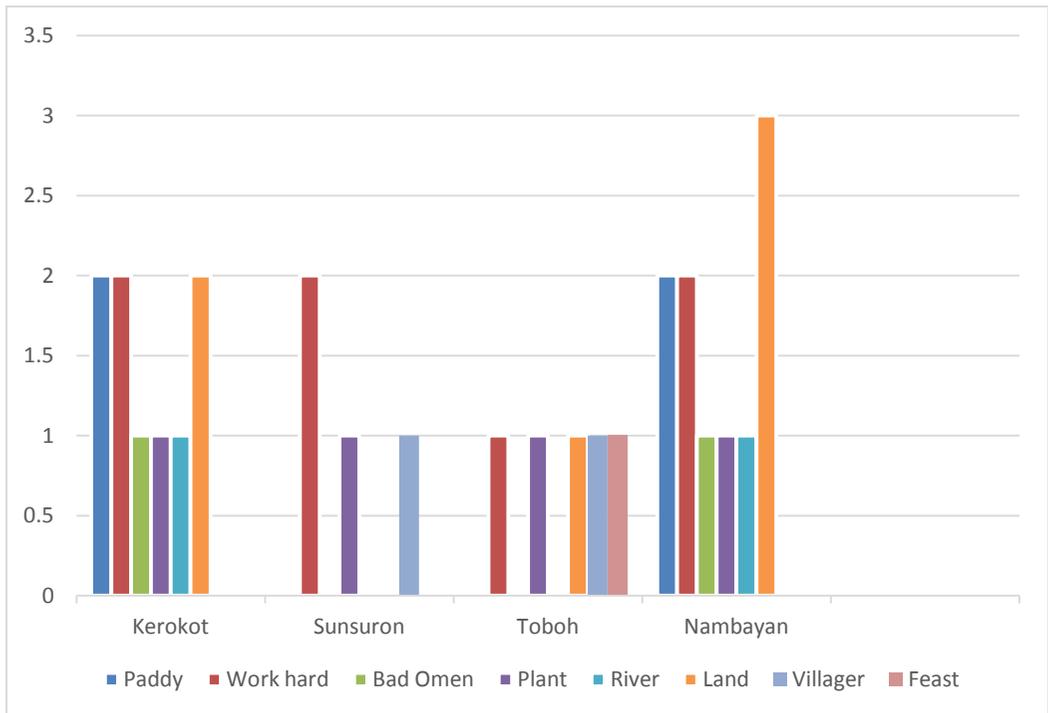
No.	Mukim	Proverbs	Old sayings	Community rules
4.	SUNSORON	<p>1. <b>Dusun words</b> Aparu nopo tulun, osonong-sonong kopsiyon. <b>Direct translation</b> Hardworking person, live easier. <b>Meaning</b> Hardworking person lives better</p>	<p>1. <b>Dusun words</b> Timpak ku tuod-tuod, koimpak ku mimitatabang. Otutunan ku tadi ku, tu ki timbok tingurgulaan, <b>Direct translation</b> I sat on a piece of wood, I saw my sister. I recognized her, wearing hair's clip. <b>Meaning</b> Recognizing a person.</p>	
		<p>2. <b>Dusun words</b> Au kogura longon, au ka'akan louson tinan. <b>Direct translation</b> Arms didn't move, couldn't get food. <b>Meaning</b> If one does not work, he/she could not get food.</p>	<p>2. <b>Dusun words</b> Naru watang Tinuwang, nompusku moki kodop. Tayan ku naru sodop, tuu yati sontuguong. <b>Direct translation</b> The stem of 'Tinuang' tree (<i>Octomeles sumatrana</i>) grow 'Kodop" mushrooms that I harvested them all. The "Tayan" vegetable is very long, we facing each others. <b>Meaning</b> Friendship started from childhood would last until old.</p>	

No.	Mukim	Proverbs	Old sayings	Community rules
		<p>3. <b>Dusun words</b>  Mara-gara goliting no gapit di awan, iso no kotolombus ra'an ponong ilo.  <b>Direct translations</b>  Noisy thunder in the sky, only one way.  <b>Meaning</b>  Many friends went to a male house, one person is left behind.</p>		

## Discussions

### *Sub-category of Proverbs according to Villages*

Figure 2 shows the breakdown of the proverbs in each Mukim with regards to climate change and forest conservation.

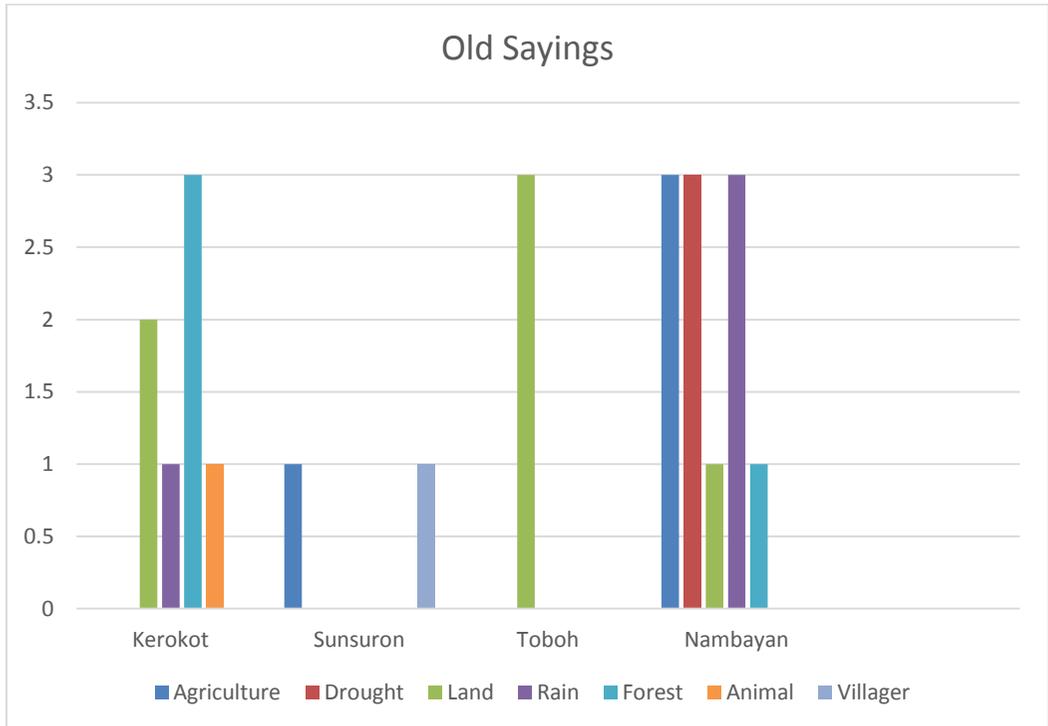


**Figure 2.** Proverbs in four Mukim in Tambunan

Figure 3 shows that Mukim Kerokot and Mukim Nambayan have many more varieties of proverbs with regards to climate change and forest conservation compared to Mukim Sunsuron and Mukim Toboh.

*Sub-category of Old Sayings according to Villages*

Figure 3 shows the breakdown of the Old Sayings in each Mukim with regards to climate change and forest conservation.

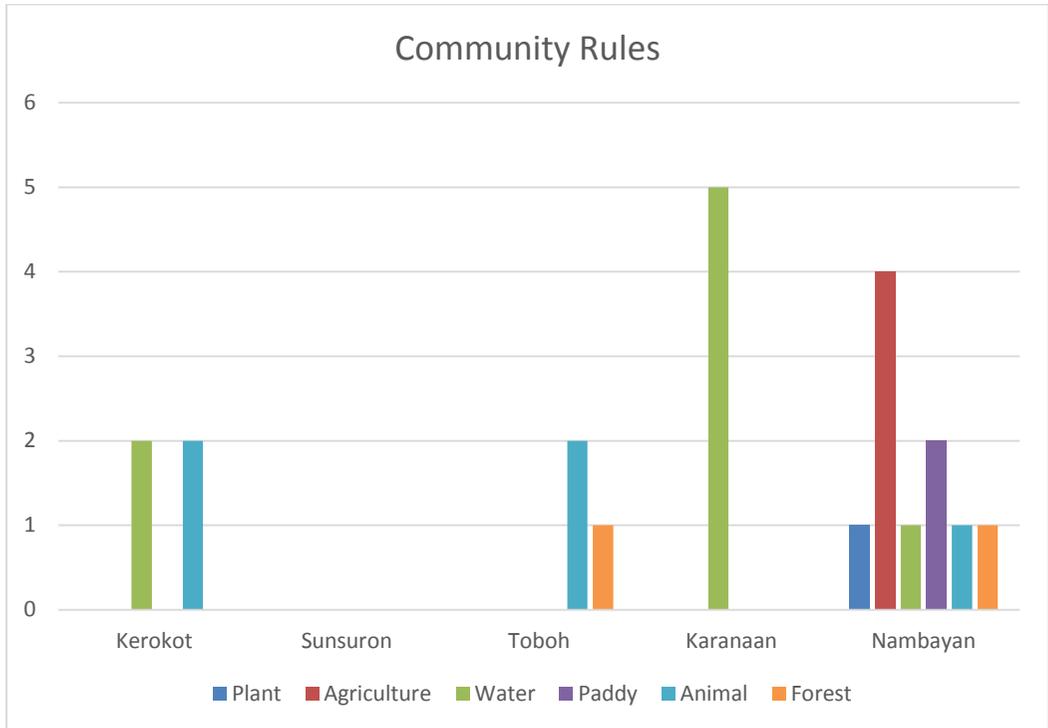


**Figure 3.** Old Sayings in four Mukim in Tambunan

Figure 3 shows that Mukim Kerokot and Mukim Nambayan have many more varieties of Old Sayings with regards to climate change and forest conservation compared to Mukim Sunsuron and Mukim Toboh.

*Community Rules according to Villages*

Figure 4 shows the breakdown of the community rules in each Mukim with regards to climate change and forest conservation.

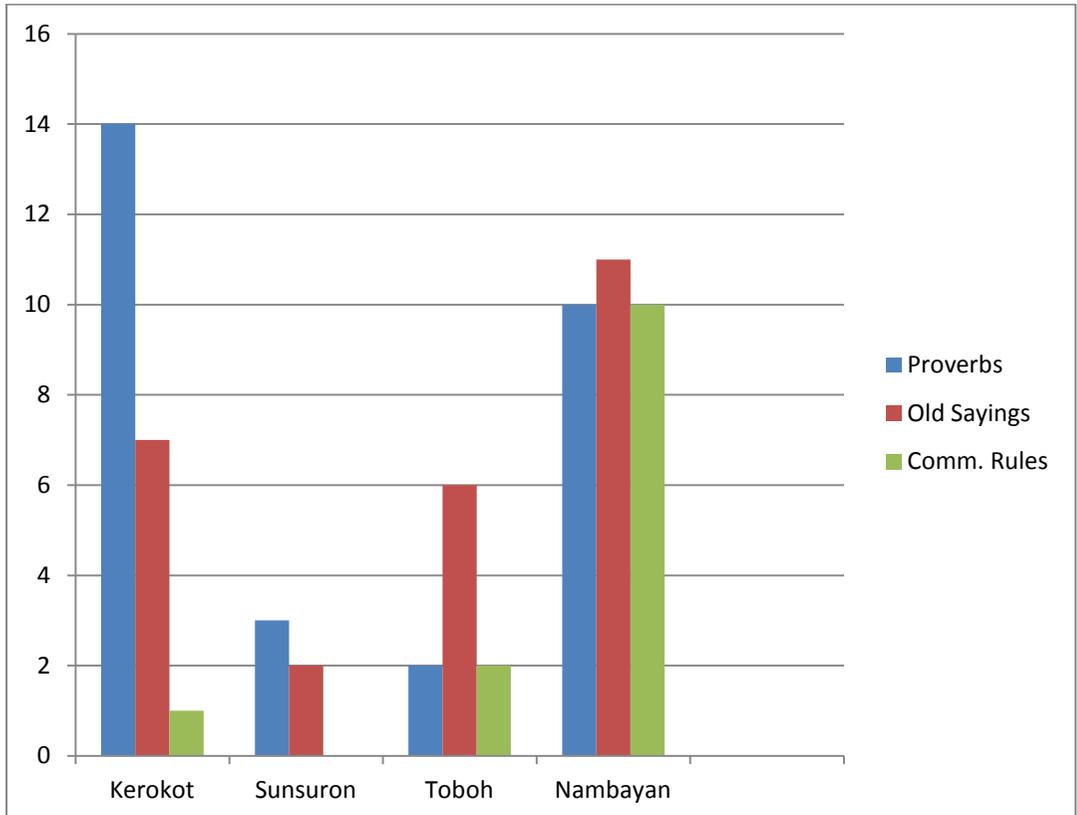


**Figure 4.** Community Rules in four Mukim in Tambunan

Figure 4 shows that Mukim Nambayan has many more varieties of Community Rules (6) with regards to climate change and forest conservation compared to other Mukim. Mukim Sunsuron has not reported any community rule.

## Conclusions

In conclusion, the number of Proverbs, Old Saying and Community Rules according in the five Mukim in Tambunan District were as in Figure 4 below:



**Figure 4.** Proverbs, Old Saying and Community Rules in four Mukim in Tambunan

From the four *Mukim* in Tambunan District surveyed, a total of 29 proverbs, 26 old sayings and 13 community rules were recorded. Mukim Kerokot and Mukim Nambayan showed a high variety of proverbs, old sayings and community rules related to climate change and forest conservation.

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## Acknowledgements

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# **Documentation of Proverbs, Old Sayings and Community Rules of *Tagbanuas* and *Ifugaos* in the Philippines**

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*“Indigenous knowledge is an integral part of the culture and history of a local  
community.*

*We need to learn from local communities to enrich the development process.”*

James D. Wolfensohn, President, World Bank

## **Introduction**

Traditional knowledge or indigenous knowledge (TK/IK) is now recognized as an important aspect for sustainable development. Empowerment of these local communities is considered essential for the integration of this knowledge into the development process. In some countries, incorporating appropriate IK systems into development programmes has already proved to contribute to effective resource management and sustainable development.

The Philippines is home to 126 ethno-linguistic groups with huge variety of traditional knowledge that impacts the lives of the Filipinos. TK in the country is mostly focused in the areas of health care, agriculture, forestry systems, mining, arts, crafts, music, dance and literature. IK systems and practices work well towards efficient management and preservation of the ecosystem and sustainable development (Blanco, 2004).

Better understanding of proverbs, old sayings and community rules that can contribute to solving problems of modern society is significant. However, there is only a very little research done in collecting and understanding proverbs, old sayings and community rules as means of documenting TK in the Philippines.

Indigenous people can provide valuable input about the local environment and how to effectively manage its natural resources. Local people are familiar with IK system and do not need any specialised training in that field. There are some features of IK that are relevant to conservation and sustainable management of natural resources. According to Tanyanyiwa and Chikwanha (2011), IK represents a way of life that has evolved with the local environment; only what is needed for immediate survival is

taken from the environment; there is no over exploitation of a single resource; a 'conservation ethic' often exists; IK is able to adapt to new conditions and incorporate outside knowledge; and there is social responsibility.

The study aimed to document the role of IK systems in the conservation of forest resources thru proverbs, old sayings and community rules of the selected local people. Traditional rules and sayings regarding the sustainable management of forest resources should be well communicated especially for the youth and employ an integrated approach taking into consideration the technical and IK systems in the natural resources management.

## **Methodology**

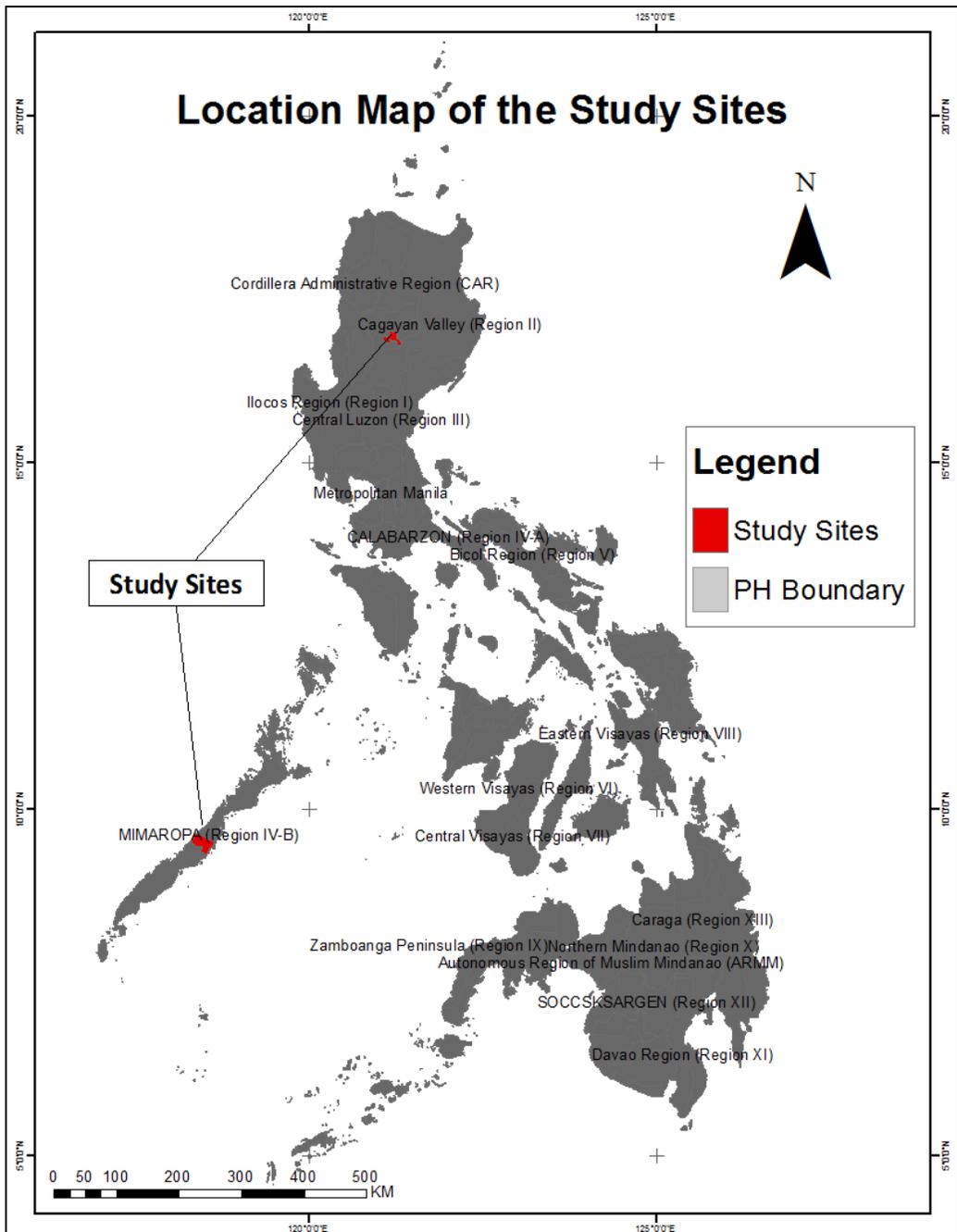
The documentation of proverbs or old sayings was done through review of existing literature and primary data gathering in the indigenous communities in the provinces of Benguet and Palawan.

Rapid survey on proverbs through primary data gathering was employed through Key Informant Interviews (KII) and Focused Group Discussion (FGD) complemented with secondary literature. Data gathering were conducted among selected *Tagbanuas* in Barangay Mabini, Aborlan, Palawan; and among culture bearers in Lagawe and Kiangan, Ifugao Province (Figure1). The KII and FGD were guided by the field note and recognition survey discussed during the workshop on Traditional Knowledge on Ecosystem Services in ASEAN Countries- Folk Culture: Old Sayings, Proverbs and Community Rules held on 2-4 March 2016 in Kuala Lumpur, Malaysia.

Key activities in documenting proverbs or old sayings include:

- a) Inquiries from colleagues belonging to indigenous community to secure information on possible province/villages to visit;
- b) Visit to the national office of National Commission of Indigenous Peoples (NCIP) to secure permission for the conduct of the study. NCIP have a policy to secure permission from their office prior to entering a village of indigenous people;
- c) Coordination with the regional office of NCIP and secure permission for the visit of a village as well as secure information of possible informants and interpreter;
- d) Field visit for KII and FGD. This involves interview of elderly people in the village to gather proverbs, old sayings and community rules using the field note and recognition survey;
- e) Review of recorded information in the native language and translation by the hired interpreter who belongs to the tribe of the informants;
- f) Discussion on the meaning of the gathered information;
- g) Gathering of secondary data from universities near the study site; and

h) Processing of field notes for report writing.



**Figure1.** Location areas of the study (Benguet and Palawan Province).

## Results and discussion

This section presents the proverbs, old sayings, and community rules which are related to ecosystem management in Aborlan, Palawan; and municipalities of Kiangan and Lagawe in Ifugao.

### The *Ifugaos*

Ifugao is a province in the Cordillera Administrative Region (CAR) located north of the Philippines. It is named after the predominant ethnic group in CAR which is also called *Ifugao*. *Ifugao* was derived from “*ipugo*” or “*ipugaw*” which means “from *Pugaw* (Earthworld)”. Hence, *Ifugao* means Earthman (Dulawan 2006).

The *Ifugao* ethnic group is generally categorized into two subgroups – *Ayangan* and *Tuwali* – who have relatively different language, customs and clothing. For this study, the researchers were only able to explore the side of *Tuwali* from the municipalities of Kiangan and Lagawe. These municipalities along with Aguinaldo, Asipulo, Hingyon, and parts of Banaue, Hungduan, and Mayoyao, lie in the middle region of Ifugao where rice terracing is heavily practiced. Furthermore, the *Tuwali* people are also found in Hungduan, Asipulo, and Hingyon, and a few in Banaue and Lamut.

In the Philippines, *Ifugaos* are quite popular among other indigenous groups since it is associated with the internationally known cultural heritage called Banaue Rice Terraces or *payoh*. *Ifugaos* have placed significant attention to their *muyongs* which play critical roles in sustaining their land-use. For them, protecting the forests through *muyong* (or traditional tending of the forest) means protecting the lowlands. Thus, their oral literature is really rich in nature- and forest-related concepts.

Secondary documents gathered revealed several types of *Ifugao* oral literature which include folktales, legends, myths, chants, songs, and rhymes. There is almost no record of proverbs/old sayings since these are recited during *liw-liwa* or *balagtasan* (poetic discourse) according to the *Ifugao* culture bearers interviewed. From all the literature gathered, only in the article ‘A Documentation of *Ifugao* Proverbs: Surfacing Socio-economic and Political Views’ by Dr. Manuel P. Malingan III published in The Upland Farm Journal, proverbs/old sayings were written. Proverbs with mentions of environment-related terms are as follow:

- *Muntanomkayu hi kaiwhinankiggidan ta adikayutunmunbuluhan.*  
(Plant boundary trees to prevent conflict someday.). This proverb reflects the land management system to avoid future conflict among villagers.
- *Adi e dapaon di intanom di udummakam mamma hinnapudungan.*  
(Do not bother the plants of others much more when *pudung* is present.)

- *Haot ta kaytaduntug an adigagalanmidlig*  
(Be like a mountain that cannot be moved.)
- *Maid di bimalitiyonantagu.*  
(No man has become a century tree.)
- *Adi ta umathinankalulu an munbinaliw di upupna.*  
(Do not be like the chameleon that changes its colour all the time.)

Meanwhile, through a number of key informant interviews of some *Ifugao* culture bearers with age ranging from 70 to 76 years old (Mr. Julian Manglib, Ms. Florentina Dulnuan, Apo Junia Guimpayan), IPEd Supervisor Ms. Herminia Hoggang, and Ms. Maribelle Bimohya from the *Ifugao* Provincial Office, the following proverbs/old sayings in *Tuwali* dialect with corresponding English translation were recorded (Table 1). Some remarks were also added to better understand the context of the proverbs/old sayings.

**Table 1.** Proverbs/old sayings of *Ifugao* related to forest and environment

	<b><i>Tuwali</i> dialect</b>	<b>English translation</b>	<b>Remarks</b>
1	<i>Hay muyungyaipaptok; Ta wada'yibatim hi imbabalem!</i>	Take good care of the forests; So our children can benefit from it!  ( <i>Cultural service</i> )	People are directed to protect/conserve the forests so that the next generation will be able to enjoy it as well.
2	<i>Maid ha kumbagi hi danum; TeindatMaknongan hi am-in!</i>	Nobody owns water; God gave it free for all!  ( <i>Cultural /provisioning service</i> )	Water is a God-given gift for everyone and not to an individual. Nobody is allowed to take possession of the water. Hence, these resource should be shared to everyone.
3	<i>Mabalin an longhom nan nunyaku an kaw- iw; Ta adimahawan nan nataldong!</i>	You can cut growing trees that are not straight; For the straight ones to grow fast!  ( <i>Provisioning service</i> )	<i>Ifugaos</i> in the past prefer straight trees to be used in building the <i>Ifugao</i> native house. (This reflects part of their management of the forest which is to remove unwanted trees to allow the straight ones to grow faster).

	<b>Tuwali dialect</b>	<b>English translation</b>	<b>Remarks</b>
4	<i>Mangaiw ta keya nan opang di alan; Yanadannamag-anan!</i>	Do not cut the trees for firewood, just the branches and the soft wood!  <i>(Provisioning service)</i>	Only the branches and twigs are gathered to be used as fuelwood. Cutting of trees is prohibited. (This proverb provides guidance to villagers on proper utilization of trees).
5	<i>Tigom nan koggad nan muyung; Ta adi da idol-dol!</i>	Protect the boundaries of your forest; So that others will not claim part of it!  <i>(Cultural service)</i>	Placing high importance to the forest, they are to guard their borders or boundaries, preventing access of others who might try to possess it. (This saying provides instruction to villagers to protect their forest from intruders so they can continue to enjoy the services it provides).
6	<i>Nan muyungya nan payoya nun-uddum; Maid ke nan muyung, ya maid bo nan payo!</i>	The forests and fields are one; If there is no forest, there is no rice field.  <i>(Supporting /regulating service)</i>	The forests play a vital role in the existence of rice fields. Preserving the forests will allow resources (e.g. water) to flow and be available to the rice fields. If forests are degraded, it may not be able to provide critical water resource for the rice field. (Villagers recognized the forest-rice field relationship)
7	<i>Di ke ta niboklayaaditaumepayo; yapanniyo di manologyamanginga</i>	When the rice stalks have been planted; it is forbidden to gather fish and field snails.  <i>(Provisioning services)</i>	Villagers adhere to the principle that there should be a season for everything; for these food species to regenerate or for wildlife to grow and rear their young; there is a season in gathering them.

	<b>Tuwali dialect</b>	<b>English translation</b>	<b>Remarks</b>
8	<i>Dimmatong nan e pun-anupan!</i>	It is summer, and thus time to hunt!  <i>(Provisioning)</i>	Application of seasonal hunting on designated hunting grounds.
9	<i>Ipatok mu anpanguluwan nan muyungyapayo an tanud mu!</i>	First child, take good care of the forest and rice fields that are your inheritance.  <i>(Cultural)</i>	Traditionally, the first child inherits the land by either mother or father, whichever is greater. He is tasked to protect the prestige and inheritance of the family.
10	<i>Timmagu da di nitanomyanitunod; Niptok kaya!</i>	The planted trees and rice stalks are well and growing. It is correct.  <i>(Provisioning)</i>	<i>Ifugaos</i> of old believed in supernatural intervention and believes that a ritual conducted for the purpose has been met with approval from the gods. (If their crops are growing well, it signifies blessing and approval of God of their activities but if not then a curse through poor growth of crops).
11	<i>Muntanom ta wada'ykitaguwan</i>	Plant so we can have life.  <i>(Provisioning)</i>	People survive through planting crops to acquire for their daily food needs. (Everyone is admonished to work hard so they will have a happy life).
12	<i>Iphod nan muyong ay payo; Ta midum hi pang-o, balitukyabuhi an ipatanud hi imbabale.</i>	Take good care of the forest and the fields; So it can be added to the pendant, gold and jars as inheritance to our children.  <i>(Cultural)</i>	If forests and fields are taken care of, they can also serve as inheritance to the next generation along with other treasures/wealth such as pendant, gold, and jars. (This indicates how <i>Ifugaos</i> value their forests).

	<b>Tuwali dialect</b>	<b>English translation</b>	<b>Remarks</b>
13	<i>An am-in di nitanomyawada'yki-atana; Kanon, pun-aga, pun pa-ongal hi ni-mogmogan</i>	All plants have uses; as food, as medicine; as food for domestic animals!  <i>(Provisioning)</i>	People recognized that all plants are useful may it be as medicine or food for humans or animals.
14	<i>Na-e nan binoltananmuyungyap ayoyapanniyo an i-gattang!</i>	You cannot sell the forest and the field that you inherit!  <i>(Cultural)</i>	This concept is purposely so that forests and rice fields inherited are really protected and valued by the family.
15	<i>Hay kitaguwanya hay muyong. Muyongyakitaguwan.</i>	Life is nature. Nature is LIFE.  <i>(Cultural)</i>	They treat nature as valuable as on their own lives. <i>(Ifugaos believed that they are part of nature)</i>
16	<i>Hay nunlinikkodanyanadan muyongyadanumyana ngin-nginangemnadanngun gunut.</i>	Nature is more valuable than our properties.  <i>(Cultural)</i>	They value nature more than other physical properties such as gold, jars, pendants, house, etc. <i>(This is supportive to Proverb 15, that they are part of nature).</i>
17	<i>Ipaptoktakunadanmuyong, yapayoyanadanudum an ngunut; bokonammuna pangadolmo ta hay kipkihodan di dakdakol.</i>	We protect our properties not for ourselves but for our community.  <i>(Provisioning/ cultural)</i>	Properties here mean natural resources which are owned by nobody. Hence, they preserved it for the benefit of everyone, discounting personal or individual interests.

As observed from the above proverbs, the *Tuwalis* places high importance to nature, regarding it as equivalent to their own lives (Proverb 15). Seemingly, their living is also dependent on nature where they can plant crops (Proverb 11). Interestingly, forest/nature is even passed on as inheritance from one generation to another as the clan's treasured it more than their house, gold, etc. (Proverbs 1, 9, 12, and 14). They also believed that no one owns nature in general or water, thus are careful in

dealing with it as a habitat or resources for all the community members (Proverbs 2 and 17). Hence, these beliefs may have helped preserve their natural environment.

Proverb 6 depicts the interrelationship of the forests and the fields. The fields are important to them since they are very dependent to farming to meet their daily food needs. The Banawe Rice Terraces is a living example of how Ifugao's manage their area. The rice field is dependent on water that comes from their protected forest. Since forest-rice field are treated as one by the people, this explains the high value the people put on the forests. As they take care of their fields, they also protect the forests and vice-versa. Furthermore, there are also proverbs (3, 4, 7, 8, and 10) which showed harvesting mechanisms that helped regulate the extraction of and sustain the resources.

### The *Tagbanuas*

Aborlan, Palawan, according to legends is a town rich in folk literature and its history is recited time and again in oral fashion. The municipality is nestled in the middle of mainland Palawan, extending from its east coast to west coast. It is bounded by Sulu Sea on the eastern part and China Sea on the west. Aborlan is divided into three distinct geographical zones, the eastern coastal plain; the central mountain range; and the western valleys. The story of Aborlan is the story of *Tagbanuas*, a story of undying race.

The *Tagbanuas* are Malayan in physique, medium built and with brown reflection. They live in the mainland of Aborlan, which is the reason they are called *Tagbanuas*. The term *Tagbanuas* comes from two words – “*taga banua*” which means “from the mainland”. It is instilled with them the sense of belongingness with the wilderness. Their way of life responds merely to the pulse of the living earth and their main concern was living in harmony with their gods. They involve unseen spirits of nature in time of needs (Bayuga 1989).

*Tagbanua* is one of the oldest ethnic groups in the Philippines. Accordingly, *Tagbanuas* are possible descendants of the *Tabon Man*, making them one of the original inhabitants of the Philippines. The *Tagbanuas* practice shifting cultivation of upland rice and are known for rice wine ritual called “*Pagdiwata*”. They also worship deities that they believe are found in their surroundings. The indigenous group did not write their history, they kept to themselves their life stories.

Key informant interview with the elders of *Madarcos* clan (more than 70 years old), *Tagbanuas* in Barangay Mabini, Aborlan, Palawan, with the assistance of Ms. Mary Ann de los Santos (Administrative Officer, NCIP, Palawan) coupled with secondary literature review in Western Palawan University-Aborlan Campus in December 2016 documented some old sayings. Table 2 shows respondents' community rules and old sayings passed on by their parents and their elders.

**Table 2.**Community rules and old sayings of *Tagbanuas*

	<b>Tagbanua dialect</b>	<b>English translation</b>
1	<i>Inpukanenmo, un-gamiipang-on, matayka!</i>	<p>If you try to cut a tree and it falls, you will die!</p> <p><i>(The Tagbanuas worship deities found in their surroundings. They believed that spirits live in trees and cutting down of trees is not allowed. If one cut a tree, the tree will fall on him and he will die).</i></p> <p><i>(Cultural)</i></p>
2	<i>Magpadoonka, nga mama-yo, sungarotka.</i>	<p>If you go to the river, you have to pray. If not, you will get sick.</p> <p><i>(Before going to a place where sacred spirits thrive, one must pray first before going there to avoid getting sick; Tagbanuas believed the many spirits in the river hence they do not destroy it but protect).</i></p> <p><i>(Cultural)</i></p>
3	<i>Magtinggeg i-tukoganamapanaw, buwatenmomisikaatep.</i>	<p>Do not go out of the house if you hear a gecko making noise, for you can get hurt.</p> <p><i>(They value the animal sounds and signals given to them, hence conserving their species; they believed that when gecko makes sounds, it warns them of a coming danger.)</i></p> <p><i>(Cultural)</i></p>
4	<i>Ing may tinggegngagukguk, may duwangaaldaw, 'sang dilem, maymatayngatao.</i>	<p>When a male and female owl is making answering noises, within two days and one night, someone will die.</p> <p><i>(Birds like owls serve as their sign-giver. So when they hear two owls (a male and female) owl making answering noises with each other, the people within the community take very good care of their loved-ones and spending their time with them. And they get cautious in what they are doing.)</i></p>
5	<i>Ing may tinggegngagukguk, duwa'ngbato, duwa'ngaldaw, mag-uranna.</i>	<p>When an owl is making noise (answering noises) to each other, after two days it will rain. (If there is drought in the community).</p> <p><i>(An owl making noise can indicate a better day; that there is a coming rain after long drought).</i></p>

	<b>Tagbanua dialect</b>	<b>English translation</b>
6	<i>Ing may tinggegngagukguk, duwa'ngbato, duwa'ngaldaw, magtigilnauran, mag-iinitna.</i>	When an owl is making answering noise (answering noises) to each other, after two days the rain will stop. (if there is continuous rain) (Better day can be also be thru halting of continuous rain)
7	<i>Ing mag-petik kayo ngadakula in gamu, ipam-un o mag-angutitabarang, sumarotka.</i>	One must offer a prayer before cutting a big tree to avoid getting sick. (They believe that spirits are thriving in trees, so they must protect and conserve these trees; they protect the forest because they believed that destroying it will affect their life. If they cut a tree they have to pray and ask permission)
8	<i>Gamuadu-adutun i-bagaska, yan un wawangaraniya kin siUngo.</i>	Do not waste rice, for he is a child named <i>Ungo</i> . (Do not take the resources for granted. One must make use of it in a rightful manner/way; it also projects careful management of their resources)  (Cultural/provisioning)
9	<i>Kayu-kayu ta, egatumuboka'tlugta, sabaliga do' otdibwa't.</i>	A small tree does not grow by land, but grows up in the cross. (This refers to a small plant "Alkambar", a kind of plant that grows up in rocky areas).  (This reminds villagers that their life is not easy so they have to strived and work hard)  (Provisioning services)
10	<i>Enggaka-neyilibwak Yan ka'nenlini-wakan</i>	Do not eat what you plant. But eat that place you planted. (This indicates their emphasis on the land or their forests rather than the crops they get from the land); it speaks also of humility.  (Cultural /provisioning)

	<b>Tagbanua dialect</b>	<b>English translation</b>
11	<i>In may tinge i-luluy, patandaan it muran.</i>	If a worm makes a siren sound-noise, it will rain. <i>(The worm will go out on the surface during hot days/weather, to make some noise because they can sense that rain is coming to wet the soil with water)</i>  <i>(Supporting services)</i>

In the above proverbs, it is evident that like the *Ifugaos*, the *Tagbanuas* places high importance to their land/forest; their concern is not on what they get as food but on the many things it provides (ecosystem functions - Proverb 10). Seemingly, they believed that bad things will happen to them if they destroy the tree (Proverb 1); river (Proverb 2) or waste a resource (Proverb 8). Interestingly, *Tagbanuas* have a strong belief that animals are good indicators to changes in weather (Proverbs 5 and 6); or a bad omen (Proverbs 3, 4 and 11) for what they did in the forest. This belief makes the *Tagbanuas* careful not to destroy resources in the forest and could have contributed in maintaining biodiversity in their area.

### **Conclusions and recommendations**

Indigenous peoples' old proverbs/sayings/community rules related to the environment and management of our resources form part of the culture of *Tuwalis* and *Tagbanuas*. This information had been passed down from generation to generation by parents or elders in the community for them to be aware of their co-existence with nature; and that they are one with nature. Documenting such is important because they have been there for ages and has maintained or sustained their environment. Their indigenous rules and sayings partly or wholly contribute to their attitude to protect the forest, animals and rivers. Their involvement in future projects or studies is recommended for effective implementation and understanding the role of IK in sustainable forest management.

The use of Recognition Survey form was found to be not suitable with limited time and informants of the study. Attempts to conduct recognition survey to young generation of the two tribes were found not successful as most proverbs were not recognized anymore by the young generations. This indicated that if not documented, these proverbs will soon vanish forever.

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# Proverbs, Old Sayings and Community Rules Related to Forest Management and Climate Change of *Thais* in Viet Nam

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## Introduction

Viet Nam has a population of more than 90 million, of which around 25 million are of various ethnic groups live in or near forests. Over time, their ancestors depended on forests for livelihood, housing and daily life conditions. To interact with the forest and environment, they have learned and experienced how to manage sustainably, also to co-exist with forests and the ecological environments. This kind traditional ecological knowledge (TEK) accumulated overtime, may not have been written, but have been handed down from one generation to the next by oral tradition. Documenting and understanding TEK, therefore, is very important in terms of sustainable forest management and livelihood improvement for rural people.

This study focused on the traditional ecological knowledge of the *Thais* through their proverbs, old sayings and community rules in relation to sustainable forest management and climate change in Son La Province. To have a better understanding of the proverbs, old sayings and community rules related to forest management and climate change, the study chose the *Thai* group living in some villages of Son La province.

## Objectives

The study has the following objectives:

- To gather proverbs, old sayings and community rules of the *Thais* living within or near the forests.
- To examine the extent of understanding on proverb/old saying/community rule among the *Thais*.
- To analyze proverbs, old sayings and community rules in relation to forest management and climate change of the *Thais*.

## Methodology

### *Listing of existing proverbs, old sayings and community rules*

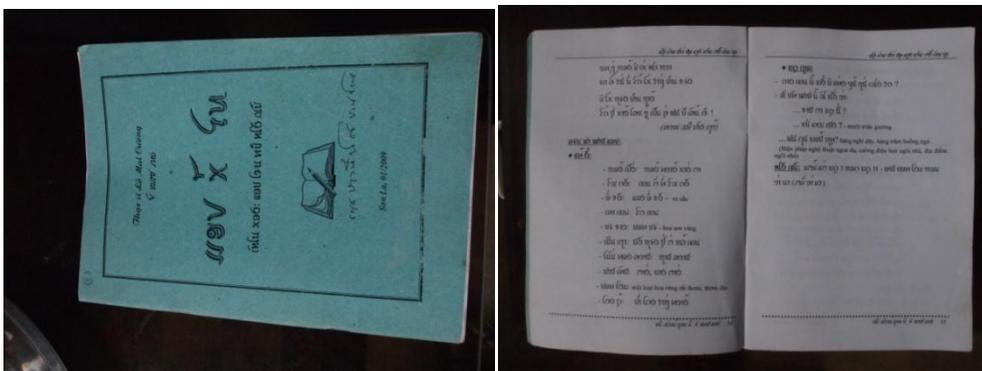


Figure 1. A Thai book

A literature search of the existing proverbs, old sayings and community rules in relation to the forest management and climate change of *Thais* was conducted. This was the basis information for the research team to understand and make plan to gather and check the meanings of the proverbs, old sayings and community rules in relation to forest management and climate change of the *Thais*.

### ***Gathering of proverbs, old sayings and community rules***

A survey was conducted in Nhop Village, Chieng Bom Commune, Thuan Chau District, Son La Province, to gather proverbs, old sayings and community rules in relation to forest management and climate change of the *Thais*. The research team first worked with the leaders of the Commune and the Village to select 15 suitable interviewees in Nhop Village. They were both *Thai* male and female elders, who have fair knowledge of the *Thai* proverbs, old sayings and community rules. To ensure the effectiveness of the interviews, the research team included a *Thai* youth, who could speak both Vietnamese and *Thai* languages well, in case, the research team needed translation.



**Figure 2.** Study site

The research team carried out the survey to gather proverbs, old sayings and community rules in August and September of 2016. Data were collected from personal interviews and focus group discussions held in Nhop Village, Chieng Bom Commune, Thuan Chau District. The Questionnaire 1 (Appendix 1) was used as a guide to gather the following information:

- 1) proverb/old saying/community rule related to the forest management and climate change;
- 2) meaning of the items provided;
- 3) source of the items discussed;
- 4) awareness on the level (individual, family, community, regional, national) of use of the items discussed.



**Figure 3.** Having talk with *Thai* elders in Nhop Village

*Conducting recognition survey*



**Figure 4.** Having talk with *Thai* elders in Pan Village

The recognition survey guided by the Questionnaire 2 (Appendix 2) was conducted in Pan Village 1, Chieng Ly Commune, Thuan Chau District, Son La Province in October 2016. Twelve elders (more than 50 years old) of the village were interviewed to recognize the sources and meanings of the information provided. To

examine the impact of proverbs, old sayings and community rules to the young, three young *Thais* were also selected for the interviews.

The questions used for the interviews were as follows:

- 1) have heard of proverbs, old sayings and community rules as provided;
- 2) understand the meaning;
- 3) agree with the proverbs, old sayings and community rules; and
- 4) reasons for disagreeing (if disagree).

The survey was conducted with assistance from some young *Thais*, who can speak both Vietnamese and *Thai* languages well.



**Figure 5.** Having local meal with some interviewees in Pan Village

## **Results and discussions**

### *Ethnic groups and Thais in Vietnam*

Viet Nam has 54 ethnic groups, of which *Thais* account for 1.81% of the national population. A large population of ethnic minorities settles in rural area (Table 1) and they strongly depend on the forests for their livelihood (MARD 2010).

*Thai* is one of 53 ethnic minorities of Vietnam. The population of *Thai* minority is 1,550,423 people, being the third largest ethnic group of the country (Table 1). *Thais* distribute along the country, but settle mostly in the northern provinces of Lai Chau, Son La, Hoa Binh, Dien Bien, Yen Bai, Thanh Hoa and Nghe An (UNFPA 2011).

**Table 1.** Ethnic groups of Vietnam

	<b>Ethnic group</b>	<b>Total</b> (Population)	<b>Urban</b> (Population)	<b>Rural</b> (Population)	<b>Rural (%)</b>	<b>Total (%)</b>
	<b>Entire country</b>	<b>85,846,997</b>	<b>25,436,896</b>	<b>60,410,101</b>	<b>70.37</b>	<b>100</b>
1	<i>Kinh</i>	73,594,427	23,885,666	49,708,761	67.54	<b>85.73</b>
2	<i>Tày</i>	1,626,392	220,938	1,405,454	86.42	<b>1.89</b>
3	<i>Thái</i>	1,550,423	99,781	1,450,642	93.56	<b>1.81</b>
4	<i>Mường</i>	1,268,963	65,683	1,203,280	94.82	<b>1.48</b>
5	<i>Khmer</i>	1,260,640	197,276	1,063,364	84.35	<b>1.47</b>
6	<i>Mông</i>	1,068,189	25,682	1,042,507	97.60	<b>1.24</b>
7	<i>Nùng</i>	968,800	101,751	867,049	89.50	<b>1.13</b>
8	<i>Hoa</i>	823,071	573,050	250,021	30.38	<b>0.96</b>
9	<i>Dao</i>	751,067	23,588	727,479	96.86	<b>0.87</b>
10	<i>Gia Rai</i>	411,275	42,349	368,926	89.70	<b>0.48</b>
...					-	-
54	<i>Ơ Đu</i>	376	26	350	-	-

Source: UNFPA 2011

*Thais* may purely settle or live with other ethnic minorities in a village. A village of *Thais* is a stable populated organization, having boundary with other villages using natural terrain. The *Thais* often choose their settlement near water source suitable for agricultural cultivation and daily life. This is the main foundation for a village to sustain and develop economically. A village has the right to manage and use natural resources such as forest, farm field and land. The boundary of the village and its land and forest is determined by experienced village patriarchs using stream, river or mountain gorge. Even though the boundary is not official, it is respected and obeyed by local people (Care 2012).

From a long time ago, the *Thais* have created and maintained sacred forests around their village, including worship forest, sacred forest and ghost forest. These types of forests are very valuable in regard to *Thai* belief and attitude, and also for ecological environment protection (Cam Trong 1998).

The present study was carried out in the Chieng Bom and Chieng Ly Communes, Thuan Chau District, Son La Province, focusing on the *Thais*.

#### *Chieng Bom Commune*

Chieng Bom is a commune of Thuan Chau District, Son La Province, around 10 km west of the provincial township. The commune's natural area is 9,260 ha and it has 30 villages with a population of 6,105 in 1,293 families. The commune has four ethnic minorities: 57% *Thais*, 36% *Khang*, 6% *HMong* and 0.8% *Kho Mu*. In general,

ethnic settlement is scattered in the region. Local people are generally poor and they strongly depend on agriculture and forestry for their livelihood.

Nhop Village, where the study was conducted, belongs to Chieng Bom Commune, Thuan Chau District, Son La Province. The total land area of the village is 549 ha, of which 498 ha is forest land, 32 ha is agricultural land and the rest (19 ha) is for other purposes. Nhop Village has a population of 345 in 78 families. All of them are *Thais*.

#### *Chieng Ly Commune*

Like Chieng Bom Commune, Chieng Commune also belongs to Thuan Chau District, Son La Province. The commune is in the north-west of the district. The natural area of the commune is 31.28 km<sup>2</sup>, and its population is 7,683 with the density of 246 people/km<sup>2</sup>. The commune has 22 villages with 1,609 families.

Pan I is a village of Chieng Ly Commune, Thuan Chau District, Son La Province. The village has around 200 families with the population of around 900 people. The people are mostly *Thais*. The village has a large area of forest, of which nearly 100 ha of forest is community forest. The living standard of the people is rather low, depends mainly on paddy rice cultivation and forest.

#### *Proverbs, old sayings and community rules in relation to forest management and climate change of the Thais*

The proverbs, old sayings and community rules in relation to forest management and climate change of the Thais are collected and described as follows:

<b>T1</b> (In <i>Thai</i> language)	Đin đăm puk tanh Đin đanh puk khẩu
In Vietnamese	Đất đen thì trồng dưa Đất đỏ thì trồng lúa
In English	Grow watermelon in black soil Grow rice in red soil
Subject	Watermelon, rice, soil
Meaning	Black soil is suitable for growing watermelons while red soil is suitable for rice.
Scientific interpretation	Black soil contains nutrients that suitable for growing watermelons, while red soil contains a lot of humus from burning agriculture residues and is suitable for planting rice.
Types of Ecosystem services	Supporting
Source of knowledge	Elders and literature
Application to modern society	By observing the colour of the soil, one could match suitable crops with sites

<b>T2</b>	É dạ dẹt hay pá lau É hươn năn au me nọi
In Vietnamese	Muốn khó làm nương rừng sặt Muốn nhà om sòm thì lấy vợ lẽ
In English	Want difficulty, cultivate crops in sat bamboo forest (a native bamboo species) Want trouble in house, have a concubine
Subject	Cultivate crops, difficulty
Meaning	Cultivating crops in sat bamboo forest is hard and bad in terms of yield and also the environment, like a house having trouble caused by the owner getting a concubine.
Scientific interpretation	Soil and conditions of sat bamboo forest are very poor, so that it is not good for crop cultivation.
Types of Ecosystem services	Supporting
Source of knowledge	Elders
Application to modern society	Crops should be cultivated on suitable sites

<b>T3</b>	Dẹt hay bốm cha Dẹt na bốm phát Đin pak huổi bó dẹt hươn Đin phẳng cươn bó đày đứ
In Vietnamese	Làm nương phải ủ mùn Làm ruộng phải ủ đất ngấu Đất cửa suối không dựng nhà Đất quá dốc không được ở
In English	Milpa (fields in the mountains) needs humus created Paddy fields need soil prepared ripe Do not build houses on stream bank Do not live on slope land
Subject	Cultivation, land, house
Meaning	Humus created could yield better; well soil preparation necessary for paddy field; people should not build houses on stream bank or steep land.
Scientific interpretation	Cultivation on slope land (milpa) needs fertilizer, particularly from humus created by mixture of leaves, branches, roots...; paddy field also needs good soil preparation to have a good yield; house on the stream bank is risky and dangerous because of flooding in rainy season; house built on the slope is also dangerous due to landslide in rainy season.
Types of Ecosystem services	Supporting
Source of knowledge	Elders
Application to modern society	Selection of sites for cultivation and living should follow basic principles

<b>T4</b>	Hun pi đằm sáu pán há cộ đày kin. Lả phi đằm sáu pong chăm bó đày kin.
In Vietnamese	Đầu năm cấy cày trong ruộng đầy cỏ vẫn có khả năng thu hoạch. Cuối năm cấy cày trong ruộng có nhiều mùn cũng không cho thu hoạch.
In English	At the beginning of the year, cultivation in full weed field could attain productivity. At the end of the year, cultivation in fertile field could not attain productivity
Subject	Cultivation, suitable time
Meaning	Cultivation is good at the beginning of the year, not suitable at the end of the year
Scientific interpretation	Beginning of the year is the suitable time for rice to grow, so that even cultivating in full weed field, productivity could still be attained. However, when cultivating at the end of the year, it is not a suitable time for rice to grow, so that even the field is full of humus, the rice could not grow.
Types of Ecosystem services	Supporting
Source of knowledge	Elders and literature
Application to modern society	Cultivation should be done in suitable time
<b>T5</b>	Đìn pa pên chẳng pên Êm pa nháp chẳng nháp
In Vietnamese	Đất tốt đảo lên mới cho năng suất Gân (đất xấu) đàn hồi (đảo xới) nhiều lần mới bền (sử dụng được lâu dài)
In English	Turn upside down good soil to give good yield Turn upside down many times bad soil to keep and use it stably
Subject	Soil, turn upside down
Meaning	Both good and bad soils need to be prepared well for cultivation
Scientific interpretation	When turn upside down the soil is re-structured, so that it helps to improve the nutrients and conditions of soil, good for crop growing
Types of Ecosystem services	Supporting
Source of knowledge	Elders and literature
Application to modern society	Crop productivity depends on site preparation

<b>T6</b>	É kin cuối đáy pút É mí lụ đay au phun
In Vietnamese	Muốn ăn chuối phải trồng Muốn có con phải lấy chồng
In English	Want a banana, need to plant Want a child, need to get married
Subject	Banana, child, plant
Meaning	If one likes banana, he/she should plant it; if one wants to have a child, then get married.
Scientific interpretation	
Types of Ecosystem services	Culture
Source of knowledge	Elders
Application to modern society	People need to work by him/herself

<b>T7</b>	Túc pa huôm pe Xe mong huôm phẳng Kin cuối huôm vi Kin pi huôm cân Kin lạp huôm khiêng Nguai quai huôm púng nhà Chạng mạ huôm púng phiêng
In Vietnamese	Đánh cá phải chung bè Thả lưới phải chung nơi Ăn chuối phải chung nải Ăn hoa phải chung cọng Ăn lạp phải chung thớt Bò, trâu phải chung bãi cỏ Voi, ngựa phải chung bịch thóc
In English	Must share raft when fishing Must share place when dropping fishing net Must share bunch when eating banana Must share blade when eating flower Must share chopping-board when eating <i>Lap</i> (traditional <i>Thai</i> food) Buffaloes, cows must share weed/grass area Elephants, horses must share rice tank
Subject	Share
Meaning	Good conditions for working and living should be shared
Scientific interpretation	
Types of Ecosystem services	Culture
Source of knowledge	Elders
Application to modern society	Solidarity is very important

<b>T8</b>	É kin nha năng É hang nha non
In Vietnamese	Muốn ăn đừng ngồi Muốn giàu đừng ngủ
In English	Want to eat, do not sit Want to be rich, do not sleep
Subject	Eat, rich, sit, sleep
Meaning	One has to work to get food, and to work hard to get rich
Scientific interpretation	
Types of Ecosystem services	Culture
Source of knowledge	Elders
Application to modern society	Working hard to meet the requirement

<b>T9</b>	Cắm khâu đứ nấng đìn Cắm kin đứ nấng pá Mật khâu củu mật hứa Khẩu nặm nấng nưa, ngân cẳm nấng tầu
In Vietnamese	Miếng cơm ở trong đất Miếng ăn ở trong rừng Một hạt cơm chín hạt mồ hôi
In English	Cooked rice in the soil Food in the forest, A cooked rice, nine sweets
Subject	Rice, soil, food, forest
Meaning	People believed that if working hard, soil will produce rice and forest will produce food.
Scientific interpretation	
Types of Ecosystem services	Supporting
Source of knowledge	Elders
Application to modern society	Soil and forest could feed people if they work hard

<b>T10</b>	Phủ kín khâu puk báu liêng hươn
In Vietnamese	Người ăn đến cả thóc giống thì không nuôi nổi gia đình
In English	One eats even breed rice, would not be able to feed his family
Subject	Breed rice, family
Meaning	People experienced that if a person eats even rice seeds (kept for breeding purpose), he could not feed his family
Scientific interpretation	
Types of Ecosystem services	Culture
Source of knowledge	Elders, literature

Application to modern society	Breed is very important for the cultivation and people life.
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<b>T11</b>	Mák hay súc ván cả Mák hủ súc đằm na Phôn tốc ván cả Phạ đặng dệt na do
In Vietnamese	Quả đa chín thì gieo mạ Quả nhội chín thì cấy ruộng Mưa rơi gieo mạ Trời sấm làm ruộng sớm
In English	When <i>Da</i> fruit is ripe, sow rice seed When <i>Nhoi</i> fruit is ripe, grow paddy rice Raining, sow rice seed Thundering, grow paddy rice early
Subject	<i>Da</i> fruit, <i>Nhoi</i> fruit, scatter, grow
Meaning	Techniques to cultivate crops, When <i>Da</i> fruit is ripe, sowrice seed; When <i>Nhoi</i> fruit is ripe, grow paddy rice; Raining, sow rice seed; Thundering, grow paddy rice early
Scientific interpretation	Ripening of fruits of local trees and natural phenomena indicate times of the year that are suitable for cultivation.
Types of Ecosystem services	Regulating
Source of knowledge	Elders, literature
Application to modern society	Based on natural phenomena, people could make a good plan for cultivation

<b>T12</b>	Đầy lầu bấu đầy non
In Vietnamese	Được rượu không được ngủ
In English	Good wine without sleep
Subject	Wine, sleep
Meaning	If one likes to have good wine, he/she could not sleep
Scientific interpretation	
Types of Ecosystem services	Culture
Source of knowledge	Elders
Application to modern society	To focus on work to get success

<b>T13</b>	Hay tằm ta bó to na hấu nưng
In Vietnamese	Nưng đầy mắt không bằng ruộng một mảnh
In English	Huge milpa is not equal as a small paddy field
Subject	Milpa, paddy field
Meaning	Huge milpa is not as good as a small paddy field

Scientific interpretation	Milpa cultivation could not produce effectively and stably food. On the other hand, it could degrade badly the environment. So, paddy field is much better for producing food, in terms of stability and effectively.
Types of Ecosystem services	Regulating
Source of knowledge	Elders and literature
Application to modern society	Forest is valuable and should be well protected and managed by suitable cultivation

<b>T14</b>	Pân nặm na ha đin đanh Panh mường ha cộn thâu
In Vietnamese	Ngăn nước cần đất sét Dựng mường cần người già
In English	Water prevention needs clay, Village establishment needs elders
Subject	Water, clay, village, elders
Meaning	People thought water could be prevented by clay, and village could be established by elders
Scientific interpretation	
Types of Ecosystem services	Culture
Source of knowledge	Elders
Application to modern society	Experience is important for people and society

<b>T15</b>	Phạ đét nha táy khon hay lộc Phốc tốc nha táy khon hay lao
In Vietnamese	Trời nắng đừng đi trên cây nương cũ Trời mưa đừng đi trên cây nương mới
In English	Sunny, do not step on trees in old milpa Rainy, do not step on trees in new milpa
Subject	Step, milpa, sunny, rainy
Meaning	People are advised not to step on trees in old milpa when sunny, and not to step on trees in new milpa when rainy.
Scientific interpretation	When sunny, the bark of trees in old milpa peels off, so that one could fall if steps on that. When rainy, resin from trees cut in new milpa could stick on clothes of people.
Types of Ecosystem services	Regulating
Source of knowledge	Elders
Application to modern society	Based on the climate (rainy or sunny), people could be careful when working in the milpa to avoid accident

<b>T16</b>	Quai thói ón mặc to Côn xôm pò mặc vậ
In Vietnamese	Trâu đực non thích húc Người ấm no thích nói nhiều
In English	Young buffalos like butting The rich like to be talkative
Subject	The rich, talkative
Meaning	It is thought that young buffalos like butting, and the rich like to be talkative
Scientific interpretation	
Types of Ecosystem services	Culture
Source of knowledge	Elders
Application to modern society	People should be humble

<b>T17</b>	Đệt ấ đậu xấu chấu ấ nặ
In Vietnamese	Làm cái nào phải chăm cái ấ
In English	Care (precaution) what you do
Subject	Care
Meaning	People thought that people need care about what they do
Scientific interpretation	
Types of Ecosystem services	Culture
Source of knowledge	Elders
Application to modern society	Care what you do

<b>T18</b>	Mi nặ chắg mi pà
In Vietnamese	Có nước sẽ có cá
In English	Having water will have fish
Subject	Water, fish
Meaning	People believed if aplace has water, there will be fish (or fish will come?)
Scientific interpretation	
Types of Ecosystem services	Supporting
Source of knowledge	Elders, literature
Application to modern society	Good plan and preparation will achieve good results

<b>T19</b>	Tái pá phãng, nhãng pa liệng
In Vietnamese	Sống rừng nuôi, chết rừng chôn
In English	Forest feeds when one lives, forest buries when one dies
Subject	Forest, live, dead
Meaning	Forest feeds people when they are living and buries them after they die
Scientific interpretation	
Types of Ecosystem services	Provisioning
Source of knowledge	Elders
Application to modern society	Forest is very important for people, both when they are living and die, so that one should protect it.

<b>T20</b>	Dom pá bạy lùn lãng chãng má Bạy hớ nặm chú bó láy lống Phớ chứ đấỵ khoằm nặm mắnh chãng pên cun
In Vietnamese	Giữ rừng cho muôn đời phát triển Để cho muôn mớ nước tuôn trào Ai nhớ đượс câu ấy thì mới thành người
In English	Forest protection for generation development, for great water sources If one does not remember this, one could not become a person
Subject	Forest, generation, water sources
Meaning	People believed that if the forest is well protected, water sources will be stable and new generations will benefit from that.
Scientific interpretation	
Types of Ecosystem services	Supporting
Source of knowledge	Elders
Application to modern society	Forest is very important for water sources and for people, so that everybody is responsible in forest protection.

<b>T21</b>	Mi mặỵ sương mi sủa nà
In Vietnamese	Có rừng mới có nước
In English	No water without forest
Subject	Forest, water
Meaning	People believed that water occurs in the forest
Scientific interpretation	Forest could regulate the rainfall and is the source of water
Types of Ecosystem services	Regulating
Source of knowledge	Elders, literature
Application to modern society	Forest could regulate the climate

<b>T22</b>	Pấn phá sương pấn hươn, Chút phá sương chút hươn châu dú cìn
In Vietnamese	Phá rừng như thể phá nhà, Đốt rừng như thể đốt da thịt mình
In English	Damage forest like destroy your house, Burn forest like burn yourself
Subject	Forest, house, damage, fire
Meaning	Damaging the forest is like destroying the house, and burning the forest is like to burning oneself.
Scientific interpretation	
Types of Ecosystem services	Culture
Source of knowledge	Elders
Application to modern society	Forest is very important for people, so it must be protected.

<b>T23</b>	Mạ cộn cô lông ké siêu nhong, Sương cái phong xác sừa lập bản
In Vietnamese	Mất cây cổ thụ, thiên tai đại họa tràn về bản
In English	Lost the ancient tree, severe phenomena occur
Subject	Ancient tree, phenomena
Meaning	People believed if the ancient tree is lost, severe phenomena will occur to the village.
Scientific interpretation	When the ancient tree is lost, it means that the forest environment is severely damaged, so that nothing could regulate/mitigate the natural and severe phenomena
Types of Ecosystem services	Regulating
Source of knowledge	Elders and literature
Application to modern society	People have to protect the forest ecosystems

<b>T24</b>	Mật khẩu báu tưng pưa hay pú Mu báu pí pưa cháu tảnh
In Vietnamese	Lúa không chắc hạt vì nương dốc Lợn không béo vì chủ nuôi
In English	Rice is not good when growing in steep milpa Pig is not fat due to a bad owner
Subject	Rice, steep milpa
Meaning	People experienced that it cannot get good yield when growing in slope milpa
Scientific interpretation	Slope milpa has poor conditions for cultivation, such as severe erosion, unfertile, so that rice could not grow well. It is like a bad owner could not rear a pig well.
Types of Ecosystem services	Regulating
Source of knowledge	Elder

Application to modern society	People should keep forests remained on steep land to protect the environment, not to cultivate milpa
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<b>T25</b>	Tứ cúp thả phạ phôn bươn pết Tứ cúp thả phạ đét bươn sam
In Vietnamese	Đội nón đợi mưa tháng tám Đội nón đợi nắng tháng ba
In English	Wearing hat to wait for rain in August Wearing hat to wait for sunlight in March
Subject	Hat, rain, sunlight
Meaning	People were advised that it is a waste to wait for rain in August and for sunlight in March.
Scientific interpretation	In March, it is normally gloomy, and sunshine rarely occurs. In August, rain rarely occurs as it is at the end of the rainy season.
Types of Ecosystem services	Regulating
Source of knowledge	Elder and literature
Application to modern society	People could base on the climate/natural rules to make plan for their cultivation and daily activities

<b>T26</b>	Dệt hay hột tin pha Dệt ná hột tin lạn
In Vietnamese	Làm nương tới chân núi Làm ruộng tới chân đá (vách đá)
In English	Cultivate milpa at mountain foot. Cultivate paddy field at stone foot.
Subject	Milpa, mountain foot, paddy field
Meaning	People were advised to cultivate milpa at the foothill, at most; and to cultivate paddy field near the stone field, at most.
Scientific interpretation	Milpa cultivation should be carried out at the foot of the hill, at most. If milpa is cultivated further up the hill, it will damage forest and environment. On the other hand, paddy field could not be done in stone field.
Types of Ecosystem services	Supporting
Source of knowledge	Elders and literature
Application to modern society	Milpa should be cultivated in suitable sites, otherwise it will damage forest and the environment.

<b>T27</b>	Nặng mák đank, hế men mák xúc
In Vietnamese	Vỏ quả đỏ chưa phải là quả chín
In English	The fruit looks red, but it is not ripe
Subject	Fruit, red, ripe
Meaning	The fruit looks red, but in fact, it is not ripe
Scientific interpretation	
Types of Ecosystem services	Supporting
Source of knowledge	Elders, literature
Application to modern society	Decision should be made by careful thinking, not just by watching.

<b>T28</b>	Pá đông xông cọt/Mạy pên khôn/Côn pên nuốt/Pá cắm đong kheo/Mạy hua ta/ Nga hua bó/Pá tắm đin piêng/Pá heo đong cắm/ Pá cắm đong xên
In Vietnamese	Cây có lông (có nghĩa là cây cổ thụ), như người già có râu, rừng xanh bát ngát, là rừng đầu nguồn, rừng đầu múc nước, rừng ngút ngàn tít tắp, rừng cúng tế, rừng thiêng
In English	Old trees (ancient trees) have hairs as the elders have beard, green forest is the watershed, water source, ghost forest and spirit forest.
Subject	Forest, watershed, ghost forest, spirit forest
Meaning	People thought that ancient trees have hairs like the elders have beard, and the forest having ancient trees could regulate climate and the environment.
Scientific interpretation	Ancient trees have hairs like the elders have beard. Forest has ancient trees have a function to regulate climate and the environment.
Types of Ecosystem services	Regulating and culturing
Source of knowledge	Elders and literature
Application to modern society	Old forest has good functions to regulate climate, to protect bio-diversity, culture and the environment.

<b>T29</b>	Dệt hày bón tin pu Dệt na bón tin lọng
In Vietnamese	Làm nương phải chọn chỗ chân đồi Làm ruộng phải chọn nơi cuối thung
In English	Milpa should be at the hill foot Paddy cultivation should be at the end of the valley
Subject	Milpa, paddy, cultivation
Meaning	Milpa should be at the hill foot, and paddy cultivation should be at the end of the valley.
Scientific interpretation	Foot hill is rather fertile and not so steep, so that it is suitable for milpa cultivation. It also good for the environment, because the steep land is covered by forests. End of the valley is normally lower, so that it contains water that suitable for paddy cultivation

Types of Ecosystem services	Supporting
Source of knowledge	Elder and literature
Application to modern society	Milpa and paddy cultivation should be on suitable sites, so that the yields good and also do not damage the environment

<b>T30</b>	Lào pá lâu dệt na Lào pá ka dệt bản
In Vietnamese	Vỡ rừng lau làm ruộng Phá rừng gianh làm bản
In English	Convert reed area to paddy field Convert along grass to village
Subject	Supporting
Meaning	People learned that paddy field should be converted from reed area and village should be established on along grass area
Scientific interpretation	Reed area has suitable conditions for making paddy, and along grass area is suitable for making houses and establishing village. On the other hand, people like to avoid destroying forest for these activities.
Types of Ecosystem services	Supporting
Source of knowledge	Elders
Application to modern society	Establishment of village and paddy field should not destroy forests

<b>T31</b>	Tô bi bin tằm chi phôn Bin sung chi lét, bin chọp chi bốt
In Vietnamese	Chuồn chuồn bay thấp thì mưa Bay cao thì nắng bay vừa thì râm
In English	If dragonfly flies low, it will rain Fly high, it will be sunny Fly middle, it will be shady
Subject	Dragonfly, rain, sunny
Meaning	People believed if the dragonfly flies low, it will rain; if fly high, it will be sunny; if fly middle, it will be shady
Scientific interpretation	When it is going to rain, the air pressure is low and dragonfly flies near the ground; on the contrary, when it is going to be sunny, the air pressure is high, so that dragonfly flies high.
Types of Ecosystem services	Regulating
Source of knowledge	Elders, literature
Application to modern society	When we observe the behaviour of insects, it is possible to know the changes of microclimate and forecast the weather

<b>T32</b>	Buồn sam phôn phả, buồn pét phôn hạ (hạ phôn)
In Vietnamese	Tháng ba mưa đấm, tháng tám mưa cơn
In English	In March it rains in area, in August it rains in cloud shade
Subject	March, August, rain
Meaning	People thought that it will rain in area in March, and it will rain in cloud shade (area under the cloud) in August
Scientific interpretation	In March, it normally has small rain, but in large area, but in August, it will rain heavily, but short, and only in the area under the cloud
Types of Ecosystem services	Regulating
Source of knowledge	Elders
Application to modern society	Based on the time of the year, people could forecast the weather to make good plan for cultivation or other activities.

<b>T33</b>	Phạ lôm bít bít, nộc trấu hợng chi nào
In Vietnamese	Gió bắc hừu hừu, sếu kêu thì rét
In English	If north wind blows gently and crane cries, it is cold
Subject	North wind, crane, cold
Meaning	People believed that when the north wind blows and the cranes cry, it will be cold
Scientific interpretation	When the north wind blows, cranes fly further south to avoid cold, so people know it is going to be cold
Types of Ecosystem services	Regulating
Source of knowledge	Elders
Application to modern society	From observing the behaviour of animal, we could forecast the weather.

<b>T34</b>	Lao ế chi lét, lao nọi chi phôn
In Vietnamese	Mau sao thì nắng, vắng sao thì mưa
In English	Many stars it will be sunny, few stars it will rain
Subject	Star, sunny, rain
Meaning	At night, if many stars are seen, it will be sunny next day. If few stars are seen, it will rain.
Scientific interpretation	At night, if the sky has no or few clouds, many stars could be seen, so that the next day will be sunny. However, if few stars could be seen, means that there are a lot of clouds, it will rain soon.
Types of Ecosystem services	Regulating
Source of knowledge	Elders, literature
Application to modern society	From observing the sky, it is possible to forecast the weather

<b>T35</b>	Một lăm khồn xáy khữn sung Sừ lâu cở mi phạ phôn sải
In Vietnamese	Kiến đen tha trứng lên cao Thế nào cũng có mưa rào rất to
In English	If black ants transport eggs to high places. It will rain heavily
Subject	Black ant, egg, rain
Meaning	People experienced that when black ants transporting their eggs to high places, it will rain heavily.
Scientific interpretation	Black ants are afraid of water. So, before the rain, ants could forecast the rain and transport their eggs to high places to avoid rain.
Types of Ecosystem services	Regulating
Source of knowledge	Elders
Application to modern society	By observing insect behaviour, it is possible to forecast weather.

<b>T36</b>	Nộc én bin tằm pha phôn lựp kẩn noong Nộc én bin tằm pha phôn sảo cho nào
In Vietnamese	Én bay thấp mưa ngập bờ ao Én bay cao mưa rào lại tạnh
In English	Swallows fly low, it will rain over the pond bank Swallows fly high, rain will stop
Subject	Swallow, rain
Meaning	People noticed that if swallows fly low, it will rain; and if swallows fly high, rain will stop
Scientific interpretation	Under low pressure (it is going to rain) insects fly near ground, so swallows fly near ground to catch insects. Under high pressure (it will be sunny), insects fly high, so swallow fly high to catch insects.
Types of Ecosystem services	Regulating
Source of knowledge	Elders
Application to modern society	Animal behaviour could forecast the weather.

<b>T37</b>	Mil in cở mi pá lặc, trư châng pá phũ hẩu con dú sáo kìn cơ má lìn, cẩn châng pá cẩm hũa mè nẳm lờ châng dú phi pá bớ lỷ tẩt la lôm
In Vietnamese	Vùng đất còn có rừng sâu, là nơi trời đặt cho người trần gian chuyên kiếm ăn, còn khu rừng cấm đầu nguồn nước, nơi ở của ma thiêng không được chặt phá bừa bãi
In English	Some forest assigned by God to people as food, but the watershed forests where the spirit and ghost live could not be cut
Subject	Forest, God, spirit, ghost
Meaning	People could find food in some kind of forests but should not destroy watershed forest.

Scientific interpretation	
Types of Ecosystem services	Culture
Source of knowledge	Elder
Application to modern society	Watershed forest is very important to the life of people

<b>T38</b>	Tồ sắt bơ hủ hầy, hau phải le sàn
In Vietnamese	Súc vật không biết khóc, ta phải chăm nom chúng (chú ý tới động vật hoang dã, không đi săn khi mùa sinh nở...)
In English	Wildlife does not know how to cry, we have to take care of them
Subject	Wildlife, take care
Meaning	People were advised to take care of wildlife
Scientific interpretation	Wildlife needs to take care to serve people
Types of Ecosystem services	Supporting
Source of knowledge	Elders
Application to modern society	People were advised to protect wildlife to sustain their livelihood and environment

<b>T39</b>	Nha tắt cò may ô kìn hết, nha tắt cò mẫy ké cở bơ kếp po chương kìn. Xò nha tắt cò mẫy bay pít mã
In Vietnamese	Đừng chặt cây to ăn nấm, đừng chặt cây cổ thụ hòng kiếm đủ thức ăn. Xin đừng chặt cây để hái quả.
In English	Do not cut big trees to get mushroom, do not cut ancient trees with hope to get sufficient food, do not cut trees to get fruit
Subject	Tree, cut, food, fruit, mushroom
Meaning	People were advised not to cut big trees, ancient trees for food, fruit and mushroom
Scientific interpretation	If big and ancient trees are cut for food, the forest and the environment will be destroyed to impact severely on the daily life of local people
Types of Ecosystem services	Provisioning
Source of knowledge	Elders
Application to modern society	People have responsibility to protect forests

<b>T40</b>	Phạ phôn phạ chi lét
In Vietnamese	Trời mưa trời sẽ nắng
In English	It rains, then, it will be sunlight
Subject	Sun, rain, sunlight
Meaning	The natural rule is that if it rains, rain will stop, then the sunlight comes.
Scientific interpretation	
Types of Ecosystem services	Regulating
Source of knowledge	Elders
Application to modern society	People were advised that do not stop your efforts not matter how difficult, it will change and you will succeed.

<b>T41</b>	Hươn khó phổ cúng sớ, hươn dật kìn lầy phổ muôn chơ phá phươn ma
In Vietnamese	Nhà nghèo bởi nặng cúng Nhà làm nên bởi hiếu khách
In English	Poor house due to heavy worship Rich house due to having lots of guests
Subject	House, worship, guest
Meaning	People thought that a house is poor because it performs a lot of worships, and a house is rich because it has a lot of good relationship
Scientific interpretation	
Types of Ecosystem services	Culture
Source of knowledge	Elders
Application to modern society	To live with real situations

<b>T42</b>	Phăng quam hung tài khó, phăng quam Mò tài xép
In Vietnamese	Nghe lời Một chết nghèo, nghe lời Mo chết đói
In English	It will be poor if listen to the powwow
Subject	Powwow, poor
Meaning	People thought that one will be poor if believed the powwow
Scientific interpretation	
Types of Ecosystem services	Culture
Source of knowledge	Elders
Application to modern society	To live with real situations

## Conclusions and recommendations

Forty two proverbs, old sayings and community rules (traditional ecological knowledge – TEK) related to forest management and climate change of the *Thais* have been documented. The sources of TEK were collected from literature and Thai elders in Chieng Bom District, Son La Province.

The TEK provided included all four types of ecosystem services of provisioning, regulating, cultural and supporting, of which regulating type occupies a large proportion, as they help local people to understand and interact with forests and the environment.

The TEK collected is very important for the daily life of the *Thais* as it has been accumulated for ages. TEK is rarely written, but to be handed down from one generation to another by traditional oral. TEK is also very important to modern society when applied to help people to co-exist and interact sustainably with forests and the ecological environment.

However, the study has some limitations. The data collected for the study were mainly from literature search and also the information provided by the 15 *Thai* elders. These elders were more than 50 years old, living in Nhop Village, Chieng Bom Commune, Thuan Chau District, Son La Province. So, it does not mean that the results of the study would represent all proverbs, old sayings and community rules related to forest management and climate change of the *Thai* community in Viet Nam.

TEK of the *Thais* has gradually been neglected without the support and effort of the authorities and the people. Some *Thai* elders did not remember much their TEK that had been accumulated for ages. Many young *Thai* did not know and understand TEK of *Thai* due to a busy life and technical skills and knowledge. Some, particularly, who live in or near cities, could not speak the *Thai* language anymore. Some activities such as teaching *Thai* language, organizing traditional festivals, have been conducted, but the results were very limited.

In short, in order to conserve and apply TEK of the *Thais* in Viet Nam, more efforts are needed to collect, document and make those available for not only the *Thais* in Son La Province, but also for other people within and outside Viet Nam.

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**Field Note**

1. *Proverbs / Old sayings / Community rules*

- a. (In native (local) language) 제비가 낮게 날면 비가 온다
- b. (In official language) 제비가 낮게 날면 비가 온다
- c. (In English) If swallows fly low, it will rain.

2. *Meanings*

- a. Meaning: People believed if swallows fly low, it will rain.
- b. Subjects (keywords): Swallow, rain
- c. Scientific interpretation:  
When it is under low air pressure, insects fly near ground, so swallows fly near ground to catch prey insects.

3. *Types of Ecosystem Services*

Provisioning / **Regulating** / Cultural / Supporting

4. *Source of knowledge*

Where / Whom did you learn this from?

Parents / elders / friends / media / **literature** / others (            )

5. *Applicability to modern society (researcher's comments)*

When we observe behavior of animals, it is possible to know the change of microclimate and forecast the weather.

Recognition Survey

This survey is designed to see which proverbs, sayings or community rules you recognize. People know different sayings depending on where they grew up, how old they are, and many other reasons. Some people may recognize very few of the sayings below, and some may recognize many of them.

**Instructions**

- 6. Please put an X next to proverb/old saying/community rule that you have heard before.
- 7. It is alright if a word or two is different from the way you have heard the proverb. For example, if you have heard "Don't bite more than you can chew" then you can check off "Never bite off more than you can chew."
- 8. Do not guess the meaning of proverb/old saying/community rule that are unfamiliar. Only mark proverb/old saying/community rule you have heard before.
- 9. If you know the meaning of the proverb/old saying/community rule, write down the meanings below.
- 10. If you agree with the meaning, check **yes**. If not, check **no** and please write down the reasons.

.....  
 .....

Examples:

- 1. When swallows fly low, rain comes.  
 Means:  
 Do you agree with it?  
 yes    no (why? \_\_\_\_\_ )
  
- 2. Rice ripen well when the summer is sweltering.  
 Means:  
 Do you agree with it?  
 yes    no (why? \_\_\_\_\_ )