MSc in Anthropology, Environment and Development

Dissertation

# WILDLIFE HUNTING IN *MIJU MISHMI*, AN INDIGENOUS GROUP IN ARUNACHAL PRADESH, NORTHEAST INDIA:

## *a socio-economic and cultural study*

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To

Ajemai Yun

My field assistant and a good friend in Gaap village
who passed away within a month of this research work.

I dedicate this dissertation to her.

# Abstract

The *Miju Mishmi* of Arunachal Pradesh (Northeast India) is a society between hunting and agricultural societies. This study examines the various types of hunting carried out near villages, on the shifting cultivation plots and during long distance hunting trips. The study demonstrates how wildlife hunting overlaps with farming activities for protecting crops and for additional economic incentives. Hunting remains an important part of their culture despite the rapidly changing socio-economic situation because of the close relationship of *Miju Mishmi* with nature. This relationship is expressed through hunting rituals and taboos followed by both men and women. The role of education did not have an influence on hunting but income from hunting seems to be substantial making it a beneficial off-farming activity. The study highlights that *Miju Mishmi* have maintained their hunting lifestyle and identity, inspite of a wildlife protection law, while adapting to socio-economic changes brought about by agricultural expansion, market forces and increased contact with non-*Mishmi* population.

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# 1 Introduction

Arunachal Pradesh is one of the remote and lesser known regions of India. Around 61% of the total geographic area of the state is under forests making people's dependence on forests and its produce high. The state has around 26 indigenous groups and one of them is the *Mishmi* group of people in the districts of Dibang valley, Lohit and Anjaw. My interest in *Mishmi* group began in 2006 during a survey of wildlife hunting practices and to explore how the problem of wildlife hunting and conservation issues could be addressed. I realised that to understand wildlife hunting practices in a society, it is important to understand the people's point of view and their relationship with wildlife and forests. This dissertation is the first anthropological study on the wildlife hunting practices of *Mishmi* group. This work is the result of two months (June-July 2009) field work among the *Miju* sub-group of the *Mishmi* group in Anjaw district of Arunachal Pradesh. *Mishmi* is not a hunter-gatherer group; rather they practice wildlife hunting along with permanent agriculture and shifting cultivation. Hunting is a social, economic and cultural part of their lives. Although it is useful to compare the data I collected with information on other hunter-gatherers and sedentary hunting societies, I avoid using the term 'hunter-gatherers' for *Mishmi* and I occasionally use the villagers and 'hunters' interchangeably. I refer to the study group as '*Mishmi*' rather than '*Miju Mishmi*' for convenience and practical reasons.

I was advised to start learning the *Mishmi* dialect by my supervisors which I did during the field work and found that very helpful. I developed basic language

skills on conveying greetings, simple questions related to daily activities and the *Mishmi* names of both wild and domestic animals. Instead of names, I have given numbers to my respondents for anonymity.

## Rationale of the study

It has been a big challenge universally to combine conservation and development for sustainable use of natural resources for the mutual benefit for both humans and environment. This becomes a much larger and complex issue when the once isolated societies get connected to global markets leading to rapid socio-economic changes of a subsistence lifestyle. The distinction between subsistence and trade of natural resources is often unclear hampering the understanding of resource use. For conservation and sustainable use of natural resources it is not only important to understand the resources are used but it is equally important to understand what values and feelings people apply to these resources and why?

Anjaw district of Arunachal Pradesh (Northeast India) is a remote region which is rich in both biodiversity and ethnic diversity, comprising of several indigenous groups who are dependent on natural resources like forests and wildlife. The state is undergoing major infrastructural development leading to increase in road networks and communication resulting in habitat modifications and impacting the way local people use natural resource use.

Arunachal Pradesh as a state is increasingly becoming the focus of ecological conservation projects and prior to any conservation and development projects, it is important to get general patterns of resource use by people that will help in

formulating plans for resource management. Anjaw is a new district where there is no major conservation programmes or any protected areas at present. Due to its rich biodiversity and also *Mishmi* hills fall in the eastern Himalayan 'biodiversity hotspot', there is a strong possibility that some of these forests will be either become protected areas or community-based conservation zones probably managed by non-indigenous conservation groups. Wildlife is hunted by *Mishmi* for consumption, trade and cultural reasons. In a transforming *Mishmi* society, an understanding of socio-economic dynamics and the cultural importance of hunting to *Mishmi* will make valuable contributions in the future conservation measures that can take *Mishmi* culture and society into account in supporting long term benefits to the people, their culture and the natural resources.

# 2 Literature Review

Transition from hunting and gathering to farming is considered to be one of the major behavioural changes in human societies (Diamond 2006; Kent 1989; Roth 2006). Kent (1989) analyzed the role of hunters and hunting in farming societies and pointed out two major differences between hunter-gatherers and farmers, i.e. the role of mobility and the presence of domestic animals. Four categories of hunter-gatherers based on mobility were mentioned by Kent (1989), *viz.,* nomadic hunter-gatherers, sedentary hunter-gatherers, semi-sedentary farmers and sedentary horticulturists. *Mishmi* are shifting cultivators with seasonal or part-time hunting. *Mishmi* at present are similar to sedentary or semi-sedentary agriculturists but in the past based on Mills (1952), *Mishmi* would qualify for the three former categories.

The key aspects of sedentary agriculture are that meat proportionately contributes little to the overall diet due to the presence of farming products and domestic animals (Kent, 1989). The male identity and the prestige related to hunting are high among the sedentary groups than the pure hunter-gatherers. The immediate-return societies (nomadic hunter-gatherers) do not accumulate goods and inequality is unknown (Woodburn 1982) whereas among the sedentary farmers, storage mechanisms are possible leading to socio-political organisation and distinguished status for some individuals (headmen) (Kent 1989). These features are present in *Mishmi* society in the form of well known hunters, headmen and priests. *Mishmi* people often talk high of the successful hunters. Village headmen (*gaon-burrah*) and the priests (*Gukhan*/*Kambring*)

have powers to settle the disputes and perform important rituals respectively. Meat and grains are stored for a longer period of time. Agricultural products are stored in granaries which is an important unit of a household.

**Wildlife hunting in farming societies**

In farming societies, hunting and farming are overlapped and complementary to each other (Sponsel 1989). For many indigenous societies, hunting and the presence of meat from wild animals continue to remain a valuable product more than farmed ones. This is probably due to the unpredictability in hunting success, low hunting returns and the risks involved in hunting (Friedl 1975; Kent 1989).

Hunting for crop protection is an additional activity in the sedentary hunting groups mostly lacked in nomadic hunter-gatherers. Smith (2005) reported that Bugle group (Panama), farmers-cum-hunters procure majority of wild animals from agricultural farms. Semi-sedentary farmers practice shifting cultivation which is a high input and elaborate process that involve felling of trees, clearing, burning, sowing, guarding and harvesting. Hunting becomes part of the extended agricultural activity when people spend a large part of the year in the farms, for example Nandukan Agta group of Phillipines spend around seven months a year in swidden agriculture (Griffin 1989). *Mishmi* show a similar trend where the time spent on shifting cultivation takes much of the annual calendar. Hunting becomes both opportunistic and targeted for crop protection during farming and harvesting crops.

The interactions of sedentary hunter-gatherers with non-indigenous groups, followed by arrival of roads and markets influence their hunting practices. Sedentary farmers easily shift between hunting and gathering to other subsistence activities. For example, *Nayaka* of South India, worked for rubber plantation, traded minor timber forest produce, and cultivated coffee occasionally for their neighbours (Bird-David 1992). In Philippines, the Agta practice shifting-cultivation and adjust their hunting and farming work in response to the demands of non-Agta communities, thereby reducing hunting to a seasonal activity (Griffin 1989).

Parts of Anjaw district was the battle ground of the Indo-China war in 1962. Since the war, there has been an increase in non-*Mishmi* population to *Mishmi* region (government officers, Indian army personnel, shop owners, road construction workers) which could have impacted hunting practices. Expansion of roads, bridges and infrastructure like hospitals, hotels and schools has economically and socially transformed *Mishmi* region. Wild animal populations around the villages are reported to deplete forcing the villagers to undertake long-distance hunting trips (Aiyadurai, et al. in print). As the region is close to the international border with China and Burma, there is a possibility of trade of animal products which cannot be ruled out. *Mishmi* society seems to diversify their subsistence activities as it gets linked to market economy. The extent to which their hunting activities are expanding in response to markets will be examined through the changes in hunting practices and methods.

Hunting continues to play an integral part in several indigenous societies in spite of major social and economic adaptations and remains at the ‘heart of the

culture' as Estioko-Griffin and Griffin (1981) suggested for Agta indigenous group. Why is hunting so central to indigenous people's culture? The answer lay in understanding how these societies view their environment and how they relate to the forests and wildlife. Among *Mishmi*, wildlife hunting is seen as a key cultural activity and to understand this it is important to get an overview of how indigenous groups in general view the relationship between environment and humans and compare this information with *Mishmi*.

**Relationship between nature and humans**

Relationship between humans and their environment is multifaceted in indigenous societies. They use environmental resources for various reasons; subsistence, trade, and livelihoods. Other than materialistic benefits, there are cultural values that are linked to these resources. There is a strong religious and cultural linkage between nature and humans which has different meanings, all directed towards personal relatedness (Bird-David 1993). Bird-David argues that all cultures that depict human-relatedness to nature have personal relations, for example parent-child relation, sexual relatedness, procreation, and just simple 'name-sake' relatedness (Bird-David 1990; Ingold 1986; Tanner 1979). For example, Mbuti of Zaire (now D.R. Congo) and Nayaka is South India see nature as parents and thus have names like father and mother for forests.

In contrast to the western understanding of human-nature relationship which sets apart humans from natural environment, many indigenous people do not see that or make that distinction. The boundary between human world and natural world is often blurred (Howell 1996). Humans are considered part of the

natural systems and animals, trees and rivers are believed to be 'people' with emotions and feelings. Two major concepts which are central to almost all indigenous groups is the presence of 'souls' in all forms of animate and inanimate objects and the existence of an 'owner of the forest' (Ingold 1986). Souls sometimes are referred to as spirits and the deep forests as a 'spirit world'. Among the Chewong of peninsular Malaysia, *'ruwai'* or soul is believed to be present in inanimate objects and presence of 'another world' is common to hunter-gatherers, semi-sedentary and sedentary groups (Aisher 2007; Howell 1984). Another key belief that hunter-gatherer societies share is the exchange of vital force between the human world and the spirit world through domestic animal sacrifices from human to spirits and vice versa during hunting (Ingold 1986; Willersley 2007). Hunting is known to help in the circulation of vital force between humans and animals and thus contribute to the regeneration of life (Ingold 2000). A complex network of exchanges exists between these two worlds and set of rules exist to continue this exchange. Animals when killed are given respect to show gratitude and the meat are treated properly which Ingold (1980) states as hunting not just a normal survival activity but a 'world renewing process'.

There are common elements to rituals and taboos related to wildlife hunting across hunter-gatherer groups globally. The rituals and taboos followed in connection with hunting are in context with the forests spirits and spirits of the dead (Howell 1982; Ingold 1986; Morris 2000). Presence of animal masters who take care of the animals is reported among Tukano Indians of Northwest Amazon, Yukaghirs of Siberia (Reicel-Dolmatoff 1976; Willersley 2007). *Mishmi*

believe in the existence of departed ancestors as spirits called *Kamao'* (Kri 2008). Before the hunt, offerings are made to the spirits for their success is observed by *Mishmi* hunters.

Shamanism in these societies is a powerful intermediary agent between the human world and the spirit world (Aisher 2005; Ingold 2000). Shaman is known to travel between these two worlds to recover the vitality which may have lost due to illness and the shaman negotiates with the spirit masters (Ingold 2000). Priests in *Mishmi* society play a significant role and are known to have special powers to communicate with the spirits. During the rituals, he goes into the trance and is believed to visit the 'other world'. *Mishmi* follow animism and the presence of spirits in the house and in the farms and a strong belief that of friendly and some harmful spirits is common (Chowdhury 1982; Kri 2008). The harmful spirits are said to bring natural disasters, death and loss in village economy. Landscape with supernatural powers, rituals and taboos specific to hunting will be explored in relation to the presence of spirits, spirit masters and exchange of vital force to understand *Mishmi's* relation with their forests.

**Role of women in wildlife hunting**

Hunting of large animals has been predominantly a man's role and women participating in hunting is either minimal or absent. The degree to which women contribute to wildlife hunting varies across different societies. In some communities, women are restricted from hunting and touching hunting weapons while in others, women either hunted alone or in participation with men. Aka women of Central African Republic carry out net hunting where no men participated and when men participated, women beat and flush out animals and

carried the meat (Noss and Hewlett 2001). Ituri women of Zaire hunt using nets and where as Matses women of Peruvian Amazon participate with men (Bailey and Aunger 1989; Romanoff 1983). In some societies women hunt small animals, for example Agta women hunt and even use blow-pipe (Estioko-Griffin and Griffin 1981). Agta and Batek are the only two cases where the women's role as primary hunters has been well documented (Endicott and Endicott 2008).

In Indian mythology, Goddess are depicted as destroyers of large animals and the queens of Indian princely states have carried out hunting expeditions with great success. For example, Princess Rani Durgavati and Mughal Queen Nur-Jahan have shot tigers both as a sport and as protection measures (Singh 2001). Not only the royal women hunted but even the indigenous women were known to hunt wild animals for safety reasons. Two examples are worth mentioning here, *Jani shikar* is a ritual hunt carried out only by Oraon women (Chhota Nagpur, Bihar) and both men and women of Hos ethnic group (Jharkhand) carried out a ritualistic hunt. Singh states that women's role in hunting in some regions in India were not specifically denied or prohibited.

In societies where women hunted, they are invariably subjected to several taboos. Relationship of hunting with sex and blood explains why pregnancy and menstruation are kept apart from hunting (Buckley and Gottlieb 1988a; Knight 1995; Lewis 2008; Morris 2000). Touching of guns by pregnant and menstruating women leading to malfunctioning of the weapons and preventing hunting success are also a common beliefs (Friedl 1975). Contact of menstruating women with the hunting weapons is believed to lead to the

accidents. Women are also prohibited from making, owning, and using these weapons. In *Mishmi*, there are rules and regulations that women follow to ensure hunting success and hunting taboos related to menstruation and sex during hunting will be explored further.

**Literature on *Mishmi***

From the beginning of the 19th century, *Mishmi* hills (Fig. 2) have attracted travellers, missionaries, botanists, surveyors, British military and political officers, bird-watchers and traders. British explorers and officers saw *Mishmi* as cross-border traders. They bartered valuable musk pods and Mishmi teeta (*Coptis teeta*) for machetes with Tibetans and communities of Assam (Cooper 1873; Mitchell 1883). Missionary Father Leo Heriot's 'First Martyrs in Arunachal Pradesh' tells of two French missionaries, Fathers Krick and Bourry, who visited *Mishmi* hills with the mission to reach Tibet to spread Christianity and were murdered on their way back in 1854 by a *Mishmi* headman. This chilling incident is repeated in all subsequent writings about *Mishmi* (Elwin 1959; Hamilton 1912; Heriot 1979; Kri 2008). Hamilton (1912) reported that the tribesman (*Mishmi*) were of uncertain temperament and frequently at war among themselves. After 1826, intense fighting among the *Mishmi* prevented visitors from outside the region for around five years (Hamilton 1912). Griffith, a botanist, failed to proceed further due to uncooperative behaviour of the *Miju Mishmi*. Bailey (1945) in his writings during his tours in *Mishmi* hills (now Anjaw) referred to the people *(Mishmi*) as 'troublesome and unpleasant'. What these explorers failed to notice was rich material culture and traditions of *Mishmi*. Elwin (1959) was probably one of the few scholars who had positive

views about *Mishmi* as being friendly, colourful and beautiful and he was surprised by the views of previous visitors and said they 'seem to have something wrong with their eye-sight!'. The impression of outsiders about *Mishmi* has not changed much even now. People from outside Arunachal Pradesh and even those who are from Arunachal Pradesh but belonging to a different indigenous group frequently refer to *Mishmi* (in Lohit and Anjaw) as 'lazy and unreliable'. I have heard similar opinions from *non-Mishmi* people quite often. This image is probably due to widespread consumption of opium and their rural and seasonal activity lifestyle. However, discrimination against indigenous communities is not uncommon and there is stigmatization against hunter-gatherers or former hunter-gatherers (Lewis 2000; Woodburn 1997). In Anjaw district, marriages take place between *Mishmi* and other Arunachal and non-Arunachal communities but the views, opinions on work culture and lifestyle of *Mishmi* is largely negative.

Visitors to Anjaw have reported hunting practices and belief systems and rituals they observed during their visits on an *adhoc* basis. In the recent literature, *Mishmi* are reported as animists who believe in the existence of benevolent and malevolent spirits (Kri 2008). Understanding of their relationship with nature is still lacking. Kri (2008) gives a list of the spirits responsible for the well-being of the people and the damage they could cause and is one of the very few publications on *Mishmi* which is useful as an introduction to *Mishmi*.

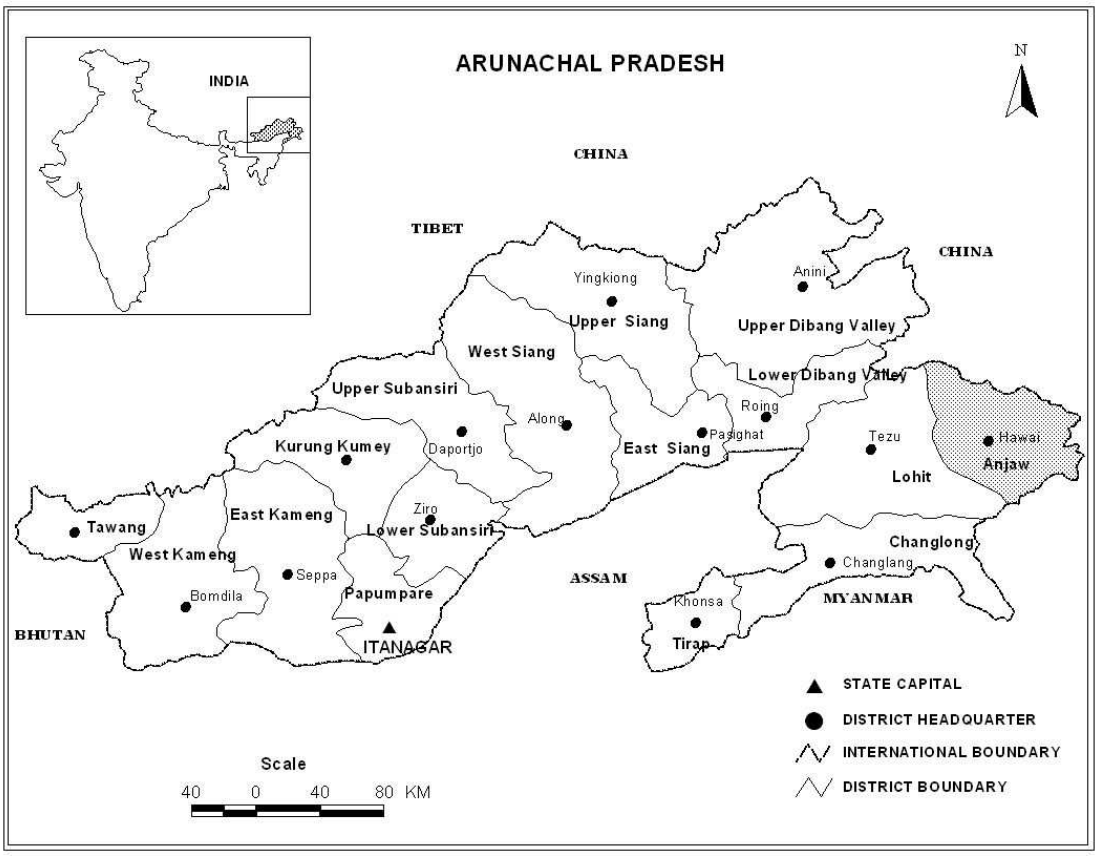
To understand the socio-economic and cultural perspectives of hunting among *Mishmi*, it is important to have an overview of wildlife hunting. Chapter 5 gives a general account of hunting patterns, landscape and the methods. Chapter 6

explores the relationship between humans and environment in *Mishmi* through the rituals and traditions that hunters follow. The role of women in wildlife hunting and taboos followed at home when the men are away during hunting trip are investigated in Chapter 7. The socio-economic factors of wildlife hunting in *Mishmi* are analysed in Chapter 8 to understand the influence of age, education and livelihoods on hunting.

# 3 Study Area and Study Group

Arunachal Pradesh ($26^0$ 28' – $29^0$ 30' N, $91^0$ 30' – $97^0$ 30' E) also known as the 'land of the rising sun' is located in the northeast corner of India (Fig 1). It is bordered by Bhutan on the west, China (Tibet) on the north and northeast, Myanmar on the east and south east. The Indian states of Assam and Nagaland are on located to its south. Population density of the state is one of the lowest in India with 13 persons per square kilometre according to the 2001 census compared to 324 persons per square kilometre in the country (Anonymous 2006). Arunachal Pradesh was never ruled by any king or even the British colonial administration. The Ahom kings of Assam had some contacts to protect their kingdom from attack by Arunachal people and to maintain the trade routes that passed through Tibet and China (Bose 1997). In 1914, the hill areas of the northern districts of Assam were separated to form the North East Frontier Tracts and in 1950, it was named North East Frontier Agency (NEFA) administered by the Governor of Assam. After India's independence in 1947, while the rest of the country progressed in terms of economic and infrastructure (highways, rail network, education system), the 'developmental process' in the northeast region was slow. It was later made into a union territory to intensify development and was given statehood as Arunachal Pradesh in 1987.

**Figure 1 Map of Arunachal Pradesh and the study area**
(Anjaw district shown in shaded area)




The Inner Line Act of 1873, enacted by the British, ensured people from the rest of the country do not enter the state without legal permission, the Inner Line Pass or the ILP (Bose 1997). The state has remained isolated because of the ILP even after India's Independence. Even today, people who do not belong to the state need to obtain an ILP to enter the state.

Arunachal Pradesh is home to 26 major ethnic groups and 110 sub groups (Chowdhury 1982). Many ethnic groups migrated from different places probably including Bhutan, Tibet, Myanmar and Yunnan. Each ethnic group has their own story of migration to Arunachal Pradesh (Blackburn 2004). Most languages

have no script. Often, people in Arunachal Pradesh do not understand each other's languages but use Hindi as a link language.

Arunachal Pradesh is heavily forested, mountainous and the landscape varies from the westernmost district of Tawang to Tirap in the southeast. Over 60% of the total forest cover is mature forest (Anonymous 2008) and the dependence of local people on biodiversity is high (Aiyadurai and Varma 2008; Anonymous 2006). The majority of the population is dependent on agriculture which is mainly based on swidden cultivation or slash-and-burn method, locally known as *Jhum*. A small percentage of people practice permanent cultivation. Biogeographically, the state falls in the eastern Himalayan belt and is considered to be one of the global Biodiversity Hotspots (Myers, et al. 2000). There have been several recent discoveries of birds and mammals, *viz., Bugun liocichla*, a new warbler species, Arunachal Macaque (*Macaca munzala*), a sub-species of Sclater Monal and Leaf deer (Athreya 2006; Datta, et al. 2003; James, et al. 2007; Kumar and Singh 2003). Over 200 mammal species are reported from Arunachal Pradesh including several rare or little-known species such as clouded leopard (*Neofelis nebulosa*), marbled cat (*Pardofelis marmorata*), hoolock gibbon (*Hylobates hoolock*) and red panda (*Ailurus fulgens*).

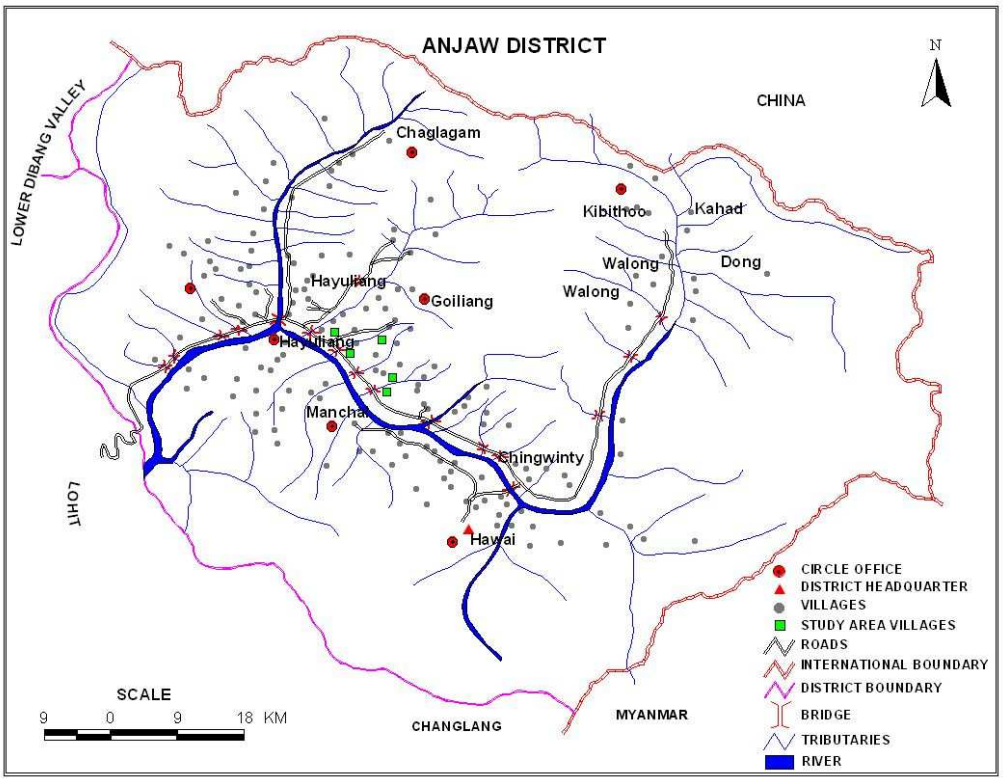
The use of wildlife in any form was made illegal when the Wildlife Protection Act (WPA) was enacted in 1972 (Anonymous 1994). The law prohibits hunting of almost all wild animals, their trade, animal articles and derivatives but hunting still continues in Arunachal Pradesh. Awareness levels are extremely low and even people who are aware of the WPA continue to hunt because of

cultural ideals and economic possibilities. Hunting and illegal trade in bear gall ladder and musk deer feed the cross-border trade and subsequently contribute to the traditional Chinese medicine (Sathyakumar 2001; WCS and TRAFFIC 2004).

**Study group - *Miju Mishmi***

Around 120 exogamous clans of *Mishmi* are known, the three main groups are *Miju Mishmi* in upper Lohit and Anjaw district; *Digaru Mishmi* in the western part of Lohit district and Idu *Mishmi* in Dibang Valley (Chowdhury 1982; Mills 1952). There are around 350 villages in all these districts with close to around 50,000 population (Kri 2008). The study village falls in Anjaw district and the district's headquarters in situated in Hawai. (Fig 2).

**Figure 2 Map of Anjaw district showing the study villages**



The major inhabitants in Anjaw district are *Miju Mishmi*, *Digaru Mishmi* and *Meyor* or *Zakhring*. A *Mishmi* sub-group, *Dengs* or the *Dengbas* is known to be present across border (Kri 2008). The *Mishmi* hills are said to be very formidable with peaks ranging from 3500 m to 5000 m. The forests in Anjaw district are classified as Northern Tropical Semi-evergreen Forest (Eastern Alluvial Secondary Semi-evergreen Forest) and Assam Sub-tropical Pine Forest; East Himalayan Sub-alpine Birch/Fir forest. There are no protected areas in Anjaw district. The principal form of farming is through shifting cultivation or swidden agriculture. The main crops grown are maize, millet and some vegetables. Other cash crops grown are cardamom, opium and oranges. Opium is cultivated on a large scale both for consumption and sale (Bhattacharji 2009). Orange plantations are successful only in the lower altitudes.

# 4 Objectives and Methods

The broad objectives of this study are to:

(a) To get a general understanding of wildlife hunting patterns in *Mishmi*.

(b) To understand how hunting is culturally linked in *Mishmi* society.

(c) To understand the changes in the hunting practices in relation to the changing socio-economic scenario.

For objective 1, in-depth interviews were held with 14 active hunters. Additional information was collected through informal discussions and from key informers (Table 1).

**Table 1 Methods used during the study**

| **Objectives** | **Methods** | **Target group** | **Sample size** | **Chapters** |
|---|---|---|---|---|
| 1. General understanding of wildlife hunting patterns | In-depth interviews, information discussions | Old and young men | 14 | Chapter 5 – Hunting landscape and hunting methods in *Mishmi* |
| 2. Understand how hunting is culturally linked in *Mishmi* society | In-depth interviews | Hunters and their wives | 14 | Chapter 6 - Hunting rituals in *Mishmi* Chapter 7 – Women and wildlife hunting |
| 3. Understand changes in the hunting practices | Semi-structure interviews and Group discussion | Men and women | 39 | Chapter 8 – Socio-economic patterns of hunting in *Mishmi* |

For objective 2, in-depth interviews were held with hunters and their wives to obtain information on rituals and taboos followed during hunting trips. For objective 3, interviews were held with 39 hunters and non-hunters (young and

old men) from 14 different villages. Socio-economic variables related hunting were collected using semi-structured questionnaires. Group discussion was held with village members to draw the history of Yatong village for the past 50 years. The major economic changes, infrastructural development, natural and man-made disturbances, changes in crops and animal husbandry practices were charted out. This took around 1.5 hours with a tea-break and snacks. School principal, health assistant, village board member, ex-village headman, a government officer and doctor participated.

**Methods**

The two months study was conducted in Anjaw district of Arunachal Pradesh. Initially I chose Yatong village, 12 km from the nearest town Hayuliong which is the functional administrative headquarters of Anjaw district. I selected this village based on my previous experience and because of logistical reasons (Aiyadurai 2007a). I did not want to base myself in a remote location due to logistical difficulties like lack of medical support and transportation. Frequent land slides and road blocks are a concurrent problem. My host was a medical doctor from Arunachal Pradesh who works in the government medical sub-centre at Yatong and this arrangement was logistically suitable for me. However, after initial discussions with the village board members, I found that this village was not representative of 'hunting' villages. There are only 1-2 hunters, and these are bird trappers who do not see themselves as hunters. Their primary occupations involve work for government offices (electricity board and medical staff). I collected the village census, demography and livelihoods, all suggesting this as a village that is fast-changing with satellite television and

mobile phones. There is no mobile connection in the village but people have cell phones to take photos and to listen to songs.

In order to access hunters, I had to visit other villages. I used a snowball sampling approach, asking a hunter to introduce me to other hunters. The focus of this study was not to quantify hunting but to examine the practice of hunting and understand hunting in the light of socio-economic changes in the region. For this reason it was important for me to reach a wider range of respondents than to base myself in a single village. I felt that there is a disadvantage of being an ‘outsider’ that there was no opportunity to establish myself in a low key way and carry out a truly participant observation. However, there no specific need to stay in one village or restrict myself to a specific unit area.

The villages were visited early in the morning and in the evening when people were at home. Semi-structured interviews took roughly 30-40 minutes and morning time was preferred. I informed the respondent about the approximate time I would take. I interviewed only if they agreed. In-depth interviews were held in the evening or late afternoons when they are back from the farms and have the rest of the evening. Interviews that took more than 45 minutes were held in multiple sessions with tea breaks and care was taken not to interrupt their work. Some in-depth interviews were 1.5 to 2 hours long which included introduction time, actual interview time, breaks in between for tea, chats and showing guns, skulls, skins. (Aigaa 2007) highlights the possible flaws in survey questions, the number of questions and the time taken by the interviews. In this study, in-depth interviews were not designed for a rigid and

time-bound session which helped in allowing the respondents to talk freely, taking their own time and stopping whenever required.

Religious ceremonies were attended to gain knowledge about their customs and these provided opportunities to meet and chat with more villagers. Priests were interviewed for additional data on taboos and rituals. Informal discussions were held whenever possible in the evenings with the hunters, shop keepers, teachers and the other government staff.

Interviews were conducted by me when the respondents could understand and speak Hindi. Few respondents especially old men and women could not speak Hindi and I interviewed them with the help of field assistant who was a *Miju Mishmi* and spoke the local dialect. I had female field assistants in two villages whom I found helpful in communicating with women. I used field guides to show pictures of mammals to confirm the identity of the species around. Colourful pictures of mammals and birds in the manuals were good ice-breakers but sometimes respondents spend more time looking at the book giving not enough attention to the interview. The use of field guides meant other family members joined in, lead to long but spontaneous, lively and relaxed discussions. The identity and the local names of the animals hunted were confirmed through field guides, skulls displayed on the trophy board, preserved skins and the articles made from these skins (caps and bags).

I asked the respondents before audio-recording the interviews. I played part of the recordings back and villagers were glad to hear their voices. Before taking any photograph of people in the villages, I always asked them for permission and none of them refused.

My stay in the village was logistically comfortable but interactions with my host and other non-*Mishmi* government staff were at times a bit uncomfortable because of their strong negative views they often projected about *Mishmi* group as untrustworthy, unreliable and lazy. The non-*Mishmi* school teachers in the village often criticised the *Mishmi* students and colleagues of Yatong village for their inefficiency and casual approach to school education and life in general. Sacrificial rituals were very frequent in the villages, mostly for curing illness like diarrhoea, fever, body pain and one case of tuberculosis. The villagers, mostly first approached the *Mishmi* priest for remedy and only if that failed would they visit the medical centre. By the time the patients were seriously ill and were brought to the doctor's residence, sometimes at midnight. These inconveniences and other factors like the remoteness of the area, frequent power cuts, lack of infrastructure added to the frustrations of official staff but they sometimes blamed all their problems simply on *Mishmi*. I tried to be neutral during these discussions and listened to them but was made to feel uncomfortable at times.

My concern often was how my respondents perceived me and my association with the doctor and other non-*Mishmi* staff in the village. I was very lucky to have very good field assistant in Yatong village, a second year bachelor's student (male) studying history and political science in Tezu college. He was in the village for the summer break. He approached me and asked if I needed any help for my study. He was very much interested in this study and his association with me was helpful and villagers were welcoming and friendly to me. I was aware of the fact that there must have been some influence of my

association with non-*Mishmi* government officials posted in the village on the data provided to me. I regularly validated the data with my field assistants and the key informants. Villages other than Yatong required 30 minutes - 2.5 hours of up-hill trek and villagers there were always welcoming and very hospitable where hardly any outsiders or officials visit. I had two female field assistants in these villages which was convenient to interview women.

Wildlife hunting is illegal in India according to the Wildlife Protection Act. In spite of the law, villagers did not show any sign of concern during the interviews. This trend is seen in other parts of Arunachal Pradesh (Aiyadurai and Varma 2008; Aiyadurai 2007b; Hilaludin, et al. 2005). People talk openly and proudly about hunting. It is not uncommon to see a young man walking or riding on a bike with a gun or a bag made from bear skin. Every house has wild animal skulls displayed as a mark of tradition indicating that they do not hide information about hunting. I felt the same during interviews with musk deer and bear hunters who showed me bear gall bladder, skins and equipments to weigh musk pod without any reluctance. These hunters knew that they are involved in illegal business and said they are only careful when they cross Dirak gate (Assam-Arunachal border) which is around 180 km from the study area where passengers in the bus are checked for opium, wild meat and arms. But, in the villages, they are hardly worried about this. Government officers posted in this region sometimes buy or accept animal skins and teeth as gifts. This also adds to the general feeling among the villagers that there is nothing wrong in selling and using wild products.

It is important to mention that the other illegal activity in the region is the large scale cultivation, sale and use of opium in eastern Arunachal Pradesh particularly in Anjaw district (Bhattacharji 2009). Like hunting, use and sale of opium is also carried out without much restriction particularly because of the remoteness which prevents enforcement officials to visit and use of these products in their daily lives is widespread.

# 5 Hunting Landscape and Hunting Methods

Hunting among *Mishmi* is a part of an ancestral way of life. Hunting is carried out regularly from near-by to farms up in the mountains. In this section, different landscapes where *Mishmi* hunt will be explored, presence of wildlife species in these habitats and how they are hunted and the reasons for targeting these animals will be discussed. I argue that hunting and trapping is complementary to shifting cultivation practiced by *Mishmi* and trapping is more widespread not only because of its efficiency in capturing various sizes and variety of species, its use in different habitats and also because it is a low investment technique.

Respondents provided information on the distances travelled and the presence of wildlife. Distances were mentioned as the number of days spent than in units of kilometres. *Mishmi* word for hunt is *hui* and hunter is *taboo-cho*. Due to practical reasons, I used Hindi words which is understood and widely spoken by villagers. The hindi words for 'hunting – *shikhar khelna*' and 'hunters - *shikari*' were mainly applied for long distances hunting and for those who are away very often and brought back meat. Though almost every man must have hunted sometime in his life, not all were referred to as hunters. Every village had 2-3 'big' hunters who are well known locally and whom I interviewed.

*Mishmi* villages are generally small with sometimes 3-5 longhouses in any one village but those near the towns like Hayuliong are much larger. *Mishmi* live in long houses which run horizontally along the mountain slopes. Villages in the foothills have more land suitable for settlement. This draws people to migrate

down from the mountains to build makeshift huts from which they sell liquor and run shops. Mostly the nuclear families stay in these temporary huts and visit their ancestral village for farm work, house construction and for ceremonies.

The landscape changes as one proceeds from villages towards mountains (Photo plate 1, pg.35). Long-distance hunting trips especially targeting musk deer, takin and other ungulates are often carried out in the mountains. Hunters move uphill and cross mountains towards the Indo-china border, though they avoid going beyond the frontier due to restrictions by the Indian Army. Hunters are occasionally hired by the army to take photos and plant hidden video cameras to record activities on the international borders during the long distance hunting trips.

The main river in Anjaw is Lohit whose origin is in China with several tributaries (*Dalai, Dav, Halai*) that drain into Lohit. Different types of bridges are used to cross these rivers but the common one is the Foot Suspension Bridge (FSB) which could reach upto 100 ft. The few modern Bailey bridges are built for four-wheelers used by government vehicles, army trucks and public transportation. In some places, people cross the river on twine bridges (‘monkey crawling’).

The area around the houses is used for kitchen gardens and to rear chicken and pigs. The main farms are usually clearings in the form of small plots on the steep slopes. Plots are created by slash-and-burn cultivation through cutting and burning of the forests. These plots are often far from the villages, and people stay there overnight to guard the crops. Temporary sheds function as shelters for villagers and as granaries to store as they are harvested.

**Photo plate 1: Landscape of the study area**
(Left top: crop fields, right top: Yatong village, Left bottom: granaries, Right bottom: foot suspension bridge)

**Wildlife hunting and crop protection**

Slash-and-burn cultivation result in habitat modification and create mosaics with varying degree of succession that attracts wild animals causing damage to the crops (Smith 2005). Villagers trap and hunt animals that raid their crops. Maize and millet are the major crops grown in these plots. In addition to these, rice, *Mishmi daal* (lentil), vegetables and a variety of other crops are grown. Bears, wild boars and monkeys are reported to raid the crops during the harvest period. During the study period (June-July), maize was being harvested and simultaneously clearing and sowing of other crops were being carried out. Women mostly weeded the farms and sowed new crops whereas men were responsible for clearing forests and protecting them.

Different types of traps are set around the farm boundary to protect the crops. Guns are carried to the farms by men for the same purpose. Maize, millet and other yield are stored in these units which are attacked by monkeys and rodents. Family members help carrying the crops back to the village after harvesting.

**Hunting season**

According to hunters, winter is the best season to hunt, as the high altitude wildlife come down to the lower regions during this season. Animals leave the snow-covered region when vegetation becomes difficult to find. This compels them to move to lower regions where there is sufficient food available. Hunters prefer this season because they need not travel very far to look for animals. Winter season is not only less tiring but they also provide enough time for

trekking and camping as the farming activities are minimum. By October, villagers complete the farming work and the harvest season is over by November (Table 2).

**Table 2 Shifting cultivation and farming activities**

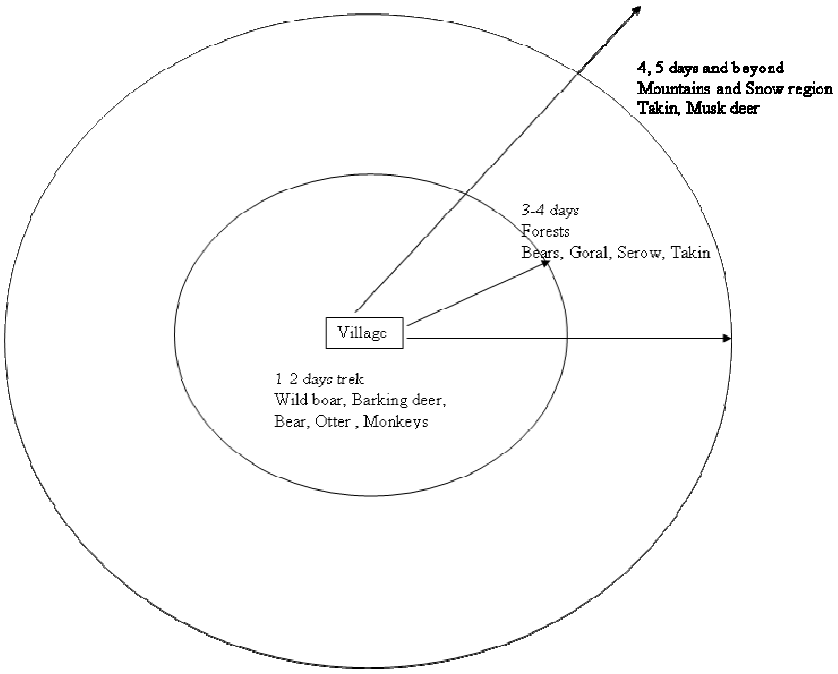
| Farming activities | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clearing Fields | | | | | | | | | | | | |
| Burning | | | | | | | | | | | | |
| Sowing | | | | | | | | | | | | |
| Weeding | | | | | | | | | | | | |
| Guarding | | | | | | | | | | | | |
| Harvesting | | | | | | | | | | | | |

During the monsoon, hunting trips are less commonly undertaken because of leeches *(twat)*, fear of snakes (*ril*) and the risks of falling on slippery paths. During summer, chances of finding animals are less as the animals disperse further up in the mountains. In addition to that, more effort, more travel time and more food is required.

I asked my respondents to give information on wildlife commonly found around the villages, wildlife found in 1-2 days trekking, further camps 3-4 days at radius and so on (Fig 3). On one day's trek, wild boar (*Sus scrofa*) and barking deer (*Muntiacus muntjak*) are the frequently hunted species. Bears (*Ursus thibetanus)* are found near the crop fields during the harvesting season and are known to raid crops. On a 3-4 days trek, hunters find goral *(Naemorhedus goral),* serow (*Capricornis thar)* and takin (*Budorcas taxicolor*) and beyond that,

musk deer (*Moschus sp.*), takin and pheasants are hunted. Hunters report 31 species of mammals found in the region and out of that 24 of them are hunted but the rest 7 are taboo species (Appendix 1 ).

**Figure 3 Distance travelled during hunting and the presence of wildlife**




Foot prints, droppings and other signs of animal presence are searched. One of the ways of searching musk deer is to smell the rocks. The rock would smell of musk if the male animals had rested on it. The smell of musk is strong and remains on the rock for hours.

Hunting is carried out alone, in small groups or with partners (other village men). Hunting and trapping in the farms or around the villages are mostly carried out alone, for example barking deer, wild boars and bears are hunted alone when they come to raid the crops. Birds are mostly hunted alone either

by guns or by setting up traps. Hunting in groups of 2 or more is usually for long distance trips, especially to the snow-covered areas for takin and musk deer. It is for safety reasons that they go in groups or with partners. Hunting is a risky activity. Hunters get killed by land /snow slides and falling off the cliffs and get injured by animal attacks.

'*There is no one to take care of you when you fall sick or get injured…. Alone it is scary'* – Respondent 1, 64 years old

Some hunters usually go with the same partners (men) and this system is known to work well in terms of planning and the knowledge they share with each other. Sometimes, villagers joined men from *Meyor* group of Walong and Kibithoo circles who also have good hunting skills.

The duration of the hunting trip varies with the species targeted. For musk deer, takin and black bears, hunters camp around 15 days or longer including travel time and search time. Hunting for meat is carried out for 1-2 days or a day's trip looking for barking deer and wild boars. During long distance trips, hunters usually camp near a large tree or a large rock and close to a water source like rivers and streams nearby. A large tree or a rock provides shelter against cold winds. They carry all essential items and materials for performing rituals (Chapter 6). The firewood for cooking is collected around the hunting site.

Fresh meat is carried back if hunters are within a day's trek from the village but meat is smoked if the distance is great. Meat is smoked over a make-shift platform. Carrying fresh meat is heavier, therefore smoking helps in making the

meat lighter and easier to carry. Smoking also prevents the meat from rotting if the distance to village is great and can be stored for longer periods of time.

**Hunting methods**

Hunters use traps, guns, machete, spears and catapults to kill wild animals. Various trapping mechanism are practised in the farms for protecting crops as well as in the forests to trap wildlife. Guns are currently used for hunting along with a variety of traps and catapults (Table 3).

**Table 3 Attributes of hunting and trapping methods**

| Hunting methods | Who uses | Where | Seasons |
|---|---|---|---|
| Catapults | Boys, adult men | Around villages, crop fields | No particular season but more in winter |
| Traps | Men, women, children | Around villages, kitchen gardens, crop fields and in the mountains | Guarding and harvest season (Aug-Nov), winter |
| Guns | Adult men | Forests, crop fields, mountains | Winter (long duration trips), guarding and harvest season |

**Traps** - Traditionally, villagers used a variety of traps most of which are still in use. I was given information about 11 methods of trapping animals (Table 4, Appendix 2). Traps are made from bamboo and plant fibres, in addition to that metal wires are used these days which are bought from the market. Every other village boy uses catapults (*Manang)* mainly to hunt birds, squirrels and sometime bats. Serrated leg-hold metal traps are used for capturing otters and the traps are set on the river banks in the evenings (Photo plate 2, pg.87). They are left over night and checked the following morning. I was told that men from Burma give them these traps and buy otter skins.

Special traps for capturing rodents are set around granaries to protect the stored grains. Some traps are targeted for the birds and small mammals in the canopy; others are designed for the ground-dwelling birds like pheasants and for large mammals. When an animal is caught alive in the traps, it is shot by guns if they are large animals like bears and large cats which could be potentially dangerous. Small animals are clubbed by a piece of wood. In the past when there were no guns, probably even now, machete tied to a long bamboo pole was used to stab the trapped animal. Spears were also used for killing the trapped animals in the past (Kri 2008).

Bows-arrows and cross-bows were used in the past and are not currently practiced, at least in the villages I visited. Poison-arrows were common in the past. Paste from the tuber of high-altitude herb *Aconitum ferox* is applied on the arrow tips. The paste is highly poisonous and half the arrow tip covered with the paste is sufficient to kill a large animal. The paste is prepared next to streams and not in the house for the safety of family members. Care is taken not to touch the paste with the fingers. Arrows with poison are fixed to the bamboo wall or ceiling out of the reach of children.

**Table 4 List of traps, species targeted and frequency of use**

| No. | Traps | Species targeted | Materials | Landscape | Frequency |
|---|---|---|---|---|---|
| 1. | *Kheyet* | Wild pig, bears, barking deer | Metal wire, bamboo | Forests, crop fields, mountains | High |
| 2. | *Tawan* | Rodents, birds, squirrels, sometimes snakes | Wires (used in fencing), bamboo | Around granaries, crop fields | High |
| 3. | *Diow* | For ground dwelling birds, specially for pheasants | Plant fibre, nylon ropes | Mountains in snow covered regions | High |

| | | | | | |
|---|---|---|---|---|---|
| 4. | *Kasong* | Wild pigs, bears, barking deer | Bamboo, leaves | Crop fields and forests | Medium |
| 5. | *Paipit* | Large and small birds | Nylon rope/plant fibre, bamboo | On the ground, near crops fields and villages | Medium |
| 6. | *Handam* | Rodents, birds | Stone, bamboo | Crop fields, kitchen gardens | High |
| 7. | *Hakap* | Birds | Bamboo | Around villages and near crop fields (set on the tree canopy) | Medium |
| 8. | *Tiglang Hanuk* | Bears | High altitude bamboo | Hilly regions | Rare |
| 9. | *Tiglang Hanuk I* (Bear pit) | Bears but suitable for all land animals present around | High altitude bamboo. | Hilly regions near crop fields | Rare |
| 10. | *Hanuk* | Bears and wild pigs | Bamboo, rope | Near crop fields | Medium |
| 11. | *Amuk katam* | Monkeys | Bamboo, rope | Crop fields | Medium |

**Guns** - In gun hunting, the animals are searched and pursued. This is mostly done with shotguns but one respondent had a 0.22 rifle with telescopic vision. Guns are both locally made and bought in the market and licences are issued by the government. Guns are usually purchased from Tezu and sometimes in Dibrugarh and Tinsukia (Assam). They use double-barrel shotgun (DBBL), single-barrel shotgun and a hand shotgun are used in common (Photo plate 3, pg.88). DBBL is preferred for its effectiveness. Bears are known to attack rapidly even after it is shot and therefore having a DBBL is useful so that the second fire can be readily shot. Gun powder is purchased from the market but in the past and even now very rarely, it is prepared locally.

## Discussion

Hunting is carried out by adult men but there are young boys of even 11-12 years who use guns. Trapping is done by both men, women including children in the farms. The most frequently hunted species are barking deer, wild boar and a variety of birds. These mammals found close to the village and crop fields are easy targets. Bears are vulnerable because they frequently visit the crop fields especially during harvest season (August/September to November).

Agriculture and cultivated products is such an important part of their economy and massive efforts are invested on crops. The animals hunted and trapped fulfil the dual necessity of additional food resource and crop protection. I argue that trapping and hunting are compatible with the shifting cultivation and with their lifestyle largely dependent on forest resources. Trapping is most frequently used technique and the most frequently hunted animals are the ones that are found near the villages and close to the crop fields.

Use of traps by men, women and kids indicate that trapping is the widely used method. Some traps are easier to make (*Hadam, kheyet, diow.)* that require limited skills and can be reused. Trapping is a low investment and low cost method and are prepared with locally available material like bamboo. Trapping is practised in a wide range of habitats, from farm lands, river beds, kitchen gardens to forests and mountain tops. They are set up at different levels of the landscape, for example *hakap* and *tawan* are set on the canopy targeting birds that flock in to feed on the fruits which are otherwise difficult to get by catapults or gun.

Trapping method indiscriminately kills any animal that comes across. Even the non-target species get captured (e.g. small and big cats, marten) which are reluctantly consumed and are altogether discarded due to taboos related to these animals. Trapping result in lot of wastage if left unchecked leaving it unusable for both consumption and trade. Trapped animals are sometimes preyed upon by other carnivores and scavengers.

*Mishmi* seem to acquire more animals through this method than gun hunting which has some limitations. Gun hunting is limited to only adult men and used mainly during long duration targeting specific species like takin, bears and musk deer. There is huge economic cost involved in gun hunting which lacks in trapping. Purchase of ammunition, guns, their maintenance, obtaining gun licence adds to the cost of gun hunting. There is a limit to the number of animals killed which depends on the amount of ammunition and the time available. Presence of guns was found to be a determinant of off-take in another study (Aiyadurai, et al. in print). Though gun hunting itself can bring in more meat (large animals) but when compared with traps, it has a narrow niche (mostly large animals). Trapping results in capturing a variety of species, both small and large including birds and mammals.

To conclude this section, *Mishmi* are shifting cultivators and spend time and effort in protecting crops. Hunting and trapping are carried out through various methods in their farms indicated that these activities overlap with farming practice. Through trapping, a broad range of animals and birds are captured compared to gun hunting. *Mishmi* use trapping and hunting both to protect their crops and employ them as a means of getting additional food source.

# 6 Hunting Traditions

In this chapter, hunting traditions followed by *Mishmi* are described. I outline some of the key aspects of rituals followed by *Mishmi* hunters and their family members. The relationship between *Mishmi* and nature will be explained through hunting rituals and taboos.

I interviewed 14 respondents of different age groups of men and women. The study period (June and July) was not a hunting season and I did not observe any hunting rituals or join a hunting trip but other rituals related to curing illness and well-being of the family were attended. All the information was collected through interviews and observations only.

## Preparation for hunting trip

Hunters leave very early in the morning, often before sunrise for hunting. Sometimes, they leave the night before, stay in the temporary huts in slash-and-burn plots and leave from there the following day. Hunters leave without letting anyone ask them where they are heading for and thus depart before any one notice them. This is thought to help ensure the success of the trip. Before leaving the house, if there are guests at home, hunters do not eat with the guests but cook and eat separately. The things needed for the trip are packed by the wife or the mother and kept in a corner which no one is allowed to touch. Day-to-day requirements like food, salt, oil, matches are carried as much as they need depending on the length of the intended trip.

Tents using a large plastic sheet are set up next to huge rocks or cave-like formations. The availability and accessibility of water decides the camping site. From the camp, they leave early in the morning after around 4 am. It is easier to find animals then, as animals also start foraging early in the morning. A team member is left behind in the camp to fetch water, fire wood and prepare food. The guard acts as a porter in carrying back the meat and gets his share of meat.

**Owner of the forest - Mountain spirits**

A circle is drawn around the camp for protection. After starting the fire, offerings are made to the spirits for safety, success and good health. '*Shuttho*' is the mountain spirit and hunters pay respect to '*Shuttho'* when they reach the hunting grounds. *Shuttho is the one who 'issues' us wild animals for hunting*' (respondent 7, 62 years), said a hunter. *Shuttho* owns the forests and provides them with animals to hunt. Spirits master control the disposition of animals and they release animals to the hunters (Ingold 2000).

**Special sites in hunting zones and its importance**

The zone between the mountains and the plains is a special or a sacred zone known as '*Kangam*'. This area is a transition between village forests and the high mountains and the rituals are usually held in this zone for '*Shuttho*'. Beyond the mountains lives the supreme creator, '*Amik-Matai'*. The rituals are performed to request the gods or the spirit masters to give them animals. This is very similar to the information given by *Mishmi* that '*Shuttho is the one who 'issues' wild animals for hunting*'.

Hunters say that over-hunting or hunting more than necessary is similar to stealing. If animals are over-hunted, hunters say they will be punished with illness. In reindeer hunting among the Yukaghirs of Siberia, it is believed that the animals offer themselves to hunter (Willersley 2007). When animals come to the traps, they are being 'given' or 'offered' and when they are chased and killed, for example gun hunting, it is equivalent to taking.

'*We should let the animals come to the trap. With gun hunting, we follow animals and shooting is like stealing'* (Respondent 14, 58 years old*).*

Hunting rituals are performed usually if the hunting trip is planned for hunting musk deer and takin in the course of long expeditions. A hunter said, '*musk deer hunting is regarded as the 'number one' hunt, not only because of the power of animals but the power of the landscape, the mountains'.* The distance travelled for musk deer is more than any other animal and the rituals followed there are very strict. Rituals are performed near the rocks, using some leaves and red ochre, an essential item during such rituals. Ochre is collected near the hot spring in the high mountains and has a spiritual significance. Ochre (*laal-mitthi)* is applied to the trees around and sprinkled around the camp. Rice and millet are offered to the owner of the mountains.

*We do rituals slightly different from the rituals performed at home. Here we ask for birds and ask whatever (animals) we want* (Respondent 7, 62 years old).

One hunter said that rice mixed with clarified butter (bought from Tibetans in the past) is scattered around the fire. This is similar to a practice of the Hindu religion and possibly a recent trend. A copper ring is scratched with the

machete over the fire during the ritual. In the absence of information about *Mishmi* rituals in the literature it is difficult to say whether these are recent modifications.

**Secret words of hunters**

During the hunting trip, the hunters communicate with other hunters differently and use unique code words which only hunters tend to know and share (Table 5). Water, firewood, even animals have special names in the mountains. It is important for hunters to have knowledge of these codes; not knowing them would have negative effect. This was told to me by a young hunter in his early 30s and later I confirmed it from other hunters. Hunters say that they fall ill if they do not know these words. Hunters who do not know this language is usually silent.

*If you don't know the special words, then one should keep quiet. If you say wrong words, then the spirits drive us away. Storms, strong winds, rainfall… sometimes people die. We do not talk the same way we talk in villages* (Respondent 11, 32 year old).

**Table 5 Code words used by hunters during hunting**

| **English names** | ***Mishmi* names** | **Hunter's codes** |
|---|---|---|
| Goral | *Saal* | *Braei* |
| Takin | *Khyam* | *Shindou* |
| Pheasant | *Mannam* | *Mophal* |
| Musk Deer | *Tla* | *Shembu* |
| Wild Boar | *Tsam* | *Tashoo* |
| Barking Deer | *Pahee* | *Ramblam* |
| Serow | *Raai* | *Checkran* |
| Bear | *Khumb* | *Maphang* |
| Monkey | *Amuk* | *Sheeaaw* |
| Firewood | *Sang* | *Khram* |
| Water | *Atti* | *Raham/Hhaam* |

No rituals are performed when they reach home in spite of whether they got any animals or not. Similarly, in Yukaghirs, no ritual is held after hunting for thanking the spirits (Willersley 2007).

**Taboos during the hunting trip**

Once hunters reach the hunting zone, they are not supposed take the hunting activity casually. No anger or jokes should be expressed even if there is no success. Expressing anger during hunting leads to sudden thunder storms, strong winds, and appearance of dark clouds from nowhere and heavy rains. This belief is so strong that hunters say they have experienced it.

*'No joking, no silly things to be said. If something is said or if anger is expressed then no animal will be found, there will be thunder-storms, strong winds. It will get very dark, clouds arrive and there will be no success. You will not get a single 'chidiya' (bird)….. Yes it happens. One does not get any animal if someone spits on the ground or says something wrong, then thunder, rain, wind will come. Gods get annoyed* – Respondent 4, 70 years old.

While walking one should not kick any stones on the way, the hunter gets stomach ache. While cooking, it is not permitted to stir food along the sides of the cooking vessel but only in the middle. Hitting the ladle on the vessel during cooking is not allowed. If done, hunters may stumble and fall. Large vessels are not used to take water from lakes or rivers; rather cups or mugs should be used. Food should not be littered around the water sources. Firewood should not be cut with a loud bang and even speaking loudly is strictly prohibited. If a

member of the team feels thirsty during the trip, he is not supposed to say it. It is believed that this would lead to heavy rainfall for alteast an hour. During packing things in the camp, the clothes, mats or sheets should not be cleaned by beating. Even if it is dirty, the mats must be folded quietly and put in the basket. All these lead to hunting failure.

Back at home, the person who prepares the hunting kit, mostly the woman, is not supposed to go away from her home for a longer period of time. She could go but must return to her place to sleep. Family members avoid giving any food, chicken or pig to anyone till the hunter returns. Men shoot in the air on their return when they are close to the village indicating their arrival. If there is no meat, they come quietly.

**Discussion**

The hunting rituals, taboos and the offerings to the spirits in *Mishmi* are similar to other hunting societies. For example, Chewong of peninsular Malaysia, Cree of North Canada, Yukaghirs of Siberia, Nayaka of South India and indigenous societies in Malawi have similar belief systems. *Mishmi* believe that the spirits are present in mountains, rivers and trees. There are some large trees which are known to have spirits and are prohibited from cutting down, for example *Dunguree baba (Hindi) or Kannaan* (*Mishmi*). For long distance hunters, mountain spirit *Shuttho* seems to be the most important. The presence of spirits masters and animal masters in *Mishmi* is similar to other indigenous groups and these spirits are to be respected so they continue to provide animals to hunters. This emphasizes the presence of a relationship between *Mishmi* and nature. Exchange between the two worlds – human world and spirit world in

*Mishmi* seem to be mediated by blood and sound. Sacrificing domestic animals like mithun, cow, chicken and pigs for spirits and gaining wild animals through hunting and making sure the vital force returns appears to be one of the key practices in *Mishmi*. Among the reindeer pastoralists in the circumboreal region, slaughter of wild animals by hunters is rite of renewal which is equivalent to the slaughter of domestic animals as a sacrifice offered to the guardian of the herd (Ingold 1980; Willersley 2007).

The relationship between human world and spirit world is acknowledged through rules and regulations in the form of fear and respect. Mixing of blood from wild animal and domestic animal is seen as a taboo. This is reflected in the way animal skulls are displayed in *Mishmi* houses. Skulls of domestic animals and wild animals are never displayed together. Skulls of cow and mithun are not to be displayed in the guest room (first room) but they are displayed in the subsequent rooms. Blood from the wild animals are applied on wild animal skulls and similarly blood from domestic animals is only applied on their domestic animal skulls. The disposal of wild animal bones follows a protocol. *Mishmi* people told me that wild animal bones are never scattered here and there but is carefully disposed, similar to Cree hunters and Yukaghirs (Tanner 1979; Willersley 2007). Similarly, wild meat and domestic meat is never cooked together.

The taboos followed by hunters during the long-distance expeditions have one element in common, *i.e.* the activities that would create loud noise are prohibited. Loud noise like sound from cutting wood and chatting or talking loudly seems to indicate casualness and lack of respect to the mountains. This

practice of fear in the form of respect is observed in other societies. For examples, animals when dead are treated specially and laughing at animals is a serous crime (Howell 1982).

This has practical implications because hunting is snow-covered regions of high mountains pose dangers like avalanche which could be dangerous to the hunters. Any noise would disturb wild animals and drive them away. At high altitude, these taboos in a way help the hunters in their own safety and success in hunting. Hunters have told incidents of deaths and serious accidents during such journeys.

To sum up, *Mishmi* hunting traditions are similar to several other indigenous groups. The presence of spirits in mountains, rivers and trees and the different names given for them emphasize the importance to their relationship with nature. This relationship is maintained in the form of domestic animal sacrifices and wildlife hunting. Rules and regulations are followed during hunting in the form of both fear and respect to their spirits. The remains of wild and domestic animals are always segregated both during cooking and during disposal of bones. Taboos on sound appear to be important element during hunting in the high mountains.

# 7 Women and Wildlife Hunting

Women generally have restricted roles in wildlife hunting and several rules and taboos are imposed on them. In this chapter, traditions and taboos related to *Mishmi* women and hunting are described. I argue that hunting taboos followed by women are linked to sex and menstruation. A strong link to menstrual blood is expressed through these taboos that segregate all aspects of hunting (hunting trip, weapons, food, animal remains) from menstruation and sex.

Three theories explain this. According to the 'odour theory', female body odour may at times be an obstacle among hunter-gatherers when one has to get close the animal during hunting (Buckley and Gottlieb 1988a; Dobkin de Rios 1985) . The 'theory of menstruation' places the blood from menstruating woman and the blood of hunted animal opposite to each other. Mixing these bloods is seen as very dangerous and therefore menstruating women or their contact with weapons is prohibited (Morris 2000). When a women is menstruating, her husband avoids going for hunting and if he does, he would invariable be unsuccessful. Hunting is also seen as an act as procreation and there is strong link between sex and hunting. Hunters do not have sex before the hunt and if they do, the hunting is believed to be a failure (Buckley and Gottlieb 1988b; Knight 1995).

### *Mishmi* women and taboos

Women in *Mishmi* group do not hunt but they do trap small animals in the farm. When asked why women don't hunt, the reply was simply, 'that's the rule'. Most men said women are not prohibited from hunting but are not capable of hunting and the physical exertion is very tough for women. One respondent said that women are scared of hunting, that's why they do not hunt. If women wanted they could join men but mostly they do not. There are few examples of hunting and trapping *Mishmi* women. I was told that a hunter's mother carried the meat back to the village. A woman trapped a big wild boar in the farm. Another woman accompanied her husband and hunted a barking deer using a gun. This is an exceptional case of a woman hunting. I could not interview her to confirm the account.

Overall women's role in hunting is limited in *Mishmi* but indirectly they follow certain regulations to help their husbands' hunting success. Wives do not tell anyone if the husband is away hunting. She just would say he has gone out. The food that is left after packing the husband's hunting kit is kept aside. Women eat it only in the evenings when men would have probably reached their destination. Eating it before would lead to failure in hunting. No rituals are held at home when the men are away in the forests. One respondent categorically said that there should be no blood spilled when the men have gone hunting. That's the reason there should be no rituals at home.

Men do not sleep with women before the hunting trip to avoid failures during hunting.

*'It is up to their belief. Some follow this rule. Yes. Even during their wife's pregnancy, they do not hunt because you will not get animals. After the baby is born, men can continue to hunt but not during 9-months pregnancy' (*Respondent 7, 62 year old).

*'The animal comes back to life even after shooting. No bird, no animal can get hit when a woman is pregnant at home. The animal gets hit but does not die. It again becomes alive. I know this. This is true'* (Respondent 11, 32 years old).

Food and water for pregnant women is kept separate and hunters should not drink water from the same glass. They take water from the tap directly for drinking. Some hunters may go hunting even if their wife is pregnant but mostly they avoid going.

Women prepare rice beer and keep it ready for the men when they return. A respondent said, *'We wives cook food, prepare 'apong' rice beer and feel happy when men return after a long time, sometimes weeks, so we prepare apong in advance and keep it ready. 'We have an idea when they would come back. We know this depending on how much food the men carried with them''.*

Touching guns are not permitted during menstruation. Men should not go hunting during their wife's menstruation as the hunters will not get animals. Women never touch poison arrows, generally men do not allow women and children to touch them. When men make gun powder or cleaning guns, women should not cross or touch these weapons. The arrows are generally kept fix under the roof out of children's reach.

Animal skulls are considered to be sacred. Women do not normally touch the animal skulls displayed on the trophy board in the guest room. They do not even go close to them. While crossing the room, they make sure they walk fast through that room where wild animal skulls are displayed. Women do not even sit near the skulls and usually sit far from the trophy board. There is a belief among the villagers that a pond exists near the skull board and spirits live there. This area is good for men but women will drown if they stay here for long. Blood is applied on the skulls by the old men of the house.

There are some restrictions on women eating certain meat. Women avoid eating mithun and cows. These cattle are given as bride price. After they get married, women stop eating mithun and cows. Monkey meat is not eaten by adult females. Farming will not be successful if women eat monkey meat but no such restrictions for men. The reason was related to food supply and granaries. Women are the care-takers of granaries. If they eat monkey meat, the food in the granaries would deplete faster.

**Discussion**

*Mishmi* women do not hunt usually or join men during hunting trips. Trapping in the farm and protecting crops is practiced by *Mishmi* women. Three kinds of taboos in relation to hunting are followed by women, viz. menstruation taboos, pregnancy taboos, food taboos which are similar to other hunting and farming groups. Taboos followed during menstruation is commonly followed in other indigenous groups, for example, according to Ju/'hoansi, men are attacked by carnivores or large animals during hunting if their wives were menstruating

(Marshall 1962). Animals like deer are known to get repelled from the smell of menstruation and carnivores like bears are known to attack people with menstrual smell (Buckley and Gottlieb 1988a; March 1980). In the past, mmenstruation was also coordinated with the phases of moon (Douglas 2001; Knight 1995). The nights following the full moon are favourable time to hunt and menstrual cycle synchronized with the lunar cycle making the relationship between menstruations and hunting an important feature in hunting societies (Kitahara 1982). In high altitude Himalayan region, hunting at night is practiced in the foothills but night hunting is not followed in the mountains because of the rugged mountainous terrain of *Mishmi* region which could be fatally dangerous.

Hunting as an act of procreation is believed by many indigenous groups. *Mishmi* men said they do not have sex with their wives prior to hunting and women confirmed this. In Malawi, hunters do not have sex with women before hunting. His wife also should not have sex with any other man when her husband is away hunting (Morris 1998). Similarly Singh (2001) mentions that a married women is expected to remain chaste when her husband is gone hunting to ensure his success in indigenous groups of India. A similar taboo is followed when a woman is pregnant and her husband does not go for hunting.

This study confirms that *Mishmi* women follow taboos related to sex and menstruation to bring hunting success. Though women do not participate in long distance hunting trips, they are not completely restricted either to trap small animals in the farm or sell them locally. The taboos followed in the past seem to have changed because young women were not unaware of it but old women used to follow. In the presence of markets, women travel to sell

vegetables products, wild meat and opium. It would be impractical for women to stay at home when their husbands are away hunting when the economic opportunities linked to the market are high. Changing economic situation in the presence of markets and roads seem to erode these taboos.

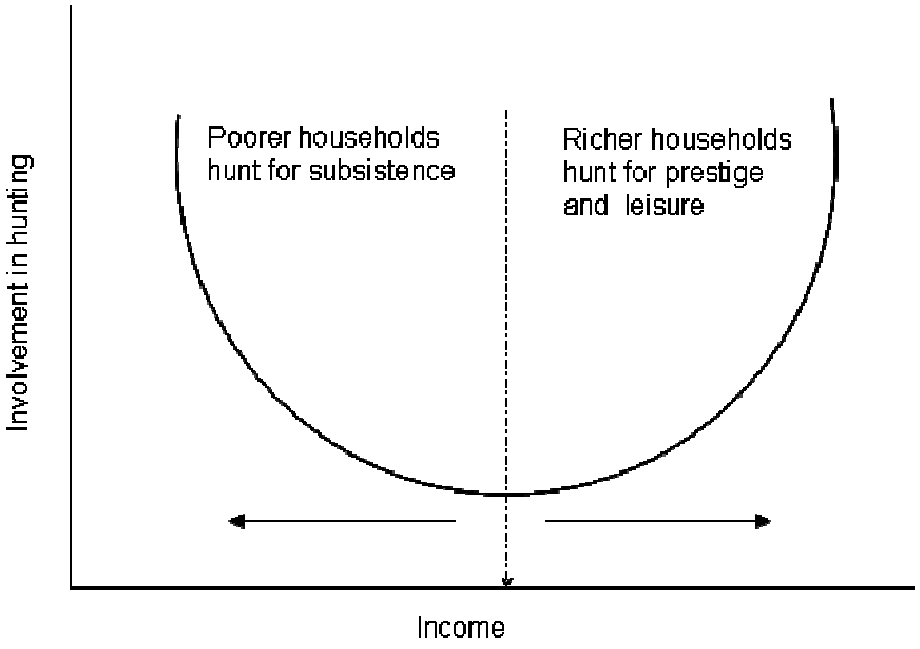
# 8 Socio-economic patterns of Hunting

The trends in hunting in a society can be partly elucidated through ages of men who hunt. Hunting only by old men would suggest that young men have shifted to other occupations. Hunting by young men implies that the hunting is currently practiced because of the lack of other suitable livelihood options (Bennett 2007; DFID 2002). Education, income and livelihood options play a very significant role in hunting. Education seems to have an inverse relationship with level of hunting but in some cases educated men are known to hunt more. In Mizoram (India) people with less education hunt more where as in Nagaland (India), men with more education are known to hunt more (Hilaludin, et al. 2005).

Education is interlinked with income and livelihood possibilities, therefore educated people have access to better jobs, and probably have less time to hunt. But, through better access to technology, more time for leisure activity, sharing and gifting wild meat becomes a prestige issue (Aiyadurai 2007a). In Palawan province of Philippines, non-agriculture employment correlates to decrease in hunting probability (Shively 1997). With wealth, the direction of hunting can go both ways having a 'U' shaped curve (Fig 4) suggesting that the poor and rich households hunt more than middle-income households. Poorer households are known to use a wider range of methods in hunting and thus hunting a wider range of species in contrast to a study in Congo, poorer households were not able to afford buy necessary equipment to hunt (de Merode, et al. 2004; Shively 1997). All the three factors, education, livelihoods and income seem to show a similar trend. This section examines the social and

economic characteristics of wildlife hunting and examines how livelihoods, income and education influence hunting. These factors are important because conservation and development agencies tend to concentrate their efforts to reduce poverty and provide alternate livelihoods with the hope that the dependence on natural resources will be reduced.

**Figure 4 Relationship between income and hunting**




In Northeast India, wildlife for consumption is not a major concern because of the presence of domestic animals but hunting and trade of high market value species is a serious problem (WCS and TRAFFIC 2004). Wild meat is preferred despite the presence of livestock due to cultural reasons (Aiyadurai 2007a). Here, I consider involvement of the villagers in hunting, not particularly on wild meat consumption.

The specific research questions here are:

- Who hunts and who does not hunt?

- Is hunting carried out by specific age-class of men and why?
- What is the influence of school education on hunting?

  Does presence of alternate livelihoods affect hunting practices? If so in what ways?
- How does the role of wealth / income contribute to or influence hunting?

**Methods**

Structured interviews were held to collect information on age, level of education completed / achieved type of work, livestock holdings, cash crops and asset register (Table 5). Additional data was collected through in-depth interviews, informal discussions and from key informers.

**Table 5 Details of the socio-economic variables collected**

| Variables | Type of data | Categories |
|---|---|---|
| Age | Continuous | |
| Education level achieved | Categorical | Nil, primary, middle, higher |
| Work | Categorical | Government, self-employed, Farmer, village board member, hunter, priest |
| Livestock | Categorical (presence /absence) | Cows, mithuns, pigs, chicken, goats |
| Cash Crop | Categorical | Cardamom, opium, orange |
| Presence of guns | Categorical (binomial) | Yes, no |
| Asset register | Categorical (presence /absence) | Table 7, page 66 |

**Analysis**

R-statistical software 2.7.1 (2008) was used for data analysis. The Shapiro test was used to test for normality. The student t-test was used to test whether the two samples (age of hunters vs non-hunters) are independent. The Wilcoxon signed rank test was used to explore the differences in the rank data of hunters

and non-hunters. P-values were set at $p<0.05$ for determining statistical significance.

**Results**

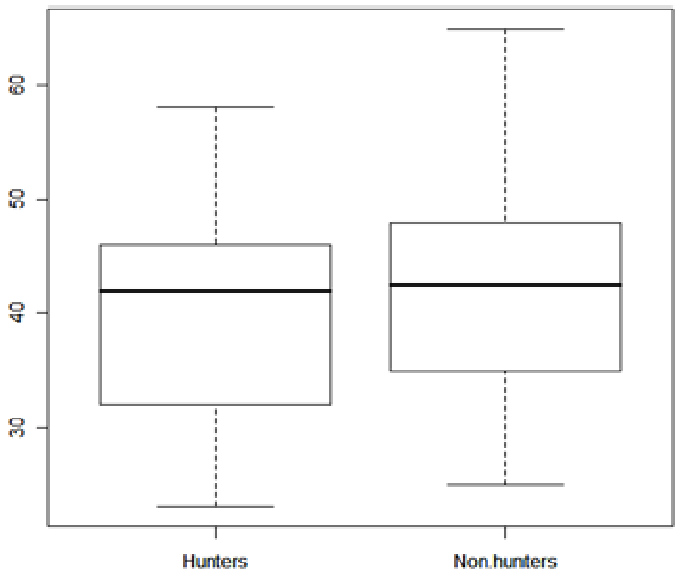
A total of 39 respondents were interviewed in 14 villages. On average around 3 hunters were interviewed in each village. Fifty four percent (n=21) of the respondents were at least occasional hunters and 46% (18) were non-hunters.

**Table 6 Age of hunters and non-hunters**

| Category | Min | Max | Average | S.E. | N |
|---|---|---|---|---|---|
| Hunters | 23 | 58 | 41 | 2.3 | 21 |
| Non-hunters | 25 | 65 | 41.5 | 2.6 | 18 |

The age of respondents varied considerably from a minimum of 23 years to a maximum of 65 years (Table 6). There was no significant difference either in the variance or in the mean age of hunters and non-hunters (Fig 5).

**Figure 5 Age of hunters and non-hunters**
(y-axis: age in years)



The majority (64%) of the respondents had no education. Around one-third of those with education had primary or secondary level education, and one individual had college education (Figure 6).

The level of education did not differ significantly between hunters and non-hunters ($\chi^2$= 1.82, df = 3, P= 0.61, Fig 7). Those who have attended school (n=14) were all first-time school goers in their family. 77% of the respondents have at least one child in their family going to school, 15% have children too young to go to school or have no children. No data was available for the remaining 8% of respondents. Among all the men who had achieved secondary level education, there were more hunters than non-hunters. Men (29%) with secondary level education hunted compared to the men (17%) who did not (Fig 7).

**Figure 6 Level of education among all respondents**

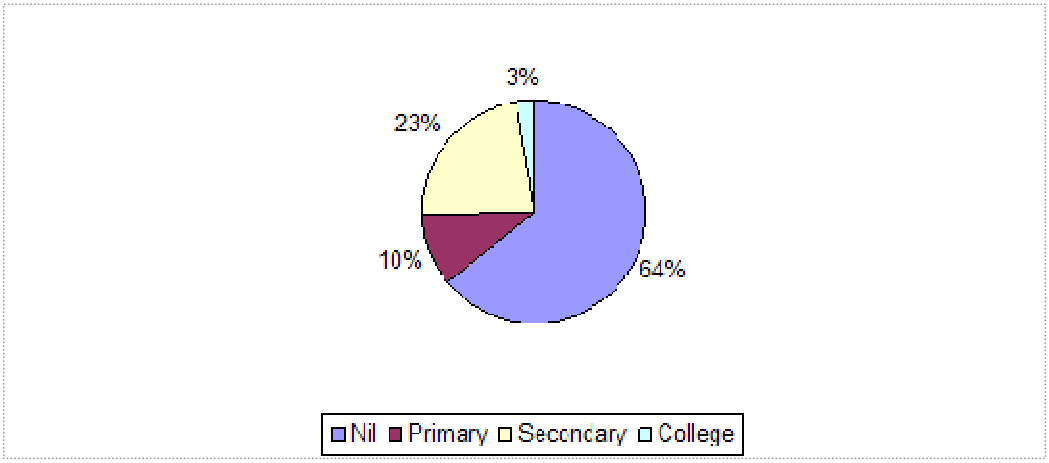
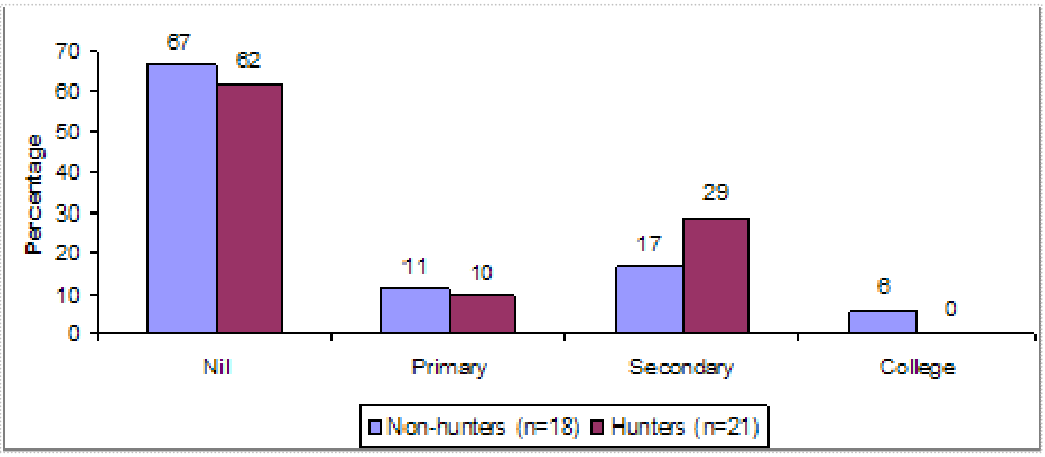



**Figure 7 Level of education among hunters and non-hunters**




Livelihoods in the study region can be divided into three major groups: farm-based, non-farm and off-farm based on (Ellis 2000; Saith 1992).

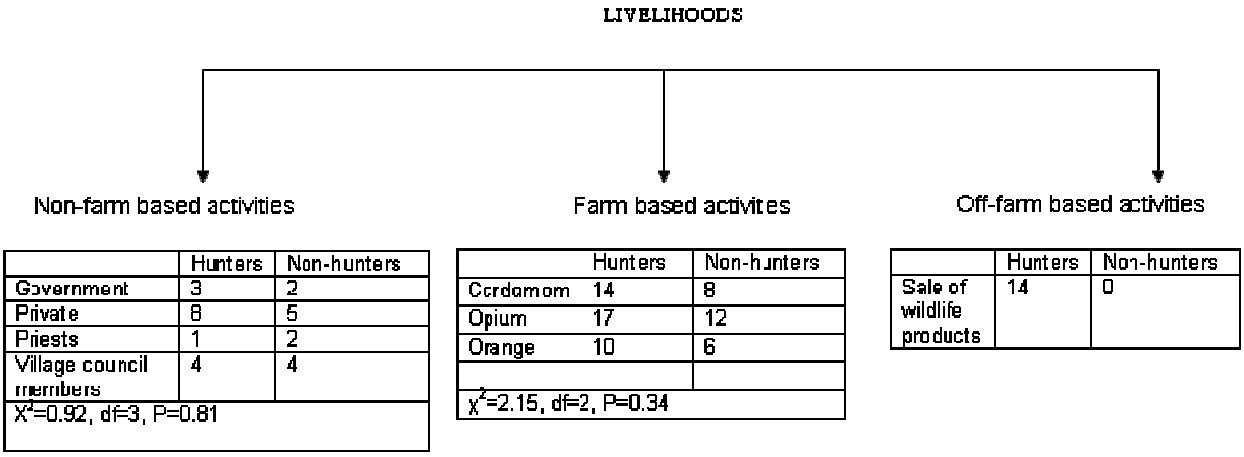
**Farm-based activities:** All natural resource-related work and income from them are categorised as farm-based activities such as subsistence and local sale of maize, vegetables, fruits, cash crops (cardamom, opium, orange).

**Non farm-based activities:** The livelihoods that are linked to markets, government and private sector are categorized as non-farm based activities. Examples include road building, water-pipe laying, as porters in Indian Army for patrolling, Border Roads Organisation (BRO), small contracts in hydro-electric projects, government jobs and running shops.

**Off-farm activities:** Off-farm activities include income obtained from forests. Hunting and selling wildlife products (meat, skins, skulls, teeth, musk pods, bear gall bladders) are the major off-farm income.

The number of farm and non-farm activities between hunters and non-hunters did not differ significantly ($\chi^2$=0.92, df=3, P=0.81; $\chi^2$=2.15, df=2, P=0.34), whereas the number of off-farm-related activities differed. Non-hunters did not sell wildlife products where as 14 hunters had some income from the sale of wildlife products (Fig 8).

**Figure 8 Livelihoods among hunters and non-hunters**




| | Hunters | Non-hunters |
|---|---|---|
| Government | 3 | 2 |
| Private | 8 | 5 |
| Priests | 1 | 2 |
| Village council members | 4 | 4 |
| $X^2$=0.92, df=3, P=0.81 | | |

| | Hunters | Non-hunters |
|---|---|---|
| Cardamom | 14 | 8 |
| Opium | 17 | 12 |
| Orange | 10 | 6 |
| | | |
| $\chi^2$=2.15, df=2, P=0.34 | | |

| | Hunters | Non-hunters |
|---|---|---|
| Sale of wildlife products | 14 | 0 |

To understand the role in wealth in wildlife hunting, data on income would have been ideal but this was difficult as most villagers (87%) have neither regular jobs nor monthly salaries. Wealth in material and financial assets was used as a surrogate for income (Milner-Gulland and Rowcliffe 2007). A list of 8 assets was prepared (Table 7). All assets present were counted and based on the number of assets present in each household, there were ranked. The ranks compared between hunters and non-hunters were not significantly different (W=159, P=0.40). Villages seemed unsure of the number of livestock and chicken they had. Often they changed the answers, therefore the number of cows, mithun, chicken and pig were ambiguous. I used just the presence or absence of each livestock and avoided using the number of livestock.

**Table 7 List of assets used for wealth rank**

| SNo. | Asset | Types | Description |
|---|---|---|---|
| 1. | Floor | Wood/bamboo/cement | - |
| 2. | Roof | Bamboo/tin | Thatch roof were sometimes replaced by tin. |
| 3. | Source of light | Electricity/kerosene/solar | Not all villages had electricity |
| 4. | Guns | Shotguns, rifles | Not every one owns a gun. Depending on the make, a gun can be upto Rs. 10,000-15,000 (125-188 £). |
| 5. | Electronic gadgets | Watch, radio, VCD, television, bikes, mobile phones | All households did not have radios and tape recorders. Some have dish-antennae and solar panels. |
| 6. | House | Bamboo/Reinforced Concrete Cement (RCC) | Most of the houses were bamboo long houses. There are some changes in the pillars/stilts which are made from large planks of wood or cement. |
| 7. | Livestock | Mithun and cows | The number of mithun owned by a man reflects his status symbol. |
| 8. | Plantation | Cardamom, orange, opium | Additional income. The yield can be included as income but the data provided was not reliable. Used as crop grown or not grown. |

## Discussion

Hunting is carried out largely by men but occasionally women trapped animals in the farms. Boys start hunting at a very young age of around 12-14 years using catapults mainly for birds and squirrels. As they grow up, they join their fathers and uncles as assistants (porters and cooks) in hunting trips when they acquire hunting and trapping skills. There is no specific age group of men that hunt and hunting is carried out by a wide range of age groups from their 20s up to 50s indicating that hunting continues to be a prevalent activity and the skills continue to be acquired by younger generation.

Overall level of education interestingly did not differ between hunters and non-hunters. Villagers who had attended secondary school also hunted which does not support the hypothesis that education might lead to decline in hunting and programmes promoting education and awareness programmes to resolve hunting issues should also focus on the educated population (Bennett and Robinson 2000). There is little doubt that in Anjaw district, enforcement of wildlife laws is low, because of the remoteness of the area and the high mountain terrain where the villages are located. It is not only because of the lack of awareness about wildlife laws that educated villagers continue to hunt but they have access to purchase equipments like guns and bikes for easy mobility to markets. Active hunters who sell wildlife products in towns were aware of the law but are not concerned.

Hunters and non-hunters did not differ in wealth (asset register) but when the off-farm activities were compared, only hunters benefited from it financially

whereas for non-hunters, no such additional income through hunting. Due to domestic animal sacrifices, the number of livestock changes every year. The validity of the data on the number of livestock and crop yields is ambiguous; therefore I relied on only presence and absence of livestock and cash crops grown. If actual income through sale of wildlife products and a measure of landholdings are considered, the role of income in hunting would emerge more clearly. This was not possible due to lack of land records and short duration of the study. A safer assumption can be made here that educated men have regular jobs and probably could be wealthier than the non-educated men. By considering this assumption, hunting appears to support the hypothesis that it is positively correlated to education and income but more convincing evidence is required.

Lack of industries or any other alternative economic opportunities make villagers remain dependent on wildlife hunting. Hunting and sale of wildlife products were the only livelihood activity that differed between hunters and non-hunters. Species like musk deer, black bear are targeted for their high market value. The market price of musk deer is 10,000 INR (126 GBP) per 10 gms (*tola)*. The pods are not used locally but are sold to *marwaris* (traders from Rajasthan who run small businesses and travel in and out of the state frequently). Pods are exported illegally to international markets and used in making perfumes. Black bears are targeted for their gall bladders. Bile is extracted from gall bladder and is used in traditional Chinese medicine and sold for 5000 INR (63£) per *tola*. These two animals are known to be hunted for several decades but trade in otter skins is a recent activity. The demand for soft

and water proof skins are high in the international trade. Each skin is sold for 8000-10000 INR (100-125 GBP) to buyers from outside Arunachal Pradesh, sometimes from Burma. Animal skulls and skins are sold as a trophy material and occasionally are bartered for bottles of alcohol with Army personnel. Government officers are often gifted with animal skins and some even request villagers for particular animal skins, teeth, or skins.

To summarise, education has no or little influence on hunting. Men of all age groups hunt. Hunting is not a full-fledged livelihood but the income from hunting is sometimes a substantial component in multi-stranded livelihoods which encompass farming, formal jobs and casual labour. Hunters earn additional income through off-farm activities (sale of wild meat and other products) but quantification of income through sale of wildlife and sale of cash crops is needed.

# 9 Conclusion

People in Anjaw remain dependent on the shifting cultivation and the natural resources due to the nature of landscape, and lack of road and communication network in large parts of the district. Shifting cultivation is the only feasible way of cultivation along with small kitchen gardens. Agriculture and cultivated products are an important part of their economy and crop protection becomes a priority for villagers. Trapping overlaps with the shifting cultivation and a frequently used technique for prey species found near the villages and in crop fields.

This study confirms that *Mishmi* consider forests and mountains as living entities similar to other hunting and farming groups. The relationship of *Mishmi* and the forests are strongly linked to the presence of the spirits in mountains, rivers and forests. The spirits are both respected and feared and making offerings before hunting expeditions is a tradition. During the hunting, a series of taboos are followed to make sure the spirits are not annoyed. With the breach of these taboos, negative impacts are believed to occur in the form of illness, natural disasters or failure in hunting. The role of blood, sound and food seem to be important in the hunting practices of *Mishmi*.

Cases of *Mishmi* women hunting are rare but do have a ritualistic role to support the hunting successes of the men. Taboos followed are related to menstruation, sex and procreation to ensure hunting success. The taboos followed in the past seem to disappear with the changing socio-economic situations, women tend to participate as local traders in wild meat and farm

products. Economic possibilities and presence of markets and roads contribute to the erosion of hunting taboos. Women's participation and contribution in the *Mishmi* economy in the light of socio-economic changes is an interesting aspect that needs further study.

It is difficult to say if the lack of alternative livelihoods is responsible for villagers to remain dependent on wildlife hunting. Men with government jobs like teachers and clerks hunt when they have time. The preference by both *Mishmi* and non-*Mishmi* population for wildlife skins and skulls for wall decorations as a practice and status symbol could indirectly motivate hunting for some extra cash.

If I relate this information in ethnographic context, I view *Mishmi* as being intermediate between hunting and agricultural societies but fast merging into the market economy. Despite the rapid wave of globalization sweeping across Arunachal Pradesh, hunting remains an essential part of their lifestyle, culture and economy.

This farming-hunting lifestyle would undergo further changes in the coming decades and possibly decline as a consequence of habitat modifications and changes in human demography locally. Wildlife hunting is likely to remain in *Mishmi* and it would possibly take different forms and degrees to adapt to rapid changes in the socio-economic and cultural fabric of *Mishmi* society.

The following scenarios are predicted:

1. Increase in infrastructural development would lead to increase in non-indigenous population to Anjaw. Demand for land for constructing building,

roads, area for settlement would encroach forests leading to decrease in wildlife populations. This has a major impact on the hunting practice making it an insignificant economic activity but would continue to be a symbolic and a ritualistic one.

2. Decrease in hunting may result making wild meat and related products a luxury good, thereby increasing the market price which only the wealthy household could afford and affecting the poorer households.

3. As wildlife hunting is illegal, enforcement in the future may decrease hunting but would continue to function as a high risk activity for those who continue.

4. As hunting in *Mishmi* is cultural linked and possibility of conflicts between government and villagers are likely in the future especially when enforcement spreads to remote parts of Anjaw district.

5. The changing socio-economic scenario of *Mishmi* region could bring in modifications and changes in cultural practices of hunting by both men and women. Economic priorities would possibly take over the cultural and religious importance of hunting and people's links with nature.

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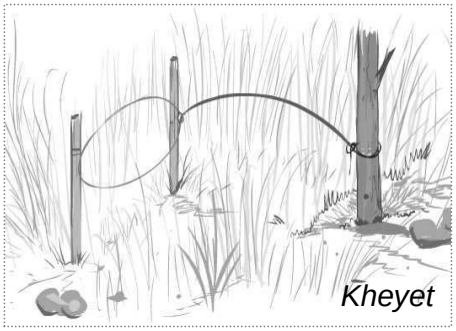
**Appendix 1 List of mammals hunted in the study area**

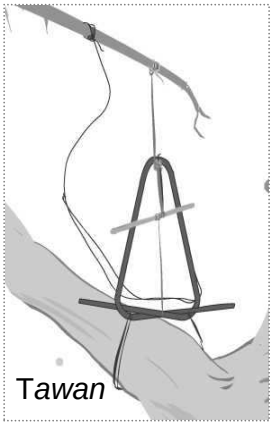
| SNo | Common Name | Scientific Name | *Mishmi Name* |
|---|---|---|---|
| 1. | Rhesus Macaque | *Macaca Mulatta* | *Amuk Man* |
| 2. | Himalayan Musk Deer | *Moschus chryogaster* | *Tala* |
| 3. | Indian Muntjac | *Muntiacus muntjak* | *Paahi* |
| 4. | Takin | *Budorcas taxicolor* | *Khyam* |
| 5. | Serow | *Naemorhedus sumatrensis* | *Raai* |
| 6. | Goral | *Naemorhedus goral* | *Saal* |
| 7. | Wild Pig | *Sus scrofa* | *Tsam* |
| 8. | Red Panda | *Ailurus fulgens* | *Krai* |
| 9. | Asiatic Black Bear | *Ursus thibetanus* | *Khumb Kra* |
| 10. | Sun Bear | *Helarctos malayanus* | *Khumb lam* |
| 11. | Jackal | *Canis aureus* | *Mambou* |
| 12. | Wild Dog | *Cuon alpinus* | *Kaal* |
| 13. | Tiger^ | *Panthera tigris* | *Tapow Ponda* |
| 14. | Common Leopard^ | *Panthera pardus* | *Tapow* |
| 15. | Golden Cat^ | *Catopuma temmincki* | *not known* |
| 16. | Leopard Cat | *Prionailurus bengalensis* | *Kre-Ketiung* |
| 17. | Small-Clawed Otter^ | *Amblonyx cinereus* | *Raam* |
| 18. | Yellow-throated Marten^ | *Martes flavigula* | *Kraw* |
| 19. | Large Indian Civet^ | *Viverra zibetha* | *Ranglong* |
| 20. | Himalayan Palm Civet^ | *Paguma larvata* | *Laamaai* |
| 21. | Chinese Pangolin | *Manis pentadactyla* | *Helik* |
| 22. | Himalayan Crestless Porcupine | *Hystrix brachyura* | *Hally* |
| 23. | Squirrel* | - | *Kram-zong* |
| 24. | Orange-bellied Himalayan Squirrel | *Dremomys lokriah* | *Daoo* |
| 25. | Hoary-Bellied Himalayan Squirrel | *Calloscuirus pygreythrus* | *Man-zong* |
| 26. | House Rat | *Rattus rattus* | *Sino* |
| 27. | Bat* | - | *Paphee* |
| 28. | Primate* | - | *Mak saw* |
| 29. | Mole* | - | *Sung/Helik* |
| 30. | Shrew* | - | *Manjin* |
| 31. | Mongoose* | - | *Cherai* |

** Species not confirmed*
*^ Tabooed species (prohibited from hunting)*

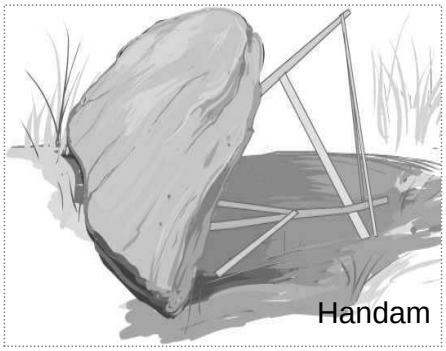
**Appendix 2 Trapping methods**



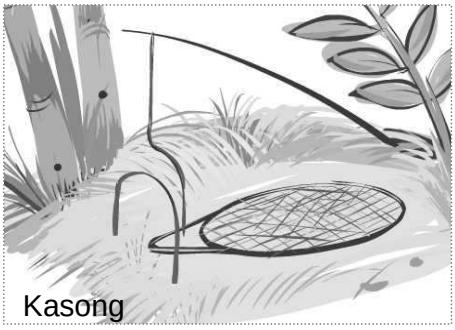
*Kheyet*



T*awan*

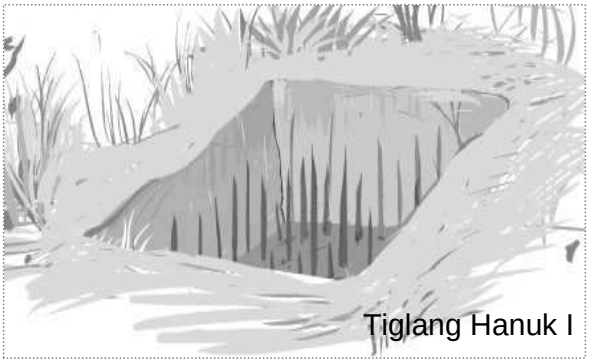


Handam



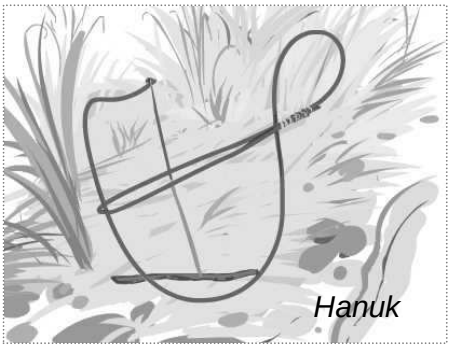
Kasong

Tiglang Hanuk



Tiglang Hanuk I

**Trapping methods**



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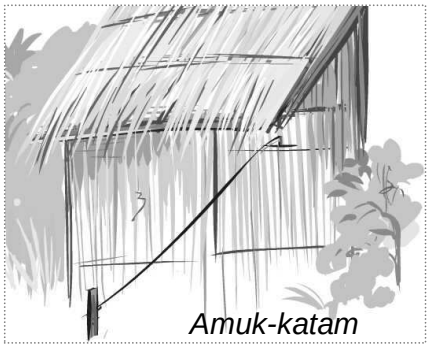

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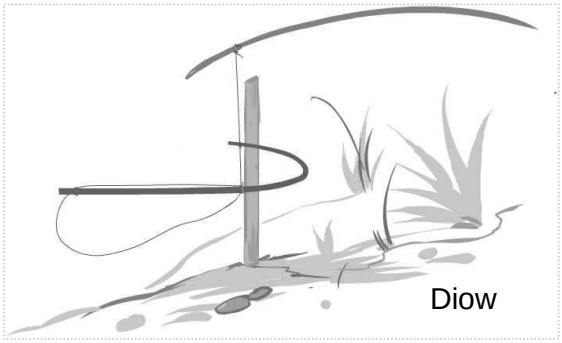
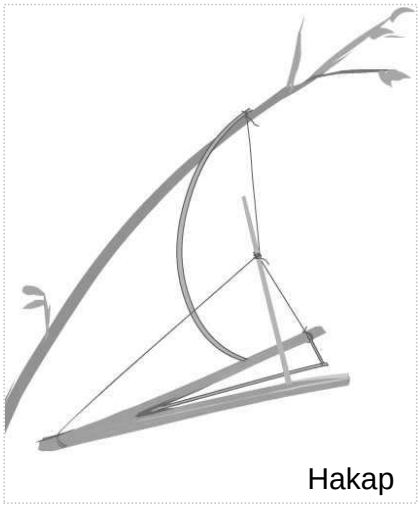


Diow



Hakap

**Photo plate 2 Skulls and skins**


Otter skins


Display of wild animal skulls


Mithun skulls


Takin


Serow

**Photo plate 3 Guns**

**Photo plate 4 Wildlife related products**


Scale to weigh musk pod


Smoked wild meat


Bear gall bladder


Bear skin


Red Panda


Leopard Cat