

## Progress Report

### Project Information

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## Final Technical Report

*Title: Cultural landscapes, practices and institutions as a means of biodiversity conservation and climate change adaptation and mitigation in mountain communities of North East India: a case study in Tangkhul tribe*

### Introduction

Traditional communities living in the mountains through ages relate and identify themselves with a rich "natural cultural landscape" that they have been blessed with for various socio-religious activities revolving around their lives. Unfortunately, as of now there is no such programme worth mentioning which have been actively engaged in the conservation of biodiversity of the mountains through organization, individual or institution. In the era of climate change and global warming, it is urgently required to provide a holistic approach to the conservation of biological and cultural diversity, which together hold the key to sustainable development.

Many studies have reported that indigenous peoples are easy victims of climate change as they have been deprived of modern technology. These communities have been adapting themselves with climate change and maintaining biodiversity through traditional ways of living surrounded by rich biodiversity for which they attach great importance. Comprising only four per cent of the world's population (between 250 to 300 million people), they utilize 22 per cent of the world's land surface (UNDP, 2011). In doing so, they maintain 80 per cent of the planet's biodiversity in, or adjacent to, 85 per cent of the world's protected areas. Indigenous lands also contain hundreds of gigatons of carbon — a recognition that is gradually dawning on industrialized countries that seek to secure significant carbon stocks in an effort to mitigate climate change.

Resilience in the face of change is embedded in indigenous knowledge and know-how, diversified resources and livelihoods, social institutions and networks, and cultural values and attitudes. Policy responses to climate change should therefore support and enhance indigenous resilience. With collective knowledge of the land, sky and sea, these peoples are excellent observers and interpreters of change in the environment. Moreover, indigenous knowledge provides a crucial foundation for community-based adaptation and mitigation actions that sustain resilience of social-ecological systems at the interconnected local, regional and global scales.

The links between biological and cultural diversity in Indian Himalayas and to mainstream it into practices so as to ensure environmental, economic, social and cultural sustainability and human well-being of the people is one of the approaches of India's National Action Plan on Climate Change (NAPCC, Under Prime Minister's Council on Climate Change). Thus the present study is aimed at emphasizing on identification, appreciation and documentation of landscapes, practices, policies and institutions practised and maintained by traditional farming communities of Tangkhul tribe in Manipur and attempt is being made to link with climate change adaptation and mitigation strategies.

Anything that is awe-inspiring is considered to be 'sacred', not only in the animistic belief system but even in the context of organized religions. The awe-inspiring item may be a natural phenomenon like fire, and/or seemingly distant natural object/s that may be inaccessible or accessible with great effort, such as natural sites, with unique landscape formations, distant mountain peaks, etc. Such natural formations of aesthetic beauty may also be viewed as objects of worship. Sacred sites may be the outcome of mythological beliefs and stories woven around a given landscape which may have natural formations and human-created structures in the form of 'stupas' (pillars) as in the Hindu and Buddhist traditions or temples, monasteries, natural rock formations, rock carvings, etc.

Socio-cultural events and festivals coinciding with different facets of agriculture are still prevalent in northeast India. This deep-rooted cultural value linked with livelihood concerns are in spite of modernization and/or the spread of Christianity all parts of north eastern hill region. Some of the festivities are grand and more important than others – for Tangkhuls it is Luiru; festival of seed sowing, for the Wanchos in Arunachal Pradesh it is 'Ojiyele', celebrated for over a week soon after crop sowing under jhum; for the Garos of Meghalaya, it is the 100-drum dance, after jhum harvest, paying obeisance to the ruling deity, 'Misipa'. Indeed, all socio-cultural events centred on Nature and animistic spirits.

Keeping in view of enormous significance in terms of providing scenic beauty, economic, ecological, social, recreational and educational opportunities which help individuals, communities and nations understand themselves, cultural landscape recognised as means of biodiversity conservation and a tool for climate change adaptation

and mitigation. Neglect and inappropriate development may put our irreplaceable landscape legacy alarmingly at risk.

### **Objectives**

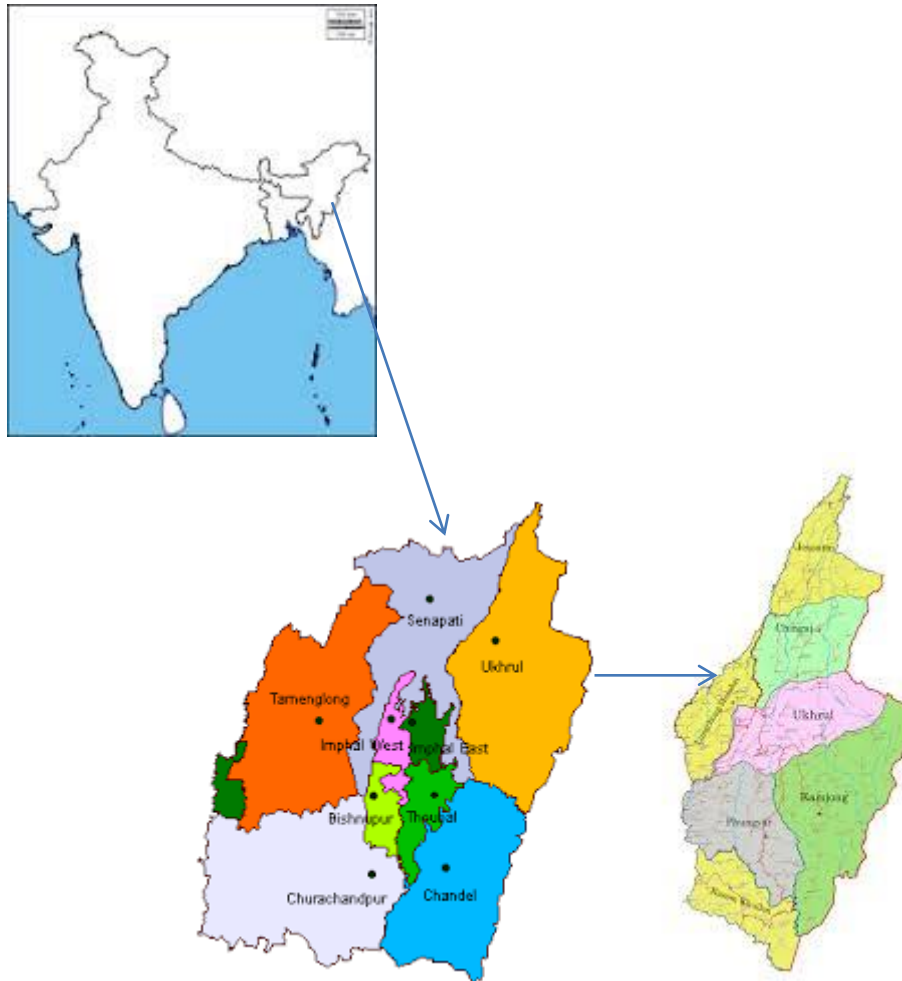
The overall aim of study was to recognize, appreciate, document and safeguard sustainable practices of neglected and remotely located traditional communities of northeast India as intangible heritage for future generations.

### **Material and method**

Attempt is being made to understand the mechanism in which local communities have been conserving biodiversity by way of maintaining landscapes in the face of changing climate by way of traditional practices and institutional set up. The study is being carried out by way of person field survey supplemented by questionnaire based interview with local communities representing all sections of people in terms of age, gender, economic conditions and education level (fig.17).

### **Study site**

Tangkhul tribe inhabiting mostly Ukhrul district of Manipur (Fig.1) is one of the traditional societies in Northeast India. Although some of the ancient practices are now abandoned due to advent of Christianity on hand and advancement of modern education system on the other, most of the critical and crucial practices are still being remain intact.



*Figure 1. Map of India, Manipur and Ukhrul District indicating study site*

## **Results**

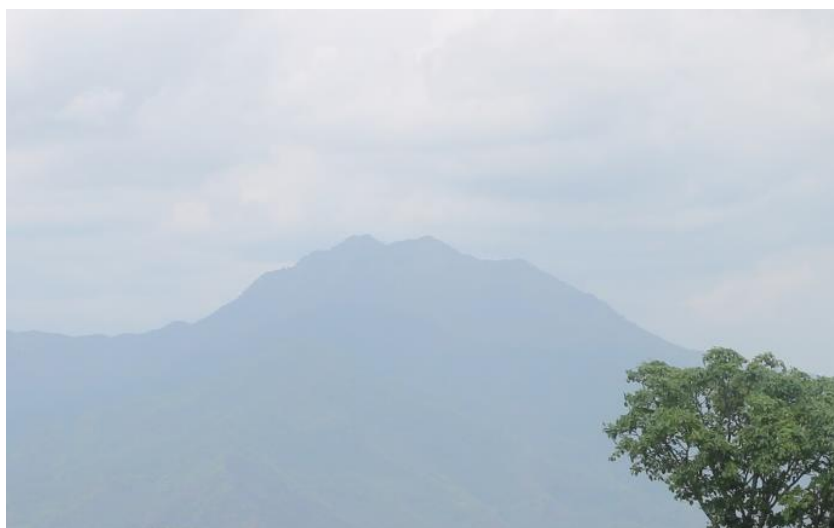
### **Cultural Landscape**

For any traditional community ignorant of scientific knowledge, anything which is in deviation from general pattern of their day to day observation; be it person, site, formation, phenomenon, etc, is believed to be handiwork of god and as such very often, such places or sites are considered sacred. Each of such sites is attached with certain myths and story and in order to maintain its significance, these are protected from human disturbances. Some of such areas are:

#### **(i) Chingchui Matha**

Chingchui Matha (fig.2), which is uniquely formed landscape is located at a distance of about 6-7 km from Chingchui Village in the Northern part of Manipur. This mountain peak quite can easily be seen from a long distance. Chingchui Matha (Chingchui, derived

from the village; ‘Matha’, a nipple) looks like nipple of a breast. This peak is revered due to its unique scene as it protrudes upright in the middle of regular horizontal mountain range.



*Figure 2. Bird's eye view of Chingchui Matha*

It is believed that the owner of this mountain peak is a male (fairy). And it is also believed that the fairy of Chingchui Matha marries with the fairy of Shirui Kashung.

Standing out very prominently from its surroundings, and local believed to be dwelling place of god (deity), the Chingchui Matha is feared by local people. It is believed that the god dwells in the high point of the mount. That is why the vegetation in and around this peak is protected from any kind of disturbances.

## **(ii) Shirui Kashung**

The second highest hill in Manipur, Shirui Hill (called ‘Shirui Kashung’ in Tangkhul, fig.3) is the home of world famous endemic flower, Shirui Lily (*Lilium macklinae*) discovered by Englishman Frank Kingdom Ward in 1948. The name is called so, as the creation of the mount is exceptionally so high among many mounts in Tangkhul inhabited areas. It is revered by Tangkhul as they exalted Him in their saying:

*“Ameowona phungphamida mashonshei eina shongmi haiya”*

Translation: Almighty’s creation is distinct in its vertical erection of the mount.

This peak lies at an elevation of 2600 m amsl and on a day of clear weather, one can have a magnificent view of Maynmar and Imphal valleys.



*Figure 3. Shirui Kashong*

*Shirui Kashong* has three peaks; the highest peak called “Shongrei” (Tangkhul, meaning biggest peak) is the peak where Shirui Lily grows, the middle one is called “Sarum Kateng” (Tangkhul, meaning salted water; it is site where spring lies and all wild animals come to drink this water. This spring runs towards eastern side which otherwise known as “Ongshimngayi” in Pushing Village. The third peak is known as “Shongra” (spring) which is the main source of water supply for Ukhrul town.

The Shongra represents noblemen and other two peaks represent common men. It is believed that if hailstone/snow falls on Shongra especially in winter, noblemen are blessed with good harvest; on the other hand, if any or both of the other two peaks receive hailstone/snow, common men receive good harvest. If Shongra and any one or both of the remaining peaks receive hailstone/snow, all people, irrespective of social status will be abundantly blessed with rich harvest.

According to the local myth of Tangkhul traditional community, among all gods and goddesses, the goddess of Shirui Kashung is considered to be the greatest and most powerful. It is believed that lions are her dogs; wild boars are her pigs; stag and deer are her cows and buffaloes; all the birds are her chicken. In short, all wild animals are her domestic animals. Therefore, whoever a hunter she pleases is rewarded with wild animals.

### **(iii) Peh Lungku Ngakao**

Lungku Ngakao (Fig. 4 & 5) (Peh, meaning, ‘Lungku’ crooked rock, ‘Ngakao’ calling) is located at the northern side of Peh Village. The name originates from the fact that when a person makes a sound, its echo is reflected back to the surrounding. The echo so reflected is mistaken as ‘the sound of that god’ who dwells in it. With the kind of jagged surface of the formation along with echo, the local people thus call this landscape ‘Lungku Ngakao’.

Since it is considered as abode of a deity, any tree growing on this mount is considered to be property of the deity. Laying hand or destruction of such vegetation is taboo and as such this belief system helps in conservation of natural resources.



*Figure 4. Peh Lungku Ngakao, with some natural sparse vegetation*





*Figure 5. PehLungku Ngakao, village elders still value this mythological sacred site*

**(iv) Khangkhui Mangsor (Khangkhui cave)**

Khangkhui Village is located at a distance of about 11 km from Ukhrul District headquarters towards southeast. This village has become one of the tourist attractions due to location of its ancient (pre-historic) limestone cave locally called *Khangkhui Mangsor* (fig.6). This cave is one of the oldest caves in India being considered to have existed during Palaeolithic age. The excavation carried out by Shri O. Kumar Singh (Superintendent of the State Archaeology Department of Manipur) at the Khangkhui Cave yielded evidence of habitation of Stone Age communities.

Within the cave there lies a big hall and smaller northern hall like structures. According to the local folklore, the bigger one is the durbar hall of the Devil King living deep inside while the northern hall is the royal (devil's) bedroom which he shared with his two wives. The two wives also had two separate chambers. In total, the cave has five tunnels.

This cave was a great refuge for the villagers during World War II.



*Figure 6. Khangkhui Mangsor (a lantern being lit in the cave)*

As the cave is considered as the royal devils home, it is taboos to hunt and collect anything form the surroundings of the cave. Till now the local community maintains it with tourism purposes.

**(v) Lunghar-Sihai Phangrei**

Lunghar-Sihai Phangrei (popularly known as '*Phangrei*') (fig.7) is a long, flat meadowsituated at a distance of about 40 km from Ukhurul HQs towards its northern side. The Phangrei, once a popular picnic spot of the neighbouring locals and villages alone, has now become a major tourist spots for Indians as well as foreigners. The Phangrei joins the Shirui Peak which is famous for the Shirui Lilies. The Phangrei is very rich in flora and fauna including rare orchids and wild fruits.

There is a beautiful and serene waterfall that cascades down the hill range adding to the beauty of the place. On top of the range, lies a lake. This lake has given such a unique scene to the spot.



*Figure 7. Phangrei*

**Natural trees, rocks, spots, caves conserved as sacred place**

**(i) Peh Longvilap**

In the middle of Peh village grows a magnificent *Ficus bengalensis* (fig. 8) tree standing prominently at the crevices of huge rocks. No local person could tell the age of this tree as the tree is older than any of the living person in the village. But all of them are unanimous in their opinion that this tree is well above hundred years old. This tree is so huge that the village can be identified from a long distance by locating it.

The tree about 7-8 meter in circumference at breast height and above 30 m tall. Its crown spreads to several meters and such there is hardly any woody vegetation below its canopy. This tree could well be one of the contenders for Guinness world record for its size and crown cover.



*Figure 8. Peh Longvilap*

From time immemorial, this spot is revered as an abode of goddess. People fear to venture toward this place. Moreover, with the ground vegetation covered with stinging nettle plants (*Urticadioica*), it is not easy to walk across towards this spot. All these contribute to conservation of vegetation in this site.

**(ii) Peh Lungkong**

Peh Lungkao (Lungkong means piles of rocks) (fig. 9) is a small hill top measuring about 1-2 hectares. The uniqueness of this area is that unlike any other hill ranges, this particular area is too rocky, a feature very distinct from other surrounding landscape. The local people considered as handiwork of god and some of the trees which are growing adjacent to such rocks are maintained in order to please god.



*Figure 9. Lungkong*

### **Cultural Practices**

The traditional way cultivation of different crops by farming community of Tangkhul is in any sense scientific and sustainable which are sometimes more superior in terms biodiversity conservation and adaptation to climate change. All kind of farming is organic and also they could manage to hold on with their traditional germplasm in spite of market push and pull.

Some of the cultural traditional agricultural practices are:

#### **(i) Wet paddy fields as a cultural landscape**

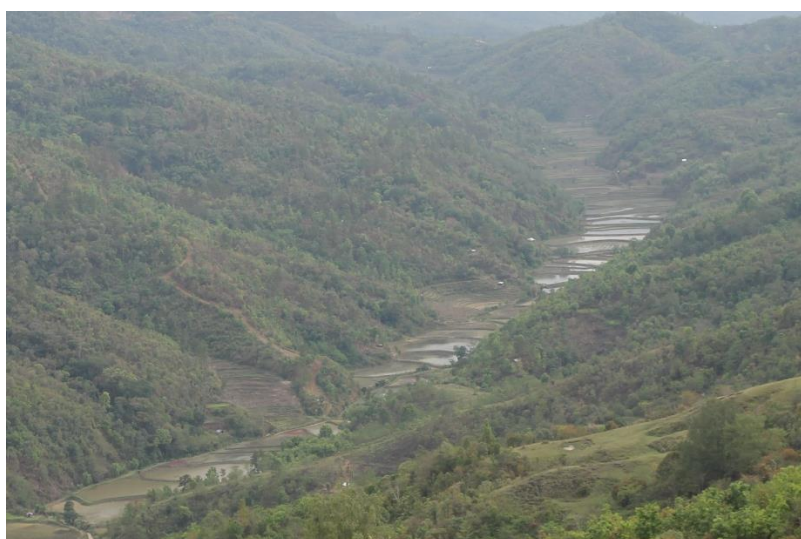
Like world famous 2000 year old high rice terraces of the Ifugaos of the Philippines, Tangkhuls have been managing rice terrace cultivation in an efficient and sustainable ways ensuring sacred cultural traditions and balancing delicate ecological harmony (fig.10& 11). The areas such as riverbed, gentle slopelands and streamside are usually used as wet paddy fields. These fields are managed holistically along with surrounding forests and associated vegetation. Although the primary crop on the farm paddy, there are many crops which are delicately managed within the field areas. Crops such as chilli, eggplant, cucurbits, beans, pulses, colocasia (arum or yam) and many spices are cultivated on the terraces of wet rice fields. Some areas within the fields are set aside for domestication of tree crops such as Alder (*Alnus nepalensis*), bamboo, oak, etc. These plants are the sources of nutrients for the food crops grown in the field. Along with

cultivation of crops and wild plants, some fishes are raised as an alternative source of income generation.

With a traditional agricultural system in Tangkhul community, based on internal recycling of resources and labour energy coming from the village itself as the input, this rice-fish based system is comparable to the ‘green revolution’ agriculture of Haryana and Punjab. Indeed, like many others coming in this category, this cultural landscape is linked with animistic cultural and religious traditions that contribute towards their complete harmony with nature.



*Figure 10. traditional farming: an integrated agriculture system with wet paddy field, shifting agriculture and tree orchard*



*Figure 11. Management of wet paddy field along with conservation of forest as indicated by rich vegetation*

## **(ii) Shifting agriculture (Jhum)**

With 240 million people practicing shifting agriculture, this land use is the dominant food production system among Tangkhul traditional society (fig.12-14). In recent decades, however, due to rapid population growth, escalating market demand for agricultural produce, and government policies for land development and settlement, the acid uplands have become the focus of more intensive-land use systems. Unlike in other shifting cultivation community, in which the home of the cultivators are moved along with the fields, Tangkhul do not move their settlement areas but they shift their farms after cultivation for 2- 3 years.

While selecting lands for cultivation, specific natural features which are strategic to ecology and sustenance of landscape are not felled such as hilltops, streams and rivers constitute the notional boundaries of the village.

Cultivation for 2-3 years after fire followed by 5- 7 years of fallowing is the most common practice. Infrequent instances of fallowing after one or three years of cropping do exist. Mixed cropping is the common feature of all shifting agricultural fields. Crop mixture of as many as 20 species are being cultivated in a single field such as paddy, maize, millets, mustard, cabbage, pumpkins, cucumbers, eggplants, arum, beans, chilly and many spice varieties.

Contrary to the common notion that shifting cultivators have no other occupation or no other mode of cultivation other than this form of land use, the shifting cultivation is one of the components of livelihood. The complicated nature of shifting agriculture is sometimes misinterpreted by many outsiders. Along with cultivation of food crops, farmers raise many wild species of plants which are economically important such as medicinal plants (*Houtoniacaudata*, *Centella asiatica*, *Plantago major*, etc) timber plants (*Terminalia*, Pine), fibers and wild vegetables (*Xanthophyllum*,). In fact, traditional farmers are the real gene bank for germ plasm of crop plants. For example, traditional crop such as jobs tears (*Coix lacryma-jobi*), Fox tail millets, etc are still cultivated by farmers of Tangkhul community. These crop are cultivated not for the purpose of economic returns but these have cultural value since locally brewed rice beer is prepared from such crops.



*Figure 12. Shifting agricultural field with patches of different crops. The bund seen here is done to control soil erosion.*



*Figure 13. Shifting agricultural field with domestication of wild vegetable plant*





*Figure 14. Job's tears; culturally significant crop, in shifting agricultural field*

### **(iii) Home garden**

Another culturally important land use in Tangkhul community is home garden (fig. 15a & 15b)). It is another repository of rich germplasm practised since time immemorial. It is customary for all household to have at least one home garden attached to dwelling houses. This garden is continuously supplied with household manures such as ashes and kitchen waste from the family and are purely organic in nature. A combination of over 20 species of crops is being grown in the garden.

Very important aspect of home garden in terms of climate change adaptation is that, the garden is occupied with greeneries all throughout the year. Unlike other form of agricultural farm, the crops in home garden are harvested sequentially and subsequently replaced the harvested with new seeds or seedlings.



*Figure 15. (a). Home garden with various crop*



*Figure 15. (b) Home garden with different period of cropping*

#### **(iv) Conserved Forest Of Marem**

Conserving culturally important and significant sites of forest are one of the norms of Tangkhul community. Most of the villages in Tangkhul country have been preserving such sites from time immemorial. Some of such places are considered to be abode of god or ghosts whereas some are strategic areas as source of water supply for villages or source of river system. In these areas all trees are preserved and strict regulation from

village level is enforced. Hunting is also strictly prohibited. Heavy fines and penalties are imposed in case anyone found indulged in illegal activities. Marem Village is such one of Tangkhul villages having strict implementation of such laws.



Fig. Marem Village conserved forest

### **Cultural Institutions at work**

Many traditional societies all over the world value a large number of plant species from the wild for a variety of reasons; some for food, fibre, shelter or medicine, as well as for intangible animistic values linked to them. Based on a study done by the World Resource Institute on national laws and policies affecting forests and forest dwellers in the Asian region, the need for a community-based approach towards joint forest management was highlighted arriving at two major conclusions, namely, (a) national system of forest ownership and management that prevails throughout south and southeast Asia is not sustaining forests and (b) legally securing community-based tenurial rights of forest dwellers can improve forest management reducing illegal forestlinked human encroachments, whilst enhancing the local livelihoods of the local who have a stake in forest conservation. Indeed, this is the context in which both the formal and informal traditional institutions of Tangkhul become relevant from the viewpoint of management of natural resources, by keeping stake-holder conflicts to a minimum.

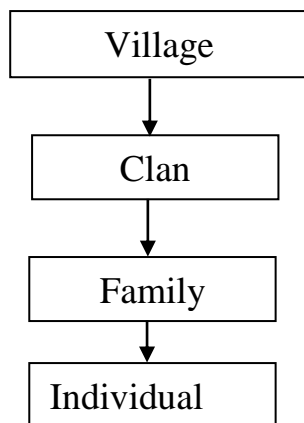
A typical Tangkhul village is formed by conglomeration of clans. Each clan consisting of several families is considered to be originated from the same common family tree or lineage. The eldest, in terms of heredity is known as ‘*Biba*’. Just as Headman or ‘Awunga’ is head of the village, so is the *Biba* the head of the clan (fig 16).

Each village is headed by its chief called ‘Headman’ or Chief called as ‘Awunga’ whose position is hereditary and his council called as ‘Hangvapam’ consisting of 10-15 members; each of them called as ‘*Hangva*’. Depending on the size of the clan, the number of ‘*hangva*’ varies as the seat is allocated on proportional representation. Thus the larger clan will have more number of ‘*hangva*’ as compared to smaller ones.

In a village, two main categories of land exist; community land which is the major portion of village land, and private land which is generally smaller in size and owned by individual household. Several subcategories of land exist such as land reserved for forestry, land for shifting agricultural fields, land for settled agriculture, land for grazing and land for other sedentary mode of agriculture. Within the community forest, there are several ranges out of which village council identifies certain sites/range where certain activities are allowed such as timber extraction, hunting, etc for specific period of time (mostly in winter) in a year on a rotation basis. Major water sources such as rivers, streams and lakes irrespective of where they are located are under the management of the village.

All cultural programmes, policies and festivals are decided by *Hangvapam*.

**Institutional Structural**



**Institutional Head**

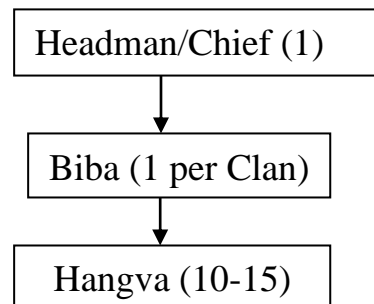


Figure 16. Cultural institution in Tangkhul traditional community.



*Figure 17.A discussion with village womenfolk regarding traditional deity and mythology with regards to intangible cultural landscape and institutions.*