

Livelihood Practices and Environmental Changes With Special Reference to Ukhrul District of Manipur

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Abstract

The Tangkhul Naga was head-hunters, food gatherers, herdsmen for their livelihood in the very beginning of their settlement. Fruits and forest products were the main sources for their livelihood before transition from food gatherer to agriculturist. Shifting cultivation was the first and foremost agricultural practices by the Tangkhul Naga before the introduction of terraced cultivation. They practiced primitive agriculture. Shifting cultivation is integrally associated with cutting and burning down of forests and trees. It had profoundly embedded in their lifestyle. They practiced it for their livelihood. Shifting cultivation was a way of life for them. Therefore, their needs, food habits, folklores, festival and overall cultural ethos were connected to shifting cultivation. Shifting cultivation had considered destructive to the ecology and economically unviable and ecologically unsustainable. It was a major cause of forest loss in the hill tracts where it is practiced.

Climate change is considered one the most unwanted threats to the environment, with negative impacts on human health, food security, economic activity, water and other natural resources and physical infrastructure. The meaning of 'environment change' had changed many times during the past century. Global Environmental Change or Global Change as used today includes not only climate change but also changes of other biophysical and anthropogenic systems. Environmental changes taking place in the realm of global climate change, alteration of natural surroundings, loss of biodiversity and water pollution.

Key words: *Jhum* (Shifting cultivation), *Ngaralui* (Terraced cultivation), Livelihood (a means of securing the necessities of life), (Environmental (concern with natural conditions in which people, animals and plants live), and Hydrological (The branch of science concerned with the properties and distribution of water on the earth's surface).

Introduction

The territory of Manipur situated within the latitude of 23° 50' and 25° 41' N. and the longitude of 93° 2' and 94° 47' E.¹ The total geographical area of the state is about 22,327 sq. km. consisting of the Imphal valley of about 2,300 sq. km. surrounded by hill ranges comprising about nine-tenth of the total area of the state.² The climate of the Imphal valley area of the state is sub-tropical whereas the climate of the hill districts varies from semi-temperate to temperate depending on the altitudes of the hills. The maximum temperatures of the Imphal valley is about 35°C and the hill area is about 31°C which are recorded in the months of May and June. The average annual rainfalls at Imphal valley, Ukhrul and Thanlon (South western hill range of Manipur) are about 1212.2mm, 1661.9mm and 2855.1 mm respectively.³

Ukhrul district is situated in the east district of Manipur and bounded on the north by Nagaland State, on the east by Sagaing Division of Myanmar, on the west by Senapati district, and on the south by Imphal east district of Manipur. Ukhrul district has 4,544 sq. kilometers out of which 22,327 sq. kilometers belongs to Manipur state. Thus, the land is the chief source of production and the most important of livelihood.

Livelihood Practices

History of the Tangkhul Nagas either in primitive stage or modern stage directly dealt with their struggle for survival. The changing processes and development from barbaric mode of living to the civilization was the products of their successive and continuous efforts and struggle for their livelihood. Food, clothe, shelter and other were the important striking forces for the livelihood of the people of Tangkhul Nagas. The means of livelihood and the way to produce their basic needs can be termed as economic institution. The food gatherers whose livelihood depended upon fauna and flora were replaced by the food producers who came to know about the use of fire. Such stage, that people lived in settled area, produced foodstuffs and used cooked meals and clothes was a turning point in the history of human culture.⁴ We find that there was a big stone at “*Meizailung*” (Ukhrul) from which a man called Shimray made fire at that place for the first time when they migrated to the present habitat. Thus people who came along with him and other families made fire from it.⁵

The Tangkhul Nagas were head-hunters, food gatherers, and herdsmen for their livelihood in the beginning of their settlement. Fruits and forest products were the main sources for their livelihood before transition from food-gatherer to agriculturist. The economic system of the early people could be categorized into three stages i.e. (1) Savagery Stage- In this stage livelihood and shelter depended on the fauna and flora for their livelihood. (2) Primitive Stage- In the second stage, people shifted from caves/places to permanent huts for better shelter. The food gathering efforts was replaced by food producing activities. In the process, the two stages were associated with stone tools which were under the fall of uncivilized stage. (3) Civilization Stage- Society developed on the basis of agrarian structure that of full-fledged or settled agriculture. Metal tools particularly iron tools replaced the stone tools and barter system was gradually replaced by monetary system.⁶

The archaeological findings of artifacts like potsherds, stone and bone tools etc. from *Khangkhui cave, Phunal hills, Napachik hill* and many other areas clearly indicated the traces of Stone Age cultures of Manipur. The *Puyas* (ancient text of Manipuris) like *Sakok Lamlen, Ningthou Kangbarol, Thirel Layat* and other gave ample sources of this culture. *Thirel Layat* clearly pointed out that the earliest people whose shelter was in the caves and livelihood depended upon the fauna and flora, with the lack of knowledge of using fire and rice. They used “*Chaktum*” probably fruits and others as their food for their livelihood and barks of the trees were used as their clothes.⁷ *Ningthou Kangbalon* highlighted the reference of *Kangba* who was born in a cave of *Koubbru* hill that he and his people lived on the fruits, animals, streams and waterfalls of the forest.⁸ Frederick Engels laid down that the transformation of life from the food collecting and hunting stage to the primitive society involved used of the big stone, bone and metal tools was regarded as the transformation from savagery to barbarism. The method of agriculture could be classified into two categories. (1) Primitive method of cultivation- In the primitive method of cultivation, land was cultivated without irrigation and plough in the field. It was known as shifting and temporary cultivation. The community members practiced agriculture by used of common tools.⁹ The principal tools used were the hoe, digging-stick, sickle, rake, winnowing fan and *dao* and other which served as a cutting and chopping tools. They carried the fruits, grains and crops and returned from the fields to the village was done in large conical bamboo baskets.¹⁰ They had equal share in the production of goods for their livelihood.

The Tangkhul Nagas were agriculturist by profession and practiced two kinds of agriculture methods. Shifting cultivation was the first and foremost agricultural practices by the Tangkhul Nagas before they introduction of terraced cultivation in the region. It was also called slash-and-burn or swidden agriculture, and the main crop was rice, though job's tears, millet, taro, maize, ginger, chillys, cotton and other plants were grown for their livelihood. The word shifting cultivation was known in different local names like "*Ahanglui*" or "*Khayailui*" or "*Langlui*" (shifting cultivation).¹¹ The Tangkhul Nagas practiced shifting cultivation by primitive method of agriculture system for their livelihood. Shifting cultivation was closely associated with cutting and burning down of forests and trees. It had profoundly embedded in their lifestyle. They mainly practiced shifting cultivation for their livelihood. In fact, shifting cultivation was a way of life for them. Therefore, their basic needs like food habits, folk lores, festivals and overall cultural ethos were connected to shifting cultivation. When the shifting cultivation was failed, *Jhumias* or shifting cultivators cultivated soya beans and other commercial vegetables in place of rice.

The second kind of agriculture practiced was terraced cultivation, in which terraced (*Ngaralui*) cultivation the paddy field was cut into the hill slope and the water supply was carefully controll through a system of canals and pipes.¹² The Imperial Gazetteer of India, Vol. XVIII has recorded that "The Tangkhul Nagas who live in the hill east of the valley, grown transplanted rice. The sides of the hills were cut out into succession of terraces, built up with stone retaining walls, over which the water from the hill streams was properly distributed through small irrigation channels. It was from this tribe that the Angami Nagas were said to have learned the art of terracing the hill sides."¹³

There were two types of cultivation in the terraced cultivation system. The first one was wet terraced cultivation where water supplied was required for cultivation. The second type of cultivation was called dry terraced cultivation. Wet rice cultivation was much easier than dry and the shifting cultivation. At the same time, wet terraced cultivation could bring more return than that of shifting cultivation. Through irrigation channels from the rivers and in some cases from small streams, the rice fields were fed with water throughout the year. Manures such as buffalo and cow dungs, rice husk, some plants and leaves were applied to the soil to obtain more products. In the wet cultivation system, small fish ponds ("*Kaijung*") were made in every rice fields. In a big fields, there were about 10 such ponds were con-

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structed. The fields were generally made dry by draining out the water one day ahead for fishing purposes sometimes in April to June before ploughing the field was taken place. This was mainly for their family consumption or sometimes they sold out in the market.¹⁴ We find, the second fishing was done before harvest of the paddy field. After harvest, free fishing was allowed to the villagers till transplantation of paddy i.e. in June/ July. Therefore, fishery or pisciculture was another vantage of wet cultivation system.¹⁵

The collection of plants and fruits from forest were an important works for the farmers in times of crops failure. Wild yams, sweet potatoes and other tubers and roots were dug up with a digging stick or hoe for their livelihood. They hunt several species of wild animals for their sustenance. Animals like deer, elephant, wild boar, tiger, chimpanzee, monkey etc. were important foodstuff for their livelihood. Before the advent of guns, the main methods of hunting were with spears, hunting dogs and pit-fall traps etc. were used by them. In fact, smaller animals and birds were caught with palm-fibre spring traps. However, the cross-bow was restricted to only a few groups, though it was a powerful weapon.¹⁶

Cultivation was done traditionally for centuries with ploughs and bullocks in most parts of the Tangkhul regions. Irrigation was very important for the farmers. It was obvious that a large wet terraced cultivation was practiced where irrigation facilities was require in most part of the villages in the Tangkhul region. In many ways the method of cultivation were still changeless in several parts of the country.¹⁷ Agriculture in India remains the critical sector of the Indian economy by providing the means of livelihood for about 60 per cent of the country's workforce.¹⁸ However, agriculture sector remains largely 'rain fed' where agriculture was the main source of livelihood. Enhancement of the ability of the poor to earn their livelihood was the most sustainable way of poverty reduction.¹⁹ Irregular monsoon and scarcity of water adversely affected both terraced and shifting cultivation. As a result, the land would remain fallow for a couple of years. The western area and central portion of Ukhrul district was expert in the terraced cultivation. Jessami, Soraphung, Wahong villages adopted terraced cultivation in the later part of it. As the Tangkhuls were already adopted the terraced cultivation before they migration from Yunam Province (China) to Thailand, from Thailand to *Makhel* and *Makhel* to the present inhabitant. They also cultivated traditional red rice (*Mākrei*) since from ancient times. Unfortunately, if the harvest was bad, super fine rice,

local rice (Manipuri rice) and other varieties of rice substituted as the supplementary food for the sustenance of the people.²⁰

Today, many youth people of the state have been working in different metropolitan cities all over India in search of their livelihood. As a consequence many people end up their youthful, most precious age in the cheapest and painful way.²¹ In fact, people of the state were maltreated by their employers and by the mainstream people on the ground of the difference in racial appearance. Even within the state of Manipur people were treated according to a sectarian perspective. On the other hand, job creation of the state could not meet the needs and aspirations of the people. Thus, the economy sources were very limited in the state for their livelihood.

It is imperative on the part of the state government to invite private companies, send out a mission to different areas to attract national, foreign investors and industrialists to establish various companies in the state in order to boost up the economy growth of the people. As a result, immense jobs would be created for the people of the state and thereby enhance the economic growth of the state of Manipur.

Environmental Changes

Human being is the right person to bring changes in environment. Poverty was the greatest force to make changes in environment. Thus, climate change is considered one of the most unwanted threats to the world's environment, with negative impacts on human health, food security, economic activity, water and other natural resources and physical infrastructure.²² The meaning of 'Environmental Change' has changed many times during the past century. "Global Environmental Change or Global Change" as used today includes not only climate change but also changes of other biophysical and anthropogenic systems. Environmental change is measured as an alteration of a system over a period of time, and could either be rapid changes or long-term trends.²³ Today environmental changes are taking place in many areas:²⁴

1. Global climate change – Causing higher risk of extreme weather situations;
2. Land-use change – Transferring soil properties and altering water fluxes;
3. Alteration of natural disturbance regimes – Affecting ecosystem functioning;

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4. Loss of biodiversity - With presently unknown consequences on ecosystem functioning;
5. Air and water pollution- Leading to increased of environmental stress;
6. Continued economic growth – Acting a pressure on natural management.

Climate change threatens to erode human freedom and limited choice for their survival. In the developing and underdeveloped nations, millions of the world's poorest people were already being forced to cope with the impacts of climate change. The poor people devastated or wastage a huge land for their struggle for survival. The rapid build-up of greenhouse gases in the Earth's atmosphere is fundamentally changing the climate forecast for future generations. Climate change is taking place in this region. Therefore it posed a great difficulty from economic and social stand point of view.²⁵

Causes of Environmental Changes

1. Rapid growth of population
2. Deforestation
3. Overexploitation of natural resources.

Rapid Growth of Population

The projected population indicated that in 2050 India would be the most populous country in the world leaving behind China at second place. The increase in population has been tending towards an alarming situation. In fact, India is having 18 per cent of the world's population surviving on 2.4 per cent of its land area and thus has great deal of pressure on its all natural resources. Water shortages, soil exhaustion, deforestation, air and water pollutions afflicted in various areas. If the world population continues to rise in this indiscipline manner, the impact on environment could be devastating.²⁶

The rapid increase of human population, coupled with desperate poverty and rising levels of consumption, caused the natural resources to deplete on which the livelihood of people depend. Poverty was one of the important factors of population growth and the people's lifestyle plays a major role in depleting the environment either through its fuel demands for cooking or for earning livelihood for their survival.²⁷ The growing trends of population and consequent demands for food, energy and housing have considerably altered land use

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practices and severely devastated the forests of Ukhrul district and environment. The growing population put immense pressure on land thereby extended forests and grazing lands because the demand of food could not increase substantially in comparison to population growth. As per the Census of India 2011, the population of Ukhrul district is 1,83,115; out of 27,21,756 population of Manipur state.

Deforestation

This was the permanent destruction of indigenous forests and woodlands which results in a loss of natural resources as well as protective barrier for top soil. Deforestation was global phenomenon causing acute environmental changes. In India, at the time of independence in 1947, total forest cover was about 22 per cent which has reduced and presently it is about 19.7 per cent only.²⁸ According to FSI- 1997, forest covers an area of 17,418 sq. kms which was about 78 percent of the geographical area of Manipur state. Unclassified Forest contains largely of inaccessible forest or unoccupied waste. The area of Reserved Forest and Protected Forest area of Manipur state were 1,467 sq. kms. and 4,171 sq. kms. in the year 2001. The area of “Unclassified Forest” is about 11,780 sq. kms. During 2005-2006 the percentage distribution of reserved forest, protected forest and unclassified forest were 8.42, 23.95 and 67.63 respectively.²⁹

Indiscriminate cutting and destruction of forest trees and vegetation for the shifting cultivation purpose caused denudation of forests. Shifting cultivation is generally associated with cutting and burning down of forests and trees. In fact, deforestation was associated with many extreme hazardous problems in the ecosystem. Thus, large quantity of forest vegetation is burnt down due to practices of *Jhum* cultivation in Ukhrul district of Manipur.

Almost of the household houses of the Tangkhul community were constructed by plank wood in all the villages with exception of Ukhrul town area. In the process innumerable pine trees and other trees like “*U-ningthou*” in local name were cut down for the construction of houses and other purposes. Horticulture is widely practiced for their livelihood either for sale or consumption. Forest was indiscriminately cut down by the people itself for their personal benefits. Thus, deforestation caused environmental changes in the daily life of the people.

Overexploitation of Natural resources

The earth has limited natural resources as a form of water, fauna and flora, minerals, and soils. Out of them, some were renewable and some were non-renewable resources. The non-renewable resources are becoming extinct because of overutilization. Due to the high growth in population, the requirements of the people increased at a tremendous rate, as a result the natural resources were unexpectedly overexploited.³⁰ Scarcity of water is facing not only at Ukhrul town but also in every villages of Ukhrul district of Manipur.

Impact of Environmental Changes

1. Soil Erosion.
2. Changes in Hydrological Process.
3. Loss or extinct of Fauna.

Soil Erosion

Shifting cultivation involves cutting of forest, burning of cut stocks and cultivation of variety of crops on hill slopes. Absence of soil conservation measures augmented with high rainfall results in increased run off, erosion of top soil, decline of soil fertility and low crop yields. The process of soil erosion begins when farmers started causes loose of soil aggregates, forest litter and earthworm casting to slide down the hill.³¹

Thus soil erosion is the gradual wearing of soil by either physical breakdown or chemical solution which is then transported away by means of water, wind or ice to another location. Soil erosion was the leading cause of damage to soils, leaving them barren and ultimately less productive. Today, the rate of erosion has been speeded up by human activities, consequently making soil erosion results from the ways that people use the land. Deforestation was one of the most important caused of soil erosion. As a result many land owners cut down trees for the cultivation of crops and grains and raise animals which eventually lead to soil erosion.³²

Changes in Hydrological Process

Floods and droughts were the outcome of the loss of forest. Forest with the help of their roots, stores the available water from rain and feeds big rivers throughout the year. It gives a balance between biotic and abiotic components of the ecosystem. On the other hand, deforested lands receives the rain directly on the earth's surface with high energy and thus

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the ground surface is loosed and is eroded by falling rain drops which results in the compaction of loose material and thus surface run off increased but infiltration is remarkably reduced. This process leads to increase in channel flow caused flood on one hand while reduced infiltration results in poor recharge which reduced the replenishment of groundwater storage on the other hand. Besides, these processes also intensify the magnitude and dimension of floods.³³

The increased of dryness for a long period of time caused drought condition. This was related to the amount of rainfall received, its departure from normal average annual value and local demand of water for various purposes. In fact, it is not the amount of total annual rainfall which matters for regularity and irregularity of rainfall which matters more. Thus, due to changes in land use system, deforestation associated with shifting cultivation, the regularity and magnitude of rainfall in local area has caused environmental changes in the Ukhrul district of Manipur. Due to the drastic decline of forest area especially in the hilly regions with intensive shifting cultivation, frequent floods occurred in the Imphal valley. The most hazardous flood occurred in Manipur in the year 2001. Subsequently another flood occurred in August, 2002 was one of the biggest one. This affected almost all the valley districts of Manipur. On the other hand, severely drought was experienced in 1999 with no water even in many rivers such as Thoubal, Iril and Imphal River etc. The Thoubal and Iril rivers are fed by the hills of Ukhrul district and the dryness of these rivers like deforestation mainly for *Jhum* cultivation, for fuel and timber purposes in Ukhrul district. Thus, shifting cultivation directly or indirectly responsible for adverse effects on the ecosystem and the effects on ecosystem are related to each other in one way or other.³⁴

Scarcity of water in the Ukhrul town area and total dryness of water in most of the paddy fields was one of the immediate problem and issue of the Tangkhul Nagas. Many small water ponds were constructed within a “*Tang*” (Local area) for drinking and other purposes. But these small ponds were partially or totally dry up during the months of March, April and May. So people faced acute water problem in this season. Sometimes people used to fetch water around 1. A.M. or they could wait and fetched water till at 12 P.M. On the other hand, water facilities available at Ukhrul town were not sufficient to meet the requirement of the people. In fact this was the impact or the outcome of environmental changes taking place at Ukhrul district of Manipur.

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Loss or Extinction of Fauna

Wildlife in the forest constitutes the most important component of the ecosystem, which participate effectively in the energy flow and biogeochemical cycling. Shifting cultivation was the primary factor for the destruction of forest at Ukhrul district. This destruction directly threatened the survival of the wildlife. It destroys the habitat in successive generations. The loss of habitat was not possible to reclaim even after many years of abandoning the site. Loss of habitat continuity affects the wild animals mainly elephants, tigers, leopards and other smaller mammals.³⁵

Chimpanzee, tiger, leopard, black bear were found before at Nungshong Khullen, Khangkhui, Shokvao, T.M. Kasom, Shirui and at Mapithel range. But these wild animals were no more seen in these places. Interestingly many monkeys were found at Central part of Ukhrul district that was, Hundung, Hunphung, Nungshong Khullen, Khangkhui, Shirui; but these animal also extinct due to environmental changes. Animal like *Mithun* ('*Seijang*') was domesticated by the Tangkhuls and this *Mithun* was generally kept at forest. But this "*Seijang*" was replaced by cows, buffalo, and goats. Cows, buffalo and goats eat even leaves of trees. Small trees and bushes also cut down. So the areas become grassland. Some people intentionally setting fire of forest also. This ultimately burnt down and destroyed the natural vegetation. Thus, wild animals and bird has no security to shelter in the forest any longer. Various birds of different colours and sizes are also found in Ukhrul district including some migratory birds like "*Sheree*" in local name. This migratory bird "*Sheree*" usually came from Seberia country. In fact, this bird ceased to come/ reduced in large number to come/ present at Shirui village due to lack of "*Shilumthing*" ('*Leihao*') fruits. This bird usually migrated in the month of winter season especially in November and October. After December, they usually migrated to another place (country) in search of other better foods and climate. It was due to deforestation and because of environmental changes.³⁶

Conclusion

Thus, environmental changes affected in the realm of global climate change, loss of biodiversity, scarcity of water etc. Poverty was a major contributing factor to bring environmental changes in Ukhrul district of Manipur. In order to maintain ecosystem and prevention of drastic environmental changes more trees would plant in the denuded forests. The Centre Government and the State Government need to look into the matter very seriously before it is

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too late. It is obvious that the people of Ukhrul must aware of the consequent of environmental changes. People need to adjust and live within the ecosystem and wealthy environment. The environmental changes taking place in the society must be conducive to the people and flora and fauna.

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