CHANGING PATTERN OF FARMING SYSTEM AMONG THE AO NAGAS: A SOCIOLOGICAL STUDY OF MOKOKCHUNG DISTRICT

A THESIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENT FOR AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY IN SOCIOLOGY

BY

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Ph. D Regd. No. 750/2017

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*This is to certify that this Ph.D Thesis entitled, "**Changing Pattern of farming system among the Ao Nagas: a Sociological study of Mokokchung District**" is an authentic and original work carried out by Ms. **Limasenla Jamir** bearing Regd. No. 750/2017 with effect from 18/05/2016, based on her field study conducted under my supervision.*

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DECLARATION

I, Limasenla Jamir, hereby declare that the thesis entitled *"Changing Pattern of farming system among the Ao Nagas: a Sociological study of Mokokchung District"* is my original work, and all secondary sources have been acknowledged, and that the contents of the thesis did not form basis of the award of any previous degree, and has not been submitted or published in any form for any Research Degree.

This thesis is being submitted to Nagaland University for the degree of Doctor of Philosophy in Sociology.

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Limasenla Jamir

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LIST OF ABBREVIATIONS:

ATMA: Agricultural Technology Management Agency

ICAR: Indian Council of Agricultural Research

FOCUS: Fostering Climate Resilient Upland Farming System

GSDP: Gross State Domestic Product

HYV: High-Yielding Variety

IDRC: International Development Research Centre.

KVK: Krishi Vigyan Kendras

LPG: Liberalization, Privatization and Globalization

NEPED: Nagaland Environment Protection and Economic Development Project

NEC: North East Council

RKVY: Rashtriya Krishi Vikas Yojana

SARS: State Agricultural Research Station

SHG: Self-Help Group

UNCTAD: United Nations Conference on Trade and Development

WDPSCA: Watershed Development in Shifting Cultivation Areas

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CHAPTER 1

INTRODUCTION

Nagaland is a mountainous state located in the foothills of the eastern Himalayas. Nagaland state has an area of 16,579 square kilometres and a population of 1,980,602 as per the 2011 census. The state has sixteen districts or administrative units, namely Chumukidema, Dimapur, Kiphire, Kohima, Longleng, Mokokchung, Mon, Niuland, Noklak, Peren, Phek, Shamator, Tsuminyu, Tuensang, Wokha and Zunebhoto. It borders Burma to the east, the state of Assam to the west, Arunachal Pradesh and part of Assam to the north and Manipur to the south. There are sixteen major tribes inhabiting the state of Nagaland – the Angami, Ao, Lotha, Sumi, Chakesang, Chang, Kachari, Konyak, Khiamniungan, Kuki, Sangtam, Rengma, Phom, Yimkhiung and Zeliang. The sixteen tribes are further divided into many subsections.[1] There are around sixty Naga tribes living in Assam, Arunachal Pradesh, Manipur, and Myanmar.

In Nagaland, agricultural systems are mostly based on cultural, traditional, socio-economic and geographical factors. The slash and burn method of cultivation, known as jhum cultivation locally[2] is the most common farming system in Nagaland followed by terrace cultivation and wet rice cultivation. 7,21,924 hectares of land are under the cultivable area in Nagaland and about 1,01,400 hectares[3] of land area is under jhum cultivation and wet-terraced cultivation. Jhum cultivation covers over 73% of the total cultivable area in the State. It is mostly practised in the districts of Mokokchung, Mon, Tuensang, Wokha and Zunheboto[4], while terrace cultivation is highly practised in Kohima, Peren and Phek districts.

The Ao Nagas are one of the dominant tribes of Nagaland. The Ao area is carved into six ranges namely, *Asetkong, Jangpetkong, Japukong, Langpangkong, Ongpangkong* and *Tzurangkong.* These six ranges have 108 villages. The Ao people speak two main languages, Mongsen and Chungli. Chungli is the language of religion and education and has a Bible translation. The dominance of Chungli as a dominant language can be attributed to the works

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[1] Joshi, Vibha. A Matter of Belief Christian Conversion and Healing in North-East India (Oxford: Berghahn Books, 2012)

[2] Tripathi, R. S & Barik, S. K. *Shifting Cultivation in North-East India.* In: B.P. Bhatt, K.M. Bujarbaruah, Y. P. Sharma & Patiram., eds Approaches for increasing Agricultural Productivity in Hill and Mountain Ecosystem (ICAR Research Complex for NEH Region, Umaim:Meghalaya, 2003)

[3] Statistical Handbook of Nagaland, 2013

[4] State Human Development Report, 2017:1

of the American Baptist Missionaries who first settled in Mulongkimong and subsequently the Molung variety of Chungli spread through the spread of literacy via the work of the missionaries and the introduction of the Ao Bible.[5]

The Aos are traditionally an agrarian society where agriculture forms the root of all activities in the social life of the people. The Aos being inhabitants of a hilly area follow the system of Jhum cultivation and in some village wet rice cultivation. For the Aos, jhum cultivation is more than just a form of sustenance, it is their way of life. Traditionally, it has been the mainstay of the Aos and it continues to be even now. The major festivals are centred on agriculture and have their origins in farming practices. Seventy percent of the population in Nagaland are engaged and dependent on agriculture. Rice is the staple food. It occupies about seventy percent of the total cultivated area and constitutes about 75% of the total food grain production in the State.[6]

Agricultural families, as a means of livelihood support, adopt and maintain various forms of farming system, mainly jhum cultivation, wet rice cultivation, home garden, and firewood reserve forests, simultaneously[7]. They also practice tree plantations, small scale enterprises, meat production etc. The farmers adopt and adapt traditional practices that suit the farming method and the site factors. The traditional farming systems of the Nagas have been developed through the cultural and biological evolution and accumulation of experiences of the indigenous farmers over so many decades through their interaction with the natural environment without access to external involvements, capital or modern scientific knowledge[8].

The traditional villages in the Naga society constantly face new challenges and problems due to the fast pace of change of the modern world. They face challenges which are related to land use, land management and with problems that directly or indirectly have an impact on food and livelihood strategies of the people[9].According to Huntington (1971),

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[5] Coupe, A.R. A Grammar of Mongsen Ao, Volume 39 of Mouton Grammar Library (Australia: Walter de Gruyter,2007)

[6] State Human Development Report, 2017.

[7] Nakro, Vengota. Traditional Agricultural Practices and Sustainable Livelihood a Thematic Report. (Government of Nagaland, Department of planning and Co-ordination, Nagaland: Kohima, 2011)

[8] Nakro, Vengota. 2011

[9] Jamir, Amba. Shifting options: a case study of shifting cultivation in Mokokchung District in Nagaland, India. In FAO, Shifting cultivation, livelihood and food security. (FAO, UN, International Work Group for Indigenous Affairs, Asia Indigenous Peoples Pact: Bangkok, 2015)

"Modern society involves much better health, longer life expectancy, and higher rates of occupational and geographical mobility. It is pre-dominantly urban rather than rural. Socially, the family and other primary groups having diffuse roles are supplanted or supplemented in modern society by consciously organized secondary associations having more specific functions. Economically, there is a diversification of activity as a few simple occupations give way to many complex one; the level of occupational skills and the ratio of capital to labour are much higher than in traditional society. Agriculture declines in importance compared to commercial, industrial, and other non-agricultural activities and commercial agriculture replace subsistence agriculture".[10]

The traditional community life of the Nagas has been greatly impacted by modernization which has slowly and steadily promote individualism in the society. The landholding system and the land use pattern is directly or indirectly impacted by this. Land was the most vital factor for supporting the community life and was once considered sacred. However, it has now become a sheer commodity or wealth for many. Money-oriented farming and other schemes issued by the government has led to an alarming change from traditional jhum cultivation to other market-oriented farming system[11]. The conversion of traditional agriculture from subsistence farming to commercial farming can be attributed to the introduction of non-traditional crops which has gained popularity in recent years.

There is a sudden drop in jhum cultivators in many Ao villages like Ungma, Mokokchung, Khensa, Longmisa, Chuchuyimpang and Sungratsu, to name a few. The rapid change in the farming system is creating concern among the community at large. Changes are inevitable, but all changes must come with proper awareness and reason. This change in the farming system is not only putting a threat to the traditional food security of the villages, but also leading to seed loss and lack of awareness of land domain by the younger generation[12]. The change from jhum cultivation to commercial farming started with the introduction of various government schemes to the farmers which benefitted them and to respond to the market

[10] Hutington, Samuel.P. The Change to Change: Modernization, Development and Politics, Comparative Politics, Vol. 3 (3), (1971.April). pp. 283-292.

[11] Longkumer, Lanusashi & Toshimenla Jamir. Status of Adivasis/Indigenous Peoples Land Series-6: Nagaland. (New Delhi: The Other Media, 2012)

[12] Jamir, Amba. Shifting options: a case study of shifting cultivation in Mokokchung District in Nagaland, India. In FAO, Shifting cultivation, livelihood and food security. (FAO, UN, International Work Group for Indigenous Affairs, Asia Indigenous Peoples Pact: Bangkok, 2015)

opportunities. Traditional and smaller farmer were attracted by the new change but in many cases the change was not a conscious or calculated move. For many farmers, it was rather a desperate attempt to emulate the trends of better-off farmers and to benefit from the government.[13] This can be a reason for the failure of not so well-off farmers in high investment commercial farming. However, with the improvement and advancement in modern technologies and with globalization, the change in the traditional farming system is very noticeable.

Horticulture and animal husbandry has gained much importance in the recent years. Horticulture constituted for 9.98 percent of the total agricultural area in 2001, with the total area under horticulture being 1,542 hectares. Horticulture was never given importance by the farmers and it remained mostly as a backyard activity for the farmers. Their concentration was in the cultivation of food crops. However, in the past decade more attention has been given to the development of horticulture in the State[14]. Cash crops farming in the recent years have been making much progress in the Ao region such as Rubber, Tea, Teak, Coffee, Turmeric, Ginger, cardamon, Agar etc.

With a decline in jhum cultivation and more concentration on commercial farming, there is an increase in the jhum cycle. Nagaland is the only state that records an increase in the years of fallow period in the jhum cycle[15] among the North-Eastern States. A sharp increase in area under forest cover has been recorded in the state. The change in the patterns of farming system has led to a change in the traditional customs and culture of the people. Traditional norms and ways of food sharing and the cultural values have undergone change due to the change in the pattern of farming system. There are evident changes in the cultural trait, habits and value system. Since jhum is a way of life for the people, the change in its system, automatically leads to a change in the social setting.

1.1. Review of literature:

Works on farming system and perspectives on especially on jhum cultivation and terrace cultivation in Nagaland have been discussed and viewed at length by many social

[13] Jamir, Amba. 2015

[14] Annual Administrative Report 2008-2009, Department of Horticulture, Government of Nagaland.

[15] Deb, J. Bimal & Ray, B.Datta (eds). 2006. "Changing Agricultural Scenario in North-east India", New Delhi: Concept Publishing Company.

scientists, economists, authors, agriculturalist and environmentalist. However, not many studies have empirically analysed the impact of the new transformations and changes of the farming system on the society. Mostly the researches undertaken so far have been from the economical, geographical and environmental point of view. The following literature has been studied on the given themes for the purpose of the study:

i. Traditional farming system: Jhum is the main form of farming system in Mokokchung District. The Aos mostly cultivate their land by the jhum system of cultivation. Jhum is also known as the shifting cultivation or slash and burn cultivation and it is the main form of agriculture in the hills of north-east India. Jhum cultivation is a time-tested system of agricultural practice which has evolved indigenously and is strongly based on traditional knowledge. The main features of this method of cultivation is to cultivate land for two years and shift to a new location when fertility declines. The former land is abandoned to lie fallow for ten to fifteen years long enough for the land to gain its fertility (Nshonga 2009, Smith 2009, Mills 2003). Traditional farming system in Nagaland also comprises of wet rice cultivation, wet terrace cultivation, firewood reserve forests and home gardens (Nakro 2011). The major land use among the Nagas is for jhum cultivation which is intertwined into their traditions and values. Traditionally, all the tribes in Nagaland practice jhum type of cultivation. Jhum cultivation has tremendously impacted the environment in the recent years. Jhum cultivation is garnering the attention of policymakers, academics, and development practitioners, and it is seen as environmentally unsustainable. In the current circumstances, there is insufficient land availability and time for land replenishment and forest cover recovery, implying that choices must be identified within existing limits for Jhum agriculture and creating strategies to ensure improved forest generation. Agriculture remains central to the region's economic and political decisions, and robbing land poses a major threat to their lives (Melville Pereira, Walter Fernandes, 2005). Jhum is the best cultivating system to provide food all year round, as it not only provides food, but also allows the fallow to grow small crops. The shift causes soil erosion and deforestation. Therefore, certain restrictions need to be imposed on practices, but complete suspensions would be counter-productive because they are deeply rooted in people's socio-economic lives and therefore can cause social crises. (S.N Chatterjee, 1993). Indigenous knowledge and skills are essential in the process of jhumming. For indigenous peoples, knowledge is inextricably linked to cultural systems and values that are unique to a particular culture or society. Every aspect of jhum cultivation, from clearing of jungle to harvesting, is closely tied to traditional beliefs, rituals and festivals. This is a clear indication of how

indigenous practices influence resource management in jhum cultivation (Aier and Changkija, 2012). Jhum cultivation, as a Naga practice, cultivates land by keeping it fallow for years during the jhum fallow cycle. The jhum cycle helps stabilize land fertility after harvesting and has a positive effect on food security. (Malcolm Cairns, Supong Keitzar & T.Amenba Yaden, 2004). Jhum practices in the northeast have survived to this day due to their simplicity, social acceptance, resource efficiency, self-reliance, and economic reach of the people. (B.S Chauhan ,2001). Nagaland is an agricultural economy and agriculture accounts for 27% of the gross domestic product (NSDP) with a large portion of land under Jhum Cultivation. This type of cultivation is unique in that it is capable of growing multiple crops, which does not happen in any other type of cultivation. This is particularly suitable for tropical forests, which cover much of Nagaland state (Keitzar, 2014).

ii. Problems of Jhum cultivation: Since colonial times, jhum cultivation has been discussed and criticized, and has often been misunderstood by the public. Environmentalists and foresters, as well as development practitioners and policy makers have often criticized the practice as being "Primitive, backward, destructive or wasteful", and as merely a precursor to "modern, sustainable, and sedentary forms of agriculture." Those who criticize jhum cultivators use terms that perpetuate misunderstandings about the practices (Thruppetal, 1997). Jhum cultivation is becoming unsustainable due to reduction in Jhum cycle (Alila 2006). It is a fact that jhum cultivation definitely contributes its own share towards the environmental deterioration (Primental et al., 1987). It brings about irreparable loss of biodiversity, loss of habitats for wild animals and detrimental environmental impacts locally as well as globally. A few of the adverse environmental impacts include contributing to greenhouse gases, drying up of some of the few available water holes, streams and rivulets in the hilly terrain. It also reduces the soil's capacity to hold water, causes soil erosion, destroys soil nutrients, creates massive landslides, and even sinks the land. (Jha et al., 1976; Primentel et al.,1987; Ausubal, 1991). There have been accusations that the system is environmentally destructive (Kietzar, 2014). Rice under wet paddy cultivation is more productive (15.32 q/ha) than rice under jhum cultivation (19.16 q/ha). In jhum production, paddy productivity is lower because of non-adoption of improved agronomic techniques such as efficient rainwater management, lack of intercultural practices, and poor plant protection (Ananthanarayanan 2008). Indigenous peoples, whose centuries of experience in jhum cultivation have led to quite different results and conclusions than what is commonly believed, have challenged the myths. The jhum cultivation temporarily changes the land use and cover of the land. However, the regeneration

of fallows subsequently returns the land to forest. There is a possibility that jhum cultivation decreases forest cover temporarily, but it will not cause deforestation (Trakansuphakon, Prasert. 2010). Increased land pressure and population growth have resulted in a shorter fallow period, which has caused soil infertility, forest loss, floods, and land depreciation in jhum cultivation. In the long-term, proper management of natural resources is in the greatest interest of mankind in order to ensure the survival of mankind through long-term productivity and a better environment. As a result, planning and planting trees, for instance, are important for maintaining a stable ecology (B.S Chauhan ,2001).

iii. New programmes and policies: Alternative farming system and high yielding varieties, new policies, agro-forestry practices and various strategies have been introduced to improve and control shifting cultivation. More emphasis is now given to the importance of horticulture, including floriculture (B.P.Maitham 2005, Sarma et al. 2006). To encourage settled cultivation, pilot projects have been introduced to induce farmers to give up Jhum cultivation and adopt terrace cultivation (Hazarika,C. 2006). Integrated Jhumia Development Programme has been introduced among the Karbis of Assam and it has succeeded in awakening the hill people against the harmful effects of jhum and has provided alternative mode of livelihood like homestead gardens and piscicultre to a certain extend (Das 2001). Studies have shown that certain agro-horticultural systems provide greater productivity and profit to farmers in Meghalaya than traditional monoculture systems (Singh, Ngachan et al.2006). The jhum agricultural system of Laos, a Southeast Asian country, is gradually developing towards more stationary kinds of agriculture. For the people of Laos, government policy, population growth, social transformation, and market integration are all key drivers of change. (Gansberghe 2005). The State Government has set up research centres like State Agricultural Research Station (SARS), integrated extension training centre, seed farms, bio-control and soil testing laboratories. It has also been working closely with the other organizations like Krishi Vigyan Kendra (KVK), International Potato Centre, Environment Protection in Agro-Forestry Development, International Development Research Center (IDRC), Spice Board of India, Agricultural Technology Management Agency (ATMA) for agricultural research and technology Dissemination (Jamir 2004)

iv. Land use pattern: Change in the land use system leads to the change in the land tenure system. In Nagaland, the land tenure system is governed by customary rules and is protected by Article 371A of the Indian Constitution. Jhum land, as defined by the Nagaland Jhum Land Act 1970, is land that any member or members of a village or community have a

customary right to cultivate by shifting cultivation, utilise by clearing jungle, or for grazing livestock, and includes any river beds provided that such village or community is in a permanent location (Maithani 2005). Even after the enactment of the Jhum land Act of 1970, customary law continues to prevail. According to Naga customary law, all land, including forests, is privately owned. The government owns only a small percentage of the land. Such land has been either gifted to the government by the villages or has been bought by it from the villages. Some portion of the government land now used for administrative purposes was occupied by the British troops when they first came into the area, and was later handed over to the civil administration (Bordoloi 1998, Jamir, Alemtemshi 2015). There is no notion that the government is the ultimate landowner. In fact, if the government requires land, it must purchase it from a private individual. Customary law recognises all ownership rights, which are then protected by Article 371A of the Indian Constitution (Jamir and Lanunungsang 2005: 242). Over the past two decades many traditional farmers are shifting over to governmental aided commercial farming and mass tree plantation reducing the traditional shifting cultivation drastically by almost 90 percent. This change has led to drastic shift in the land use and land pattern in Nagaland (Longkumer 2015).

v. Changing pattern of farming system: New system of farming has been introduced and encouraged by the government which incorporates different farming system with jhum cultivation. NEPED project is one of the important initiatives of the state government. NEPED aims at improving rather than controlling shifting cultivation by introducing commercial tree species as an additional crop and shaping of land to further improve the productivity of the soil by reducing erosion. By indication, it will improve the natural environment and conserve bio-diversity (Maithani, 2005:61). The change from traditional food production relying on jhum cultivation to permanent land-use systems that favour cash crops for markets is advantageous to farmers in general, but it comes with its own set of consequences and challenges. These include effects on community property rights, land use and land distribution, food production concerns, biodiversity conservation issues in general, and traditional crop variety preservation in particular. It also had an impact on how people interacted with the market, as well as traditional food sharing practises and other cultural values. (Jamir, Amba 2015). In Nagaland, long-term development is based on a balanced approach that combines conservation, long-term management of existing lands and forests, the development of additional forest resources, and the adaptation of agricultural systems over time. (Vengota Nakro,ChozhuleKiki, 2006). Removal of jhum cultivation and substituting it with an integrated farming system model may

be the best way to save the environment, but it is well known that changing one's vocation drastically overnight is never easy. As a result, scientific organic farming approaches that are taught to farmers can provide a superior option for generating money in an area where fertilisers have never been utilised before. Traditional organic items are still sold in Nagaland at the same rate as non-organic products, resulting in low revenue and productivity for farmers. Crop insurance should be provided to farmers in the event of crop failure, and certificates should be issued as "organic like" agriculture to those who adopt improved shifting cultivation, which can transform an environmentally harmful system into a less harmful system, allowing farmers to command a higher price than conventional products (Rukuosietuo Kuotsuo et al.,2014).

1.2 Statement of the problem:

The change in the agricultural sector has been immense in India since the introduction of New Economic Policy or LPG model of economic reforms. Since independence, India has been introducing new economic and development programmes which have made the economy of India the fastest developing economy in the globe. The development in the economic sector simultaneously led to the development in the agricultural sector. The agricultural development also impacted the farming system of the Nagas by bringing about change not only in farming system but also in the socio-cultural aspects of the society.

The farming system has undergone significant changes as a result of globalisation in the context of the Aos. The farming system has seen a big shift from traditional to modern system. Sustenance agriculture is replaced by commercial agriculture and Jhum cultivation, which is a way of life of the Aos, is slowly losing its popularity among the farmers. Various jhum stabilization programme, better farming practises and intensification of the fallow management system like plantation of fast-growing trees on fallow land, construction of terrace benches, multi cropping have been introduced by the state government under certain projects and programmes like NEPED and ATMA etc.

Farmers are open to new farming system as long as they are economically viable, appropriate for their land-use system and have good market support. There is a change from sustenance agriculture to commercial agriculture. The state government began to introduce new agricultural policies and modern technology and technical equipment in order to help farmers in their new system of agricultural production. The change in the farming system leads to a change in the land tenure system. Jhum land are now fragmented and converted into permanent private land. Such changes are unavoidable in the development process; but, the speed with

which they occur, as well as the potential consequences for food security, agro-biodiversity loss, and unequal wealth distribution, all remain serious challenges.

Changes in the land management system have resulted from the fragmentation and commercialization of common property. What were formerly clans, lineage lands, and fallow woodlands overseen by elders are now all held by individuals. The change in the farming system has resulted in a growing wealth gap, as the wealthy invest in high-value cash crops and spices, as well as larger fields and orchards, generating even higher returns, while the poorest of the poor farmers, who cannot afford to invest in commercial activities, continue to cultivate rice-based jhum and many remain subsistence farmers. The new systems of farming are adopted by the farmers and investments are done. Many farmers have returned to sustenance farming because it reduces their vulnerability to uncertainty. The lack of comprehensive farming and marketing, both at the local and state level, as well as failures in marketing produce due to a lack of proper support systems and infrastructure has led many farmers to return to sustenance farming.

People's farming activities are becoming increasingly sedentary, there is a fear among the village elders that the younger generations will lack of awareness of traditional land domains. There is a rapid pace of rural-urban migration and an increase in absentee landlords and migrant labourers. The change in the farming system also gives rise to issues of unequal distribution of wealth, dilution of traditional governance system, change in land tenure system etc.

Globalization and modernization have not only changed the system of agricultural production but it has also brought about a wave of change in the culture and life of the Ao people. The Ao Naga society has now become a part of the global society. The recent trends of change and the global forces that are influencing the Ao society has left the people at a crossroad, encountering contradictory values of tradition and market-oriented globalization.

Having stated the above problems, there is a need to study on this changing pattern of farming system and its impact on the society. This study will explore sociological implications in the changing farming system. This study would help to us to know and concentrate on the pattern in which new farming system has been adopted by the Ao farmers and the factors that are responsible for the change. It would explore the purpose and motive behind the farmer’s adoption of new farming and how it is impacting the society.

1.3 Scope and relevance of the study:

The present study on the changing pattern of the traditional farming system among the Ao Nagas is one of the pioneering works. The Ao society were traditionally an agrarian society. And even today it is largely practiced. However, not much work has been done in this area. The findings of the research study hope to improve the literature and it can be beneficial to the farmers in terms of management of farming and also in knowing the changing trends in the farming system, its advantages and disadvantages. Moreover, this study would be beneficial to student of sociology who are studying on the theme of social change. It will also cater to the needs of any academicians and lay person wanting to understand the changing patterns of agriculture, living style, and occupational change of the Ao community in the modern times. The study is also significant because it sheds light on the rural-urban migration, the change in the socio-economic life and also the change in the land relation. The study is an enrichment of literature as it provides the avenue for further research by scholars as development continues and society changes.

1.4 Objective of the study:

The main objectives of the study are:

i. To study the nature of traditional farming system among the Aos.

ii. To examine the changes in the farming system.

iii. To examine the factors leading to change in the patterns of traditional farming system.

iv. To examine sociological implications in farming system and the impact of the farming system on society.

1.5 Research Questions:

The study is directed by the following research questions in light of the above objectives:

1. What were the trends of farming system that was practiced by the Ao Naga farmers? Is it still prevailing/ continuing?

2. What are the local innovations that have been incorporated with the traditional farming system?

3. Does the change in the farming system have any impact on the cultural aspect of the Ao Naga society?

4. What impact does globalization have on the farmers and their farming system?

5. How the socio-economic background of the farmer is related with the nature of farming they are engaged with?

1.6 Area of Study:

The universe of study is Mokokchung district, Nagaland. Asetkong, Jangpetkong, Japukong, Langpangkong, Ongpangkong, and Tzurangkong are the six mountain ranges that make up the Ao region. These six ranges have 108 villages. For the purpose of the study, one village from each range has been selected.

1.7 Research methodology:

a. Sources of Data collection: The research study is mostly qualitative, exploratory, and analytical in character. The necessary information was gathered from both primary and secondary sources.

i. Secondary sources: Secondary data were drawn from journals, books, magazines, newspaper, articles, relevant publication and websites etc. which is related to the problem of the study.

ii. Primary sources: Primary data were collected through interviews. Through thorough field studies, participant observation, and interaction with a diverse group of people, the investigator augmented the analysis with more primary data.

b. Techniques of Data collection: For the collection of primary data, Interview method was employed. In-depth interview and focus group interview techniques were used. The respondents included farmers, housewives, village elders, village council members, church leaders, youths and students. The six sample villages practice dissimilar farming system so the interview was mostly open-ended. Participant observation was applied in order to understand the farmer's activities in the fields and farming areas and gain a close and intimate familiarity with their cultural practices and expressions. For the collection of secondary data, journals, relevant publications, website articles, government handbooks, etc were collected. The data gathered from diverse sources was processed, categorised, analysed, and interpreted in a methodical manner.

1.8 Sampling Design:

a. Sample Selection: Mokokchung district is generally classified into six ranges as shown in the area of study. Hence, a multi-stage sampling was designed by way of narrowing down from Mokokchung district as a whole to a sample village each from the six ranges. As stated in the proceeding discussion all the selected sample villages are a model village or known in farming. While it also bears all the characteristics features of the Ao community farming system, land holding etc. Therefore, each range is represented by a village: Asetkong range is represented by Sungratsu village, Jangpetkong range is represented by Khar village, Japukong range is represented by Japu village Langpangkong range is represented by Changtongya village, while Longkhum village represents the Ongpangkong range and Tzurangkong range is represented by Chungtiayimsen. It is a multi-stage sampling method that is also purposive because respondents are purposefully selected, such as farmers, housewives, the elderly, village council members, religious leaders, young people, and students. All categories of people from all walks of life were chosen to gather unique opinions on the changing pattern of farming system, including the traditional mathod of farming. This study sampling is also proportionate because respondents are selected according to the size of the household a sample village has.

b. Sample Size: A sample of 300 respondents were selected from the six villages using proportionate sampling. According to the number of households, the villages were divided into three categories: large, medium, and small. According to the size of the village, 10% of the total number of households were selected from the big (800-999 households) and medium (400-799 households) villages and 5% of the total number of households from the small (399 and below households) village. *Table 1* gives a systematic depiction of how the number of households were selected.

Table.1. Sample frame

Name of Villages	Name of Range	Total no. of households (2011 census)	No. Of Household selected
Khar	Changkikong	848	80
Sungratsu	Asetkong	819	80
Longkhum	Ongpangkong	546	50
Changtongya	Langpangkong	496	45
Chungtiayimsen	Tzurangkong	415	38
Japu	Japukong	134	7
Total number of respondents			300

Table 2. Types and number of respondents

Sl.no	Types of Respondents	No. of Respondents
1	Plantation owners	56
2	Vegetable farmers	51
3	Jhum farmers	39
4	Orchard farmers	52
5	Retired farmers	31
6	Non-farmers & others	71
	Total	300

1.9

Data analysis:

The data collected were thoroughly checked, assessed and tabulated. The data collected was examined village wise and findings were checked and scrutinized separately. Every detail was copied to a tabulation sheet and then placed into tables as needed, allowing for a coherent interpretation of the data.

Figure 1

Map of Nagaland Area of Study

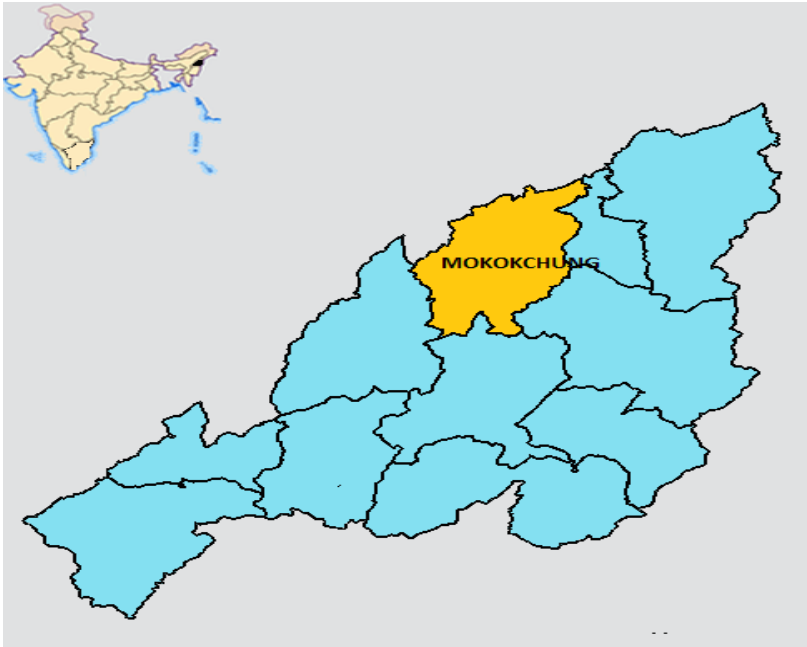
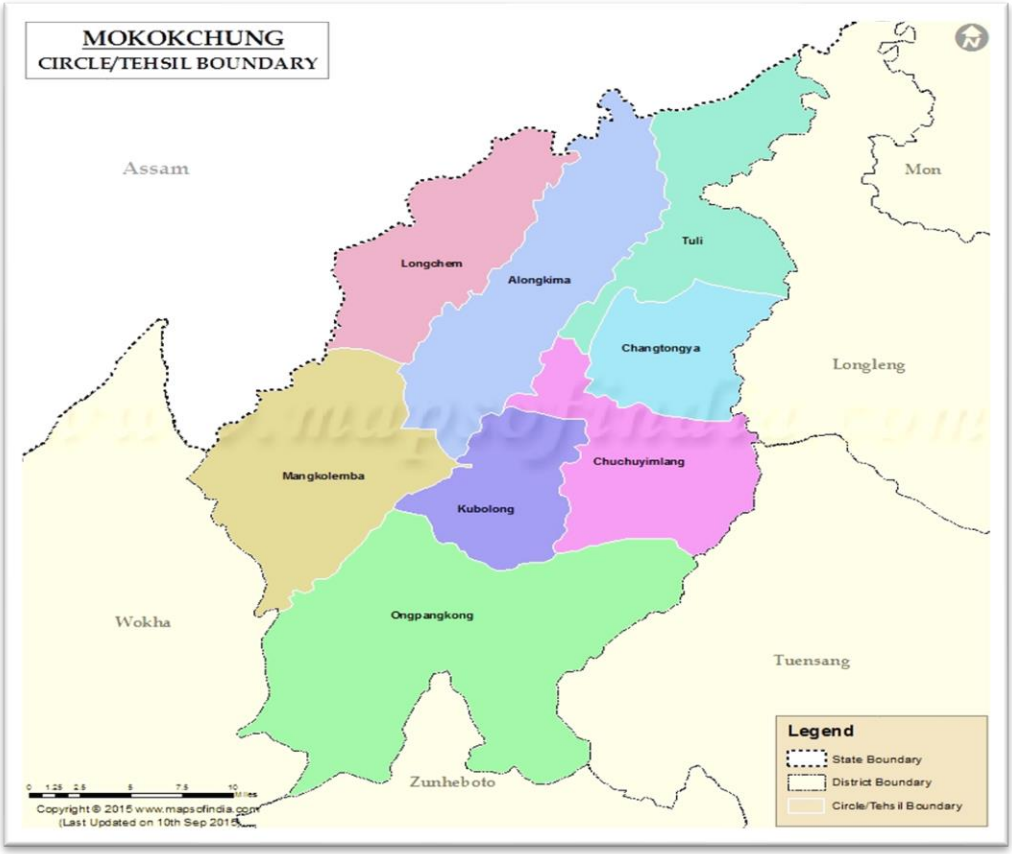


Figure 2

Map of Mokokchung District



Source: www.mapofindia.com

CHAPTER II

PROFILE OF THE STUDY AREA

The study areas' profiles are highlighted in this chapter, which also contains a brief overview of Nagaland state and a profile of Mokokchung district. Longkhum, Sungratsu, Changtongya, Khar, Chungtiayimsen, and Japu are among the sample villages included in the report. The study area profile aids in providing a general baseline understanding of the location and inhabitants.

2.1 INTRODUCTION

Nagaland was formed from the Naga Hill districts of Assam and the North East Frontier Agency, and was formally inaugurated as the 16th state of the Indian Union on December 1, 1963, with Kohima as its capital. The state consisted of 12 Administrative Districts, which increased to 16 recently. Nagaland is home to sixteen major tribes, including the Angami, Ao, Chakhesang, Chang, Khiamniungan, Konyak, Lotha, Phom, Pochury, Rengma, Sangtam, Sumi, Yimchunger, Zeme-Liangmai

(Zeliang), Dimasa Kachari, and Kuki, as well as several sub-tribes. The Konyaks are the largest tribe among the tribes, followed by the Aos, Semas, Chakhesangs, and Angamis.

Each tribe has its own distinct area of dwelling. The Angamis, Rengmas, and Zeliangs live in Kohima, the district headquarters. The Aos inhabit Mokokchung, the Lothas inhabit Wokha, the Semas inhabit Zunheboto, the Chakhesang inhabit Phek, the Phom inhabit Longleng, and the Konyaks inhabit Mon. Sangtam, Phom, Chang, Khiamniungan, Yimkhuing, Konyak, Tikhir, Makware, and Chirr are among the nine tribal linguistic groups that live in the Tuensang and Kiphere district. In 1999, Dimapur, which was previously part of Kohima district, was created a separate district. Angamis, Semas, Aos, Lothas, Chakhesnags, Kukis, and some plain people are the main tribes in this district. In terms of customs, language, and dress, each tribe is distinct from the others.

LOCATION

The state is located between 25° 11'5" and 27°2' 10" north latitude and 93°20' and 93°17' 10" east latitude in the far north-east corner of the Indian subcontinent. It is bordered on the north and west by Assam, on the east by Arunachal Pradesh and Burma, and on the south by Manipur. The state of Nagaland is mostly mountainous. Mount Saramati, at an elevation of

3840 metres, has the highest altitude. From May through August, the state experiences considerable rain, with sporadic rain in September and October, and a dry season from November to April.

DEMOGRAPHY

According to Census 2011 provisional population totals, the state's total population is 19,80,602. The rural population is 1,406,861 people, while the urban population is 573,741. The most populous district is Dimapur, while the least populous district is Longleng. The state's average population density is 119 people per square kilometre, which is significantly lower than the national average of 382 people per square kilometre. According to the 2011 population census, Nagaland's literacy rate is 79.55 percent, which is higher than the national average of 72.98 percent. Men have a literacy rate of 82.75 percent, while women have a literacy rate of 76.11 percent.

Table 3: District wise Demographic profile of Nagaland (2011 Census)

District	Population	Male population	Female population	Growth	Sex ratio	Literacy	Density
Dimapur	379769	198163	181606	23.23	916	85.44	410
Kiphire	74033	37758	36275	-30.54	961	71.1	66
Kohima	270063	140118	129945	22.66	927	85.58	213
Longleng	50593	26588	24005	-58.39	903	73.1	89
Mokokchung	193171	100229	92942	-16.77	927	92.68	120
Mon	250671	132062	118609	-3.83	898	56.6	140
Peren	94954	49530	45424	4.61	917	79	55
Phek	163294	83684	79610	10.19	951	79.13	81
Tuensang	196801	101977	94824	5.81	930	73.7	90
Wokha	166239	84429	81810	3.11	969	87.6	102
Zunheboto	141014	71169	69845	-8.79	981	86.26	112

Although Nagaland has considerably improved its literacy ratings with about 80 percent in 2011, gross disparity still exists between districts in terms of literacy. While Mokokchung recorded a high literacy rate with 92.62 percent followed by Wokha with 87.69 percent, Mon registered a literacy rate of 56.99 percent, an increase of only 14.77 percent over the decade.

AGRICULTURE AND ECONOMY

Nagaland is predominantly an agrarian economy, with agriculture providing a living for more over 60% of the population. Agriculture is the largest employer in the state and one of the major contributors to the state's net state domestic product. Agriculture continues to be the primary source of subsistence, despite the fact that it has dropped from 96.50 percent in the 1950s to around 68 percent in 2000. Jhum and terraced cultivation continue to be the most common land use practises in the state. The traditional form of shifting farming, known as jhum, is commonly practised in Nagaland. About 90% of the land in Jhum is used for agriculture. Terraced agriculture is primarily found in the districts of Kohima, Dimapur, Tuensang, Peren, Phek, and Wokha. In the state, the single cropping system is widely used, resulting in low cropping intensity. Farmers have yet to practise double cropping, except in extremely small and insignificant regions.

Cropping intensity has been consistent at around 110 percent throughout the last decade. Kharif is the cropping season that begins in March and lasts until August, while Rabi is the cropping season that begins in September and lasts until December. Rabi crops are primarily vegetable crops. Rice is the people's basic food; hence paddy is the state's most important crop. In terms of enhanced seeds, fertilisers, and implements, the use of technological interventions has been minimal. The mechanization of agriculture has been poor because of the nature of the terrain in the state and the low purchasing power of the farmers. The use of fertilisers and pesticides has not been consistent and was essentially non-existent until recently. The state government is attempting to capitalise on this by gaining access to organic food markets. The state department of agriculture has set up a research station in Mokokchung, along with three additional sub-stations, to adapt technological innovation for local use.[1]

According to GSDP estimates, the state's economy is organised into three sectors: primary, secondary, and tertiary. Crops, cattle, forestry and logging, as well as mining and quarrying, are all part of the primary sector. As per the advance estimates of GSDP constant prices, the primary sector is estimated to grow at 7.74 per cent According to preliminary GSDP constant price projections, the primary sector is expected to grow at 7.74 percent in 2015-16, contributing 30.06 percent to GSDP. Agriculture proper, which includes crops, forestry, and

[1] Nagaland State Human Development Report. (Department of Planning & Coordination Government of Nagaland, 2004)

logging, grew at a 7.83 percent annual pace in 2015-16 and provided 29.74 percent of the GSDP, with crops accounting for 20.44 percent. The other primary sector sub-sectors, such as mining and quarrying, remained small at 0.32 percent. Agriculture is the largest contribution to the GSDP in the primary sector.

Manufacturing (registered and unregistered), Electricity, Gas, Water Supply & Other Utility Services, and Construction make up the secondary sector. The primary sector's production is typically used to create finished items. According to the Advance Estimates of GSDP at Constant Prices for 2015-16, the sector grew by 16.04 percent in 2015-16, with a 16.23 percent share of GSDP. The share of Electricity, Gas, Water Supply, and Other Utility Services in the secondary sector has been dropping since 2011-12, ranging from 2 to 2.5 percent, and the share of construction in the GSDP has climbed from 11.78 percent in 2014-15 to 12.98 percent in 2015-16. Manufacturing's proportion of the GSDP climbed slightly from 1.33 percent in 2014-15 to 1.34 percent in 2015-16.

The Tertiary Sector includes operations such as transportation, storage, and communication, as well as trade, repairs, hotels, and restaurants, as well as financial services, public administration, real estate, and home ownership. The tertiary sector's growth has slowed from 7.53 percent in 2014-15 to 6.82 percent in 2015-16, according to the Advance Estimate of GSDP constant at basic prices. In keeping with the slowing growth rate, the Tertiary sector's share of GSDP has decreased from 54.55 percent in 2014-15 to 53.71 percent in 2015-16.

Within the tertiary sector, the sub-sector "Other Services" has emerged as the most important, accounting for 17.51 percent of the GSDP, followed by "Public Administration" at 10.97 percent, "Real Estate, Ownership of Dwelling" at 10.24 percent, "Trade, Repairs, Hotel & Restaurant" at 6.99 percent, "Transport, Storage, Communication & Broadcasting" at 4.42 percent, and "Financial Services" at 3.58 The tertiary or service sector contributes the most to the state's economy, followed by agriculture or the primary sector.[2]

2.2 MOKOKCHUNG DISTRICT

Mokokchung district is the abode of the Ao tribe of Nagaland. Nagaland's Mokokchung district is one of the state's most developed districts, including one of the state's major

[2] The Morung Express. https://issuu.com/morung_express/docs/march_15th__2017/. (2017.15 March) retrieved on 15 May 2019

metropolitan centres. With a population of 1,94,62 people and a population density of 120 people per square mile, the district has the highest literacy rate in the state at 91.62 percent. The district headquarters, Mokokchung town, is located at an elevation of 1325 metres above sea level. The area of Mokokchung is 1,615 km2. Mokokchung District is bordered on the north by the state of Assam, on the west by Wokha, on the east by Tuensang, and on the south by Zunheboto. It is located between the longitudes of 93.530 E and 94.530 E, and the latitude of 25.560 N. With a sub-tropical and moderate climate, the district is located in the Eastern Himalayan Region – North East Hills (Zone 2). The administrative headquarters are at Mokokchung town, and the Deputy Commissioner is in charge of the administration[3].

According to the 2011 Census, Mokokchung District includes 108 villages, 107 of which are inhabited and one of which is unoccupied. Mokokchung town, Tuli town and Changtongya town are the three statutory towns, and Tsudikong (13th Mile Tuli paper mill) under Tuli administrative circle is a single census town existent in te district. Mokokchung Town was established at the 1961 Census, whereas Changtongya and Tuli Towns were notified following the 2001 Census. Each government-recognized village has a Village Council, which is charged with resolving conflicts within their jurisdiction in accordance with the Nagaland Village and Area Council Act of 1978's customary laws and procedures. The following is the number of villages in each circle:

Table 4. Number of villages in each Circle

Sl.no	Name of Circle	No. Of villages
1.	Longchem	16
2.	Alongkima	10
3.	Tuli	11
4.	Changtongya	7
5.	Ongpangkong	19
6.	Chuchuyimlang	11
7.	Kubolong	10

[3] Statistical Handbook of Nagaland 2013

8.	Mangkolemba	13
9.	Merangmen	10
	Total	107*

** Excluding one uninhabited village under Mangkolemba*

The bulk of Ao Naga villages, like other Naga villages, are spread through six wide mountain ranges in the area. Ongpangkong, Asetkong, Langpangkong, Japukong, Jangpetkong, and Tzurangkong are the six mountain ranges. The elevation varies between 450 and 1300 metres above sea level. A brief description of the six ranges is given as under:

1. Ongpangkong Range: The Ongpangkong range is the southernmost and highest height range, bordered on the south by Sumi and Lotha villages and on the east by Sangtam villages. It is 1500 metres above sea level on average. This region's vegetation ranges from evergreen to mixed deciduous forest types. There are 17 villages in the range, with a total population of 85,667 people (2011 Census). A considerable area of the range is covered with virgin forest.

2. Langpangkong Range: The Langpangkong range's terrain is laid out like a bed. It is the most eastern range. The range follows the Dikhu River's course, forming a natural boundary between the Tuensang and Mon districts. It has a total population of 22, 44 people (according to the 2011 census) and 18 villages. National Highway No. 61 runs the length of the range, covering approximately 85 kilometres. This range contains large areas of community biodiversity and forest reserve, the most notable of which is the 'Kanglutu Biodiversity Reserve', which covers 7060 hectares and is located in Changtongya village.

3. Asetkong Range: The Asetkong Range is the most central of the ranges. This range extends east-west between the Menung and Milak Rivers, like an island, with the Langpangkong range in the east, the Ongpangkong range in the south, and the Changkikong range in the north-west. The average elevation is 1100 metres above sea level, with characteristic warm and humid weather, heavy rainfall, rocky landscape, and different soil types. It has a population of 15,365 people and five recognised villages and minor stations (2011Census).

4. Jangpetkong Range: Jangpetkong Range used to be known as Changkikong Range. The range is located in the west, between the Milak and Tzurang Rivers, and consists of nine communities with a total population of 7,316 (2011 Census). The range features a mixed deciduous and evergreen forest vegetation with an accessible Reserved Area. Tsurang valley and Kalomang have forest cover. Because of the thick forest cover, it is regarded one of the

district's richest biodiversity spots. Geographically, it is made up of a variety of mineral resources, primarily coal deposits.

5. Japukong Range: This is the most outer range, stretching from north to east and south to west in the Tzurangkong region's interior (south). It comprises 18 villages with an altitude ranging from 150 to 950 metres above sea level and a length of about 70 kilometres. The range has a warm-humid and sub-tropical climate, with dense and thick forest forms. Some of the well-known conserved forests include Retongkong and Satsu Tangen.

6. Tzurangkong Range: The range runs 15 kilometres from the Tzurang River to the Tzutapela region, and it shares a border with Assam. It is made up of hillocks that straddle the Assam lowlands, especially along the basins of the Desai and Jhanzi Rivers before debouching into the plains of Assam. Wangtak, Tangyong, and Dzesu are some of the range's perennial rivers. The climate in the range is warm and humid.

Milak, Dikhu, and Tsurang are three important rivers that pass through the district, touching all six mountain ranges. The district's geography is undulating, with a gentle to medium grade. The yearly rainfall ranges between 2000 and 2500 millimetres. Between May and October, it rains. Summers are hot and humid, while winters are cold and dry. Forest cover covers a total of 1349 square kilometres, accounting for 83.53 percent of the entire geographical area. It is made up of 3 square kilometres of deep forest, 521 square kilometres of moderately dense forest, and 825 square kilometres of open forest. Between 2009 and 2011, the district lost 46 square kilometres of forest.[4]

Out of the total area, 28976.79 ha is under forest land and 24000 ha. is not available for cultivation which can be exploited for economic activities. Total gross cropped area is 38250 ha. People of the State practice shifting cultivation and are intricately associated with forests for their livelihood and hence, for survival. It may be noted that the farmers are under community land holding system which is transferrable only within members of local tribal community. As per Census 2011, total working population is 100,067. There are 42690 cultivators, of which 6689 are small and marginal farmers and 4,863 are agricultural labourers (Census 2011).

[4] Forest Department of Nagaland, 2019

Table 5: Demographic profile of sample villages

Name of village	Population	No. of households	Literacy rate
Sungratsu	3590	819	86.79
Longkhum	3811	546	97.75
Khar	3614	848	88.30
Changtongya	2248	496	92.62
Chungtiayimsen	1839	415	65.40
Japu	487	134	73.62

2.3 PROFILE OF THE SAMPLE VILLAGES

LONGKHUM

Longkhum village falls under the Ongpangkong range. Longkhum village is located about 20 kilometres southwest of Mokokchung, on a hilltop at an elevation of 1846 metres above sea level, making it the district's highest altitude village. Longkhum is bordered on the north by the Lothas, on the west by the Semas, on the east by Mangmetong village, and on the south by Sotso village. There are 3811 people living in the community, with 546 households (as per Population Census 2011). The literacy rate in Longkhum village is 97.75 percent. Sangpang, Imrong, and Chungli are the three'mepu' (residential units) that make up the village. Longkhum is a historical village with many tourist attractions. It is famously known for its stone bridge which is a ridge of stones that passes through the Rhododendron woods, locally known as '*Longlangba'*. Longkhum is literally translated as 'protected or covered with stones'.

The village is known by the Aos for its legendary and mythical caves and stones. The Longkhum people were known for their bravery and courage and considered great warriors. According to the oral tradition, during the ninth century, war against Nokrang was very significant. During this war, Longkhum played a triple role as crusader, defender, and protector and because of this, Longkhum earned the proud sobriquet *Aofoniimro* which may be referred as the protector and the guardian of the Aos.

The village's main source of income is agriculture. Logging and other forest-related economic activities are also important parts of their economy. Villagers also work in various fields such as government service, self-sufficiency, and so on. However, it should be noted that households whose primary source of income is derived from one of the above-mentioned occupational areas other than agriculture have admitted to engaging in vegetable gardening, albeit as a secondary source of revenue.

Longkhum village residents have been practising jhum farming, a slash-and-burn technique in which rice was originally the primary crop, from the dawn of time. Rice has always been and will continue to be a vital food supply for the Ao Naga. Longkhum farmers are still harvesting rice and doing jhum farming, although in considerably lesser numbers. A few farmers have recently begun to switch to cash crops including potato, cabbage, tomato, chilly, and other commodities that have proven to be more profitable and sustainable. Longkhum village was designated as a "potato seeded village" in 2002 and a "vegetable village" in 2004 by the Nagaland Department of Horticulture. Longkhum hamlet produces the most tomatoes in the Mokokchung area.

Vegetable gardening now employs more than half of the rural population. In the year 1999, one S.I. Aren, a Longkhum village resident, introduced hybrid tomato seeds to the residents, which started vegetable farming in the community. He was the sole farmer in the area growing tomatoes and potatoes instead of rice. Later in 2004, four families joined him in his tomato-growing endeavour, which yielded a decent harvest of 9 metric tonnes of tomatoes. Farmers in Longkhum village recognised the potential of tomato production and its suitability for the type of soil, and as a result, they began farming on a huge scale. In 2009, the Agriculture Technology Management Agency, Mokokchung District, recognised the pioneer Mr. S.I Aren with the Best Vegetable Farmer award. In the early years of vegetable gardening, the Nagaland state government's Department of Horticulture and Agriculture supported and educated the farmers. By 2009, more than 120 households were growing tomatoes and gathering more than 200 metric tonnes of the fruit. Vegetable growing is now practised by more than half of the village inhabitants.

In addition to tomatoes, the villagers grow cabbage, carrots, broccoli, maize, cucumber, chilli, brinjal, pumpkins, and other vegetables. Tomatoes, chillies, broccoli, and cabbage are grown in bigger quantities than other vegetables. Farming is currently done not only for self-sufficiency, but also for the family's economic prosperity. Due to the numerous drawbacks of

jhum cultivation, farmers have shifted to vegetable and other integrated farming methods. Farmers pointed out that the conventional way of rice production was economically untenable, yielded little returns, left land barren, and took a long time. Elders in the village who cannot afford to maintain vegetable farms or a few who are still strongly committed to the ancient farming system mostly because they want to be secure with rice throughout the year are among the few farmers who still pursue jhum growing. These few rice producers, on the other hand, grow vegetables with rice for self-consumption and, in some cases, for sale.

In Longkhum village, vegetable growing has supplanted the traditional and age-old technique of jhum agriculture. Farmers in Longkhum village now earn a significant amount of money from vegetable farming, thanks to favourable climatic conditions for the growth of a variety of vegetables, particularly the surge in tomato and cabbage growing in the area. Farming was traditionally done for self-sufficiency and household food security. However, the villagers now have a market-oriented farming system that provides them with a secure and long-term source of income.

Figure 3

Bird's eye-view of Longkhum village

Source: Fieldwork, 2017

SUNGRATSU

Sungratsü Village is surrounded by nine villages and is at an elevation of around 1,155 metres above sea level. It is located between 26º24′ north latitude and 94º33′ east longitudes. Sungratsü Village has a population of 3,590 people and a land area of 110 square kilometres. Sungratsu village is located in the Asetkong range and is part of the Kubolong circle of Mokokchung district. It has a total of 819 families. According to the 2011 Population Census, Sungratsu village has a population of 3590 people, with 1889 men and 1701 women. The literacy rate in Sungratsu village is 86.79 percent. Sungratsu has an 88.77 percent male literacy rate and an 84.62 percent female literacy rate.

Sungratsu village is a medium-sized Ao-Naga village located 16 kilometres from Mokokchung town. It has seven major Ao tribal clan groups who are also recognized as original settlers of the village viz – Jamir, *Lemtur, Ozukum, Longchar, Aier, Walling* and *Mollier*. Sungratsu village is divided into eleven *mepu* (ward). The eleven *mepus* are *Jungli, Alisumang, Lenden, Longsangya, Semchiyong, Walling, Awatsung, Bangalow, Keyisa, Alenpang and Asalenden*. Sungratsu village has four schools, three government schools and one private school. The forefathers of the village first came and settled at *Pongen Tenem*. It is said that they kept their load or baggage supported on the root (*sungra*) of a tree and hence, they named the village as Sungratsu. Traditional shifting cultivators account for approximately 40% of the farmers, while another 20% engage in it on a much smaller scale or as a secondary activity. The town still has a 12-year fallow cycle, despite reallocating two shifting cultivation blocks to alternative land-use possibilities[5].

Agriculture is the village's principal source of income, although other economic activities such as stone quarrying and logging are also important. Villagers also work in various fields such as government service, self-sufficiency, and so on. Jhum was practised by about 90% of Sungratsu villagers, but in the recent years, the number of jhum cultivators has declined. Sungratsü farmers have switched away from the centuries-old practise of jhum cultivation and

[5] Jamir, Amba. 2015. "Shifting options: a case study of shifting cultivation in Mokokchung District in Nagaland, India". In FAO, Shifting cultivation, livelihood and food security. Bangkok: Food and Agriculture Organization of the United Nations, International Work Group for Indigenous Affairs, Asia Indigenous Peoples Pact, Bangkok.

toward more sustainable and convenient farming methods. Farmers believe that Jhum agriculture is unsustainable since people are required to relocate their fields every two years. Following that, the lands are left fallow for ten to twenty years in order to reclaim their fertility. The jhum fields' fallow cycle has accelerated in recent years. Also, because it is far from the village, the inhabitants do not normally farm in the '*Azunglu*,' the jhum land designated by the local community for that specific year. Cultivations are typically carried out on private land near the village. Sungratsu village exemplifies the achievement of alternative farming in Mokokchung district to a significant extent.

Three decades back, every jhum farmer would produce an average of 500-600 tins of rice per year, which was sufficient to sustain the whole family for the whole year. However, in the present age, the average annual yield of rice in jhum fields is 40-50 tins, the highest yield is 100 tins. Many households have given up rice cultivation in the jhum fields and given more importance to other crops, especially yam leaves out of which the famous dish of the Ao Nagas known as *anishi* is made. Jhum fields have decreased on account of a number of factors including demarcation of reserved forests, creation of community protected forests, population increase, changes in land use pattern, migration, introduction of Agricultural and Rural Development Schemes aided by the government.

Sungratsü village is famed for making *'Anishi*,' an Ao Naga delicacy made from fermented yam leaves shaped into patties and smoked over an open fire or sun-dried.The *Anishi* made in Sungratsü village is known to be the best and because of its superior taste, there is an increase demand of the *anishi* made in Sungratsü village. The demand for *anishi* in the market has led to the farmers to concentrate in yam cultivation. Yam is also cultivated along with rice paddy or along with other cash crops. The locals have switched from jhum production to vegetable gardening in addition to yam cultivation. The demand for fresh vegetables, particularly in Mokokchung, the village's nearest town, and the many drawbacks of jhumming have prompted the farmers to switch to vegetable farming and other forms of alternative farming. The maintenance of permanent farms is another alternative method of farming. In the last seventy-eight years, the number of permanent farms among the residents has expanded, leading to the establishment of a farm village known as 'Yimchalu.'

The potential utilisation of government supports and initiatives is a very fascinating and exciting phenomenon in Sungratsü village. The Nagaland government has taught farmers how to maintain vermi-compost pits. Vermi-composting is the conversion of organic waste into

worm castings. Worm castings are extremely beneficial to soil fertility. Almost all farmers have a vermi-compost pit, and the organic nutrition vermicompost aids farmers in growing healthier crops. Farmers attend a variety of seminars and trainings offered by various government departments with vigour and interest.

Figure 4

A partial view of Sungratsu village

Source: Fieldwork, 2017

KHAR

Khar is a significant village in the Mokokchung district's Mangkolemba Circle, which is part of the Jangpetkong range. According to the 2011 Population Census, Khar village has a total of 848 families and a population of 3614 people, with 1815 males and 1799 females. In comparison to Nagaland, Khar village has a higher literacy rate. Khar village had a literacy rate of 88.30 percent in 2011, compared to 79.55 percent in Nagaland. Male literacy rates in Khar are 89.71 percent, while female literacy rates are 86.86 percent. Khar village is has five mepus namely, *Ato mepu, Mentsudang Mepu, Aningchen Mepu, Imrong Mepu* and *Alongtepok Mepu.* Khar village is located around 45 km away from Mokokchung via Mariani-Changki road and around 30 km via Mopungchuket road. It is around 20 km from Mangkolemba town, a Sub-Division under Mokokchung district.

The economy of the Khar village revolves round the lower side of the village where Milak river provides irrigation on its bank for agriculture and the upper side of the village towards west and its adjoining hills including has been using for shifting cultivation and other basic needs. Like all Naga villages, agriculture is the mainstay for the people of Khar village. Khar villagers are mainly farmers, involved in settled cultivation, shifting cultivation, government service, non-farmers (old age/disable) private job, business etc. The people of Khar village are mostly farmers where the practice of shifting cultivation which was once the major practice is slowly being replaced by other system.

At present 600 households practice shifting cultivation, while 120 households are engaged in wet terracing and another 30 household practices horticulture, business, etc. Around 14.28% of the total land is owned by the Community and the rest 85.71% are either clan, family or individually owned (Forest Department of Nagaland). Khar village has dense forests and community conserve forests where medicinal plants are aplenty. Many SHG's in Khar village produce '*Khar moli'*, a digestive medicine made of five medicinal plants, which is very popular in the market. Khar village was also in the news for the roosting of the endangered hornbill bird in its dense forests.

Khar villagers not only practise shifting cultivation but are also engaged in plantation of rubber, tea, coffee and, of recent, cardamom plantation. The village's coffee plantation began in the early 1980s, when the Indian government introduced coffee to the inhabitants. A significant number of families continue to operate coffee plantations, with the products being sold to various states across the country. The coffee produced in Khar is regarded as one of the best in the state. Many coffee farmers have found success with their crop, and this is encouraging other farmers in the village to follow suit. Different SHGs in the community have also begun manufacturing local tea and are in the process of selling it in the market. A shift in the farming pattern of the Khar villagers is evident and this change is contributing to the change in the socio-economic life of the people. A detailed analysis

Figure 5

A bird's eye view of Khar village

Source: Twitter, 2021

CHANGTONGYA

Changtongya village is located about 43 kms away from Mokokchung town. Surrounded by the areas of Konyak, Phom, Chang tribe and the plains of Tuli and Assam, Changtongya is considered as a major trade centre. Changtongya is a huge village with a total size of 2866 hectares in the Langpangkong range. Changtongya village is located in Mokokchung district's Changtongya Circle. According to the 2011 Population Census, it has a total of 496 houses with a population of 2248 people, 1185 men and 1063 women. Changtongya village had a literacy rate of 92.62 percent, compared to 79.55 percent in Nagaland. Male literacy in Changtongya is at 94.18 percent, while female literacy is at 90.86 percent. The Tsula and Milak rivers, which criss-cross through the town, add to the area's charm.

Changtongya village has eight mepus, namely, *Milak mepu, Alizu Mepu, Pentsu mepu, Longdi, Longzung, Yimdang, Meri* and *Tsutempang*. Agriculture is the mainstay of Changtongya villagers like all other Ao Naga villages and jhum is the main system of cultivation. Though there are also a few majorities of people engaged in other business and service sectors. Changtongya Town which is located a couple of kilometres away from the village is the main trade centre for the villagers. Many villagers also run business in Changtongya town. The Changtongya town market serves as the major centre where the villagers sell their farm produce. Many traders and businessmen from neighbouring state of Assam trade with the villagers at Changtongya town.

According to the reports of the Forest Department, Government of Nagaland, only 20% of the villagers practise shifting cultivation showing a drastic decline in the practise of shifting cultivation. The jhum fallow cycle has also increased from 9 years to 20 years. More than 60% of the people are engaged in horticulture. The climatic condition of the village makes sit favourable for horticulture crops. Plantation crops like Orange, rubber, Parkia and Areca nuts are also cultivated by the villagers. The major cash crops of the village include litchi, Banana, pineapple, tea, cardamom and coffee. Changtongya is well-known for its large-scale manufacture of local banana chips. Banana chips made from Changtongya are offered in nearby villages and towns such as Mokokchung, Tuli, and Longleng. Because of the high demand for the chips, the locals have begun to grow bananas on a massive scale. Due to market demand, self-help groups in the community are also involved in the production of banana chips. The village of Changtongya is also known for its pineapple, litchi, and other horticulture crops. As previously said, the village's favourable climatic conditions result in high-quality and tasty produce. Produced fruits and vegetables are exported to nearby towns as well as the neighbouring state of Assam.

Figure 6
A portion of Changtongya village

Source: Ao Kaketshir Mungdang, 2019

JAPU

With a population of 134 families, Japu is a small village in the Japukong range circle of Mokokchung district. According to the 2011 Population Census, Japu village has a population of 487 people, with 249 men and 238 women. Meruk Kiyong, Kumpani Kiyong,

Kichaongba Kiyong, Nokum, and Umjen are the five mepu of Japu village. The literacy rate in Japu village is 73.62 percent, which is lower than the state literacy rate. Male literacy rates in Japu are 71.63 percent, while female literacy rates are 75.74 percent. Agriculture is still the main source of income for the Japu villagers. The residents of Japu village work in a low-lying plain area where they practise wet rice cultivation. Almost 80% of the villagers are engaged in wet rice cultivation. Only a handful of the villagers practice jhum cultivation. Rice produced from the wet rice cultivation are not only for consumption but are also for commercial purposes.

Along with wet rice cultivation, the Japu villagers cultivate areca nut and betel leaves. Japu village is one of the highest producers of betel leaves in the district. Betel nut leaves from the village are exported to Assam and in and around Mokokchung district. One of the major business activities of the village is the selling of areca nut and betel leaves. Large primal trees are preserved for the cultivation of betel leaves which has helped the villagers in maintaining forest with dense cover. Buyers from the neighbouring state of Assam come to the village and do their business directly from the farmers. An added advantage of the buyers coming to the village is that the villagers save a lot of capital which would otherwise be used in transportation of the goods.

The Japu villagers' farming technique has seen significant alterations in recent years. The farmer's wet rice fields, which were earlier maintained and cared for by himself, are now cared for by hired labourers. Share-cropping and supervised farming are becoming more popular. Japu hamlet, despite its modest size, is rich in agricultural and horticulture products. The locals are interested in a variety of business activities in addition to farming. The people have recently become involved in coal mining. Coal miners have taken over a major section of the village's lands. The introduction of coal mining has resulted in a negative impact on the environment. Many farmers are concerned about the contamination of rivers and land caused by coal mining, and how it is affecting rice output in wet rice fields both directly and indirectly.

Figure 7

A view of Japu village church.

Source: Fieldwork, 2017

CHUNGTIAYIMSEN

Chungtiayimsen village is located in the Tzurangkong range and is part of Mokokchung District's Merangmen circle. Assam is only a few kilometres away from Chungtiayimsen village. The village has a population of 1839 people, with 1053 men and 786 women. There are 415 households in the village. According to the 2011 census, Chungtiayimsen has a literacy rate of 65.40 percent. Chungtiayimsen village is divided into five kiyong, or redistributive units. Alimang Kiyong, Medical Kiyong, Yimkum Kiyong, Forest Kiyong, and Lenden Kiyong are the five kiyongs.

The residents of Chungtiayimsen village, which is located in the Tzurangkong valley, practise wet rice production. Rice is the most often grown crop. The rice grown in the village is primarily used for commercial purposes, as it is sold at the market. Plantation operations abound throughout the valley, in addition to wet rice production. The main plantation crops are teak, rubber, and agar trees, with tea being grown in a few spots of the valley. Fisheries are also practised by the people. A number of brick-making units can also be found in Chungtiayimsen hamlet. Along with coal mining, the number of brick-making facilities in the village has expanded in recent years. However, rat-hole coal mining is said to be prevalent in the area. The majority of the cavities/pits dug for coal extraction go unfilled and unattended. Studies show that landslides, which hinder roads, acid mine drainage, and poisoning of

groundwater, streams, and rivers have all resulted as a result of this. This new development has led to a change in the occupational pattern of the people of Chungtiayimsen.

Figure 8

A temporary make shift-church of Chungtiayimsen village.

Source: Fieldwork, 2019

Large tracts of wet rice farming have been converted into brick-making plants. Many of the people now work in the brick industry and coal mining. The villagers' economic activities have changed as a result of the growth of the brick industry and coal mining. It has also caused the farmers' farming patterns to shift. The village is only a few kilometres away from Assam, the nearest town to Chungtiayimsen village being Mariani in Assam. The proximity of the village to neighbouring Assam has added advantages, one being the easy availability of labour force. The care-takers of the plantation farms, wet rice fields and brick making units are people from the outside, mostly from Assam and other neighbouring states. The villagers employ outsiders to reside in their farms and fields and look after them, some through share-cropping in wet rice fields and others through rental services.

The following chapters will take a closer look at the changes and alterations that have occurred in the sample villages.

CHAPTER III

TRADITIONAL FARMING OF THE AOS

3.1 Introduction

Agriculture was not just a means of sustenance for the Nagas, but also a way of life. The Naga people have just recently ventured out in pursuit of fresh sources of income. The Ao Nagas were and still are agriculturists, and as such, they mostly pursue two types of agricultural methods: Jhum rice cultivation and Wet rice cultivation. The Ao, Sema, Konyak, Phom, and Sangtam tribes practise jhum agriculture, whereas the Angami, Chakesang, and Rengma tribes in the Kohima and Phek districts practise terrace cultivation. The jhum system of farming is used by the Ao Naga to cultivate their land**.** Jhum cultivation is a time-tested form of agricultural practise that is heavily dependent on traditional knowledge and most typically evolved indigenously.

Farmers have employed indigenous knowledge obtained from past experience and changed over time under the impact of traditional knowledge, external causes and agents, and individual inventions in order to survive through agricultural output. Traditional farmers have operated their farming system based on their indigenous knowledge, skills, and survival strategies. Indigenous/traditional knowledge held by farmers has scientific backing and is extremely relevant to agricultural productivity and sustainability[1].

Jhum is a tried-and-true agricultural system that draws on traditional knowledge and indigenous customs. Jhum cultivation is deeply ingrained in the Ao psyche, having evolved over time and becoming entwined with customs, beliefs, and mythology. The Ao mentality is influenced by traditional jhum. It has an impact on the agrarian society's cultural ethos and social fabric. Jhum is much more than a source of sustenance for the Ao farmers; it embodies the cause for their existence. A sophisticated system of indigenous knowledge based on experimentation and innovation is woven within the culture and tradition of jhum. This

[1] Joshi, C. P & Singh, B. B. Indigenous Agricultural Knowledge in Kumaon Hills of Uttaranchal. *IndianJournal Of Traditional Knowledge*, Vol. 5(1), (2006.Jan), pp. 19-24.

knowledge is manifested in the Nagas' hunting and planting implements, grain storage containers, and a plethora of other ways[2].

Rice is the Aos' staple food, and it is grown using the Jhum cultivation method and wet rice cultivation in some villages. When it comes to jhum farming, the Aos are said to be extremely cautious. They make certain that enough trees are left standing to allow the jungle to regrow. Each year's crop region, called as *Pok* in the Ao language, is carefully selected. Farmers employ traditional knowledge to determine the fertility of the soil and whether the land will be productive and cultivable when selecting a particular *pok* for cultivation.

Earthworm casts are recognised by farmers as markers of soil fertility. They see more earthworm droppings in the vicinity of some tree species. These soil-building tree species are preferred before the fallow period begins. The presence of earthworm droppings is a good predictor of soil fertility. When there are a lot of earthworm droppings, it's assumed that the plot is productive and a good crop is on the way. The larger the dropping, the more fruitful the soil[3]. It is believed that before deciding on a certain plot of land for cultivation, numerous soil testing methods are used. One is confirming the sun's direction. Loosely packed soil clods and trampling breaks also indicate a productive soil. Plants that are easily uprooted due to loamy soil are also a symptom of fertile soil. The colour of the soil, which can be brownish or blackish, also shows the area's production. The crops to be cultivated would be determined by the proportion of gravel and soil, as well as the temperature and altitude of the region[4].

As the time for the clearing of the jungle approaches, men belonging to a particular age group are sent to survey and select the area for the year's *pok*. Wherever possible, a *pok* is chosen between streams which form natural barriers against fire. Then again, some areas may be below a saddle between two ranges of hills. The whole exercise is undertaken with the precise aim of controlling the fire when the *pok* is burnt. After choosing the area, the proposition is brought before a general assembly of the village. If the designated area appears to be inadequate, the assembly can decide to add some more areas for the purpose. When the

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[2] Odyou, Sanchothung; Koza, Pfukrulhou & Verma, Raj. Jhum: More than Just a Farming System, *In*: International Institute of Rural Reconstruction, *Building upon Traditonal Agriculture in Nagaland, India*. NEPED and IIRR, (Kohima: N.V. Press, 2005) pp.21-23.

[3] Interview with Ongtuba, 89 years, Ungma Village, Mokokchung, August 2017

[4] Interview with Ongtuba, 2017

issue is finally settled by a consensus, a date is set for the felling of trees and clearing other vegetation. This announcement is made by the village crier at night to the whole of the village. After the selection of the *pok* comes the distribution of *pok* to families.[5]

A particular year's *pok* can contain three types of holdings that is the village land, the clan and the individual land. In cases where particular clan areas have not been covered in the *pok*, they can, with the council's permission cultivate village lands. Further, they can also enter into deals with other clans whose lands fall within the *pok*. However, this can be done only after the clan's own members have been allotted adequate portions for cultivation. To ensure that ownership of the land is never questioned, the year's borrowers must pay a small tax in the form of a paddy called lumelen at harvest time, or half a rupee in place of that. The distribution of jhum land within each clan is done on an age-wise seniority- basis, the senior most members getting the first choice, this is done to ensure that they get plots nearer the village and therefore do not have to commute long distance daily to and fro from their fields. As a result, the youngest members invariably get the plots farthest from the village.[6]

3.2 Jhum Cultivation:

The jungle is cut down during the last three months of the year and allowed to dry until February or March, when it is burned, according to the Ao jhum cultivation system. While felling trees during the clearing of jungles, the trees are not completely felled to the ground but the branches are looped. The method of looping has a lot of advantages for the jhumias and the environment. In this method of clearing the jungle, while the trunk or stump are maintained to a minimum height of 5 to 10 feet above the ground, so that new branches sprout from the tree trunk or stump.[7] On these trees the Aos plant creeper crops like pumpkin, bean, lentil, bitter-gourd etc.to use as climbing poles. This method of looping also helps the farmers because the tree stumps act as a measure for controlling soil erosion and saves the ecosystem. In some Ao villages rich men leave a few branches uncut at the top. It was considered as a symbol of status

[5] Ao, Temsula. Land Ethics and Eco- Management Among the Ao Nagas: With Special Reference to Changki Village. (2011) Retrieved on August 7, 2012

[6] Ao, Temsula. 2011

[7] Interview with Nangshimayang, Longkhum Village on May 2017

and wealth. It was believed that if a poor man left the branches uncut, lightning would strike the tree.[8]

The bush is cleared and left to dry until the end of February or the beginning of March. The slashed vegetation is dried in the sun for three to four weeks, creating a humic natural mulch that protects the soil from the sun and the impact of violent tropical rains. Organic matter decomposition not only preserves soil structure but also stimulates microbial fauna. Seed germination benefits from the combined impacts. The field is then fired. *Figure 9* shows a burning jhum field. However, before the fields are set on fire, certain precautionary measures are taken. The route of the wind travel is studied and the field is burnt on the side of the wind blows. It is never burnt from the opposite direction of the wind. The areas of cultivation are also selected far from the village so that there won't be any fire incidents in the village.[9]

Figure 9

Burning of Jhum Field in Mokokchung village

Source: Fieldwork, 2019

Because burning is such a delicate process, the day is carefully chosen. All family plots are burned on the same day so that the fire can be controlled if it gets out of hand. Neighboring farmers work together to put out the fire. Burning is usually done during the day, but if there

[8] Mills, J.P.2003. The Ao Nagas. (Kohima: N.V. Press, 2003) p.111

[9] Ao, Temsula. 2011. Land Ethics and Eco- Management Among The Ao Nagas: With Special Reference to Changki Village.

is a significant risk of a village fire, it is done at night when it is easier to identify inadvertent fires. The major burning is a beautiful and boisterous event in which each farm communicates with one another via cries and songs. Huge flames erupt on the hills, accompanied by thick smoke that impairs visibility and pollutes the air. Burning decomposes plants and soil organic matter quickly, releasing plant nutrients that are readily available to crops. It lowers soil acidity, enhances phosphorus availability, and kills weed seeds and parasites[10].

They also ensure that the fire does not destroy the forest unnecessarily, and that it is properly controlled. After the land has been burned, the soil heaps are burned again. Plant remnants, twigs, branches, and roots collected during the first burning are cut into short pieces and burned. The soil is then poured on top of the fire, which is then gently burned until all of the twigs and branches are burned away, which can take several hours or even overnight. The burned soil is then dispersed evenly around the area to ensure that nutrients are distributed evenly. The ashes from the burning of the trees enhance the soil and aid in heavy production[11].

Figure 10

A woman clearing the debris after the burning of a jhum field in Mokokchung village

Source: Fieldwork, 2019

The Aos consider that the seventh and ninth days after the full moon are the most auspicious days for burning the field. Depending on the quality of the first burn, a second round of burning may be required before the trunks and debris are removed from the field. The action takes a week or more, depending on the amount of organic matter to be re-burned or removed,

[10] Nakro, Vengota. Traditional Agricultural Practices and Sustainable Livelihood A Thematic Report. Government of Nagaland, Department of planning and Co-ordination (Nagaland: Kohima, 2011), P.55

[11] Interview with Jungpongtemjen, 65 years, Male, from Longkhum village on 10-07-2016

and is frequently employed to plant some related crops. *Figure 10* depicts how debris is cleared after a jhum field has been burned.

Sowing and weeding

Sowing of seeds in the field usually begins in the spring season in the month of March and April. *Figure 11* shows a jhum field a month or so after the sowing of seeds The Aos consider the period when the moon is not seen for several days *Ita yirem* or *larem* as the best time for sowing of seeds.[12] Paddy seeds are planted in the field based on soil conditions. They are aware of which seeds should be planted in fresh or old fields. The Aos always plant legume crops alongside cereal crops, recognising that grains grow better in this manner. Banana plants are grown near water sources in most of the locations surrounding the jhum field or terrace field. The roots and stem hold water even from the rain which moistens the soil. The fruits and stem are used as food. The leaves are used in traditional food processing like fermenting, food wrapper, plates water even from the rain which moistens the soil. The fruits and stem are used as food. The leaves are used in traditional food processing like fermenting, food wrapper, plates and 'refrigeration' purpose – it keeps vegetables fresh (as shown in *figure 11*). Seeds are sown by the broadcasting method of sowing by scrapping the top soil with the help of dibble or hoe. Minimum spaces between the two paddies are maintained while dibbling the seeds[13].

Most of the soil erosion takes place in the broadcasting method of jhum cultivation, since the entire surface of the soil is dug with the help of a hoe or dibble which makes the soil loose and unstable and with heavy downpour all the top fertile soil is usually washed away into streams which makes the soil unfit for cultivation after

Figure 11
A jhum field in Ungma village, a month or so after the sowing of seeds.

[12] Jamir, N. Talitemjen & A. Lanunungsang. Ao Naga Society and Culture, (Lumami: Nagaland University Tribal Research Centre, 2005) .p.163

[13] Interview with Jungpongtemjen, 65 years, Male, from Longkhum village on July, 2016

Source: Fieldwork, 2020

two years of successive farming. Therefore, the farmers use certain traditional method for controlling soil erosion. Farmers stagger the placement of logs and stones across the slopes to prevent soil erosion. We can see logs lined in the above *figure 9.* The Lotha, Sema and Rengma tribes also use this method of laying logs to control soil erosion. The Angami and the Chakesang tribes construct boulder and stone barriers to check soil erosion. Some Naga tribes who inhabit regions where bamboos are cheap use coarse mat like split bamboo barriers.

The Konyak, Khaimungan, Phom, and Chnag tribes of Mon and Tuensang districts regularly use earthen bunds, which are formed of a mixture of soil and clay with earthworm casts, to limit soil erosion. Even after the slash and burn operation, tree stumps and poles are left standing to prevent soil erosion and provide support for the barriers. To avoid soil erosion, coarse mats such as split bamboo barriers are also spread over slopes. To prevent additional erosion, trash and the remains of burned trees and plants are placed on the barriers. Despite the lack of broad tree planting, weeds, twigs, and stones are heaped along the barriers to prevent

erosion. Along the contours, high-value shade-loving crops like ginger, chillies, perilla, and cucumber are planted.[14]

Weeding begins after a month of paddy sows in the field. Weeding is done with the help of hoe and a scrapper. The hoe is usually made out of a piece of bamboo which is cut through half and bent till the ends cross. These are bound together to form a handle and the hoe, after being dried and trimmed, is ready for use. Weeding is best done throughout the day when the sun is up. To prevent regrowth, obnoxious weeds are placed on top of tree stumps and boulders, while succulent weeds are placed along the contour or strewn over the field as mulch. Those weeds that were previously planted on stumps and rocks are recovered and used as much as possible during the following round of weeding. Weeding is the most time-consuming and exhausting stage of the cropping process. Weed infestation is particularly significant during short fallow periods: the shorter the fallow period, the greater the impact of weeds on crop production. Weeding is done almost consistently from May till the harvest season, and most of the time it is the women that do the weeding. Men are frequently left out of the weeding duty in the field, while children also assist.[15]

The use of common salt to manage weeds is a novel weed-control approach employed by the Aos in recent years. According to legend, a farmer from Mokokchung's Ungma village found one day, much to his dismay, that the salt he had preserved in a bamboo container had turned into water. He accidentally threw the liquid on the weeds growing near his jhum hut. He discovered the weeds had died the next morning. The farmer then started using common salt dissolved in water to kill weeds, which is how the practise began.[16]

Harvesting and storage

[14] Odyou, Sanchothung; Koza, Pfukrulhou & Verma, Raj. Jhum: More than Just a Farming System, *In*: International Institute of Rural Reconstruction, *Building upon Traditonal Agriculture in Nagaland, India*. NEPED and IIRR, (Kohima: N.V. Press, 2005) pp. 48-50

[15] Odyuo, 2005: 53; Interview with Mepuchuchag, 74 years, male, Longkhum village on July, 2016.

[16] Keitzar, Supong & Imliakum. Common Salt for Weed Suppression in Jhum Fields" In: International Institute of Rural Reconstruction: Building upon Traditional Agriculture in Nagaland, India, NEPED and IIRR, (Kohima: N.V. Press,2005), pp. 56-57

August and September are the most common months for harvesting. It's one of the most essential times of year for them to gather their hard-earned produce. *Figure 12* shows a jhum field ready for harvest. Before the reaping of the grains begins, a threshing floor is built which is nothing but a forward extension of the jhum hut and a roof is added, after which harvest actually begins. Simple agricultural instruments such as the sickle and dao are used to reap the crops. The paddy stalk is cut into a cluster or sheaf by reapers and then thrown over the shoulder into a reaping basket on the back. Farmers just collect the ears, leaving the stalks or straws remain. This aids in the uniform distribution of nutrients across the field rather than concentrating all nutrients in a few locations. Paddy stalks are collected and spread out on the threshing floor, where rice stalks are threshed by being trampled or beaten with a stick. With the use of a winnowing fan made of bamboo matting, the hay and chaff are removed from the paddy. Finally, the grain is measured in measuring baskets and sent to the granary.[17]

Figure 12

Jhum Fields ready for harvest in Ungma village.

Source: Fieldwork, 2020

[17] Interview with Mepuchuchag, 74 years, male, Longkhum village on July, 2016.

According to the beliefs of the Nagas, it is *genna* to store paddy inside the house, therefore, granary is constructed separately outside the village[18]. Granaries are usually built a few yards away from the village. Rice granaries are positioned distant from the home in Ao communities to safeguard them in the event of an accidental fire. When the harvesting is completed, the rice is immediately transferred to storage places. To keep rats, birds, and fowls out, they are made with bamboos and wooden posts, and the floors are raised to a height of 3 to 6 feet above the ground. To store the rice, farmers build barns that stand on slits. Birds and rats are kept at bay by this method. To keep rats and vermin out of the barn, flat planks or inverted cup-shaped materials are affixed to the stilt. A bamboo split into a funnel shape with the smaller end sticking upwards allows air to enter the basket to help aerate grains held in baskets. Some farmers season paddy with cinnamon leaves and wood ash before storing it in bags. To protect rice grains from stored grain pests, red pepper is inserted in sacks of rice. Paddy is treated with eucalyptus wood ash to protect the seeds during storage. *Figure 13* is an example of a granaries built away from the village in Longkhum village, while *figure 14* shows the traditional bamboo baskets that were used to store grains.

Figure 13

Traditional granaries at Longkhum village, which are no longer in use.

Source: Fieldwork, 2017

Figure 14

[18] Nshoga, A. 2009. *Traditional Naga Village System and its Transformation*, (Delhi: Anshah Publishing House, 2009) p.103

Different types of Traditional bamboo baskets that were used to store grains.

Source: Fieldwork, 2019

3.3 Wet Rice Cultivation

Wet rice cultivation is also done in a few spots of the district alongside Jhum cultivation. Wet rice cultivation is prevalent in the district's low-lying areas, particularly in the valleys. Tsurang, Changki, and Milak Valleys are the main valleys where wet rice cultivation is practised. The main agricultural locations where wet rice cultivation is done in Mokokchung district are Changki-Longnak, Tsurang, Milak, and Dikhu valleys. Due to nutrient wash-out from the hill slopes, the soil in valley regions is fertile and does not require additional fertilisers. The key benefit is that the land produces a consistent production year after year, as opposed to the jhum system, which crops just once per several years of fallow interval depending on the jhum cycle. Irrigation farming, such as wet rice cultivation, necessitates collaborative efforts to maintain and develop the water delivery system. Economic returns can often be dramatically reduced in the absence of a controlled schedule and scale of water distribution among the beneficiaries[19].

In wet rice cultivation, the land for cultivation is usually owned permanently by a person. A person gets his share of clan or village land which becomes his permanent land. The land is first ploughed and bunds are created to keep the field flooded with water and irrigation channels are built. Ploughing is often done with a bullock-drawn plough or a hand ploughing

[19] Ramakrishna, P. Sapatani, Wet rice cultivation: an example of a highly evolved traditional agroecosystem, SES. (New Dwlhi:JNU, 2015)

hoe in the months of June and July. Small seedbeds or nurseries are then used to plant seeds. The rice plants are allowed to develop for a month or until they reach a height of one foot. Following that, the seedlings are transplanted one by one into paddy fields that have been prepared. In the months of July and August, most transplants take place.

The crops will be maintained for the following two months by maintaining irrigation drainage and weeding by hand as needed. The plants must be kept irrigated while they mature, but when the rice matures, the fields must be drained. Depending on the rice variety, the crop is harvested by November end. After that, the rice is harvested and threshed by hand.[20] Wet rice cultivation requires a lot of effort. When the fields are prepared, seedlings are transplanted, and the rice is harvested, labour is especially vital. Increasing the number of people working can considerably enhance the amount of product each field can produce at this time. In some locations, a farmer can boost output by planting two or three harvests of rice each year, a strategy that necessitates even more concentrated labour because the harvesting of one crop and the transplanting of the next crop occurs at the same time. The demand for labour is substantially reduced throughout the winter or while the rice is ripening.

Figure 15
Wet rice cultivation in Tsurang valley, Mokokchung

Source: Fieldwork, 2019
Figure 16

A woman harvesting rice paddy at a wet rice field somewhere in Nagaland.

[20] Interview with Meren Kichu, male respondent, Chungtiayimsen village, September ,2019

Source: Google, retrieved on May 2020

3.4 Rituals and beliefs associated with traditional agricultural process of the Aos

The dictionary of religion and philosophy (1996) defines ritual as “a patterned form of behaviour, generally communal and consisting of prescribed actions and words.” Many components of a society, like as agricultural cultivation, tool creation, tribe celebrations, and so on, have religious connotations. Rituals produce communal images that shape a group's identity. All known societies engage in ritual, which is a specific, observable form of behaviour. As a result, ritual can be viewed as a means of defining or characterizing humans. Rituals, according to Emile Durkheim, are "collective representations" performed in front of an audience. People become aware of their group membership through these enacted rituals.

The experience of social integration is conveyed through rituals. People who do not have these experiences are more likely to believe that their lives are meaningless and that life is unworthy of their time. Suicide rates might be interpreted as a failure of social integration; it is a minor step toward society's disintegration. Ritual is necessary for the continuation of social integration energy. Society would fall apart if there was no ritual at all. Social solidarity, according to Durkheim, is the glue that ties society together. Through social rituals, the forces of social solidarity must be constantly developed and regenerated. In other words, rituals reverberate throughout the rest of our social life. Rituals can influence and shape our behaviour through the ideas or symbols associated with them.

According to Edward Evans-Pritchard (Theories of Primitive Religion ,1965), “how religious beliefs and practices affect in any society the minds, the feelings, the lives, and the

interrelations of its members…religion is what religion does." For Durkheim and others who use these terms, ritual is a determined mode of action. Animism was the traditional religion of the Ao Naga. They believed that natural occurrences, as well as the universe itself, had wants and intentions. They executed a number of rites and ceremonies in order to appease the spirits' desires and intents. Some rituals were carried out by the entire community, while others were carried out by individuals.

Community rituals had strict rules and the entire village had to remain *Genna*[21] for days in some ceremonies. These rituals acted as a system for integrating the community. These rituals and ceremonies were sacred to the people and every precaution was taken that they perform the rituals accordingly and with deep devotion to the spirits concerned. Rituals and sacrifices were a part of their everyday lives. Their religion demanded the various offerings and sacrifices and these were observed according to the situational demands. The Aos had the belief that the spirits acted as the malevolent and benevolent spirit. If they please the spirits, they acted as benevolent but if they displease the spirits, it acted as malevolent and brought about disaster and misfortunes to the life of the worshippers.

The Ao Naga agricultural cycle is also permeated with a host of rituals, ceremonies and beliefs. There is hardly any ceremony in Ao religion which does not have some bearing on crops.[22] Ao men and women are very hard-working people and they labour hard to win a living from the soil. But their hard work alone did not suffice for a bountiful harvest and wealth. Many ceremonies and rituals had to be performed without which all labour would be in vain. The series of rituals connected with agriculture begin with the selection of the field sites and culminate with the harvest of the crops. The selection of the site, clearing of the forest, burning of the cleared jungle, sowing, first weeding, the first breaking of the ear, and finally the harvest is all considered prone to unforeseen calamities of all sorts. Hence to protect the crops from such unforeseen destruction and calamities, each agricultural activity had to be preceded with specific rituals to appease and also compensate the various spirit beings of the forest and the land. All the agricultural operations begin with the religious ceremonies and observation of

[21] Genna: the word genna has its roots in the Angami Naga word 'kenna', which means, it is forbidden. During the genna period, it is forbidden to travel, to have sexual intercourse or eat certain types of food

[22] Mills, J.P.2003. The Ao Nagas (Kohima: N.V. Pres, 2003).p.102

taboos. Offering of prayers and rituals were held for the deities for the protection of crops and bounteous harvest.

The agricultural cycle of the Ao began with the selection of jhum field. The selection of the jhum field for a particular year was a crucial decision and it cannot be cultivated randomly but all due religious ceremonies must be carried out on the site to ascertain the location. The village headman and other village elders go to the forest for the identification and selection of pok to be bought under cultivation. After the selection of the site, each man selects a site for his field house. He must remain chaste on the previous night and refrain from eating the meat of anything killed. It is believed that any breach of genna on that occasion will bring hardship to the village in the shape of crop failure and epidemics. While dreams of the selection day's night would be carefully noted, and if the dream is optimistic then the field is selected for cultivation, but if the dream signify ominous, the site is abandoned and a new site is selected. After the selection of the site, he kills a fowl and eats the meat for himself, and if he cannot finish the meat, he cannot bring back the left over to the house but he must eat it in the *Morung*[23].

On the next day, the villagers will cut a small foot-path and sub-ways to make easy access to each field. This day is also known as the *Sungkomeshi mong* which means the day of dedication of a new tract of cultivation to be cut down or cleared[24] or cleansing of the jhum land. This is a one-day village ceremony which is carried out before a new area of jhum land is operated. While the whole village observes a day ceremony, the village priest sprinkles new wine on the new path leading to the field. The main object of this ceremony is to protect the villagers from danger or any injury while operating the cultivation throughout the season. The village priest takes a blameless this, one day prayer meeting is observed in the church today. They assemble there for a special crowing cock and offers it in the designated spot for protection from evil eye, injuries, and death while clearing the whole jungle that is during the operation of the shifting cultivation. In lieu of prayer initiated by the pastor and church elders for the same purpose. This has become their practice after the Aos converted into Christianity.[25]

[23] Interview with Mepuchuchag, 74 years, male, Longkhum village on July, 2016.

[24] Bendangangshi, I & Aier, I.T. Apok . The Religion of the Ao Nagas (Gauwhati: Saraighat Offset Press, 1997)

[25] Jamir, N. Talitemjen & A. Lanunungsang. Ao Naga Society and Culture, (Lumami: Nagaland University Tribal Research Centre, 2005) p.163

After the *Sungko* meshi ceremony, the first cutting of Jungle known as *Sungkho Lepden* is carried out. When children and others observe *anempong* (genna), the village priest, assisted by the wife, goes to the spot and offers egg or chicken, cleaning the old fireplace which he or his forefathers had used for this same purpose long ago. Minor children are not allowed to participate in the ceremony. The next day, other household members join the work for the new cultivation[26]. *Talen Mesa* or *Talen walok* is the field path clearing ceremony where the footpaths are cleaned first before the operation of shifting cultivation. When the village elders decide a certain area for new cultivation,and before the villagers start to walk the new path, the priests offer sacrifice to *Lichaba* (the creator of everything) for safe journey to and fro. This is observed again after burning the slash before they take the first step on the same path. The main purpose of this ceremony is to gain protection from jabbing the feet on stones, from evil eyes and injury. They feel that this is possible only when the footpath is thoroughly cleaned and purified.

The jhum field is burned at the end of February or the beginning of March, after the jungle has been cleared and allowed to dry. The Aos believed that the seventh and ninth days after the full moon were the most favourable days for burning. The local priest offers worship shortly after the jhum field is burnt during the jhum field burning. Snakes, insects, and other wild animals are likely to be burned alive when the field is being burned. The priest regards them as unholy, and they must be sanctified before the seeds can be planted. After the sanctification, a fire will be produced from fire-thong or flint stones. It is *genna* to take fire from the house to the therefore, new fire is produced in the field. The priest first sets the fire on the field followed by the village elders. No seeds are sown until this ceremony is carried out[27]. After burning down the new tract of cultivation, the whole community observed the next day as *Alurong Mong*. On this day no one is permitted to go out of their village.

The day was observed as a day of prayer and worship to their omnipotent and omnipresent God[28]. The ritual that follows after the *Aluro Mong* is the *Merok Mesa* or the *Alemesumong* which means the cleansing of the burnt or field purifying *mong*. This is a long

[26] Jamir, N. Talitemjen & A. Lanunungsang. 2005, p.126

[27] Jamir, N. Talitemjen & A. Lanunungsang. Ao Naga Society and Culture, (Lumami: Nagaland University Tribal Research Centre, 2005), p.163

[28] Bendangangshi, I and Aier, I.T. Apok. The Religion of the Ao Nagas (Gauwhati: Saraighat Offset Press, 1997) p.55

day ceremony that refers to cleansing of the jungle that might have burnt while burning the jhum field outside of the demarcation of fire line. This ceremony is observed following the day after burning the jhummed field. The priest and representatives of each clan got to the village alter and offer a pig on behalf of the whole community. It was believed that grass would overgrow the seeds resulting in poor harvest, if any wildfire were burnt alive while burning the jungle. On such an occasion, a dog is normally preferred for sacrifice[29]. This ceremony becomes essential in order to avoid the possibility of any unwelcome occurrence. They pray for the evil influences of any creatures or snakes burned in the jungle to be rendered powerless, as well as bountiful crops and good health. This is still practiced today. The Aos do not kill wild animals during the clearing of jungle to avoid misfortunes[30].

The field being cleansed, the next step is the building of the field house which is to be his shelter and resting place during all the weeks of toil which lie before him. The custom is that the day after the *Merok Mesa*, everyone who is not unclean for any reason goes down to his field house site and sacrifices a bird and sets up one post. After the bird is sacrificed, prayers are offered to ward off the evil powers of any animals or snakes that have been burned in the jungle, as well as to give abundant crops and good health. After that, each man is genna for six days. Strangers are not allowed to enter his home, he is not allowed to speak to a man from another town, he is not allowed to leave his village territory, and he is not allowed to eat unclean meats. After these six days, he returns to the field and, after offering an egg, erects one of his field house's posts.It is this setting up of the first post which is really important. It is also important that the rich men of the village should built their field house first, and the poor men later. This is because rich men are naturally endowed with *aren* which is the curious quality of innate prosperity in which the Ao believes so strongly. This virtue, by building their field house first, they will impart to the whole block of cultivation[31].

The *Aphusang* ceremony is the setting up of the sacrificial altar, *aphu*, of the field house. It takes place first when the *aphu* in the old fields is renewed, just before they are sown, and again when a new *aphu* is put up outside the field house of the new fields. The family goes down with a little sow, a fowl of either sex and egg. Having renewed or put up the *aphu*, the husband offers in front of it two leaves of rice, two leaves of ginger and two leaves of meat,

[29] Jamir, N. Talitemjen & A. Lanunungsang. 2005, p.127

[30] Jamir, N. Talitemjen & A. Lanunungsang. 2005, p.127

[31] Mills, J.P. The Ao Nagas *(*Kohima: N.V. Press, 2003) p.112

one containing six little scraps and the other five. Then he addresses the sprits and says, “It is not the customs, but lest there be not enough meat for you all I add this”, and puts another little scrap of meat in the leave containing five. The pig is then speared in the right side with a sharp bamboo and little scraps of its liver are offered. The fowl’s throat is cut with a bamboo knife, and the egg is either offered at the foot of the aphu or, in the case of the aphu in the old fields,which is renewed on the day on which they are first sown, is broken over the seed price.[32]

The first seed sowing ceremony known as the *Metsuwalok Mong* is one of the most important ceremonies involved in the whole jhum cultivation process. When the field is thoroughly cleaned and ready for sowing the seeds, the village priests observesthis. The nearest meaning of *Metsuwalok mong* is the ceremony for the dedication or consecration of seeds[33]. While the villagers observe holiday with *anempong*, two village priests collect seeds of every kind from rich men’s houses and they sow the seeds near the village path just outside the village. A pig of either sex is sacrificed and the priest and elders’ feast. The plot sown is carefully fenced around.[34] If the plants grow well, it was considered as good omen. Mass seed sowing takes place few days after the *Metsuwalok* ceremony which is known as the *Tenten mong*. With a chicken and some seed rice, one of the village priest travels about half-way down to the new fields. He clears a small area, sows rice, and erects a fence around it. The chicken is then killed by cutting its throat, and the omens are taken. The priest utters with a fowl in his hand “This year too, *Lichaba* God, let the new seeds grow healthy. After you eat, we will eat the remnants”[35] and at the end of each syllable, the fowl’s feathers are pulled out. Except for one leg, which he puts in his basket and carries home, he prepares and eats the fowl. Later on, the hen's leg will be required. As he goes home, he complains of the weight of his load, and custom ordains that he should sit down and rest at least once on the way[36]. Immediately after the sowing is finished the *Moatsu* ceremony or festival takes place[37]. This is the Aos' biggest festival, which takes place in the springtime. It brings blessings to the new grains in the field

[32] Mills, J.P. The Ao Nagas *(*Kohima: N.V. Press, 2003) p.115

[33] Bendangangshi, I & Aier, I.T. Apok . 1997. The Religion of the Ao Nagas, (Gauwhati: Saraighat Offset Press,1997). p.56

[34] Mills, J.P. The Ao Nagas *(*Kohima: N.V. Press, 2003) p.114

[35] Jamir, N. Talitemjen & A. Lanunungsang, Ao Naga Society and Culture, (Lumami: Nagaland University Tribal Research Centre.2005) p.127

[36] Mills, J.P. The Ao Nagas *(*Kohima: N.V. Press, 2003) p.114

[37] Mills, J.P. 2003: 115

as well as to protect new crops from pests throughout the season. Every year, it occurs in the first week of May.Before the celebration of *Moatsu*, seeds of all kinds are sown in the field. Then, the farmers wait for healthy and plentiful harvest. For that purpose, it depends on the mercy of *Lichaba*, the creator of earth who holds the blessings of soil and the fruits that may bear plentifully. For this reason, the festival of asking blessing is essentially required[38].

The Moatsu festival is usually held in an open field or on the street. It is distinguished by colourful traditional costumes, singing, drinking, tug-of-war, and other activities in which both men and women, including children, take part. This is why it is known as the Aos' most well-known and well-attended event. This event takes place over the course of six days. The dancers, dressed in their finest traditional dress, circle the open street, singing songs of joy and blessings. This celebration is a true source of joy and delight. It is typically a festival for young boys and girls where they connect with one another through a variety of activities, participating in a variety of group activities, and displaying their greatest talents. They also exchange gifts-young men receive new *dao* straps from their lovers and admirers and the girls in return get new tobacco pipe. Ao women generally smoked tobacco in pipes made of bamboo and bamboo roots.

Among the ceremonies, this is the only ceremony in which there is no much taboo, gennas, and ethical restrictions. As the summer sets in and the villagers finish sowing their seeds, this festival is celebrated with the gay hope of growing the seeds with the highest degree of freshness of mind and season. An age group of male members known as the *sungpurs* is responsible for making necessary arrangements for the festival. They collect plenty of firewood and a special wood for making *dao* holder. The *Morung*[39] is the centre of activity during the festival. It is here the human skulls of war are displayed in raised bamboo or hung in trees near the *morung* which is known as the skull tree.[40]

The first three days of festival is spent as a prelude to the main celebration. During these three days, the young people of both sexes dance and sing in one place while the elderly people

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[38] Jamir, N. Talitemjen & A. Lanunungsang, Ao Naga Society and Culture, (Lumami: Nagaland University Tribal Research Centre.2005) p.128

[39] Traditional male dormitory

[40] Jamir, N. Talitemjen & A. Lanunungsang. Ao Naga Society and Culture, (Lumami: Nagaland University Tribal Research Centre, 2005). p.128 and Thong, S.Joseph. Head-Hunters Culture Historic Culture of Nagas, (New Delhi: Mittal Publications, 2012.)

do the same in another place. Various games and sports are organized. The game of tug of war is also arranged, where the women folk on one side and the men folk in the other pull the creeper rope amidst cheers and much excitement.[41] The fourth and fifth days are called *yarinu* or days of dancing and these days too are devoted to singing and drinking and tug of war. It is marked by the colourful exhibits of the traditional dresses and shawls. The dresses represent symbols of their richness and their good deeds in their life. Shawls like "*tsungoteptsu*" could be worn only by warriors who have taken enemy heads or the rich men who has offered the Feast of merit. Common and ordinary people were not entitled to wear that particular shawl.

On the sixth and the last day, unrestrained feasting and merry making continue from morning till the next day. Late in the evening, a bon fire is lighted and the boys sing and dance around it. The next day, which closes the *moatsu* festival, an old man called *ampong*, who has remained chaste the night before, goes down towards the fields with sundry old cornies of like age, taking with him a pig and a fowl, and on the path makes the usual offering of meat, fermented rice, boiled rice, ginger and so on to the spirits of the path. He cuts the fowl's throat with a bamboo knife and slitting open the stomach extracts and examines the entrails. From these he professes to be able to tell whether the crops will be good and whether anyone will die before the harvest. The pig is then speared in the right side with a sharp bamboo and a prayer offered for good crops and freedom from pestilence. The stomach and liver are eaten on the spot and the rest divided up and taken home. Meanwhile the rest of the male population of the village are busy clearing the path, the more distant sections being assigned to the young bucks and the portions conveniently near the village to the old men.[42]

The Aos hold a unique ceremony called Jameja or aren tsungrem ajaba mong around a month after moatsu, usually in the month of June, in which they pray to the gods for bountiful crops and village prosperity. The priests bring two fowls and a pig to the Lichaba altar for this ceremony, where they make their offering and consume one-half of the pig. The other half of the pig is presented to the tartars or board of elders, who in turn give them half a cow that they have slaughtered for the occasion. This is a sacred rest day for the priests and elders, and the village as a whole observes the next day. It has been seen praying to the food god for abundant harvests. On such occasions, no guests are permitted to enter the community, and no one is

[41] Thong, S.Joseph. Head-Hunters Culture Historic Culture of Nagas, (New Delhi: Mittal Publications, 2012.) p.30

[42] Mills, J.P. The Ao Nagas. (Kohima: N.V. Press, 2003) pp.119-120

permitted to leave in the hope that the abundant crop and other blessings will not be taken away. For the same reason, no grain will be sent to another town for three days. The month of Jameja is named after the return of wealth in their community at this time.[43]

When the rice is a few inches high every village observes one day ceremony called the *Mosumong* in chungli and *Amasumong* in mongsen language. This ceremony is supposed to prevent the young plants from withering. Another ceremony known as the *Chiten Mong* is observed when harvest time comes and all seeds are ripened, the priest who has performed the *tenden mong* collects the first fruits and offers them to *Lichaba* as a sign of thanks giving. In the process, the priest would first taste any of the food items like rice, cucumber, maize etc. He picks up certain items from the field and eats them saying that the food is bitter. The Aos believe that by saying this, the wild animals do not eat such fruit thinking them to be bitter. In this way, the destroyers of the ripen fruits and grains are deceived.[44] Thereafter, the main harvest takes place before which the first fruit is tested by the priest. It is also observed for two purposes namely; thanksgiving to *Lichaba* and petition to him for protection of paddy grains from pesticides. The Hmong tribes of China have a similar rite known as "the ceremony of tasting new grain," in which some of a new crop of rice and maize is prepared delicately and offered to the home and ancestral spirits before being consumed by the household members.[45]

A kind of pre harvest ceremony or thanksgiving festival known as the *Tsungremmong* festival is observed before the harvest. Before the observance of this festival, cleaning of the entire field should be completed and the things required during the process of harvest are kept ready. It is the highest and the last public ceremony which is observed for three days. That is why it is also known as *asemnu mong*, a three-day event. For abundant harvests and harvest, *Lichaba*, the creator of the soil, is honoured with a day of worship and sacrifice. A stringent Sabbath is maintained, with prohibitions on all manual labour, including stamping, spitting, and going beyond a particular specified boundary. Loud talking and yelling are also prohibited. On a newly built fire presented to *Lichaba*, only new and fresh food is prepared.

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[43] Jamir, N. Talitemjen & A. Lanunungsang. Ao Naga Society and Culture, (Lumami: Nagaland University Tribal Research Centre, 2005). p.128

[44] Jamir, N. Talitemjen & A. Lanunungsang. Ao Naga Society and Culture, (Lumami: Nagaland University Tribal Research Centre, 2005). pp.138-139

[45] Lee, Gary Yia. The Shaping of Traditions: Agriculture and Hmong Society, *Hmong Studies Journal*, 2005, Vol 6. (2005) pp 1-33.

The priests offer *Lichaba,* the largest pig available in the village altar, *aphu* the next day in order for him to bless and protect his followers from calamity, adversaries, and calamities for the coming year. This is called *asemnu amho,* three days Sabbath. This is the last celebration of the year by the whole villager including children. *Lichaba*, the lord of earth being the greatest god (*Tsungrem* in Ao), and responsible for the crops, rains, seasons, plants and all creatures upon the earth, needs the greatest attention from men. This festival is the strictest and the holiest one. The consequences of any lapse or careless observance of this ceremony resulted in drought, calamities, illness and tragedies that destroy crops in the fields. This is observed in the first week of August, just before the harvest.[46]

Three weeks after the *Tsungremmong,* the priests perform another rite known as *Lichaba Kulem mong*. The Aos believe that *Lichaba* is the creator of the cosmos, and that he has complete authority over the entire world. He is said to be the cause of earthquakes and other natural disasters like as landslides, storms, droughts, and hailstorms, all of which are harmful not only to natural vegetation but also to human life. As a result, the Aos worship him with profound reverence. The priests observe the *Tsungremmong* with a high sense of honour and sanctification, regardless of whether it was carried out perfectly or not, so that no crops are ruined by natural calamities.

Of all the agricultural operation, harvesting is one of the most crucial periods to gather the crops. Certain public ceremonies are performed before the harvest begins. The village priest who sacrificed the fowl at the tenden ceremony brings again to the place of sacrifice the leg which he took home and says to the spirits "I have not eaten my share of the fowl. Have you eaten yours? As I have refrained from eating, so make the birds and animals refrain from eating our rice.[47]" He then ties up the leg to the little fence he made at the sowing ceremony. After the priests finish the ritual, the sowing begins. Among certain Ao villages, it is the senior priest who reaps the first few ears of the rice and puts them in his basket. Among the Angami, the

[46] Jamir, N. Talitemjen & A. Lanunungsang. Ao Naga Society and Culture (Lumami: Nagaland University Tribal Research Centre, 2005) .p.128 and Thong, S.Joseph. Head-Hunters Culture Historic Culture of Nagas, (New Delhi: Mittal Publications, 2012) p.139

[47] Mills, J.P. The Ao Nagas. (Kohima: N.V. Press, 2003) p.122

Sema nagas and the Lotha Nagas, the first reaper must be a woman, which is not the case for the Ao Nagas.[48]

In order to gain the favors of the spirits of a man's own particular piece of land, he has to perform a ceremony where he takes down a pig and a fowl of opposite sex and performs the *aphusang* ceremony. This is the same ceremony that he carried out before sowing. He then ties two leaves of boiled rice and two leaves of meat on to his basket and reaps a little rice with his left hand, the idea being that as he reaps slowly in this way, so his crop will be so big that he will take long to cut it. Then he ties an egg in a little basket on to the pole which crosses his threshing floor and threshes out what he has reaped, calling on his ancestors to come and empty loads of rice there while he tramples out the grain. This done he can reap in earnest. Families combine at harvest and help each other to get their crops in quickly. Women and girls and elderly men reap while young men go around with big baskets, taking what they have collected to the threshing floor. When all has been a pig and a fowl are again sacrificed and the customary offerings are made at the *aphu*. The rice is subsequently trampled and winnowed using a bamboo matting fan to thresh it. Finally, the grain is measured in weighing baskets and transported to the granary.[49]

Apart from the many ceremonies and rituals associated with agriculture, there are countless other ceremonies, sacrifices, rituals and worship which are observed by the Aos according to situational demands. They have ceremonies for cleansing the house, cleansing the village, protection of village, ceremonies for epidemics, ceremonies for illness, ceremonies for birth and death, worship ceremony to the mountain ranges and the stones, well and river and many other irregular ceremonies that involve either the whole village or an individual family according to the nature situation and the calamity. The Aos believe that the spirits acts both as malevolent and benevolent spirits. When the spirit is propitiated, they act as benevolent but when the spirit is displeased, it acts as malevolent on the life of the worshippers.[50]

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[48] Aier, Anungla. Agricultural Cycle Associated Rituals and the Role of Women, In: Richard & Vibha Joshi., eds Naga – A Forgotten Mountain Region Rediscovered. (Basel: Christoph Merian Verlag and Museum der Kulturen., 2008) pp.122-129.

[49] Mills, J.P. The Ao Nagas. (Kohima: N.V. Press, 2003)

[50] Mills, J.P.2003. *The Ao Nagas.* Third edition by Directorate of Art and Culture, Government of Nagaland, Kohima: N.V. Press

It is necessary for the Aos to pacify the malignant spirit from harming the soul of the people. They believe that certain misfortunes and calamities occur due to improper observance of the ceremonies. Therefore, the observance of the various ceremonies becomes very essential. The spirits have to be propitiated with proper animal sacrifices and offerings of eggs, rice beers and food so as to prevent the dangerous spirits from haunting them in vicious ways. According to Malinowski, magic serves as a technical aid to production, giving producers initiative and stimulating their work, thus setting their own pace of production.[51] The Ao did not used magic but their way of sacrifices and rituals can be related to magic in the view of Malinowski. The Ao, it might be argued, employed rituals to enhance their labour and instruments in order to grow successful crops. As Evans-Pritchard (1965: 45) further suggests that "the chief benefit from the performance of a rite may not be to secure practical ends but to prevent tension or anxiety from rising among the believers. Rituals thus act as economic incentives and as a prevention of conflicts".

There are also many common belief systems, dreams and superstitions associated with the jhum cultivation system in the Ao society. The beliefs of the Aos are governed by superstitions, which led to the practice of rituals to propitiate the spirits, so as to ward of the wrath of the evil spirits. The Aos have certain stories and lore linked to certain beliefs. When the grain begins to ripen the insect, cricket announces the coming of cold weather and welcomes it with its cry. The cricket was originally a little orphan boy who was apparently rather badly bullied by his elder sister. One day while working in the fields she would not let him stop for a drink. So, he slashed his cloth and put it on and turned into a cricket and said "you have treated me so bad that I have turned into a cricket. I shall call when the grain is ripening. "If you look carefully at a cricket, you can still see the dao holder and torn cloth.[52]

For the Aos, more wind in March and April signals a good monsoon and a good harvest. *Paktemnen* and *Waloknok* are the names of two major storms. Thunderstorms that start from the north-west direction indicate a good monsoon that year, but thunderstorms that start from the east indicate a late monsoon that year. Their belief on how and why thunderstorms, wind and rain occur is that there once lived two friends, Aiyentangba and Mayentangba, who set out to fight the wind. But it the wind was too strong for them and they were blown up to the

[51] Malinowski, B. The Natives of Mailu, (Transactions of the Royal Society of South Australia, 1915) pp.494-706.

[52] Interview with Mepuchuchag, 74 years, male, Longkhum village on July, 2016.

sky, where they are to this day. They often quarrel and fight and the clash of their shields causes thunder and the waving of them wind, while rain is the sweat dripping from their bodies. Another popular notion is that thunderstorms and lightning are married. The first sound is thought to represent the husband, while the second thunder is thought to be the wife. As a result, heat thunder and lightning strike twice. They also believe that if a thunderbolt strikes a tree in cultivated ground, the field must be cleaned with an offering.[53]

If the first rain of the year starts from North West it signifies good monsoon. But if the rain starts from east, it is the sign of late monsoon. *Tzurongpong, Jarempong, Ngeptipong, Manipong* and *Ngashi* are the major rains. If the hornets make their hives on the tree top it is a sign of natural calamity such as hailstorms, heavy wind etc and if they make their hives in the lower tree it indicates certainty of natural calamity that particular year. They can forecast monsoon conditions by observing the sun's direction. As a result, they transplant seedlings as quickly as possible because late transplanted seedlings bear less grain. Farmers say that paddy rice seedlings transplanted on June 21st bear more grain because June 21st is the year's longest day.

They predict whether the year's monsoon will be excellent or if there will be drought by listening to the sound of an owl chirping. They believe that when the owl chirps 'coco,' it means that drought will occur that year. When the woodworm, known as sunglong in Ao, stays upward inside the log, tree, or bamboo nut, it indicates dry monsoon, and when it stays below, it indicates wet monsoon[54]. During an earthquake, the basket with ready-husked rice must be held steady by several members of the home in each house in the aren, otherwise the rice will be scared and escape. They also have the belief that the habitations of ants in the field house like small mountains, the coming of toads to the field house and making their nest in the threshing floor and bees making their hives in the field house are indicators of rich harvest. When a snake, a tiger, or other wild animals of a vicious nature appear during the clearing of a field, it is thought that the spirits of the area do not allow the field to be used and that a new location must be located. Similar rituals have been reported in other parts of the world. From the time of rice planting till rice harvesting, the Black Miao of China are reported to give

[53] Jamir, N. Talitemjen & A. Lanunungsang. Ao Naga Society and Culture, (Lumami: Nagaland University Tribal Research Centre. 2005) p.128 and Thong, S.Joseph. Head-Hunters Culture Historic Culture of Nagas, (New Delhi: Mittal Publications. 2012) p.166

[54] Jamir, N. Talitemjen & A. Lanunungsang. 2005. p.128 and Thong, S.Joseph: 2012

offerings to the spirits of the granary and refrain from boisterous amusements such as the playing of the reed pipe.[55]

The traditional ceremonies, rituals and beliefs associated with the jhum cultivation did not really lead to bountiful harvest and the crops did die and failed many a times but no preventive measures were taken. When the crops failed due to infestation of rats and hailstorm, they believed that it was the wrath of the malevolent spirits, and when they received good harvest, it is the deities or spirits who accepted their religion. As change and continuity are the undeniable facts of life, the farmers always try to maintain balance between tradition and modernity. The disappearance of some rituals and lessening of the importance of certain others have created a situation of unpredictability regarding the sustainability of these agro based rites and rituals.

The advent of new technology in agriculture has affected the traditional agro-based religion. People have lost the spirit to worship the many gods. Though some of the rituals are still practiced, they are not celebrated with the same fun and fervor. The mode of operation of socio-religious rites and ceremonies has changed. Even those, who are still observing them, are not celebrating these rituals in a way prescribed and practiced before. Most of the farmers are not aware of the significance of these rituals. They are celebrating these rituals just because their fore fathers were observing them. No culture is known to have firmly set its face against all changes for all the time. By using their genius, the farmers of the village have successfully tried to avert any clash between new situations and the old rites and rituals.[56]

3.5 ROLE OF WOMEN IN AGRICULTURE

Women contribute significantly to agricultural and rural economies in all parts of the world. In low-income nations, women make up half of the agricultural workforce.[57] Agriculture employs about 70% of employed women in South Asia and more than 60% of employed

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[55] Lee, Gary Yia. The Shaping of Traditions: Agriculture and Hmong Society, *Hmong Studies Journal* (2005) Vol 6. pp 35.

[56] Mishra, Kamal.K and Mishra, Niharranjan. Changing Agricultural Technology and Its Impact on Agro-based Rituals and Folk Songs in Rural Orissa, *Indian Anthropologist*, Vol. 36 (2006) No. 1 &2, Jan – Dec.

[57] FAO. "*The State of Food and Agriculture: Women in Agriculture, Closing the Gender Gap for Development",* Rome. (2011)

women in Sub-Saharan Africa.[58] The majority of women in India work as cultivators, supervisors, or agricultural labourers in farming enterprises. They are the primary decision-makers and participants in agricultural operations such as seed sowing, transplanting, and weeding, harvesting, threshing, manure application, seed and grain storage, and post-harvest home processing. Aside from that, they are also responsible for delivering fodder from the field, chaff cutting, cow feeding and cleaning, cattle shed maintenance, compost production, and so on. Because of her personal involvement in agriculture as a manager, decision maker, and labourer, women are regarded as a partner of man in agriculture and are engaged in the effort of introducing new technologies to farmers.[59]

Eco-feminist theories argue that the sexual division of labour found in most societies that consider family sustenance to be women's work causes increased burdens for women, not because of environmental degradation per se, but because of the sexual division of labour found in most societies that consider family sustenance to be women's work. Food, fuel, and water are becoming increasingly difficult to come by for women in such societies.[60] Vandana Shiva, an Indian eco feminist, believes that women are better qualified as environmental experts and have a greater understanding of the earth system than men. Environmental challenges disproportionately affect women, putting them in positions of epistemic privilege as well as the ability to establish new practical and intellectual ecological paradigms.[61] Women were the world's first food producers, and their contribution to the food chain continues to be critical in Third-World food production systems. The patriarchal use of the market and profits as a patriarchal basis for evaluating the relevance of technologies84, as well as the male authoring of history and ethnography, have obscured women's scientific and economic contributions in agriculture, as well as other sciences and fields of economic activity.[62]

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[58] Food and Agriculture Organization of the United Nations (FAO), The Role of Women in Agriculture (2011) Available from http://www.fao.org/docrep/013/am307e/am307e00.pdf

[59] http://www.inseda.org, Retrieved on 04 March, 2019

[60] Rosi Bradiotti, et al., Women, the Environment, and Sustainable Development: Towards a Theoretical Synthesis, (London: Zed Books, 1994)

[61] Lorentzen, Lois Ann and Eaton Heather. Ecofeminism and Globalization, (United Kingdom: Rowman & Littlefield Publishers, Inc, 2003)

[62] Shiva, Vandana. Staying Alive: Women, Ecology and Survival in India, (Zed Books Publisher, 1998)

Traditionally, women have played a significant role in sustainable agriculture focused on maintaining the soil's fertility and integrity, particularly in agricultural work that maintains the food cycle. This vital work of keeping ecological cycles was done by women, in partnership with the land, with trees, with animals, and with men in the form of feeding animals from trees and crop by-products, caring for and nurturing cows and animals, composting and fertilizing fields with organic manure, and managing mixed and rotation crops.[63]

In the jhum cycle of cultivation of the Ao Nagas, the division of labour is a fundamental principle. All heavy works are done by men like slashing burning and carrying the heavy loaded harvested crops while women are engaged in labour intensive works. On the journey to the field, if there is one load of food and clothes the wife carries it while the husband walks in front but if there is a lot to carry, he is quite ready to do his share. She walks safely behind her husband while going to the field and while returning, the husband follows her. In Ao society, they are never left behind even while returning from the field.[64]

Women are indispensable as an economically productive labour. Their hard work is valued. The role of women in the agricultural cycle is represented through the rituals performed. Some tribes, such as the Angami and Chakesang, the harvest rituals are performed only by a woman ritual specialist called *lidepfü*. Among the Ao this ritual is performed jointly by husband and wife.[65] The ritual position of women among the Angami and the Chakesang as the 'first reaper' is also a symbolic representation of the role of a woman in the household as the caretaker of the family's food requirements. They are the only source of children and they form the backbone of subsistence economy.[66]

The initial heavy work of slashing, which is one of the toughest tasks is undertaken by men. Felling, dembling and looping of big trees require human strength. Generally, men perform the slashing, but women are mainly responsible for clearing undergrowth and cutting brushwood. After the slashed biomass has dried, the men folks set it on fire and burn it to ashes. Afterwards, the women collect the burnt debris and re-burn the unburned materials because the

[63] Shiva, Vandana, 1998: 108

[64] Shiva, Vandana , 1998: 217

[65] Jamir, N. Talitemjen. Asen Kin Sobalibaren, (Kohima:1986)

[66] Aier, Anungla. Cultural Change Among the Nagas: Festivals and Dres, *In* : Venuh, H (ed.) 2004. *Naga Society*: *Continuity and Change*. (Delhi: Shipra Publications,2004) pp. 49-60.

ashes act as soil fertilizer. While the women engage in re-burning the field, the men collect the tree trunks and other big wood and saw it for firewood. The hoeing of the field is also done by women. They plough the fields with locally made implements like hoes and scrappers. This is a demanding task that requires equal contributions from men and women. Along with the major paddy crop, women grow a variety of other crops. After the seeds have been sowed, they are covered with soil, which is usually done by women.[67]

During a cropping season, Jhum fields need approximately three weeding. Women are the ones who normally do the weeding. Hands are used to pull weeds, and tools are used when weeds are too strong to pull with hands. As mentioned, weeds are also removed by the use of salt. When the spraying of salt is carried out in the field, women help the men by mixing the salt with water and by carrying water from the nearby streams. Aside from manual labour, women are responsible for protecting the crops from birds, rodents, and wild animals. The women also pick food plants from the jhum fields and neighbouring forests during this time.[68] Both men and women work when the harvesting is done.

Women are the ones who usually cut the stalks of the paddy and collect it in their traditional baskets. The task of carrying the rice stalks to the field house is the task of the men folks where the paddy stalks will be trampled upon in the threshing floor. Women are in charge of numerous operations such as drying, pounding, and cleaning the harvested crops. One of the most important responsibilities for Ao women was to choose and preserve seeds for future use. Every Naga farmer aspired to have a plentiful harvest, and in order to do so, they must carefully monitor all seeds intended for the following year's planting and select the most matured and developed seeds.

Seed selection is typically done right before and during harvest. As the women frequent the fields more often than men, they know the standing crops better and therefore they are

[67] Verma, Raj. 2005. "Use of Indigenous Knowledge in NEPED", *In*: International Institute of Rural Reconstruction, *Building upon Traditonal Agriculture in Nagaland, India.* NEPED and IIRR, Kohima: N.V. Press, pp.184-185.

[68] Verma, Raj. 2005. "Use of Indigenous Knowledge in NEPED", *In*: International Institute of Rural Reconstruction, *Building upon Traditonal Agriculture in Nagaland, India.* NEPED and IIRR, Kohima: N.V. Press, pp.184-185.

better suited to select the plants for the future seeds.[69] They select the healthiest and fully grown stalks which have uniform fruiting and keep a mark and looks after the selected plants. During the harvesting period, these seeds are cleaned and defective grains are removed. The seeds are allowed to dry thoroughly in the sun and later stored in lidded bamboo containers. Seeds for crops such as millet, maize or jobs tears are kept on stalks which are hung upside down in a dry place near the hearth. It's also important to make sure the seeds are thoroughly aerated and free of insects and rodents.

There is no formal training, but the knowledge regarding seed selection, treatment and storage is normally handed down from the mother to the daughter while they work alongside in the fields and at home.[70] The knowledge is passed down from one generation of women to another generation, orally and practically. It is also the women folks who exchange seeds and circulate it in the community. For a Naga, it is unseemly for a man to be found asking for seeds. Normally seed exchange takes place between relatives, field neighbours and friends from the same age-set. The exchange of seeds which is done by women forms a social network with bonds and relationships which are sustained over time. Through grain storage and preservation, women have acted as custodians of the common genetic heritage.

Tasakala (67 years), a respondent from Longkhum village narrates a story about how her great grandfather, Watitemjen, brought rice seeds from Khuyu village, a village in Wokha district and how the seed came to be known as Khuyu rice or Watitemjen rice. Tasakala, in order to save his great grandfather's seeds, cultivates a handful of Khuyu rice outside her home every year. Many of the villagers have given up jhum cultivation to other alternate form of farming, hence rice seeds are losing its value and many seeds are on the verge of disappearing. Tasakala is one among few who is trying to preserve varieties of seeds from disappearing.

Mary Mead Clark in her encounter with the Aos writes about women in her book 'A corner in India... While men perform the bulk of the work, they also help with land preparation, seed sowing, weeding, and crop harvesting. And once the grain is obtained, it takes a long time and a lot of strength to get it ready to feed a large family. First, the paddy (unhulled rice) must

[69] Aier, Anungla. 2008. "Agricultural Cycle Associated Rituals and the Role of Women", *In:* Richard & Vibha Joshi., eds *Naga – A Forgotten Mountain Region Rediscovered*. Basel: Christoph Merian Verlag and Museum der Kulturen., pp.122-129

[70] Aier, Anungla, 2008

be dried in the sun, while a tiny kid or girl, an old aunty, or an elderly grandmother, armed with a long pole, keeps an eye out for chickens, pigs, and goats while stretched out on a mat. The chaff is separated by placing everything on a bamboo tray after pounding in a huge wooden mortar. The life of a Naga woman is difficult, not just because of the nature of much of her job, but also because of exposure to all types of weather, a lack of clothing, and a poor diet.[71]

Throughout the year, Ao women are seen engaging in the agricultural cycle. When a family cannot produce enough food, the women are generally labelled as lazy and irresponsible, and their social status is lowered, despite the fact that they play a critical part in ensuring family food security.[72] When she is not in the farm fields working, she is busy weaving, spinning cotton, collecting firewood in the jungle or fetching water from the village ponds. Women not only do most of the work in the fields but also have the responsibility of looking after the whole family. Men engage in seasonal activities that need physical strength and stamina. Men also engage in economically valuable occupations such as timber collection and crop sale. Women who are involved in activities that are primarily for the purpose of sustaining a living are, however, invisible and unaccounted for.

The role of women is crucial in the agricultural cycle. However, traditional tools are still used in all farming activities. And even though new modern technologies are introduced, they are not women friendly as women have no access to skill training inclusive for women in agriculture. The modern technologies have not enabled women to perform better. Modern science and technology, according to Vandana Shiva (1988), is a western, patriarchal, and colonial endeavour that is intrinsically violent and promotes violence against women and nature. Traditional agricultural experts - women and peasants - were displaced by the rise of a new breed of agricultural "experts" with fragmented knowledge of particular components of the farm system and a total integration of this fragmented knowledge with the market system. Therefore, it becomes necessary to initiate ways to understand and support the integration and convergence of modern technology with traditional knowledge and practices in agriculture. The blending of indigenous knowledge with environmentally friendly inputs and time-

[71] Clark, 1978: 52

[72] Kikhi, Chozüle and Kikhi, Kedilezo.2009. The Role Of Women in Natural Resource Management A Thematic Report, Department of Planning and Coordination, Government of Nagaland: Kohima.

honoured farming knowledge of our ancestors should be re-introduced and integrated to modern methods of sustainable agriculture.[73]

Women's work is growing as the agricultural economy becomes more commercialised, yet the value of women's labour is falling because it is related to sustenance rather than profit. As a result, women are paid less and fed less at a time when greater labour demands necessitate more pay. Women are more knowledgeable about cultivation, and they are more concerned and involved. They have treated the paddy crop and fields with the same affection that they would show their own children. Their houses would not have existed without women, yet their effort goes unnoticed and, all too often, uncounted and unrecorded.[74] Agarwal's (1988) argument on India's experience with environmental management, equity, and feminism is enlightening, as she examines the history of gender inequities in India and argues against an eco-feminist approach, which she believes can reinforce rather than remove oppressive structures. Women are frequently trapped in unequal power relations in their families, societies, and cultures, and the situation now is not very different from what it was in the past, particularly in India.

Both men and women contributed to the family's economics in traditional Ao society. However, it might be claimed that women contributed even more because, while they worked equally as hard as men in the field, they also had to deal with home chores that men did not assist with. Household duties were seen to be the responsibility of women. The pattern of women working in fields and looking after the family household continues to exist even today especially in the rural areas. With the arrival of British rule and Christianity in the Ao area, women began to receive formal education, and now we find a number of Ao women working in fields other than agriculture. Naga household economies are now quite integrated into market systems. Women handle most market transactions, both as sellers and buyers. There is an increase in the activities of women in the economic field.[75]

An interesting finding of the study shows how women folks are the only members from a family who sit and sell vegetables in different marketing sheds (shown in *Figure 14, 15 & 16*). In four sample villages of Sungratsu, Longkhum, Changtongya and Khar village, it is the

[73] Shiva, Vandana. Staying Alive: Women, Ecology and Survival in India, (Zed Books Publisher, 1998), p.108
[74] Shiva, Vandana. Staying Alive: Women, Ecology and Survival in India, (Zed Books Publisher, 1998), p.106
[75] Dzuvichu, Rosemary. Development and Women: The Discourse in Nagaland, *In*: Nathan, Dev; Xaxa, Virginius., eds *Social Exclusion and Adverse Inclusion Development and Deprivation of Adivasis in India*, (New Delhi: Oxford University Press,2012) pp. 81-93.

women folks, who gather the vegetables and other produce from the fields and sell them in the markets. According to the women folks who sit in the marketing sheds, shopping and marketing is a woman's duty which is accepted as a norm and therefore it is automatically the duty of the women to sit and sell in the markets. The sample villages which are mentioned are located near the town area or they have easy access to markets. Hence it is easy for women to get involved in the market business. In the sample villages of Japu and Chungtiayimsen similar norm is followed, however, since the economic activity of these two villages differ from the four other sample villages, the men folk from these villages take active part in the economic activities of the family.

The government is currently working to improve the status of women in the agricultural field. The condition of women in agriculture has received special attention through self- help groups, by giving them financial assistance for crop and livestock production, capacity building and exposure tours. Women have been included into the economic development process in most Agriculture and Allied Departments through the founding of women-specific Self-Help Groups. In all of the six sample villages, there were existence of self-help groups registered under the Nagaland Rural Life Mission and 80% of women respondents were part of one or the other Self-Help group.

A comprehensive study and research on the role of women in agriculture, as well as their participation in family and societal economic activities, is essential in order to have a better knowledge of women's involvement in agriculture and the economy. For a change and for a greater participation of women in the Ao Naga society, gender biased customary laws that discriminate a particular gender may need to be rectified within the broad framework of the national and international laws[98]. The above discussion fulfils the first objective of the study. In that it substantiates the nature of traditional farming system among the Ao Nagas and also further clarifies the contention which is to know the nature of traditional farming system and highlights the rituals and ceremonies and the role of women which further aid in explaining the changes in the traditional farming system.

Figure 17

Women folks selling vegetables in a marketing shed along one of the highways in Mokokchung district

Source: Fieldwork, 2019

Figure 18

Members of a self-help group selling vegetables along the roadside in Mokokchung district.

Source: Fieldwork, 2019

Figure 19
A women vendor selling dry fish in New market, Mokokchung

Source: Fieldwork, 2019

CHAPTER IV

CHANGING PATTERN OF THE TRADITIONAL FARMING SYSTEM

4.1 Introduction:

There isn't likely to be a society that has been kept in its original state, unaffected by change. Internal cultural tensions and strains could be one factor driving cultural change. Some changes come from within the culture and are fostered by innovators, while others are inspired directly or indirectly from outside agencies.[1] Continuity has been disrupted, cultural identity has been challenged, and social order has been altered in the history of the Ao Nagas due to forces of Christianity, modernity, and globalization.[2] The best way to understand change is to look at it in relation to the variables or forces that influence it.

The inextricable association of Christian missionizing with western colonial and technological dominance has been the basis of the development of an early kind of 'modernity'[3]in the Ao Naga society. Modernity, according to Anthony Giddens, is "a shorthand term for modern society, or industrial civilization." It is linked to (1) a set of attitudes toward the world, specifically the idea of the world as open to human intervention; (2) a complex of economic institutions, particularly industrial production and a market economy; and (3) a set of political institutions, including the nation-state and mass democracy. Modernity is far more dynamic than any earlier sort of social order, owing to these qualities. It is a society—or, to put it another way, a collection of institutions—that, unlike any other culture before it, lives in the future rather than the past."[4]

According to Huntington (1971), "the main distinction between modern society and traditional society consists in the increased control which modern man has over his natural and

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[1] Dube, S.C. Understanding Change, (New Delhi: Vikas Publications, 1992)

[2] Zhimo, Avitoli G. Culture Identity and Change: The case of the Sumi of Nagaland, Indian *Anthropologist*, Vol. 41, No. 2. (2011, July- Dec).

[3] Joshi, Vibha. A Matter of Belief Christian Conversion and Healing in North-East India, (Oxford: Berghahn Books, 2012)

[4] Giddens, Anthony and Pierson, Christopher.Conversations with Anthony Giddens: Making Sense of Modernity, (Stanford, Calif.: Stanford University Press, 1998)

social surroundings," as most modernization theorists contend.[5] The development of scientific and technological knowledge underpins this control. The vast collection of knowledge about man's environment in modern civilization, as well as the dissemination of this knowledge through literacy, mass communication, and education, characterises modern society. The Naga society saw modernization process through the introduction of education and development of mass communication which in turn helped in the increase in the literacy rate and an expansion of scientific and technical knowledge. The literacy rate of the Ao Naga reached 80-90 percent in the beginning of 2001 as compared to the zero level in the later part of the 19th century.[6] The literacy rate of Mokokchung district stands at 93.59% according to the 2011 census.

According to Huntington (1971), "modern society involves much better health, longer life expectancy, and higher rates of occupational and geographical mobility. It is predominantly urban rather than rural. Socially, the family and other primary groups having diffuse roles are supplanted or supplemented in modern society by consciously organized secondary associations having more specific functions. Economically, there is a diversification of activity as a few simple occupations give way to many complex one; the level of occupational skill and the ratio of capital to labour are much higher than in traditional society. Agriculture declines in importance compared to commercial, industrial, and other non-agricultural activities and commercial agriculture replaces subsistence agriculture."[7]

The Ao Naga society has very much transformed into a modern society. There is the process of urban growth where the rural communities are migrating to the town areas from the villages in search for better job avenues. Mokokchung town is the district administrative headquarters. Mokokchung is dominantly inhabited by Ao Nagas and therefore it is considered as the centre of the Aos. Modernization has led to a shift even in their source of livelihood. Shifting cultivation has always been their source of livelihood and the entire socio-cultural aspect of their life was centered on this practice. However, the cultivation system has improved

[5] Hutington, Samuel.P.. The Change to Change: Modernization, Development and Politics, Comparative Politics, Vol. 3 (3), (1971, April), pp. 283-292.

[6] Hutington, Samuel.P.. The Change to Change: Modernization, Development and Politics, Comparative Politics, Vol. 3 (3), (1971, April), pp. 283-292.

[7] Jamir, N. Talitemjen & A. Lanunungsang. Ao Naga Society and Culture, (Lumami: Nagaland University Tribal Research Centre. 2005). p.331

to a large extend with the adoption of new methods of scientific based farming[8] and a shift from subsistence agriculture to a commercial agriculture, which has facilitated to improve the socio-economic condition to a great degree.

The Naga society's change from a traditional to a modern society can be linked to colonisation, modernisation, and, to a significant extent, globalisation. According to Giddens (1990, p. 64), globalization is "the intensification of worldwide social relations which link distant localities in such way that local happenings are shaped by events occurring many miles away and vice versa", thereby changing all aspects of our everyday life.[9] The Nagas' political, social, economic, educational, and religious lives began to change dramatically in the 19th and 20th centuries, entirely transforming their culture's tradition into modernity. The Naga society has changed in terms of polity, occupation, way of life and thinking, dietary habits, clothing, beliefs, and other cultural practises.[10]

Giddens (1990) in *The Construction of Modernity* defines four dimensions of globalisation: the first is the world capitalist economy, the second dimension of globalisation is the nation-state system, the third dimension is the world military order and the fourth dimension of globalisation concerns industrial development. The fourth dimension of globalization can be utilized to understand the process of change in the Naga society. The worldwide dispersion of technologies is one of the fundamental characteristics of globalising industrialism. Industrialism's influence is evidently not restricted to the realms of production, but extends to many facets of daily life, as well as shaping the generic character of human interaction with the material world. The evolution of communication technologies has been one of the most significant repercussions of industrialism.

Even in states where agriculture is the primary economic activity, modern technology is frequently employed in such a way that it significantly alters the pre-existing relationship between human social organisation and the environment. Globalization, according to Giddens, is one of the most evident effects of modernity. This is because globalization

[8] Jamir, N. Talitemjen & A. Lanunungsang. Ao Naga Society and Culture, (Lumami: Nagaland University Tribal Research Centre, 2005) p.341

[9] Giddens, Anthony. 1990. The Consequences of Modernity, (Cambridge: Polity Press, 1990) p.60

[10] Nshoga, A. Traditional Naga Village System and its Transformation, (Delhi: Anshah Publishing House,2009)

involves a profound reordering of time and space in life – what Giddens refers to as 'time-space' distanciation.[11] The spread of communication networks and complicated global production and trading systems has weakened the hold of local circumstances on people's lives. The changes in the various aspects of the Ao Naga people including the changes in the farming system can hence be attributed to modernization and globalization and the introduction of modern means of communication and technology. The Ao Naga society has undergone massive change since the coming of colonial rule the arrival of the Christian missionaries and the subsequent introduction of education spread of Christianity which led to a complete transformation of the Ao society. The development in and globalization process further changed the traditional society influencing the people transport and communication, the improvement in health conditions and living standard of the people exposed the once isolated Ao tribe to the outside world. Modernization to western way of living and thoughts.

With the coming of the British rule and Christianity, certain cultural practices that were considered irrational and unreasonable like head hunting, belief in spirits, consumption of rice beer etc were done away with. Education and the development in transport and communication exposed the Nagas to the outside world and there was a growth in the economic and living standard of the people. The changes were also seen in the traditional system of agricultural practice. Agriculture which dominated the Ao Naga economic system no longer has the same importance as it had before. The jhum system of cultivation which was not only the source of livelihood for the Ao people especially for the people living in villages, but a way of life also changed with the ever-growing trend and influence of modernization and globalization.

4.2 Changes in the farming system:

The pattern of farming system among the Ao Nagas have undergone tremendous change. Jhum system of farming has always been the basic form of cultivation for majority of the Ao Naga villages. The effect of the British government, as well as the spread of Christianity and modern education, has been felt in many aspects of Ao Naga society over the years. The Ao Nagas' farming system is similarly affected by these changes and effects. The introduction of the market economy is an example of such shifts. Until that time, the market economy was completely dependent on barter. The value system has changed dramatically since the introduction of the market economy and the usage of currency.

[11] Giddens, Anthony.The Consequences of Modernity, (Cambridge: Polity Press, 1990). pp. 76-77

As such, the Ao Naga society is not an exception. The self-sufficient economy where a granary stock for next few years was enough and what everyone worked and desired for, However, in the change context, it is not the food stock which is valued but a substantial bank balance is valued more than anything else. At the back drop of such scenarios, Ao have started to shift from traditional to commercial farming. Since Jhum as a form of cultivation occupies the major thrust in the farming system, when one look at the alterations that are taking place, the changes are primarily directed at jhum system of cultivation at large. Listed below are some of the changes that were found through the field study conducted in the study area.

Disappearance of the necessary ritual of offering sacrifices

One of the most important changes that occurred in the field of jhum cultivation is the disappearance of rituals and offering sacrifices to the many Gods during the entire jhum agricultural cycle. Every activity began and ended with an offering or a ceremony during the pre-Christian period. The conversion of the Ao Nagas to Christianity, brought about by the arrival of Christian missionaries, changed the Ao people's lives and religion. As mentioned in the preceding chapter , the Ao Naga agricultural cycle was filled with rituals and ceremonies. "We do not perform any rituals like our fore-fathers did. They were *limapur* (animist) so they had to please all the Gods they believed in. Now that we believe only in one God, we don't have to offer sacrifices or perform rituals".[12] From the clearing and burning of jungles for jhum cultivation, building of field houses, sowing of seeds, reaping and harvesting, each cycle has a ritual or ceremony involved. However, in the present context, instead of performing rituals and sacrifices, prayers are offered. The churches in the villages selects a particular Sunday to pray for the sanctification seeds before sowing. For instance, in Ungma village, the church, Ungma Baptist Church, selects one Sunday in the month of February every year and calls it *"Metsü Meshitetba"*[13]Sunday. This is equal to the *Metsuwalok mong* which is the ceremony for the dedication or consecration of seeds. "Before setting off to the field my husband and I pray. After reaching the field we pray for the day's work and we pray again after the day's work and return home.[14] Similarly, every activity begins and ends with prayers depending on the faith of the farmer.

[12] Interview with Lolenmayang, 54 years, male, respondent from Longkhum village on July, 2016

[13]Metsu stands for seeds, Meshitetba for blessing; blessing of seeds.

[14]Interview with Amongla, 39 years, female, a respondent from Longkhum village on 10-07-2016

The *talen mesa* or the *Talen walok* ceremony which is the field path clearing ceremony still continues to be observed in almost all of the Ao villages, however, they no longer practise the ritual of offering sacrifices by the village priests. Instead, the village council selects a particular day for the clearing of the footpath and male members from each household is obligated to participate in the community service and before they set out for the work or start with the work a prayer is said. Similarly, during the *aluromong*, the village priest would first sanctify the field and offer sacrifice and he would be the first person to set fire on the field, but in the present times, the sanctification of fields is replaced by prayers and it is the village council that decides on the dates and timing of the burning of the jhum fields.

The two main festivals of the Ao Nagas namely *Moatsu* and *Tsungremmong*, which have been explained in details in the preceding chapter, are no longer observed and celebrated as strictly as they did before. They now celebrate these festivals to keep their traditions alive. "Our parents and grandparents used to observe Moatsu and Tsungremmong with adherence to all the rites and rituals to please the gods, but we no longer do that because it does not relate to the religion we are following now. We celebrate Moatsu for three days only and not six and the same goes for Tsungremmong also."[15] *Moatsu* and *Tsungremmong* festivals were highly sacred festivals and it was observed with utmost obedience to the norms. However, in the 21st century the festivals have come to do more with preserving and showcasing of the culture and tradition and very less to do with jhum cultivation.

Rituals and ceremonies like the *Merok mesa, Aphusang, Metsuwalok Mong, Tenten Mong, Mosumong, Chiten mong* and *Lichaba Kulem Mong* have been discarded by the villagers altogether as these rituals and ceremonies no longer sync with the religion that they follow now. The youths and many of the villagers do not even know the different rituals and ceremonies that were observed before the coming of Christianity. Only a few elders in the village recall them and a few who knows have also come to know about them through books and oral traditions. The Rituals and sacrifices and ceremonies were once the force which kept the community together. It was once the major factor that tied the villagers together. However, with the acceptance of Christianity, religion has become the binding force.

Change in labour force management

[15] Interview with Merenkaba, 52 years, a respondent from Sungratsu village on 16-07-2016

In the Ao Naga culture work was virtue and every member of the family was engaged in one or the other work. The household works were equally distributed and each member of the family contributed towards the well-being and sustenance of the family. "We are a family of nine siblings. The more the members in a family, the more the work force in the fields, therefore in our parent's time, on an average, a family would have five to six children."[113] The bulk of the labour force in the fields were family members and relatives. Providing labour force when and where needed and to divide among the population the fruits of labour was the way of life of the villagers.

However, there is a change in the labour force management in the jhum and also wet rice system of cultivation. Neighbours and relatives would take turns to work in each other's fields but these days not everyone cultivates jhum lands therefore the exchange in labour does not occur. Jamir and Lanunungsang writes about how the Ao Nagas had a way of responsive singing while working in the fields. It was usually the women who initiated the songs and the men followed them. However, the traditional way of singing in the field disappeared with the acceptance of Christianity. The use of folk songs by Naga Christians was rejected by early missionaries because they were associated with spirit worship, war, and immorality. As a result, translated copies of Western hymns were introduced, resulting in the gradual disappearance of indigenous music from the Naga Hills[16], and because people no longer shared labour, most work was done in isolation, and communal singing and working together also began to fade.

There is an increase in the employment of hired labour and inviting of tenancy. In the villages where people cultivate jhum lands and vegetable farms, the farmers hire labourers to work in the fields. "My children are all students and they do not reside in the village. My husband and I cannot weed and take care of the field all by ourselves therefore we have to hire labourers especially during the sowing, weeding and harvesting seasons."[17] A day's labour would normally cost three hundred rupees for women and five hundred for men. In Japu and Chungtiayimsen villages where farmers are into wet rice cultivation, there is the existence of tenancy and share cropping. The farmers would rent out their fields and give the responsibility of taking care of the field to the tenants who are mostly non-local people from Assam and other neighbouring states. In the bordering villages of Chungtiayismen and Aosenden the farmers

[16] Thong, S.Joseph.. Head-Hunters Culture Historic Culture of Nagas, (New Delhi: Mittal Publications, 2012). p.160

[17] Interview with Temsumongla, 51 years, female, respondent from Sungratsu village on 26-08-2016.

hire labourers from Assam to work in their tea and rubber farms and rice fields. “The non-local labour is cheaper in comparison to the local labourers. There is also less expenses in hiring them because they bring their own lunch and tiffins unlike the local people.” [116] The cost of one day non-local labour is ₹300 for women and ₹350 for men in the bordering area.

Out of 20 households interviewed in Chungtiayimsen village who own wet rice fields, 18 of them kept tenants in their wet rice fields and plantations. Similarly, in Japu village, out of 7 households, 6 of them kept tenants in their wet rice fields. In Sungratsu and Khar village, where there is an increase in permanent farming, the farmers keep non-local tenants in the farms who are the care-takers and take the responsibility of maintaining the farm. Longkhum and Changtongya village were the two sample villages that showed lower usage of hired labourers or tenancy. The rise in commercial agricultural operations in communities around Mokokchung District has resulted in a high need for casual and temporary labourers. The dependency has decreased as a result of the decline in community labour sharing mechanisms, and there is a severe labour shortage. In the society or the villages, no labour market or labourer classes have ever existed. As a result, the present upsurge in commercial farming has resulted in a severe labour shortage. While this is beneficial to individuals who are now employed on a regular basis, it is becoming increasingly challenging for smaller families or impoverished farmers that rely on communal labour sharing.[18]

The change from community-based farming systems such as shifting cultivation to privately produced permanent farming systems has resulted in the fragmentation of common property resources and has impacted the traditional community ideals of farming labour sharing. . It has led to the emergence of hired labour which was not prevalent in the past. In all of the sample villages, there was the existence of a group/class of people who were permanent daily wage earners and worked as hired labourers. Instead of owning or cultivating jhum lands, this group of people earn by working in other people’s field and farms. “I prefer to earn daily as a daily wage earner because cultivating a jhum land requires a lot of investment of time and money but the returns are very low. Therefore, I earn five to seven hundred rupees everyday which helps in running the family.”[19]

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[18] Jamir, Amba. Shifting options: a case study of shifting cultivation in Mokokchung District in Nagaland, India. *In FAO, Shifting cultivation, livelihood and food security.* (Bangkok: FAO, United Nations, International Work Group for Indigenous Affairs, Asia Indigenous Peoples Pact, 2015)

[19] Interview with Atsukumba, 31 years, male, a daily wage earner from Longkhum village on 10-07-2016

There was, of course, the existence of hired labourer in the past too where the poor farmers would work in the field of the rich farmers and they were mostly paid in kind in the form of rice. A respondent, Lanusunep, narrates about how there were farmers in the villages who did not have land to cultivate and therefore they had to work in the farms of the richer farmers in the village. Some farmers who did not have their share of land in a particular year's *pok* also used to request the clan that own the *pok* to allow them to farm in their pok and in return, they would pay them in kin in the form of rice or sometimes by giving their labour in the jhum fields. The system of labour exchange was a very dominant factor in the system of cultivation of the Ao Naga farmers. This factor has now changed and we see the emergence of hired labour. One major factor leading to the change in the labour management can be attributed to the migration of people from Eastern Nagaland and neighbouring states of Assam and Arunachal Pradesh to Mokokchung district. There is an increase in the influx of non-locals to the district. These non-locals come in search of better education, better job opportunities and better standard of living. As such, these group of people have become the major chunk of labourers in the Ao land.

Jhum cultivation no longer the only mode of agrarian practise

The traditional system of jhum cultivation and wet rice cultivation is now slowly being replaced by other system of agriculture. Even today most of the Ao Nagas are farmers but unlike the past time they do not cultivate rice and other basic crops alone. To fulfil the demands of the changing economy, Jhum cultivators in the region are implementing intensification strategies by adapting their indigenous knowledge system. Farmers are diversifying their agricultural patterns in response to market economy demands and land scarcity. In recent years, the use of non-traditional crops has grown in popularity, transforming traditional agriculture from subsistence to commercial activity. In recent years, jhum farmers have begun to plant cash crops in jhum tillage, and new seeds and cash crops have been introduced, diversifying the cropping pattern.

According to field data, the people of Longkhum village have been practising jhum cultivation, in which rice was traditionally the major crop, since the beginning of time. Rice has always been and continues to be a staple food ffor the Ao Naga people. Rice production in the Ao communities is still self-sufficient. However, it is true that rice cultivation is less sustainable in hilly areas, particularly in states like Nagaland, because traditional methods of shifting cultivation have proven to be costly because they are labour intensive on the one hand

and, more importantly, because they cause extensive soil erosion on the other. Given that rice agriculture is unsustainable, a small number of farmers have recently begun to move to cash crop farming, such as potato, cabbage, tomato, chilli, and other vegetables, which have proven to be more economically feasible and sustainable.

The Department of Horticulture, Government of Nagaland, recognised Longkhum village as a "potato seeded village" in 2002 and a "vegetable village" in 2004. Residents of Mokokchung and Wokha towns have witnessed the prosperity of the vegetable village. Vegetable farming now sustains more than half of the rural population. In the year 1999, one S.I. Aren, a Longkhum village resident, introduced hybrid tomato seeds to the villagers, which started vegetable farming in the community. He was the sole farmer in the community growing tomatoes and potatoes instead of rice. Later in 2004, four families joined him in his tomato-growing endeavour, which yielded a decent harvest of 9 metric tonnes of tomatoes. Indeed, Longkhum village farmers recognised the potential of tomato cultivation and its fit for the type of soil, and they began farming on a large scale as a result, in 2009, the Agriculture Technology Management Agency, Mokokchung District, presented the pioneer S.I Aren with the Best Vegetable Farmer award.

In the early years of vegetable gardening, the Nagaland state government's Department of Horticulture and Agriculture supported and educated the farmers. By 2009, more than 120 households were growing tomatoes and gathering more than 200 metric tonnes of the crop. Vegetable growing is now practised by more than half of the villagers. During the study period, it was discovered that in 2016, a single family (Alemtula) gathered between 5000 and 10,000 kilogrammes of tomatoes, depending on the size of the farm. The locals grow cabbage, carrots, broccoli, maize, cucumber, chilli, brinjal, pumpkins, and other vegetables in addition to tomatoes. Tomatoes, chillies, broccoli, and cabbage are far more widely grown than the other vegetables. As a result, many farmers profit significantly as a result of their efforts. Temjenmenla, a lady farmer, revealed that despite not having much farmland, she was able to earn ₹60000 every year.

Figure 20

A Tomato field in Longkhum village

Source: Fieldwork, 2019

Figure 21

A respondent, Manglaba, from Longkhum village with his tomato harvest.

Source: Fieldwork, 2019

Figure 22

Tomato production at Longkhum village

Source: Fieldwork, 2019

Figure 23

A respondent weighing and packing tomatoes during the peak season in Longkhun village

Figure 24

Packaging and transporting of Tomatoes in Longkhum village


Source: Fieldwork, 2019

Sungratsu village, one of the sample villages, has also witnessed a similar pattern of change in the farming system. According to the study conducted in Sungratsu village, the villagers have shifted from jhum cultivation to vegetable farming with Colocasia genus or Yam cultivation as the major vegetable that is being cultivated. Out of the 32 farmers interviewed, 15 farmers were engaged in vegetable farming out of which 10 were into yam or Colocasia genus cultivation. Sungratsü village is famed for producing 'Anishi,' an Ao Naga delicacy made from fermented yam leaves that are shaped into patties and smoked over an open fire or sun-dried. Sungratsü village anishi is known to be the best, and demand for anishi prepared in Sungratsü village is increasing due to its excellent taste.

Harvested mature green yam leaves are washed, stacked, and then wrapped in banana leaf. The leaves are then preserved for a week or until they turn yellow. The yellow leaves are mashed into a paste and used to make cakes. Chili, salt, and ginger can be added during the grinding process if desired. The cakes are then dried in the sun or over an open fire in the kitchen until ready to use. Anishi is made with dry meat, often pork, and is the Ao tribe's favourite food. For the Ao Nagas, anishi is one of the most culturally significant dishes. . The demand for *anishi* in the market has led to the farmers to concentrate in yam cultivation. With

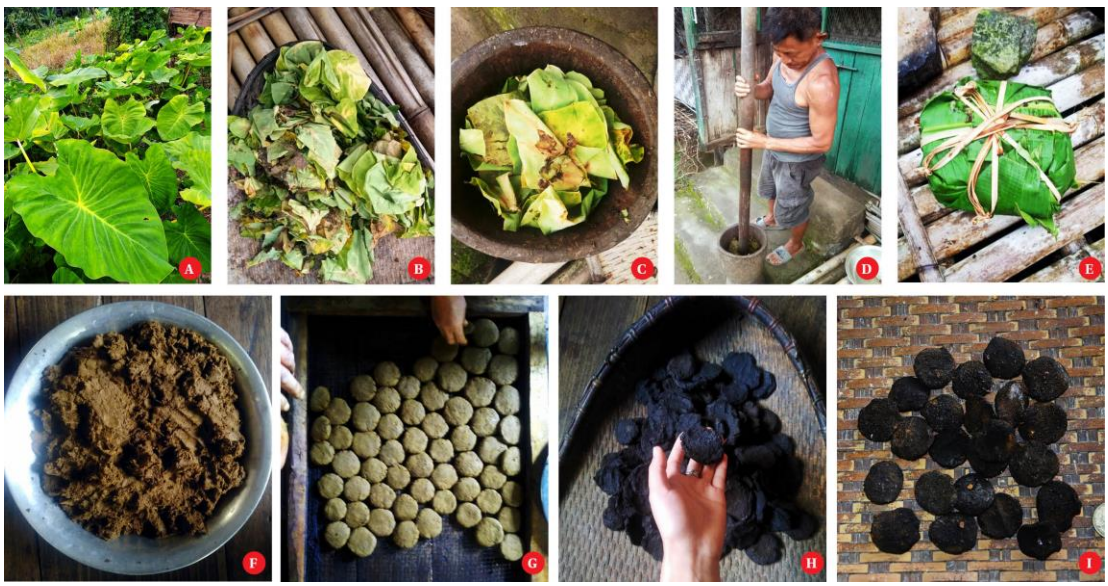
the help of a villager (Chubayanger), all production of *anishi* in the village is sold to a private food production company in Kohima from 2016. This has helped the farmers to sell their produce at a quicker and convenient way. The stability of the *anishi* market has boosted the farmers and many are turning towards yam cultivation. Yam is also cultivated along with rice paddy or along with other cash crops.

Tiarenba (46 years) and his wife Nungshirenla (42 years) have been cultivating yam since 2000 and produces *anishi.* They used to send the *anishi* to relatives residing in other districts and many a times it was difficult to sell off the produce and to collect the returns. However, with the private company coming to the village to buy their produce, it has made it possible for them to earn with less hassle and it has also saved them from the trouble of transporting and packing. A kilo of *anishi* is sold at rupees 450. In a season, they sell approximately 50 kilos of *anishi*. *Figure 25* shows the process of making *anishi.*

Along with yam cultivation, the demand for fresh vegetables especially in Mokokchung, the nearest town from the village, and the many disadvantages of jhumming has led the farmers to turn into vegetable farming and other forms of alternate farming. Five farmers who were into vegetable farming while stating the advantages of maintaining a vegetable farm stated that it led to an increase in income and improved living conditions. Chujang Aier (51 years) and his wife grow a vegetable farm and earn at least a thousand rupees in a week. A small marketing shed located a few kilometers away from the village helps them in selling all seasonal vegetables produced in the field.

Figure 25

The process of making Anishi at Sungratsu village.



Source: Morung Express, December 2019

Another alternate form of farming is the maintenance of permanent farms. Permanent farms among the villagers have increased in the last seven-eight years and it has even led to the creation of a farm village 'Yimchalu'. The nine permanent farms owners who were interviewed has plot of lands in Yimchalu where they cultivate different cash crops, fruits and trees and a few maintain poultry, piggery, dairy and fishery. T. Nungsang Longchar (61 years) cultivates mustard leaves, grow bananas and produces *anishi*. Last season, he earned more than a lakh of rupees from his farm produce. He has planted pomegranates and other cash crops, and he hopes to see more profits in the years to come. Chungpongtemjen (65years) was engaged in Jhum cultivation for more than twenty years. But with the coming of age and realising the disadvantages of Jhum cultivation he has shifted to permanent farming where he grows bananas, trees and vegetables. Chungpongtemjen earns approximately 1.50 lakh of rupees annually.

Sungratsu villagers are also known for their stone quarry business and they have skilled masonries in the village. Almost every household has a male member who is either a mason or a daily wage earner engaged in stone quarrying. According to the interviews conducted in Sungratsu village, the stone quarrying business is way more profitable that cultivating a jhum land. The returns from stone quarrying business are triple the amount generated from a jhum field. Therefore, a lot of villagers, especially the male members, engage themselves in the stone quarrying business. The existence of four stone crashers in and around Sungratsu village has added to the advantage of the stone quarries.

In the sample villages of Khar and Changtongya villages, farmers mostly practice jhum cultivation. This once major practice is slowly being replaced by other system of agricultural system. At present at Khar village, 600 households practice shifting cultivation, while 120 households are engaged in wet terracing and another 30 household practices horticulture, business, etc. Around 14.28% of the total land is owned by the Community and the rest 85.71% are either clan, family or individually owned (Forest Department of Nagaland). Khar villagers are now engaged in plantation of rubber, tea, coffee and, of recent, cardamom plantation apart from jhum cultivation.

Coffee plantation in the village started in the early 1980's when coffee was introduced to the villagers by the government of India. Till date, a quite number of families are still

practising coffee plantation and the produce are being exported to other states in the country. The coffee board of India has direct linkage with the coffee growers in Khar. Other private enterprises also buys coffee from Khar village and the Arabica coffee that is grown in Khar is considered one of the best coffee produced in the state. *Figure 26* shows some of the processed coffee which are sold in the market using coffee produced from Khar village.

The villagers have also started making local tea and are in the process of outsourcing the local tea produce in the market. Khar village has dense forests and community conserve forests where medicinal plants are aplenty. Many SHG's in Khar village produce 'Khar moli', a digestive medicine made of five medicinal plants, which is very popular in the market. A sample image of the infamous Khar Moli is shown in *figure 29* and *30.*

Figure 26

Coffee Products from Nagaland produced by using coffee beans from Khar

Source: Nagaland Coffee.

Figure 27

Coffee plantation at Khar village

Source: Nagaland Coffee.

Figure 28

Coffee Beans Produced from Khar village

Source: Nagaland Coffee

Figure 29

The five medicinal plants which is used to make Khar moli

Source: District Forest Office, Mokokchung.

Figure 30

Packed Khar moli ready to be sold in the market

Source: Fieldwork, 2019

According to the reports of the Forest Department, Government of Nagaland, only 20% of the villagers in Changtongya practise shifting cultivation showing a drastic decline in the practise of shifting cultivation. The jhum fallow cycle has also increased from 9 years to 20 years. More than 60% of the people are engaged in horticulture. The climatic condition of the village makes sit favourable for horticulture crops. Plantation crops like Orange, rubber, Parkia and Areca nuts are also cultivated by the villagers. The major cash crops of the village include litchi, Banana, pineapple, tea, cardamom and coffee.

Changtongya is known for the production of local banana chips in a large scale. Changtongya banana chips are sold in the adjoining villages and towns which include Mokokchung, Tuli and Longleng. The demand for the chips has led the villagers to cultivate banana on a large scale. T. Marchiba from Changtongya village was the first among many who started banana chips production and turned it into a permanent business for the family. His small-scale banana chips factory is located in his home at Changtongya town. According to T. Marchiba, the banana chips production is increasing among the Changtongya villagers as such there is an increase in the demand for bananas and many of the villagers are now investing in banana plantations. Changtongya village is also famous for its pineapple and litchi production also. The favourable climatic condition of the village makes the produce of high quality and taste. The fruits and vegetables that are produced are exported to the neighbouring towns and also to the neighbouring state of Assam.

Figure 31

A picture of packed Changtongya Banana chips produced at Changtongya

Source: Fieldwork, 2019

Japu and Chungtiayimsen villages are also experiencing a change in the pattern of agriculture system. In both the sample villages, almost 80% of the farmers are engaged in wet

rice cultivation and only a handful of the farmers practice jhum cultivation. Apart from wet rice cultivation, Areca nut, Tea, Rubber, Agar and Teak plantations are aplenty in these two villages. Logging business has also been a form of generating income for many of the villagers in both of these sample villages. As mentioned earlier, the villagers keep tenants in the wet rice fields and they invest their time in their permanent plantation farms. Many farmers are also into fishery and maintaining livestock in their farms. Maintaining a fishery was never a commercial activity but with the introduction of pisciculture by the Government agencies, it has become a commercial activity. Albert Tali, a respondent from Japu village, owns a fishery and harvests about 200-500 kilos of fish from his ponds. He earns about ₹50000-₹1,00,000 in a year.

Figure 32
Fishes from a fishery in Mokokchung district ready to be sold in the market

Source: Fieldwork, 2020

With the help of government agencies, many farmers were able to get access to rubber saplings which led to a growth in rubber plantation in Chungtiayimsen and other neighbouring villages in Tzurang valley. The villagers were also exposed to the value of Agar tree and its high selling cost which also led to an increase in Agar cultivation in the permanent farms. In Figure 33 we see a newly developed permanent Agar farm in Chungtiayimsen village.

Figure 33
A developing Agar farm in Chungtiayimsen village. The Agar trees are four-five years old

Source: Fieldwork, 2019

As such we see that the traditional crops have been replaced by other cash crops which has more market and commercial value. *Table 6* below shows the new variety of crops and cash crops that are grown in the sample villages which were not as popular in the last ten years.

Table 6: Major Crops grown in the sample villages

Name of the village	Crops grown at present
Changtongya	Banana, Pineapple, Orange, Litchi
Japu	Areca nut, Beetle leaves
Khar	Ginger, Coffee, Oranges, Papaya, Zanthoxylum (Mong mong)
Longkhum	Tomato, Cabbage, Broccoli, Chilli
Chungtiayimsen	Areca nut, Agar, Teak, Rubber, Tea
Sungratsu	Colocasia, Passion fruit, Yongjak, Orange

When there were fewer people and more land, the amount of land cultivated per person was sufficient to support the family's needs. With the current population explosion, lands have become fragmented and too insufficient to grow enough rice for a family. Rice grown in shifting cultivation areas only lasts four months or less in many villages. Farming families are earning money by cultivating winter crops like cabbage crops, tomato and potato cultivation, and introducing fish and snails in wet rice cultivation as supplemental activities. Given below

are a few pictures which illustrates how jhum cultivation is no longer the only mode of agrarian practise.

Figure 34
A vegetable farm in Aliba village, Ongpangkong range, Mokokchung

Source: Fieldwork, 2020

Figure 35

Cabbages growing in a vegetable farm in Longkhum village, Ongpangkong range.

Source: Fieldwork, 2020

Figure 36
A farm with Areca nut, tea and Rubber plantation in Chungtiayimsen village.

Source: Fieldwork, 2019

Figure 37

An Areca Nut plantation in Japu village, Japukong range, Mokokchung.

Source: Fieldwork, 2019

Figure 38

A tea plantation in Chungtiayimsen village

Source: Fieldwork, 2019

Figure 39

An orange orchard in Khar village, Jangpetkong range, Mokokchung

Source: Feildwork, 2019

Change in the agricultural cycle and Increase in Jhum Cycle

Site selection and clearing, burning, seeding, weeding, protection, harvesting, and storing are the main stages of the traditional Jhum cycle in general. In the process of determining the location, schedule, crops, and labour inputs that must be used at each stage of cultivation, the decision-making process is extremely important. In the Jhum agricultural cycle a decade or fewer ago, social and cultural forces shaped agro-climatic and environmental circumstances. For making critical decisions, decision makers depend largely on natural indicators.

Normally, the Jhum cycle begins with the sounds of a specific bird or bug in the months of December and January, but in the present context, the farmers use a calendar that depicts the moon phases. Mepuchuchang a 74-year-old respondent from Longkhum village who still cultivates Jhum land said that he no longer depends on the sound of the bird or insects but depends on the Church calendar for all jhum activities. The selection of jhum land is still one by the village council in some villages while in some the clan decides. Forest clearance usually occurs in December and January, although in certain villages, it now occurs in November. "Clearing of forest starts by middle or end of November so that we can free ourselves by second week of December. December being a festive month, we tend to get engaged in other social activities therefore the felling and cutting of trees is starts by November. In the olden times, the wood gathered from the jhum fields were for self- consumption only but now we sell the woods in the market therefore the sooner we cut and keep the wood stacks ready, the easier for us to sell and earn from it.[20] With the introduction of gas stoves and other means of cooking appliances, the farmers now get excess wood form the jhum fields which they sell to earn money.

The next jhum cycle, which comprises the burning of slashed trees and the removal of charred remains, began in the months of February and March. Respondents from sample villages of Longkhum, Sungratsu and Khar however pointed out that the burning of Jhum fields now usually happens in the month of March and April. In 2019, the burning of Jhum fields in Longkhum village took place in the month of April due to rainfall in the month of February. "Due to the irregularities and changes in the climate the jhum cycle was hampered in 2019. Traditionally, the jhum cycle was definite and each year we would follow the same cycle, but

[20]Interview with Temjenpokba, 58 years, Male, a respondent from Ungma village on 16-08-2016

now, we cannot predict the climatic condition and therefore the jhum cycle goes according to the change in the climatic condition."[21]

Seeds were traditionally planted in the months of March-April, but currently sowing begins in April and continues until May, with harvesting taking place in the months of October-November. Harvesting is completed in Khar village around the end of September to the beginning of October. "Our village is experiencing climate change to such an extent that now summers have become hotter and because of that, our rice stalks also ripen earlier than it used to before. This has led to early harvest in the Jhum field."[22] While on the other hand, Longhkum and Sungratsu villages experience late harvest in the middle to end of October. From the data collected from the respondents, it can be concluded that the farmers who are engaged in Jhum cultivation experience a change in the jhum agricultural cycle and the main reason attributed for the change is climate change. These changes are worth further systematic study. Along with the change in the agricultural cycle, there is a change in the jhum fallow cycle in all the sample villages that follow jhum system of cultivation. The table below indicates the change in the jhum fallow cycle:

Table 7: Increase of Jhum Fallow cycle in the sample villages

Name of the Village	Jhum fallow cycle past years	Increase in Jhum fallow cycle
Longkhum	**20 years**	**30-45 years**
Sungratsu	**15-20 years**	**20-30 years**
Khar	**10 years**	**12 years**
Changtongya	**9 years**	**20 years**

In almost all of Mokokchung District's villages, the average fallow cycle is getting longer. Farmers in the study villages believe that unless drastic land-use changes are made, fallow land will continue to increase in most places, including their villages. From the above table we can see that there is an increase in the jhum fallow cycle in four of the sample villages.

[21] Interview with Mepuchuchang, 72 years, Male, a respondent from Longkhum village on 17-07-2016
[22] Interview with Alemsashi Jamir,70 years, male, a jhum cultivator from Khar village on 29-08-2016

In the two sample villages of Japu and Chungtiayimsen, since jhum cultivation is practiced only by a handful of farmers due to the geographic location of the villages, the respondents from the village stated that the little hilly terrains that were used for jhum cultivation has remained fallow for more than 30 years. The increase in fallow land is mostly due to a combination of decreased rice cultivation area and a decrease in the number of farmers who practise traditional shifting cultivation. In such cases, only about half of the typical shifting cultivation blocks are utilised. The conventional blocks are further divided into two or more regions as a result of this practise, lengthening the fallow cycle.

As the number of shifting cultivators and the size of individual shifting cultivation fields decreases throughout communities, a large portion of shifting cultivation land within specific blocks remains uncultivated. The abrupt change of farmers from food production for domestic consumption to cash crop production for market sale is also to blame for the lower number of farmers moving cultivation. Such circumstances have resulted in an increase in uncultivated fallow land throughout time. As a result, villages have begun to convert selected shifting cultivation blocks to permanent land-use systems, resulting in a total transformation of the conventional land-use pattern.[23]

Market oriented/commercial farming

Traditionally, farming was done to meet the needs of the family and for self-sustenance. A farmer engaged himself in either jhum or wet rice cultivation throughout his life. Farmers worked in the same community in which he had been born with specialized knowledge and skills passed down from generations to generation. With no formal qualification or training, farmers survived by cultivating a plot of land. Everything revolved around farming and the villagers led a secure, stable and sustainable life. Whatever they produced, it was consumed and bartered. The farmers in the 21st century, however, cannot survive with just the specialized knowledge and skills, nor can they sustain themselves by what they produce in the fields alone. The changing times demands change in the system of cultivation and production. Farmer's production in the jhum and wet rice tillage is not only meant for producer's bare needs rather than the tiller now produces mainly for the market. Farming in most of the Ao Naga villages is

[23] Jamir, Amba. Shifting options: a case study of shifting cultivation in Mokokchung District in Nagaland, India. *In FAO, Shifting cultivation, livelihood and food security.* (Bangkok: FAO, United Nations, International Work Group for Indigenous Affairs, Asia Indigenous Peoples Pact, 2015)

market oriented. Farmers say there are plenty of market prospects for local products grown in their fields and fallows, so they've begun cultivating them for local urban markets.

While shifting agriculture produces less cash revenue than other land uses, it continues to be a key producer of rice and food security, as well as a stable and consistent source of cash income, according to 80 percent of the farmers interviewed in the six sample villages studied. In Longkhum village, instead of jhum fields, they produce vegetable farms for both family consumption and the local market, as previously mentioned. Similarly, in Khar, Sungratsu and Changtongya villages, farmers who cultivate jhum lands cultivate vegetables and other cash crops, though in small quantity, alongside with rice. Farmers also make money by selling uncultivated forest items like mushrooms, leafy vegetables, and other herbs that are in great demand in the market. For example, Aojisang, a green leafy vegetable that grows abundantly in the Sungratsu and Mopungchuket forests and is in high demand in the local market.

Farmers in Longkhum village concentrate more on producing tomaotes, broccoli, chilli and cabbage. "The income turn-out by selling vegetables is three times more than income turn out in a Jhum field. By seeing the prospects and income in farming a vegetable field, almost all the villagers are now vegetable farmers. Even those farmers who cultivate jhum land, they cultivate tomatoes and other vegetables along with rice."[24]Table 8 below shows the types of produce and the income generated by farmers in one season.

Table 8: Income generated by farmers per season

Sl.no	Types of produce	Income per season (approx.)
1	Coffee	₹80,000-₹3,00,000
2	Vegetables	₹60,000-₹1,00,000
3	Oranges/pineapple/Litchi/banana	₹ 50,000-₹ 1,00,000
4	Anishi	₹ 10,000- ₹50,000
5	Areca Nut	₹ 75,000- ₹ 1,50,000

[24] Interview with Temsumongla, 39 years, female, a vegetable farmer from Longkhum on 10-07-2016

6	Betel Leaf	₹ 50,000- ₹ 1,00,000
7	Firewood	₹ 50,000- ₹1,00,000

Almost 90% of the respondents have stated that the income turn out in jhum cultivation does not recover the expenses incurred. Therefore, many farmers have started permanent farming where they cultivate crops that have more commercial value. Many farmers in Sungratsu, Changtongya, Khar, Japu and Chungtiayimsen villages have completely turned from jhum cultivation to permanent farming. Listed below are the types of permanent farming that the respective villages have taken up in the recent years.

Table 9: Types of plants cultivated in permanent farms

Name of the Village	Types of plants cultivated in permanent farms
Chungtiayimsen	Rubber, Teak, Agar, Areca nut
Japu	Rubber, Areca nut, Beetle leaves
Khar	Orange, Coffee, Tea
Sungratsu	Passion fruit, Colocasia, Litchi, Orange, Yongjak (Tree Bean)
Changtongya	Pineapple. Organe, Litchi, Banana

Horticulture and animal husbandry have been increasingly popular in recent years. Horticulture has traditionally been a backyard activity for farmers because they are generally busy cultivating food crops throughout the year and have little opportunity to produce horticultural products for commercial purposes. The plantation and horticultural industries contribute significantly to the state's rural economy development. Only in the last ten years has there been a greater focus on the development of horticulture in the state.[25] In recent years, cash crop cultivation has made significant development in the Ao region, especially in the sample villages.

4.3 Factors of Change in the farming system

[25] Source: Department of Horticulture

Change is fundamentally prevalent in all societies, yet resistance to change is also innate. There are dynamic processes at work that promote the adoption of new ideas and objects, while others promote changeless stability. Malinowski writes of social change stating that change is created primarily due to external pressure of colonial rule[26] Social change in the context of the Ao Naga society can be considered to have taken place due to the acculturation and the diffusion while encountering the other cultural groups, and here the other cultural groups refer to the British and the American Baptist Missionaries. Malinowski pointed out that if one aspect of a culture is changed the whole of it will change. It can be said that the socio-cultural aspect of the Aos has totally changed today. Their socio-cultural life is quite different from how it used to be before the pre-British and the Pre-Christian missionaries' era.

For a long time, the Ao Nagas, as well as other Naga tribes, had little or no interaction with the outside world. They were isolated in the highlands, with no outsiders allowed to cross their borders and no outside rule. They only had touch with the Ahoms, the rulers of Assam from 1228. It is understood that there were occasional wars and peace between the Ahoms and the Nagas living on the Ahom-Nagaland boundary. With the arrival of the British authority in the Naga Hills, the self-reliant and self-sufficient Ao villages witnessed significant changes. Following the Treaty of Yandaboo, the British conquest of Assam in 1828 provided real exposure to the outside world. One of the most crucial aspects in the Nagas' transformation was the British administration in the Naga Hills. The Ao area was added as a sub-division to the Naga Hills District in 1889. The Naga Hills' annexation and consolidation were accomplished in 1923. The annexation of the Ao Nagas by the British ushered in a new era in the Ao Nagas' image. With significant social, cultural, and political pacification and redemption from their age-old civilisation, this became a significant landmark in the history of the Ao people.

The basic objective of the British administration in the Hills was to maintain law and order and prevent the raids in Assam and Cachar by the Nagas. The British administration with their aim to extend and control over the Naga Hills started to develop roads and transport and communication. Prior to the British annexation, the only means of communication were the mountain tracts and the village and traditional paths. In those times of head hunting, building roads were not encouraged as it only proved to be easy access for another enemy group to attack the village. There were inter village footpaths but they were connected only with the

[26] Gluckman:1947

friendly villages. The villagers had to walk for weeks and days to go down to the plains of Assam to get salt.[27]

With the construction of new roads by the British administration the different Ao villages were brought closer, and they became known to the outside world. Bridle-paths were constructed through the district by the government to facilitate administration. The once isolated Ao country began to connect with the outside world. The construction of new roads was accompanied by the introduction of new means of transport and communication. Vehicles, Motors and other means of transport, Telephone lines, Post offices and telegraph lines were introduced in the Ao region by the British. The first telegraph line was completed from the plains to Mokokchung, and the construction of post and telegraph office was completed on 17th February, 1910.[28] One of the most significant achievements of the British government has been the creation of transportation and communication systems.

The British officials also introduced new material equipment to the Ao people during their rule. Fire arms, cooking utensils, clothes, safety matches, food items and new varieties of fruits and vegetables were made known to them. According to W. C. Smith, the Nagas were awed by the European's material equipment when they first saw him. He went on to say that they were blown away by the superiority of other products, and that when they didn't find them too complicated, they gradually began to abandon their own basic utensils in favour of factory-made wares.[29]

With the establishment of British administration in the Naga Hills, Christian missionaries became increasingly interested in preaching and spreading the gospel of Jesus Christ. The British government welcomed the American Baptist Mission to spread the gospel in the Naga Hills, and they gave shelter and provided security to the missionaries in the Hills for the cause of Christianity. The Christian missionaries first came to the Nagas from Ahom-land through the Ao region.[30] The Christian missionaries encountered the Ao Nagas while they were carrying on barter in Assam. Godhula Rufus Brown, a Christian Assamese schoolteacher,

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[27] Smith, W. C. The Ao Naga Tribe of Assam, (New Delhi: Mittal Publications, 2009). & Nshoga, A. Traditional Naga Village System and its Transformation, (Delhi: Anshah Publishing House, 2009).
[28] Nshoga, A. Traditional Naga Village System and its Transformation, (Delhi: Anshah Publishing House, 2009). p.260
[29] Smith, W. C. 2009. *The Ao Naga Tribe of Assam*, New Delhi: Mittal Publications (Reproduced).p179-180
[30] Nshoga,A.Traditional Naga Village System and its Transformation, (Delhi: Anshah Publishing House, 2009). p.285

began his genuine missionary work among the Ao Nagas in 1871. He initially travelled to the Amguri tea estate, where he met many of the Ao Nagas from Dekha Haimung, an Ao Village, and after earning their trust, he accompanied them to their village at his own risk. Rev. E.W. Clark went to Dekha Haimung in 1876. He was later joined by his wife Mrs. Mead Clark and together they began their effort of converting the savage Nagas into Christians. Christianity struck its root deep in the Ao Naga soil and brought far reaching changes in every facet of Ao Naga life and thought. The Christian missionaries attempt to convert the Ao Nagas was a slow process.

The impact of western civilization on the social and cultural makeup of the Ao Naga psyche was profound, by all accounts, for a people who were once content with an isolated, independent, and mobile existence, dependent mostly on agriculture and hunting and relieved by occasional feasting and dancing. Evangelistic, educational, and medical relief work were among the ways the missionaries made an impact. Animisms, the installation of stone monoliths and wooden posts, the feast of merit, the drinking of rice beer, the body of myths and oral tales, and the body of myths and oral tales were all gradually losing prominence in the face of the persistent onslaught of missionary efforts. In the areas under administration, headhunting and tribal warfare were legally forbidden, and Christian missionaries emphasised the concept of love for neighbours and enemies alike, which created an ideological foundation for the new interaction between tribes and settlements. The Ao Nagas' adoption of Christianity brought about a tidal change in their community, notably with the advent of modern education.[31]

Christian missionaries used education as a powerful instrument in their conversion efforts among the Ao villagers. One of the most significant causes in the development of traditional Ao Naga villages was the introduction of modern schooling. Prior to the advent of the East India Company, there was no modern educational institution in the entire Naga country, except the Morung institution based on traditional learning of the Naga culture.[32] The *Ariju* was the boy's dormitory while the *Tsuki* was the girl's dormitory in the Ao Naga society. These two dormitory systems were a kind of an institutional set up in the traditional Ao society. The rich Ao culture, custom and traditions were taught and transmitted from one generation to

[31] Bendangangshi.Glimpses of Naga History, (Naga Patriots from Soyim P.O. Mokokchung:Nagaland,1993) p.17

[32] Nshoga, A. Traditional Naga Village System and its Transformation, (Delhi: Anshah Publishing House, 2009). pp.264-265

another in the respective morungs through folk tales and oral traditions, folk songs and dance, wood carving and weaving etc. It was a teaching-learning process, a kind of a modern-day educational institute.[33] The Morung system, however, lost favour with the advent of modernity, and it is no longer used by majority of the Naga tribes.

Education was used as a tool both by the missionaries to lure the people to convert themselves into Christianity while the British government used education for their own interest pacify and extend their influence. The impact of the British rule and Christianity has indeed changed the Ao society dramatically. It has changed the mentality and living conditions of the Ao Naga villagers and the foreign culture and progressive society has shaken the indigenous Ao Naga society. More towns were set up with the increase in population and people from the villages started migrating to the towns and started settling there. The Ao villages were secluded and lacked connectivity with the outside world until the British arrived in the Ao Naga Hills. They were not visited by any other civilization and the society remained static and stable. However, when more foreigners arrived in Ao land, the society began to shift from a traditional to a modern one.

By the early 20th century more and more Nagas embraced Christianity. Head hunting and superstitions came to an end with the emergence of Christianity. The Nagas were known for being fierce independent warriors and as head hunters. There was no greater victory than bringing home the severed of an enemy. The efforts of the missionaries and the British administration put a total end to the barbaric act of head hunting. The Naga society was transformed by Christianity to the point where it now bears little similarity to the tribal society of a century ago. Both the British administration and Christian missionaries brought about tremendous changes among the Ao, causing the tribe to abandon their age-old social patterns, cultural practises, and traditional political arrangement. The new religion and education system disrupted the indigenous pattern of life.[34]

With the arrival of Christian missionaries and British colonialism, the British became interested on exploiting the economic resources of the Nagas. Attempts were made to explore natural resources such as tea, coffee, coal, and lumber, but no significant measures to develop

[33] Jamir, N. Talitemjen & A. Lanunungsang.2005. *Ao Naga Society and Culture*, Lumami: Nagaland University Tribal Research Centre.p.341

[34] Zhimo, Avitoli G. Culture Identity and Change: The case of the Sumi of Nagaland, *Indian Anthropologist*, Vol. 41, No. 2. July- Dec. (2011), pp.44-45

these resources were implemented. The British rule was successful in maintaining law and order in the Naga Hills, as well as introducing modern communication and education. They also brought the long-separated tribes together to become a distinct people. However, the Nagas were mainly isolated from the rest of the inhabitants of the region as a result of British administration, which was mirrored in the Nagas' later socio-political aspirations as a distinct ethnic group with no socio-political brotherhood with the rest of North East India.[35]

. Trade in the Ao Naga Hills was limited to inter-village trade and a few inhabitants of Assam's border areas. The district's trade was monopolised by a small group of persons, most of whom were not native to the area. The earliest business groups to establish in the Naga Hills were the Marwari and Muhammadan traders; in reality, their arrival in the territory was another feature of British colonialism. These traders arrived in the hills as a result of British colonialism, partly with the help of the government. The British ended the Nagas' glorious solitude by incorporating them into their administrative system.[36] Many commercial towns began to flourish as a result of development trends in the fields of transportation and communication, and people began migrating to town areas in quest of a better way of life. Agriculture was developed to some extent, but very little progress was made.

A wave of change was brought about by the British Administration and the Christian Missionaries. Along with the socio-cultural changes, the political and economic scenario also changed. The modern-day Ao Naga society has transformed drastically. The British and American colonial influence can be seen and felt in the way of life of the people. Though agriculture remained untouched and unaffected by the colonial rule, with the growth in towns and development of transport and communication, slowly and steadily the impact of modernization was also felt in the agricultural sector. By the beginning of the 21st century, the traditional farming system started to transform slowly.

The changes in the farming system were caused by a number of factors. Four key reasons affecting the Ao Nagas' farming system will be discussed in the following sections.

Socio-Economic factor

The self-reliant and self-sufficient village economy of the Ao Naga no longer remains the same. The Ao Nagas now depends on other neighbouring states for imports of food

[35] Sema, Piketo. British Policy and Administration in Nagaland 1881-1947, Second Edition, (New Delhi: Scholar Publishing House, 1992)
[36]Ibid

supplies. Until half a century ago, it was through barter system that the food supplies and whatever needed for their lives were obtained. The barter system was carried out in the village, even within the neighbourhood, neighbouring villages and with the neighbouring tribes and state. The Ao people would walk to the neighbouring state of Assam to buy salt. They would carry food items collected from the jhum field and barter it with salt. "We would cross more than twenty villages and it would take days to reach the destination so we would shelter ourselves in the villages that we would cross. We made friends with the other villages and so every time we go to Assam, we would seek shelter in our friend's home. We also bartered food items for mithun and cows from the eastern Naga villages in the past."[37] The Aos bartered paddy seeds with maize seeds and other food items with dry fish with the neighbouring Lotha villages138.

With the introduction of money, the barter system has long ceased to exist. The employment of the people in the government and private sector with a steady salary each month forced the people to focus on education and get themselves employed in other sectors and not in farming. The change in the labour force management is also a major factor that has led to change in the farming system. Irrespective of the size of family, 80% of the respondents have only 2 members, usually the mother and the father of the family, who are fully engaged in agriculture. The reciprocal social system of helping each other in the jhum fields have now ceased to exist. Farmers now must hire labour to work for them with less members of the family engaged in the farming. On an average, farmers work for 20-26 days in a month and work for around 7 hours in a day, more so during sowing, weeding and harvesting season.

The pay for labour force becomes expensive and the production from the farms does not reciprocate the amount of money spent in the jhum fields. Harvesting is done once only in a year with a year-round input which is highly insufficient. As such, the farmers have opted for other system of cultivation. Many jhum cultivator plant multiple crops in the field and not just rice alone. Traditionally, farmers grow rice as the major crop and some vegetables. However, with the introduction of variety of hybrid seeds, farmers are multi-cropping even in jhum fields which are for commercial purpose and not just for self-consumption. Farmers produce tomatoes in the jhum field in the first year and rice in the second year, according to Longkhum village, a study sample village. This is a new trend that has started with the introduction of new seeds and fertilizers to the farmers. The tomato plants are given artificial nutrients in the form of

[37] Interview with Suponginla, 60 years, female, from Longkhum Village on 10-07-2016

fertilizers. According to the farmers, tomatoes grow better in fresh lands and therefore every year it needs to be grown in a new land. The nutrients that they give to the tomato plants remains in the soil and therefore when they cultivate rice in the same land the next year, the yield increases.[38]

In the sample villages of Changtongya and Khar, 50% of the respondents had permanent farms where they plant cash crops like orange, pineapple, banana, coffee, litchi etc. With cash crops fetching more capital than the traditional practice of paddy cultivation, farmers are turning to permanent cash crop farming. It may be stated in the plain valleys of Tzurangkong and Changki, wet rice cultivators which was once popularly practiced are now turning to other plantations and permanent farming due to decrease in rice demands. The rice imported from other states like Andhra Pradesh are found in plenty of varieties and in cheaper rates. Sticky rice is more in demand than normal rice however none of the respondents were fully engaged in cultivating sticky rice alone in the rice fields.[39]

One of the significant changes is also seen in the land holding system. Traditionally among the Nagas land belong to the people i.e, the village or clan, however, as time so demand, farmers are acquiring individual lands which belonged to a clan or a family. For instance, a particular clan in Ungma village distributed the clan's land on individual basis and the acquired land has now become personal property. In that individual holds absolute rights over the utilization of the land. The trends of acquiring individual ownership over the community/clan's land can be seen in many other instances, one plausible example is the creation of *Yimchalu*[40] village where the farmlands are not just owned by Sungratsu villagers but also by farmers belonging to the neighbouring Mopungchuket village. This is mainly due to the individual farmers selling of their private land to people other than their villagers. The reduce in the number of Jhum cultivators has in many ways led to the sudden shift of farmers from jhum cultivation to permanent farms. Farmers from many villages have started converting selected shifting cultivation blocks to farms, making way for a total change in the traditional land-use patterns.

[38] Interview with Medemeren, 53 years, male, from Longkhum Village on 10-07-2016

[39] Interview with T. Marchiba Longkumer 53 yrs & Lanutemjen Walling, 45 yrs, male, Khar Village on 27-08-2016

[40]Yimchalu was formed by Sungratsu villagers as an off-shot village of Sungratsu in 2007

Technological Factor

Technological change is a broad subject with many varied definitions across fields. "The introduction of new tools and new technical procedures" is how Margaret Mead defines technological change (Mead, 1953: 9). Everett Rogers defines technological change as the adoption of a new farming practise. "Technological change is defined as the level of acceptance of new technological methods by persons [farmers]: new seed types, fertilisers, machinery, livestock feeds, and so on." (Rogers, 1958, p. 137). The technical knowledge used in the development of capital and machines is referred to as technological change. The productivity of labour, capital, and other production components increase as a result of various technological advancements. Technological advancement entails the development of new skills, new methods of manufacturing, new applications for raw resources, and the widespread use of machinery.

Technology is widely considered as playing a critical role in the evolution of human cultures. Each new wave of technological growth has resulted in changes to the nature of work, which has a lengthy history (Wilpert, 2000). Technological change has an immediate and evident impact on the technical system, as well as the social and managerial systems, and thus any cultural system. Even if wide gaps in adoption continue in different parts of the world, notably in the least developed countries, the development and implementation of new technology has accelerated dramatically in recent decades. Almost every aspect of the business, society, and culture is being impacted by rapid technological transformation.

The technical changes that began with the Green Revolution and continued with the Blue Revolution, White Revolution, Yellow Revolution, and Bio-Technology Revolutions have all had an impact on Indian agriculture. Since independence, Indian agriculture has experienced substantial expansion, which can be ascribed to technological advancements in the area. Despite the fact that there are substantial issues to be studied in order to enrich India's agricultural progress, significant changes have occurred in recent decades that have directly and indirectly impacted the farming system in tribal communities. Looking at technology as a factor that is leading to change in the farming system among the Ao Nagas, it is pertinent to look from two aspects of technological change: firstly, Land-Augmenting Technological Change and secondly, Labour-Saving Technical Change. The biological, chemical and technical changes introduced in agriculture are referred as land-augmenting technological change. While it is a fact that land is inelastic in supply, therefore certain techniques can be

applied to help augment land availability. Some of the techniques applied for augmentation of land by the farmers are Multiple cropping, inter-cropping, use of fertilizers and pesticides and use of high yielding variety seeds.

In the sample villages of this study such as Longkhum, Kahr and Sungratsu, farmers mostly adopt multiple cropping and inter-cropping. In one plot of land, a farmer grows summer crops and winter crops which makes the farmer produce vegetables twice a year and often, the whole year round. It may be stated such multi-cropping and inter-cropping were never practised traditionally. With jhum cultivation, rice is grown and harvested only once, and summer crops are usually grown along with rice. The farming activity ends by October after the harvest in the jhum fields. However, those farmers who adopt multiple and inter-cropping, their labour engaged busy whole year round on the one hand and they also earn the whole year round on the other hand. This is one of the major findings why farmers are turning away from traditional farming which is considered as unproductive and hence adopting to alternative ways of farming. It may also be argued that adoption of alternative farming is also due to introduction of market economy.

A jhum farmer who is cultivating paddy takes six months to harvest because it is a traditional variety of paddy. But a farmer adopting High Yielding Variety seeds takes three months which makes him cultivate twice. Though HYV rice seeds were not found to be used by the farmers from the sample villages, the farmers were in use of HYV vegetable seeds. For instance, in Longkhum village, a particular type of hybrid tomato seeds named the namdhari tomato seed is used by the farmers. This hybrid tomatoes are bigger in size, and they yield more than the local tomatoes. The tomatoes are also ready for harvest in 45 days. Apart from tomatoes, the farmers are introduced to new variety of crops like bok-choy, carrot, beetroot, Chinese cabbage, cabbage etc which were not traditionally grown. These seeds are provided by the agriculture department and are also available in the market.

All mechanised changes are called labour-saving technical changes. Similarly, some other inputs like the use of weedicides are labour displacing. The use of salt as weedicides especially in the jhum fields has been in practise since decades by the Ao Naga farmers. Initially, farmers would mix salt with water and sprinkle on the paddy manually, but later, the farmers got access to the salt spraying machine, and they have been using the spraying machine which makes work easier and lighter ever since. With the advancement in technology and exposure of the farmers to the commercial market scenario, they have started using pesticides

and weedicides which are available in the market, though not in abundance. The use of factory-made fertilizers is also in the rise among the farmers. Apart from the fertilizers that comes in packets, the farmers also use vermi-compost. Vermi-compost is a mixture of decomposing vegetable or food waste, bedding materials, and vermicast created by a decomposition process involving various kinds of worms. This is known as vermicomposting, and the practise of raising worms for this purpose is known as vermiculture.

In the sample village of Sungratsu and in many other Ao villages, the Agriculture department, Government of Nagaland has set up vermi-compost from where the farmers can cultivate fertilizers and use them in their farms. Such initiatives and innovations are new to the farmers and are beneficial to them in many ways. Since the organic fertilizer cannot be produced in huge quantity as to cover the entire jhum fields, they normally use the fertilizers for their vegetables. The vegetables grow healthy, and the produce also increases because of the use of the organic vermi-compost which has attracted many farmers towards vegetable farming especially in Sungratsu.

In places where wet rice cultivation is practised, traditional wooden plough yoked to buffaloes are used to plough the fields, but in the recent years, the traditional ploughs are replaced by tractors which makes ploughing easier and saves a lot of time. However, due to the high price of the machines and tools, farmers usually stick to the old ways of farming. Only one respondent from the sample village of Chungtiayimsen and Japu owned a tractor. With low yielding of rice from the rice fields and due to lack of demand of rice, many farmers have shifted from wet rice cultivation to other alternate forms of farming like plantations and brick making.

The farmers are constantly being introduced to new variety of crops and new methods of farming. The initiatives of the government department agency especially the horticulture and agriculture department are helping the farmers get exposed to new means to farming. The Department of Agriculture administers a wide range of programmes, the majority of which are funded through various government-sponsored schemes. In total, the agency is executing 17 programmes in the state. The focus is on expanding cultivated land and improving inputs, such as irrigation and technology, as well as increasing value addition on or near the farm, as well as conservation of local varieties and human capacity building. The agency also wants to transition subsistence farming to organic farming and promote commercial agriculture in a sustainable way.

The Department of Horticulture receives support and funding from the Horticulture Technology Mission and the RKVY, in addition to the State Plan and NEC, with the goal of increasing production and productivity of vegetable, fruits, flowers, and other horticulture crops in the state. The Department of Horticulture aims at promoting low volume, high value, and less perishable horticulture crops, improving post-harvest management, and providing marketing linkages. The objective of the Department of Veterinary and Animal Husbandry is to achieve meat, milk, and egg self-sufficiency through providing self-employment opportunities for farmers in rural areas. The agency wants to improve the availability of animal health care services to farmers. To achieve this goal, the department is undertaking ten programmes with finances coming from both the state and the federal government. Furthermore, NEPED is undertaking a piggery-based livelihood initiative throughout the state, with the goal of improving pig rearing techniques (Nagaland State Action Plan on Climate Change).

For instance, in Khar village, the state government introduced coffee and tea to the farmers in the early 1980's. Some of the farmers are still into coffee farming and the coffee is exported to other states in the country. Similarly, rubber plantation was introduced to the farmers in the valley areas along with Agar and Teak. The farmers are provided with free saplings and are given subsidies. Mushroom cultivation is also in the rise among the Ao Naga farmers, and this new age mushroom farming is also attracting a lot of villagers who are mostly women folks. An example can be cited from Ungma village where a self-help group grows mushrooms and markets them. They were trained to grow mushrooms at home by the government agencies and now they grow the mushrooms whole year round and helps in income generation.

Nagaland's average annual temperature has risen from 1.4 to 1.6 degrees Celsius in the last century. Between 2021 and 2050, the average annual temperature is expected to rise by 1.6 to 1.8 degrees Celsius, according to Dellirose M Sakhrie, secretary of the Nagaland State Department of Science and Technology. The rainfall is also forecast to rise by 20% in intensity. During the period 2021-2050, the number of exceptionally dry and wet days will grow. 142 The state's annual average temperature is expected to rise between 1.6°C and 1.8°C by the middle of the century (2020-2050).[41] Temperatures in the southern districts are rising faster,

[41]www.downtoearth.org. Accessed on 13 August 2018

with Kohima, Wokha, Phek, Zunheboto, and Tuensang experiencing increases of 1.7°C to 1.8°C. The northern districts of Mon and Mokokchung are expected to see a 1.6°C to 1.7°C increase in average temperature (Nagaland State Action Plan on Climate Change).

Rice is Nagaland's major food, with jhum and terrace rice cultivation systems covering roughly 86 percent of the state's cultivable territory. Traditional rice varieties are produced between 300 and 2500 metres above sea level. Farmers have recently shifted their focus to cash crops, placing cereal production under strain. Rice and pulse growing at high intensities, as encouraged by various plans, has not shown to be viable. Climate change has introduced a new source of stress. The state's agriculture is primarily rain-fed. Monsoon behaviour, including strength, frequency, and seasonality, has the potential to significantly effect agriculture systems in the state. Crop yield is being impacted by projected temperature changes, which are compounded by the state's mountainous terrain and wide climate variability.

According to the Statistical handbook of Nagaland (2021) the Average mean temperature of Mokokchung district in 2019 was 13.09℃ which increased to 17.68℃ in 2020. Similarly, the average annual rainfall in 2016 was 2165.7mm while in 2019 it was 1703.6 mm and 1997.7 mm which shows a deep decline in the rainfall. The table below also shows the crop yield in jhum fields in Mokokchung district, the data obtained from the Statistical Handbook of Nagaland (2021). There is a decline in the crop yield in the jhum field in the past five years along with the area under jhum cultivation.

Table 10

Jhum Crop yield of Mokokchung District

Year	Area (in hectares)	Production (in Metric tons)
2015-2016	9480	18640
2016-2017	9350	18670
2017-2018	9330	18570
2018-2019	9320	18550

2019-2020	9300	18516
2020-2021	9290	18500

In Khar, Longkhum, Sungratsu and Changtongya villages, there was a decrease in the crop yield in the last 10 years. According to the respondents, the change in weather and climatic conditions were the reason for the poor yield. The nutrients in the soil seem to have depleted and the erratic weather conditions makes it difficult for the farmers to figure how to exactly predict the jhum cycle. In the recent years the crops are also constantly infested by pests and insects which was rare in the past.[42] Such new pests and diseases are likely due to climate variability. Farmers are without sufficient production of crops due to the climatic changes which is one factor that is leading to the shift of farmers from jhum to cash crop cultivation.

In 2019, the burning of Jhum fields in Longkhum village took place in the month of April due to rainfall in the month of February. The burning of Jhum field usually happen in the month of March. In Khar village, the harvesting is done by September end to early October which traditionally used to be harvested in the month of October. While on the other hand, Longkhum and Sungratsu villages experience late harvest in the middle to end of October. The respondents are of the view that the main reason attributed for the change is the change in the weather conditions.

In the sample village of Japu where the farmers are engaged in wet rice cultivation, it is observed that the rice fields are drying up and the soil have become infertile. This is mainly due to the coal mining which is taking in big ways in and around that area. The coal mines have polluted the water sources and, in some areas, blocked the water source all together.[43] Many farms have become fallow and uncultivable. The adverse impact of the coal mines is felt by the farmers while this impact scenario itself deserves another empirical study. Similarly, in Chungtiayimsen where farmers practice wet rice cultivation, the increase in brick manufacturing units is affecting the environment which is directly and indirectly having an

[42] Interview with M. Imna Ao, 51 years, male, at Changtongya Village on 26-08-2016
[43] Interview with Moatemsu, 51 years, male, at Japu Village on 26-08-2017

impact on the farmers. According to the farmers there is also an increase in temperature in the area in the past few years with less rainfall which is leading to a decrease in the crop yield.

Such incidents of low yields have led the farmers to turn to other crops or other alternative forms of cultivation which will suit the changing weather conditions. As mentioned, the various state departments are collaborating with the farmers to invest on crops that will resist the weather conditions and changes and will help them in self-sustenance. An example of such initiative can be cited about Aliba and Kinunger village where Agriculture Technology Management Agency, Government of Nagaland, has helped the farmers to adopt climate resilient farming system which includes apiary, piggery, fishery, mushroom cultivation etc. The department introduces the use of improved innovative technologies in the farming system.

Modernization

Modernization can be defined as the process by which a country transitions from a traditional agrarian civilization to a more secular urbanised society, reshaping its cultural system in the process (Krishan Kumar, Encyclopedia Britannica 2009). Alberto Martinelli defines modernization as, "By modernization we mean the sum of the processes of large-scale change through which a certain society tends to acquire the economic, political, social and cultural characteristics considered typical of modernity."[44] Modernization has an impact on every facet of human society. It has impacted the political and economic systems, as well as the family, forms of entertainment, and all other fundamental institutions. Many societies' development and advancement have been guided by modernity.

The dawn of modernity in the Ao Naga society took place owing to the colonial intervention and the arrival of the Christian missionaries to spread the new religion. Christianity played a vital role in initiating the modernization process among the Ao community. According to Sanyü (1996: A history of Nagas and Nagaland-dynamics of traditional village formation), among the many forces that penetrated the north-eastern region alongside colonial rulers, the introduction of Christianity was one that stood out in terms of playing a major role in the modernization process. If there was one major dynamic reason for an entire change in the life of the Nagas, he said, it would surely be the introduction of Christianity among them. He also claimed that the Naga civilization had been modernised by the introduction of education, the arrival of Christianity, and economic progress.

[44] Martinelli Alberto, Global Modernization: rethinking the project of modernity (London: Sage, 2005), pp. 5-9.

Modernization has impacted the Ao Naga society in all its aspects. However, we will only look at how modernization has impacted the farming system and how it acts as a factor of change in the farming system. The occupational pattern of the Ao Nagas changed with the introduction of modern education and the advent of modern institution of religion. The importance of education in an individual's life was instilled in the heads of the Ao Nagas by the Christian missionaries. Educated individuals were employed by the British officers for which they were paid. Educating their children is now the major goal for the Ao Naga parents. "We work so that our children can get education and get a government job. We do not want our children to be farmers like us. We want them to get education, study hard and get a monthly salaried job so that they won't have to work tirelessly like us."[45]With the development of road and transport system and the advancement of technology, people living in the villages have started migrating to urban areas where they can get access to better education. Better education meant higher expenses for the family. Owning a jhum field and depending on it solely for family expenses is not enough. Owning a vegetable farm, a farmer earns more than one thousand rupees in a week. If a comparison is made based on the income, owning a jhum filed becomes economically non-feasible. Hence, there is a shift in the farming pattern.[46]

Exposure to other forms of plants and crops due to the availability of wide network of information has also impacted the farmers. Vegetable farming first began in Longkhum village through the cultivation of tomatoes by one farmer. Gradually, the feasibility of the vegetable farm was recognized by other farmers and now more than half of the farmers in Longkhum are vegetable farmers. Similarly, in Changtongya, a person, Rongsennukshi, 84 years, learned the process of making local banana chips and started a banana plantation. Local banana chips are produced in bulk and supplied to other districts as well. There is now an increase in the number of people engaged in banana chips production and also an increase in farmers who plant bananas which can be supplied to the banana chips making units. Rubber and Agar plant and vegetables like broccoli, cauliflower, capsicum, Chinese cabbage etc were unknown to the traditional farmers. Traditionally there were only limited number of crops and plants that were cultivated by the farmers. With the coming of age and modernity, farmers are exposed to new variety of plants and crops and are able to realize the commercial value of the plants. As such, there is an increase in the use of commercial plants among the farmers. Modernization has helped farmers in exposing themselves to other farmers of the world and their way of farming.

[45]Interview with M.Achala, 62 years, female, at Sungratsu Village on 18-08-2016
[46] Interview with T. Nungsang Longchar, 61 years, male, at Sungratsu Village on 18-08-2016

One farmer pointed out that he acquires knowledge about farming by simply watching Youtube.[47]

Modernization has impacted farming among the Naga farmers and it has brought about a wave of change in the socio-cultural aspects too. The impacts are not always positive nor are they always negative. The intensity of the impact of all these will be discussed at length in the following chapter.

The preceding discussion consequently supports the study's second and third objectives, which are to better understand the shifting patterns and variables affecting the farming system. The changes in the pattern and the factors of change in the farming system were discussed in Chapter 4. Huntington and Giddens' concepts of modernity and modernization are used to understand the Naga society's transition process in the chapter's introduction. Since colonial rule, the advent of Christian missionaries, and the following introduction of education and the spread of Christianity, the Ao Naga society has undergone enormous change, resulting in a complete transformation of the Ao society. The traditional society was further altered by the modernization and globalisation processes, which influenced individuals to adopt a more western style of life and thinking. The Ao Nagas' farming system underwent a significant transformation as well. The disappearance of the necessary ritual of offering sacrifices, changes in labour force management, Jhum cultivation no longer being the only mode of agrarian practise, changes in the agricultural cycle, and the shift from traditional to market-oriented/commercial farming are some of the major changes that have been observed throughout the study, which are detailed in this chapter. The factors of change that lead to change in the farming system are also highlighted in this chapter study, which was based on the responses of the respondents. The major forces of changes include the Socio-economic factor, Technological factor, Environmental factor and modernization which has led to a change in the pattern of farming system in the Ao Naga villages.

[47]Interview with Zaongningba Walling, 40 years, male, at Khar Village on 28-08-2017

CHAPTER V

THE IMPACT OF CHANGING PATTERN OF FARMING SYSTEM ON SOCIETY

5.1 Introduction:

Talcott Parsons (1966) writes that change is inevitable and change always brings about a positive or a negative impact on the society. A natural state of equilibrium exists in society. Gradual change is both essential and desirable, and it is often triggered by factors like as population expansion, technological advancements, and interactions with other communities, which introduce new ways of thinking and acting. Sudden social change, on the other hand, is unwelcome since it upsets the balance. Other segments of society must make adequate modifications to prevent this from happening if one sector of society experiences too abrupt a change.[1]

In the case of the Ao Naga society, changes in the farming system have resulted in changes in numerous facets of society. Agriculture has always been the backbone of society, and it has been the driving force behind all social transformations. Agriculture was the people's way of life. Everything revolved around agriculture, thus any shift in the pattern of agriculture would result in a shift in the people's way of life. With the advent of modernization came the growth of rural areas as well as improvements in road and transportation, resulting in significant changes in the rural environment.

5.2 Impact of changing pattern of farming system:

The Ao Naga communities have been affected by the shift in farming patterns in both positive and negative ways. This chapter examines the social implications of a shift in the farming system's pattern.

Loss of community feeling

"Community is a social group with some degree of 'we feeling' and living in a 'given territory,'" says Bogardus. Nagas as a social group exhibit a high degree of ‘we feeling’ and they are known for the sense of community since time immemorial. “The commitment towards community is an integral part of Naga culture”, said Rosemary Dzüvichü.[2] She went on to say that whether in death or celebration, Nagas are taught to stand by each other and that Nagaland

[1] Parsons, T. (1966). Societies: Evolutionary and comparative perspectives. Englewood Cliffs, NJ: Prentice Hall

[2] Professor, Department of English, Nagaland University in one of the articles published in The Hindu Times

is a great example of how communities rise to the occasion. The Naga community can be looked at by referring to Fredinand Toennies' concept of *gemeinschaft* where he refers to the rural and pre-industrial societies as communities having close social ties and where everyone knows one another and their bonds overlap. The village head or the pastor is also someone's neighbour and they socialise together and their children are someone's tutor and vice versa.

The Ao Naga society also exemplifies the communitarian mentality, a philosophy that emphasises the individual-community link. Community interactions shape a person's social identity and personality to a considerable extent, with individualism receiving a lesser degree of development. Communitarian spirit was found in all religious, social, economic and political activity. "If your house burns down, if your family member falls sick or dies, if you are suddenly diagnosed with a life-threatening disease, if your crops fail, your neighbours, kinsmen, clansmen, come to help you build a new house, help care for the sick," says writer Easterine Kire about the Naga sense of community (The Hindu Times, March 07, 2021).

This communitarian spirit was displayed at a great level in the agricultural activities. The entire community would come together to clean the paths to the jhum fields and as sufficiently mentioned in the preceding chapters particularly in Chapter IV, neighbours and relatives would take turns to work in each other's fields exhibiting the notion of community working together in the fields, singing songs and exchanging labour. However, these days not everyone cultivates jhum lands therefore the exchange in labour does not occur and most of the works in the field are done individually. "The access to modern technology has made things very easy for us farmers. Instead of us sacrificing a day's work clearing and clearing the path to the fields, we contribute certain amount of money and hire a bull-dozer to pave the way for the road to the fields, and if we are lucky, some years the village councils clear the paths for us or one of the richer individuals in the village donates or pays for the hire."[3]

The work force for jhum cultivation and other economic activities was based on people's inter-relationships based on co-operation, friendship, support and inter- dependence. This however is on the wane in many of the Ao villages. Most of the farmers, including jhum farmers and other alternative farmers, are slowly taking to daily wage workers to work in their fields. This is mainly because the farmers are mostly elderly people or people who are employed in other sector who cannot give time to manage their own field. There is also an

[3] Interview with Temjenpokba, 58 years, Male, from Ungma village on 18-03-2018

increase in daily wage workers in the village, who mostly are the poorer section of people in the village, who have engaged themselves in daily wage work for additional income. The daily wage workers also include people from eastern Nagaland and also, from Assam. As the daily wage earners came into the labour force, the farmers realise the advantages of hiring them and begin to rely more on daily wage workers than on friends and relatives since the works are done faster and the farmers will not be obliged to work in their friend's fields. As such, community sharing, co-operation and support is becoming obsolete. As people prosper and have the means and resources, they look for convenience and become supervisory farmers. They make their living as supervisory farmers by having hired labourers cultivate their land. In the sample villages that use the wet rice growing technology, there is an increase in supervising farmers.

It is also observed that in many of the villages, an individual's obligations to the community are declining due to their engagement in other businesses. Earlier, Jhum was the way of life of the people and every activity was directly or indirectly related to cultivation. For instance, the village council sets a particular day for clearing of the village field path where all male members of the village are ordered to participate failing which they are fined with a certain amount of money. "As a government employee, I am unable to partake in many of the community works so most of the time I end up paying the fine since I have to attend office. Attending office is more important because that job pays me. I am left with no choice."[4]

In cases of when there is death in the village or other incidents, normally, the entire village would mourn and partake in the funeral proceedings as a mark of extending support during the bereavement of the the affected families. They would even sacrifice their working days and extend support for days. However, there seem to be a waning in the obligations towards the community. "When any villagers die, we usually visit the deceased the place early in the mornings and pay our respects and leave. Sometimes we attend the funeral and leave for work."[5] It is usually the family and the close relatives and neighbours that take active part. The other people usually visit them and offer their respects and leave for their respective works which was not the case in the past.

[4] Interview with Alimayang Jamir, 37 years, Male, from Ungma village on 18-03-2018

[5]Interview with Sakomeren, 48 years, Male, from Mokokchung village on 21-03-2018

The engagement of villagers in different jobs has also led to a decrease in the number of people attending the churches and other religious activity. “In the olden times, it was religion and religious activities that brought people together and all religious activities were a community affair. Things doesn’t seem to be the same anymore.”[6] Religious activities are not considered as something compulsory or sacred anymore. People are no longer bonded together by religious activities, in that, the pastor of Longkhum village states that during tomato harvest season in the village, many of the villagers seldom come to church. They are busy cleaning and packing tomatoes to be sold. “Harvest season is the busiest time for us tomato farmers. We need to bring the tomatoes from the fields, store them in such a way that they don’t get spoiled and then package them with utmost care. Since Sunday is the only day, we don’t go to the field, I do all the packaging on Sunday. I know, going to church is important but then my tomatoes will rot if not taken care and I need to sell them to feed my family. I only pray that God will forgive me for missing churches during harvest season.”[7]

Respondents especially the old people in the villages informed that the abandoning of jhum cultivation has led to a loss in the sense of unity and friendship and people are no longer dependent on each other as much as in the olden days. They were of the opinion that the importance of sharing, giving and support has worn out. The new found prosperity brought about through the economic activity of other forms of cultivation and with the emergence of other occupation, the people have become more independent and business minded and therefore do not need each other as much as in the olden days leading to individualism as opposed to the traditional communitarian spirit. It is here indeed, the relevance of Durkheim’s concept of social change appears significant. Under the pressure of rising moral density, Durkheim believed that societies move in the direction of more differentiation, interdependence, and formal control. As societies grow in size and people's needs grow, traditional ideals and customs become less important. The onslaught of new culture has slowly but steadily swept the indigenous culture and it has resulted in the transformation of the traditional simple society into a complex heterogenous society. The Naga society in general, and the Ao Naga society in particular, have progressed from a relatively undifferentiated society with minimal division of labour and a type of solidarity Durkheim refers to a s'mechanical solidarity,' to a more differentiated society with maximum division of labour and a type of solidarity known as 'Organic solidarity.’

[6]Interview with Medemmeren, 53 years, Male, from Longkhum village on 10-07-2016
[7] Interview with Medemmeren, 53 years, Male, from Longkhum village on 10-07-2016

Loss of traditional and Indigenous knowledge

Farmers have traditionally employed indigenous knowledge obtained from past experience and evolved over time under the influence of traditional knowledge, external circumstances and agents, and individual inventions in order to maintain themselves through agricultural production. Traditional farmers have operated their farming system based on indigenous knowledge, skills, and survival strategies. Indigenous knowledge held by farmers has a scientific basis and is extremely relevant to agricultural productivity and sustainability.[8]

The Ao Naga jhum cultivators possess strong knowledge about their natural and bio-physical environment. Indigenous knowledge systems are developed as a common knowledge system and are not held by any single individual or company. Farmers' social relationships are strengthened when they share their collective knowledge, which increases interdependency and binds them together. Additionally, sustaining local knowledge through socio-cultural activities reproduces and enhances the close relationship between the primary producer and nature. Because this knowledge is integrated in everyday socio-cultural activities that offer social status, one's skill in practical understanding of agriculture raises one's self esteem, enhances one's social status, and improves one's bargaining power in the community.[9] Indigenous knowledge is seen as one of the main sources in practicing traditional agriculture in Nagaland. Various forms of traditional agriculture are maintained by the Naga people with the use of indigenous knowledge.

However, as more and more people discard jhum cultivation, traditional and indigenous knowledge used in practising traditional agriculture is lost. It is observed that most of the parents do not want their children to become cultivators and have ambitions for their children to be educated and qualified and get on life with the ultimate goal being that of finding a government job. The cultural goal of every Naga family is to let their children get a government job. We can examine this case using Merton's Strain theory (1938), which claims that socially acceptable goals place pressure on people to comply, resulting in societal deviance. He claimed that the true issue is not a rapid societal shift, but rather a social framework that sets the same goals for all of its members without providing them with equal resources to fulfil them. In Naga society, the socially accepted goal is to secure a stable government job, but due to a lack of

[8] Interview with Takojungla, 54 years, female, from Longkhum village on 10-07-2016

[9] Joshi, C. P & Singh, B. B. Indigenous Agricultural Knowledge in Kumaon Hills of Uttaranchal. Indian Journal Of Traditional Knowledge, Vol. 5(1), (2006.Jan), pp. 19-24.

employment opportunities, the Nagas are accepting society's goals but designing their own means to achieve them, rather than conformity, that is, pursuing cultural goals through socially approved means.

It is further observed that there is a trend whereby agricultural works are shunned by quite a number of younger generations who are educated. This is mainly because their parents have sent them off to boarding schools to other towns and even outside of the state for those who can afford. In such circumstances the younger generation never learnt the art and skills of agriculture and its allied works. With most of the young people choosing to live outside the village either to study or to work and choosing to engage themselves in other jobs, farming has become the least favourable job. In such situation, the parents and elderly people in the village are left with none to share the knowledge and techniques of farming. "When we were young, we would go to the fields and jungle with our parents and they would teach us how to work and grow crops in the fields. Sadly, these days, young people are no longer interested in farming and doesn't find it necessary to learn how to farm."[10] There is a huge decline in the number of jhum farmers in all of the sample villages which has led to the loss of some of the indigenous variety of paddy and seeds.

The problem with less farmers in the village is the unavailability of seeds for sowing. In Mokokchung village, the farmers buy rice seeds from Longkong village for ₹200 per ton, which otherwise would have been easily available in the village. Some villages have no longer have seeds preserved because there are no jhum farmers in the village and so they have to go about asking for seeds from other villages.[159]The introduction of new and improved seeds in the market and the free distribution of seeds by different government agencies have also led to the loss of indigenous seeds in the villages. The Nagas have, since time immemorial, preserved seeds indigenously and through seed exchange. Women were crucial in the seed preservation process. Every year, the women would conserve a specific crop/plant so that seeds could be extracted for the following year. Neighbours and friends also exchanged seeds of various plants, but with the introduction of new hybrid seeds in the market, the indigenous seeds are fast disappearing.

60 women respondents were interviewed, out of which 50 of them were of the opinion that indigenous seeds bore crops that were of better taste than the packaged seeds that were

[10] Interview with Moatemsu, 56 years, Male, from Japu village on 11-09-2017

available in the market. “The hybrid seeds no doubt grow healthier and looks better but the taste somehow does not match with the local seeds. Even when we sell vegetables, the buyers tend to ask the variety of seed and they would usually go for the vegetables grown out of local seed. It has now become very difficult to get hold of local seeds. With very less farmers in the village, local seeds are now like gold. Looking for local seeds to plant in our kitchen garden has also become a task.”[11] The farmers were of the opinion that some of the indigenous seeds are mixed with the hybrid seeds where by giving birth to new variety of seeds. The exposure of farmers to other crops other than the indigenously grown has helped them in improving their economy. Though the introduction of new variety of seeds and crops may have led to the loss indigenous seeds and plants, it has helped the farmers in experimenting with new techniques and ways of farming.

Crops like cabbage, knol khol, radish, coriander, bok choy, carrots, potato etc were never sowed in the fields. Some of the vegetables were not even consumed by the villagers, but with all the modern seeds that are introduced, we not only grow and consume but we sell them and earn through the selling of such vegetables.[12] Most of the farmers who have adopted other forms of farming abandoning jhum cultivation, were introduced to new crops and techniques by the government. Out of 37 farmers who own permanent farms, 29 of them were introduced to the crops and plants in the farm through one or the other government agencies. The government provide incentives to the farmers through subsidies and free resources for developing individual lands. Such incentives also attract the farmers to engage themselves in individual farming and developing individual lands. have adopted alternative form of farming, they have not totally abandoned the traditional methods and knowledge.

Indigenous knowledge system is still intact among the farmers and it can be seen in their day-to-day activities in the villages. Traditional knowledge continues to help the farmers. Though have adopted alternative form of farming, they have not totally abandoned the traditional methods and knowledge. Indigenous knowledge system is still intact among the farmers and it can be seen in their day to dat activities in the villages. Traditional knowledge continues to help the farmers in maintaining a balance relationship with the environment and helps them in production of their agricultural process.

[11]Interview with Alemla Longkumer, 67 yrs, Female of Mokokchung village & Arenla, 65 years, female from Longkhum village on 17-07-2020

[12]Interview with S.I. Aren Longkumer, 61 yrs, Male from Longkhum village on 17-07-2020

Indigenous knowledge and traditional know how are passed down orally from one generation to the generation. It is the elderly people who are the bank of such knowledge. The wake of modernization and spread of education has led young people to migrate to urban towns and cities for education and employment. As such, the traditional customs and knowledge which the elderly people used to teach the youngsters and pass it down from one generation to another now remains unknown by the younger generation. There is a need to document the knowledge system of the farmers and elders and protect it before it gets swallowed up by the lightning pace of globalization and modernization. The know-how on traditional system of cultivation of the farmers should be protected and managed properly so as to preserve the age-old knowledge of the farmers. Hundreds of projects are introduced every year by the central and the state government for the development of the rural population. Any development in the rural society should combine the indigenous and local wisdom with the conventional know-how and modern techniques. The amalgamation of indigenous knowledge with modern scientific knowledge would prove to be a success in helping the farmers and in agricultural development and production.

Improved economy and development of the people

The introduction of new forms of farming and new means of earning has improved the village economy. The use of cash replaced the traditional barter system making barter system obsolete. Increase use of cash for business transaction led to the realisation and the importance of money, so much that people have started to participate in the economy as individual entrepreneurs where profit is the driving force. The traditional farming system, particularly Jhum cultivation was carried out for self-sustenance. However, with all the forces of change impacting the village life, jhum cultivation can no longer sustain a family. A farmer cultivating a jhum field would at the most harvest few kilos of rice enough for a year and would mostly consume the other vegetables grown in the field. But with the adoption of commercial forms of farming, farmers are now focussed on cultivating commercial crops which helps them to earn money not only for sustenance but also helps in improving their standard of living. In Longkhum village, a vegetable farmer earns approximately ₹60000-₹1,00,000 rupees in one season just by selling vegetables. With the adoption of vegetable, farming the farmers also harvests twice a year which helps them to earn throughout the year by cultivating summer and winter crops. Apart from farming, families with individual lands are also engaged in logging and firewood business. One load of firewood costs 5000 rupees. In a year, about 10-20 loads

of firewood is sold by an individual giving him a net profit of more than ₹60000-₹70000 thousand.

In Sungratsu village, most of the farmers have abandoned jhum cultivation. They either grow vegetable fields or yam or engage themselves in developing permanent farms. With anishi from Sungratsu being tagged as the best available in the state, the demand is very high. A kilo of anishi costs 500 in the market. A person engaged in anishi business sells a minimum of 20 kilos in a season. Similarly, permanent farmers earn through the selling of livestock, vegetables and fruits grown in the farm. Apart from farmers there are quite a number of individuals who are engaged in stone quarrying. Stone quarrying as an economic activity is helping the village in giving employment to the young people. Most of the young people living in the village earn their daily wage through stone quarrying.

Khar and Changtongya villages have farmers who cultivate mostly horticulture crops. Pineapple, banana, oranges, coffee and litchi are the major cash crops that are grown. A farmer in Khar village who owns an orange orchard earns a minimum of ₹80000 per season. Oranges can be harvested only once a year so this particular farmer cultivates jhum field and at the same time takes care of the orange orchards. There are many farmers who keep one permanent farm where they cultivate a permanent crop which they usually harvest once a year and a jhum or vegetable farm. This way the farmers are able to generate more income. There are three major producers of coffee in Khar village. In a year they harvest more than 1000-1500 kilos of coffee beans and sells it for 200 per kilo. Their success in coffee plantation has inspired many farmers in the village to cultivate coffee.

Japu and Chungtiayimsen villages are located in similar geographical locations hence they have similar economic activities which are different form the other sample villages. Wet rice cultivation was the major source of income for the farmers of Japu and Chungtiayimsen. Wet rice fields are permanent fields which the farmers cultivate every year. Wet rice fields are normally bigger than jhum fields so the harvests are more than the jhum fields. A farmer harvests a minimum of 500 tins of rice in a normal wet rice field. Wet rice cultivators keep enough rice for themselves and sells the rest. However, with the export of rice from other states in India, local rice doesn't sell as much as past years which has led the farmers to sell or lease out their rice fields to other tenants who utilise the land for setting up brick making units. This trend is highly followed in Chungtiayimsen. Leasing out lands earns more capital than owning a rice field hence the shift in the activity.

It should be highlighted that when local farmers promote new agricultural practises, the government provides them with planting materials and financial assistance. The NEPED, WDPSCA, and ICAR projects are excellent examples. In such an agricultural practise, innovations in cultivation offered by local farmers, scientists, and other public-private partnerships are still ongoing and continue to change the manner of doing things from time to time. In most situations, the incentives and subsidies supplied by such programmes are the start-up capital for many farmers, who eventually become successful and able to earn and grow themselves economically. For instance, coffee was first introduced in Khar village in the late sixties. Many farmers looked at coffee farming as unfeasible and only three families undertook coffee plantation with care. At present, these three families sell 130-1500 kilos of coffee per year earning them lakhs of rupees every season.

Study in the five sample villages denote that there has been a drastic economic development in the village due to the shift from traditional farming to other forms of farming and other economic activities. The income of the villagers has increased which has led to the development of the people. When there is a boost in the economy of the people, the village automatically booms. When the people start earning more, they tend to give more tithes to the church. Since the church plays a very vital role in the village, it in turn works towards the welfare of the people. Similarly, though the government sends aid and grants for the development of the village, if there are any additional development works in the village, the Village council would normally carry out the work through crowd funding. It has been noticed that with people earning more, they tend to give more and are not hesitant to help when it comes to the development of the village.[13]

Improved economy of a village means improved living conditions and development of the people. The six sample villages in the study have access to basic health and medical services, education, shelter and basic needs. With the development of economy in the village, the people are able to get access to better education, health and medical services and built better homes for themselves. All the respondents from the sample villages had send their children to schools. 60% of the respondents had send their children to schools and colleges outside the village. It was also recorded that when the villagers faced medical emergencies, they were able to get basic help form the community health centres. However, in most of the cases, the patient would be taken to hospitals outside of the village to nearby towns. The access to proper road

[13] Interview with Lanusunep Pongen, 37 years, Male from Mokokchung village on 12-06-2019

and transport and the ability of the people to afford medical expenses outside the village indicates that the villages have developed and the people are economically sound to afford better medical services. The six sample villages also have access to clean and safe drinking water, sufficient lighting in their homes, safe and adequate shelter that withstands the elements, good hygiene and sanitation practices and schools with sufficient learning equipment. The villagers were also acquainted with modern technology and equipment. During the olden times, only traditional tool and utensils were used by the farmers. Television, refrigerator, washing machine were some technologies which were very scarce in the village. However, in the present day, we will find that it has become easier for the villagers to afford electronic appliances. Every household in the village owns a rice cooker and a water boiler these days.

It is not mandatory to own one but because of the convenience of these appliances, it has become a necessity to own these appliances. When a family becomes economically sound, they are able to afford things, even those things which aren't a requirement leading to conspicuous consumption. Scholar Andrew Trigg (2001) described conspicuous consumption as behaviours that allow a man or a woman to demonstrate significant wealth by means of idleness—spending a lot of time on leisure activities and spending a lot of money on luxury goods and services. In the recent years, many people in the villages especially villages like Ungma and Mokokchung, people cultivate jhum fields for leisure activities. In most of the cases, the farmers who cultivate for leisure are retired government employees. With the easy accessibility of road till the farm and the availability of cars, reaching the farms and fields have become easier and therefore it makes farming more enjoyable.[14]

According to Veblen, the strength of one's reputation is proportional to the quantity of money possessed and displayed; in other words, leisure and conspicuous consumption are the foundation "of obtaining and maintaining a good name." Conspicuous compassion, or openly contributing significant sums of money to charity in order to boost the donor's social status, is frequently referred to as a form of conspicuous consumption. In villages, the church as a social institution holds a very special place in society. As a Christian state and as a Christian, it becomes a moral responsibility to give tithes to the church. Church becomes the major institute where people donate money as charity. It is observed that those people who donate large sums of money in the church tends to enjoy a higher social prestige in the society. Similarly, those people who own more luxury goods like cars, electronic appliances, big houses etc tend to be

[14] Interview with Kipang Jamir, 52 yrs, Female from Ungma village on 17-07-2020

looked up by people and it enhances social prestige. An instance is where the daily wage earners in the village prefer to work in the fields of those farmers who own cars. We find that conspicuous consumption is becoming a factor of social differentiation. Even the poorest people are pressured to engage in conspicuous spending, such as owning an electronic rice cooker, electric water heater, or other electronic products, because each social class wants to replicate the purchasing behaviour of the social class above it.

According to Thorstein Veblen, the quest for prestige through consuming is never-ending. What may have conferred status at one point may later be acquired by all and bestow no status. To set oneself apart from the competition, people must constantly seek for new consumer items. Therefore, the rich farmers or rich individuals in the village tend to keep buying new goods or upgrading their existing goods so that their prestige is maintained. The economic development of the people leads to the development of the village as a whole. It leads to the change in the material aspects of village life. The changes that are brought about through the change in economic activities, also leads to the change in the outlook, the aspirations and expectations of the villagers especially of the younger generation. Majority of the young people in the village no longer help their parents in the fields and farms, rather they choose to move out of the village for education and job opportunities. The people in the villages have understood the value of money and capital and the villagers are now busy trying to fit oneself in the fast-changing economic world.

Changes in the people's standard of living and their way of life

The Ao Naga settlements were almost entirely self-contained, isolated, and self-sufficient until the mid-nineteenth century. The locals were content in their village and had no interaction with the outside world. In the village, they were able to meet all of their basic needs. There was self-reliance and self-sufficiency. In the village, there were a couple of shops that catered to the needs of the residents. However, changing political and economic situations are bringing an end to the Ao Naga villages' isolation and self-sufficiency. The fast growth of transportation and communication has shattered the walls that once separated village and town. Villages are today socially and economically intertwined with their surrounding cities or towns. Political parties have made villages, as well as cities, the focal point of their efforts.

Change in the material aspects of village life are evident and the forces of change being brought about through mass media, economic activities and the outlook, aspirations and

expectations of the villagers especially of the younger generation is vastly different from that of their parents. Change in the lifestyle and entrepreneurial spirit of the individuals and individualism overtaking the community sense of participation and living. The people themselves who are educated, mobile and exposed to the outside influences are gradually changing the lifestyles. Being exposed to other cultures through interaction with other people, the younger generations have also been pulled away from the village either through marriage employment or simply the desire to live in town or city where the attractions of the fast-paced life is sought after.

The family is no longer an economic unit. The notion that more children in a family would mean more labour force no longer seem valid. The village population have realized the importance of the family planning programme and are now taking steps to reduce family size. Several activities that were traditionally carried out by family members are now carried out by outside agencies. People in the villages have become more health conscious as a result of the primary health centres. Vaccination and other preventive measures adopted in the villages have reduced the possibility of epidemics. The central and state governments have implemented plenty of programmes to combat illiteracy and alleviate poverty among rural residents, including a complete literacy programme, fertiliser subsidies, crop insurance, free power, concessional water rates, minimum procurement prices, and low-interest loans. Agriculture is becoming increasingly mechanised, and agricultural products are commanding high prices.

The old Ao Naga villagers lived a very simple life completely lacking in the trappings of modern civilization. In the villages, the ancient order of simplicity, tranquillity, and peace is giving way to a new one. Bamboo thatched dwellings are being phased out in favour of well-designed structures. The village community's level of living is progressively improving. The rural diet is no longer solely comprised of coarse foods. Villagers are exposed to a variety of cuisines and eating habits. Villagers' fashion sense has also altered dramatically. The traditional shawls, ornaments and wrap arounds are now worn only on special occasions and the villagers prefer to wear western clothes over traditional attires.

The majority of Naga villages are deeply rooted in ancient customs and traditions. Jhum cultivation has profound roots in Naga culture, having evolved over time and being entrenched in customs, beliefs, and folklore. The Naga attitude is influenced by traditional jhum. It has an impact on the agrarian society's cultural ethos and social fabric. Jhum is a well-organized and regulated social system of cultivation in Nagaland. Jhum has been assimilated into the social

systems of the Ao Naga thanks to its year-round activities. The many rituals and beliefs that were performed individually as well as by the entire village community, as well as the work culture in the jhum system that involved the entire village community in a participatory manner, created a bond that blended various societal groups to create social cohesion.

However, in the wake of colonialism and spread of Christianity, many traditional beliefs and practices have been eroded. The Ao people no longer have their beliefs set in pleasing the spirits. Christianity has completely changed the Ao Naga way of life. The doing away of the traditional religious beliefs and head hunting led to the change in the socio-cultural settings. They no longer performed the many rituals and sacrifices during the agricultural process nor do they offer any sacrifices. The sacrifices were replaced by tithes in the church and community worship day was now observed in church as a day of prayer and fasting. Modernization and globalization have influenced the Ao Naga people and now they are more connected to the outside world. This exposure to the outside world has brought about tremendous change and has improved the life standard of the people.

Jhum cultivation, which was once the most important system of cultivation, particularly among the Ao Naga, is no longer as important as it once was. Jhum agriculture has been challenged as unsustainable in recent years due to increased demand and changes. Many scholars and development agencies see it as a major source of soil erosion and deforestation, as well as a threat to the environment. Other types of agriculture were introduced as a result of this. Farmers were drawn to cash crop production and commercial agriculture as a means of competing in marketplaces, and they no longer produce solely for personal consumption but also for commercial gain. To assist farmers in their new system of agricultural output, the state government began to implement new agricultural laws, as well as contemporary technology and technological equipment.

The shift from a traditional Ao Naga culture to foreign culture has created confusion and cultural maladjustment. The value system of the forefathers accrued from traditional practices and which were observed with total commitment now stands against the contemporary ideas and values. The modern ideas and values pose a great challenge to the Naga cultural identity. The old age cultural practices and cultural heritage which distinguished the Nagas from the rest now stands as a block in the way to modernization and development. For the sake of global recognition and commercial feasibility, the process of de-identifying national cultures and their products will ultimately result in the blending of identities in cultural

artefacts. Cultural practices and traditions are subject to change with the change in time, but are the changes taking place in the contemporary world reducing identity to anonymity? This change in the culture and the process of de-identifying native culture will be another area which requires in-depth study and can be very feasible in the modern study of the Naga culture and society.

The following discussion satisfies the study's fourth objective, which is to examine the impact of the farming system on society and its sociological implications. The last chapter will include a sociological analysis of the study as well as the key findings. The Ao Naga agricultural system has evolved, and the shifting patterns of farming have had a significant impact on Ao Naga civilization. Loss of community feeling, loss of traditional and Indigenous knowledge, improved economy and growth of the people, change in standard of living, and change in the people's way of life are among the key impacts analysed and examined in this chapter.

CHAPTER VI

SUMMARY AND CONCLUSION

Agriculture is and will continue to be the mainstay of the Naga people. With 1280 recognised villages, 75 unrecognised villages and 111 hamlets (Survey on the number of villages in Nagaland 2021) in Nagaland, the rural economy will continue to be agrarian in nature. Agricultural activities have a significant impact on Naga society's cultural ethos, and the Naga agriculture system is profoundly embedded in the Naga psyche. Jhum is a well-organized and regulated social system of cultivation whose extensive year-round activities have insured its integration into the Ao Nagas' social structures. The jhum system of cultivation has created a social cohesion by bringing together various societal groups. However, as a result of colonisation, the introduction of Christianity, and modernity, the agricultural system and activities involved in the process have changed dramatically.

The farming system in Mokokchung district is in a process of change. Though farming still remains the major economic activity of the rural populace, the pattern of farming is undergoing change. Jhum as a system of cultivation is no longer the major pattern of farming system. The unsustainability of jhum system has led the farmers to shift from self-sufficient to market-oriented commercial farming. This shift in the farming method has resulted in a shift in the people's social and economic conditions. Traditional ideals and beliefs associated with jhum cultivation have lost all significance, and it is no longer practised with the reverence that it once commanded.

In many of the Ao villages, the shift from traditional self-sufficient farming system to commercial farming system has led to the improvement of economy and standard of living in the villages. The traditional Ao Naga villages have transformed enormously with the change in time. The Ao Naga villages are now part of the global society and they are now exposed to the world outside unlike the ancient times when the only connection they had was with the Ahoms in the neighbouring Assam state. The exposure to the modern world has directly and indirectly brought about changes in the Ao Naga society and these changes have impacted even the pattern of farming system in the Ao Naga villages.

In light of the above discussion, an attempt has been made to investigate and assess the changing pattern of farming system in Mokokchung district from a sociological perspective.

Interviews and focus groups were used to gather primary data. Intensive field studies, participant observation, and interaction with a diverse group of people added more primary data to the study. Information and data were obtained from 300 respondents for this purpose. Secondary information was gathered from journals, books, magazines, newspapers, biographies, memoirs, reports, official records, and other relevant publications, websites, and other sources.

The thesis is divided into six chapters, each of which addresses a distinct interrelated topic. The first chapter contains the research study's introduction as well as the research study's whole framework. The second chapter provides a brief overview of the research area as well as a description of the sample villages. The traditional farming system, as well as the rites and ceremonies linked with farming in the past, are discussed in the third chapter. The fourth chapter forecasts changes in the agricultural system, while the fifth chapter assesses the impact of change as a result of the changes in the farming system. The findings, comments, and recommendations for future research, as well as a sociological review of the study, are presented in the concluding chapter.

6.2 Major Findings

The preceding explanation is based on information gathered from the field of research, both secondary and primary in nature. On the basis of the data obtained, the various findings of the study are divided into separate chapters. The primary findings that are found to be recordable are listed below, keeping in mind the specific aims as stated in chapter one:

1. Disappearance of rituals and offering sacrifices: The people believe in one God and their loyalty to the church has replaced their loyalty to the rituals and ceremonies. The people are becoming more secular and rational and logical but less religious in their outlook. Farmers now believe that it is mostly hard-work and labour that increases economic values and capital and that religious activities do not necessarily aid to increase in the capital. The cultural goal of the people has now shifted from attaining community goals to individual goals and enhancing the wealth is the driving force.

2. Paradigm shift from agrarian economy to market economy: There is a paradigm shift from agrarian economy of self-sufficiency to service economy and market economy. The introduction of a market economy and the usage of currency resulted in a significant shift in the Ao Nagas' economic system. The self-sufficient economy has evolved into a market-oriented economy, in which money and capital are valued above all else. The agrarian practise

of jhum is no longer the only option. Farmers have been drawn to cash crop production and commercial agriculture as a means of competing in marketplaces, and they no longer produce solely for personal consumption but also for commercial gain. Other cash crops with greater market and economic value have substituted traditional crops.

3. Change in the agricultural cycle and Increase in Jhum Cycle: One of the major findings of the study is the change in the agricultural cycle and increase in jhum cycle. Farmers engaged in jhum cultivation experience a change in the jhum agricultural cycle and the main reason attributed for the change is climate change. These changes are worth for further systematic and empirical study. Along with the change in the cycle, there is a change in the jhum fallow cycle. The average fallow cycle in the sample villages have increased by at least five years. The rise in the fallow cycle is mostly attributed to a decrease in rice cultivation area and a decrease in the number of farmers pursuing traditional jhum cultivation.

4. Conspicuous consumption leading to social differentiation: People engage in conspicuous consumption in order to achieve and maintain a good reputation in society, resulting in social differentiation. People are constantly attempting to obtain new consumer products in order to set themselves apart from their peers. As a result, the village's wealthy farmers and individuals continue to purchase new things or upgrade their present ones in order to preserve their status. While conspicuous consumption isn't always negative, it might be perceived as a waste of resources while others in the town are struggling to make ends meet.

5. Change in the role of women: Women dominate the smaller sectors of retail trade and household production for the market. Interestingly, all vegetable vendors in the daily market in Mokokchug town are women and even in the village areas, the marketing sheds are filled with women vendors selling their produce from home and from the field. Women are no longer just mothers and home-makers, they are now women engaged in business and government and private sectors.

6. Change in labour force management: There is an increase in the employment of hired labour and inviting of tenancy. The current frenzy of commercial farming has resulted in a severe labour shortage. While this is beneficial to individuals who are now employed on a regular basis, it is becoming increasingly challenging for smaller families or impoverished farmers that rely on communal labour sharing. The transition from community-based farming systems to individually built permanent agricultural systems has resulted in the fragmentation of common property resources, as well as a change in the traditional community ideals of farm

labour sharing. It has led to the emergence of hired labour which was not prevalent in the past. In all of the sample villages, there was the existence of a group/class of people who were permanent daily wage earners and worked as hired labourers.

7. Loss of community feeling: One of the major impacts is the loss of community feeling. The communitarian spirit of the Ao Nagas which connected an individual with his community is slowly losing its value. Community relationships shaped a person's social identity and personality to a major extent, and this communal spirit was also evident in agricultural pursuits. Many activities that require community engagement are starting to decline as jhum cultivation becomes less popular.

8. Individualism: Inter-relationships based on co-operation, friendship, support and inter-dependence have started to be replaced by self-dependency and individualism. The essence of community work and inter-dependence has lost its real meaning and people no longer feel the need of to engage the entire community for an individual's work. People's understanding and valuing an individual's time and work can be a reason why people choose to live individualistic lives.

9. Loss of traditional and Indigenous knowledge: As more and more people discard jhum cultivation, it has led to the loss of traditional and indigenous knowledge used in practicing traditional agriculture. The traditional customs and knowledge which the elderly people used to teach the youngsters and pass it down from one generation to another now remains unknown by the younger generation.

10. Change in occupational pattern: The occupational pattern of the Ao Nagas changed with the introduction of modern education and the advent of modern institution of religion. Employment to government jobs and salaried jobs attracted a lot of the people and eventually the people started to look for government jobs and considered it to be the ideal job. The people no longer want their children to be farmers rather, they want them to be employed in the government and private sectors having salaried jobs.

6.3 Recommendations, Need for Further Research and Conclusion:

This research has looked at six Ao Naga villages and aimed to understand the indigenous jhum and wet rice cultivation systems. Nagaland is home to 16 officially recognised tribes and countless sub-tribes, each with their own set of customs, practises, and beliefs. Within the state, approximately 25 linguistic groups coexist in over 1000 settlements under a

variety of geographical and climatic conditions. Each of these tribes has its own culture and way of life. Perhaps taking into account the indigenous knowledge systems of the other Naga tribes and conducting a comparative and in-depth study on them would be feasible. Nagaland is not only the state that has a diverse number of indigenous tribes and sub-tribes. The entire north-east region of India is a hub of indigenous people. It is one of the main tribal regions in India. However, very little interest has been given in the area of research in this region. The multitude of indigenous knowledge that is intact among the different tribes and its influences in their way of life can be studied and researched further.

The Ao Naga society has now become a part of the global society. The recent trends of change and the global forces that are influencing the Ao society has left the people at a crossroad, encountering contradictory values of tradition and market-oriented globalization. The post-colonial and post Christianity era has seen the diffusion of the traditional culture with the modern way of life. The combination of the traditional know how with the modern knowledge in all aspects of the society specially in the indigenous knowledge system will be an interesting area of further research and can help in developing an in-depth understanding on how the Ao people have cling on to their roots but at the same time are influenced by the continuous process of change and development. It will also be feasible to take further research and study on the changing pattern of the farming system in the entire state. Nagaland being a tribal community, the trend of change in each district is different and it will be an interesting study to know the different trends of change among the different tribes. For instance, in Kiphere and Tuensang districts organizations like NEIDA, NEPED and ATMA are introducing new types of crops to the villagers apart from the traditional maize and millets that are grown. Similarly, in Longleng and Phek districts, vegetable farming is gaining its importance due to its commercial value. FOCUS, NEPED, ATMA and many other organizations have been working in these districts in promoting new pattern of farming. The success stories of these projects can even be found in the newspapers.

The changes that are taking place in the farming system has definitely led to change in the socio-cultural and economic aspects of the Ao Naga villages. It can be seen that modernization; globalization and the fast growth of science and technology has reached even the remotest village in the district. With the influence of all these factors, we will see that almost the entire planet is affected by climate change and environmental degradation. The farmers attributed climate change as a reason for poor crop yield and also for the change in the pattern of farming system. It will be an important and reasonable study if proper and scientific

studies are undertaken as to know how environmental and climatic changes have occurred in the state and to know the intensity of impact it has had on the farmers.

There is an increasing demand for an inter-disciplinary approach to the study of changing farming system patterns. It is necessary to do more systematic and quantitative study. A series of studies can be started using an environmental, religious, or economic approach, for instance. Apart from the social and cultural context, there is a need to study how the changing pattern in the farming system and the engagement of farmers or villagers in other economic activities is leading to a change in the economy of the village and how it is leading to rural-urban migration and creating deviance in the society. An interesting finding of the study shows that there is a change in the labour force management and in all of the sample villages none of the tenants and share-croppers belonged to the same village nor did they belong to the Ao Naga tribe. It would be another interesting study to find out the reason why.

With the COVID-19 pandemic in the year 2020 and 2021, there has also been an interesting shift in the pattern of life in the villages. Though not permanent, there has been an increase in the number of villagers engaging themselves in farming activities and going back to the land. It was observed that during the pandemic, majority of the farmers in almost all the Ao villages were impacted. It showed that though the villagers may be employed in other economics sector, majority of the people living in the villages still depend on farming and its allied activities for their sustenance. It will be an interesting study to find out how the pandemic has impacted the people living in the rural areas and to find out if the non-engagement of villagers in agricultural activities had any impact during the pandemic.

The Ao Naga villages are undergoing transition and change, and they are being exposed to modernisation at such a rapid rate that the people's identities and cultures are being mingled. The most pressing topic is whether cultural behaviours and traditions are vulnerable to change through time, hence reducing identity to anonymity.

6.4 A Sociological overview:

The Ao Nagas' traditional farming system, which includes Jhum and wet rice production, is a time-tested method of agriculture that draws on traditional and indigenous knowledge and is rooted in customs, beliefs, and folklore. Jhum agriculture is the most common type of cultivation in Ao Naga communities. Jhum was more than a form of sustenance, it was the way of life of the Ao Nagas and it reflected the culture and tradition of the people**.** Ao Naga society was an agrarian society which revolved around agriculture. They have a strong bond

with nature, and their cultures are strongly anchored in the land's biodiversity. Jhum is a well-organized and regulated social system of farming, according to research. Jhum has been assimilated into the social systems of the Ao Naga thanks to its year-round activities. The many rituals and beliefs that were performed individually as well as by the entire village community, as well as the work culture in the jhum system that involved the entire village community in a participatory manner, created a bond that blended various societal groups to create social cohesion.

However, in the wake of colonialism and spread of Christianity, many traditional beliefs and practices have been eroded. The Ao people no longer have their beliefs set in pleasing the spirits. Christianity has completely changed the Ao Naga way of life. The doing away of the traditional religious beliefs and head hunting led to the change in the socio-cultural settings. They no longer performed the many rituals and sacrifices during the agricultural process nor do they offer any sacrifices. The sacrifices were replaced by tithes in the church and community worship day was now observed in church as a day of sabbath.

Modernization has led to change in the world view of the Ao Nagas, in that, rituals and ceremonies and religion which were considered as the driving force that held the community together is losing its hold over the members. Rituals, according to Durkheim, are "collective representations" performed in front of an audience. People become aware of their group membership through these staged rituals. Ritual is necessary for the continuation of social integration energy. The society would come apart if there was no ritual at all. Social solidarity, according to Durkheim, is the glue that ties society together. Through social rituals, the forces of social solidarity must be constantly developed and regenerated.

According to Edward Evans-Pritchard (Theories of Primitive Religion ,1965), “how religious beliefs and practices affect in any society the minds, the feelings, the lives, and the interrelations of its members…religion is what religion does.” For Durkheim and others who use these terms, ritual is a determined mode of action. Traditional Ao Naga religion held that natural objects, occurrences, and even the world itself have wishes and intents. Many of the rites were carried out by the entire community, while others were carried out by individuals. The rites served as a means for bringing the community together. Sacrifices and rituals were a part of their daily existence. Their religion required numerous offerings and sacrifices, which were carried out according to the circumstances.

However, with the coming of Christianity, the Ao Naga people underwent the process of conversion and they were no longer animist. They believed in one God and their loyalty to the church replaced their loyalty to the rituals and ceremonies. People are becoming more secular, intellectual, and logical in their worldview, but less religious. Though the change in the farming system had little direct impact on religion, it did modify people's attitudes toward religious rites and creeds. Working on Sundays is deemed profane by Christians. The seventh day is the sabbath, and Christians are required to cease from all work, including manual labour, on this day. However, an interesting finding from the study shows that many farmers during the peak season of harvest work even on Sundays and many seldom go to church proving that their religious obligations or values are sacrificed for the want for more money and capital. Evans-Pritchard (1965: 45) explained that "the chief benefit from the performance of a rite may not be to secure practical ends but to prevent tension or anxiety from rising among the believers. Rituals thus act as economic incentives and as a prevention of conflicts." The rites and rituals of the Ao Nagas were replaced by prayers which prevented tension and anxiety, but it is observed that the farmers now believe that it is mostly hard-work and labour that increases economic values and capital and that religious activities do not necessarily aid to increase in the capital. The cultural goal of the people has now shifted from attaining community goals to individual goals and enhancing the wealth is the driving force.

Jhum cultivation which was the main system of cultivation especially among the Ao Naga no longer has the same importance as it has before. The influences of the British administration, Christianity and modern education also affected the farming system of the Ao Nagas. As such, we will see that the jhum system of cultivation which was the main economic activity undergoing a change. The inclusion of Naga Hills into the administrative fold of the British government on the one hand and Christianity on the other hand have been the sole responsible factor for wiping out barter system and the introduction of money economy. It may be added further that attainment of Nagaland statehood on 1st December 1963 plays a major role because the state witnessed a major development which it had never experienced before. Mushrooming of institutions, offices, creation of townships etc, all added to the factors of change. Economically speaking, Nagas in general and the Aos in particular have had a paradigm shift from agrarian economy to market economy. The introduction of market economy and the use of currency led to a tremendous change in the economy system of the Ao Naga society. The self-sufficient economy has shifted to a market-oriented economy where money and capital is valued more than anything.

Jhum is no longer the only mode of agrarian practice. Cash crop cultivation and commercial agriculture has attracted the farmers in competing in markets and they no longer produce for consumption alone but for commercial purposes too. The traditional crops have been replaced by other cash crops which has more market and commercial value. Self-sustenance was the main reason for farming and the traditional farming system was done to meet the needs of the family. However, in the 21st century, with all the forces of change, sustenance alone isn't enough for a family. Hence the change in the pattern of cultivation. The introduction to market economy and the availability of market opportunities for local products have pushed the farmers to engage themselves in commercial farming. Almost 90% of the respondents stated that the income turn out in jhum cultivation does not recover the expenses incurred. Therefore, many of the farmers have started permanent farming or an alternative farm where they cultivate crops that have more commercial value. Rice no longer is the main crop grown. It is seen that the farmers have taken up cash crop farming in permanent farms. Horticulture and animal husbandry has also gained much importance in the recent years due to the market-value.

One of the major findings of the study is the change in the agricultural cycle and increase in jhum cycle. Farmers engaged in jhum cultivation experience a change in the jhum agricultural cycle and the main reason attributed for the change is climate change. These changes are worth for further systematic and empirical study. Along with the change in the cycle, there is a change in the jhum fallow cycle. The average fallow cycle in the sample villages have increased by at least five years. The increase in the fallow cycle is mainly due to the reduction in the area of rice cultivation and reduction in the number of farmers practicing traditional jhum cultivation. Barely half of the areas of traditional jhum blocks are used and a single block also gets further divided into two or more areas, thus increasing the fallow cycle. The state government have introduced new agricultural policies and modern technology and technical equipment in order to help farmers in their new system of agricultural production.

The change in the traditional method of farming and the adoption of new method of farming has led to a change in the agricultural production. The instances of which can be seen in the six sample villages. The farmers are also finding ways to market their produce. Tomatoes and other vegetables from Longkhum village are marketed within the district and with the neighbouring districts of Wokha and Kohima. Areca nuts and Betel leaf produced from Khar, Japu and Chungtiayimsen villages are sold in wholesale at Mokokchung town and also at Assam. Coffee bean which is produced in Khar is exported to other states and it is considered

as one of the best coffees produced in the state. Fruits, vegetables and other cash crops that are produced in other sample villages of Changtongya and Sungratsu are also sold and marketed outside of the village at Mokokchung and also in the neighbouring states of Assam. Though more has to be done with regard to marketing the product of the farmers, nonetheless, they are able to sell off their yield though not in a very large scale.

When it comes to the role of women in agriculture, Ao women are viewed as having a prominent part in subsistence farming. They are the primary decision-makers and participants in agricultural operations such as seed sowing, transplanting, and weeding, harvesting, threshing, manure application, seed and food grain storage, and post-harvest home processing. They play a significant influence in both the domestic and economic spheres. Women's work, on the other hand, is unaccounted for in all domains. Apart from their work in the jhum fields, Christianity and industrialization have introduced women to education and opened doors to various vocational and economic activity.

Women dominate the smaller sectors of retail trade and household production for the market. Interestingly, all vegetable vendors in the daily market in Mokokchug town are women and even in the village areas, the marketing sheds are filled with women vendors selling their produce from home and from the field. With the assistance of the government, every village has now self-help groups that promote women farmers and entrepreneurs through credit and banking facilities. They are given capacity building and training processes, which helps them in the empowerment and development process. Women are no longer just mothers and home-makers, they are now women engaged in business and government and private sectors.

All these changes that is occurring in the farming system can be attributed to various factors of change. Apart from the colonial rule, the coming of the Christian missionaries and the introduction of modern education, there are other factors that has led to changes in the farming system. The introduction of money and employment of the people in the government and private sectors are the major economic factors that has led to changes in the farming system. These changes led to the change in the labour force management in the farming system. Another interesting finding in the study is the development of a new class of workers, that is, the daily wage earners and the increase in land tenants which was not prevalent in the past. Traditionally, each family had a jhum or wet rice field and the entire family worked in the field. Poor families who did not have any land, would work in the fields of the rich people where they received rice as wage at the end of the harvest season.

The system of land tenancy and share-cropping is also increasing in the Ao Naga villages especially in those areas that follow wet rice cultivation and also in villages where farmers own permanent farms. The owners would let a family or another farmer look after the crops and the fields and let them stay in the farms. the tenants would take care of the farm and when the harvest season comes, a share of the crops is taken as wage. Also, in most cases of farmers owning permanent farms, they would look for people usually families to reside in their farms and take care of it. The land tenants and share-croppers are mostly from the neighbouring states of Assam or from eastern Nagaland. It is interesting to note that in all of the sample villages none of the tenants and share-croppers belonged to the same village nor did they belong to the Ao Naga tribe. It would be another interesting study to find out the reason why.

The changes in the traditional farming system have also been looked at from two aspects: Augmenting technological change and labour-saving technical change. Multiple cropping, inter-cropping, use of fertilizers and pesticides and use of high yielding variety seeds fall under the augmenting technological change while all mechanical changes are called labour-saving technical changes. Farming system has changed due to the exposure of the farmers to such technological changes. The introduction of farmers to new variety of crops and vegetables has been a major improvement. Many of the farmers are able to earn and engage in market-oriented farming due to the use of new variety of seeds and crops. The different governmental agencies have helped in shifting the focus of farmers from jhum to alternate forms of farming.

Environmental changes have also been attributed by the farmers to the change in the farming system. Though scientific and thorough research needs to be undertaken to objectively prove that environmental factors lead to change in the farming system, the farmers with their experience in the field of farming has proven that inadequate and erratic rainfall, rise and fall in temperature has led to low crop yield in the recent years. Low yields ultimately lead the farmers to turn to other crops other which will suit the changing weather conditions. Some of the farmers have already adopted climate resilient farming system like apiary, piggery, mushroom cultivation etc, with the help of the state government.

Modernity dawned on the Ao Naga society due to colonial intervention and the arrival of Christian missionaries. The modernization process has impacted the Ao Naga society in all its aspects including the farming system. The occupational pattern of the Ao Nagas changed with the introduction of modern education and the advent of modern institution of religion. Employment to government jobs and salaried jobs attracted a lot of the people and eventually

the people started to look for government jobs and considered it to be the ideal job. The farmers wanted their children to be educated and they wanted them to get a good salaried job. With that notion in mind, jhum farming started to lose its value. The advancement of technology and the development of road and transport pushed people to the urban areas leading to migration. New career prospects and avenues also enticed people to migrate from rural to urban areas. People began to seek a better education and a higher standard of life, and their living expenses increased as a result. As such, being a mere jhum or a wet rice cultivator was not enough to keep the family running which led the farmers to adopt new methods and alternative forms of farming. This push and pull factor due to change in the society from a traditional to a modern society is another area which can be further studied and analysed.

The changes that are taking place in the farming system has definitely led to change in the socio-cultural and economic aspects of the Ao Naga villages. It is here indeed, the relevance of Durkheim's concept of social change appears significant. Under the pressure of increasing moral density, Durkheim believed that societies move in the direction of more differentiation, interdependence, and formal control. As societies grow in size and people's needs grow, traditional ideals and customs become less important. The onslaught of new culture has slowly but steadily swept the indigenous culture and it has resulted in the transformation of the traditional simple society into a complex heterogenous society. The Naga society in general, and the Ao Naga society in particular, have progressed from a relatively undifferentiated society with minimal division of labour and a type of solidarity Durkheim refers to as'mechanical solidarity,' to a more differentiated society with maximum division of labour and a type of solidarity known as 'Organic solidarity,' according to Durkheim. The attainment of Nagaland statehood, the creation of government jobs and the job opening for recruitment can be seen as a peaceful means of division of labour. The continuous growth has led to an increasing demand of employment in the government sector leading to the acute problem of unemployment in the state. As such, many Nagas have turned to the soil again, however, they have not turned to traditional farming this time but to an alternate form of farming where commercial marketing and capital is the major focus.

Globalization and modernization have not only changed the system of agricultural production but it has also brought about a wave of change in the culture and life of the Ao people. The age-old dormitory system has ceased to exist and with it the rich cultural heritage such as handicrafts, handlooms, wood-carvings, folklores, dignity of labour, social ethos and integrity of the young people has lost. The agricultural festivals like *Moatsu* and

Tsungremmong does not have the same significance in the past. They are now celebrated in order to preserve their identity. It is also interesting to note that the traditional Naga attires are worn only during the festivals and the folk dances and folk songs are also performed only during such festivals. Earlier, the heavy ornaments, the colorful dresses, the head gears, weapons and spears which displayed the richness of the Naga culture but now does not have the same value as it did before. People wore the traditional attire at home and everywhere but with the change in time, the Nagas have grown more favorable towards the modern way of dressing. The impact of modernity is felt in the change in the indigenous culture. For instance, the "*Mangkotepsu*" is famous shawl of the Ao Naga and it is attire worn only by the male member of the society. However, nowadays, it is turned into jackets and sold at tourist attractions, with the history and story behind the shawl completely forgotten. Other handicrafts and dance forms are likewise being altered to match the mould.

The Ao Naga civilization has been greatly impacted by the changing pattern of farming system. The loss of a sense of belongingness with the community is one of the most significant consequences. The Ao Nagas' communal mentality, which linked individuals to their communities, is steadily eroding in significance. Community bonds shaped a person's social identity and personality to a major extent, and this communal spirit was also evident in agricultural activities. With less people engaged in jhum cultivation, many activities that required community participation started to wane. Inter-relationships based on co-operation, friendship, support and inter-dependence have started to be replaced by self-dependency and individualism. The sense of belongingness, the "we-feeling" among the people is slowly disappearing. The collective conscience which was once based on common ideals, values and norms are giving way to individualistic ideals and values.

Modernization, the advancement of transportation and communication, the introduction of education, and the advancement of society have all had a significant impact on people's views, ideas, tendencies, and thoughts. This has resulted in a significant shift in life values. New ideals and philosophies have emerged as a result of modernization and globalisation. Values that were formerly held in high regard have shifted. Things are more measured in monetary terms. Men are more concerned with quantity than with quality, with measurement rather than with appreciation. People have become more passive and more mechanical. Introduction of market economy and commercialization of market has provided the farmers with sufficient money exposing them to technological inventions and machines which promotes hedonism. Human relations are becoming impersonal and secondary. Individualism

is on the rise, with people distancing themselves from their family and community's loyalties and responsibilities. Individualism has deepened social and psychological fragmentation. To some extent, technology has replaced manual labour with computerised labour.

An individuals' obligations towards the community or the village is declining. The engagement of the villagers in different businesses and activities have made them less available to participate in the community works and their sense of community feeling is loosening. We cannot say that the community feeling has disappeared altogether. Of course, the community bonding and we-feeling among the villagers exist. The sense of belonging together and sharing a common village identity still exist. However, the essence of community work and inter-dependence has lost its real meaning and people no longer feel the need of to engage the entire community for an individual's work. People's understanding and valuing an individual's time and work can be a reason why people choose to live individualistic lives.

The use of indigenous knowledge in jhum system of cultivation is still intact among the few Ao Naga farmers and it continues to help the farmers in maintaining a balance relationship with the environment helps them in production of their agricultural process. Indigenous knowledge system among many indigenous groups of people is fast disappearing and it has been threatened mainly because of the pressure of modernization and globalization in the twenty first century. The lifestyle, the culture, practices and beliefs of the indigenous people is being threatened. The rapid rate of acculturation and urbanisation has a huge impact on the existence of indigenous communities.

The erosion of their unique culture and traditions has come from modernization. Deforestation has increased as a result of the urbanisation and modernisation process. The forest dwellers, who are mostly tribal and indigenous people, are threatened and their balance with the environment is disrupted. The knowledge system that they own is very closely connected to their way of life. When a particular indigenous group is threatened to disappearance, an entire history, a way of life, a cultural group and a set of practice and beliefs of a group is also threatened. The wisdom of a group or community is passed down down the generations, particularly among the elderly generation. Before the ancient generation passes away, it is crucial to document their vital expertise on various subjects. Indigenous and traditional knowledge are passed down from generation to generation verbally. Elderly individuals are the repository of such knowledge. Young people have migrated to urban towns and cities for education and jobs as a result of modernisation and the spread of education. As a

result, the younger generation is unaware of the old rituals and wisdom that the elders used to teach them and pass down from generation to generation.

The indigenous way of resource and self-management as in case of land, water, forests etc by the indigenous people are unique and sustainable in every way. Their way of managing their livelihood and the environment, and their ecological sensitivity has attracted many especially in the recent times and the interest in indigenous knowledge for sustainable development is growing among development agencies, governments, corporate worlds and international agencies. Indigenous knowledge is a requirement for long-term development. Integration of indigenous knowledge into the development process is essential, and empowerment of local communities is required to achieve this. Indigenous knowledge, like any other type of knowledge, must be used, challenged, and further adapted to changing local contexts.

Local and regional traditional practitioner networks should be fostered, and community exchanges can help spread useful and relevant indigenous knowledge and enable people to participate more actively in the development process. There is a need to document the knowledge system of the farmers and elders and protect it before it gets swallowed up by the lightning pace of globalization and modernization. The know-how on traditional system of cultivation of the farmers should be protected and managed properly so as to preserve the age-old knowledge of the farmers. Hundreds of projects are introduced every year by the central and the state government for the development of the rural population. Any development in the rural society should combine the indigenous and local wisdom with the conventional know-how and modern techniques. The amalgamation of indigenous knowledge with modern scientific knowledge would prove to be a success in helping the farmers and in agricultural development and production.

The change in the farming system has also led to the economic development of the people leading to a change in the standard of living and lifestyle of the people. The economic development of the people has led to the development of the village as a whole. It has led to the change in the material aspects of village life. Owning of luxury goods like cars and electronic appliances were a far cry in the past especially in the villages. However, with the engagement of farmers in commercial farming and exposure of the farmers to the market economy, the main target for each individual is to increase their capital and to maintain a healthy bank balance. As such, some farmers are even exposed to the rich financial market and

are influenced by it. We will see that in many of the Ao villages there is a rise in the number of rich farmers who are considered rich because of the increase in their capital due to farming.

The use of money and understanding the value of money is perhaps the one major reason that has led to a number of changes in the socio-economic life of the Ao Naga villagers. The increase use of money in the villages has also led to conspicuous consumption becoming a factor of social differentiation. We will find that the rich farmers and people who have enough money in the village tend to spent more, indulge more in buying luxury goods and they also donate and engage themselves in the community works which helps them in gaining social prestige and also helps them in attaining a special position in the social setting. As such, farmers try to imitate the consumption habits of wealthy farmers and villagers from a higher social class, to the point where even the poorest people are pressured to engage in conspicuous consumption, such as owning an electronic rice cooker, an electric water boiler, or other electronic appliances.

As described in Chapter 5, the amount of money possessed and shown has a direct relationship to the strength of one's reputation. Many of the Ao Naga villages have been connected with Veblen's concept of conspicuous compassion, which is the practise of openly contributing significant sums of money to charity to boost the donor's social standing, and is sometimes regarded as a sort of conspicuous consumption. People engage in conspicuous consumption in order to achieve and maintain a good reputation in society, resulting in social differentiation. According to Thorstein Veblen, the quest for prestige through consuming is never-ending. What may have conferred status at one point may later be acquired by all and bestow no status. To set oneself apart from the competition, people must constantly seek for new consumer items. As a result, the village's wealthy farmers and individuals continue to purchase new things or upgrade their present ones in order to preserve their status. While ostentatious consumption isn't always negative, it might be perceived as a waste of resources while others in the town are struggling to make ends meet.

The changes that are brought about through the change in economic activities, also leads to the change in the outlook, the aspirations and expectations of the villagers especially of the younger generation. In all of the sample villages, majority of the young people are engaged in higher studies, are living outside the village or are employed. The younger generation in the village no longer help their parents in the fields and farms, rather they choose to moveout of the village for education and job opportunities. The people in the villages have

understood the value of money and capital and the villagers are now busy trying to fit oneself in the fast-changing economic world.

The Ao Naga society has now become a part of the global society. The recent trends of change and the global forces that are influencing the Ao society has left the people at a crossroad, encountering contradictory values of tradition and market- oriented globalization. The post-colonial and post Christianity era has seen the diffusion of the traditional culture with the modern way of life. The Ao people have cling on to their roots but at the same time are influenced by the continuous process of change and development.

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ANNEXURE I: INTERVIEW TEMPLATE

NAME OF THE INTERVIEWER:

NAME OF THE INTERVIEWEE:

PLACE OF INTERVIEW:

DATE OF INTERVIEW:

INTERVIEW NUMBER:

GENERAL DEMOGRAPHIC INFORMATION

AGE:

GENDER:

RANGE:

VILLAGE:

RELIGION:

EDUCATIONAL LEVEL:

MARITAL STATUS:

NUMBER OF MEMBERS IN THE FAMILY:

OCCUPATION:

EXPERIENCE:

TYPE OF CULTIVATION:

PERMANENT OR TEMPORARY:

MONTHLY/YEARLY INCOME:

AREA UNDER CULTIVATION:

Interview Questions:

1. What is the major produce from your field/farm?
2. Is the cultivation done for subsistence or is it more-market oriented?
3. How were you introduced to the type of cultivation you are engaged right now?
4. Do you have a stable marketing support?
5. Are you engaged in any other economic activity apart from farming? I yes/no, why
6. What are the various indigenous tools and methods used?
7. Do you still practice and believe in the traditional beliefs associated with farming (eg. Animal Sacrifice, genna, rites and rituals etc)? If yes, mention the practices.
8. Is your farm an integrated farm or a traditional one?
9. Is there an increase in the productivity of the jhum/wet-rice/other with the introduction of new methods?
10. What are the advantages and disadvantages associated with jhum/other cultivations?
11. What are the changes taking place in the jhum/wet-rice cultivation? Are the changes having a positive or negative impact?
12. Do you think the change in the farming system/type of cultivation has led to a change in the lifestyle of the people? If yes, how?
13. Is jhum cultivation/wet-rice among the farmers decreasing?
14. What are the reasons for your answer?
15. Do you think hum/other cultivation is having an impact on the environment? If yes, how?

16. Is there an increase or decrease in the years of fallow period in the jhum cycle? If yes, how?
17. How 1s the land tenure system in your village? Has it experienced any changes in the recent years?
18. Is there any use of new technologies or seeds? 1f yes, what are its advantages?
19. Do you receive any benefits from the Government and non-government agencies? If yes, how has it helped in the farming system?
20. How durable are the schemes and the development programmes that the Government /NGOs provide?

ANNEXURE II: LIST OF RESPONDENTS

1. Sungratsu Village

Sl.no.	Name	Age	Sex
1	M. Achala	62	Female
2	R. Ali	71	Male
3	Chujang Aier	51	Male
4	Ajungla	51	Female
5	T. Nungsang Longchar	61	Male
6	Imosangla	61	Female
7	Yangerla	42	Female
8	Awa Walling	38	Female
9	Wapong Aier	25	Male
10	Imnasenla Aier	30	Female
11	Temjen Walling	34	Male
12	Tiakumzuk Aier	37	Male
13	Mayanglila Mollier	36	Female
14	Lanu Walling	35	Male
15	Maongkala Aier	30	Female
16	Meyisanger	41	Male
17	Sangpanger	37	Male
18	Akala Longchar	41	Female
19	Lanu Longchar	45	Male
20	Imchalemba Walling	36	Male
21	Meren Aier	36	Male

22	Imrongkumba Aier	34	Male
23	Lanuba	54	Male
24	Lanurenla	51	Female
25	Onen Walling	45	Male
26	Ali Walling	43	Male
27	Temsuchuba	64	Male
28	Tia Mollier	56	Male
29	Wangshi Jamir	45	Female
30	T. Lima Longkumer	58	Male
31	Imtiakum	56	Male
32	Sentila Walling	55	Female
33	Atu Walling	54	Female
34	Imtitoshi	67	Male
35	Arong	58	Male
36	Imtisenla	23	Female
37	Senyatetla	22	Female
38	Temsutoshi	34	Male
39	Sanen	35	Male
40	Adang Jamir	46	Male
41	Apokla Jamir	24	Female
42	Nungsang Jamir	67	Male
43	Marshilu	46	Male
44	Sentiramok	67	Male
45	Supongla	63	Female

46	Yimjung	31	Female
47	Aoyanger	34	Male
48	Amen Jamir	33	Female
49	Lipok	31	Male
50	Watilemba	65	Male
51	Chubatoshi	63	Male
52	Asongla	37	Female
53	Kikala	38	Female
54	Watila	36	Female
55	Takoinla	39	Female
56	Anungba	44	Male
57	Yashila	42	Female
58	Arenkala	37	Female
59	Tiatong	46	Male
60	Limatongzuk	45	Male
61	Amongla	37	Female
62	Akangjungla	35	Female
63	Arenjungla	33	Female
64	Lanubenla	25	Female
65	Limajungla	28	Female
66	Sungtila	39	Female
67	Merenla	38	Female
68	Tiarenla	38	Female
69	Akuminla	42	Female

70	Rogsenla	42	Female
71	Wapangla	35	Female
72	Wati Longchar	36	Male
73	Chubasanen	38	Male
74	Sentinungsang	38	Male
75	Aolemla	42	Female
76	Imtimatsung	43	Male
77	Imlitemjen	59	Male
78	Tongpok	59	Male
79	Sungkum	27	Male
80	Moalong	26	Male

2. Longkhum Village

Sl.no.	Name	Age	Sex
1	Alemtula	40	Female
2	Medemmeren	53	Male
3	Chungpongtemjen	65	Male
4	Takojungla	54	Female
5	Temjenmenla	32	Female
6	Mepuchuchang	74	Male
7	S.I Aren Longkumer	61	Male
8	Tiarenba	42	Male
9	Nungshirenla	46	Female
10	Supongienla	60	Female
11	Temsurenba	60	Male
12	Tasakala	68	Female
13	Nanagshimayang	70	Male
14	Aosemba	71	Male
15	Tsuktirenla	69	Female
16	Kitang	36	Male
17	Imojungshi	40	Male
18	Rongsennukfu	42	Male
19	Furkumzuk	45	Male
20	Sashimongla	42	Female
21	Tiamongla	55	Female
22	Tiakumzuk	45	Male

23	Toshimongla	54	Male
24	Lanurenla	55	Female
25	Longkhumba	58	Male
26	Toshinaro	45	Female
27	Arenla	64	Female
28	Jutiba	73	Male
29	Arangba	50	Male
30	Lanunungsang	46	Male
31	Mesutenba	38	Male
32	Atsukumba	30	Male
33	Akumienla	41	Female
34	Mangjenyanger	46	Male
35	Temsunaro	36	Female
36	Sademjungla	38	Female
37	Tsukyasangla	34	Female
38	Manglakumba	46	Male
39	Pangtinokdang	71	Male
40	Repatoshi	29	Male
41	Imkongwati	68	Male
42	Lanujungla	58	Female
43	Rongsennaro	56	Female
44	Temjenmenla	55	Female
45	Lipoktemsu	54	Male
46	Bendanglila	52	Female

47	Chubalepla	56	Female
48	Lanupokyim	70	Male
49	Temshimayang	54	Male
50	Imlitemjen	36	Male

3. Khar Village

Sl.no.	Name	Age	Sex
1	Sashitsungba Jamir	42	Male
2	Nokchen	76	Male
3	Zaongningba Walling	40	Male
4	Alemsashi Jamir	70	Male
5	Lanutemjen Walling	45	Male
6	Imosangla	61	Female
7	Yangerla	42	Female
8	Awa Walling	38	Female
9	Lanukumzuk	41	Male
10	Ningsangkumla	37	Female
11	Imtiningsang	54	Male
12	Nokcharemla	51	Female
13	Tekashilu	55	Male
14	Kongrola	50	Female
15	Tongpangtemsu	56	Male
16	Chubatemla	53	Female
17	Longrokaba	62	Male
18	Remdongshingla	52	Female
19	Shilukaba	54	Male
20	Watilemla	53	Female
21	Imlilemba	40	Male
22	Shijungsangla	36	Female

23	Watitoshi	38	Male
24	Sentilemla	35	Female
25	Tekamanen	56	Male
26	Moarenla	48	Female
27	Sangtem	58	Male
28	Wabangtula	49	Female
29	Nochet	45	Male
30	Watila	58	Female
31	Yimdonglemba	62	Male
32	Watila	55	Female
33	Nekenchiba	68	Male
34	Tongpangsangla	62	Female
35	Lanunuoba	62	Male
36	Apongla	58	Female
37	Jemti	35	Male
38	Alemla	30	Female
39	Imtishitsu	67	Male
40	Tsunangkumla	58	Female
41	Zarlila	65	Female
42	Shilu	67	Male
43	Lanuakum	42	Male
44	Masabenla	32	Female
45	Lanuwati	42	Male
46	Lolentsula	31	Female

47	Toshikokba	38	Male
48	Temjenlila	35	Female
49	Temsurenba	42	Male
50	Ayangla	37	Female
51	Merenwati	53	Male
52	Suponglemla	38	Female
53	Akangnungsang	65	Male
54	Imtiyangla	57	Female
55	Lanula	39	Female
56	Temsumeren	44	Male
57	Moalemla	42	Female
58	Tiatemsula	37	Female
59	Imtikumzuk	46	Male
60	Imtisanen	45	Male
61	Moatula	37	Female
62	Watinaro	35	Female
63	Limayangla	33	Female
64	Moatenla	25	Female
65	Noksangtemla	38	Female
66	Kumzukla	39	Female
67	Apongla	38	Female
68	Narosenla	38	Female
69	Bendangtoshi	42	Female
70	Zulutemba	42	Male

71	Wapangla	35	Female
72	Watimongba	36	Male
73	Temsuchila	38	Female
74	Sentinungsang	38	Male
75	Lipoklemla	42	Female
76	Toshiwati	43	Male
77	Imchalemba	59	Male
78	Imtilepden	59	Male
79	Temsuchiba	27	Male
80	Imnatiba	26	Male

4. Changtongya Village

Sl.no.	Name	Age	Sex
1	M.Imna Ao	51	Male
2	Rongsennukshi	82	Male
3	Mapulila	75	Female
4	T. Marchiba Longkumer	53	Male
5	S. Talikangla	52	Female
6	Imosangla	61	Female
7	Yangerkumla	42	Female
8	Arewala	38	Female
9	Supongyanger	25	Male
10	Imnajungka	30	Female
11	Temjenmayang	34	Male
12	Tialemba	35	Male
13	Mayangsola	36	Female
14	Lanutemjen	34	Male
15	Maongkala	30	Female
16	Meyitemsu	41	Male
17	Sangpang	36	Male
18	Akala	54	Female
19	Lanuwati	68	Male
20	Imchalemba	63	Male
21	Merentemjen	63	Male
22	Imrongsungba	59	Male

23	Lanunochet	58	Male
24	Lanurenla	51	Female
25	Onentiba	39	Male
26	Alitoshi	43	Male
27	Temsuchiba	68	Male
28	Tianungsang	56	Male
29	Wangshimenla	67	Female
30	T. Sentichuba	75	Male
31	Imtiakum	56	Male
32	Sentila	55	Female
33	Atola	54	Female
34	Imtisungit	67	Male
35	Perong	58	Male
36	Imnakumla	23	Female
37	Senyangerla	22	Female
38	Temsuwati	43	Male
39	Sanentoshi	53	Male
40	Akumnungsang	64	Male
41	Apokla	42	Female
42	Nungsangtiba	73	Male
43	Marstemjen	64	Male
44	Sentiyanger	67	Male
45	Suponglila	63	Female

5. Chungtiayimsen Village

Sl.no.	Name	Age	Sex
1	M. Achala	62	Female
2	R. Ali	71	Male
3	Chujang Aier	51	Male
4	Ajungla	51	Female
5	T. Nungsang Longchar	61	Male
6	Imosangla	61	Female
7	Yangerla	42	Female
8	Awala	38	Female
9	Imjungmeren	25	Male
10	Imnakumla	30	Female
11	Temjenwati	34	Male
12	Tiakumba	37	Male
13	Alangtula	36	Female
14	Lanusangba	35	Male
15	Maongkala	30	Female
16	Meren Kichu	41	Male
17	Sanglipong	37	Male
18	Akala Kichu	41	Female
19	Lanusangba Jamir	45	Male
20	Imchawati Kichu	36	Male
21	Merentemjen	36	Male
22	Imrongtuden	34	Male

23	Lanunichet	54	Male
24	Lanuningsangla	51	Female
25	Onen Kichu	45	Male
26	Aliba	43	Male
27	Temsuchuba	64	Male
28	Tiakumba Kichu	56	Male
29	Wangshi Jamir	45	Female
30	T. Lima Longkumer	58	Male
31	Imtiakum	56	Male
32	Sentila Jamir	55	Female
33	Atu	54	Female
34	Imtitoshi	67	Male
35	Akummneba	58	Male
36	Imtisenla	23	Female
37	Senyatetla	22	Female
38	Temsutoshi	34	Male

6. Japu Village

Sl.no.	Name	Age	Sex
1	Temjenmayang	52	Male
2	Jenrala	54	Female
3	M.Rongsen Ao	69	Male
4	Albert tali	47	Male
5	Tekatangchet	68	Male
6	Watimongla	62	Female
7	Mangkodangba	71	Male