

**Agrarian Transition and Ecological Sustainability of Jhum
Cultivation among the Maring Naga in
North-East India**

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Abstract: Agriculture has been the backbone of human civilisation. Jhum, or shifting cultivation, is the traditional farming system widely practised among the tribals of Northeast India, particularly among the Nagas of Nagaland and Manipur. This farming practice is found to be most suitable and widely practised in hilly regions of Manipur. Among the Maring Naga, jhum cultivation continues to be their dominant mode of food production and their primary livelihood source. Their agricultural practices are closely associated with their culture, social structure, and ecological surroundings. Debates surround the sustainability of jhum cultivation among scholars because of its primitive and detrimental environmental impacts. However, the Indigenous Knowledge System (IKS) in agriculture has played a vital role in sustaining the traditional farming system and ecological protection. Therefore, this paper will explore the Indigenous Knowledge System (IKS) among the Maring Naga in sustaining their traditional cultivation system, its continuity, and the changes in today's rapidly changing society. The paper attempts to analyse the socio-economic conditions of the Jhumias among the Maring Naga.

Keywords: Indigenous Knowledge System, Jhum Cultivation, Soil Conservation, Deforestation etc.

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Introduction

Shifting or Jhum cultivation refers to a traditional forest agrarian system widely practised by hill communities across regions such as Asia, Africa, and Latin America. In the northeast region of India, the hilly tracts of the states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram,

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Nagaland, Sikkim and Tripura, shifting cultivation continues to be a dominant economic activity.¹ It is also known as the Slash and Burn agriculture. The Maring Naga tribe is one of the oldest Naga tribes inhabited mostly in the districts of Chandel and Tengnoupal in Manipur, bordering Myanmar (erstwhile Burma). Traditionally, this farming practice is known as "Shontrun Lhou"² or "Pamlou" among the Maring Naga. Jhum cultivation is characterised by a cultivation phase that involves clearing forest land for agriculture, followed by a period of cultivation and then abandonment as fallow land for seven to ten years before the next cultivation to allow recovery of soil fertility. This practice has deep cultural and ecological significance for the Maring Naga and has been integral to their sustainable agricultural traditions for centuries. Their agricultural practices are closely associated with their culture, social structure, and ecological surroundings. Among the Maring Naga, jhum cultivation continues to be their dominant mode of food production and their primary livelihood source.

Jhum cultivation has been associated with traditional folktales and folklores of the Maring Naga. Grain or paddy has been known to them since the beginning of their existence, as the word is associated with their origin story. This agricultural practice reflects the Marings' intimate connection with their land and commitment to preserving its productivity for future generations. Their knowledge of local ecosystems, soil types, and climate patterns helps them sustain this cultivation method. Their meticulous approach to land management and adherence to long term rotation sequences demonstrates a profound respect for the environment and a dedication to maintaining sustainable agricultural practices. The festivals and ceremonies associated with jhuming practices greatly enrich the cultural richness of the community.

Traditional Jhuming Practice

Geographically, the land inhabited by the Maring people can be categorised into three distinct regions: Eastern, Northern, and Western. Each region presents unique challenges and opportunities for Jhum cultivation due to variations in the agricultural landscape. It is important to note that while some Maring Naga villages possess permanent plain fields scattered here and there, they are being abandoned as Jhum cultivation has been the primary traditional practice for a long time. This indicates the profound cultural and historical significance of Jhum cultivation

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within the Maring Naga community, shaping their land use and settlement patterns over generations.

The method of preparing land for jhuming involves a series of careful steps. The first step involves declaring the farming area and allocating the farm portion (*Loumaa*) to individuals by the village authority. Farm portions were allocated to individuals according to their wishes. If two or more individuals put up the same area for cultivation, they would be allowed to divide it or one party to move to another area. In any case, the decision made by the village authority is final and binding. In February, the farmers begin clearing the land and removing trees, grass, shrubs, and bamboo using traditional dao called '*Shontang*'. The roots of the vegetation are not removed, and most trees are pruned rather than completely chopped, allowing for quicker re-growth. This sustainable approach is employed for only a year, after which the farmers relocate to a new site, following the guidance of the village authority. The cut-downed trees and bamboo were kept open and dry for two months. Then, in April, they purposely set fire to clear the area. It is done by the villagers on a fixed day. Before they set fire, the villagers would spare a day or two to clear the field's periphery (*Meilam Thaat/Thai*) to control wildfires or avoid fire encroaching on neighbouring villages. Early in the morning, on the same day before setting the fire, the neighbouring villagers will be informed to check whether wildfire is encroaching on their village land. If such prior information is not given and fire encroaches on the neighbouring villages and damages properties, the defaulter village can be traditionally fined, called '*Meishaar kuk/Meichuk Sha*'. During the gap between setting fire and before sowing, the farmer would clear the unburnt residues by collecting such residue in one place and setting fire gain. This process is known as '*Meiyung shom*'. Ashes produced from such burns are used as manure by the farmers. As the rainy season arrived in June, the farmers began the process of planting. One person will spread paddy by hand (*Chaaturuk*) in the field while others loosen the soil with locally made, small to medium-sized hoe or spade called '*Louhin*'. This process and technique is performed to cover the paddy from birds and insects until it sprouts.

Varieties of cash crops and vegetables are cultivated in the same plot along with the paddy. This is done by separating the portion or mixed with the paddy. Creeping crops are usually planted in separate sites to avoid their attacks on paddy. These cash crops and vegetables generate extra income for them besides for their consumption.

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Indigenous Soil Conservation and Fertility Regeneration

The districts of Chandel and Tengnoupal fall under the Subtropical region, with soil ranging from clay to loamy red soil that is rich in organic matter.³ It experiences high temperatures with heavy rainfall. The region's uneven slopes, rich and fertile soil, and close proximity of villages to the forests collectively position it as an exceptionally favourable region for the practice of Jhuming. However, the choice of sites for shifting agriculture is determined by their cultural practices and historical traditions rather than the physical characteristics of the land. This cultural approach to land use defines the broader environmental location of shifting agriculture as a cropping system for the Maring Naga.

The farmers considered the fallow land that has left for more than ten years, is considered fertile and suitable for re-cultivation. They left the field for a longer period to mature the plant growth and regain its fertility from earthworms and leaf litter. Land with less undergrowth is often chosen for the next agriculture cycle as such land gives fewer weeds during cultivation. Traditionally, a forest covered with bamboo is considered more fertile than a forest with trees. The probable reason is the short decaying period of bamboo than trees, which regenerate soil fertility within a short period.

The traditional method of soil conservation is done by creating contour lines. This method is done with the field's woods placed vertically (*Lhunglam*) and horizontally (*Lamphei*). The method is believed to prevent soil erosion from rainwater. Field terracing is not common among the Maring Naga except for a few who practice terrace farming near the foothills of the Western Marings. Farmers use ashes produced from the debris burns as a natural fertiliser. During the process of loosening soil, small plants that have been cut downed are intentionally left uncollected to undergo natural decomposition, thereby serving as organic fertiliser for the paddy fields. At the same time, larger plants are harvested and properly placed in specific areas. Jhumias among the Maring Naga shift their place of settlement to the field with family members during the agricultural season. Their domestic animals often accompany this. Farmers use waste from these animals as natural manure for the paddy and vegetables planted. It is worth mentioning here that traditionally, the farmers of Maring Naga also used rice-cleaning water and fluid from cooking rice as natural fertilisers for crops in their fields. This use of natural fertilisers

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by the jhumias presents a lower risk of biodiversity destruction. To prevent future soil degradation, the village authority also strictly prohibits using chemical fertilisers and pesticides in their fields.

The Marings' entire social life is based on the land. Land is their life source, and agriculture provides them with their entire livelihood. They regard land, forest, water, air, and all of nature's wealth as divine blessings. Fields are placed on the hillsides without terraces, but they drain them very indigenously. Horizontal and vertical contour lines made from the field woods technique prevent water runoff and soil erosions. The livelihood of the Maring Naga community is intricately tied to the monsoon rains, upon which they depend entirely for their agricultural activities. Unlike wet-rice cultivation in the plains, Jhum farming practised by the Marings lacks access to a natural water source. In this system, there is no danger from either flood or drought. The mountain streams provide a regular water supply for cultivation at a moderate rate.⁴ The process of setting up the new shelters in their field for each family usually takes about a week. They precisely search for a suitable location close to a water source. They use a bamboo pipe to access the water source.

Traditional Crop Protection: Botanical Repellents and Ritual Charms

Regular field cleaning is considered the most effective cultural practice to prevent attacks from insects and rodents. Therefore, the Maring Naga traditionally clean their field three to four times during one planting season: *Loulhai*, *Ramtrun*, *Nulthaat*, etc. Farmers also planted medicinal flowers like Marigolds (*Tagetes sp.*), Yangwahrei (*Cellosia sp.*), and spices called Tiktah or Lomba (*Elsholtzia griffithii*) locally. It bears smelly flowers that drive away insects and pests. These are planted between two paddy rows as protection from insects, birds and animals. The Maring Naga community believes that the presence of flowers in the field also acts as a deterrent to prevent the intrusion of harmful forces on paddy crops.⁵ This belief stems from the notion that the malevolent entities are drawn towards the flowers, thereby safeguarding the paddy from potential harm. Pesticides or any other protective measures are never used. Crop rotation is uncommon, but intercropping is common among the Maring Naga. Apart from controlling pests that thrive in their field, it also maximises production, generates additional income for the farmers

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and boosts soil fertility. The Maring Naga commonly use a particular type of paddy called '*Nuur*' locally or '*Maring Chakhao*' (*Oryza sativa* L.) in Manipuri for intercropping. This paddy bears sweet-scented and sticky rice. Two types of sticky rice are commonly use among the Maring Naga: *White* and *Black*. Farmers believe that the sweet-scented smells produced by the paddy attract pollinators and simultaneously repel certain pests from attacking crops.

Another traditional method of crop protection from weed crowding is using a minimum amount of salt (Sodium chloride) in the field. Farmers sparingly spray the mixture of water and salt on a sunny and dry day in their fields. The farmers seem unaware of how this method is effective for weeding. It dehydrates and damages the plant tissues, leading to their demise. The extremely acidic soil conditions in shifting cultivation areas help in controlling the weeds through the use of common salt.⁶ This method is considered cost-effective, environmentally friendly, easy application and reduces labour. The Maring Naga people have a tradition of using magical charms such as '*Lou Manik Thui*' to eliminate weeds in their fields. They hold the belief that certain plants possess the ability to safeguard their paddy from damage. For instance, when paddy leaves begin to dry suddenly, they plant trees like *Thousuk*, *Aidai* (specifically planted by women from the Dangsha clan), and *Kherkhum/Therkhum*, a local remedy as a protective measure.⁷

Farmers also create human effigies and other scarecrow devices to protect their fields from birds and animals. One such device the Maring Naga uses is '*Borbak/Borun*'. This technique involves placing objects around the field to emit alarming sounds for birds and animals. These objects are connected with ropes extending from the huts in the middle of the field. By pulling these strings or ropes, individuals can reach the scarecrow and generate frightening sounds for birds and animals with minimal effort. *Tingkung* and *Tuipong* are other scarecrow techniques used by the Maring Naga.⁸ A particular type of tree, locally known as *Khongma heeng* (*Rhus chinensis*), is also placed in the field. The Maring Naga believes this tree has supernatural powers protecting crops from lightning and other natural forces.

Agrarian Rituals as Ecological Insurance

The agricultural festivals of Maring Naga are vibrant and deeply rooted in their tradition. An essential ceremonial aspect of these rites and festivities involves the ceremonial killing of Mithuns (a type of cattle), pigs, and cocks. They also engage in artistic practices closely tied to

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their agricultural way of life.

The social and religious life of the Maring Naga of Manipur was full of rituals, offerings, sacrifices and festivals giving attributes of their deities. Traditionally, when village priests and authorities decide on a new site every year for their cultivation, they perform sacrificing rituals to observe omens for the new directions of the field and accordingly choosing the site. They observed several gennas with sacrifices, giving homage to the Supreme Being as they began and till the harvest came for giving them good harvest, seasonal rain, and protection from any harmful things. Some of their important agricultural rituals include Blessing the land (*Haalbom shun/Leiloutou*), the ceremony of making agricultural tools (*Lhangsha/Thirshim*), prayer to the God of Land and Water (*Thraykah*), rites to prevent insects (*Chaalungthui*), the ceremonial inauguration of the traditional granary (*Keikhongtrei/Chimkhe*), etc.⁹

One of the most important harvest festivals among the Maring Naga is their Seed Sowing Festival, called '*Chada*' locally. This vibrant and colourful event occurs annually during the month of May. The festival marks the beginning of the seed-sowing season. Nagas generally observed this festival as *Lui-Ngai Ni* observed since 1987.¹⁰ During the festival, the priests offer all kinds of seeds, new rice-beer, pig, chicken, and egg to the village altar. They ask agricultural deities to send seasonal rain, protect their crops from rats, birds, and monkeys and prevent natural calamities until harvest.

One of the most captivating traditions of the Maring tribe is their annual testing of new rice event called '*Chanou Mertam*'. It is a highly anticipated event when each family gathers a portion of the freshly harvested rice and combines it with meat to share as a symbol of gratitude for the blessings of God. However, before partaking in the meal, the freshly harvested rice is presented to the household deity at the ceremonial pillar located in the centre of the house. It is applied to the door post and all agricultural tools and utensils. This gathering is a joyous celebration of gratitude to the Supreme Being and the land for their blessings.

A pre-harvest festival called the "*Laamlai*" festival is observed when the paddy fields are covered with golden grains. It takes place in the month of October. During the festival, villagers clean up the village roads and water sources to ensure the smooth transportation of newly gathered grains to the village.

The harvesting season falls in the last part of October to November. The harvesting festival of '*Kummoi-umm*' (threshing festival) holds a significant place among agricultural-related

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celebrations. It is quite elaborate and follows a series of events such as choosing the host (*Kummoi-nam*), reaping the host field by the villagers (*Kummoi yeera-aat*), site preparation for threshing (*Ruisaa*), threshing (*Chaa-umm*), and making of the traditional barn (*Pong-shim*).¹¹ The field owner provides heavy lunch, midday meals, and dinner with different kinds of meat, curry, and rice beer. Before the dinner is served, they dance and sing the harvesting songs attributed to God for the good harvest. The harvesting process involves a communal effort, with group-wise (*Yinglam*) rotations to ensure that the harvest is completed on time. Other agricultural-related festivals include *Phalthei/Ninei*, *Chala sha*, *Shangkobun/Shangkolhet*, *Arshangthun*, and *Loumanei*.

Ecological Vulnerabilities and External Pressures on the Jhum System

Shifting cultivation causes loss of flora and fauna, including rare species of plants, shrubs, medicinal plants and minor forest products. The practice results in deforestation, the drying-up of springs, wild animals' shelter depletion, silting and flooding in plains, soil erosion and ecological imbalance. There are changes in the physical, chemical and biological properties of the soil after burning.¹² Land under frequent jhum cultivation faces the local disappearance of native species and invasion by exotic weeds and other plants. Shifting cultivation also led to fragmentation of the habitat, reduction in plant diversity, and loss of forest corridors that have adversely affected faunal diversity.¹³ Today, farmers prefer to cultivate land near the village, as some cultivable areas are remotely located. This shortens the fallow cycle, which causes the depletion of soil nutrients and makes it less productive. This factor pushes some farmers to the extent of using chemical fertilisers to maximize crop yields. Forest fires and the resulting smoke also contribute to air and water pollution. The land-holding system among the Maring Naga is community-based. Therefore, when the community owns the land, individuals are reluctant to take care of the abandoned field.

Recently, the management of tribal forests has changed because of various governmental policies. This includes the conversion of large forest areas into reserved forests and protected areas, change of ownership of forest, unsustainable logging, and increased area of settled agriculture and plantations of cash crops. Due to increased population and reduced fallow forest availability, the

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fallow phase of the shifting cultivation cycle has also decreased.¹⁴ The seemingly inexorable advances of civilisation, industrialisation and warfare destroy the forests. More forest destruction resulted from granting ownership rights to those who clear forests and bring the land into permanent cultivation. Genetic engineering methods aim to enhance agricultural and industrial yields by modifying the genetic makeup of organisms. However, promoting genetically engineered crops as a solution to world hunger raises concerns about corporate control over the global food supply for financial gain. Experiences in various regions have demonstrated that cultivating genetically modified seeds has resulted in catastrophic and distressing outcomes for numerous farmers, affecting their livelihoods and well-being. The widely accepted concept of the Green Economy, in addition to other market-driven proposed solutions for addressing climate change, often involves implementing strategies that result in the displacement of local communities from their lands and restricting their access to traditional forest resources.

Continuity, Identity, and the Path to Sustainable Coexistence

The Maring Naga, Indigenous knowledge of shifting cultivation, contributes to its continuity and stability. The system ensures enough grains and vegetables for the entire year, which gives food security to the farmers. Access to healthy food and optimal nutrition for all is at the core of food security, which the Maring community has upheld till today. Products from their jhum fields provide healthy crops grown with natural manures that minimise health risks. Traditional Maring Naga economy ensured that no one ever went hungry or died of starvation, and there were no beggars in Maring Naga society. Everyone has their own house and field to work for their survival. This subsistence form of Jhum cultivation is based on common pool resources. Families have the customary right to get some land allocation for their survival. In this type of agriculture, women predominantly participate in activities like seed selection, planting and weeding while their counterparts carry out clearing jungles and burning the cut undergrowths. The traditional way of community ownership of land and rotational cultivation practice is not simply a form of cultivation. Rather, it is a way of life for traditional Maring societies, which they have been practising from pre-historic times until today. It provides the local people with a balanced diet and offers some form of crop insurance to the Jhumias in the event of failure of some crops. It

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also helps to conserve forests as this jhumming pattern observes a long fallow period followed by a short cropping phase. The Maring Naga community has developed specific techniques for working on sloped land and has integrated customs and traditional elements into their way of life. Their culture is a fundamental part of their identity as indigenous people, and they are committed to preserving it. Traditional practices such as hunting, gathering, and jhum cultivation continue to play a crucial role in their lives, relying on human energy, simple tools, local materials, and indigenous techniques. Hence, Jhum cultivation is not only the source of their livelihood but also the source of their culture, tradition and customs.

Conclusion

It is imperative to safeguard traditional farming methods against the possible encroachment of new scientific agricultural technologies, which could threaten food security, land security, seed security and ecological suitability. The indigenous farming practices ensure that farmers continue to employ a sustainable and environmentally friendly approach to food production in the Maring community. This traditional farming method often misunderstood as being harmful to the environment. However, when practised sustainably, it can be beneficial for both the ecosystem and the communities that rely on it. It can have minimal impact on soil fertility and contribute to maintaining biodiversity. It also involves promoting stable employment opportunities and ensuring fair compensation for all community members, thus creating a sustainable and equitable environment for all. It is argued that this method contributes to ecological degradation through deforestation, soil erosion, and loss of biodiversity, raising concerns about its sustainability and environmental impact. Moreover, the practice has been criticised by environmentalists, foresters, developmental practitioners and policymakers as being wasteful”, and as a “Primitive, backward, destructive or mere precursor to more “modern, sustainable” and sedentary forms of agriculture.¹⁵ There is a perception among these individuals that Jhum Cultivation is unproductive, generates low income, is outdated, unscientific, and obsolete. Therefore, it is crucial to consistently reassess the credibility of these new trends in future and, at the same time, encourage jhum cultivation using Indigenous knowledge, which is a sustainable form of agricultural practises that has less environmental impact.

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