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SUSTAINING TRADITION: AGRICULTURAL PRACTICES OF THE NYISHI TRIBE OF KRA DAADI DISTRICT, ARUNACHAL PRADESH

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ABSTRACT

The Nyishi tribe of Kra Daadi district in Arunachal Pradesh has preserved a rich heritage of traditional agricultural practices that are intricately linked to their cultural and ecological knowledge. This study explores the various indigenous methods employed by the Nyishi, focusing on their traditional practices of Jhum (*Thumph Rongo)*, Dryland farming *(Teming Rongo)*, and Terrace wetland farming *(Sapa Rongo*). The principal crops cultivated include paddy, maize, millet, ginger, cardamom, pumpkin, chili, sugarcane, spinach and yams, which are integral to their diet and economy. The Nysihi's agricultural practices are closely tied to their festivals and rituals, reflects a deep connection with nature and their belief in *Donyi-Polo* (Sun and Moon). Despite the challenges posed by modernization and environmental changes, the Nyishi continue to sustain their livelihood. This research highlights the resilience and adaptability of the Nyishi agricultural system, offering insights into sustainable farming practices that could benefit broader agricultural communities.

Key words: Jhum, cultural heritage, sustainable, resilience.

I. INTODUCTION

Traditional agriculture involves farming methods that utilize indigenous knowledge, natural resources and cultural values to produce food. In every society, agricultural practices play a crucial role not only food production but also strengthening community bonds by bringing people together to work, celebrate and support each other. This fosters social cohesion and a sense of community identity and pride. Agriculture serves as a vital connection between the land and a way of life that has been sustained for generations.

In tribal societies, agriculture is deeply intertwined with the cultural practices. It goes beyond food production to encompass a way of life that includes rituals, traditions and community bonding. It plays role of preserving and perpetuating traditional process within communities. A traditional agriculture practice often includes indigenous knowledge of farming, along with rituals, festivals and ceremonies that are integral to the community's cultural heritage. Moreover, these practices serve as means of passing down knowledge from one generation to the next. Elders teach younger members of the community about planting cycles, soil management and the use of traditional tools, ensuring that this knowledge is not lost. It has been found that many traditional agriculture practices are inherently sustainable, focusing on maintaining soil fertility, conserving water and using natural pest control methods. These practices are often more environmentally friendly than modern industrial agriculture practices.

This study examines the types of traditional agricultural practices, festivals and rituals followed by the Nyishi people of the Kra Daadi district of Arunachal Pradesh.

II. LOCATION OF STUDY AREA

The study has been made for Nyishi tribe of the Kra Daadi district of Arunachal Pradesh. The study area is located in coordinates 93º 20' E to 93º 56’ E and 27º 36' N to 28º 14’ N. According to 2011 census, the district has a population of 46,704 peoples. The male population is around 23,487, while female population is 23,217. The literacy rate in Kra Daadi is around 44%. .The density of population is 21 peoples per kilometer. The majority of the population belongs to Nyishi tribe, making up about 98.76%. The main religions practiced in the district are Christianity 63.93%, Donyi Polo 28.98% and Hinduism 5.25%.

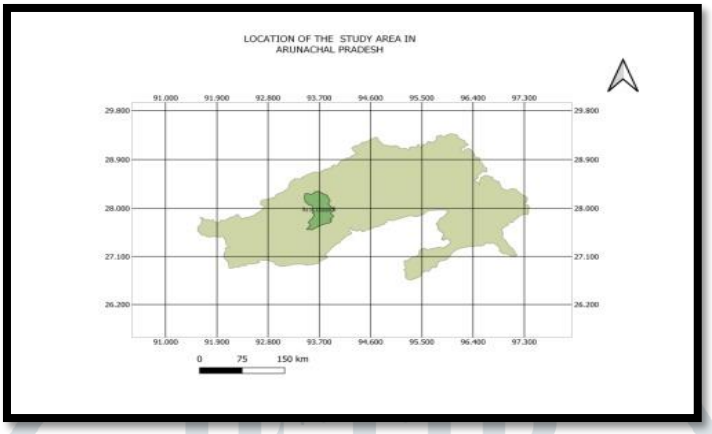

Fig. II. 1. STUDY AREA LOCATION IN ARUNACHAL PRADEH

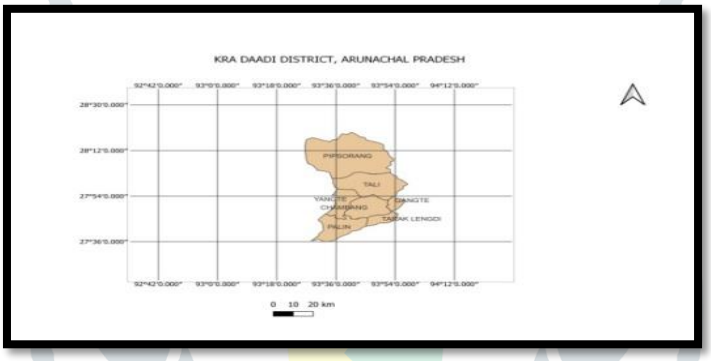

Fig. II.2. MAP OF KRA DAADI DISTRICT

The physiographic features of the study area are mostly mountainous, with significant portion consisting of medium-height Mountain featuring peaks and valleys. The average elevation is 1080 Meters. The climate in study area experiences subtropical highland type of climate, which is characterized by warm summers with heavy rainfall and cold winters with moderate rainfall. The summer average temperature is 32-34 º C. The winter experiences the lowest temperature around 10-16 ºC. Rainfall in summer is very high and it fall highest in the month of June with around 40.2 cm and moderate with lowest in December at around 2.5 cm.

The District has diverse soil types that support various agricultural activities like Jhum cultivation, Wetland cultivation, and Horticultural crops. The prominent soil types found in this region are red soil, lateritic soils and forest soil.

III. MATERIALS AND METHODS

The methodology followed for this study is qualitative in nature incorporates both primary and secondary methods. The primary method involves conducting surveys using interviews and observations. Interviews are carried out taking samples of twenty local farmers, including five males and fifteen female farmers while simultaneously observing their methods of cultivation. The secondary method involves gathering study materials from various sources such as published journals, articles and district statistical handbook from the internet to provide essential secondary information.

IV. DISSCUSION

Based on interaction with the local farmers, it has been discovered that there are three traditional agricultural practices are prevalent i.e., Jhum cultivation (*Thumph Rongo*), Dryland farming *(Teming Rongo)* and

Terrace farming *(Sapa Rongo*). Apart from them horticulture is also practiced widely in this region. The farmers utilize indigenous cultivation methods, which are labor intensive. Agricultural tasks are primarily performed by family members. Additionally, some farmers participate in an agricultural service exchange known as *Reghi Angnam* in Nyishi, while others work for payment, referred to as *Ragjo Jonam*. It is also noted that both men and women equally contribute to agricultural activities.

IV. 1. JHUM CULTIVATION (*Tumph Rongo*)

Fig.IV.1.1. JHUM CULTIVATION

Fig.IV.I.2. MILLET HARVESTING

Jhum cultivation is one of the oldest traditional agriculture practices. In this method, farmers use indigenous knowledge for selecting farmland, use indigenous varieties of seeds, and tools. The shifting of plots is crucial aspect of this farming as it allows the land to regenerate soil fertility and the forest to re-grow. This type of cultivation has been practiced in harmony with nature for ages and has become an integral part of Nyishi people's traditions, lives in hilly and rugged terrain. Jhum cultivation is not only a source of livelihood but is also associated with activities like gaming, hunting, fishing as well as worshipping nature (Rana, 2022).

In Jhum cultivation, farmers practice multiple cropping. A variety of vegetables are grown along with paddy and millet crops. This type of cultivation helps in maintaining soil fertility and reduces the risk of crop failure due to pests or diseases.

IV. 1. LAND PREPARATION PROCESS FOLLOWS IN JHUM CULTIVATION

The first step followed in Jhum cultivation is the selection of agricultural plot in the forest, which is done in the month of December and January by the head of the family. The farmer starts clearing the jungle and let it dry for half a month. Some of the fallen logs are use as firewood. After the debris has dried, it is set on fire. The burning of debris is an indigenous method used to control pests, reduce weeds, and enrich the soil. The resulting ash, being alkaline, helps to reduce soil acidity and the toxicity of aluminum or manganese (Pattanaaik et.al., 2016). In such cultivation, ash is beneficial for growing crops as it naturally enrich soil. The farmer follows traditional methods without the use of chemical fertilizers and pesticides. After cultivating the land for two to three years, farmers allow the farmland to regenerate by leaving it fallow for an extended period.

After burning of the debris, the next important activity performed on Jhum farmland is the collection of remaining unburned logs. These logs are use for building fences and huts. The fence is built to protect the farmland from entering wild animals and to contain domestic cattle. The Hut serves multiple purposes, including storage of harvested crops and providing a resting place for farmers, which is essential for managing long hours of labor in the fields.

Before sowing seeds, farmer prepares the land by clearing debris, hoeing and building long ridges along the border of beds. These ridges help to control soil erosion, and maintained soil fertility. Nursery beds are prepared for sowing seeds like paddy and millet crops. Sowing is done in the month of February or March. Other vegetable crops like pumpkin, beans, taro, chili, spinach, ginger, tapioca and yam are planted through dribbling. The paddy and finger millets sapling are transplanted in separate beds. After completing seedling and transplant of paddy and millet crops, next important activity carried out in agriculture is weeding. From seedling to harvest period, the farmers do at least three times of weeding. The harvesting of crops is carried out in the month of October or early November. Vegetables are harvest earlier than millet and paddy crops allows for continuous supply of food and helps labor and resources efficiently.

The farmer use traditional tools like hoe for digging or leveling of land, long wooden sticks for making hole during seed broadcasting, and machete (*uryu*) for cutting trees, shrubs. This reflects that the indigenous knowledge and practices have been passed down through generation.

Jhum cultivation is labor - intensive farming. It requires hard labor for task such as clearing jungle, building fences, huts and preparing the land for crops. Such tasks are mainly performed by men whereas the

women and children are also actively participated in agricultural works in land preparation, sowing of seeds, clearing of debris, weeds, etc. During the peak agricultural session, farmer often seek assistance relatives or hire paid labor to complete their agricultural tasks.

IV.2. TERRACE WETLAND FARMING *(Sepa Rongo*)

Fig. IV.2.1. TRRACE WETLAND FARM

Fig.IV.2.2. INDIGENOUS PADDY SEED VARIETY

The terrace wetland farming is another significant traditional agriculture practice in this region. This type of cultivation is carried out on the slopes of hills, utilizing irrigation from streams. Some terrace farms lack canal connections and rely solely on rainfall. Under this farming, paddy is grown as the main crop. Terrace farming system have been practiced for a long time and offers various environmental advantageous. They aid in water conservation, reduce soil erosion, help to maintain soil moisture content, and maximize land use in hilly region.

IV.2.1.LAND PREPARATION PROCESS FOLLOWS IN TERRACE WETLAND FARMING

Terrace farming is primarily conducted on sloped land. The land preparation for such farming begins with cutting the sloped land into terraces. In this context, the bund plays a crucial role, as this type of farming involves wetland paddy cultivation. The bund is constructed along the field's border. Typically, farmers start preparing the land for terrace farming in the month of March or April. They clear weeds, tilling and leveling of the land and mend the bunds. All these tasks are done manually using agricultural implements like the spade or machete. However, nowadays, some farmers also use power tillers to till the land.

Farmers prepare a separate paddy seedling bed for the terrace farmland. A bed of 3 to 4 square meters is prepared, with the size varying depending on the size of the farmland. Once the paddy saplings reach to a height of 10 cm or more, they are ready for transplantation. The paddy sapling transplantation process is done in the month of May or June. After transplantation, the next important activity follow is weeding, which helps the crops to grow properly. Farmers also ensure proper watering, as paddy plants require standing water. They monitor the water level and maintain the bunds to aid in water retention.

Harvesting is done in the month of October or early November, depending on the ripening of the paddy plants. After harvesting the land is kept fallow during winter which help in replenish of the soil's nutrients. This type of farming is labor intensive, often require the assistance of family members and relatives.

IV. 3. DRYLAND FARMING *(TEMING RONGO)*

Fig.IV.3.1. DRYLAND FARM

Dryland farming is also a very important traditional agricultural practice. Such farmland is typically located near houses and involves mixed cropping, similar to a modern kitchen garden. Farmers grow various vegetables alongside millet (*Temi*) crop. This type of farming offers many advantages. Farmers can practice mixed cropping, which helps to diversify food supplies and enhance soil nutrition. On such farmland, farmers grow early ripening seed varieties. For example, millet crops ripen earlier than paddy crops, allowing vegetables to be grown alongside millet. Millet is a significant crop in the tribal society of Arunachal Pradesh, rich in nutrients and culturally significant for brewing wine.

IV. 3. 1. LAND PREPARATION PROCESS FOLLOWS IN DRYLAND FARM

In Dryland, the land preparation for new crops begins in the month of February or March. The land preparation follows the activities like weeding, removing existing vegetation, debris, tilling, and leveling of land. Tilling the land helps to break the compacted soil layers and improve aeration. They use simple hand tools like hoe for tilling land. Tilling of land helps to incorporate organic matter into the soil, which improves its fertility. After tilling, land is leveled. The leveling of land is important to ensure even distribution of water from rainfall. The farmer does weeding regularly to ensure adequate nutrient supply and promote healthy growth of crops**.** Weeding activity is done manually using handheld tools like hoe.

Farmers grow Millet crop in separate beds while different vegetables are cultivated in the same bed which is more of like mixed cropping. Millet sapling is transplanted in separate bed and vegetables like pumpkins, peas, chili, cucumber, yam, okra, bottle gourd. taro, sweet potatoes, potatoes, maize, ginger are broadcasted in land using tools like long wooden stick which is pointed in one end. These crops are grown in summer. The harvesting of Millet crop start in the month of September or October, while other vegetables are harvested earlier due to their different maturity periods. In winter, farmers grow crops like, spinach, carrots, coriander. The farmer produces food for self-consumption, although some farmers sell small quantities of vegetables in local market.

V. AGRICULTURAL FESTIVAL ANF RITUALS

The major festivals of the Nyishi tribe revolve around the agricultural season. There are two significant festivals celebrated to ensure a bountiful harvest and to protect crops from pests and adverse weather conditions. These festivals are *Nyokum Yullo* and *Longte-Yullo.*

V.1. ***NYOKUM YULLO***

The *Nyokum Yullo* festival is celebrated in the month of February involves the invocation of various deities and the sacrifice of cattle as offerings to protect crops from insects, wild animals, and pest. These rituals also aim to ensure the health and vitality of domestic animals and the well being of the community (Gupta, 2005).

V.2. ***LONGTE-YULLO***

The *Longte-Yullo* festival is one of the oldest festivals celebrated by the Nyishi tribe. It is held annually in April, marks the beginning of new season and the commencement of sowing seeds. It emphasizes human wellness, fertility, and the invocation of benevolent sprits. Unlike other tribal festivals, which commonly involve the sacrifice of cattle to appease deities, the *Longte Yullo* festival is known for its Bloodless celebration. The altar is adorned with white feathers of hens and bamboo flowers. The festival features games, sports, food stalls and cultural extravaganza.

Apart from these festivals, the Nyishis tribes also perform some rituals to ensure successful farming and for bountiful harvest. Some of the rituals are *omen examination,* and *Lew Hunam.*

V. 3. **Omen Examination**

At the beginning of Jhum cultivation, farmer selects an agricultural plot in the jungle. To ensure selected land suitable for cultivation, the farmer duly performs propitiation with proper incantations, ceremonies, and sacrifices. They have a tradition of taking omens by examining egg's yolk or chicken liver. After the incantation, the liver is taken out for observation and egg is cut in two halves, the Yolk is scratched with an iron pin at the center for observation. This is done to confirm whether the Jhum plot will be suitable for cultivation or not (Gupta, 2005).

*V.4. **LEW HUNAM***

Before sowing seeds, women perform a ritual where they erect a shrine decorated with white fowl feathers and place ginger and rice husk in a *Kukum* leaf as offerings to agricultural deities. This practice, known as *Lew*

human, is mandatory for every household cultivator as it seeks the deities' blessings for a good harvest (Rana, 2022).

V.5. ***AMJEDINAM***

After the completion of the harvest, farmers organize a feast called *Amjedinam*. This feast can be arranged by individually or jointly. On this occasion, villagers and their relatives are invited. Only newly harvested rice, wine and meat are served to the guests (Hina, 2013). These festivals and rituals are deeply rooted in the Nyishi's cultural and spiritual beliefs, reflecting their close relationship with nature

VI. CONCLUSION

The traditional agriculture practices of the Nyishis in Kra Daadi District of Arunachal Pradesh are a testament to their deeply intertwined with their cultural heritage and environmental stewardship. These practices, such as Jhum cultivation, dryland cultivation and terrace wetland cultivation, have sustained their communities for generations. However, they face limitations such as soil degradation, reduced fallow periods, and the pressures of modernization and climate change. Cultural changes, driven by modernization, education, and external influences, are significantly impacting these traditional practices. While these changes bring new opportunities and technologies, they also pose a risk to the preservation of traditional knowledge and practices. The significance of these cultural shifts lies in their potential to either enhance or undermine sustainable agricultural practices.

To address these challenges and ensure the sustainability of their agricultural practices, several steps can be taken. Such as documenting and preserving traditional knowledge is crucial for future generations. Integrating modern techniques with traditional methods can enhance productivity while maintaining ecological balance. Education and training programs for young farmers, along with government support and policies, can provide the necessary resources and incentives for sustainable farming. Community based resource management and improved market access for traditional products can empower the Nyishi's economically and socially. Investing in research and development to improve crop resilience and promoting the cultural significance of traditional practices can further strengthen their agricultural systems. By embracing these way forward strategies, the Nyishis can continue to thrive, preserving their rich agricultural heritage while adapting to contemporary challenges and opportunities. This balance between tradition and modernity is essential for the sustainable development of their agricultural practices and the overall well being of their community.

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