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TRADITIONAL AGRICULTURAL TOOLS OF THE APATANIS

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Introduction

In the rich tapestry of human history, Traditional agricultural tools and implements stand as testaments to the ingenuity, resourcefulness, and intimate connection between people and the land. For millennia, communities around the world have developed and perfected a myriad of tools tailored to their local environments, cultural practices, and agricultural needs. Traditional agriculture tools are not merely instruments of labour; they are embodiments of cultural heritage, wisdom passed down through generations, and guardians of traditional knowledge. From the intricately carved wooden ploughs of Southeast Asia to the intricately woven baskets of the Native American tribes, these tools carry the stories, values, and identities of the communities that created them. Preserving and revitalizing Traditional agricultural practices is not only a matter of cultural preservation but also a celebration of diversity and a testament to the resilience of traditional knowledge in the face of modernization.

At the heart of Traditional agriculture lays a deep reverence for the land and a commitment to sustainability that transcends generations. Traditional agriculture tools and implements are designed to work in harmony with nature, minimizing environmental impact and maximizing resource efficiency. Techniques such as agroforestry, terracing, and crop rotation, supported by Traditional tools like digging sticks, seed dibblers, and irrigation channels, promote soil fertility, water conservation, and pest management without relying on synthetic inputs or external technologies. The result is a form of agriculture that is not only productive but also

regenerative, nourishing the land and sustaining communities for centuries.

Like any other tribal community, the Apatanis has also cultivated a rich agricultural tradition that is as unique as it is sustainable. For centuries, the Apatani people have relied on a diverse array of traditional agricultural tools and implements to harness the fertile lands of their homeland and sustain their communities. One of the most unique features of the Apatani agriculture is the practice of integrated paddy cum fish cum finger millet cultivation, where rice paddies are integrated with fish and millet farming to create a symbiotic ecosystem. Traditional tools such as bamboo traps and nets are used to catch fish, while the fish waste serves as a natural fertilizer for the rice paddies, enhancing soil fertility and crop yields. This innovative approach not only ensures food security but also promotes ecological balance and resource efficiency, embodying the harmonious relationship between the Apatani farmers and their natural environment. Despite the encroachment from modernization and external influences, the Apatani people have demonstrated remarkable resilience in preserving their traditional agricultural practices and tools. The fragmented and small landholding pattern of the Apatani is another reason, the modern power machine could not have much influence, and rather the cultivators have been left with the option of using Traditional tools and implements for agriculture. Traditional tools and implements of the Apatanis are locally developed by farmers themselves and the cost of manufacturing is less due to the use of locally available raw materials. While some aspects of the *Apatani* agriculture have evolved with time, the core principles of sustainability, community cooperation, and reverence for nature remain steadfast.

Against this backdrop, the present study is an attempt to understand: (a) the various traditional agricultural tools and implements of the Apatanis. (b) Further, an attempt is

directed towards documentation of various Traditional agriculture tools and implements of the Apatanis which are on the vulnerable side due to the encroachment of mechanized tools and implements of modern day.

Rationale of the Study

In the grand narrative of agriculture, the spotlight often shines on the productivity of farmers and the bountiful harvest they bring forth. However, amidst the celebration of agricultural achievements, there exists a silent, often overlooked cohort of unsung heroes – the tools and implements that enable farmers to cultivate the land, sow the seeds of progress, and reap the rewards of their labour.

In many agricultural societies, traditional tools have been used for generations, passed down from ancestors who relied on them for their livelihoods. From hand ploughs and sickles to power tillers and threshing machines, these tools have played a pivotal role in shaping agricultural practices and sustaining communities. Yet, as modern farming techniques and machinery become more prevalent, there's a tendency to overlook the significance of these traditional implements. The cultural and historical significance of agricultural tools cannot be overstated. These tools often carry deep symbolic meaning, representing the connection between humanity and the land, the resilience of rural communities, and the wisdom passed down through generations. Preserving and honouring these traditions is essential for maintaining cultural identity and fostering a sense of pride in agricultural heritage.

Objectives of the Study

The main objectives of the present study are:

1. To understand the Traditional agricultural tools and implements of the Apatanis.
2. To document important and day-to-day use of agriculture tools and implements of the Apatanis.

Methodology

The Ziro valley consists of eight major villages viz. Hari, Bulla, Tajang, Hija, Dutta, Mudang-Tage, Bamin-Michi, and Hong. The traditional agricultural tools and implements of the Apatanis are common for both men and women and all eight major villages of the Ziro valley practices similar patterns of integrated paddy, fish and finger millet cultivation and the tools and implements used are also common in all the eight major villages. Hence, for the present study Lempia Village, an extended village of Tajang has been purposively selected on account of the existence and availability of traditional agriculture tools and implements. The present study is based on an empirical survey with a collection of data. Both primary and secondary data were used for the present study. The Participatory Rural Appraisal (PRA) and focus group discussion was adopted to identify and gather descriptions of the traditional agricultural tools and implements prevalent within the Apatani community. The key informants were the marginal and small women farmers of Lempia Village.

Limitation of the Study

The understanding of traditional agricultural tools requires in-depth research and involvement in agricultural activities. Though, the present study on the traditional agricultural tools of the Apatani is a humble attempt to document some of the existing traditional agricultural tools. However, it has its limitations. The study does not cover the tools and implements used in post-harvesting sessions. Hence, future research can be undertaken on the excluded part of agricultural tools and implements.

History of Agriculture Tools and Implements

The history of agricultural tools and implements is a testament to human ingenuity and innovation, evolving from simple implements to sophisticated machinery. Throughout human history, traditional agricultural tools

have been instrumental in shaping the way society cultivates the land, produces food, and sustains itself. The history of agricultural tools began over 12 thousand years ago with the Neolithic revolution. As hunter-gatherer societies transitioned to settle farming communities, they developed simple tools to till the soil, plant seeds, and harvest crops. Stone implements like axes and digging sticks were early precursors to more specialized farming tools. With the rise of ancient civilizations like Mesopotamia, Egypt, and the Indus Valley, agriculture tools became more sophisticated. Gradually, with the dawn of the medieval and modern era, agricultural tools continued to evolve, spurred by technological advancement.

The mythological history of the Apatani has references to the use of agricultural tools called *Tiigyo Elyo* (First batch of Machete*)* and *Turu Dipe* (First batch of Spade) by *Anii Donii* and *Aaba Liibo.* It is believed that *Anii Donii* and Aaba *Liibo* were the earliest humans who started settling life and cultivation (Kumar, 2021). Mythologically, it is also believed that *Abo Loma*, the son of *Abotani* (earliest ancestor of the Apatani) and *Donyi Yayi*, was blessed with the arts of *Sha Loma* (the art of making priestly swords), *Maku Loma* (the art of making bells), *Hiri Loma* (the art of making metallic work) and *Sañku Loma* (the art of making beads) (Perme, 2021). Most of the agriculture tools and implements are made out of locally available resources like Bamboo and Wood among the Apatanis. Some locally available metal tools were also used. These metal tools are believed to be the product of *Abo Loma*. It is generally believed that the existing metal tools and implements available to the Apatanis are the replica tools of *Abo Loma.*

Result and Discussion

The Traditional tools and implements are dominant over the modern equipment in all agriculture-related farming in Apatani farming style. Human power is the

main source of labor and therefore, most of the agricultural works are dependent on man power. The use of Animals and machines for agriculture-related activity is still lagging. Hence, the use of traditional tools and implements for agriculture still occupies a paramount position amongst the Apatanis.

The day to day used traditional tools and implements for agriculture in the Apatanis are discussed below: -

1. ***Dipe* (Spade)**

   The origin of *Dipe* dates back to *Iipyo supuñ*, where *Aaba Liibo* used *Turu Dipe* for the first landscaping of the agricultural field. *Dipe* is primarily used for tilling, digging and landscaping of the agricultural land. This is mainly done for the placement of seeds and plants to grow. *Dipe* in the Apatani agricultural activities are used for multiple purposes right from pre-sowing to post-harvesting time. In the pre-sowing period, *Dipe* is used for digging of land particularly for *Aji Agger Pagger* (Mending of earthen dykes in agricultural field), clearing of weeds from *Aji Agger* (dykes of Agriculture field), tilling of land, levelling of land, landscaping of the agricultural field, etc. *Dipe* is also used as moving material such as soil and collection of weeds from one place to another. There are different types of *Dipe* designed for specific tasks. For example, a square/ rectangular shape *Dipe* is great for preparing *Aji Pakho/Hetey* (Trenches within the agricultural field) and for weeding of dykes before millet saplings are planted. The regular design *Dipe* is used for general digging and levelling of land.

   Like any other tools, *Dipe* requires maintenance to keep them in good working condition. The maintenance is normally done by the local blacksmith like sharpening and mending of the broken part, etc. The handle which is made of

Bamboo or wood is locally fixed by the farmers themselves.

Figure 1: Rectangular s Dipe

Figure 2: Dipe

2. *Elyo* (Machete/ Grass Slasher)

Elyo is a very versatile tool commonly used for clearing vegetation, particularly when a jungle is to be transformed into a new agricultural field. It is excellent for cutting through dense vegetation, such as tall grass, bush, and small branches. It is often used to clear fields, pathways and overgrown areas. It is believed that in *lipyo supuñ, Aaba Liibo* and *Anii Donii* used *Tiigo Elyo* for clearing the jungle where they first started their farming. *Elyo* is normally used as a pruning tool for trees and plants, particularly in situations where precision is not much required like in *Bije-Sansuñ* (Bamboo grove), *Saadi* (Grove), *Morey* (Jungle), etc.

The Apatanis normally believed that the earliest ironworks were started by *Abo Loma*, and most of the existing old *Elyo* like *Chiri Elyo* (Striped Machete) is the product of *Abo Loma.* There are different types of *Elyo* as per the nature of work, like *Chiri Elyo* (Striped Machete) for ritual purposes, and *Giiming Elyo* (Normal Machete) for normal day-to-day work. The cutting area of *Elyo* is made of good quality iron and the handle is generally made of wood and sometimes with good quality bamboo and the cover of the *Elyo* called *Hubyu* is also made of Bamboo and cane.

Figure 3: Giiming Elyo

Figure 4: Chiri Elyo

3. *Danii* (Wooden Mace)

Danii is typically a wooden club with a heavy head that is normally used for construction purposes. In the agriculture field, it is used for the construction of boundary fences, for tightening of soil while constructing agricultural dykes *(Aji Ager)* and also for adding bamboo retaining fences *(Myode)* in dykes *(Aji Ager).*

Figure 5: Danii

Figure 6: Hiita

4. *Hiita* (Land Levelling/Trenches Lining tools)

Hiita is a wooden land levelling tool that has been used for centuries in agricultural work to smooth out the soil surface of paddy nurseries *(Midiñ)* before seeding of the paddy. *Hiita* is also used as a lining tool for making trenches *(Pakho/Hetey)* in paddy fields and for breaking soil blocks in agricultural fields. *Hiita* is normally made of locally available wood; it is 4 to 5 feet long with a flat shape head and round safe handle.

5. *Kele* (Weeding Tools)

Kele is a small handmade weeding tool primarily used in the *Apatani* agricultural system. It is similar to a *Khurpi* or a Trowel. Its small size makes it convenient for working in tight spaces and around delicate plants like paddy. *Kele* is normally made of bamboo with a rounded sharp head for easy removal of weeds. At present many farmers are using iron *Kele* in place of bamboo considering the durability of its body and sharpness.

Figure 7: Bamboo Kele

Figure 8: Iron Kele

6. *Palii* (Weeding Tools)

The *Palii* is a weeding tool popularly used in the Apatani Agricultural field. The use of *Palii* has a long history in the Apatani mythology since the time of *Abotani and Tinii Rungya. Palii* is a rounded head with a sharp blade on both sides and it has cross legs for easy holding. In the earlier period, *Palii* used to be made of bamboo but with the introduction of metal in the Apatani valley, people started making *Palii* out of mild steel or aluminium plain sheet. *Palii* is mainly used in millet gardens and vegetable gardens for clearing weeds. It is also used for clearing weeds from the dykes of paddy fields after millet is grown. Its small size makes it convenient for working in tight spaces and around delicate plants like millet and vegetables.

Figure 9: Palii

Figure 10: Modified Palii

7. ***Sampya* (Transportation Tool)**
Sampya is a wooden transportation tool, used particularly for transporting soil from an elevated area to a lower area within the agricultural field to make the field even in terms of elevation. It is also used to transport the collection of weeds from one place to another within the same field. *Sampya* is also used during the transplantation of paddy saplings for transporting of saplings. It is a flat and oval-shaped wooden flank with a rope tied in the front for pulling purposes.

Figure 11: Sampya

8. ***Kedu* (Small Hand Dibbler)***Kedu* (Hand Dibbler) is a small hand tool used in paddy fields to make holes in soil for planting paddy saplings. It is especially handy for precise spacing and depth when planting. To use it, simply push it into the soil at the desired location, create a hole then drop the paddy sapling in it. It is a useful tool for paddy plantations ensuring proper spacing and planting depth for the crops. *Kedu* is made of wood with a rounded sharp head for easy dibbling of hard soil.

Figure 12 & 13: Kedu

9. *Damii* (Hand Dibbler)

Damii is a traditional long-hand dibbler used by the Apatanis. It is used for making holes in the soil for planting seeds, seedlings, or bulbs. Compared to *Kedu, Damii* is longer and wider in size. It measures around 5 to 6 feet in height. *Damii* is normally used for planting millet saplings in agriculture dykes, maize in gardens and other cereals like beans, peas, lentils, etc. whereas *Kedu* is normally used for plating paddy saplings in the hard soil of the paddy field. *Damii* is an eco-friendly, low-tech wooden hand tool and has been passed down through generations, connecting people with land and their cultural heritage.

Figure 14: Damii

10. *Piiha* (Cane and Bamboo Basket)

Piiha is another essential carrying agriculture tool of the Apatanis. *Piiha* unlike *Yagii* (basket), is carried in hands. *Piiha* is also segregated into two i.e. *Aji Piiha* and *Tassing Piiha. Aji Piiha* is normally

used for carrying essential commodities like eatables in the agricultural field. Besides, it is used as a tool for carrying vegetables from the garden, planting saplings like millet and paddy, etc. *Aji Piiha* is generally used during pre-harvesting and post-harvesting periods in paddy and millet fields. In the vegetable garden, *Aji Piiha* is normally used throughout the session.

Apart from *Aji Piiha, Tassing Piiha* is used for carrying small eatable aquatic animals and insects like fish, tadpoles, dragonfly nymphs, etc. The *Tassing Piiha* is generally carried in the waist of women while clearing weeds from the paddy field during the pre-harvesting period when small aquatic insects are available in the paddy field. *Tassing Piiha* is purely used for carrying small aquatic insects which are consumable.

Figure 15: Aji Piiha

Figure 16: Tasing Piiha

11. *Tagi* (Sickle): *Tagi Nyatu* is one of the most popular traditional agricultural tools of the Apatanis. *Tagi Nyatu* curved shape ('C' shaped) blade with a short handle, making it effective for harvesting small areas and for precision cutting. *Tagi Nyatu* is primarily used for harvesting crops like paddy and

millet. It is also used for cutting the stem of millets *(Sarse Sarkho)* while preparing *Piyu* (Local Salt).

Figure 17: Tagi

12. *Yagii* (Bamboo or Cane Basket/Carrier)

Yagii has been an essential carrying tool in agriculture for centuries. They are used for harvesting fruits, vegetables, and grains as well as for transporting and storing crops. In Apatani community, *Yagii* is normally made of cane and bamboo, and it is useful not only for agricultural purposes but also for carrying firewood and for other day-to-day carriage. Hence, *Yagii* is still preferred over modern carriers or containers for their simplicity, flexibility and eco-friendliness. The Apatani has many types of *Yagii* used for agricultural purposes according to its size and texture. Some of the notable *Yagii* used by the Apatanis are given below: -

***A. Raaju* (Cane Basket):** *Raaju* is a loosely knitted basket made of cane. It is generally used for carrying various agricultural commodities and it is also used for carrying firewood. In the agriculture field *Raaju* is normally used for transporting plant saplings from nursery to field, it is also used for carrying weeds and soil from one place to another. In agriculture, *Raaju* is

generally used during pre-harvesting time, during clearance of weeds, construction of dykes, construction of tranches, etc. During harvesting time, *Raaju* is generally not used.

Figure 18: Raju

***B. Giida Yagii* (Threshing Basket):** *Giida Yagii* is one of the most important *Yagii* of the Apatanis during the harvesting of paddy and millets. It is in the *Giida Yagii* where paddy is threshed and carried up to the granary. The texture of almost all baskets used during harvesting sessions is similar, only different in terms of its size. *Giida Yagii* is the biggest among all *Yagii.*

Figure 19: Giida Yagii

C. ***Pai-Pacha Yagii* (Medium Size Basket):** *Pai-Pacha Yagii* is a medium sized *Yagii*, normally used during harvesting time. It is smaller than *Giida Yagii* and bigger than other *Yagii.* This very feature of *Pai-Pacha Yagii* has made it convenient and mostly used baskets in the Apatani agricultural activities for it can be substituted in place of *Giida Yagii* and other *Entii Yagii* in their absence.

Figure 20: Pai- Pacha Yagii

D. ***Entii Yagii (Carrying Basket):*** *Entii Yagii* is one of the most commonly used *Yagii* during harvesting sessions due to its handy size. Normally, *Entii Yagii* is smaller in comparison to *Giida Yagii* and *Pai-Pacha Yagii.* It is mainly used for carrying paddy grain and millet.

E. ***Gintu Yagii (Small Cane Basket):*** *Gintu Yagii* is the smallest of all harvesting *Yagii. Gintu Yagii* is normally used for carrying harvested paddy grain and millet by young children and old people as they are not strong enough to carry heavy weight.

Apart from the above-mentioned *Yagii,* the Apatani community has different other *Yagii* like *Baming Baju* which is normally used in normal times during marketing for carrying commodities and also there are ceremonial *Yagii* like *Pachu Yagii, Taki-Eli Bananii Yagii,* etc.

Figure 21: Gintu Yagii

***F. Entii Pata* (Thresher Flank)** *Entii Pata* is one of the vital tools in agricultural activities for separating grains from the plant stalks and husks. *Entii Pata* is a traditional wooden thresher used by the Apatanis for ages. Typically, *Entii Pata* is made of wooden plank and it is tied in *Giida Yagii* during the time of harvesting. The paddy grain is separated from the plant stalks by a beating mechanism. Normally, during harvesting sessions, women cut the paddy with a sickle and passed it to men to separate grains from the husks. It is men who beat the stalk in *Entii Pata* and separate grains from husk.

Figure 22 & 23: Giida yagii with Entii Pata tied on it

1. *Yatii* (Rain shade/guard)

In the Apatani agricultural practices; *Yatii* plays a very important role as rain shade to farmers. *Yatii* is not only useful for protection against rain but also from chilling winds. *Yatii* is typically made of bamboo, cane and locally available leaves and it is normally lightweight and provides good coverage to keep the farmer dry during rainfall. However, considering the flexibility and portability, people are giving more preference to flexible plastic sheets, raincoats and modern umbrellas.

Figure 24 & 25: Yatii

Conclusion

The study on the traditional agricultural tools of the Apatani community reveals a remarkable continuity of evolution within their farming practices. Despite the absence of mechanization, the Apatanis have demonstrated ingenuity by adapting their traditional tools to modern needs. The shift from bamboo and wooden tools to more durable metal version illustrates a blend of tradition and innovation aimed at enhancing efficiency and longevity. This adaptive strategy not only preserves their cultural heritage but also ensures sustainable agricultural practices that are well suited to their environmental context. The study highlights the significant understanding of agricultural tools used by Apatanis in agricultural practices by documenting these traditionally used and rich tools, as they offer significant lessons in sustainability and cultural preservation. By valuing and supporting such indigenous knowledge, we can gain deeper appreciation for diverse agricultural practices and their roles in fostering environment and cultural resilience.

Note: This article is primarily based on data collection along with other secondary sources. Mrs. Tage Hassang Tunku, Mrs. Mihin Tatung Puyang, Mrs. Tage Nama Ripa, Mrs. Mihin Yam Dulley, Mr. Rubu Tagia, Mr. Taku Sira and Ms. Mihin kojing Ampi had been my primary informants.

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