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## **Bamboo flowering and its impact on the Adis of Upper Siang District of Arunachal Pradesh, India**

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### **Abstract**

Bamboo flowering is always associated with rise of rodent population and ultimately famine. Bamboo flowering not only causes famine, it also deprive people from getting bamboo raw materials for daily use as well as for commercial purpose. The present paper is an attempt to highlight the impact of bamboo flowering on the Adis (a tribe of Arunachal Pradesh), of Upper Siang district, Arunachal Pradesh, India. It focuses on the impact of bamboo flowering and how the local people are dealing with this problems. It also highlights the consequences of bamboo flowering.

**Key words:** bamboo flowering, environmental hazards, famine, rodents, talam-lamnam.

### **Introduction**

Flowering of bamboos are yet to be fully understood. Nearly all species of bamboos seem to have life history of their own and most of them flower once in their lifetime. After flowering, only few regenerate from the seeds. Unlike other plant, flowering can be considered as one of the most distinct characteristics of bamboo. Bamboos have considerably long flowering of seedling cycle and it is impossible to predict exactly when flowering is likely to occur. Dr. R.S. Tripathi, fellow national academy of science and professor, North East Hill University and his student Dr. S. Trivedi carried out indepth study on bamboo flowering in Mizoram and reported that bamboo flower in a cyclic manner. (A.C. Ghosh, 1980). In his study, Ghosh found out two cycles of bamboo flowering. The first cycle of bamboo flower is associated with the flowering of *melocanna* which is known as 'Mantam'. The second flowering cycle is associated with the flowering of *Bambusa tulla* and *Sendrocalamus longes natus* and the period of this flowering is known locally a 'Thingtam'. Both these categories have been found to occur the regular intervals of roughly 47-50 years. The gap between a Thingtam and Mantam is 30 years while that between Mautam and the Thingtam is 18 years.

Some researcher identified three types of bamboo flowering on the basis of characteristic of their flowering; those are: which flowers annually and do not die; those which flower gregariously and periodically in cycles of 25-60 years or more, but die as a whole clump after ripening of seeds and those which flower sporadically but die only in few clumps in a locality after flowering and after ripening of seeds. The present study is an attempt to understand bamboo flowering, its effect and how the local people i.e. Adis of Upper Siang district of Arunachal Pradesh, India dealt with these problems.

Arunachal Pradesh is the biggest state in terms of area in the north eastern region of India and is called as 'the land of rising sun'. The state has sixteen administrative districts. There are almost twenty-six (26) major racial groups of indo-mongoloid origin. Each of these groups has distinctive culture, customs, languages, and traditions of their own, which they have manifested through different socio-cultural, religious and political events. The major inhabitants of the state are the Adi, the Apatani, the Bugun, the Galo, the Nyishi, the Tagin, the Hillmiri, the Monpa, the Memba, the Khamba, the Sherdukpen, the Nocte, the Wancho, the Mishmi, etc.

## **The Adis**

The Adis, one of the major tribe of Arunachal Pradesh live mostly in Upper Siang, East Siang, Lower Dibang Valley and a part of West Siang Districts of Arunachal Pradesh. They claim themselves as descendent from Abo Tani their mythical ancestor. Thus they form in-group entitled Tani group comprises of Adi, Galong, Nishi, Apatani, Tagin and Mising). Traditionally they are believers in Donyi-polo faith and propitiate a number of gods, goddesses in their socio-religious life. They speak in different languages and have variations of customs, practices, rituals and festivals of their own. All these tribal people have also distinctive culture handed down from their ancestors. They are all belonging into Indo-Mongoloid racial stocks. Every tribal group is also maintaining their ethnic identity with separate genealogy. They have possessed vast oral literature of their own continuing generation after generation since time immemorial.

There are many groups which form the tribe Adi like Pasi, Padam, Minyong, Komkar, Karko, Shimong, Milang, Pangti etc. The Padams are one of the major groups of people forming the tribe Adi. They are concentrated in Maryang circle of Upper Siang district, Mebo circle of East Siang district and Roing sub-division of Lower Dibang Valley district. Krick stated the "the Padams stand between Mongoloid and Caucasian races. They are beardless, hair and eyes are black, the skin is brown. The forehead is flat, the face is broad, the nose is short, and the cheekbones are somewhat prominent and moderate stature. (Roy: 1960). The Padam community is divided into number of exogamous clans and sub-clans. All members of the sub-clan consider themselves brothers and sisters, thus making sub-clan endogamy a taboo. Clan bondage is very strong in Padam society in time of distress and hardship clan members extent help each other. The smallest unit of the Padam society is the family, consisting of father, mother and their children. Mixed extended families are also common. Descents are traced through male members. Sons inherit the properties. However, the daughters also get part of movable property like beads, agricultural implements etc. from her parents. Monogamy is the general rule of marriage.

Damro village which is situated in the hilly terrains of Upper Siang districts, under Maryang circle is the oldest and the biggest village of the Padams in terms of numbers of households and population. It is surrounded by hills and mountains in all the sides.

## **Methodology**

For the present study, the researcher will used both primary and secondary data. For the collection of primary data, the researcher have conducted extensive field study. In addition, for collection of data, researcher used conventional anthropological methods, such as, interview, observation, case study etc. Informants were selected from both the sexes and from various age groups. Researcher also used audio-visual tools like camera, tape recorder etc. to facilitate extensive documentation process which is the key component of the study.

## **Discussion**

According to the capacity of flowering, there are two types of bamboo flowering. They are sporadic and gregarious flowering. When all bamboo clumps flowers simultaneously in a vast area, it is known as gregarious flowering. And when few clumps flower in a locality flowers it is known as sporadic flowering. Bamboo basically exhibit three pattern of flowering as follows.

1. **clump flowering**:- when bamboo reached the flowering stage, flower buds are initiated instead of vegetative bud. Every culms in a clump flowers.

2. **culms flowering**:- in sympodial bamboos, there are some species which take more than a year to complete flowering. During the flowering period, it is observed that some culms continued to grow vegetative while others flower and die. Thus, the culms that do not flower in the first year did so in the following year or two years later. However, the whole clump will die after every culm has flowered.

3. **Continuous flowering**:- in general bamboo after flowering however there are some species which use to flower within the clump. Species which exhibit this flowering pattern seems to grow continuously and do not die after flowering.

Bamboo flowering was a sign of doom and starvation in olden days. Bamboo flowering is of tow types:- gregarious flowering and sporadic flowering. Different species has its own different time of flowering. But in general bamboo flowers between 25 to 40 years. In sporadic flowering, flowering occurs in scattered pattern. Different culms flowers differently but in case of gregarious flowering whole bamboo of same species of bamboo use to flower. Researchers had found out that bamboo flowering and famine are closely related to each other. According to their study gregarious flowering of bamboo start in September to October. Immediately after the rainy season, bamboos start shedding seed in December. By January, there is a thin layer of seeds on the forest floor below the bamboo stand. The seed shed attracts seeds predation mostly rats. By the end of summer month, there are enough seeds on the forest floor and large number of rat relishing on the abundant food supply. With the onset of the rainy season bamboo seeds germinate in a few days. Now, instead of a layer of bamboo seeds there are a lush green carpet of bamboo seedlings. All of a sudden, there is no food for the seed predators, but sufficient food for herbivores. In places of large bamboo forests, there are plenty of foods to consume but thousands of rats and birds finished eating bamboo seeds thus it led them to a war like situation for food. Total absence of food forces millions of rats out of the bamboo forests they land in farms in the vicinity, play havoc in the standing crops, and devour the granaries. Thus bringing about famine as an aftermath of bamboo flowering.

#### **Bamboo flowering and environmental hazards:**

When bamboo flowers, it dies and famine follows, a phenomenon that coincides with the rise of rodent population and food scarcity. In other words bamboo begins to flower and grow seeds, the population of rats will go up. The rat will first start consuming the falling seeds of the bamboo and once the seeds are exhausted the rat will proceeds to the cultivation fields and granaries, and start consuming the food grains. Thus there will be massive shortage of food grains.

Another critical aspects of bamboo flowering is the decay and degeneration of the large bamboo stock, which will directly affect the rural communities. For the tribal communities especially in the hilly region bamboo is the life supporting gift of nature. Bamboos play an irreplaceable role in their lives. Bamboos are used for house construction in almost all the community of the world. Apart from house construction, bamboo provides critical support to make tools required for a whole range of things such as making baskets, mats that help them improve their economic condition and material culture.

Bamboos are defined by the people as 'plant that have a hollow space stem with internodes, which flower once in their lifetime. Bamboo flowering after long intervals has been recognized. It is the life cycle of the bamboo, which is a natural phenomena or unique biological phenomena. The Adis (Padam) '*Talam-lamnam*'. There is a belief among the people that those who are lucky person only witness bamboo flowering in their lifetime especially the bamboo called by the people

as '*dibang*' (*Bambusa tulda*) as according to the people it sometimes takes two or more generations for flowering of this species. But in case of bamboo species known as '*epoh*' the time of flowering varies. According to the information given by the people, some *epoh* takes 2-3 years to flower but sometime it takes even 2-3 generations to flowered.

People said that no one can predict about any particular bamboo that when it is going to flower. There is no any exact time of bamboo flowering. Nevertheless, usually bamboo flowered in the winter season. Among the various bamboo species found in the studied area, *eyom* and *epoh* flowered frequently but according to the people, only one species flowered at a time it is not necessary that all the bamboo of the same species flowered. As for example, if *tagil* species flower only *tagil* will bear flower but not all the species of the area. It means that there is a particular time for a particular species of bamboo to be flowered.

Bamboo flowering never occurs regularly. There are many people who never witness bamboo flowering in their lifetime especially the above mention species i.e. *dibang*.

People considered bamboo flowering as the predictor or indicator of famine. When bamboo flowered, it bears seeds, which become one of the most favourite foods for birds and rodents. Local people perceived that eating bamboo seeds increase the fertility of the rodents and therefore numbers of rodents and birds increases rapidly. First these animals ate the bamboo seeds from far off places, when food became shortage for the army of rats and birds, they marched towards the cultivated field, even in the settlement areas where these animals attacked the crops and other properties in a huge quantity ultimately result in famine.

To handle such types of problem, local people only fixed local made traps locally called *etku*, *eda*, *songkit*, *oknyo* etc. to catch the seed predator, as people enjoy the meat of birds and animals they consumed all the animals that they killed with their traps. Moreover, according to the people, animals and birds are very fatty as they eat bamboo flowered in abundance making their meat tastier than other time.

### **Effect of Bamboo flowering**

Following points are the major effect of bamboo flowering as told by the local people.

1. Deprivation of bamboo resources during and after flowering
2. It deprived people from getting bamboo shoots which is one of the most important eatable item of the people
3. It can cause forest fire as bamboo grooves died after flowering and if somebody lit a fire in the jungle, it will catch fire easily
4. It leads to increase of rat population that ultimately results in famine
5. It may also cause soil erosion as the roots of the bamboo that binds the soil together dried up and loosen the soil especially in the hilly areas.
6. Scarcity of bamboo raw materials for domestic and commercial use for some consecutive years.

## Conclusions

From the above discussion, it is cleared that bamboo is one of the most important part for the people in their daily life. From bamboo they built houses, granaries, they make various baskets and household utensils, they also get eatable item like fermented bamboo shoot of various types locally called ikung, itiing and ip. But due to bamboo flowering people are to some extent deprive of these things, however, people do not remember gregarious flowering of bamboo, they have heard of it like a story, except a bamboo species called epoh which undergo very early flowering period.

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