

Bamboo Resources and Its Utilization in Nagaland

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Abstract

Nagaland is located on the extreme North Eastern corner of India endowed with enormous variety of bio-resources. It lies in one of the bio-diversity Hot Spot region of the world. Of all the bio-resources bamboo is one of the most important resources as it has been a part and partial of the social, economic structure and a source of livelihood for the Nagas from time immemorial. The study will attempt to explore the abundant species of bamboo, its utility for various purposes, and the step taken by the people for its conservation and management. The state is deficient in construction materials like those of iron rod, bricks, cement, so the people had made use of this available bio-resource for different types of constructions. It is also used as an edible item which is said to have the ability to enhance the taste of the food item to which it is added. As defined by Prof E.W. Zimmerman about resources- which goes as "Resource does not refer to a thing or a substance but to a function which a thing or a substance may perform or to an operation in which it may take part, attaining a given end such as satisfying a want", bamboo is rightly a resource for the Nagas.

Keywords: *Resource, bamboo, bamboo products, conservation.*

Introduction

The state of Nagaland lies between 25°6' to 27°4' N Latitude and between 93°20' to 95°15' E Longitudes covering an area of 16579 Sq.km. It is bounded by the state of Assam in the north and west, Myanmar and Arunachal Pradesh in the east and Manipur in the south. The topography comprises of hill ranges ranging from 194 metres to 3840 metres above the sea level. Many villages and towns stand at 1000 to 2000 m high as it is a hilly state and most importantly the Nagas built their houses on top of the hills because of security reason from the enemies during the earlier days when head hunting was practiced.

The highest peak is Mt. Saramati measuring 3840m and the plain area is limited only to Dimapur, Jalukie and the adjoining area with the plain of

Assam valley. According to 2011 (census) the population of Nagaland is 1980602 with a density of 119 person sq.km⁻¹. It has eleven (11) administrative district inhabited by 17 major tribes along with other sub tribes. About 82.26% of the population is rural. The state enjoys a sub tropical climate with summer mean maximum temperature ranging from 16°C to 31°C and winter mean maximum temperature of 4°C to 24°C. It receives rainfall at an average of 2000 to 2500 mm that occurs during monsoon season from mid June to Sept.

There are more than 1200 species of 50 genera of Bambusoideae in the world, mainly distributed in tropical and subtropical areas (Qisheng *et al.*). India has the largest area under bamboo in the world estimated around 11.36 million hectares. India has 136 species of bamboo across

22 Genera. According to FAO, total area under bamboo cultivation is 11,361 hectares as on 2005. Bamboo is the fastest growing woody plant in the world and has been critical for the survival of mankind for centuries. Tribal communities of the region use this potential resource for food, shelter, furniture, handicraft, medicines and various ethno-religious purposes (Marden and Brandenburg 1980; Tewari 1992). This resource has also been considered valuable for agroforestry owing to its short gestation period and recurring return (Bhatt *et al.* 2001). There are about 1500 species of bamboo worldwide. Bamboo can be grown on diverse climates from temperate to tropical regions. About 40 million hectares of the earth are covered with bamboo, mostly in Asia. Soon after shoot

emergence, the new cane reaches its full height in just 8-10 weeks. Each cane reaches maturity in 3-5 years. Bamboo can be repeatedly re-harvested with no harm to the surrounding environment. It regenerates after being cut without the need for replanting. It is a sustainable and efficient crop. Bamboo helps in reducing CO₂ and generates upto 35% more oxygen than equivalent stands of trees thus helping in reducing global warming which is a major issue in our present day. Water-use efficiency of bamboo is twice that of other trees. These makes bamboo more able to handle harsh weather conditions such as drought, flood and high temperatures. These facts make bamboo a sustainable and versatile resource.

Table 1 : Bamboo bearing areas in the state

Sl.No.	DISTRICT	BAMBOO BEARING AREAS
1.	Mokokchung	(a) Japu- Changdang- Lirmen Block (b) Changtongya-Asangma-Merangkong-Yimchenkimong Block (c) Molungyimsen Block (d) Kangtsung-Wamaken Block
2.	Wokha	(a) Bhandari- Merapani Block (b) Yamparasa Block
3.	Longleng	(a) Namsang Block
4.	Mon	(a) Jaboka Block (b) Lapa- Wangla Block (c) Naginimora- Hodohadi Block
5.	Dimapur	(a) Seithekiema- Chumukedima Block (b) Razaphiema- New Chumukedima Block (c) Nieuland- Khuboto Block
6.	Peren	(a) Ntu- Tening Block (b) Ngwalwa- Heningkunglwa- Jalukie Block (c) Besumpui-Khelma Block

Source: Department of Environment, Forests & Climate Change, Government of Nagaland: Annual Administrative Report 2014-2015.

Material and Methods

The study was done as an investigative study in Nagaland by visiting various sites and agencies dealing with bamboo utilization. It is descriptive in nature. Data consist of both primary and secondary information. Details were obtained after thorough discussions and observations with various groups of people dealing with the use of bamboo.

Findings

Forest cover in the State based on

interpretation of satellite data of November 2010 to February 2011 is 13044 sq.km which is 78.68% of the State geographical area. In terms of forest canopy density classes, the State has 1298 sq.km area under very dense forest, 4736 sq.km area under moderately dense forest and 7010 sq.km area under open forest. (India- State of the Forest Report, 2013)

Bamboo resources: The extent of bamboo bearing area in the forest of the State is 4902 sq.km. (India- State of the Forest Report, 2011).

Table 2: Bamboo bearing area by density in recorded forest area (area in sq.km)

Recorded forest area	Pure bamboo	Dense bamboo	Scattered bamboo	Clumps hacked	Bamboo regeneration
9222	101	3064	1644	65	28

Source: India- State of the Forest Report, 2011

The utility of bamboo resource for the Nagas is indispensable. It is used as construction materials in many ways. Table 3 shows some of the species of bamboo common in Nagaland and the purpose for which it is used. Some species are used as a whole in the form of pillar as well as support in the roof and ceiling where there is scarcity of wood. Some species are used for binding purpose which can be produce when the bamboo is around one and a half year old, the young bamboo is splitted into small pieces and made into binding material. It can be preserved for many years when kept near the fire place in the kitchen. During the olden times in the absence of steel and aluminium utensils and plastic and synthetic materials, the product of bamboo was used, the people depended on bamboo for making baskets in different form, shape, size and as storage material, making of mat etc. Some species are used for making wall and ceiling material where the bamboo is cut open into half and splitted which then are weaved together depending on the requirement of the building. Some species were used for carrying and storing water as well as for making channel from the roof to collect water during rainy season. At recent times modern machinery is used to produce decorated

item like chair, benches, mug, kitchen articles etc. The abundance of this bamboo resource in the state has encouraged the government to set up a paper mill at Tuli in Mokokchung district which was defunct and is now in the process of reviving the production. Bamboo charcoal is another very important product which is used for various purposes. Another important aspect relating to the utility of bamboo is that the shoot is used as a delicacy by the Nagas. It can be used as a fresh food item or preserved by grinding it and separate the juice which is also used for adding flavour in the preparation of food. The solid produce is kept in container which is also used as a taste maker in different curry. It is also dried in the sun which can be preserved and use for a longer period without getting spoilt. A significant population of the state is dependent for their livelihood on the handicrafts made from bamboo.

Bamboo resource has been fabricated into the life of the Nagas so much so that from the stories narrated by the grand old man, they had the concept of conserving this very important plant that the bamboo shoot which is a delicacy and a very important food item for the Nagas, they were told not to collect from those groove/clump which were

near or in and around the village and if they consume those shoot from the nearby area it was said that the people will lose their hearing ability. This was very strongly passed on to the younger generations that it became a taboo for the Nagas, the philosophy behind this was that when the shoots are preserved in and around the village, the bamboo

groove/clump will increase which can be used during times of need for the villagers.

46 species of bamboo are known to exist in Nagaland. So far, scientifically managed bamboo plantation cover an area of 13,982 hectares (NBDA, 2009).

Table 3: Some of the species of bamboo common in Nagaland and the purposes for which it is used

Sl. No	Species	Uses
1	<i>Bambusa tulda</i>	Construction, industrial use, handicraft, shoot, pulp
2	<i>Bambusa balcooa</i>	Construction, pulp, implement, fodder
3	<i>Dendrocalamus hamiltonii</i>	Handicraft, shoot
4	<i>Dendrocalamus giganteus</i>	Construction, shoot
5	<i>Dendrocalamus latiflorus</i>	Construction, shoot
6	<i>Schyzostachyum dullooa</i>	Weaving, mat making, shoot

Source: Nagaland Bamboo Development Agency (NBDA), 2009

Some identified bamboos of Nagaland:

1. *Bambusa tulda*
2. *Bambusa alemtemsii*
3. *Bambusa balcooa*
4. *Bambusa cacharensis*
5. *Bambusa jaintiana*
6. *Bambusa multiplex*
7. *Bambusa multiplex riveonurum*
8. *Bambusa nagalandiana*
9. *Bambusa nutans*
10. *Bambusa pallida*
11. *Bambusa vulgaris*
12. *Bambusa vulgaris straita*
13. *Bambusa vulgaris wamin*
14. *Cephalostachyum longwanum*
15. *Chimonobambusa callosa*
16. *Dendrocalamus hamiltonii*
17. *Dendrocalamus giganteus*
18. *Dendrocalamus latiflorus*
19. *Dendrocalamus hookerii*
20. *Dendrocalamus patellaris*
21. *Dendrocalamus sikkimensis*
22. *Dendrocalamus strictus*
23. *Melocana baccifera*
24. *Neomicrocalamus androponofolius*
25. *Neomicrocalamus manii*
26. *Phylostachys manii*
27. *Schizostachyum polymorphum*
28. *Schizostachyum dullooa*
29. *Schizostachyum munroi*
30. *Schizostachyum capitatum*
31. *Schizostachyum fuschianum*
32. *Schizostachyum palladium*
33. *Sinarundanaria prainii*
34. *Sinarundanaria elegans*
35. *Sinarundanaria graffithiana*
36. *Sinarundanaria hirsuta*
37. *Sinarundanaria nagalandiana*
38. *Sinarundanaria roloana*
39. *Thyrsostachys oliveri*

Conclusion

Bamboo is one of the most important resources of Nagaland. Its abundance and multiple uses have led bamboo to play a pivotal role in the socio-economic and cultural life of the people of Nagaland. It has been a source of livelihood for the people that are used in a number of ways as food, plates and cups, construction of house for shelter, bridges, handicrafts, incense sticks, blinds, toothpicks, agricultural implements, fishing equipment, charcoal, musical instruments, toys, weapons, fencing, scaffolding, bamboo mats, weaving implements etc. Bamboo shoot is consumed as a food item and is used as delicacies by the people in many Naga households. Bamboo shoot juice is also widely used as a food additive whose unique flavor acts as a good tastemaker. Making of handicrafts and other bamboo products come as a natural talent to most of the locals

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Plate 1. Traditional Ao Naga Morung.



Plate 2. Bamboos used locally for construction of platforms and structures in hilly terrain.



Plate 3. Items woven using bamboo splint.