

Exploitation of Non-Timber Forest Produce - Ecological Concerns

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ABSTRACT The hunting-gathering Chenchus of Nallamalai forest subsist on a variety of wild tubers, berries, leaves, honey and on flesh of the game animals. Under the changing conditions as the hunting-gathering is being relinquished by Chenchus, the exploitation of non-timber forest produce (NTFP) has gained importance. The NTFP exploitation for commercial purpose is a recent endeavour at the instance of outside forces. With the improved marketing facilities through the Girijan Cooperative Corporation Ltd., providing attractive procurement prices the NTFP exploitation is profoundly augmented. The indiscriminate exploitation of NTFP has endangered certain species which would in the long run affect the biodiversity of the microenvironment.

INTRODUCTION

Forests are an important natural resource that have many gifts for human need and comfort. The usefulness of the forests is attributed to its biological diversity and deposits of mineral wealth. Exploitation of these resources beyond certain limits have deleterious effects on the natural ecosystem and the human population at large. It is the biological diversity that is first affected when the forests are subjected to human endeavours either for abiotic or biotic resources.

The tribal populations often live in forests and their socio-economic life is very much entangled with the local environment (Herskovits, 1952; Fox, 1969 and Bhowmick, 1989). They take their totemic symbols and clan names from plants and animals with which they interact. Roy (1917) remarked that the totem is regarded as a relative and Birjia salutes it when he meets it and weeps over the carcass of his totem. The Murmu clan among the Santhals do not kill or eat the babbler bird after which it is named (Frazer, 1910). The Muria Gond of Bastar avoid

injuring or eating their totem animals or plants and give them special honour (Elwin, 1947). Members of Nag totem believe that cobras will not harm them and members of Rui (a kind of fish) totem bury their dead in the sand of the river so that they may join their 'bhayads' under the water (Das, 1931). Mohan Rao (1993) has listed out a number of plant and animal species that are revered and protected by tribals of Andhra Pradesh for they form their clan names and totems.

Here it may be reasoned that local flora and fauna meet not only the subsistence needs but also have social significance. The tribal societies over the ages have evolved many mechanisms and institutions to check uncontrolled destruction of natural resources under normal conditions (Gadgil et al., 1993; Singh and Rao, 1995 and Singh et al., 1996). Thus the security and utilization levels of local biota is institutionally regulated. By this it cannot be said that the ecological degradation is totally prevented and homeostatic equilibrium is maintained (See Boserup, 1965). The growing needs in the changing circumstances and deviation in the exploitation patterns of the resource has undermined the socially carved measures of preservation.

In the recent years especially in Andhra Pradesh the forests are exploited for their non timber produce. These non timber forest produce (NTFP) have high demand for their properties and are marketed to other parts of the country. Some of the NTFP items like gum are having good demand in international markets are exported overseas. The unjudicious exploitation of the NTFP for commercial purpose is said to have caused significant damage to the forest cover especially endangering some of these NTFP yielding varieties.

It is intended in this paper to study the impact of NTFP exploitation on the socio-economic conditions of Chenchus in the light of their food gathering tradition. Focus is also laid in understanding the impact of exploiting some of the NTFP items on the survival of the particular plant species and its repercussion on the biodiversity of the micro environment in the long run.

METHODS OF STUDY

The present study is conducted among the Chenchus of Nallamalai forest who still carry the remnants of hunting gathering tradition. The traditional food procurement practices and food habits are considered in order to focus upon the economic development. The individual case studies with respect to the particular NTFP collection, the survival chances of the species and its regenerative conditions are taken into consideration basing on the ethno-ecological information. This qualitative anthropological study is supported by tools such as observation, interview, case study and informal group discussion.

FOOD HABITS

The traditional food of Chenchus is mostly forest based. The forest foods include a number of tubers, fruits, roots, leaves etc. Of all the foraging items 'Chenchugadda' is the popular food source and they rely upon it from times immemorial till today and hence the name. They also collect a variety of edible tubers such as Chedagadda (*Amorphophallus paeonifolius*), Pulidumpa (*Dioscorea daemona*), Nulagadda (*Eragrostiella bifaria*), Yeravalagadda (*Dioscorea oppositifolia*), 'Varragadda', 'Javara-gadda', 'Gittagadda' 'Dondagadda', 'Thokapul asagadda', 'Gorindagadda', Bhuchakragadda (*Meruva oblongifolia*). All these tubers meet their subsistence requirements during different seasons of the year. They also relish upon wild berries and fruits like Jana (*Grewia rotundifolia*), Chitimiti (*Gardenia gummiifera*), Nela eethja (*Phoenix loureirii*), Sita phalam (*Annona squamosa*), Rama phalam (*A. reticulata*), Maredu (*Aegle marmelos*), Morli (*Buchanania lanzan*; *B. latifolia*), Konda nekkera (*Xemania americana*), Neredu (*Sigegium cumini*), thorn apple, sycamore etc.

A few of the important edible leaves are pulichintakura (*Oxalis coniculata*), Kalabanda (*Aloe veera*), Devadari kura (*Erythroxylum monogynum*), 'Doggalaku' etc.

Most of these tubers and fruits are available from July to February and during the remaining period they suffer food shortage. Under such circumstances, they resort to ash eating. They prepare ash from dry trees of 'Thiruman', 'Nallamaddi', 'Jana', and Tamarind, and eat it in combination with tamarind. Honey is another important energy source for Chenchus. In addition to these vegetative products the flesh of the game animals like rabbit, deer, wild boar, porcupine, jungle fowl, wild sheep, varanus and squirrels form a component of their food most often.

In the present situation much change is observed in the food habits of the Chenchus especially of those that are leading settled life in the areas connected by conveyance facilities. They now mostly subsist on rice, jowar, ragi, other minor millets, dhals and vegetables.

ECONOMIC ACTIVITIES

The economic activities of Chenchus are mostly forest based. As could be observed from their food habits the Chenchus spent most of their time in food collection and hunting. But this practice is gradually waning with the interference of government and non government agencies. At many places in Nallamalai forest the hitherto nomadic Chenchus are forced into permanent settlements. Agriculture is introduced under the Chenchu Project providing ample assistance with respect to ploughing, supply of seeds, fertilizers and pesticides. In spite of all this, the Chenchus show their indifference towards agriculture for it requires continuous and organized efforts which is not a part of their traditional economic behaviour. It is observed that many of the settled Chenchus resort to rearing of cattle such as goats, sheep, cows and buffaloes but in meagre number. Chenchus also work as wage labourers for the bamboo traders and some of them also cut valuable furniture wood for sale.

Non-Timber Forest Produce

The nomadic life of the Chenchus in the

forests have exposed them to a variety of plant species which they use for food and medicine. The NTFP are seasonally gathered by Chenchus and the surplus was sold to the visiting traders. In this petty trade the Chenchus were exploited by the traders. In order to check this exploitation the Girijan Cooperative Corporation Ltd., was introduced to purchase NTFP for reasonable price. Nonetheless the traders exploitation still continues. Under the aegis of CCC a number of new NTFP are canvassed among Chenchus and attractive prices were given to them.

The NTFP gathered by Chenchus include a variety of plants' products that have great commercial value in medicine, manufacture of synthetic goods, food stuffs and in different types of industries. The seeds of Musti (*Strychnos nuxvomica*) are having many medicinal values and are used in Ayurveda and Homoeopathy medicines apart from the local use. Similarly myrobalan (*Terminalia chebula*) fruit and Maredugadda (*Dicaliphis hamiltani*) roots are having application in medicine and bevarages respectively. Chillaginja (*Strychnos potatorum*) known to be cleaning nut traditionally used for purifying dirty water for drinking, the recent identification of its bioflocculant properties would promote its application in industry and medicine. Sugandhi (*Hemidesmus indicus*) and amla apart from their utility for soft drinks and seasoning food respectively are also used in folk and indigenous medical systems.

Oil is extracted from Nallajeedi (*Semecarpus cardium*), Adaviamudam (*Jatropha curcas*), Kondanekkara (*Xemania americana*) and Mohua (*Madhuca longifolia*) seeds which have both industrial and medicinal importance. Among the NTFP collection, Kunkudu (*Sapindus emarginatus*) and Manga (*Andia spinosa*) fruits valid for their detergent nature are used by the rural folk for bathing. The leathery leaves of Moduga (*Butea monosperma*) and Madupa (*Bauhinia vaheli*) are gathered for their high market demands as they are used in making plates. The leaves of Tuniki Chettu (*Diospyros melanoxylon*) support small scale and cottage industry that manufacture beedies. Liquor is produced out of Mahua (*Madhuca longifolia*) flower used for household consumption. The berries of Morli (*Buchanania* sp.) are

fondly relished by Chenchus for their sweet pulp and delicious kernel and the latter has commercial value. Tamarind is an important ingredient in pickles and curries and hence it is significant for local consumption and outer markets. The collection of gums from Thapsi (*Sterculea urenes*), Konda gogu (*Cochlospermum religiosum*) and Thiruman (*Anogeissus* sp.) has much commercial application rather than local use. These gums are used in pharmaceutical, food, textile and cosmetic industries.

The NTFP described so far when critically examined can be grouped into two categories such as those that are of cultural significance of local use and those that are meant for commercial use. Though the two groups are overlapping the demarcation is clear with respect to the rate of extraction and associated marketing network. The products of some of the plants like nuxvomica, myrobalan, cleaning nut, sugandhi, amla, nallajeedi, kondanekkara, soapnuts and manga fruit are used by the Chenchus in their native medical practices or for other uses only occasionally. But in the present scenario these products are gathered by them ambitiously not for local use but for trade with the outer world.

The leaves of 'moduga', 'madupa' and 'tuniki' are renewable resources significantly plucked up for outside use, their local use is very limited. Though there is high demand for mohua flowers, they are not marketed in large quantities as the Chenchus are fond of the seasonally available mohua flower liquor and they love to relish it round the year. Similarly the 'Morli' seed is not available for trade as it is found in limited quantities and is dearly consumed by children. Tamarind is extensively marketed for its local consumption needs are not jeopardised due to its large scale production.

No significant use of 'maredugadda' is noticed in the cultural context of Chenchus. But its exploitation is encouraged by the trading system and is widely marketed. The three varieties of gum trees identified in Chenchu habitat have no significant local use except occasional, as such these trees are not wounded traditionally.

In the recent years gum tapping has assumed paramount importance in the economic life of Chenchus. With the increasing demand for gum in the national and international

markets the GCC has taken keen interest in promoting gum tapping by Chenchus providing market facilities at attractive prices. The GCC has extended its services even into inaccessible areas by providing domestic requirements such as rice, pulses, oils for cooking and illumination, tobacco, clothes etc., required for daily life. Among all the NTFP gum is fetching high prices per kilogram, providing encouragement for Chenchus to enhance their activity of gum tapping.

The extraction of 'thapsi' is priced high when compared to other varieties of gum or any other NTFP. The gum from Thapsi is graded into 3 types - grade I, II and III. The procurement price of each grade gum per kg. is Rs. 100, Rs. 70 and Rs. 50 respectively. Recently special grade is created with procurement price of Rs. 120/-. The gum from Kondagogu tree is also classed into 3 grades I, II and III at the rate of Rs. 90, Rs. 60 and Rs. 42 per kg. These prices are in effect since 1-7-1996. With effect from 10-4-98 the price of the 3 grades of Thapsi accordingly per kg. are Rs. 110, Rs. 75, and Rs. 50 while that of Kondagogu are Rs. 100, Rs. 60 and Rs. 42. If the price lists of previous years are examined, it is these two varieties whose prices are enhanced very frequently which indicate the demand they have in the market. While coming to Thiruman variety, only two grades are identified and it cannot stand on par with the remaining two other gums mentioned.

Economic and Ecological Impact of Gum Tapping

As mentioned elsewhere Chenchus are originally hunters and foragers. In due course of time as they are exposed to outer world or when subjected to directed change a variety of new economic activities such as cattle rearing, horticulture, agriculture, wage labour and trade with forest produce are tried on them. It is interesting to note that the trade with NTFP found to succeed the rest of the activities which may be attributed to its closeness to their foraging activities. The institution of GCC has further strengthened and have contributed to the organised machinery of NTFP trade. This has greatly influenced the living conditions of Chenchus. The hitherto food gatherers have now become food buyers. Those that used to rely on wild

fruits and tubers supplemented by minor millets are now subsisting on rice, dhal, dry fish, vegetables etc.

These food stuffs are supplied by the GCC even into the core area habitats such as Palutla and Appapur which are situated deep in the forest. It is also noticed that the GCC supplies the consumer goods to the inaccessible areas such as *Vemulapai vagu*, *Zillelapenta*, *Nichana kaluva*, *Yerragundam penta* and *Zalapenta* through head loads. These efforts of the GCC not only encouraged NTFP procurement by Chenchus but also strengthened their hands to purchase food. Thus in a way the NTFP trade initiated them into money based economy. It is unfortunate to note that most of their earnings are driven for liquor.

On the other hand from ecological view point the NTFP trade has ill consequences on the local environment in general and certain plant species in particular. As the NTFP trade has found to be lucrative to the Chenchus and the type of encouragement received by the business agencies and the outer market are conducive, the NTFP collection has now become ambitious business. With the increasing greed the Chenchus resorted to indiscriminate harvesting of NTFP. For understanding the ill effects of indiscriminate NTFP harvesting the case of gum trees is taken for examination. 'Thapsi' and 'kondagogu' are the two important trees tapped for gum, as already mentioned. These two trees grow very tall and expand in girth. But the former grows thicker than the latter. These trees are having soft wood and 'Kondagogu' is much delicate.

The gum trees are most exploited than any other tree for NTFP, for they give their yields through out the year. The economic importance of gum was strange to Chenchus until they were introduced to that by the GCC. Prior to that the outside contractors with their labour force used to tap gum. These contractors have profusely wounded the 'Thapsi' trees for gum and in due course of time their business was stopped. The Chenchus who assumed gum collection have followed the path of the non-tribal contractors in blazing the trees.

DISCUSSION

Gum tapping has become an important

economic activity for a vast majority of Chenchus. The Chenchus have certain customary rights in the forest. They have territorial demarcation to enjoy the resources. Generally, it is the family that owns a specific area and that family have exclusive rights to exploit the resources. Even the gum trees within that traditional territory belong to the family concerned. The Chenchus are sincere in honouring these customary rights and they do not intrude into others' territories. But these rights are ignored by their non-tribal neighbours who intrude into the forest and compete for the resources.

The Chenchus extract gum by blazing the tree with the help of axe. They blaze without following a pattern and without considering any precautionary measure to ensure the survival of the tree. They are of the opinion that the greater the wound on the tree the more the gum produced. They blaze each tree once in 3 or 4 days so to ensure continuous secretion of gum. As this blazing is a continuous process the survival of the tree is at stake. As the wound enlarges the internal part of the stem dries up and the termites make their way in and start burrowing deep causing the death of the tree. The severely wounded trees are toppled by the monsoon winds. Thus a number of huge 'Thapsi' trees have collapsed and their dead stumps are the living witnesses of the reckless and insensitive human behaviour.

When a 'Thapsi' tree is blazed for the first time and is continued, depending upon its girth it may survive a few years. But a Kondagogu of same girth when blazed continuously, it does not survive as long as 'Thapsi'. Unlike 'Kondagogu', 'Thapsi' start secreting gum only after growing 2 or 3 years to a considerable thickness. But 'Kondagogu' can yield gum even below the age of 1 year. As such 'Kondagogu' trees are collapsing very young compared to 'Thapsi' but both are in most cases dying before they start flowering. As such the gum trees in the territory of each family are diminishing in due course of time and the Chenchus go in search of gum trees into the unoccupied territory of the interior forests. This trend of decreasing frequency of the gum trees within their ter-

ritory is well recognised by Chenchus but the blazing continued unabated due to greed.

CONCLUSION

The ecology of a habitat depends not only upon its constituents but also upon its inhabitants and outside forces that exploit it directly or influence the inhabitants indirectly. Every social system evolves its own mechanisms of protecting its environment through ritual practices and other culturally sanctioned rules (see Rappaport, 1968). The sacred grove, a social means of preserving and maintaining indigenous biodiversity fail to do so due to the weakening religious beliefs and changing attitudes of people as observed by Singh (1997). Torry (1979) has pointed out that stability or homeostatic condition of a habitat is alleged to obtain under aboriginal conditions through a battery of institutional safe-guards.

The Chenchus of Nallamalai forests who are in transition from the nomadic hunting gathering stage to settled life have resorted to new means of exploiting their habitat for trade. The NTFP trade in general and gum extraction in particular have overriding consequences on the life and habitat of Chenchus. In spite of adjustment problems the NTFP business received encouragement from Chenchus for it is in tune with their age old tradition of foraging when compared to other economic activities. Drastic change is observed in their menu. The hitherto foragers have now switched over to market economy-selling NTFP and purchasing food stuffs. This business has not only raised their income levels but also enhanced their interaction with the more advanced rural and urban communities and consequently their needs.

The commercial exploitation of NTFP has ill effect on the local environment. There is mounting pressure on the NTFP species from the Chenchus and also from the non-tribals in order to meet the market demands. The over exploitation of any natural resources inflicts adverse effects on the stability of the ecosystem (Abruzzi, 1985). The ambitious and reckless manner of blazing gum trees have led to reduction in their number as recognised by Chenchus themselves. They report that, now a days they

have to trek long distance into the deep forest in search of gum trees as they have become scarce in their territories. If this situation continue further it may lead to depletion of these particular plant species in due course of time affecting biodiversity in the micro-environment. This in the long run would keep away these gum trees from the Nallamalai. Measures need to be taken in order to preserve biodiversity without harming the interests of the tribals.

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