



Forest Economy of the Pengaparaja and the Depleting Forest Resources

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Abstract

The forest inhabited by the pengaparaja absurd in several types of trees that provides them edible fruits, leaves and flowers. Among such trees conspicuous are aam(mango), mahul (mahua flower), tentuli(tamarind), panas(jack fruit), kendu(tendu) and jamu(black berry)which provide them with plentiful of fruits. Besides the fruits, the Pengaparaja also get a number of other foods from the surrounding forest. The forest, in addition, also provides suitable setting for the abode of the wild animals, some of which are suitable games for the Pengaparja. They also earn some of their livelihood through the sale of MFPs. In spite of various constraints like less amount of availability in comparison to the labour involved, problem of marketability and hazardous access to the forest, the Pengaparaja collect a number of commercially important MFPs along with the produces of their essential use. A good number of Pengaparja from the villages having depleted forest resources engage themselves in silling fuel wood as asource of income.

Keywords: Firewood, food, forest economy, medicine, shelter.

Introduction

Every community has its own way to meet the basic needs for the existence of its members failing which they are threatened with extinction. Nature here comes forward and joins hands with them to fulfill their needs fashioned, of course, in their own way depending on their customs, traditions, demographic structure, etc. Owing to this, people with same natural surroundings have developed different economic processes to meet their needs¹. Economy is an important constituent of the community life and plays a deciding role in the formation of the cultural and social structure of the society. Hicks² considers that economic activities do occupy a large part of the life of nearly everyone and economics endeavours to study these activities. He further says that “the study of economics can therefore, take us a considerable way towards a general understanding of human society, that is, of man’s behaviour to one another”.

Dalton³ enumerated some of the characteristics of the primitive economic system are as: i. small economy: that most resources, goods and services transaction take place within small geographical area and within a community of persons numbered in hundreds or thousands. Frequently one or two staple items comprise a usually large proportion of total produce. It is common for these important staples to be produced within the small framework of a tribe, and a relatively small number of goods and services is produced and acquired ii. simple technology and iii. geographical isolation.

Vidyarthi⁴ gave good account of the Maler economy which revolves round the forest and hill cultivation. Rai⁵ studied the tribal in the context of their home forest and hills and tried to

show that almost half of their economy is based on forest irrespective of their economic types. The structure of the tribal economy is generally based on forest and sea and forest for coastal and island tribal. The simple technology and absence of technological aid is the other structural feature of the tribal economy Tribal economy is closely connected with forest. They obtain their numerous requirements from the area they inhabit with the help of most simple implements.

The extensive forest surrounding is the main resource for the economy of tribal which includes collection of minor forest produce, hunting and fishing. The natural food supplies available to them are subject to much seasonal and annual variation. Their individual as well as community life is organized to produce food by hunting, collecting roots, tubers, fruits, nuts, flowers, leaves, fibers as raw materials for ropes, bamboo, honey, wax, etc. Small preys like deer, hares, birds and fish are taken. For hunting purposes they possess different types of traps like rope nets (as used by the Birhors to catch monkey), weapons of all types, viz. hand missiles (thick wooden stick), bow and arrow and hand operated implements like axe and knife.

The tribal people in general derive either directly or indirectly substantial amount of their livelihood from the forests. They subsist on edible leaves and roots, honey, wild game and fish. They build their homes with timber and bamboo and practice cottage crafts with the help of local raw materials. They use herbs and medicinal plants to cure their diseases and even their religion and folklore are woven round the spirits of the forests. Transactions are predominantly by barter trade being left mostly to outsiders⁵, they see forest as a resource for fulfilling their basic needs and drives and optimize its use as a balanced

productive ecosystem, as they have their own indigenous way of classifying forest flora and fauna⁶.

Studies of prevailing resource-utilisation patterns of tribal societies reveal that most of the animal and plant species usefully utilized by them are either uneconomical or unwanted for technologically advanced societies. The forests offer to the tribal food in the form of birds and animals of several kinds and species which are self perpetuating until they are completely exterminated. For shelter, the forest provides him timber, wood, stones, reeds, slates, grass poles, canes and related building materials. Forest is a resource to the tribe not merely in terms of fulfillment of basic needs and drives but also in regard to livelihood. Besides the game the tribal get in forests, the collection and sale of such produces as dry and fallen wood for fuel, small timber, bamboos, nuts, berries, bones, hides, skins, herbs, etc. are a source of income. The tribal also get suitable land for cultivation both in the hill slopes and in the plains inside the forest. In the forest economy of tribal, activities like cultivation in the hill slopes, collection from the adjoining forest and hunting and trapping are interwoven. Millions of tribal people living in the vicinity of forests subsist on Non-Timber Forest Produces⁷ (NTFP). In many hilly regions, especially tribal regions, wage opportunities for survival are limited due to uncertainty of rain fed agriculture. Here the Non-Timber Forest Products (NTFP) ensures daily subsistence as well as food supplement by tubers flowers and fruits all year round. Studies in Rajasthan have indicated that approximately 5.0 million people sustain themselves through collection, processing, transporting and marketing of forest produce supplementing their meager income from harvest and that NTFP amounts to nearly 80.0 per cent of the total forest revenue⁸.

Forest is an important source of food especially for the tribal and rural poor. Reportedly, 80 per cent of NTFP is consumed as food or as dietary supplement by forest dwellers in Paschim Midnapur district of West Bengal⁹. In Bastar district of Madhya Pradesh, about 75 per cent of forest dependent people supplement their food by tubers, flowers and fruits all the year round. In Andaman and Nicobar Island, several tribes wholly subsist on the food derived from forests and the sea¹⁰. In Andhra Pradesh, it is estimated that 58 per cent of mahua flowers and seeds and 17 per cent of tamarind fruits collected by tribal are consumed by them¹¹. Chenchu tribal in Andhra Pradesh subsist only on wild roots, tubers, honey, resin, fruits and other forest products¹².

It is estimated that 70 per cent of NTFPs are collected in five states, viz. Maharastra, Madhya Pradesh, Bihar, Orissa and Andhra Pradesh, where 65 per cent of tribal population lives. In the earlier days, it primarily met their personal requirements. But gradually some forest products acquired commercial value¹³. Through long strenuous effort the tribal collect different produces from the forest but they barter these extremely valuable produces for a meager value¹⁴. More or

less the same situation was found among the tribal of Rayagada district. The cutting of bamboo, carrying by head load to Rayagada during night in order to avoid forest officials, selling it to the basket makers the next day and returning to village involved one-and-half day and one night for each person each time. But the bamboo was sold at the rate of Rs.1.0 per piece at Rayagada¹⁵.

For a tribal, work is not an isolated activity. It is part of the communal cultural complex. For them as long as they could meet their requirements from their resources, they did not want to give up their traditional occupation¹⁶.

Realising the significance involved in the topic, the present study is made with the following objectives:

Objective: To find out the nature of dependence of the Pengaparaja on the forest Environment, to study various aspects of traditional as well as present economy of Pengaparaja.

Significance of the Study

The Pengaparaja are a primitive tribal group (PTG) of Odisha with many distinguished features. However, we find very limited number of systematic studies on them. They inhabit the densely mountainous forested terrains of Kalahandi district of Odisha. This area were thickly covered with trees before two decades and now it has been degraded to a great extent, affecting the very survival of the Pengaparaja whose life revolves round the forest. In this context it is very important to study the changes taking place in the life and economy of the Pengaparaja due to deforestation.

Coverage: The study was conducted in Thuamul Rampur Block of Kalahandi district. Kalahandi occupies the south western portion of Orissa and is situated between 19°3'N and 21°5'N latitude and 82°30'E and 83°74' E longitude. It is bounded in the north by the districts of Bolangir and Nuapara, on the south by the district of Rayagada, on the west by the districts of Nawrangpur and Raipur (Chhatisgarh) and on the east by the districts of Rayagada and Boudh. It extends over an area of 8,364.89 sq.kms. The district headquarters is at Bhawanipatna town which stands almost to the eastern boarder.

Sampling: A sample of 180 Pengaparaja households from five different villages of Thuamul Rampur Block have been covered for the study. As the Pengaparaja have their concentration in Mahulpatna Panchayat, the sample villages were selected from the same panchayat. All the Pengaparaja households of the sample villages are included in our sample. The head-of-the-household of each family is interviewed with the help of a structured schedule. All the five sample villages are located in the hill range of Eastern Ghat mountain. The sample villages are selected on the basis of their relative

distance from the forest in order to have a comparative analysis of the situation. The villages are selected from two types of locations, one which are very close location to forest and the other, which are at a relative distance from forest.

The culture of Pengaparaja originated, developed and flourished in the lap of nature. The Pengaparaja inhabit the natural setting of forests and hills. The use of forest is reflected on every aspect of their culture. The forest in which they inhabit comes under the Thuamul Rampur Range. The hill villages of the Pengaparaja have a peculiar setting from the point of view of natural vegetation and topography. High on the peak of hills, on somewhat flat land, are the small Pengaparaja villages consisting of thirty to fifty houses. The sloppy or undulating areas surrounding Pengaparaja villages have a number of fruit trees, wild shrub and creepers, climbers and other vegetations. The ring adjacent to the village comprises trees which are essentially fruit bearing like *panas* (jack fruit), *tentuli* (tamarind) *aam* (mango), *khajur* (date palm), *jamu* (black berry), etc. Among these trees, *tentuli* (tamarind) is very conspicuous in a Pengaparaja village.

The second ring of vegetation consists of wild trees, plants, shrubs, etc. And the third ring of forest around the village normally consists of *sargi* (*sal*) forest and the forest near the *danger* (Cleared up land on hill slope for hill cultivation) which extend for several kilometers up to the village boundary in all the directions of the village. The density of such forest varies in terms of the nature and extent of their exploitation by the villagers. Normally the patches of forest tracks under *dangarchas* (Hill cultivation) are marked by scanty growth of plants and trees while those patches on very steep hilly tracts, untouched by the Pengaparaja for *dangarchas*, present luxuriant forested tracks. These trees and plants include many hundred in varieties are sources of food, medicine, raw materials, fuel, etc. for the Pengaparaja.

Forest as a Source of Food

The forest of the Pengaparajas abounds in several types of trees that provide them edible fruits, leaves and flowers. Mango trees are numerous in the forest which provides them good varieties during the summer season. Pengaparaja collect plentiful ripe mangoes which they consume for days together. During that time children look cheerful and move in group to collect ripen mangoes. The Pengaparaja also take the surplus mangoes to the nearby *haat* (The weekly market) in order to barter it for some of their much needed goods. In the years of bumper harvest of mango they walk to some distant places like Khaatiguda and Jaypatna for selling the mangoes. Usually they barter in the *haats* of Benukhamar and Mahulpatna which are nearer to the villages. Besides the ripen mangoes they also collect the green ones either in order to be ripen it in their houses or to prepare pickle. They put green and matured mangoes inside a basket and cover those with dry leaves and straws. It takes about 3 to 4 days time for the mangoes to

ripen. They also preserve the green mangoes in order to consume it in lean season. They cut the mangoes into pieces and add turmeric and salt to these pieces and dry those under the sun. The dried mangoes are kept in an earthen pot. The Pengaparaja also collect the *aam taku* (mango karnel) for consumption during the time of food scarcity. In the rainy season when there is a food scarcity, they rely on mango karnel and other food items gathered from forest.

Mahul (*mahua*) is also of great economic importance for the Pengaparaja. *Mahul* trees found in the forest surrounding provide them with flower and fruit. The *mahul* flower is consumed by the Pengaparaja in several ways. They prepare one type of pudding by mixing *mahul* flower with a food grain *kosala* (one cereal). The flowers are also dried and preserved to be eaten later. Usually the dried *mahul* flowers are roasted and husked and eaten with puffed *kosala*. The *mahul* flower is primarily used for the preparation of country liquor which is locally known as *mand*. The *mand* is an important cultural substance in Pengaparaja society. It is used both for marry-making and ritual purposes. The consumption of *mand* is popular way of relaxation and joy.

Most of the Pengaparaja including the women know the process of preparing *mand*. They put some dried *mahul* in an earthen pot, fill the remaining portion with water and leave it for few days for fermentation. When the fermentation is over a hollow bamboo stick is connected to the earthen pot. The earthen pot is then placed on a burning hearth for boiling the fermented *mahul*. Another pot is placed below the other end of the hollow bamboo stick. Through the hollow stick the essence of *mahul* gets condensed into *mand* and accumulated in the pot. Sometime an empty pot is directly placed inside the earthen pot containing fermented *mahul* and the mouth is covered by a tray, then boiled and the *mand* accumulated in the pot inside the earthen pot. *Mand* is of great value in the social and religious life of the Pengaparaja. It is required for making offering in various propitiations and on the occasion of festivals. The Pengaparaja cannot imagine of any religious ceremony without the use of *mand*. On life cycle rituals such as birth, death or marriage *mand* is offered to the invitees.

The fruit of *mahul* (*tola*) is not as much significant for a Pengaparaja as is the *mahul*. However, *tola* has also some food value. The upper portion of the fruit is consumed as vegetable. The seed is dried and oil is extracted. The procured oil is used for the purposes of cooking, lighting and bodily use. The oil has also got some medicinal value.

The Pengaparaja collect huge quantity of *tentuli* and dry those under the sun and preserve for future consumption. As *tentuli* is often collected in surplus they sell a portion of their collection in the weekly *haat* in order to meet their daily needs. Some of the Pengaparaja also use the inner portion of the seed as food. Apart from these, fruit-bearing trees like *panas*, *kendu* and *jamu* are abundant in the forest of

Pengaparaja. Groves of *panas* are found near the sample villages. Pengaparaja consume ripe as well as raw *panas*. While eating the ripen *panas* the seeds are separated and dried under the sun. The dried seed are baked in fire for consumption. Also they use the seeds as vegetable. *Kendu* and *jamu* trees of good variety are found abundantly in the nearby forest. The children eat fruits like *jamu* and *kendu* while grazing cows and goats.

Other locally available fruits like *ainla*, *barkuli*, *bel*, *char*, and *dumer* are largely eaten by the Pengaparajas. Besides the fruits, the Pengaparaja also get a number of other food items, from the nearby forest viz. roots, tubers, edible leaves, mushrooms, tender bamboo shoots, etc. Particularly in the rainy season the food stock of the Pengaparaja gets exhausted. During this lean period they collect a number of roots and tubers and subsist on such collection. Their commonly collected roots and tubers include: *ban alu*, *pani alu*, *khamba alu*, *kosa alu*, *tunga alu*, *kanta alu*, *korandi alu*, and *kabra alu*. Some of these popular varieties of roots like *khamba alu* and *bana alu* when procured in surplus are taken to the *haat* by the Pengaparaja for sale or barter. Pengaparaja are fond of the tender bamboo shoots. Their forest is endowed with abundant bamboo grooves which provide them with the tender bamboo shoots. They process tender bamboo shoots by cutting those into fine pieces and fermenting for few days, and after that cooked whenever liked. It was reported that even some of the Pengaparaja consume raw tender bamboo shoot.

The forest not only provides food to the Pengaparaja but also to their cattle. Owing to the availability of rich fodder the Pengaparaja find it easy to rear their cattle and goats. They only keep an eye over the herds, the rest like the fodder, water and shelter are provided by the forest.

The forests, in addition, provide suitable setting for the abode of wild animals of which some are suitable games for the Pengaparaja. The Pengaparaja are very efficient in hunting using their primitive technology. Every year the Pengaparaja, immediately after the *Chait Parab* (a festival falling in the month of March-April), go on *hakka* (Annual hunting). During *hakka*, all the male folks of the village go with their traditional weapons like bow, arrow, axe and spear, to the forest and hunt whatever animal they come across. They normally hunt animals like *smbar* (*Cervus unicolor*) *kutra* (*Muntiacus muntiacus*) *kharia* (*Lepus nigricollis*) *chital* (*Axis axis*) and *barhaa* (*Sus scrofa cristatus*). The hunted animal is brought to the village and the meat is distributed equally among the members of the expedition team. Besides on *hakka*, the Pengaparajas also get some food through small occasional hunting of animals like *badudies* (*Cynopterus sphinx*) *kharia* (*Lepus nigricollis*) and number of birds from the forests of the valleys. There is very little scope for fishing as the area inhabited by Pengaparajas constitutes terrains of the hills. The Pengaparaja catch fish using traps and nets. The forest inhabited by the Pengaparaja also provides them with *mahu*

(honey). During their leisure time, they go in search of *Mahupali* (bee hive) to far off places inside the forest. The collected *mahu* is equally distributed among the members of the group involved. Each family keeps some *mahu* in the house for medicinal purpose.

Forest as a Source of Medicine

The forests of the Pengaparajas are also abounding in different types of medicinal plants. The trees with medicinal value are various types and used by the Pengaparaja for the treatment of different types of disease. *Harida* is used to cure constipation, cough, boils, pimples and fever. The paste of *tola* is applied by the Pengaparaja to cure muscle fatigue and relieve pain of the joints. The *mand* (country liquor) prepared from *mahul* is considered to be a tonic and nutritive. The lactating mother is given bark juice of *bheru* tree added with *surso* paste. The Pengaparaja use different parts of the *neem* tree for the treatment of various diseases. The leaf powder and decoction of leaves are used to wash and heal all types of wounds, boils, burns. The flowers are taken to cure cough, worms, stomach disorder, gum and tooth infection. Neem oil is applied to cure skin diseases. The decoction of bark relieves chronic fever.

For cure from *bayas chhau* (tono virus) the Pengaparaja prepare paste out of chakunda seeds. *Sargi* resin and fermented rice gruel applied to skin cures the infection. The leaf paste and juice of *pipal* tree is used to kill intestinal worm, heal wounds. The latex is applied on ring worm, eczema cure the disease. They also use the powdered bark of *pipal* tree to cure burns. In case of chronic cough, vomiting, cold and constipation the fruit of *amla* is used.

A number of herbs are collected by the Pengaparaja from their forest for medicinal purpose. Among these herbs, *bhuin neem* is widely used for blood disorder, skin eruption, dysentery, hyper acidity and leprosy. The root of *pangiri* is used in spider, poisoning, snake bite and scorpion poisoning. The leaf juice of *lajkuli* is used in the treatment of scorpion sting and chronic fever. The roots and leaves of *rasna* are used to treat *Bayas chhau* (tono virus) and fever. Decoction of leaves of *bantulsi* is used in seminal weakness and the seed of *bantulsi* ground is applied on the forehead to cure headache. The smoke of dry plants of *ankranti* cures toothache. The decoction of the entire plant of *ankranti* is used in urine diseases. The plant of *brahmibuti* is used by the Pengaparaja to treat senseless person. Also it is used in case of mental disorder and loss of semen.

The *gunia* (traditional witch-doctor cum medicine man) of the Pengaparaja use leaves, roots and barks of different trees and herbs to treat various diseases and including removal of the affects of evil eyes. The Pengaparaja also use many of the afore-mentioned roots, leaves and barks for the treatment of their cattle and goats.

Forest as a Source of Providing Shelter

The forest is not only a source of food and medicine for the Pengaparaja and their domesticated animals but also it provides them with raw materials required for the construction of their houses, viz. wooden poles, bamboos, rope materials. Good quality earth is the chief construction material for the construction of house which they get from the nearby forests. Wooden poles of trees like *saegi*, *bija* and *phasi* are also important house construction materials. Bamboo is used for making frame of the roof and bamboos are tied with rope like materials giredi and danturi available in their forest. They construct the frame of their door by using dried and seasoned wood like *bija*, *phasi* or *mundi*. They raise the walls of their house by putting several layers of earth available to them from within the village. Floor of their house is made up of a mixture of earth and cow dung. The *khapar* (baked mud tile) they use to row over the bamboo frame in order to make the roof complete is also moulded earth which requires to be baked.

All the fuel wood, dry leaves and grasses required to bake the *khapar* are also provided by the forest. The Pengaparaja do not find much difficulty for the construction/repairing of the house, as they manage to get the raw materials relatively at easy. The forest of the Pengaparaja not only provides shelter to them but also to their cattle and goats. They make shade for their cattle by using the wooden poles, bamboo and branches of trees with thick foliage. They also make the shade for their cattle using several types of grass on the roof.

In addition to the supply of raw materials for the construction of houses, the forest also provides the Pengaparaja with enough materials for manufacturing their tools, implements and household articles. The Pengaparaja use wooden or bamboo *benta* (handle) in their *tangia* (axe), *kudki* (hoe) and *ila* (suckle). They make their *dhanu* (bow) and *sar* (arrow) by using suitable bamboo stick. The Pengaparaja find straight bamboo and wooden stick in the forest in order to make *barchi* (spear) for hunting. An important implement which is found almost in every Pengaparaja household is the *musal* (wooden pestle) which is made of hard wood. The Pengaparaja women husk mandia and other grains by the *musal*, for their daily consumption. Their household articles like *dala* (bamboo basket) and other storing baskets are also made up of bamboo.

Forest as a Source of Income

Beyond the subsistence on the forest produces like fruits, roots, leaves and other raw materials, the Pengaparaja also earn some of their livelihood through the sale of the surplus of these produces along with some other produces of commercial value. These produces they require for their survival has been classified in government terminology as Minor Forest Produce (MFP). In spite of various constraints like less amount of availability in comparison to the labour involved, problem of marketability and hazardous access in the forest, the

Pengaparaja collect a number of commercially important MFPs along with the produces of their essential use. The MFPs collected by the Pengaparaja for the purpose of barter or sell include flowers, leaves, seeds, roots, bamboo, myrabolans, gum, lac, fiber, honey, wax, barks, hill brooms, etc.

The nearby forest of the Pengaparaja is good reservoir of the aforesaid produces. Due to the wide industrial use of some of these produces, they have got a high commercial value. Produces like fruits, roots, leaves and flowers are significant in view of their regular availability and food value, whereas the produces having commercial value have become less significant to the Pengaparaja due to their inadequate marketability. Therefore, most of them concentrate more towards the collection of flowers, leaves, fruits, seeds, roots and bamboo.

Flowers: In our sample villages *mahul* is the only flower collected by the Pengaparaja both for family consumption and sale. Due to the availability of *mahul* in abundance they sell some of their collection to meet their other economic needs. The average collection of *mahul* per household in village Bhutguda is 40 kg. From which the sell on an average per household is 16.16 kg. In Bhaatipas the average collection per household is 41.37 kg. and the sell on an average per household is 13.79. We find the average collection and sell of *mahul* to be lowest in the village Podapadar, i.e. average collection of 28.57 kg. and average sell of 4.76 kg. The highest average collection is found in village Bhabdapadar, i.e. 46.66 kg. from which an average of 16.66 kg. is sold per household. The average collection and sell per household in village Talchobri is 35.71 kg. and 10.71 kg. respectively. However, in terms of consumption per household the average of village Bhutguda is lowest i.e. 23.33 kg. (Table-1).

When we observe distribution of sample in terms of number of head-of-the-household (HOH) selling *mahul* it is highest in case of village Bhaatipas, (i.e. 19 out of 29 HOHs), followed by Bhutguda (i.e. 17 out of 30 HOHs). But in case of Bhabdapadar and Talchobri the number of HOHs selling *mahul* is 12 out of 30 HOHs and 8 out of 28 HOHs respectively. The lowest number of HOHs selling *mahul* is in the village of Podapadar is 7 out of 63 HOHs (Table 2).

Leaves: The Pengaparaja collect different types of leaves for their domestic purpose like use in storing grains, serving food and so on. They use the leaves of *sargi* tree, *kusum* tree and leaves of *siadi*. In addition to these use, they sell some of the leaves in bundles, they also make leaf cups and leaf plates and sell those in the *haat*. But the sale of *kendu* leaf which is one of the most important MFP is not at all found in any of our sample villages. It is due to the absence of any purchasing agency in the area. The sale of leaves by the Pengaparaja includes *sargi*, *siadi* and *kusum* leaves only, which they sell to individuals or to businessmen at the *haat*. The highest number HOHs selling leaves is in the village of Bhaatipas, i.e. 23. And

in Bhutguda the number of HOHs selling leaves is 6. Taken together Bhutguda and Bhaatipas it makes 29 HOHs who sell leaves of the total 59 HOHs of the two villages. A total number of 14 HOHs out of 58 HOH from the villages of Bhabdapadar and Talchobri sell leaves. And out of 63 HOHs, 14 sell leaves in Podapadar (Table-2).

Fruits: As discussed above, the forest of the Pengaparaja is full of trees with a varieties of fruits like *amla*, *barkuli*, *bel*, *char*, *jamu*, *kendu*, *mahul*, *panas*, *tentuli* and so on. In addition to their own consumptions, the Pengaparaja also sell some of these foods in the *haat* or in the nearby places. If we observe the village-wise average sell of fruits per household the similar trend is found as in case of the sale of flowers. Bhaatipas and Bhutguda have the highest average sell of 48.27 kg. and 33.33 kg. per household respectively and Podapadar has the lowest average sale of 4.76 kg. per household (Table-1).

In terms of the number of HOHs selling fruits, Bhaatipas has got the highest number, i.e. 26 HOH. But in this case, Talchobri has got the lowest frequency, i.e. 5 HOHs. Though the average sell of fruit per household in Podapadar is lowest, as much as 45 HOHs sell fruits in that village. So selling fruit is an exception in Podapadar in comparison to other produces where very less number of HOHs sell (Table-2).

Seeds: The Pengaparajas collect numerous seeds from the forest but conspicuous among them are, *sargi*, *siadi*, *kusum*, *karanj*, and *tola*. They collect *sargi* seeds only for their consumptions as there is no agency present in the area to purchase *sargi* seeds. As the other seeds come in local use they manage to sell some of their surplus to the individuals and in the *haat*. In terms of selling seeds it is Bhabdapadar where the highest quantity of seeds (i.e. 10 kg) is sold on an average per household. In Bhaatipas an average of 6.89 kg. of seed is sold per household. Again it is in Podapadar where the average sell of seeds per household is the lowest, i.e. 3.17 kg. (Table-1). But the number of HOHs selling seeds is the highest in case of Bhaatipas, i.e. 18 HOHs. It is significant to note that with the highest average sell in Bhabdapadar, only 10 number of HOHs sell seeds (Table-2).

Bamboo: In our sample villages many of the households depend on the selling of bamboo. The highest number of HOHs depending on selling bamboo is from Bhutguda, i.e. 15 HOHs (Table 2), where they have the highest average selling of bamboo per HOH, i.e. 66.66 bundles per HOH (Table 1). The lowest average number of bundles of bamboo sold per HOH is found in Talchobri i.e. 14.28 (Table-1).

Roots: During their lean months the Pengaparaja subsist on collection like roots. But in case they are in surplus, they sell some of the roots. Most common among the roots they sell are *khamba alu* and *ban alu*. If we observe the findings, we know that in case of sale of roots also the average of Bhaatipas is

highest, i.e. 20.68 kg. and the average of Podapadar is lowest, i.e. 4.76 (Table-1) and the number HOH selling roots in Bhaatipas is 26 and in Bhutguda 25 HOH sell roots. In Bhabdapadar 19 HOH sell roots. Talchobri and Podapadar have 17 HOHs, each who sell roots, (Table-2).

From the above discussion it is clearly marked that except flowers and seeds the average sell of all other MFPs per HOH is higher in Bhaatipas and Bhutaguda than any other villages. Only the average sale of seeds and flowers per HOH is highest in Bhabdapadar. This is due to the fact that here is much more individual ownership of *mahul* trees in Bhabdapadar, which is rare in other sample villages. However, in the other items the average sell per HOH of Bhabdapadar and Talchobri is much lower than Bhaatipas and Bhutguda. Again the average sell of all MFPs per HOH is lowest in Podapadar. This difference is a clear indication of relative availability of resources. The close proximity of Bhaatipas and Bhutaguda have resulted in relatively more availability of resources whereas the location of villages of Bhabdapadar, Talchobri and Podapadar with relatively more distance has resulted in relatively less supply of resources. Again the lower average sell of MFPs per HOH in case of Podapadar indicates that resource depletion is much more around the village Podapadar. The higher depletion of resources is a result of the pressure of higher population as in the case of Podapadar.

Dependence on Firewood

The Pengaparaja depend on wood for their fuel. Use of firewood for the purpose of cooking and keeping them warm during the winter is a common sight in the sample villages. Their natural setting has made them depend on wood for the purpose of fuel. It is observed that in addition to this dependence, some of our respondents have also started depending on wood for sale. Traditionally selling wood was not a part of the economy of the Pengaparaja. The practice of selling wood for economic needs is a recent development, as reported by some of our aged respondents.

If we observe the distribution of sample villages in terms of collection, consumption and sale of firewood we find that a good number of HOHs (18 out of 30) of village Bhabdapadar sell firewood. In Talchobri and Podapadar the number of HOHs selling firewood is 9 and 15 respectively, whereas in Bhaatipas and Bhutguda none of our respondent sells firewood (Table-3). It is quite clear that due to the proximity of the villages Bhaatipas and Bhutguda to the forest sufficient resources are available to them for which they do not depend on selling firewood. However, the relatively longer distance of the other villages from the forests and the depletion of the forest resources have forced the Pengaparaja to depend on the selling of firewood. It is a clear indication of the changes in economy due to non-availability of resources.

Table-1

Showing Village and Family-wise Distribution of Average Collection, Sale and Consumption of MFPs (Flowers, Fruits, Seeds and Roots in Kg. leaves and Bamboo in bundles)

	Flowers			Leaves			Fruits		
Villages	Collection	Sold	Consumption	Collection	Sold	Consumption	Collection	Sold	Consumption
Bhatipas [N=29]	41.37	13.79	27.58	448.27	172.41	275.86	82.75	48.27	34.48
Bhutguda [N=30]	40.00	16.66	23.33	400.00	100.00	300.00	66.66	33.33	33.33
Bhabdapadar [N=30]	46.66	16.66	30.00	266.66	66.66	200.00	53.33	23.33	30.00
Talcchobri [N=28]	35.71	10.71	25.00	250.00	35.71	214.28	35.71	7.14	28.57
Podapadar [N=63]	28.57	4.76	23.8	269.84	79.36	190.47	33.33	4.76	28.57
Total[180]	36.66	11.11	25.55	316.66	88.88	227.77	50.55	20.00	30.55

	Seeds			Bamboo			Roots		
Villages	Collection	Sold	Consumption	Collection	Sold	Consumption	Collection	Sold	Consumption
Bhatipas [N=29]	20.68	6.89	13.79	103.44	34.48	68.96	51.72	20.68	31.03
Bhutguda [N=30]	20.00	3.3	16.66	133.33	66.66	66.66	43.33	16.66	26.66
Bhabdapadar [N=30]	30.00	10.00	20.00	100.00	33.33	66.66	34.00	13.33	20.66
Talcchobri [N=28]	25.00	5.35	19.64	75.00	14.28	60.71	35.71	7.14	28.57
Podapadar [N=63]	15.87	3.17	12.69	79.36	23.80	55.55	36.50	4.76	31.74
Total[180]	21.11	5.27	15.83	95.00	32.77	62.22	39.55	11.11	28.44

Table-2

Showing Distribution of Head of the Households in terms of Selling Fuelwood and other Minor Forest Produces in the sample villages

Villages	Fuelwood	Flowers	Leaves	Fruits	Seeds	Bamboo	Roots
Bhatipas [N=29]	Nil	19	23	26	18	9	26
Bhutguda [N=30]	Nil	17	6	20	5	15	25
Bhadapadar [N=30]	18	12	7	15	10	8	19
Talchobri [N=28]	9	8	7	5	8	3	17
Podapadar [N=63]	15	7	14	45	17	12	17
Total	42	63	57	111	58	47	104

Table-3
Showing Average Collection, Consumption and Sale of fuelwood (in quintals) in the sample villages

Villages	Collection	Consumption	Sale	No. of Persons Selling
Bhatipas	29.00	29.00	Nil	Nil
Bhutguda	28.00	28.00	Nil	Nil
Bhabdapadar	36.66	25.00	11.66	18
Talchobri	30.50	25.5	5.00	9
Podapadar	28.76	24.00	4.76	15
Total	30.25	25.87	4.38	42

Mode of Collection

The Pengaparaja collect the MFPs in different seasons spreading over the year. Their activities in the *dangarchas* and the collection of MFPs are interwoven. Sometimes also, like in the lean months, they go to the forest with the sole purpose of collecting MFPs. The process of collection involves the labour of the entire family. The children also actively participate in the process of collection of MFPs.

In the months of *Baisak* and *Landi* the flowers of *mahul* are collected. The collection is done both in the morning and evening hours. These are the time when the flowers drops on the ground. All the available members of a family jointly undertake these activities for two months. The collection of *mahul* is combined with other activities like collection of leaves and fruits like *char*, *kendu*, *aam*, etc. They collect the ripe fruits dropped on the ground and also pluck some raw fruits by climbing on the trees. During this period different types of leaves like *siadi*, *sargi* and *kusum* are collected for the stitching of leaf cups and plates. Fruits like *amla*, *harida* and *bahada* are collected by shaking the trees. *Amla* is collected twice a year in the months of *Diali* and *Baisak*. Various seeds are collected by different modes. Seeds like *sargi* and neem are collected by sweeping the ground below the tree with the help of a broom whereas seeds of the *mahul*, *kusum*, *karanj* and *kuchila* are plucked from the branches.

Collection of roots involves locating the climbers in the forest, the roots of which are edible. After locating the climber, they dig the earth below the climber. In order to get the roots it requires two to three feet of digging earth. After getting roots, in many cases, it requires some processing such as cutting the roots into pieces, leaving them in running water stream for a couple of days and boiling those several times before they become edible.

Other produces like gums, resins and lac are also collected by combining the forest. Gums and resins are exuded by plants partly as a normal phenomenon and partly as the result of disease or injury to the bark or wood. Of all the gums, *genduli* is the most important one, which is extracted from *genduli* tree.

The other gums which are of commercial importance are of *dharua*, *siadi*, *bija* and *moi* trees. These trees exude gum during summer through wounds inflicted by insects or borers on the barks and wound caused by cutting the bark.

Lac is secreted by a minute insect which feeds on the sap in the green twigs of *kusum* tree and also on *palas* tree. Earlier it was being cultivated by the Pengaparaja in the nearby forest but now it has been stopped. Honey is collected by the Pengaparaja from the forest during the months of *Chait* and *Baisak*. The fibre used for both the domestic purpose and the market is extracted from a common shrub *muraphal*. Generally they put the stems of the shrub in water for 20 to 25 days in order to let those rot. Rotten stalks are then taken out of the water, beaten gently with wooden mallets and fibre peeled out, washed in water and them dried in sun.

Problem of Marketing

As per the issue of work order by the Divisional Forest Officer, Bhawanipatna, Tribal Development Co-operative Corporation (TDCC), Bhawanipatna purchases as much as 26 items of minor forest produce in Kalahandi division. These 26 items are from among those 47 items for which the forest department has set the potential amount of collection during the year 2000. But it is found that TDCC is not purchasing any item of the MFPs in any of our sample villages. According to Branch Manager, TDCC, the DWCR purchases MFPs in Mahulpatna. However, no group makes such collection. Thus, the purchase of MFPs by government exists only in pen and paper but in practice no purchasing agency operates in this area. In this situation the Pengaparaja find serious problem for the marketing of the collected MFPs. It is quite clear that there is hardly any marketing facility for the MFPs which are an important source of income for the Pengaparaja. After putting toiling labour the Pengaparaja collect different produces from the forest and when they come to their house it becomes their headache to sell those. In such a situation the *haat* provides them only ray of hope. The two weekly *haats* on which the Pengaparaja of our sample villages depend are the Benakhamar and the Mahulpatna. The Pengaparaja do most of their transactions in these two nearby *haats*. *Haat* depend on the arrival of the businessmen coming

from outside, i.e. from place like Nawrangpur. They arrive here in the *haat* vehicles, i.e. mostly mini trucks with the needed goods like salt, kerosene, clothes and such other things. They come both for selling and buying things. The Pengaparaja sell to the businessmen some of their collected MFPs.

In these *haats* the Pengaparaja sell or barter their produces like gum, lac, seeds, fruits, etc. As they are very much dependent on the *haats*, the businessmen often fix the price and that is how they are being exploited. The businessmen often come with the intention of purchasing certain selected items. If the poor Pengaparaja has not brought those items, then he offers his products to people for a meager price. The businessmen do not purchase the produces for which they do not find market. Therefore, the Pengaparaja have to return back with their collected produces at times. The Pengaparaja do not show interest in collecting several MFPs due to problem arising out of marketing those produces. The products which often sell, like fruits, flowers, *jhuna*, gums of some good quality, honey, are only collected by the Pengaparaja leaving behind other products to decay in the forest. It is observed while passing through the Benakhamar forest that *sargi* seeds are laying on the grounds. The Pengaparaja have left collecting *sargi* seeds for marketing purpose. They only collect the required quantity for their domestic consumption. Thus the Pengaparaja lose a good source of their income. The Pengaparaja used to cultivate lac before 15 years. They have now stopped cultivating lac due to the problem of marketing and exploitation by the government officials. Thus the problem of marketing has put serious pressure on the economy of the Pengaparajas.

Conclusion

It is observed that the culture and economy of Pengaparaja revolve round the forest. The forests are a good source of food for them which contain several types of trees. Those provide the Pengaparaja with a number of edible fruits, leaves and flowers. *Mahul* (mahua) is used by the Pengaparaja for the preparation of *mand* (country liquor). *Mand* is also an important item in various rituals of the Pengaparaja. Besides fruits, the Pengaparaja also get a number of other foods in the form of roots, tubers edible leaves and tender bamboo shoots from the forests close to their villages. The forests, in addition, provide a suitable setting for the abode of wild animals which are good games for the Pengaparaja. Every year after *Chait Parab* when the Pengaparaja go on *hakka* (annual hunting) and hunt animals like *sambar* (*cervus unicolor*), *kutra* (barking deer, *muntiacus muntjack*), *kharia* (Hare, *lepus nigricollis*), *chital* (spotted deer, *Axis axis*) and *Barha* (Wild bear, *sus scrofa cristatus*). The Pengaparaja also find a number of medicinal plants from the nearby forest.

The Pengaparaja heavily depend on wood for their fuel. In recent times some of our respondents have started depending on selling fuelwood for their survival. Traditionally selling fuelwood was not a part of the Pengaparaja's economy. We

found 18 households (out of 30) in Bhabdapadar sell fuelwood. In Talchobri and Podapadar the number of household selling fuelwood is 9 out of 28 and 15 out of 63 respectively. Whereas in Bhatipas and Bhutguda no one sell fuelwood. The dependence on selling fuelwood is an indication of resource depletion near the sample villages (Bhabdapadar, Podapadar and Talchobri) leading to some changes in economy. Further the problem of marketing of the MFPs is a cause of concern for the Pengaparaja. The facility for marketing is available only in pen and paper but practically no government agency purchases the produces collected by the Pengaparaja. In such a situation the weekly *haat* remains the only outlet for the disposal of their collection. However, in this transaction, they become victims of exploitation at the hands of the middlemen.

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