



Exploring Subsistence and Settlement Patterns of the Malhar Tribe in Kalapat Reserved Forest, Keonjhar, Odisha: An Ethno-archaeological Study

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Abstract: Subsistence and settlement pattern in the course of time provides an analogy between ancient and contemporary population's survival strategies. The subsistence and settlement economy among the primitive societies mostly depends upon their nearby surrounding ecology. Living societies gives plentiful information to understand various cultural processes and function of the ancient societies. The surrounding physiography of a given area determines 'the limit of influence' which design the way of living for the community within that area. The knowledge of contemporary societies helps us in interpreting the past and examining the archaeological relevance of present-day circumstances. These strategies among the current societies show some general pattern in human behavior and in their material culture, what we know from the past. Ethnoarchaeological studies on the basis of both subsistence and settlement increases our knowledge to the diverse environmental factors, which define 'the limit of influence' in a given geographical territory. The present paper focus is to address the subsistence and settlement pattern practiced by the Semi- Nomadic Malhar tribes of Keonjhar district of Odisha. The purpose of this study is to analyses site's natural structure with their associated behavior and traditional subsistence strategies practices by the Malhar and how these Malhar groups organize their living space. Much of the data collected through extensive fieldwork among the Malhar population by using various methods such as- participant observation, case studies, group discussion, catchment analysis etc. Investigating various implements, technology, indigenous knowledge and division of labour in Malhar society gave us a clear-cut idea about both tangible and intangible culture persisted in the past society.

Keywords: Subsistence, Settlement, Ethnoarchaeology, Catchment analysis.

Introduction

The knowledge of contemporary societies helps us for interpreting the past and examining the archaeological relevance of present- day circumstances. Human behaviour is shaped and influenced by cultural beliefs and practices, which are highly variable across space and time (Binford 1981, 1983). Subsistence strategies among the current societies show some general pattern in human behavior and in their material culture, what we know from the past. Ethnoarchaeological studies on the basis of subsistence increases our knowledge to the diverse environmental factors, which define the limit of influence in a given geographical territory. Extensive research on the hunting and gathering traditions of various communities in Odisha is scarce, with the exception of studies focused on the Birhor community. (Roy 1925, Adhikary 1984). The present paper focus is to address the subsistence strategies practices by the Semi- Nomadic Malhar tribes of Keonjhar district of Odisha. Hunter gatherers have become the commonly used term for people who depend largely on food collection or foraging for wild resources (Ember, 2020). Much of the data collected through extensive fieldwork among the Malhar population by using various methods such as- participant observation, case studies etc. Investigating various implements, technology, indigenous knowledge and division of labour Malhar society gave us a clear-cut idea about both tangible and intangible culture persisting in a past society.

Subsistence system is the set of practices used by the members of a society to obtain food and for their survivals. Food is the basic necessity for an individual each day, no matter where that person's habitat. By studying this subsistence system an Anthropologist gain insight into most crucial task in every society for their survivals. Subsistence economy of a simple society most includes simple technology, small scale units of production, social unit of production, distribution and consumption being limited to family and lineage. Generally, four types of subsistence seen those are foraging, pastoralism, horticulture and agriculture. Every type is involved in obtaining food from a particular ecological condition. The most primitive way of subsistence strategies is foraging, sometimes known as hunting and gathering, which reveals that societies mostly rely on wild plants and animal food resources. Older hunting societies thrived in hilly, rocky and forested areas where resources were abundant (Misra, 2001). Forager who forages for their subsistence during seasonal availability is living remnants of simple ways of life, resembling how our ancestor lived. The seasonal availability among the foragers demonstrates the importance of

division of labour in a simple society. (Kelly, Poyer, Tucker 2005). Settlement patterns are mainly concerned with the spatial distribution of human activities within a given area. It combines the methods of ethnography and archaeology to examine how contemporary societies use their environment and create material culture. The patterns mostly comprise the location of sites, their distribution and densities, and their relationship with ecology. Distance and connectivity are fundamental factors mainly guided the survival and success of a societies throughout the time immemorial. As we know that the human occupation is local in character so that spatial distribution of human activity reflects an order adjustment to the factor of distance. Settlement patterns emphasize the interaction between the demography, economic adaptation and the surrounding ecology, resulting in the distribution of interrelated sites across landscapes. (David and Kramer, 2015) Settlement patterns inform about the archaeological interpretations of a contemporary society. (Stiles, 1977) Like subsistence patterns, settlement patterns of a modern community underscore our understanding of prehistoric settlement and human interactions at regional scales. (Peterson and Drennan, 2017).

Ethnoarchaeology is the study of the relationship between human behaviour and their archaeological sequences in the present. Investigating into the material culture and built surrounding environments of living people to archaeological context (Lane, 2006:402) is Ethnoarchaeology. Analogy between past and modern population's subsistence strategies offer a very little to our understanding of the past. Forager societies may give some hints which are the reason behind the survival of these practices. Ethnoarchaeology not only for known about past societies but it may be served as a warning us to the complexity of human behaviour and diversity in human manipulation of the material world. Contemporary tribal groups were traditionally exploited a wide range of plants and animal resources (Murty 1981, Nagar1985, Raju1988) for their survivals. Seasonal availability of food and division of labour reveals about the sedentary and nomadic way of life as forager. Pradhan (2023) discussed the ethnoarchaeology of hunting and gathering tradition persistent among the tribal communities of Western Odisha. the method of food collection and processing and hunting methods are crucial to understanding them in an archaeological context. The Subsistence strategies among the contemporary tribal groups provides data about primitive ecology, climate, flora, and fauna practices implements and waste products in and around an activity area help us to reconstruct the past of that society who involved. Ethnographic research by Shanti Papu (1997)

on the Irulas shows that the community has a wide range of mobility and views that their traditions as a reflection of stone age patterns. Greaves (1997) focused on the seasonal availability among the Pume foragers who live in Savannas of South Western Venezuela and follow two general patterns of subsistence and settlement. Pume forager forage for their subsistence are living remnants of simpler ways of life, resemble how our ancestor once lived. So, for understand the cultural process and the structure and function of prehistoric societies, information is best derived from a living society as well as the archaeological record. (Stainslawski 1974:18)]

Location of the Area

The study area in and around Kalapat Reserve Forest in the district of Keonjhar district lies between 21°7'30' N. Lat. to 21°22'30' N. Lat. and 85°22'30" E. Long. to 85°45' E. Long. An area meaning (38.64 x 27.31) km: as East. Long. to E. Long. 38.64 km and North Lat. to North Lat. 27.31 km of the open Topographic Maps No. F45N12, F45N11 and F45N7, scale 1: 50000.

Geomorphological the area is located on the North of the Dandadhar Reservoir which comes under the Dhenkanal district of Odisha. Topographic point of view the area includes the revenue village areas of Harichandanpur Block of Keonjhar district on its Eastern side and revenue villages of Telkoi block on its Western direction, Barabanka Reserved Forest on the North. Rebana Reserve Forest area is located on the eastern side of this area. The total area is consisting of rich alluvial soil; the highlands consist mainly of detritus and intersected here and thereby many hill streams. This area is well watered by streams which in the rains are raging torrents. Several seasonal stream such as Shrabantangar Nalla, Banan nalla, Nipania Nalla, Banakula nalla, Patrajhori nalla, Haguri nalla and Pechamundi nalla etc. flows southern side of this area while Sapua nalla, Tankapani nalla, Samakoi river and Samarsingha river which are the major river in this area flows on the North side of this area. Khajuria nalla, Ghantla nalla, Churgunia nalla, Sankoi nalla flows on the western side of the Kalapat Reserved Forest Area. These streams are mainly emerged out of the hilly tracts and flow onto the plain, charged with large volume of water during monsoon. In summer they almost dry. Their beds are usually rocky which render them unfit for navigation. The whole study area is fairly dense jungle mainly Sal (*Shorea robusta*). With the exception of isolated hills and undulating tracts this vast area is generally open and occupied by some villages and numerous hamlets. Some of the principal peaks of the Keonjhar district such as Meghananda

(1054 m) and Ranga Parbata (897m) are situated south-west of this area. In this area there are some water bodies artificially made into a minor irrigation project, one is located near Somakoi Reserved Forest area on its western and another one is located southern of Barabanka Reserved Forest area named Sapua Dam on its northern side. Several revenue villages of this area have been studied such as- Kharaba, Ostiapasi, Baraguda, Galada, Pithagola, Similipal, Panga and Kuladera.



Fig. 1: Topographic Map showing Kalapat Reserved Forest Area, Odisha

Methodology

The study was conducted among the Malhars of Kalapat Reserved Forest area of Keonjhar, Odisha. The present study makes a situational analysis of subsistence pattern and settlement pattern among the Malhar people and analyzes their surrounding natural structure with their associated behaviour. The present research has gathered data from a wide range of sources using variety of methods. Household survey is very important which helps to understand the concentration of the Malhars in this area. This data collection helped a lot about the age, sex of the Malhar family, occupation of the member within a group, family types and marital status of the Malhar in Kalapat Reserved Forest area. Data were gathered through observation, interview group discussion, and schedule. Photography also provided the behavioral and customs of the Malhar society to uncover and to understand the past and the present. Catchment analysis methods related a site to the surrounding physiography. This catchment area is defined by drawing a circle round the site and in this regard the topographic map is very essential to locate the activities area in

the catchment area. Using the cultural ecology approach to the study of subsistence pattern, environmental factors such as fauna, flora, avian are essential variable in this model. Most of the data on these aspects is obtained from district gazetteers of Keonjhar district and from Odisha Geo-Spatial Data Centre, Survey of India. Library study of Malhar ethnographic account has been carried out in order to establish the historical continuity in the study area and to determine the degree of influence of culture contact on traditional subsistence and settlement practices.

Findings and Discussion

From the very beginning early, prehistoric populations were viewed as an essential component of their natural environments, deeply intertwined with and dependent on the surroundings in which they lived. (Smyntyna, 2004). Malhar in Odisha is otherwise known as “Madhuwalla” because of their honey collecting occupation. Though they are collecting several forest products from the forest but their primary occupation is collecting honey. They involve themselves to a wide range of subsistence activities, such as seasonal fruits and different types of nut collection. Their hunting-gathering economy is confined to limited hunting of selected animals to meet their daily food, at the same time gathering is limited to only forest products like forest spinaches, (verities of green leaves), different kinds of edible wild yams (*Dioscorea* species), mushrooms (*Agaricus bisporus*), nuts and berries for daily diets. They also gather sal (*Shorea robusta*) resins, lacquer, and honey for trading to make cash and kinds. The seasonal activity of the Malhar peoples around the year can be studied in two broad topics that are consumption and trading activity in each season within the Kalapat Reserve Forest area. On the basis of their time of collection and trading activity, the whole year may be divided into three phases that is first October- January (Winter), second February- May (Summer), third June-September (Monsoon). Though the Malhar people living within the territory of Kalapat Reserved Forest area are mostly semi- nomadic and they are not practicing agriculture. Their subsistence pattern mostly depends on their trading system, whatever they collect from the forest. Most of the Malhar people sell their gathered material in nearby market, but still there are so many products which they direct consume as their food.

The Malhar people mainly involve two modes of production for the collection of wild forest products is both for subsistence and barter. Malhar people in this area have their own have their own traditional knowledge of subsistence which is very

different from the other communities. They practicing hunting expedition in group and they only hunt the wild boar (*Sus scrofa*), porcupine (*Erthizon dorsatum*), monitor lizard (*Varanus komodoensis*) and forest rat (*Oryctolagus cuniculus*) in the forest because other animals' meat is considered as a prohibited food item in their culture. Malhar people hunt these animals with the help of dogs and various implements used for these purposes such as bow, arrow and axe. Dogs played such a critical role in hunting and served as watchdogs for protecting the community from predators and invaders. They carry those items into their habitation place or nearby forest camps in the forest and eat those meats by applying very simple process such as- skinning, chopping and boiling. When they are in the forest camp, they practice simple process for gathering dammar and honey. Gathering implements like Bamboo Basket, iron digging stick are used for the collection of specific wild vegetable foods. important is wild Yam (*Dioscorea* species). From the *Dioscorea* species while some species are eaten as raw, other species have their own process by the Malhar people to remove the bitterness of the Yam. This may take up to two days to prepare the yams for eaten. Seasonal collection by the Malhar community shows that they use their indigenous knowledge throughout the year in a specific geographical area.



Fig. 2: In this picture, an old woman is digging in the earth with the help of an iron crowbar in the vicinity of her house. This old woman regularly practices digging in the nearby area of her house for digging wild yam (*Dioscorea*).

Gathering of vegetable resources is used for direct consumption. Meat not bartered but shared among all individual camping together. This sharing pattern

among the Malhar people characterized themselves into a co-operative cultural group. The collection of forest products for external barter falls under two clearly distinguishable areas. Firstly- Though they are practicing small game hunting they are used it for only consumption except while they hunting wildboar (*Sus scrofa*). This wildboar (*Sus scrofa*) is big in size and is a common species found in this Kalapat Reserved Forest Area. The wildboar (*Sus scrofa*) meat has a good market value which is consumption by the other community. But now a days due to the forest Rules and regulation that banned on such animal hunting they are not practicing at all. Secondly- There are number of forest product such as- Sal (*Shorea robusta*) resin, Honey, Yam, Mushroom are also traded with the local villagers or some small businessman in that particular area. Most of these transactions do not involve in cash payment, the Malhar people barter their commodities for mainly- Rice, Dal, Oil, salt etc., and for some specific provision. Though they are not practicing agriculture they barter mainly for rice. The Malhar people are mostly illiterate people and they have lack of knowledge about the market price. Specifically, the most valuable wild product Honey and Sal (*Shorea robusta*) resin are sold by them with very cheap price. The villagers and local businessman took the disadvantages of their knowledge in market system.



Fig. 3: This picture shows a man vertically clinging and collecting sal(*Shorea robusta*) resin with the help of an Axe and a bamboo basket. There is a traditional method of Malhar tribe for climbing into a tree called tapping. This tribe uses this specific tapping method to climb into any tree.

Several indigenous techniques are being used to maintain their subsistence system, such as for collection of honey, sal (*Shorea robusta*) resin, lac etc. they used mostly tapping method with the help of their traditional implements. Implements such as Axe, Bamboo basket and Iron crowbar are common while they go for gathering activities. The procedure of food processing is also explained how they used their traditional knowledge without influence of other communities lived in that area. The techniques used by them providing valuable new evidence of early root and tuber cultivation in the nearby area which is similar to the Dounia's "Paracultivation" practice (Dounia, 2001). Not only the gathering implements but the household implements like- grinding stone which includes the bed stone and the running stone to grind spices and smashing the potatoes and other vegetables gives us handful information about the resources collected from the surrounding area. This study illustrates how the ecology and different indigenous method used by the Malhars elaborate an interpretation of post forager subsistence. In spite of the present day's suppressive and difficult situations, there have been groups which maintained independence however relative. The practice among the Malhar people reflects in the behavior of the children of this community. The children acquire the knowledge and skills of adults. Activities among the children also reveals about how they know about their materialistic culture. The equipment used by the Malhar community during gathering and hunting activities is playable items of a Malhar child. Through different types of games, the children are familiar to food sharing, the technique of using the tools and also the sexual division of labor. Children imitate adult tasks which provides ethnoarchaeological evidence for how materials, tools, space and skills were used and passed down from one generation to another in ancient times. In this context, these children are regarded as active participants in cultural production in the Malhar community.

Settlement Pattern among the Malhar

The Malhar peoples are semi-nomadic in nature which reflects in their settlement pattern. The Ecology of the Kalapat Reserve Forest area is very much helpful to these tribal people to make several types of settlement. These habitation structure varied in size and manner of construction depending on location, time of year and length of occupation as well as the number of people using them. These Malhar habitats is located amidst picturesque topography with amazing landscapes surrounded by deep forest, hill terrain or hill slope having the climatic condition of



Fig. 4: Axe playing a meaningful and sacred tool for Malhar tribe. In their day-to-day subsistence activity axe is used in most of the times, such as cutting woods and in many more ways. In this picture we can notice a toddler playing and trying to cut a branch with the help of an axe. This is one among those instances that shows the accent of an axe into the lives of Malhar community.

medium humidity and rain fall. On the basis of activities there are mostly 2 types of settlement such as-

- (a) Permanent settlement
- (b) Temporary settlement

Permanent settlement of the Malhar people in Kalapat Reserved Forest area mostly found in Galada, Pithagola, Kuladera, Ostiapasi and Baraguda village of this area. Temporary settlement found in only one village that is in Panga, while the forest settlement of these people found in Similipal and another one is near Galada village that is Jetia Cave, which is a small rock shelter.

Permanent Settlement

These settlements are mostly seen near the foothills of this area, where at least a stream is flowing near this area. These settlements are mostly found near other tribal habitat groups such as Juang settlement and Munda settlement. In this permanent settlement mostly two types of houses are found: 1) Rectangular wattle-and-daub house 2) Reed thatch house

Rectangular Wattle Daub House

Wattle and daub house is a composite building method used for making walls and buildings. Wattle and daub have been very important construction method in any part of the world. This construction method is cost- effective which provides insulation and durability in a variety of climates. These are usually made of some combination of wet soil, clay sand, animal dung and straw. These types of houses are mostly located in the permanent settlement of Malhar people in Kalapat Reserved Forest area.



Fig. 5: Rectangular Wattle Daub House of Malhars at Baraguda

These wattle-and-daub houses are mostly found in every permanent settlement. The height of these houses is approximately 2–3-meter, length of these houses are 5-6 meters whereas the breadth of these houses are 4-5 meters. These houses are made from posts set upright about 70-75 cm deep, with smaller poles woven between them. The poles are collected from the nearest forest where Sal, Asana poles are suitable for this type of houses. Daub is made from the nearest area where alluvial soil mostly found. The soil is mixed with water and sometimes cow dung also used in this mix. In these houses there is normally one door and occasionally in some houses there are only one shuttered window. These doors are made from timber which is collect from the nearest forest. The roof of these houses is thatched with reeds or grass. Now in recent times the roofs of the houses are covered with tiles which are made from cement or clay. It is critical to explain the lifespan of the roofs of these houses. The roof of this house extends for ammeter or so around the four edges of the house forming a veranda that protects the walls from the weather and promotes their longevity. This veranda serves for several social activities and

provides shade for outdoor work. The roof which is made on a thick grass can last up to 2 years. For building wattle-and-daub houses and labor requirement for gathering time construction material required by the Malhar people may exceeds 3 months. For gathering material, it is the job of the male worker to collect the timbers poles, grass etc. whereas the female worker mostly preparing the daub for wall of the houses. It gives an insight into past construction practices, material culture, and the socio- economic organization of communities. These resources help to understand the ways in which Malhar community interacted with and adapted to their ecology.

Reed Thatch House

Thatching is the craft of building a roof with dry vegetation such as straw, water reed, or palm branches, layering the vegetation so as to shed water away from the inner roof. This method is a very ancient method which passed from one generation to another. These houses are used in both tropical and temperate climate.



Fig. 6: A Reed Thatch House of Malhars at Kharaba

These houses are made by the Malhar people near the wattle-daub houses. These are similar in structure to the wattle-daub houses with poles set in the ground, in this houses there are no wall and also no veranda, so there are no doors or no window seen in this type of houses. Time taken for this house may take one month because of gathering construction material. Within 4 years the reeds and the poles are replaces by the new one. The roof is similar to the wattle-daub house that is grass or paddy straw. These grasses are mainly collected from the near village from the

other community who practices agriculture. This reed thatch houses are built by these Malhar people are highly mobile, which is significant for understanding the settlement pattern. The way they built it helps us to reconstruct the ancient nomadic or semi-nomadic way of life in the past.

Temporary Settlement

As gathering is the primary occupation among the Malhar people in Kalapat reserved Forest they have to leave the permanent settlement for many days. Due to the availability of the wild product in some specific season they have to make a temporary settlement in their respective activity areas. Mostly these settlements are inside the forest. The Kalapat Reserved Forest area is dense Sal Forest. In some places, grasses colonize these clearing, creating savanna. The forest is a source of wild food. Malhar people forage for wild tubers (*Discorea* species), mushroom, honey, dammar resin, green vegetable and for small game hunting, particularly 3 types of Animals such as Monitor lizard, rat and porcupine and occasionally wild boar. Malhar people do not practice large game hunting because of their food prohibition and also by the forest rules and regulation imposed by the government. Although the Malhar people living in forest for collection of wild products, they may also do wage labor such as guarding cattle or daily wage laborer. Within this Kalapat Reserved Forest area mainly the Malhar people lived in two types of settlements; -

1. Seasonal hamlets
2. Foraging camps

Seasonal Hamlet

Semi- nomadic groups mostly move between one location to another based on the resource availability in their surroundings. (Binford,1978). These seasonal hamlets are mostly used during a specified season in a particular geographical area where they can easily get the resources for their settlement. Semi-nomadic tribes often follow a cyclical pattern of migration based on the availability of resources such as water, forest products etc. These settlements are directly tied with the subsistence strategies including hunting and gathering. In seasonal hamlets, people used whatever wood was handy, often scavenging poles from abandoned houses, consistency in post diameters reflect the fact that people are more selective about the wood they use when bulking houses that are more permanent.



Fig. 7: A Seasonal Hamlet made of Twigs and leaves by the Malhars at Panga

This type of hamlets usually located near the foothills of the forest. Family from the permanent village settlement mostly live in this settlement for a reason for their subsistence activity and for trading purposes. These Malhar families move to this settlement seasonally to gathering wild product. Most of these hamlets are occupied by them for Honey collection, wild tubers and daily wage laborer in nearest villages which are the daily activities in these settlements.

These forest hamlets are mainly occupied by them for only 3-4 months. The shape of these houses is mainly rectangular and most of the houses are square in size. The length and breadth of these houses are almost equal approximately 2-3 meter, while the height of these houses is not above than 2.5 meter, because they stored their utensils and other clothes and gathering material over the roof of the house. These houses are small than the permanent settlement houses and made in very simple form. These houses are made with a set of four poles (Sal, Asana etc.) which are set up into the ground about 20-30 cm depth. Sal sticks are woven through them to form the lattice that holds the wall thatch. These houses are thatched with only bark and bounded those barks into the poles with the reeds. These reeds are very solid which they collect from the nearest forest. These reeds are grown in the forest in rich quantity. Bark is easily available and collected by the Malhars from the nearest forest. Though the bark is easily available but it needs some maintenance. For collection of bark, they mostly need 3 to 4 days. They cut the medium size of

barks from the various trees and they keep those barks at that place for 2 to 3 days for dry purpose. Once the bark is dry it is easier for them to carry those barks to the habitation places. This bark is no need to replace because they lived only for 3-4 months. For the building of these houses, it may take 4-7 days to gather material and construct those houses. Once they left the settlement these houses are often destroyed. All the houses are in these settlements have an exterior hearth located about 2-3 meters in front of the house. It is because of that the houses are too small and not suitable to cook inside the house. Mostly 2-4 people are residing in these houses. These hearths are mostly built from three bricks and mud plastered above the brick. There is no proper position in which way the house has to build, that is they can build it any direction these houses in these settlements are mostly scattered. In some cases, the houses are look like three-sided boxes type. In this type of houses there are both interior hearth and exterior hearth. These houses are consisting of only one room and that is mostly used for taking rest during the night time. Due to the insufficient space in a room, they storage their collected materials and their utensil, clothes etc. over the roof of these houses.

Foraging Camps

These foraging camps are mostly located inside the forest where the Malhar people can rest for some time. The gatherer usually collects the wild product from the nearby area and stored these inside these camps. They prepare their food in those types of camps.

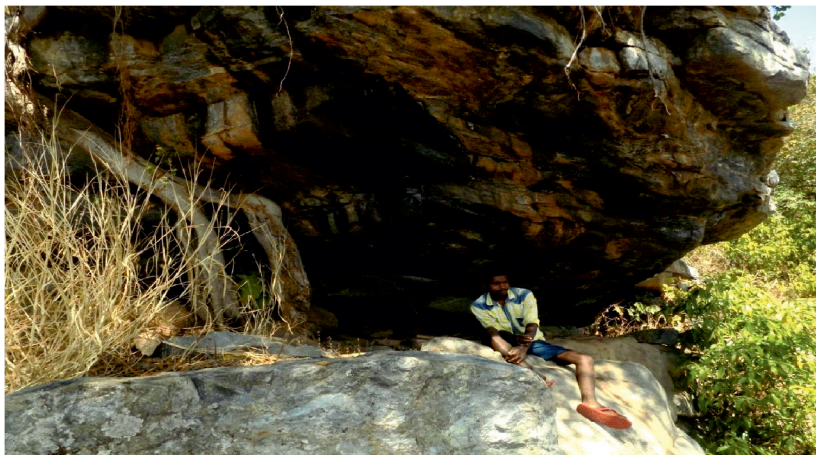


Fig. 8: A Rock Shelter used as a Foraging Camp by the Malhars at Galada

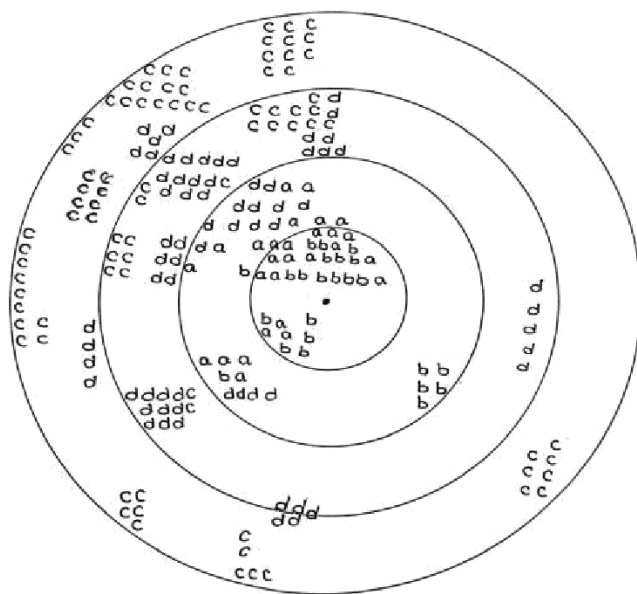
During the survey around Kalapat Reserve Forest Area the author noticed one type of foraging camp that is a shelter which is naturally made in dense forest and is situated at high altitude. These shelters have a very big space to live inside it. According to the informants about 6-10 number of people can reside in this shelter at a same time. This settlement is mostly used at the time of gathering, when the Malhar people leave the permanent settlement for 3-4 days for collecting honey and dammar resin in this forest., they lived in the shelter. For this type of settlement, the Malhars not need any type of bark, reed or grass etc. These camps are usually near a stream, so that they can get water from that source for drinking and for cooking purposes. The hearth is located outside of the shelter. So that the smoke created by the hearth will not affect their activity in this shelter. They storage the gathered material inside the shelter, because of the gathered materials need protection from wind and rain water.

The trash produced by the Malhar in those camps are most of the time eaten by dogs, as these domesticated animals also lived with them. And those trashes eaten by the dogs is tossed only one to two meters away from the hearth, normally in the nearest bushes. Most of the time the ashes are not emptied from the hearth in this settlement. The artifacts, wastage and remnants of food provides valuable insight into the day-to-day life practices by the Malhars. So, in this context it not only gives information regarding the technical survival but also into the socio-cultural and ecological factors that shaped the human evolution and development from the immemorial time.

Catchment Analysis of Kalpat Reserved Forest Area

Site Catchment Analysis was first introduced by Claudio Vita Finzi and Eric Higgs (1970) realized that human groups procure resources from the regions immediately surrounded their settlement. It refers to the analysis of archaeological sites in relation to their environmental surroundings. They defined it as a study of relation between technology and those natural resources lying within economic range of individual sites. Analysis of catchments as social ecological dynamics interact with each other. (Adger W. neil et.al. 2021) The catchment analysis among the malhar of Pithagola area has helped to understand the way resources exploited, to assess the economic potential of the site and the nature of interaction with the sites located in the catchment area of Pithagola and beyond. The survey around the Pithagola shows that the Malhar people collect wild product in a limited geographical area. This

collection also varied, whether they were going for collection in a group or individual. This also again varies if they are in a male group or in a female group. Trading is the most important for them, so that sometimes they go beyond that catchment area. As the Malhar people are nomadic in nature, gathering is the primary occupation for them. They divide the role in each activity for each individual due to the physical variance and lack of knowledge in both gathering and hunting exercise. In most of the tribal societies hunting is regarded as the main activity of male member which involves high class of physical labor. But in subsistence the women have enjoy the equal status due to good knowledge about food processing. During gathering activity both male and female play equal role in procurement as they have much knowledge to identify the *Discorea* species in Kalapat Reserved Forest. Women among this community collect wild yams whereas male member have been engaged in hunting and dammar resin collection. The study of the catchment at Pithagola has brought to light reconstruction of the exploitation pattern and strategies, long distance trade and interaction with the nature and other social group. The Malhar community established their settlement in this catchment area because of the number of prevailing favorable ecological factors. This gives a rough idea about the way in the resources were exploited by any community in past.



a = Male (Individual), b = Female (Individual), c = Male in group, d = Female in group

Fig. 9: Catchment Analysis among Malhars showing Male and Female activities

to lack of understanding of the modern market exchange and exchange rates, they are bound to sell their original products in a distasteful price or are being looted by the other sellers in the towns which do not allow them to earn a profit. Malhar settlements are mostly influenced by the seasonal availability of resources. These settlements are characterized by high degree of mobility with relocation occurring as environmental conditions fluctuated. The findings from the above suggest that the Malhar group's ability to exploit local ecological resources allowed them for a high degree of resilience and adaptability. By observing their behavioral pattern, I can infer that the prehistoric forager followed similar seasonal and ecological cycles, with settlements where they could easily get the forest resources. Catchment analysis of this area helped to understand the way resources were utilized, by the Malhar people to assess the economic potential of the site and the nature of interaction with the activities area. These studies are relevant because this semi-nomadic group still following prehistoric mode of subsistence and settlement pattern.

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