

STUDY OF TRIBAL SETTLEMENT IN MATHERAN VALLEY

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ABSTRACT

The indigenous wisdom of tribal settlements reflects diverse culture of India. Tribes have different styles of vernacular architecture, responding to its native environment. This reflects an advanced response to four spheres of sustainable living that is social, cultural, economical & environmental. The settlement consists of composition of built and un-built spaces. There are many tribal settlements in Raigad district of Maharashtra; few of them are in Matheran valley surrounded by Sahyadri ranges. The region is important because of being an outlier of the main Western Ghats and is covered with evergreen thick forest rich in flora and fauna. It is declared as eco-sensitive zone. This research paper studies about the tribal settlements in the Matheran valley and their lifestyle. The paper focuses upon documentation of the settlement with reference to its physical setting and environmental conditions; study is carried out to understand the concept of indigenous habitat and its integration with nature. The study concludes that for a tribal settlement to sustain in its native lifestyle, all 4 spheres needs to be equivalent and flourishing. As balanced economy plays a vital role for a healthy lifestyle, ecotourism is proposed, thus strengthening the other spheres and sustaining the tribes.

KEYWORDS - tribal settlement, vernacular, sustainable, ecotourism.

INTRODUCTION

India has a tribal population of 104.28 million. Maharashtra has the second largest tribal population in the country. The total tribal population living in the geographical boundary of the State is estimated to be 10.51 million, which is 9.35 per cent of the total population of the state [1]. The tribal people constitute the most deprived and neglected section of the population in the State.

The Western Ghats of India are one of the hottest Biodiversity hotspots of the world that are endowed with a rich diversity of plants and animals [2]. Matheran is an outlier of the main Western Ghats. It has a rich natural environment with dynamic landscape. The deep valleys around it are covered by dense forests and the top of the hill is a large plateau. [3]. To protect the unique flora, fauna, mountain ecosystem and serenity of this area, Central Government declared it as an Eco sensitive Zone. This Eco-Sensitive Zone covers an area of 214.73 sq km. [4].

In addition to rich biodiversity, the Western Ghats are a home to diverse social, religious, and linguistic groups. There is high cultural diversity of rituals, customs, and lifestyles in the region, including a significant population of tribes and forest dwellers. The Katkari (Kathodi) tribal community is found in the Matheran valley. A Katkari settlement is called a Katkariwadi. This research paper studies two such tribal settlements, Arkaswadi & Pirkarwadi located in Matheran valley region on the banks of river Dhavari. These settlements are base camps for the trekkers of Matheran & Prabalgarh. These settlements came into existence during the construction of Morbe Dam in 1999.

TRIBAL SETTLEMENT IN MATHERAN VALLEY

Regional context and location

The Matheran region forms a major part of the Matheran Malang gad hill chain that consists of Malang gad, Prabalgarh and Irshalgarh. This 30 km stretch is an outlier of the Sahyadri range that is long chain of hills stretching from Mumbai to Goa in the south [5]. Matheran lies in Karjat taluka of Raigad district in Maharashtra State, India. The study areas, Pirkarwadi and Arkaswadi in the Matheran valley are under eco sensitive zone of Matheran.

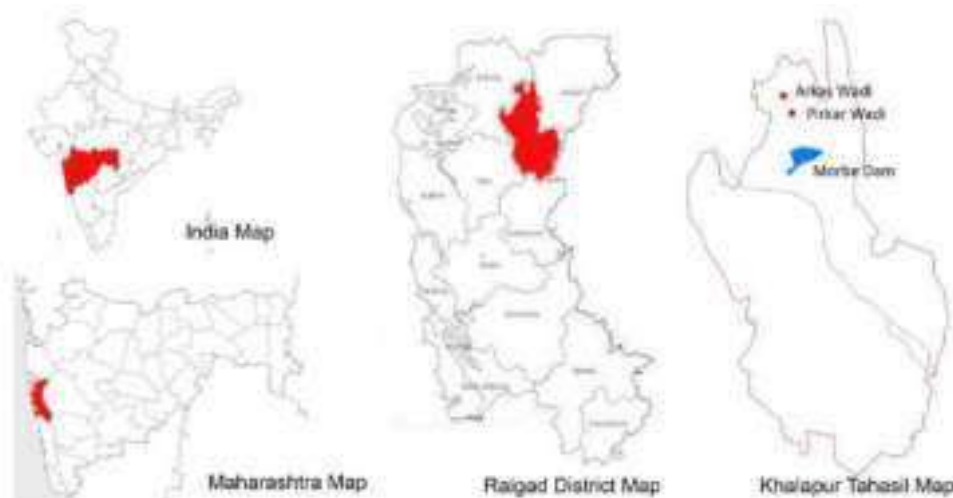


Fig. Number 1 –Location of settlement (Source: Google Earth 2019)

Methodology

The approach adopted for this research study is observational descriptive method. Primary data was collected through interviews, field observations and through surveys. Secondary data was collected from State and District Government offices, Indian Meteorological Department and from several research papers, related articles and reports. Empirical Survey was conducted for data collection of the tribal settlement, to study the impact of four spheres of sustainability, which are social, cultural, economical and environmental.

Climate

The climate is warm and humid climate [6]. Summer starts from February and ends till May. The temperature is highest in the months of April and May. It ranges from 38 to 40°C. Winter starts in November and ends till February. Temperature is lowest in the months of

Economy

Forest is the basic life supporting system of tribes. Their occupation is agro-forest based. The tribes indulge in various activities to earn their livelihood. The occupation of the tribes is classified into four groups namely daily wage workers, agriculture, fishing and animal husbandry (cattle rearing). The daily wage labourers work on construction sites or as bamboo handicraft workers in the neighboring villages and nearby towns. The river near the settlement has promoted agriculture and fishing activities. Tribes who own farmlands practice agriculture. Rice is the major crop grown in the Kharif season. They also grow certain vegetables like bitter gourd, bottle gourd, beans, ridged gourd and green leafy vegetables. The cattle rearers look after domestic animals like cows, goats, sheep and birds like hens and roosters.

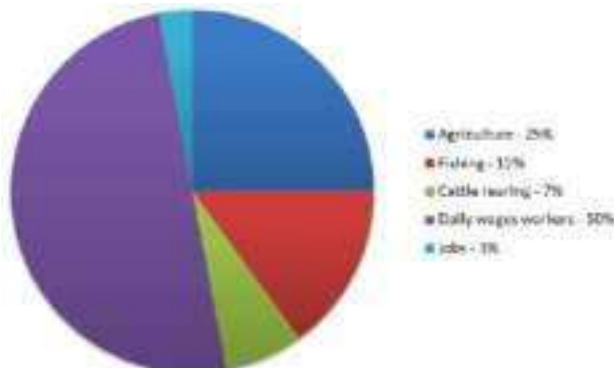


Fig. Number 2 –Occupation of tribes in the settlement (Source: Author)

Demographics

Pirkarwadi consists of 37 houses. It has a total population of 213 people comprising of 110 males and 103 females. Amongst them there are 33 children belonging to age group of 0 to 18 years. Arkaswadi is a small settlement consisting of 4 houses. It has a total population of 32 people comprising of 14 males and 18 females. There are 9 children belonging to age group of 0 to 18 years.

Settlement

Humans started living in settlements from prehistoric periods. Community living started developing for safety and security reasons. Every settlement genesis is near resource of water. These settlement patterns are in linear, nucleated & cluster forms. These settlements being at the foothills of matheran are far away from the main highway and also from the city thus for education facilities and health care facilities they have to depend on the neighbouring city.

Arkaswadi and Pirkarwadi, in Matheran valley are dispersed type of tribal settlements. These settlements are developed according to the topography of the place. They are in form of clusters of three to four houses. There are no defined pathways connecting the clusters. Arkaswadi is a cluster of four houses, all of them are kuccha houses with common courts. The back yards of the houses are the farmlands. There are common warehouses for storage of farming equipments. Pirkarwadi is comparatively larger settlement having five clusters of kuccha houses with common courts.

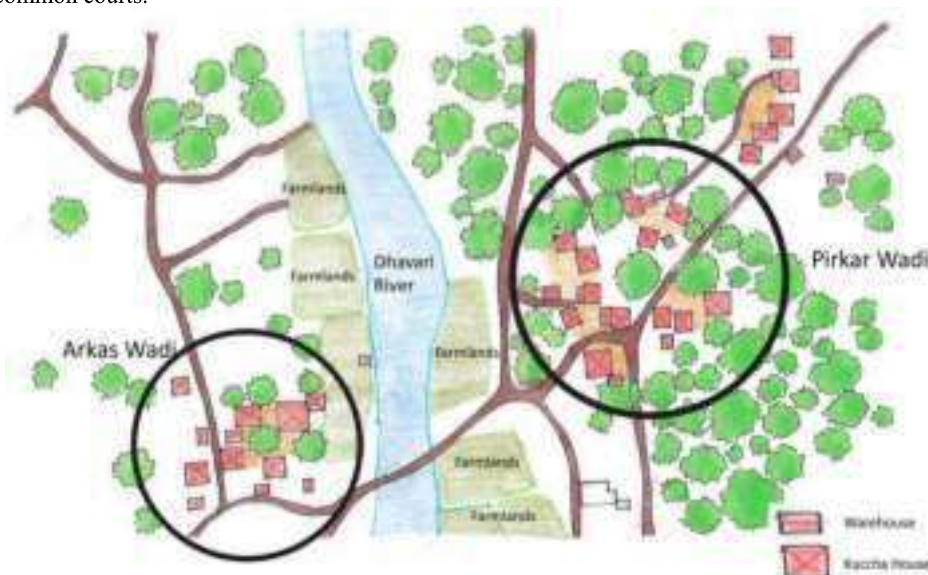


Fig. Number 3 – Settlement pattern (Source: Author)

Housing typology

The tribal housing typology is Kuccha houses. All the housing typologies have a semi open space, verandah (otla) at the entrance. It is used as a sit out space, which also serves as an interactive space. It is covered by a lean to roof which is an extension of the sloping roof. The habitats can be classified into four typologies on the basis of their spatial configuration.

Typology 1 consists of a single multifunctional room. A semi open space (padavi) is attached to the room, which is used for keeping hens and roosters. It is also used for storing fuel wood. As these houses do not have proper allocated storage space, they usually have storage bins to store the grains. The bath area is a temporary shed outside the house.

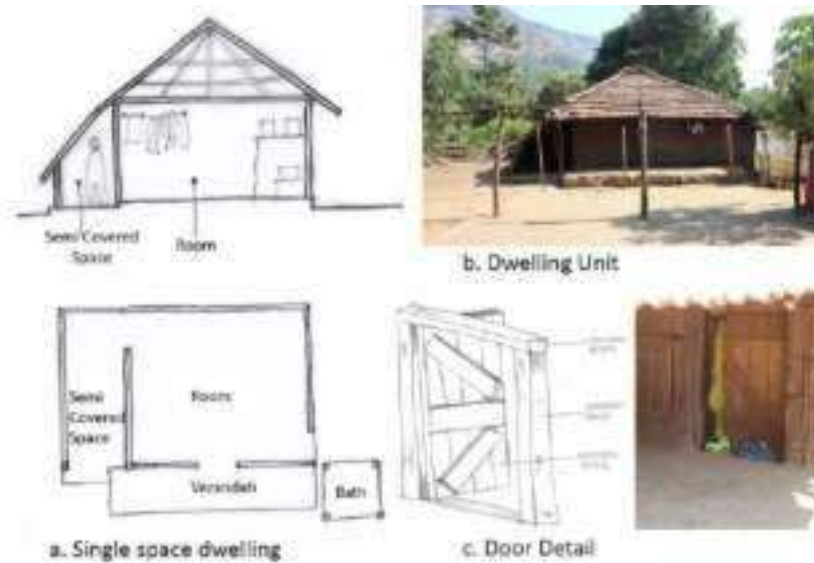


Fig. Number 4 –Housing typology 1 (Source: Author)

Typology 2 consists of a multifunctional room with a cooking area separated by a partition wall. It has a semi open space (padavi) for keeping hens and roosters. There is a separate space for storage to store grains, groceries and fuel wood. There is a small semi open space (gotha) on the back side for cattle.

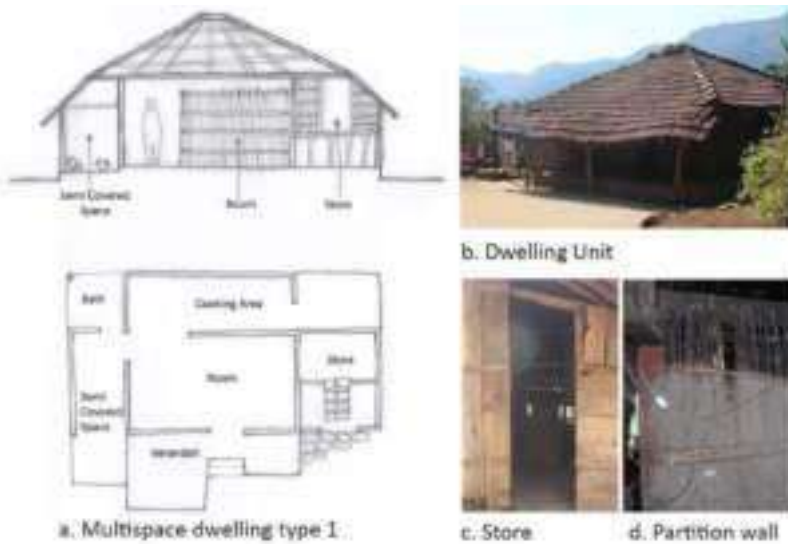
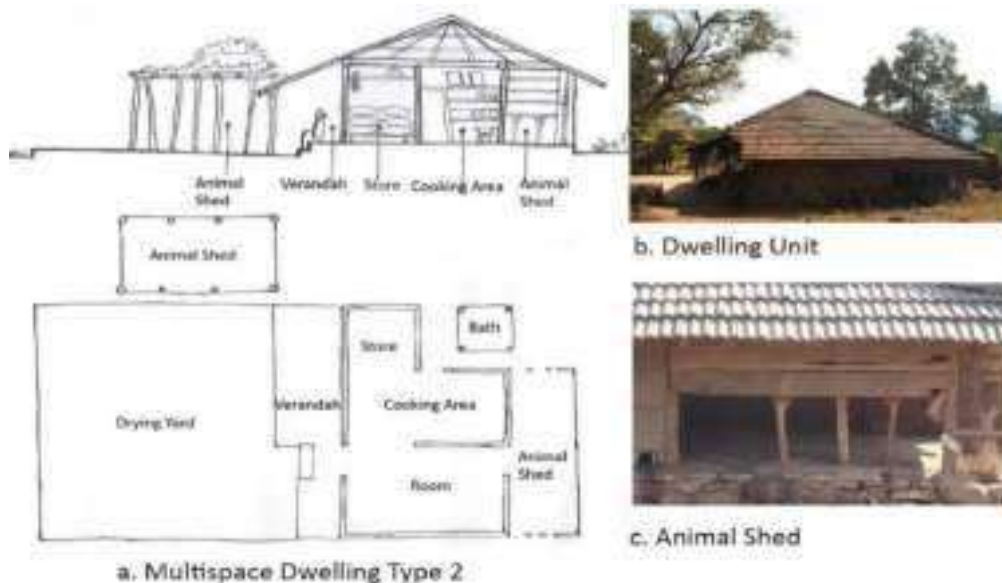


Fig. Number 5–Housing typology 2 (Source: Author)

Typology 3 and typology 4 follow a hierarchy of open, semi open and covered spaces. It has a semi covered drying yard in front of the house (angan) used for drying grains. A semi open enclosure on the backside is used as animal yard (gotha). There is a multifunctional room and a cooking area.



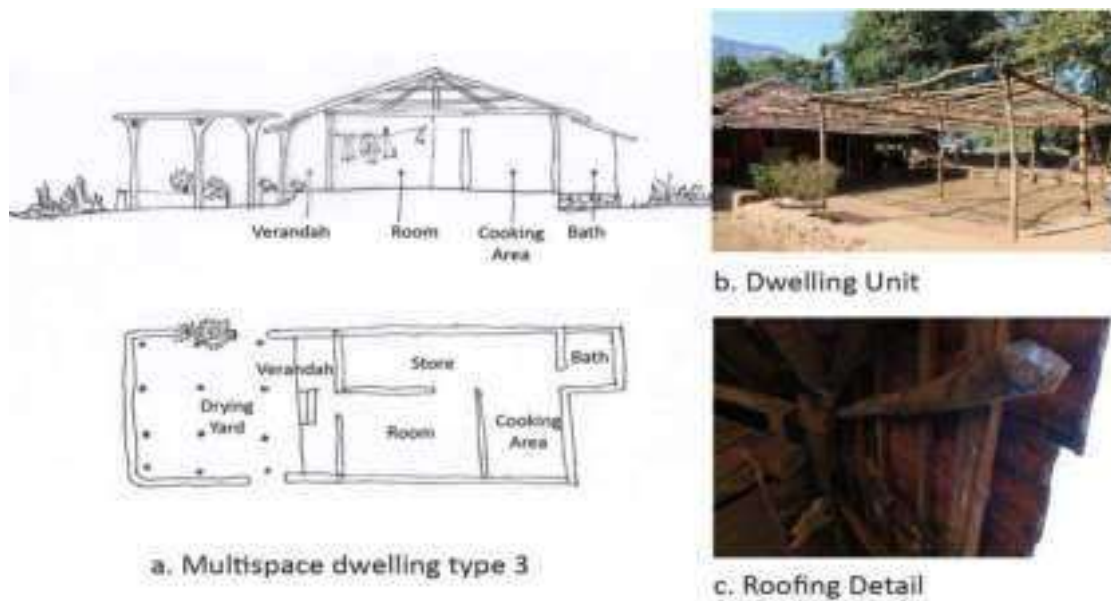


Fig. Number 7–Housing typology 4 (Source: Author)

Warehouses (Beda)

Some dwellings share a common warehouse (bedas) used as storage for agriculture equipments, some big utensils and in some places used as storage for fuel wood. During Monsoons River passing through the settlement gets flooded so the tribes store enough grains, groceries and fuel wood to meet their needs.



Fig. Number 8 –Warehouse (Source: Author)

Climate responsive architecture

The passive design strategies used in the tribal habitats provide indoor thermal comfort. Since the climate is warm and humid type, the orientation of houses is such that the direct penetration of sun rays is minimised. The drying yard (angan) in front of the houses and the backyards help in wind circulation. The semi open spaces like verandah (otla) and padavi help in reducing solar gain. The wattle and daub walls absorb moisture in humid conditions and release it when conditions are drier. They allow openings for ventilation and entry of filtered light into the structure. The plan with minimum partitions allows cross ventilation. The pitched roof finished with clay tiles helps in drainage of rainwater. It also serves as a means of escape for the hot air from the gaps in between the clay tiles and hence keeps the interiors cool. The roof overhangs provide shade and also protect the walls from rainwater.

Construction techniques

Tribal people adapt to sustainable lifestyle as they admire nature the way it is, hence locally available materials are used for construction of their dwellings. The plinth height is varies from 0.15 m to 0.45 m. Plinth is constructed with locally available stone. It is then pressed and finished with a final layer of cow dung and mud slurry. The housing typologies have plinth extensions in form of otle (verandah), padavi (semi open space), gotha (animal sheds).The walls are made up of wattle and daub walls. Wattle is made by weaving thin branches (either whole or split) between vertical members. Daub is a mixture of cow dung, rice husk and red soil. It is then applied to wattle and allowed to dry. Partition walls are made from thin tree branches cut into halves that are tied by using twigs, usually these walls are kept unfinished. Wall openings are made of locally available wood. They are of a lower width and height. The frame is tied with wattle and daub wall. The roof is pitched roof. It is supported by locally available wood for making of rafters and battens and clay tiles are used as roofing material. Semi Covered spaces like otle, padavi, bathing areas, gotha are later extensions to the roofing system.

Sustainable practices

The tribal settlement is analysed on the basis of four interconnected spheres of sustainability : social, economical, cultural and environmental.



Fig. Number 9 –Spheres of sustainability

Social

The tribal community is a self-reliant community based on principles of simple living. Since the major occupation of tribes is agriculture, their daily movement is either by walking or on carts, which increases the amount of interaction between them, thus contributing to social cohesion [9]. The women are engaged in household activities. The river being the only source of water, it becomes a place of interaction for the women. Their houses share common meeting spaces between them and are used for various community activities raising social value.

Economical

The economic dependency of the tribes is mainly upon agriculture and forest products. Since they have a controlled population growth, it helps in less resource depletion. They build their own storage bins for grain storage. These bins are made with least possible resources. In this way, they manage scarcity and hence satisfy their needs. They use roof top solar panels to generate electricity, which is a renewable source of energy. This reduces resource consumption and promotes economic growth.

Cultural

The tribes maintain cultural beliefs and traditional practices. The festivity is the essence of tribal life [9]. The community celebrates festivals such as Ganesh festival and Holi together. They have traditional ecological knowledge of plant species used for different purposes such as food and medicine.

Environmental

The climate responsive architecture of tribal habitats using locally available materials and eco friendly design principles provides them thermal comfort. The wastewater from the houses is disposed on the streets or directed in the backyard, which dries up in the sun. The waste from the cattle is used as organic manure. Cow dung is used for flooring in their habitats. The tribes use minimum natural resources. Though they are dependent on forests, they do proper management of forest products.

CONCLUSION

Future progress should be in the interest of maintaining ecological integrity. The existence of an undeveloped tribal settlement is strongly associated with the social and economic condition of the population. Matheran valley being eco sensitive zone, limits scope for future development in the region. But the indigenous construction techniques of tribes and use of natural resources and locally available materials should be conserved and the knowledge should be transferred to the coming generations. The tribal community respect the flora & fauna and their inter relationship with each other. The massive indigenous knowledge of tribes in protection and conservation of natural resources and environment should be passed on to the people. So, ecotourism can be proposed in the area as a sustainable approach to tourism development. Eco tourism can also be a source of economy generation for the tribes. Tourists can explore the natural areas, educate to protect the environment and help developing the local people. Apart from providing them employment to the local people, ecotourism will also promote conservation of natural assets and enhance the cultural integrity. The location of tribal settlement in Matheran valley also gives an opportunity for home stay programmes. These programmes can be designed for the tribal settlement, which bridge the connection between tribal lifestyle and urban lifestyle. The economical development can support the environmental aspect of sustainability which is main objective of ecotourism. It is not necessary to disturb ecology for development but both can go hand in hand with thoughtful land use and integrated planning. This can help to sustain the entire ecosystem and thus help in protecting the species and also to spread awareness along the globe.

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