

Learning from our best practices of vernacular for better future: a case study of central India's '*Gond*' tribes

Devarshi Chaurasia

Department of Architecture, School of Planning and Architecture Bhopal, Bharat (India)
Email: dchaurasia@spabhopal.ac.in

Apurv Shrivastava

Department of Architecture, School of Planning and Architecture Bhopal, Bharat (India)

Ashish Patil

Department of Architecture, School of Planning and Architecture Bhopal, Bharat (India)

Sandeep Sankat

Department of Architecture, School of Planning and Architecture Bhopal, Bharat (India)

Abstract

In Today's world vulnerability at its high in terms of loss of human values, culture and identity of a community. Human settlements are now flooded with modern materials, technologies and endless race of materiality and tangibles, due to this environmental degradation happens. To overcome the negativities, concept of 'Vernacular' may be the answer, As it is flourished, experimental and tested for a long period of time.

With this paper, I would like to showcase the 'vernacular lifestyle' of '*Gond Tribes*' settled in large parts of central India. Study would be focused on vernacular material, culture and Art form of '*Gond Tribes*'. The Construction of dwelling unit and maintenance of various parts of the building with local natural material reflects the in-depth indigenous knowledge of tribal community. The connect is evident with nature observed through day to day activities.

The study shall be based on field visit, documentation, primary survey and information gathered through secondary sources. As conclusion, I may be able to establish a fact that sustainable future may lies within the sustainable practices of vernacular.

Keywords: Vernacular, Material, Construction, Culture, Art, Built form

1. Introduction:

Gonds refer to a group of aboriginal peoples, officially designated as Scheduled Tribes of central and south-central India, with a population of about two million in number. They live mostly in the states of Madhya Pradesh, Maharashtra, Telangana, Andhra Pradesh, Bihar, and Odisha. The majority of the Gonds spoke in various languages, but mostly in dialects of Gondi, and not scripted language of the Dravidian family. (www.geeksforgeeks.org)

Statistically, the tribal population of Madhya Pradesh is 14% which contributes to 8.6% of India's population. These communities have a functional aspect, are conservational in nature, and are known for their hospitality. The majority of these communities are based on women and their vital role in developing a family. These communities consist of rich culture, heritage, and traditions passed on from numerous generations. Two significant communities among them were the *Gond* and *Baiga* tribes respectively.

The Aim of the study is to explore and spread words about the tribal people and settlements, with specific objectives first as to understand the vernacular style of built and living condition, second objective is to connect with the traditional knowledge of tribes and how it is relevant to present day and context.

2. Literature Review:

2.1 History of the Gond Tribe of India

One of the earliest kingdoms of the Gonds was Chanda, founded in 1200AD, and the first defined revenue system was introduced in the Kingdom of Chanda. An extensive irrigation system was developed by the Kingdom of Chanda. They started building forts.

The previous Kalachuri rulers had been deposed by Jaduri in the 14th century and came to establish the Kingdom of Garha, and Rani Durgavati is one of the most famous warrior queens of Garha Mandla. The Gond kingdoms came under the sway of the Mughals for some time, but eventually, the Gond rajas were restored and put under the hegemony of the Mughals. Until the Third Anglo-Maratha War, the territories of Gonds were occupied by Marathas; a bit later British took over the revenue collection by controlling the influential Gond Zamindars. The colonial forest management policies of the British marginalized the Gonds. The Gonds depended on forests for their livelihoods, but their rights were snatched, which led to the Bastar Rebellion in 1910.

In the early 1920s, Komaram Bheem, a Gond leader from Adilabad, rebelled against the Nizam and sought a separate Gond raj and coined the slogan, "Jal, Jangal, Jamee" means 'Water, Forest, Land'. In 1916, Gondi intellectuals from various parts of Gondwana formed Gond Mahasabha (Council or Assembly) to protect the culture of Gondi from the influence of outside forces. In the 1990s, Heera Singh Markam and Kausalya Porte founded Gondwana Ganatantra Party to fight for their statehood.

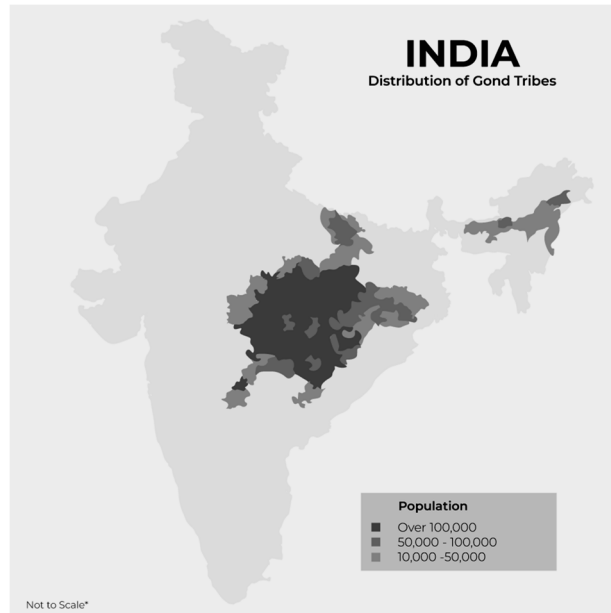


Figure 1: Gond Tribes distribution in India

Source: <https://www.geeksforgeeks.org/gonds-tribe-of-india/>

2.2 Settlement Living System

Each Gond village has a headman (known by local names such as mukhia, mahji, or patel) and a village council (panchayat) chosen by the villagers. The council consists of the headman, priest, village watchman, and four or five elders. It helps keep the village running smoothly and upholds Gond customs. Villages also have service castes such as Ahir (cowherds), Agaria (blacksmiths), Dhulia (drummers), and Pardhan (bards and singers).

A typical Gond village has several hamlets. Each consists of homesteads that house extended families. Houses are usually built of mud and thatch. They consist of a living room, kitchen, veranda, a special room for women to use while menstruating, and a shrine for clan gods. Gond houses contain cots and a few wooden stools; mats are used for sitting and sleeping. (www.everyculture.com)

2.3 Folklore

Hereditary bards and professional storytellers called Pardhans tell stories about Gond legends and myths. This makes for a rich oral tradition. In these stories, it is said that when Gond gods were born, their mother abandoned them. The goddess Parvati rescued them, but her consort Sri Shambhu Mahadeo (Shiva) kept them captive in a cave. Pahandi Kapar Lingal, a Gond hero, who received help from the goddess Jangu Bai, rescued them from the cave. They came out of the cave in four groups, thus laying the foundations of the basic fourfold division of Gond society. Lingal also is responsible for creating a Gond kinship system and establishing a group of great Gond gods. (www.everyculture.com)

2.4 Regional Drainage Pattern

The Narmada rises in the Amarkantak hills in Madhya Pradesh and flows for a distance of about 1,312 km. It flows towards the west in a rift valley formed due to faulting. It covers an area of 98,796 sq km and forms 27 km long estuary before out falling into the Arabian Sea through the Gulf of Cambay. It is the largest among the west flowing rivers of Peninsular India. Its principal tributaries are Burhner, Halon, Heran, Banjar, Dudhi, Shakkar, Tawa, Barna and Kolar. (<https://prepp.in>)

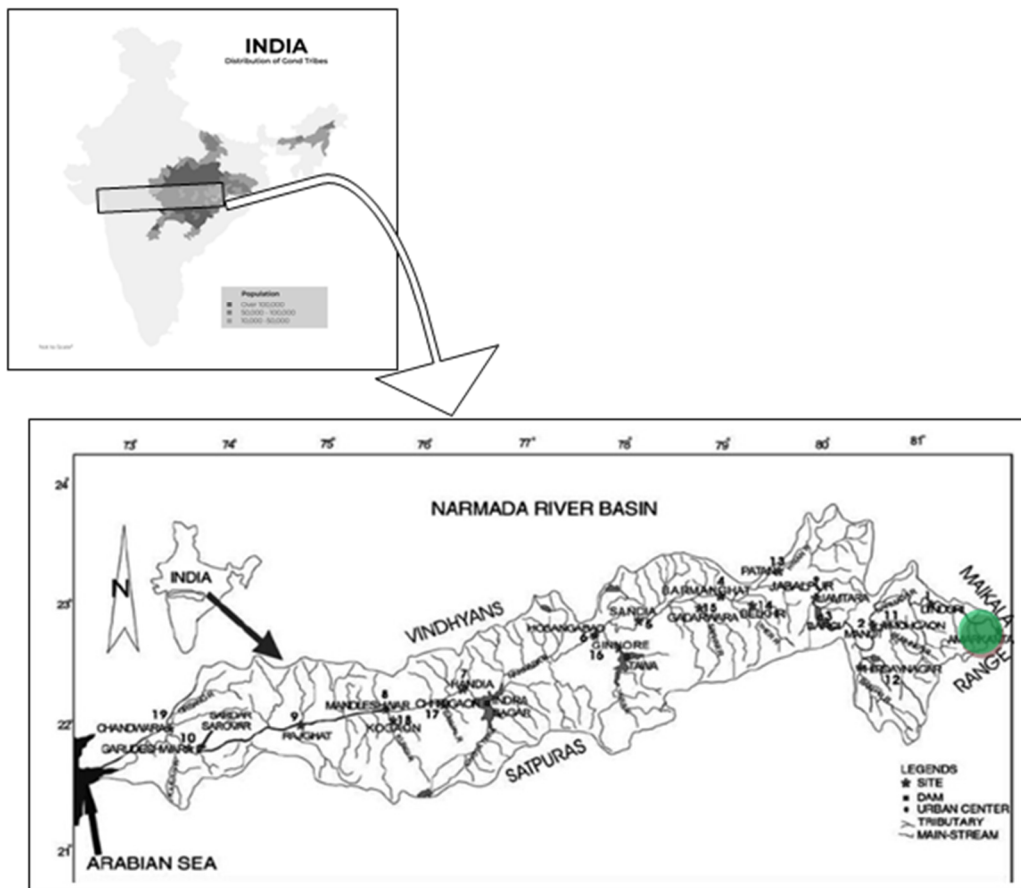


Figure 2: Narmada River Basin and Amarkantak Region in green circle

Source: <https://prepp.in/news/e-492-narmada-river-systems-in-peninsular-india-geography-notes>

2.5 Ecological Importance

The Narmada River rises from the Amarkantak Plateau in Anuppur district Madhya Pradesh. It forms the traditional boundary between North India and South India and flows westwards over a length of 1,312 km (815.2 mi) before draining through the Gulf of Khambhat into the Arabian Sea, 30 km (18.6 mi) west of Bharuch city of Gujarat. [4] With annual rainfall in the 1350 to 1600 mm range, the region is rich in biodiversity, endowed with dense and moderate forests, mainly of Sal, along with a variety of medicinal/herbal plants, justifying Amarkantak region's UNESCO listing for Achanakmar Amarkantak Biosphere Reserve (AABR). Amarkantak, the upper catchment area of the Narmada River in central India, has lost a significant percentage of forests and water bodies to agriculture and settlements in the last four decades, a recent study has said. This region (upper catchment area) is part of the Achanakmaar Amarkantak Biosphere Reserve (AABR). (Mahar R. B. at. al., 2023)

2.6 People Connect with River Narmada

River Narmada is the lifeline of Central India. It is a major perennial source which provides drinking water, fishes, water for irrigation of farms, dense forests, rich plains and plenty of other sources which are the means of survival and sustenance for the people living in the region. The entire length of the river is considered sacred and holy and has many myths and stories associated with it. Agriculture and fishing are the most common occupations in the valley region (Baviskar, 1995). The Narmada valley civilizations had a unique community based livelihood system, which was dependent on the landscape and centered on River Narmada. The livelihood culture is directly dependent on landscape resources. People of Narmada valley greatly respected the river and the landscape and built and worked in harmony with the environment, thereby creating a rich livelihood culture. (Tiwari S. at. al.)

2.7 Research Methodology:

A qualitative exploratory method: Ethnography, was used to assess tribal settlement living and Vernacular aspects as a means of descriptive information. Ethnography, explains the social life, culture, living style and built settlements etc. with focus on vernacular. Two villages namely *Garjanbeeja* and *Patangarh* with different scale and nature were selected in *Dindori* District of *Madhya Pradesh* state in India. A case is a "description of an actual ground situation, commonly involving a decision, a challenge, an opportunity, a problem or an issue faced by a person or persons in an organization. *"Principles are powerful but cases are memorable"*. The statement quoted from educator Lee Shulman is the underlying rationale for the use of all case-method teaching. The basic philosophy of case method is that real learning is acquired through experience. (Saraswathi, N., Sathyamurthi, K., 2016) On ground study was conducted along with visual observation through images/ photographs and vital information gathered through conversation/ questionnaire with native villagers of all age groups. Architectural knowledge applied to understand the built structure, material used and its climatic response and comfort. Mapping techniques used to generate village settlement map to know the logics/ reasoning of spread/ housing cluster formation as per social / cultural costumes and believes.

2.8 Gond Settlement Pattern and Habitat Typologies

The spatial settlement pattern is outcome of topographical character of the areas they have selected for settlement. The settlement pattern varies from various tribal communities as it is determined by location, sociological condition, occupation and ethnicity. The size of settlement is considerably small, cluster size is three to four houses and maximum number of houses in a settlement is 100-150. Tribes follow all together different pattern within the same geographical location and tribes often mingle among themselves. This variation is mainly due to their customs and culture, climatic condition, occupational pattern, topography etc.

At present the majority of the traditional village had undergone changes due to spatial arrangement patterns of the active response of the society. These changes arise from the development paradigm and the new innovations, so that the growth in the field of social, economic and culture is experienced (Alit, 2004; Chiri and Giovagnorio, 2012). However the development in the tribal areas is not at the pace of their urban or even rural counterpart. To analyze the settlement pattern of tribal of tribal areas which are unconsciously planned, function is to be studied as “function is an analogy between social life and organic life” (Mandal, 2001). The tribal communities consists of cluster, all arranged to form a social structure and their inter relation in terms of social contiguity. (Dhote, K.K. at. al. 2012)

2.9 Typologies of Village Settlements

As a part of studio exercise we visited Dindori District, in the state of Madhya Pradesh, Central India and explore two tribal villages named *Garjanbeeja* as forest hill settlement and Village of Gond painting artist and birth place of famous Gond painting artist Late Mr. *Jangarh Singh Shyam* named as *Patangarh*. As per site visit and observations, settlements were based on topography, no. of households and occupation etc. some settlements are really small and scattered limiting no. of housing units upto 20 to 25 (Figure: 3, 4). some settlements are grown and contents housing units upto 75 to 100 nos. (Figure: 5, 6). The growth of village is organic and the distinct impression is made by the road which connects the village with other villages. The clusters of the dwellings along the streets are formed on the basis of ethnicity. It is interesting to see that the streets are not a well planned but the outcome space between two houses facing each other. The houses are so placed that the street becomes the place of social cohesion and the back yard is connected to their farms or workshops related their respective occupations.

Another typology is of the tribes inhabited in the hills with no proper connecting road and one may reach their though natural forest trail. They depend upon forest produce for their livelihood. They are also engaged in farming on hilly slope. Unlike the tribal living in plain areas their dwellings are scattered (Figure:3, 4). They lived in clusters of three to four houses as shown in Figure:3, 4 and even these clusters are at different levels at certain distances because of undulating land form. These clusters are not connected by defined pathways as the houses are constructed in the fields itself.

Physical sustainability of the tribal settlements is depended on close proximity of their workplace and natural resources like water, farm land, forest etc. The initial setting up of these settlements was in harmony with such resources and is being preserved through their

community practices. Tribal settlements are restricted to day lighting and the orientation of their settlement is such that they get maximum ventilation and minimum solar radiation. The streets are leftover spaces between houses and serves as natural drains. The pattern of the settlement, linear or clustered is derived out of the land form.

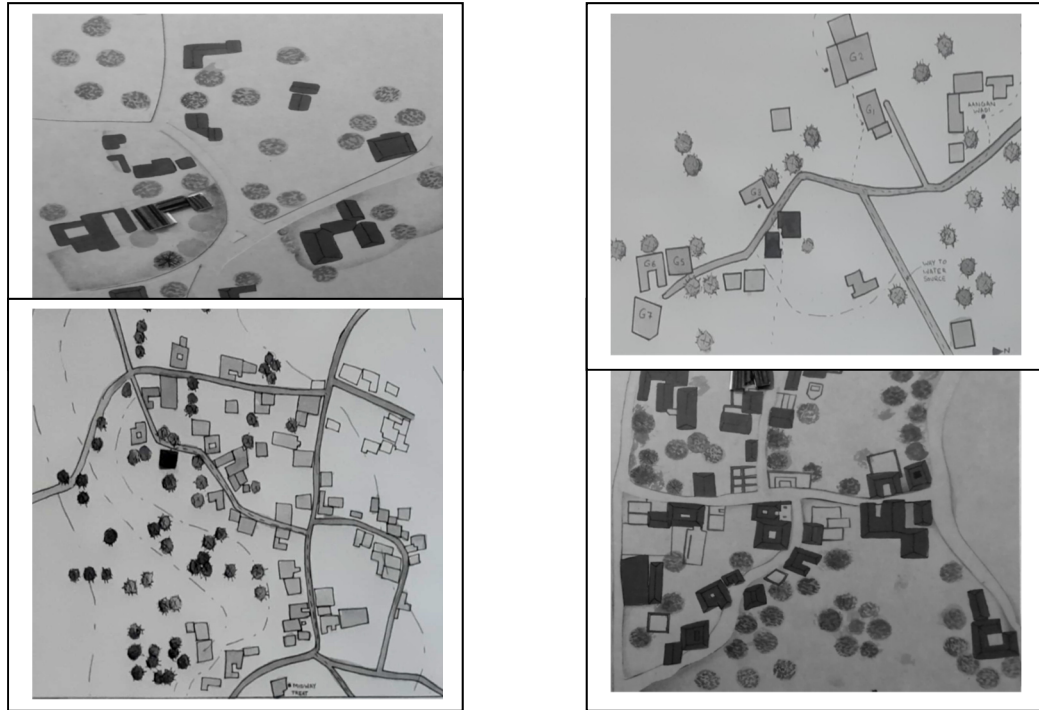


Figure 3, 4, 5 and 6: Typologies of tribal village settlements

Source: Site Visit Case study/ Studio

2.10 Sustainability in Living

The sustainability aspect requires use of resources available in our physical context, land, water, and forests etc. In context of development, sustainability refers to optimal utilization of resources whereas tribes are using minimal resources. The settlements have single resource of water which is a river, waterfall, spring or a community well. There is no provision of sewerage in those settlements. The waste water is directed into the backyard. The waste from animals is collected in the outskirts for preparation of organic manure. The nucleus villages, houses people from various communities. It includes people from various occupations to fulfill their needs such as people like carpenter, blacksmith and potter. The festivals are incomplete without the involvement of tribal community. The festivity is the essence of tribal life. The simple and straight community enjoys festivals with great passion and joy. Music, painting and artifacts have become a source of income for them. Their knowledge about herbs and other forest products is helping in conservation of biodiversity too.

2.11 Housing Typology: Habitat

Housing typologies of tribal area is an amalgamation of values, cultural knowledge, day to day working habits, occupational pattern and ultimately leading to their habitat. Typologies can be worked out on the basis of spatial configuration, use of materials and building technology & form.



Figure 7, 8 and 9, 10, 11: Typologies of Gond Habitat

Source: Site Visit Case study

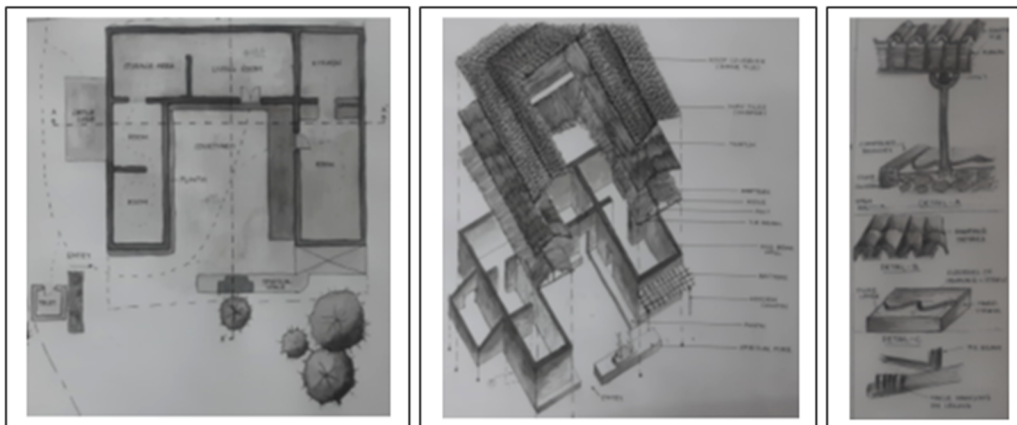


Figure 12, 13 and 14: Typologies of Gond Habitat

Source: Site Visit Case study/ Studio

The first type of house, the Figure: 7, 8 are found in clusters. The unit appears to be one Rectangular block with a sloping roof. Within the rectangular plan partition walls are erected to separate living from cooking space. The walls are directly exposed to sun and very small openings are provided for ventilation. The animal yard is constructed nearby.

The second type of house, the Figure: 12, 13 are found in linear pattern and follow the hierarchy of semi open, covered and semi open spaces. In this case the house is elongated along the major axis and there are no openings on side walls. Bamboo baskets or the grain storage made up of mud are used for creating partitions in living spaces. The house is of mud

walls with pitched roof with earthen tiles, reeds are used for partitions. For cattle a temporary structure is erected either in front of the house or along the side walls.

The main building material used for constructing the load-bearing walls of the dwellings was adobe, since earth is the most plentiful resource in the region. Adobe units were made of earth, which could be found on site, mixed with straw along with water. Stones were used to reinforce the wall. In the case of houses in hilly terrain where bamboo is plentiful, the walls are made of split bamboos. The walls are often made of bulrushes, maize stalks. The roofs are hipped, double lean and lean to roof. The roofing is done with earthen tiles. The earthen tiles are supported by a timber framework. The timber used is crude and undressed, the straws or bamboo strips are used to provide the support to earthen tiles. This make the roof perforated and allows ventilation. The load-bearing walls support the roof frame placed above. The Eaves of the roofs are projected along with the length of the house. This projection protects the erosion of mud wall during rains and also provides sunshade. The temporary structure for cattle is constructed with four wooden post and flat thatch roof; reeds are also used for partition walls. The lintels were of timber planks. For ventilation circular voids were left in wall. Bamboos were used as grill in case of large openings. The mezzanine floor of the dwellings consists of the wooden logs or the beams that bear the wooden floor placed right above the timber ties. They make huge storage bins for grain storage. Generally, the bins are quite tall and square in shape. Cow dung and mud is applied for finishing and surfacing of flooring and walls. The houses are decorated by painting the figures of animals, birds and vegetation. Relief work is also seen which is done by using rice husk and mud.



Figure 15: Typologies of Gond Housing Unit
Source: Site Visit Case study/ Studio

2.12 Use of Vernacular Material and Sustainable Practices

'Vernacular' is derived from the Latin word 'vernaculus', meaning "domestic, native and indigenous". Vernacular architecture is a term used to categorize methods of construction which use locally available resources and traditions to address local needs. Vernacular architecture tends to evolve over time to reflect the environmental, cultural and historical context in which it exists. It is an indigenous architecture with specific time or place (not imported or copied from elsewhere). In contrast to planned architecture by architects, the building knowledge in vernacular architecture is often transferred /learned by local traditions and is thus more - but not only - based on knowledge achieved by 'trial and error' and often handed down through the generations rather than calculated on knowledge of geometry and physics. People have different forms of shelter appropriate to different seasons and geographical locations. The development of different solutions in similar circumstances because of cultural influences is typical feature of vernacular architecture. (Burele S.M., Valsson S. 2018) In the absence of external forces, growth in traditional settlements was mostly driven by the daily needs of users and mechanisms that emerged from a symbiosis between the social norms, occupation and religious customs (Besim, 1994; Akbar, 1988).

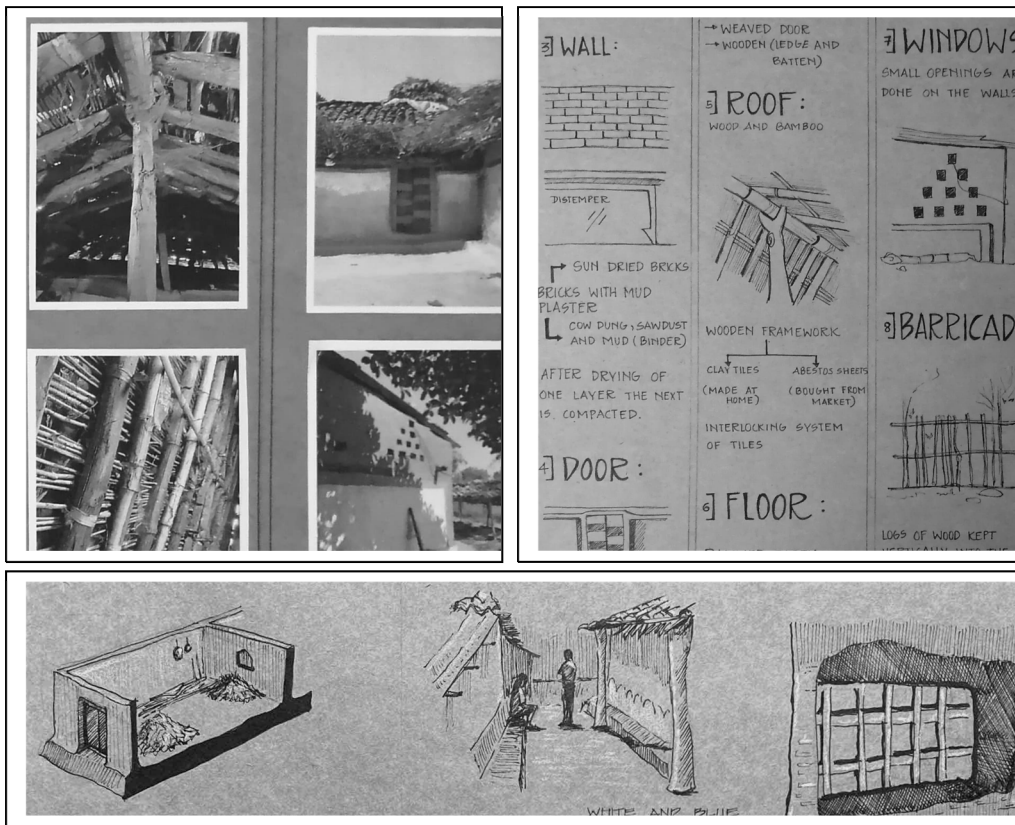


Figure 16: Construction Detail and Material used in Gond Housing Unit

Source: Site Visit Case study/ Studio



Figure 17: Gond Paintings, Metal and Bamboo Art and Mud Art on Wall
Source: (Panda, P., Sahoo, T. 2012), (<https://dindori.nic.in>)

2.13 Microclimate and Sustainable Approach

The climate of central India is tropical. However for thermal comfort, microclimate plays a important role. Typically thermal comfort needs to cut solar gain, ventilation and sufficient natural light in day time. During the night time in winters the heat gain inside the house needs to be retained. In monsoon protection for dwellers as well as the cattle is required. The habitats on plains have moderate climate as compared to the hilly regions. In hilly regions the days are warmer and the nights are cooler. The pitch roof of covered space allows hot air to escape from the perforation and joint of the roofs and creates air draft. The thermal gain in the covered space is retained during winters. The open courtyard, low height semi open spaces and covered spaces with pitched roof modulates the air movement. The pitched roof typical in all tribal houses shows an understanding of stack effect. Hot air rises by stack effect and is infiltrated out via gap in between the earthen tiles. (Burele S.M., Valsson S. 2018), (Hiwarkar, A.S. at. al. 2019)

3. Conclusion:

Inferences and Learning

Tribal settlement buildings are oriented to minimize the solar gain during summers ensuring adequate daylight and protection from rains. The spatial configuration allows thermal comfort and sufficient privacy and interactive spaces amongst the habitat. The materials used for construction is low embodied energy and provides thermal insulation. All natural material used for construction soil, undresses wood, local stone, agro waste like rice husk, cow dung etc. such material go back to nature without harming it. Soil, cow dung, stone, agro waste used to construct every part of the built structure from foundation to roof. Cow dung and soil slurry used to provide smooth floor and wall plaster finish and maintains hygiene. Wood from near forest is used to make roof truss and roof covering frame along with thatched roof covering. Handmade sun dried earthen tiles and mud bricks being used to make walls and roof covering. Building achieves environment comfort as it is climate responsive with heat insulation properties. Smaller sized openings in walls provide less light glare also protects from hot winds of summer. Extended roof eaves and projections protects

wall surfaces and internal spaces from rains. Raised plinths on outer face of the building protect the structure to avoid water absorption and avoid probable damage of foundation. The tribal settlements and building units demonstrate an adequate use of native material resources, and respond to climatic conditions using eco friendly design principles that provide human comfort. These design decisions are consistent with the form, orientation and materiality of the buildings. Their combination of social, functional and environmental reveals life full with color, flavor fervor which, instead of imposing on the nature it evolves from it.

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