

Vernacular to modern in the search of sustainable development

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Abstract

India has a rich cultural heritage. Madhya Pradesh is a state located in the Central India. It is known for its tribal culture and habitat. Each tribe has a unique settlement due to climate, topography and availability of materials. The culture and architecture are closely knitted. The paper aims to study the settlement of 'Saharia' a primitive tribe from Madhya Pradesh. The objective is to understand its socio-cultural, ecological, architectural and economic aspects. The methodology adopted is to document and analyse 'Saharia' tribe on these aspects. Globalization had brought a major change in social and cultural life of people. The result focuses on the adaptation of appropriate technology using locally available materials and knowledge. It requires an innovative and creative approach to incorporate the traditional knowledge in the contemporary design. The work of architects who worked on similar ideology are studied. The paper concludes by learning lessons from vernacular architecture and its adaptation in the modern context.

Keywords

Adaptation, Settlement pattern, Sustainable development, Tribe, Vernacular.



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Figure 1. Map of India showing different states (Source: <http://geocurrents.info/-Map.png>).

Figure 2. Map of Madhya Pradesh showing districts (Source: <http://www.ndma.gov.in>).

Figure 3. Map of India showing tribes population in India (Source: <http://tribal.nic.in>).

1. Introduction

Madhya Pradesh is a state located in the Central India. It touches five states namely Gujarat, Rajasthan, Uttar Pradesh, Chhattisgarh and Maharashtra. The state can be divided in four cultural zones such as Bundelkhand, Baghelkhand, Malwa and Nimar. Each zone has its own cultural identity such as language, dialects, customs, rituals and beliefs. The state is famous for its tribal arts and crafts in bamboo, wood, metal, metal casting, pottery, terracotta and textiles. According to the 2011 census, the population of Scheduled Tribals (ST) is 20.30% of the state population (15.316 million out of 72.628million), total numbers of scheduled tribes in M.P. are 46. Some of them are Saharia, Gond, Bhil, Baiga and Korku.

2. Culture and Architecture of Madhya Pradesh

The state is famous for tribal culture and folk traditions. It is also known for its visual and performing arts. These art forms are closely associated with their beliefs, customs, religion and values. In textiles Mahaeshwari, Chanderi sarees are known for weaving, Bagh and Batik

are known for printing. These designs are evolved and inspired from the surrounding environment. The weaving pattern in Maheshwari sarees 'Laharia' is most dominating; inspired from the holy river Narmada.

These patterns of textiles are also reflected in the vernacular architecture. Dancing and singing are part of their daily life. It is a community activity performed each day after the work. Therefore, these activities have evolved the necessity of a community space like courtyard and chaupal in the settlement pattern. This resulted in a strong social binding among the community. Each tribe has its own way of settlement pattern on the basis of their culture and lifestyle like Saharia has circular, Bhil has scattered and Korku has linear. The interior walls of houses are depicted with the figures of birds, animals, trees and god-goddess through relief work. During the festivals and rituals, murals depicted on the walls are Pithora, Sanjha and on the floors are Mandana, Alpana. They adorn their roof tiles with human images and some figure which have something to do with witch-craft and evil spirits.

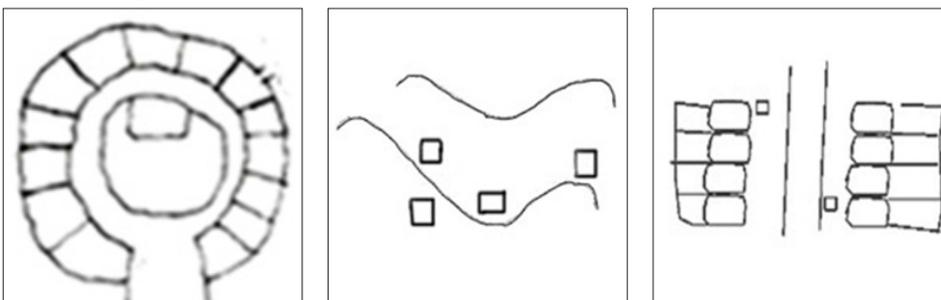


Figure 4. Plan showing circular settlement pattern of Saharia tribe (Source: Author).

Figure 5. Plan showing scattered settlement pattern of Bhil tribe (Source: Author).

Figure 6. Plan showing linear settlement pattern of Korku tribe (Source: Author).



Figure 7. The route map till 'Khariyapura' village (Source: <https://www.google.co.in/maps>).

Figure 8. The geology of the near by villages (Source: <https://www.google.co.in/maps/search/>).

Figure 9. The settlement of Saharia tribe (Source: <https://www.google.co.in/maps/search/>).

3. Objective

The objective of the paper is to understand the socio-cultural, ecological, architectural and economic aspects of 'Saharia' tribe. Saharia is a primitive tribe of Madhya Pradesh. They were formerly the dominant branch of the Kolarian family (Chaturvedi, 2006).

4. Methodology

Morena district has been chosen for the study of Saharia tribe, it is located on the north-west of Madhya Pradesh. The total population of Morena is 1592714, total population of scheduled tribes is 12,974 and that of Saharia tribe is 7143. It is about 55% of the total population. As per the scheduled castes in the Constitution of India, Saharias are numbered as 42 (Chaturvedi, 2006). It has been documented and analysed on various aspect of tribal settlement.

5. Documentation of different aspects of vernacular settlement

(a) Socio-cultural aspect

Saharia word is derived from Persian word sahara, which means jungle. Saharias are called so because they live in jungle, dependent on forest for their livelihood. The tribe took their name from their habit of carrying axe in their hands. They belong to the cultural zone of Bundelkhand. They are found in Guna, Gwalior, Shivpuri, Bhind, Morena, Vidisha, Raisen districts of Madhya Pradesh. Saharia tribe lives in a closely knitted community among themselves

but in isolation from the village and other tribes. The Morena district has 12% joint and 94% nuclear families (Chaturvedi, 2006).

As the tribal culture has a long standing stability in terms of its own identity. There is a greater unity of expression between its architecture and other areas of expression. It reflects in the way they dress, the way they built their houses and beautify them and even greater in the objects of their daily use. The fairs and festivals are an indispensable part of their life.

They celebrate Dusharra, Deepawali, Tejaji and Assar puja (festival of rain). The God-Goddess worshiped are namely Thakur Baba and Beegasan Mata. The 'oral tradition' of stories, anecdotes, folk tales and puzzles are very popular among them (Mondhe, 2008). They sing and dance their popular songs are Banna-bannai (blessings) and Rasiya (romantic songs) on the occasion of birth and marriages.

Men wear a small dhoti (loincloth), saloako (shirt) and a safa (turban). Women wear a long skirt (lugda/ghaghara), upper garments (angi/coli/saluki) and sari (Mandal, 1998). They usually have their own unique designs of jewelery and ornaments. The popular motifs are snakes; fish and butterfly are intricately carved in the jewellery. They tattoo their bodies elaborately. They believe that every material thing is left here in this world but the only thing which goes with them to God is



Figure 10. The unique forms of animistic ritual (Source: <http://bravefestival.pl>).

Figure 11. The unique forms of animistic ritual (Source: <http://bravefestival.pl>).

Figure 12. Tribal dance of Saharia tribe (Source: Shikha Patidar).

their tattoo marks. Tattooing is one of the traditional art of adorning women in tribal area (Mandal, 1998).

(b) Ecological aspect

Ecological isolation influenced the Saharias to remain as cultural isolates (Mandal, 1998). They have rituals and beliefs associated with trees, most villages have secret spaces under the trees. Trees with medicinal values are *Ficus religiosa*, *Ficus benghalensis*, *Vachellia nilotica*.

As per case study, in Khariyapura village the settlement is on a plateau surrounded by the hills, cultivated land and forest. These type of settlements are evolved from the ecological setting and helps them to keep a vigil and protect their crops. Due to undulating plateau, it is not easy for a stranger to find out a Saharia village. The Saharias maintained ecological equilibrium with their environment for ages, despite low level of technology (The Saharia Tribe: A saga of struggle for existence).

There is a tradition of Gotra representing the family they belong. Usually they are named after plants, trees and animals like Dangia- jungle (forest), Salkia- shorea robusta (tree), Phool Baguliya- stork (bird). The principal species of trees found in this area are *Acaric arbica*, *Bassia latifolia*. The region has a large variety of wild animals, especially in the area covered by forests. The animals commonly found are tiger, jungle pig, snakes etc. A variety of birds are found such as the grey partridge, pea fowl, peacock.

(c) Architectural aspect

Site selection

Pahargarh is a village surrounded by the hills, there are few settlements, whereas 'Khariyapura' area is selected for a case study. There is a river close to the settlement. The surface is hard with sandy soil. The vegetation is of dry and deciduous variety. This is due to the nature of soil and partly due to the climatic condition of the region.

Climate, typography and geology

The climate varies with the natural divisions. The area experiences extremes of temperature during summers

and winters. The Saharias are mainly inhabited in the hilly tract and south and central plateau areas. The hilly tracts in the western part are made up of sandstone which offers greater resistance to erosion (Mandal, 1998).

The village

A typical Saharia village is set against the background of hills and jungles with a stream nearby. They live in a cluster of huts on a hillock or highlands which remain green with plants and other shrubs during the rainy season, but dry during the summer. They live in separate hamlets in multi-ethnic villages. Sometimes, they also have two or more hamlets in a single village. Saharia always like to settle nearer to water source and forests to get sufficient supply of wild roots, tubers, fruits, vegetable, etc. (Mandal, 1998). They have a crematorium at a distance from the village; memorials of dead are in the form of square platform.

Settlement pattern

The settlement is connected by the pedestrian pathway to the main road. The houses are oriented towards east, north and west forming a circular pattern. The entrance to the settlement is from the south. The front facade of all the houses are towards the centre. They have a tradition of joint family. The joint families have a bigger cluster while nuclear have smaller ones. After marriage, young couple makes a new house for themselves, adjacent to the family cluster. There is a place of worship in the centre of the settlement and adjacent to it is a community space called Choupal, where grandparent look after their children while parents are working on the fields. It is also a place where people sit together and discuss social and religious matters. It is also used to accommodate the guests during occasions. The settlement utility spaces like a well for drinking water, a small grocery shop for daily needs and they have to go to weekly market called 'haat' for major shopping.

There is also has a primary school and a health centre. They sing and dance during festivals and ceremonies. The whole settlement pattern is called "Saharana" in local dialect. A Saharana

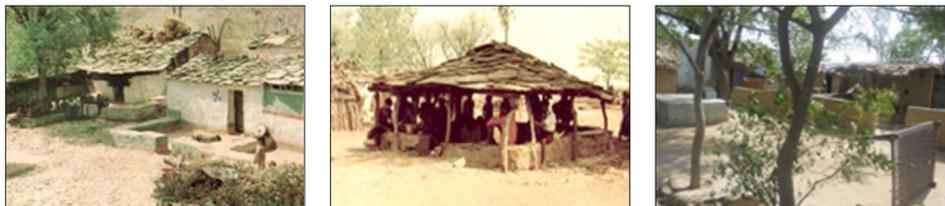


Figure 13. The settlement pattern of Saharia tribe (Source: Mandal, 1998).

Figure 14. The Saharana or a community space (Source: Mandal, 1998).

Figure 15. The Saharia settlement in the ecological setting (Source: Author).

means where the Saharia families live in a cluster. At the time of marriage and on festive occasions the people of a Saharana come forward freely and participate. Members of a Saharana cooperate with each other and reciprocate at different occasions (Mandal, 1998).

Dwelling

The Saharia dwelling is called Tapra. The houses are rectangular in shape, divided into two parts. One part is used for storage; the other is utilized for cooking, sleeping and the centre there is a niche in the wall for worshipping. A corner of a family courtyard is used for bathing, though they usually take bath at tank, well or a streamlet. They don't have lavatory in the house; they have a tradition to go in the open fields for nature's call. A small open space in front of a house is used as courtyard. It is a multipurpose space used for cooking, drinking water storage, and household work. Boundary wall of 400x450 mm high demarcates the border of the house, used as informal sitting space. Beside this is a platform of 900x1800 mm is used for sleeping in the open. The functions and aesthetics are closely related to each other. There is no division between the function and the aesthetic, the material and use of it. The walls are painted. Windows are not found due to extreme climatic

conditions. The absence of plinth keeps the floor damp. A cattle shed is at the back of cooking area. They also have shed for pigs and chickens. In some other places it is found where locally available material is stone. Most of the construction is done by stone only. They perform their major activities in open. The main objects of stone craft in the village areas are idols of locally worshipped deities. Horses occupy a significant status as a symbol of power and force. It is found in different forms in murals, sculpture and even in the structural members of the built form.

Construction method and techniques

The materials used for construction of houses depend on locally available material. Houses are load bearing structure of random rubble masonry and mud mortar. They go for shallow foundation because of hard strata. The walls are made up of stones, plastered with mud; cow-dung is used as a finishing material. The walls are painted with lime, minerals and herbal colours. Niches are beautifully carved for utility purposes. In order to prevent clay surfaces from cracking and crumbling a fresh coat of clay and cow dung is applied from time to time.

Pitched roof is a common form of roof, regarded as the cheapest alternative for covering a structure. It is

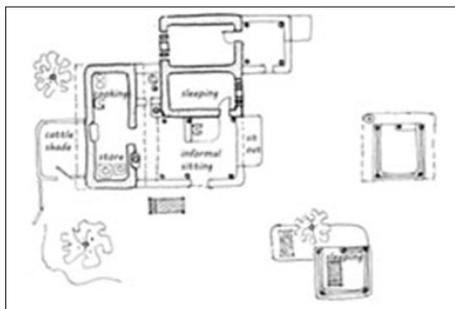


Figure 16. Plan of Saharia dwelling at Kahariya village (Source: Shikha Patidar).



Figure 17. Elevation of the dwelling (Source: Shikha Patidar).



Figure 18. The cooking space in the dwelling (Source: Author).



Figure 19. The bathing space in the dwelling (Source: Author).



Figure 20. The informal sitting space in front of the dwelling (Source: Author).

constructed in wood or stone. Wooden pitched roof consists of a system of joists, rafters and purlins arranged in the form of a triangular shaped truss. The wooden doors are pivoted, ledged and battened and paneled. Paneled doors made of single plank and carved with the motifs of birds, animals, human figure and geometry design. Doors and niches are prominently decorated with the relief work. The Saharia women besmear the main doorframes, doorsills, courtyard and kitchen with a paste of yellow clay, chalk and ochre. They paint auspicious figures with these materials. This painting is done not only on special occasions and almost daily in the kitchen. This shows their aesthetic sense even in daily routine activities. It is very difficult for urbane to appreciate the vision behind this (Madhya Pradesh Tribal Museum). The clay figures are prevalent to mark both auspicious as well as inauspicious occasions. The construction method and techniques has evolved by the process of trial and error for ages. Stone image concretize a spiritual longing ensuring the continuance of a tradition (Manohar, 1996; Shah, 1996).

Aesthetic

The walls are decorated with geometric patterns, floral and animal figures. The wall paintings and floor paintings apart from serving ritualistic purposes are believed to create a

harmonious atmosphere in the house. They have stabilised mud flooring covered with cow dung and decorated with coloured clay borders defining the spaces. The clay commonly available is yellow ochre, white and red. A broad border painted in the house along its base lends grandeur to the dwelling. They are symbols drawn afresh each time in the courtyard, on the threshold and in other spaces of the house.

Auspicious symbols drawn on the floor with rice paste ochre or yellow earth color is done by women drawn during festivals or rituals connected with seasonal changes, sowing of crops, the onset of rain, harvest or significant occasion in their family such as birth, puberty, marriage, pregnancy and death. The simple decoration of ochre and mud on the platform for keeping earthen pots and on sides of niches add charm to the surroundings. The relief work is usually done at the entrance and on the walls during the construction of the house, when the wall is wet. The similar relief work appears on the grain storage bins which is made of clay and husk.

(d) Economic aspect

Traditionally they are agriculturers, labourers and collectors of forest products and sellers of herbal medicines. Their agricultural income is marginal but they get substantial additional income from working in the forests and



Figure 21. The construction of stone wall with mud plaster (Source: Author).



Figure 22. The timber truss with the supporting wooden members (Source: Author).



Figure 23. The stone roof with the supporting stone members (Source: Author).



Figure 24. The decoration in the worshipping area (Source: Author).

Figure 25. The floor decorated with yellow ochre (Source: Author).

Figure 26. The ledged and battened door (Source: Author).

Figure 27. The relief work on the granary (Source: Author).

collecting minor forest produce such as honey, edible gums. They are good huntsmen. The main business is gathering and selling of forest wood, gum, honey, fruits and vegetables. Some of them are settled cultivators. The people of 'Sahariyas' tribe never bothered of their future, because they were confident that forests, which they respect and protect, would never leave them hungry. However, the other groups of society have exploited the forests to tilt, for meeting their self interests (The Saharia Tribe: A saga of struggle for existence). They possess a few cots (khatiya), some utensils, iron implements, scanty clothes, light bedding and small granaries. Bamboo baskets of different shapes and sizes are found in every house for daily use. One grinding stone is an essential item for a Saharia (Mandal, 1998). They are good at resource management and respect the natural resources like water, land and forest. They know the appropriate use of the materials and try to use it without secondary processing. There is minimum wastage of energy and resources. Multipurpose uses of space make the houses small and economical. The houses are designed with the bare minimum requirements. For e.g., in roof construction, the main trunk of the tree with desired diameter and length is used as the main supports, the small-

er pieces of branches as rafters, purlins, battens and the leaves, bushes, grass as the covering material.

6. Integration of vernacular and modern

Vernacular traditions lead a way towards the sustainable built environment. The valuable lessons from vernacular can be integrated with the modern to produce sustainable designs. Designing of the settlements need understanding of users way of life, social and cultural values. Aryana housing by B.V.Doshi, LIC housing by Charles Correa and Anandgram by Kamath Design Studio in India are few examples of integration of vernacular and modern. Architects like Louis Kahn, Lourie Baker, Shirish Beri, Revathi and Vasanth Kamath, Satprem Maini, Anupama Kundoo and Yatin Pandya have incorporated the principles of vernacular traditions in their contemporary buildings.

Anandgram in Shadipur, Delhi is selected as an example of resettlement. It is designed by Kamath Design Studio, Delhi, India in 1983. Ar. Revathi and Vasanth Kamath their work is a creative synthesis of attitudes and technologies into an aesthetic habitat and a way of life. They believe in using natural resources and utilize them to the most and are on a mission to

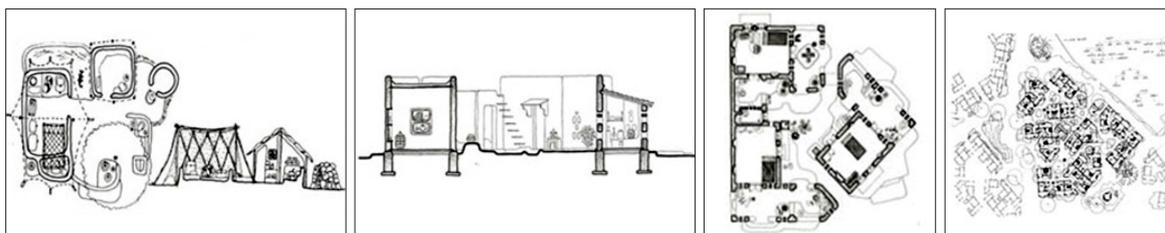


Figure 28. The unit after 30 years (Source: <http://www.kamathdesign.org/project/anandgram>).

Figure 29. The section of a cluster (Source: <http://www.kamathdesign.org/project/anandgram>).

Figure 30. The detailed plan of a cluster (Source: <http://www.kamathdesign.org/project/anandgram>).

Figure 31. The plan of a settlement structure (Source: <http://www.kamathdesign.org/project/anandgram>).

Table 1. Lessons from Vernacular Architecture of Saharia Tribe (Source: Author).

Aspects	Parameters	Particulars
Socio-cultural	Family structure	They usually have joint families. When a couple gets married they built a new house in the same cluster.
	Fairs and festivals	There festivals are governed by the Nature like festival of harvesting.
	Dressing and ornaments	Men wear- shirt, loincloth and turban. Women wear ghangha, choli, sari. They wear ornaments of gold and silver depicting the nature.
	Community participation	The houses are constructed by themselves and by community participation.
	Belief and rituals	In the centre of a settlement they have a place of worship. The ornamentation of the house is associated with beliefs and rituals.
Ecological	Worshipping nature	They worship some specific trees on special occasion. Some of them have medicinal values like Phyllanthus emblica, Ficus religiosa.
	Gotra (family name or identity)	Family names are associated with nature like Dangia- jungle (forest), Salkia-shorea robusta (tree), Phool Baguliya- stork (bird). Therefore they never harm them.
	Building with nature	Houses are built respecting the typography.
	Association with domestic animals	Animals are integral part of their family they keep cow, goat, pig, chicken.
Architectural	Site selection	The houses are built on plateau surrounded by the hills, site is usually close to the source of water. The construction is done on non-fertile land.
	Climate responsive	The house form is evolved as per the climatic condition. Less openings are provided due to extreme temperature.
	Settlement pattern	It has circular settlement pattern with the community space at the centre.
	Dwelling	Formed by the bare minimum requirements and has multiple usage of spaces.
	Materials	Locally available material like sandstone, laterite, mud, wood and grass.
	Construction method	Shallow foundation, load bearing structure with stone masonry, mud plaster, wooden trusses, stone slabs and wooden doors.
	Aesthetics	The walls and doors are decorated with the relief work. The murals depicted on the walls are Pithora, Sanjha and on the floors are Mandana, Alpana.
Economic	Livelihood	Forests produced collector and agro-based.
	Resource management	Judicial use of materials.
	Waste management	Recycling of material.

substitute concrete, cement and energy-consuming systems with sun, water, wind and soil. Ecology must be understood to encompass both nature and culture. The settlement is designed for traditional community of performing artists and craftsmen in their own traditional pattern by intergraing values, customs, beliefs and lifestyle. The challenge was to provide the built-fabric to the community in relation to the urban form. It is one of the best examples of reflection of culture in architecture in the contemporary design. (Revathi Kamath)

(a) Beach house at Deogad, Maharashtra

The design of this beach house stems from a basic simplicity of lifestyle and from its symbiotic relationship with nature. The main entrance to the house meanders through the portal created by the two existing Cashurina trees. The Undal tree with a seating platform and Tulasi forms the vista through the car porch. The house is basically one single unified space under one roof, with functions differentiated by low partition walls, curtains, levels etc. to create a continues uninterrupted merging with the surrounding nature (Shirish Beri's seaside Retreat at Devgad).

Table 2. Adaptation of Vernacular in Modern Architecture (Source: Author).

Aspects	Parameters	Particulars
Socio-cultural	Family structure	Nuclear family structure.
	Fairs and festivals	Mixed culture therefore celebrate Hoil, Christams, Eid.
	Dressing and ornaments	Influenced by western culture
	Community participation	Less community participation
	Belief and rituals	They are not depicted or identified in the dwellings as their identities.
Ecological	Worshipping nature	Houses are not built as per the natural setting.
	Gotra (family name/ identity)	Not noticeable, not much associated with nature
	Building with nature	Most of the buildings are not eco-friendly nor climate responsive.
	Association with domestic animals	Domestic animals are not allowed in cities
Architectural	Site selection	No option of site selection, it is governed by bye- laws. Due to mass housing, agriculture land is also used for construction.
	Climate responsive	Less climate responsive, house forms are not as per the climatic condition. They are depended on mechanical devices.
	Settlement pattern	Due to scarcity of land, row houses are prominent. Settlement pattern like 'Saharia' can be adopted. Ar. Revathi Kamath has adopted principles vernacular architecture in her housing at Shadipur, Delhi.
	Dwelling	They are designed as per the economic statues like High income group (HIG), Middle income group (MIG) and Low income group (LIG).
	Multi-purpose space	No multiple usage of spaces in the modern designs. Ar. Shirish Beri has adopted principles of vernacular architecture in his modern house.
	Materials	Market oriented materials are used, locally available materials are neglected. Ar. Laurie Baker has adopted principles of vernacular architecture with the adoption of locally material and techniques.
	Construction method	Locally available material can be upgraded with the help of modern technology. Ar. Satprem Maine has adopted in Mud architecture.
	Aesthetics	There is no identity of the region. Contemporary art can incorporated in architecture, Ar. Charles Correa has adopted in Vidhan Sabha, Bhopal.
Economic	Lifestyle	Globalization had brought a change in social life and cultural identity.
	Cost effective	Comparative market, transportation cost is more. When appropriate material is used, it is cost effective.
	Resource management	Not properly handled therefore scarcity of resources. Less processing of secondary materia should be done.
	Waste management	Non-recycleable materials leads to environmental hazards. Ar. Yatin Pandya has done projects using waste materials.

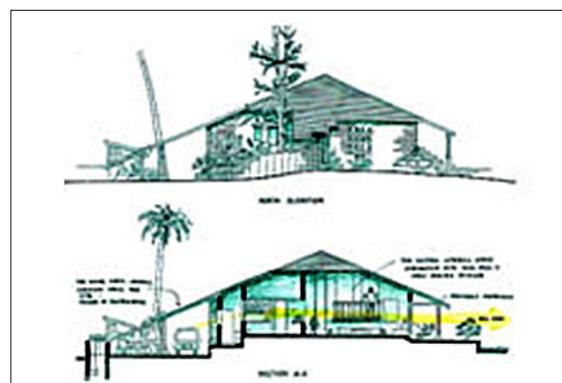
**Figure 32.** The site plan of the residence (Source: <http://architecturenewsplus.com>).**Figure 33.** The cross- sections of the residence. (Source: <http://architecturenewsplus.com/>).



Figure 34. The building is an eco-friendly structures (Source: <http://thehindu.com>).



Figure 35. Jaali wall provide light and ventilation. (Source:<http://earthbagbuilding.com>).



Figure 36. Jaali wall providiving natural light (Source: <http://desertmonster.wordpress.com>).

(b) Laurie Baker in Kerala

“I dont think Ive ever been inspired by what other architects have done but more by what ordinary craftsmen have created (Laurie Baker). Laurie Baker in in his designs, asserted the appropriateness of the traditional construction to local condition, adapting existing locally available materials and traditional methods to contemporary urban structures. The beautiful use of exposed bricks in walls, arches, jaali patterns. He is renowned for his initiatives in cost effective and energy efficient designs.

(c) Satprem Maini in Auroville

Building with earth has a great past, and also a promising future everywhere in the world. Proper management of natural resources is essential for sustainable development, says Satprem. Satprem specializes in the use of raw earth as a building material and especially compressed stabilised earth blocks (CSEB). He has also specialised in the construction of arches, vaults and domes built with earth, disaster resistance with CSEB and earthen heritage conservation. The CSEB, designed by Satprem, are made by mixing earth with sand and stabilised with 5 per cent cement. This mix is then compressed in a manual press. The blocks are energy effective as it does not require burning. It is also cost effective (Maini)

(d) Charles Correa- contemporary art in architecture

Dr. Irena Murray says: “Correa is brilliantly inventive in his deployment of certain timeless themes in Indian culture and philosophy – journey, passage, void and the representation of the cosmos. He uses them as a means to creating ambitious new spaces and structures. His deep understanding of the implications of climate, demographics, transport and community life has a universal quality and has helped structure the thematic arrangement of the exhibition.” Rooted both in modernism and the rich traditions of people, place and climate. (Charles Correa)

(e) Yatin Pandya – recycling waste material

Recycling domestic waste as building components is an environmental, economic and aesthetic imperative. “Holistic architecture is experientially engaging, environmentally sustaining, socio-culturally responsive and most importantly contextually appropriate. Context in terms of culture, climate and construction. In the context of India history is alive through lived in traditions. We are lucky to find repository of traditional wisdom through its deep long passage of time. We endeavor to create contextually relevant contemporary resolutions that inspire from the rich Indian traditions and yet aspire for its future dreams.” (Yatin Pandya).-



Figure 37. The Vikas Community, Auroville, Tamil Nadu, India (Source: <http://cseindia.org>).



Figure 38. The Vikas Community, Auroville, Tamil Nadu, India (Source: <http://cseindia.org>).



Figure 39. The training centre of the Auroville Earth Institute (Source: <http://earthauroville>).

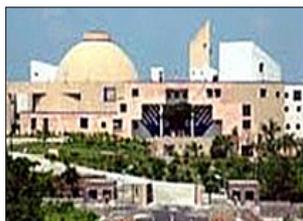


Figure 40. The Vidhan Sabha, Bhopal (Source: <http://en.wikiarquitectura.com>).

Figure 41. The contemporary art in Vidhan Sabha, Bhopal (Source: <http://jangarh-singh-shyam.in>).

Figure 42. Arts Centre, Jaipur, Jawahar Kala Kendra (Source: <http://jawahar-kala-kendra>).

7. Conclusion

The key parameter of sustainability is the social and cultural relevance. The diversity of the local culture is eloquent in the way they treat and manage their environment. The built environment is shaped by the values and cultural beliefs of the community. Globalization has brought a major change in the lifestyle. The patterns of evolution, adapting to the change in traditions, is critical for the continuity of cultures.

In contemporary architecture, it is important to identify the need for human comfort. As the climate is changing rapidly, the settlement has to be modified and adapted to fulfill the changing needs and lifestyles. The buildings should be climate responsive and energy efficient. It is not advised to shun the tradition completely, continuity with the past is essential for the sustainability of a community as a whole. The focus of ecological sustainability is to create a balance between man and his environment including both natural and man-made. The aim is to work with nature and not against it.

Physical sustainability is one of the most tangible forms of sustainability. As the needs and values of the society changes, the buildings either adapt themselves to suit the new demands or neglected or get replaced by the modern ones. The world is witnessing the

repercussions of globalization.

Consequently, the vernacular form of architecture is rapidly being replaced with new industrial materials such as steel and concrete. It has been observed that when building fail to meet the basic requirements of contemporary standards, conflicts arises and often leads to overcrowding. To increase physical sustainability, restore the buildings, cultural character with community partnership and their tradition knowledge. Upgradation and adaptive use of locally available material should be encouraged.

Economic sustainability can be achieved by low cost techniques, environmental friendly and energy efficiency. Design should incorporate multiple use of spaces and judicious use materials and resources.

“Satisfying the spiritual economic and material needs of the people is determining condition for sustainable architecture and every decision concerning areas, the design of a building must be sensitive to the culture, the resources, and the character of the place. The risk is global standards global modes of building and global processes will overwhelm the local context” (Willianson et al., 2003).

To achieve sustainability in the living environment, a balance needs to be achieved between the available resources and needs of a contemporary



Figure 43. The filler slabs made from glass and plastic (Source: <http://insideoutside.in>).

Figure 44. The digital waste, cds used to make doors (Source: manav-sadhna).

Figure 45. Recycled glass, plastic bottles used as partition walls (Source: <http://insideoutside.in>).

society. The survival of the past will depend completely on the ability to adapt to the needs of the future. It can therefore be concluded that sustainable development can only be achieved by learning, understanding and appreciating the past. The traditional settlements are eloquent the traditional wisdom in sustainable development. They are developed as a sensitive response to climate, topography culture and natural resources and therefore sustainable in social, economical and cultural sense.

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Glossary

Bhil: one of the main tribes living in the Jhabua and Dhar regions.

Byelaws: rules governing the building construction activities of a place.

Chaupal: denotes a common meeting place in a village which is owned by the whole community in Hindu.

Dusharra: festival to commemorate the victory of Loord Rama over Ravana the demon-god; also celebrating Shakti's killing of the demon Mahishasura.

Dwelling: is the name given to a house form or for living somewhere.

Gotra: a descent from a common ancestor/ family name or identity

Haat: weekly market

Jaali: lattices made of bamboo, grass and clay, used on mud houses in Sarguja, Raigarh. Made by women, these lattices are an example of traditional village architecture.

Pithora: votive wall painting made by the Bhils, worshipped with sacrifices.

Sahariya: primitive tribe living in

Gwalior, Shivpuri and Morena in the north-western part of Madhya Pradesh. The people of this tribe consider Sabari of Ramayana to their first ancestor.

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