Impact of Culture on Rural Built Environment

Daketi Srinivas

Abstract— This paper aims at understanding culture and its impact on rural built environment. The first part of the paper deals with understanding culture at broader perspective. The word culture has many different meanings. For some it refers to an appreciation of good literature, music, art, and food. For a biologist, it is likely to be a colony of bacteria or other micro organisms. However, for anthropologists and other behavioural scientists, culture is the full range of learned human behaviour patterns. The second part of the paper discusses about the built form or built environment and spaces, which is nothing but architecture. The third part deals with understanding the impact of culture on built environment, both at settlement level and unit level. The fourth part deals with case studies. The first case deals with understanding the cultural impact at settlement level, the second and third deals with the impact of occupation on built form and the changes or transformation occurred due to various factors.

Keywords— Culture, Rural, Built Environment, Space, Architecture, Urban forms, Indigenous, Transformation, Occupation.

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I. CULTURE

EDWARD BURNETT TYLOR writing from the perspective of social anthropology in the UK in 1871 described

"Culture or civilization, taken in its wide ethnographic sense, is that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by human as a member of society."

The word culture has many different meanings. For some it refers to an appreciation of good literature, music, art, and food. For a biologist, it is likely to be a colony of bacteria or other micro organisms growing in a nutrient medium in a laboratory Petri dish. However, for anthropologists and other behavioural scientists, culture is the full range of learned human behaviour patterns.

Culture is the characteristics of a particular group of people, defined by everything from language, religion, cuisine, social habits, music and arts. Rapaport (1969) defines the cultural elements forming the house as; religion, language, family structure, child raising methods, settlement patterns, land division and land owning systems, nutrition habits, symbolic and traditional systems, status defining methods, social identity, cognitive maps; privacy, intensity, territoriality, behavioural organization in a house, working, and trades.

Culture is a powerful human tool for survival, but it is a

Daketi Srinivas. Email ID – daketi@gmailcom, srinivas.d@spav.ac.in
School of Planning and Architecture, Vijayawada, AP, India.

fragile phenomenon. Culture is not static but always changing as each generation contributes its experience of the world and discards things that are no longer useful to them. Our written languages, governments, buildings, and other human-made things are merely the products of culture. They are not culture in themselves. For this reason, archaeologists cannot dig up culture directly in their excavations. The broken pots and other artefacts of ancient people that they uncover are only material remains that reflect cultural patterns, they are things that were made and used through cultural knowledge and skills.
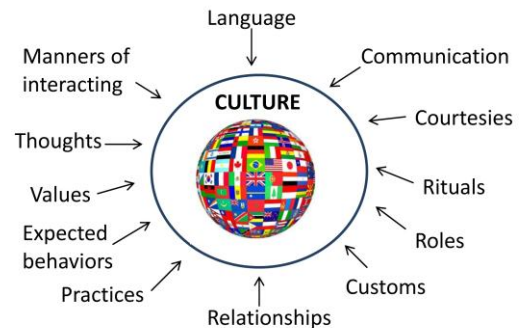

Fig. 1 Concept of Culture
Source: www.dfwhcfoundation.org/cultural-and -linguistic-competence-in-patient-care

A human being takes many years to mature and become a functional adult. It is only through culture that a human being is able to protect and take care of their own infants as they go through the various social and biological developments.

Culture provides the means of protecting not only the human infants but also the old adults, the widows, the orphans, the handicaps, the sick and the weak ones. The function of culture therefore summarizes all or most of human development as we know them in any society small or big, simple or complex.

Hofstede (1977) describes cultural differences manifest themselves in different ways and differing levels of depth. Symbols represent the most superficial and value the deepest manifestations of culture, with heroes and rituals in between.

Symbols are words, gestures, pictures, or objects that carry a particular meaning which is only recognized by those who share a particular culture. New symbols easily develop, old ones disappear. Symbols from one particular group are regularly copied by others. This is why symbols represent the outermost layer of a culture.

Heroes are persons, past or present, real or fictitious, who possess characteristics that are highly prized in a culture. They also serve as models for behaviour.

Rituals are collective activities, sometimes superfluous in reaching desired objectives, but are considered as socially

essential. They are therefore carried out most of the times for their own sake (ways of greetings, paying respect to others, religious and social ceremonies, etc.).

The core of a culture is formed by values. They are broad tendencies for preferences of certain state of affairs to others (good-evil, right-wrong, natural-unnatural). Many values remain unconscious to those who hold them. Therefore they often cannot be discussed, nor can they be directly observed by others. Values can only be inferred from the way people act under different circumstances.

Symbols, heroes, and rituals are the tangible or visual aspects of the practices of a culture. The true cultural meaning of the practices is intangible; this is revealed only when the practices are interpreted by the insiders.
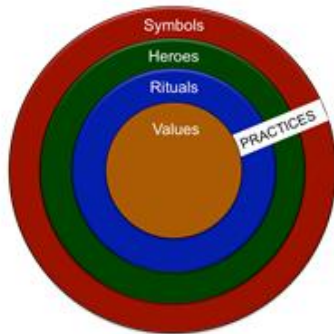

Fig. 2 Manifestations of Culture at different levels of depth
Source: Hofstede (1977)
http://www.tamu.edu/faculty/choudhury/culture.html

II. RURAL BUILT ENVIRONMENT

Built environment or spaces includes definite material elements, especially a base, that allow one to perceive its boundaries and is perceived as a whole, serves human functions of habitation, shelter or circulation, and is intentionally built or appropriated by man to serve such functions. Space is a concept that is central to many different areas of study and has varied meanings, ranging from totally abstract notions such as mathematical space, to physical ones such as astronomical space, to more earthly ones such as the expanse that surrounds us, to behavioural notions such as territorial space and personal space.

A nest, which is space or structure built by the birds by sculpting and assembling to protect ones off springs, is a simple example in nature for building adaptable spaces.

Fig. 3 Nest as an example of built space
Source: author

"This great variety of possible 'types' of space ... makes any definition of space [in planning and design] difficult.
Intuitively, however, space is the three-dimensional extension of the world around us, the intervals, distances and relationships between people and people, people and things, and things and things"

The rural houses, form one of the essential facts of unproductive occupation of the rural landscape (Brunhes Jean) ; provides one, with clues regarding the complex relations between man and his environment, represent the cultural heritage of the past and the survival tradition and reflection of the social state. But unfortunately, the focus on buildings, (which) is to provide a clearly definable core, is inadequately studied and known and particularly, very little progress is made in India. (Stone.K.H)

The buildings are, however, distinguished in three groups (Singh R.Y, 1944)
(i) Primitive building: It most simply, refers to that produced by societies defined as primitive by anthropologists.
(ii) Pre-industrial Vernacular: A greater, thought, still, limited, number of building types, more individual variations of the model, built by the tradesmen.
(iii) High style and modern: Many specialized building types, each building being an original creation 9although this may be changing), designed and built by a team of specialists.
Though the buildings/houses can be studied in various ways, the best approach is to look at them chronologically-tracing the development overtime, either of techniques, forms and ideas, or of thoughts of the designer, or one can study them from any specific point of view.

There are two alternate theories of house form.
One is physical determinism, where supporters of this view advocate, that for thousands of years factors like climate, materials, site, defence, economics and religion, have determined the character of buildings. The second one is the supporters of the socio-cultural view, where the people with very different attitudes, (cosmological, symbiotic and exploitative) and ideals respond to varied physical environments. During this process, various changes and differences, in the interplay of social, cultural, ritual, economic and physical factors, create spatial variations. As such, the socio-cultural forces become primary and the others remain secondary or modifying.

Thus, the rural houses of a particular region, present diversity in form, size and functions, as well as, balanced adaptation, to the physical and cultural environment of the area.

Rural settlement is viewed as a text whose reading yields much information in the way of the economic activities, social mores, material environment and technological culture of its creators. It is analysed not only as a given, but it is also deconstructed in order to take into account underlying gaps and silences. This has been the result of a number of disparate factors covering a wide range of concerns, including inheritance patterns, gender relations and religious beliefs. The individual dwelling seldom stands alone and is usually but one of a number of interlinked residential spaces, both indoor and outdoor. These are not set randomly in the rural countryside,

but are organised according to a number of socially predetermined norms.

Singh R.Y(1994) in his book Geography of settlements describes about village versus rural settlements as the term "village" attracts simultaneously denounces any legal definition. It discards to be delimited by either size or population criteria. In India, officially village stands for the area demarcated as a mauza meaning "parcel of ground with definite boundaries, for revenue purposes without clear and consistent regard for its population." Obviously, village, gram and gaun are synonymous terms which denote a cluster of houses including the surrounding land almost self sufficient and usually grouped at a convenient site. The houses along with the street pattern are visible elements of the rural landscape which humans have superimposed on the natural landscape of a region. Thus, the village of the present day or village community, so popularly used term of the past, is a comparatively small and simple agglomeration of the houses at a favorable and convenient site.

III. IMPACT OF CULTURE ON RURAL BUILT ENVIRONMENT

Singh R.Y(1994) in his book Geography of settlements talks about Indian versus other settlements as not only Indian villages differ from others in some respects such as form, size, shape and internal structure but have regional variations too. The varied environmental conditions in conjunction with cultural variations and many thousand years of living history have enriched diversity of settlements ranging from different parts of the country. The occupants ethnic diversity is no less varied, nor the manners and customs. From Neolithic up to the modern age, the spatio-temporal variations are met with conspicuous absence of similarity.

The diversity leads to differences in many aspects as
(i)Morphology in relation to caste sectors only in India
(ii)Morphology in relation to religion and ethnic groups: Hindu, Muslim, Christian
(iii)Morphology in relation to the type of village: compact, disperse
(iv) Morphology in relation site of village: river, hill etc.
(v) Internal structure of layout of houses in various types of villages, settled according to different models, hamletization
(vi)Based on livestock raising, poultry farming
(vii)Semi-nomads and nomads of Central Asia are distinct in spatio-temporal and functional frame work.
(vii)Kibbutz and isolated chaks of individual farmers
(viii)Building materials
The village also differ in the type of institutions, associations, tribal panchayats, party based organisations and the infrastructures regarding all these separately and combined. That is why, a Japanese village different from Indian or Italian or Canadian or Brazilian village on the one hand, and Israeli and East Siberian village on the other.

Rapoport (1979) noted that the origins of Architecture are best understood if one takes a wider view and considers socio-cultural factors in the broadest sense to be more important than climate, technology, materials and economy.

Architecture is a profession that has its roots in culture. To a large extent culture exerts some influence on architecture in every society. Man always expresses himself socially and culturally. Culture and architecture are interdependent and inseparable. (Rapaport, 1979)

A country is not only identified by its people and government, but by its architecture. "Through architecture it's possible to gauge many things about a culture, such as lifestyle, artistic sensibilities and social structure." Damen. "History and Civilization." 2008

R.Y.Singh(1994) in his book Geography of settlements describes that environmental factors in the early stage and socio-cultural-economic factors in conjunction with the former in later stage determine the rural settlements existence and growth.

Culture is one of the most powerful factors, which is guiding the evolutionary pattern of households. Studying at the levels of human settlements, the impacts of culture in the formations of house forms can be understood. The traditional Bengali house shows the efficient use of building materials and evolutions of a house form having relationship with the limit and the possibilities set by various physical and socio-cultural factors (Hossain, 2008). In the case of the traditional Bangladeshi built environment, the user is also the designer, builder, landscape specialist, artist and craftsman. However, he or she is not the concept giver (Haq, 1994). Among several categories, the Chouchala Ghar is the most common, where the others are seen very infrequently (Hossain, 2008).

It is found almost everywhere in the world that there are some taboos and beliefs related with rural settlement. There are taboos and beliefs regarding the homesteads in rural areas. 'Taboo' means reflection of activities regarding houses in rural areas which the owner does not believe but observes due to societal grounds (e.g. not to plant palm trees or tamarind trees). On the other hand, 'belief' means reflection of such activities regarding rural homesteads which the owner not only believes but also ensures in reality (e.g. in the Muslim owned homesteads the toilets are not made facing east-west; similarly, in Hindu owned homesteads in rural areas Tulsi and China Roses' trees are available) (Baqee, 2011).

Fig.4 Rural settlement (Srikakulam, Village) Krishna district, Andhra Pradesh. Source: author

Religion is one of the major factors, which guided the formations of rural houses in Bangladesh. The impact of

Muslim and Hindu beliefs and lifestyles is seen most prominently in the layout and the arrangement of the built forms (Islam, 2003; Hossain, 2008). The houses of the Muslim families are more introverts in nature, because of some religious regulations. Usually the Muslims houses have some kind of special walls or partitions around the entrances for privacy. In a Muslim family, female members are more restricted within their inner areas. The situation is now changing. The Muslims women are taking parts in different types of activities outside their houses. In the Hindu religion, cow has a special status. For this reason a special attention has been given to the cows for the take care in a Hindu house. As the result the cowshed in a Hindu family looks more neat and clean than that of a Muslim house. The Hindu women are allowed to the outer court for taking care of the cows, which is uncommon in a Muslim family. The arrangement of the rooms in the Muslim houses follows strongly the cardinal directions for the easy recognition of the Kaba (the direction towards Macca that the Muslims use for their prayers) direction. The orientations of the sleeping mats, beds and toilets also follow this direction.

But in the case of a Hindu family it is not necessary. In a Hindu family it is common that a place is reserved for planting holy tree 'Tulsi'. There is also a specific place/room for the worship and for placing the images of Gods, which is unfamiliar in a Muslim family. An outhouse is an essential part of Muslim house whereas it is not so common in a Hindu family. Generally the purposes of the outhouse are solved at the 'Puja Mandap' in a Hindu family. Some wealthy Muslim families in the rural society have two ponds. One for male and the other for female. If it is a single pond then there are two 'ghats' prepared for male and female separately. The female ghat is surrounded by some kind of screenings for privacy.

Amos Rapoport classic book in the literature on vernacular architecture, titled House Form and Culture was a search of alternative theories on house form. He investigated several factors influencing architectural form, such as climate, materials, construction and technology, site conditions, defense, economics and religion. For instance on climate, Rapoport writes that:

(…) in architecture the climatic deterministic view still rather commonly held, states that primitive man is concerned primarily with shelter, and consequently the imperative of climate determines form.(1969) Addressing the usage of materials, construction and technology, Rapoport observed that: (...) for thousands of years wood and stone have dominated the character of buildings. In this view, forms develop as man learns how to master more building techniques, and all forms are part of a progressive development in a series of almost inevitable steps (1969)

He also writes that:

Building form manifests the complex interaction of many factors and the selection of a single factor, and changes in the types of factors, selected at different periods, are in themselves social phenomenon of great interest" (1969)

IV. CASE STUDIES

A. *Impact of culture on built environment at settlement level (Social stratification)*

Velnuthala is a village in Krishna District, Andhra Pradesh, India with a population of 400. The major occupation is agriculture and the village was known as agrahara in the olden days. This village is an example to show the morphology of settlement based on the caste sectors which is predominant in most of the rural settlements in India. Fig 5 shows the study of existing built form of the settlement. The village was formed around a small pond which is major source for drinking and other facilities and developed radially around the pond.

Fig. 5 Rural settlement (Velnuthala village) in Krishna District, Andhra Pradesh, India
Source: author

The detailed study of the caste, religion and occupation reveals interesting facts about the built environment and form. The houses were divided based the caste, religion and this had influence on the occupation pattern. This shows the impact of culture on built environment. The divisions are clear with hierarchy and had defined occupation for different groups. Most of the village patterns in India were evolved based on this concept.

Social class system is a group of terms and concepts followed to incorporate social sciences and political theories in the society centered widely for social stratification. People used to be divided and grouped into a properly managed set of hierarchies' social categories. This system was widely spread in the world for many centuries.

Even India was immensely influenced by the social class division system. In actual practice, India once used to be referred to as a class society country. Some people were considered superior while some inferior. Ancient India social hierarchy was broadly divided in four major categories and these were: Brahmins, Kshatriyas and Rajputs, Vaisyas and Shudras. This hierarchy and division is clearly visible in the case village.

Fig.6 Rural settlement (Velnuthala village) in Krishna District, Andhra Pradesh, India showing social stratification
Source: author

Fig. 7 Social stratification

Fig. 8 Residence in Velnuthala village
Source: author

Fig. 9 Street in Velnuthala village
Source: author

B. Impact of culture on built environment at dwelling unit level (based on occupation)

Mangalagiri is a town, in Guntur District of Andhra Pradesh, India. It is part of Vijayawada urban agglomeration. Mangalagiri which is a temple town is also famous for its beautiful Mangalagiri cotton saris and materials. It is believed that pilgrims, who went to offer prayers in temples on the hill top, will buy a sari from local-weavers before leaving this place. This clearly emphasizes that Mangalagiri handloom are deep-rooted in our Traditions. The main occupation in the town of Mangalagiri is hand-loom weaving. Half of the population in Mangalagiri depends on weaving of Mangalagiri cotton products. Mangalagiri is a major weaving center in Krishna and Guntur districts. 50% of the town's economy is on textile industry.

MANDAVA houses which were once most found here are almost in an extinct or in a demolition stage. Based on the Vastu Purusha Mandala rules and according to the need of the space the weavers had provisioned and planed the spaces of their houses.

Fig. 10 Plan of Mandava house in mangalagiri (16th century)
Source: author

Fig. 11 Typical street layout (16th century)
Source: author

The yard for dying and starching was in the south and south-west part of the house. The house consists of a Verandah with 3-4 pit looms for the weaving equipment. This is also used as informal gathering space. The main house has a hall for seating leading to the central courtyard with a Tulasi plant. The remaining space is used as a weaving area, as a dining area and for rituals and is seamlessly coalesced by the play of peristyles and gallery spaces which is surrounded by the courtyard. It was the spatial, social, and environment control centre for the home. The courtyard orders other spaces by context in an abode where space was not rigidly fixed but could be adaptable depending on the time of day; season and exigency verandas, with its main gateways at the entrance gives a welcoming posture of Mugggu (Rangoli) with a warm feel.

A weaver's house in mid of 19th and 20th century:

The changing era of British architecture and its construction techniques throughout the country has its impact on Mangalagiri. This was the transition stage for the buildings where they started adopting new styles, plain surfaces with less detailing, flat roofs, less open spaces.

From 1904 when Guntur district was formed making Mangalagiri as a part of the district due to migration and development in Mangalagiri the houses were constructed taking available space as a consideration. Some of the major government buildings were constructed with the colonial architectural styles of the British.
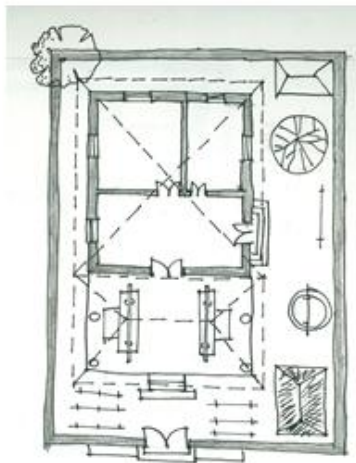

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Fig. 12 Plan of Weaver's house in 19th century
Source: author

Fig. 13 Section of Weaver's house in 19th century
Source: author

Even the large down fall of textile industry before the head

weavers made the individual weavers to sell their houses and move to Guntur and Vijayawada in search of other occupations. When Masters Weavers came into textile industry the picture changed. Many poor weavers and the workers, from 1942 moved to the work sheds closing their weaving pits looms at their houses. This change had made a weavers house nothing more different from a normal person's residence. The weavers' houses lost their identity.

The weavers houses became quite simple with mud or brick walls, mud tiled roofs, with a front yard, backyard, 1 or 2 rooms, a toilet (usually in the backyard) and a kitchen. The central courtyard started losing its presence from the houses, the traditional carvings on the columns, doors and windows were eliminated to reduce the cost and make the construction process ease and fast.

C. Impact of culture on built environment at dwelling unit level (based on occupation and caste)

Dichpally is located in Nizamabad district in the state of Telangana. The settlement was broken in to clusters based on the chief occupational groups. The chief community groups are Brahmins (Temple priests), Carpenters, Padmashalis (weaving), Munar Kapu (cultivation), Muslims, Kammari (pottery and blacksmith), Dobi (washing clothes), Kapu (cattle rearing), Komat (business)
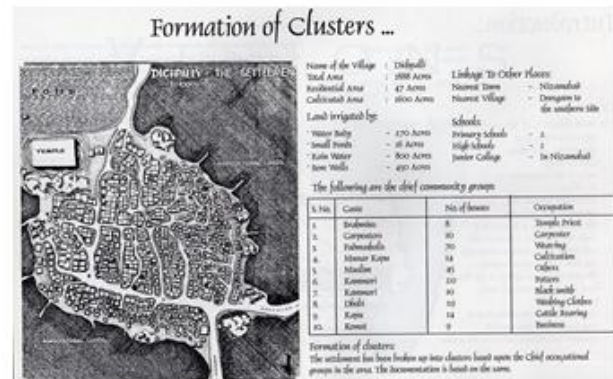

Fig. 14 Dichpally settlement
Source: Unpublished article on case study of Dichpally settlement, 2003

The typology of house forms varies with the occupational patterns, their socio-economic factors which is the resultant or the product of the occupation. The house forms, materials, plot areas, spaces vary in all the above groups and forms interesting basis and the resultant of the cultural impact.

The Muslims have their houses recessed from their main streets. Komats are known as Vysyas and they are business class people. They have a dukanam or a general store within the house itself. The general store is placed at the main entrance and adjacent to the living room and accessible to the outsiders for purchasing the day to requirements of the villagers.
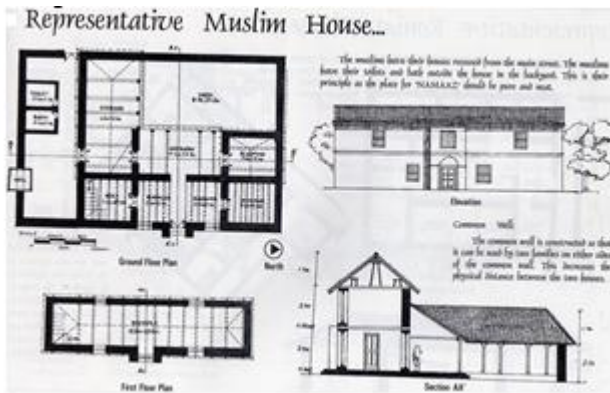
Fig. 15 Representative of Muslim house
Source: Unpublished article on case study of Dichpally settlement, 2003

The Brahmins house is shared by two families. They share a common space which consists of Tulasi Kota and a common well. The entrance to the unit is facing north with raised platform for the gathering.

The potters are known as Kummaris. The clusters are attached to the street. The space between the houses in the cluster is connected to the main street. The place between the houses in the cluster is used as working place for preparing mud and making pots. They store the pots in the houses and are dried in the open space. The required mud is collected from the nearby fields.

Fig. 16 Representative of Potter's clusters
Source: Unpublished article on case study of Dichpally settlement, 2003

V.CONCLUSION

The paper aims at bringing out the impact of culture on rural built environment and the behavior associated with it. There is a major impact on the built form due to culture. The case studies are limited to only one settlement which had impact on the settlement due to caste and occupation. The second and the third case study give us information about design of spaces due to a particular occupation and the transformation occurred due to various factors like urbanization, influence of colonies etc. The spaces are derived based on the weaver's spatial and other occupational pattern requirement for the daily activities. The built form varies from a fishermen settlement or an agricultural settlement. So, culture is one of the most powerful factors, which is guiding the evolutionary pattern of settlements and households.

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