

# **Spatial Analysis of the Contemporary Settlement Pattern in the Thar Desert: An Ethnoarchaeological Investigation**

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## **Introduction**

The Thar desert was previously considered as a 'no-man's land', however, continuous researches of more than one decade have not only changed the concept but has proved that it was occupied since Mesolithic period (c.12000-5000 BCE). It has geography with multiple resource niches and permanent water source of the (now dried) River Hakra. In the past, after crossing through the desert portion, it flowed into a small alluvial valley called as Nara Valley in due south and then took skirts of the desert and merged into the Arabian Sea. This river is now dried leaving behind several traces of empty channels and the lakes; some of which have been dried creating an alluvial valley suitable for agriculture. Combination of these geographical niches provides diversity of subsistence resources preferred to by both animals and the inhabitants. Nevertheless, people did not abandon the region completely and use to live there till today. How did they live? Where did they establish their settlements? What activities they conduct and what is the scale of their social complexity? These are some basic questions that are focussed in this paper. The explanations are made through two fundamental approaches (a) ethnoarchaeology and (b) spatial analysis (Ebert 1979; Watson 1979; Lees 1979; Kramer 1979; Thomas 2001; Hodder *et al* 1987).

Ethnoarchaeological studies were conducted to understand the role of human exercising within given space for resources exploitation through Spatial Analysis paradigm (Stapert & Street 1997:172-194). The spatial analysis paradigm further help in classifying the settlement types, their location (given space) and other major variables like social setup, available resources and major activities. This analysis would show the settlement hierarchy and inter-settlement interaction network and intra-settlement setup. In other words, the spatial analysis of settlement pattern works as middle-range theory (Johnson 2002:48-63) to understand the living pattern of the past if similar features are seen in archaeological sites, site-setup and land utilization.

The economy during Mature Indus phase (2600-1900 BCE) was supplemented with animals herding, which was conducted either by pastoralists and/or nomads. They must have lived somewhere and had extent of mobility and interaction. How these aspects are preserved archaeologically is now comprehended through perpetual exploration of the peripheral region like the Thar Desert. The presence of various types of archaeological sites and the settlement pattern of contemporary people reflect the past very clearly as is discussed in this work.

## **Settlement Types**

Aggregation and living of people at one place determine the settlement and its hierarchical position. The recent exploration revealed at least three distinct types of settlement, i.e. (a) town (cities), (b) villages (hamlets) and (c) 'Wandh' (campsites). Archaeologically, a very similar pattern is seen in this region (Mallah 2000; 2002; 2010). These were documented within two major geographical units like the desert

and alluvial valley of the Nara. All three-settlement types are functioning differently and have constituted typical socio-economical setup. The desert provides best bases for pastoralist and nomadic activities thus people live in villages, scattered houses and wandh; every unit is made with locally available wooden material and thatches. Similarly, in the alluvial plains, people exercise cultivation and pastoralist activities as well. They live in towns, villages, and scattered houses where a huge variety of construction material is used; the most common material is mud, mud bricks, and burnt bricks and cement as well. In villages, the walls are made with mud and/or mud bricks while the roof is covered with wooden thatches. In the desert and alluvial plains three types of roof covers are preferred (a) flat roof (b) an inverted 'V' shape roof and (c) canopy type roof (Figs. 1, 2). The 'b & c' are traditional types; the former is called *Chann* and the latter is known as *Choonro*, both found compatible with all seasons. Because they are made with perishable materials like mud or mud bricks and locally available wooden material thus it requires regular maintenance. Nevertheless, these units depict different types of socioeconomic and political system. In addition to the cultivation and pastoralist activities, people are engaged in various crafts like ironsmith, goldsmith, fishing, rope, goat hair rug and mat making etc.



Fig.1: Typical village in Thar with canopy type and inverted V-shape houses



Fig. 2: Inverted V-shape roof over mud-wall house

### Town (*Shahr*)

Traditionally, there is no difference between city and town as both are called as *shahr*, which is defined as 'a cluster of permanent buildings commonly constructed with concrete and burnt bricks having the shops/ market in the center and residence around it is known as '*shahr*'. The '*shahr*' must contain at least one street where different types of shops and tea restaurant are mixed together along both sides. This street is called as 'Bazaar' where everything of daily use items are bought and sold. The Bazaar is a market place where locally produced goods and other commodities are traded. The major *shahr* of this area are Phariheyaro, Chondiko, Tajal Sharif and Jamrao head. The first two are major and large cities of the area. Both cities are connected with other major cities of Sindh. In these cities, Hindu community is dominant and involved in trade and commerce. They have extended their trade links by establishing shops through family member in several small towns where they mostly live bachelor. Within cities, all types of craft activities were documented, for instance, ironsmith, goldsmith, fishing, rope, doormat making, etc.

As mentioned above, the Bazar is a major market of exchange of commodities where buy and sale takes place. People from surrounding villages bring their products, sale them in the Bazaar and buy



daily use items. This type of on-the-spot transactions eliminates the idea of specific market place and the middle-man. However, the larger transaction is also made through middle-man when farmer is not directly involved. There is no limit and scales of the transaction people make. They bring load of bullock cart and packed animals like camel and they also carry small load themselves. It depends upon the nature of commodity and the needs of producer as well.

Before barrage and bridges system, major transport was through big boats and caravans, which were major source of trade link among the cities and the towns of area. The merchants usually stopover at nearby '*Patan*' and then shift items to their own destinies. The *Patan* served not only the purpose of a port but as a medium of crossing river and connection of villages and towns of desert and plains.

These towns play the role of a central place within the given region. In these towns, various types of people reside including, merchants, workers, artisan who produce pottery, iron implements, and gold smiths etc. Sometimes the town is controlled by a tribal lord otherwise these towns are mutually shared with commercial centres, under indirect influence of the wealthy merchants. The decisions of any problem solving are made collectively. The architecture of the town building depends upon the scale of trade and economy of merchants, for example Choondiko is densely populated and highly busy commercial point; within this town are beautiful and multi-storeyed buildings. On the contrary, Tajal has only few good looking single storey buildings, however, both Choondiko and Tajal serve the same basic purpose of a town. We observe that the growth and development of a town exceedingly depends upon population around the towns living into villages and camps i.e. *Wandhs and/ or Tarr*.

### Village

Majority of the people is living in villages. A village consists of three or four to 50 houses at one place. The construction of houses depends upon the economic condition of the residents. Usually there are two types of houses having a) mud or mud brick wall with flat and or inverted 'V' shape roof made of '*Kana*' and thatches, and b) houses entirely made of thatches with inverted 'V' shape roof, canopy type roof and flat roof. Now-a-days, the people use concrete and burnt bricks for construction purposes.

Majority of the people are agriculturists. The Nara River valley and smaller alluvial valleys in the Thar Desert are under cultivation. Almost all villages are located close to their cultivated lands. The two crops of *Rabi* and *Kharif* are sown and harvested a year. People have been using ox-driven plough, which tradition is being replaced by the use of tractors. People living in these villages are pastoralists who domesticate goat, cattle, camel, buffalo, sheep and other animals. The symbioses of desert and river valley ecosystem have provided them tremendous opportunities for pastoralist activity. The herds of animals are taken in the morning to the grassy patches available nearby the village and driven back home in the evening. The growing agriculture is limiting the pastoralism and pushing herds to adopt desert environment and use desert resources.

Some population is also located in deep desert wherever the drinking water is available. The villages in desert are totally built of wood and thatches with canopy roof called as '*Chonra*'. The building materials consist of *kip Leptadenia pyrotechnica* and *kana* from *Boro Saccharum bengalensis*; thatches of *Sinnh Crotalaria burhia* and wood from *Krir Capparis decidua* and *Khabar, Salvadora oleoides* trees. The base of house is circular, which at certain height takes the shape of canopy. These are permanent houses, which can survive up to 20 years with little or without maintenance. These houses are



good in every season i.e. cold during hot summer and warm during cold winter. The rainfall does not disturb the family.

The construction of a house is very simple, the poles from Krir are tied with *kana* and a rope made of *kip* is used for netting. The poles are fixed into ground in circular shape. The second row of poles is added tilting inwardly through the support of *kana* from *Boro Saccharum bengalensis* from inside. The tilted poles are finally kept on the central beam that is also made of *kana* sometimes supported with shaft as well (Figs. 3A, B, C). A thick cover of thatches made of *kip* from outside is provided in such a manner that sunshine must not enter and cross through any place. For making sure and increasing its strength the Krir poles are provided at the base all around and tied with *kip* ropes in a style that it creates a design. The end result is very beautiful and pleasant house for family.

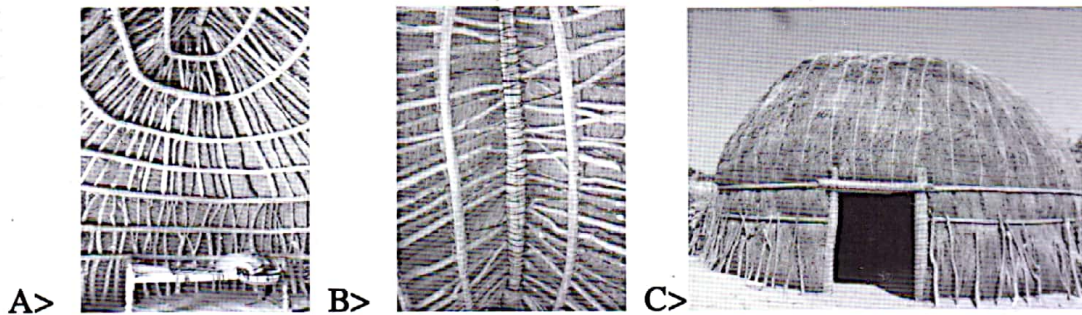


Fig. 3: Construction of a house; A & B interior and C exterior views

These houses are not only weather proof but also harmless in any catastrophic situation like severe storm and/or earthquake. These houses do not hold any heavy material which may cause death.



Fig. 4: Guests seated on beautiful *rillies*



Fig. 5: Milk pots are dangled in a wooden pole

The entire house belongings including sleeping bed called as *charpai* (or *khatt*) are kept back inside the house. In some villages, the use of *charpai* is limited and when any guest visit them the available persona generally male but if the male member is not present; then female usually come forward for greeting. A beautiful bed cover called *rilly* is spread on the ground and pillows are kept for the comfort of guests where they will be served with tea or food (Fig. 4).



Each family has its own space not only for house but also for keeping their domesticated animals beside the house. As the internal arrangement of each house contains a hearth and a *charpai* like table again made of thatches for keeping household items. The extra milk for making butter or *ghee* is stored in earthen or metallic pot made of (zinc/bronze) and dangled in pole outside the house (Fig. 5).

The activities within these villages are of diverse nature. Some people are engaged in cultivation and others resume pastoral activity. The villages in deep desert completely have pastoralist economy. The general activities include various ropes, *charpai* and *rilly* making. Women actually work hard as they maintain house, animals, cook food and prepare butter out of curd. The fat free remaining liquid called *lassi* is utilized at breakfast and during hot summer season at noon. The clarified *ghee* is prepared and kept into earthen pot. During spare time, the women usually engage themselves in embroidery and *rilly* quilt making and produce very beautiful designs on them. The *rilly* is usually manufactured from recycled clothes. Male member in spare time keep hands on making ropes or game called *Naotin* (Fig. 6). This type of game was also played in cities of the Indus. A similar board was found from Lothal (Kenoyer 1998:121, fig. 6.39). The ropes are usually made of goat or sheep hair called '*das*' perpetually collected and thin ropes are made. The rope is also sold in market with the significance that the thin and fine is the rope, the greater price it will yield. Almost similar designs are produced skillfully on the *charpais* as on the *rilly*. The clarified *ghee* and ropes are sold in nearby markets.

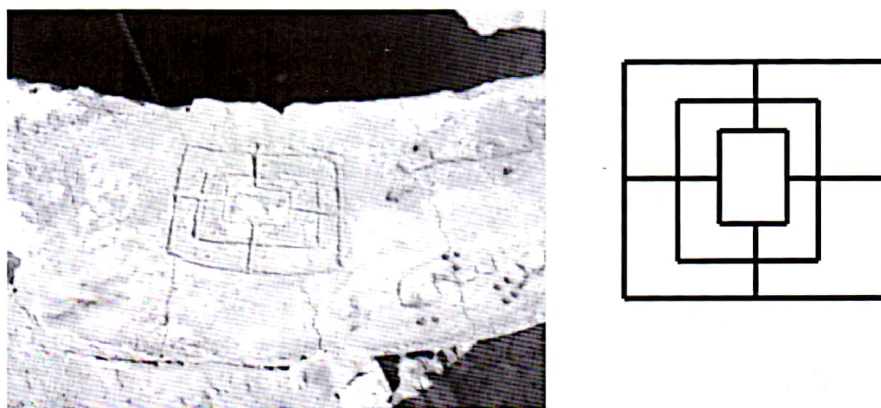


Fig. 6: *Naotin* Game played in the Desert area and the game board is incised on the rim of a well

The lifestyle of villagers depending on the agriculture is better than those of living solely on the animal raising. As they have availability of drinking water, produce ample grains and facilitate livestock and own valued item(s), storage facilities and others. They build their houses more permanently and use mud instead of wooden poles. The classical pattern of houses is parallelogram with inverted 'V' shape roof. The base wall is made of mud and the roof is made of wood and covered with *kip* and/or *kana* thatches. The villages are one of the strong components in the development of cities. No any village in this part of Thar contains any single shop thus for everything of daily use is sought from Shahr and basic products are sold in the markets in Shahr, which is further connected with large cities of the country. This way the tribal lords maintained their economic potential supremacy, hierarchy and control over the masses. However, the villagers conduct other craft activities like producing ropes of '*kana*' called '*Wann*'. The *Wann* from desert region was very famous as it is sold in the nearby cities quickly. Another commercial activity was to collect and sale the animal-bi-products like *ghee*, leather and wool.



The goods are transported through packed animal mainly camel but the donkey and horse are also used for the same purpose. Nevertheless, these animals are also used for public transport. The use of bullock cart is limited to the cultivated land to house; it is because of the rough and sandy region, which is very different for animals to pull the cart loaded with goods at greater distances.

### Camps

The desert ecology/environment turns up suitable for animal husbandry. The animals, which are generally seen in the desert, are cattle, camel and goats, there are few and/or no sheep in the deep desert. These animals are kept at particular places called '*wandh*', and another place called '*tarr*'. However, *tarr* is confirmed place of year-round availability of drinking water. Nonetheless, the *wandhs* are utilized during rainy season for monsoonal pasturage.



Fig. 7: A hut at the wandh

The *wandhs* usually consist of two to three canopy-type huts entirely made of thatches available within their immediate surrounding areas (Fig. 7). Few daily use items and utensils to store and cook the food are kept here. As soon as the rainy season starts, people move with their herds to the places where drinking water is available for both animals and herders while the utensils are kept in the huts for next season (Fig. 8).

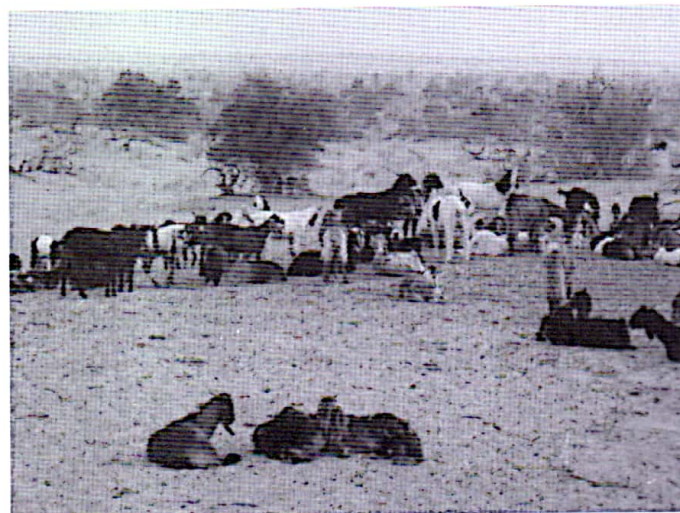


Fig. 8: A goat flock is kept near the wandh

Some *wandhs* are specially established on the routes connecting several villages and towns; provide a good overnight stay to the passing by travellers. It creates an opportunity of small-scale exchange of goods/items. People usually sale the animal-bi-products like leather, hairs, and other items like *wann*, honey, *ghee*, etc. In return they get daily use things like tea, sugar, rice, wheat-flour, pulse and tobacco, etc. Nevertheless, these *wandhs* played a role as mini trading posts/spots.

At these places the goats are taken out in the morning and bring back in the evening. However, the cattle are left wandering freely, the cattle show-up only to drink water at any time, thus the specific water tank is always filled. The herders tie a bell in the neck of animals as their noise alerts advance information of their arrival. During rainy season when the low lying areas known as *Tarie* are filled with water the cattle do not show-up at *tarr/wandh*, in this case the herder visits them occasionally. In other words the cattle of desert are still in semi-domesticated nature providing an open laboratory for understanding the process of animal domestication.

As these animals freely wander, thus the owner places a totem sign or symbol to mark ownership and claim property. These totem signs are locally known as '*dagh/ thapo*'. Each caste or sub-caste has different symbol, and this way animals are protected from possible theft. Nonetheless, herder respect and care each others' property. These types of symbols are observed on the pottery in archaeological context as well. The symbols are usually placed on the neck and hind-leg of the animals. This is a tradition that has survived since time immemorial as the herders explain about the origin of tradition of animal symbolization.

### Summary

In the Thar region, the archaeological settlements were documented having different concentration of artefact on the surface and were categorized as towns, village and campsites. People still live in the desert; their major source of livelihood is animals herding and their homes are made entirely of wooden material available locally.

The spatial analysis of the contemporary way of life of these people seems continuity of past – the Thari people do exactly the same activity what they have learnt from their forefathers. The contemporary people continue living in deep desert despite brutalities of the desert environmental conditions. In other words, spatial analysis has suggested that the settlements of the Thar Desert contain both resource exploitation and functional attribute. The town and villages are located nearby the diverse resource areas and are engaged in several cultural activities. On the contrary, the camp (or *wandh*) has only one fundamental function but several other cultural activities are also performed, for instance, rope making and *ghee* producing etc. They have houses that are climate friendly, their system of herding is secure, they utilize supplementary food resources like mushrooms, fish, and seasonal vegetables etc, their ritual life is centered on a place mostly *dargah* - though they follow the Muslim thought.

In addition, the spatial analysis of intra-settlements and inter-settlement has indicated the use and arrangement of perishable and non-perishable cultural assemblage, function, resource exploitation, division of work and interaction network. Hence, the spatial analysis becomes very fruitful and works as middle range theory if similar attribute (if not all) may be some of them can be archaeologically understood about the past societies.



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