



ISSN: 0975-833X

RESEARCH ARTICLE

HUMANIZING THE DESERT ENVIRONMENT – A MICRO-LEVEL
ANALYSIS OF RURAL SETTLEMENTS

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ARTICLE INFO

Article History:

Received 20th August, 2015
Received in revised form
08th September, 2015
Accepted 15th October, 2015
Published online 30th November, 2015

Key words:

Rural settlement,
Physiographic regions,
Settlement size,
Settlement pattern.

ABSTRACT

The study of settlement is of the essence to human geography because the appearance and structure of settlement in any particular region reflects man's relationship with the environment, grown up over a long period of time. By studying the housing characteristics, size and types of settlement we can see something of the history of man's explorations and humanizing with the environment. Settlement reflects not only man's response to his environment but also the religious and social traditions of his society. In geography; settlement studies hold a significance place because settlements are viewed as a basic expression of relationship between man and environment. Settlements are specific features in different regional perspective. This study identifies the dimensions of rural settlements in Jaisalmer district in reference to the rural settlement size, form, regional association, their types and distribution. The objective of the present study is to analysis the micro-level appraisal of spatial dimensions of rural settlement and highlights the spatial organization of the rural settlement with reference to physiographic regions of the district.

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Citation: Pawan Kumar Sharma, 2015. "Humanizing the desert environment – A micro-level analysis of rural settlements", *International Journal of Current Research*, 7, (10), 22812-22815.

INTRODUCTION

Settlement can be defined as any form of human habitation which varies from a single house to a mega city. Settlements can be broadly divided into two types; one is rural and second is urban. They are mainly differentiated on the basis of function performed by their residents. In present paper rural settlements are broadly grouped under four categories. These are compact, semi-compact, hamleted and dispersed. Compact settlements have closely residential area and concentrated in one central site. A maximum settlement of the Jaisalmer district comes under this category and geographically it spreads almost every part of the district. Some building in a town or village are always reserved for public use, such as a town hall or village Community Place, temple, administrative buildings or the place of a local rural. The type and number of such building help to give settlements of their uniqueness. Different religious or other communal houses may divide the settlement into separate quarters each distinguished by particular house arrangement.

Study Region

Jaisalmer district is situated in the western part of Rajasthan. It is located between 26° 01' north to 28°02' north latitudes and 69°29' east to 72°20' east longitudes.

It covers an area of 38401 square kilometer with population of 672008 persons (as per census, 2011) and 518 inhabited villages. The district has a population density of 17 persons per square kilometer. Its population growth rate over the decade 2001-2011 was 32.22 percent. Jaisalmer has a sex ratio of 849 females for every 1000 males, and a literacy rate of 58.04 percent. The district has an undulating topography mostly covered by brown sand and rocky waste land of desert of 'Thar'. It is sandy, dry and ill watered, unkind to all forms of life. The land slops towards west to the Indus valley and the run of Kutch. The district has a desert climate characterized by extreme dryness of large extremes of temperature and erratic rainfall.

Objectives

The objectives of the present study are; to analysis the housing characteristics, to measure the disparities in the sizes of the rural settlements and present a detail account of rural settlement types in all the three physiographic micro-units of the district. So, the policy maker and planner formulate micro-regional specific plan for integrated development of the district.

Database and Methodology

In the present paper housing characteristics and settlement size data was calculated at physiographic unit wise in the district. The analysis shows that there is a remarkable difference among

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these physiographic units in settlement size. In order to make this paper Comprehensive and more analytical the study region is divided into three physiographic micro-regions on the basis of superimposed method of physical, climatic, socio-economic and cultural variables. This paper is related to rural settlements, so primary data have been collected at village level sample survey and secondary data have been collected from Census office and other departments like Panchayat Samiti office, Jaisalmer, Central Arid zone Research Center, Jodhpur, Directorate of Economic & statistics, Jaipur etc.

RESULTS AND DISCUSSION

Rural settlement is a complex entity as a result of the varying arrangement of dwelling and parcels of land. One of the words which stand for village, namely 'Gaon' means parcels of ground with definite boundaries, as well as dwellings. The village is thus more than the built up local unit, and includes its surrounds. So it is a part of the Indian desert cultural landscape. The result of this paper discussed under the following headings:

Housing Characteristics

The common village dwelling is 'Jhumpa' a circular hut. But one comes across stone houses some of which have great ornamentation. The wealthy merchant, mostly Paliwals, therefore, gravitated towards the comparative safety of Jaisalmer and these fine houses are their creation. The common village house is without any furniture. But on festivals like Diwali, the freshly coated walls are decorated with images of gods and the courtyards with fancy patterns. The villages are not laid out according to any regular plan. They are just clusters of houses with boundaries marked by thorny brushwood. The narrow and winding streets open out to a central square, which is the barar. The better qualities houses may be expected in the centre of the village. They are solidly built of lime and stone and have stone or tile roofs. All houses have enclosures for domestic animals. In good houses there are walls with arched doors but otherwise just fences of thorny brushwood in others. Villages are of many shape and sizes, there may be a big village fortified with arched gateways, battlements and turrets. A broad street flanked by fine houses the subsidiary lanes joining it, may lead to the houses of a (Farmer) thakur. A small village layout has few houses in the central vista and a number of huts around them alternatively. A village may just be headquarters of a number of small hamlets around it. The agricultural population stays in field in hamlets called 'Dhanis'. A common feature of the village people is the love for their animals. The Brahmins, Baniyas and others keep their animals in the front verandah. The camel man allows his animals to rest anywhere around the house. The bread man cannot possibly take their sheep and goats inside the houses. So the 'Rabaris' sleep in the enclosure and their wives and children feed them there. Most of the villager's life is very simple with their day to day work and social interactions.

Settlement Size

Out of the total 578 villages in the district 518 are populated and the remaining 60 villages were found uninhabited at the time of census count. The village varies in size not only in terms of

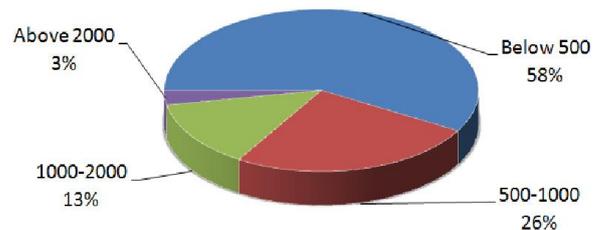
area but in population too. While some of the villages have insignificant population which sometimes in one digit only.

Physiographic Region wise Distribution of settlement according to Population Size

S. No.	Physiographic Region	Settlement according to Population Size				Total
		Below 500	500-1000	1000-2000	Above 2000	
1	North-Eastern irregular Sand Dune Region	31	21	9	3	64
2	Western longitudinal Sand Dunes Region	102	15	5	2	124
3	South-Eastern Sand Dune Region	169	96	55	10	330
Jaisalmer District (Total)		302	132	69	15	518

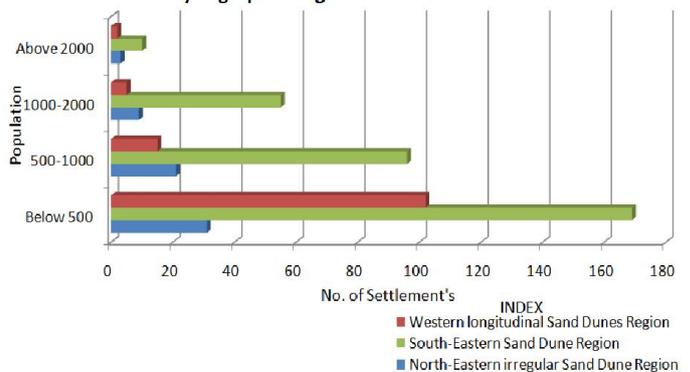
Two towns (Jaisalmer and Pokran) have population even more than 5000 persons. The given below table fact the maximum number of 302 villages, which account for 58.3 percent of the total inhabited village, can be grouped in the population range of below 500 persons.

Distribution of Settlements according to Population size



Another group 132 villages (25.5%) have population ranging between 500-1000 persons. In the category of villages having population between 1000-2000 persons, there are 69 villages in the district, which is only 13.3 percent of the total inhabited villages. There are, in all, 15 villages (2.9%) having population more than 2000 persons.

Physiographic Region Wise Distribution of Settlements



The distribution pattern of settlements of various sizes in different parts of the district is also quite significant. In the North-Eastern irregular Sand and Dune Region, this has better

habitation due to IGNP. Irrigation facilities, the Percentage of village with less than 500 populations are only 48.5 percent in South-Eastern Plain region it is about 51 percent. In the Western Longitudinal Sand Dunes Region about 82% villages come under this category.

Settlements Types

Physical and cultural characteristics of the desert influence the settlement types in the district such as the landscape, scattered location of water sources, socio cultural heritage of certain castes, Jagirdari system and traditional cultivations. Due to above factors the district have various types of settlement types. Broadly, settlements can be grouped into two types, the nucleated and the dispersed settlements. The above two main classification can be further classified in to four sub-types.

1. **Compact Rural Settlements:** Compact settlements may take many forms as these are governed by a number of factors including the original site of the village, defend against international border dangers and security, the historical and social factors of its evolution and the methods of farming practiced. Therefore such compact settlements have developed on border areas, as can be visualized from map of villages Kishnagrah. Tanot, Longewala., Asa ka tala, Bhuwana, Ghanana, Lunar, Hamiron ki basti, Meerwal, Netsi etc. The inhavbited site of village occupies a comparatively lower plain ground between longitudinal sand dunes. A few such settlements also exist on the south-Eastern plain region like Bhopa, Sandra, Molina, Donora, Samurai, Dayasar and Nathan etc.
2. **Semi-Compact rural settlements:** The semi-compact or helmeted clusters represent on intermediate stage of compact and dispersed settlements. In the Jaisalmer district a few small hamlets or clusters are found around some main settlement. These small clusters are linked up with their main settlements by cart tracks or footpaths. The develop in course of time due to the socio-cultural heritage of certain castes and lack of enough land in the main cluster for new houses. In Jaisalmer district this pattern is quite common in the North-Eastern Irregular and Dunes Region (e.g. Akal, Moharon wala, Dadude wa,la, Bahala, Dhiga) and South-Eastern Plain Region (i.e. Madeson ki dhani, Khiwsar, Khumansar, Rampuria, Sodan ki Dhani, Khelana.
3. **Hamlets rural settlements:** In this pattern, the rural settlements comprise of agglomeration of a very few dwellings at a place. Technically they do not have any central cluster but the entire village has dispersed hamlets connected with socio-economic relations. These types of rural settlements are found mainly in between clustered and dispersed settlements. In the district this type of settlements has developed in North-Eastern Irregular Sand Dune Region due to irrigation facilities from IGNP project. Availability of land and the better facility of irrigation, most of the migrants from nearby places construct their own separate hamlets.
4. **Dispersed rural settlements:** Some of the villages are located over long distance from each other due to desertic conditions, sandy landscape and scattered location of heritage of certain cast, the Jagirdari system and the

traditional custom of bringing in tenant cultivators. In the Jaisalmer district the majority of the population lives in dispersed dwelling situated in their respective agricultural field. History of settlement pattern reveals that sequence of settlement has been initially for the compact settlement to grow around the houses of the first few families who settled there. Later, people moving seasonally to their agricultural fields and finally establishing their household there. This type of rural settlements is mainly found in the western longitudinal sand dunes region due to erratic desert conditions and most of village led nomadic and semi-nomadic; life. (i.e. Banaras, Gowariyas, Gadoliya, Lohars). The North-Eastern Irregular Sand Dunes Region has also dispersed pattern of settlements due to canal irrigation facilities where farmhouses are constructed in the agricultural land.

Conclusion

Thus it is clear that the different settlement scenarios between the physiographic micro divisions of district are closely linked up with the physical character of the region. The South Eastern Plain Region with better physical conditions has favoured the big size villages with minimum spacing among the rural settlements but to inverse physical character the Western Longitudinal Sand Dune Region has reduced in the size with maximum spacing. There are various factors viz; Topography, soil, side of the slope, favourable climate and economic and cultural factors influence the settlement type greatly. Economic and cultural factors are mainly transport routes, smaller business centres, places of tourist interest and religious and cultural divisions which affect settlement types in the rural areas.

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