

## **Micro-Level Appraisal of Spatial Dimensions of Rural Settlements**

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**Abstract:** *In geography, settlement studies hold a significance place because settlements are viewed as a fundamental expression of relationship between man and environment. Shelter is one of the most important basic necessities of human being. Settlements are specific features in different regional context. The study presented here is an effort to analyze the settlement system in Jaisalmer district, which falling under the Great Indian Desert 'Thar' in reference to the rural settlement size, form, regional association, types and distribution. The present study analysis the micro-level appraisal of spatial dimensions of rural settlement and highlights the spatial organization of the rural settlement with reference to identified physiographic units of the district.*

**Keywords:** *Spatial dimensions, Physiographic units, Settlement system, Rural landscape.*

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### **1. INTRODUCTION**

The study of settlements is basic to human geography because the form and structure of settlement in any particular region reflects man's relationship with the environment grown up and evolved over a long period of time. By studying the site, pattern and arrangement of settlement we can see something of history of man's explorations and taming with the environment. Settlement reflects not only man's response to his environment but also the religious and social customs of his society. Micro-level appraisal of spatial dimensions of rural settlements exhibits spatial variations in the size, shape, pattern and types as well as multi-distributional aspects. Surrounding landscape is a multi-dimensional organization component system; i.e. spatial structure and spatial interactional components.

### **2. STUDY REGION**

Jaisalmer, the study area is the largest district of Rajasthan state, 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 (Census, 2011). The district has a population density of 17 inhabitants per square kilometer. There are 578 villages in the district of which 518 are inhabited and 60 uninhabited. The district has an undulating terrain 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 slopes towards west to the Indus valley and the run of Kutch. The topography is undulating, covered with sand dunes. The district has a desert climate characterized by dryness of large extremes of temperature and erratic rainfall.

#### **2.1. Objectives**

The objective of the present study is to analysis the micro-level appraisal of spatial dimensions of rural settlements and highlights the spatial organization of the rural settlements with reference to identified physiographic units of the district. The present study is focused on the analysis of density, spacing and dispersion among the rural settlements.

#### **2.2. Database and Methodology**

Spatial organization approach is a form of system approach which helps in comprehending the settlements as a whole. In rural settlement geography, spatial organizations may be analyzed through different concepts like type, pattern, classification, functional and hierarchical analysis, planning and rationalization. This paper uses physiographic unit wise data to calculate comparable distributional patterns of rural settlements in the district. The analysis shows there is a remarkable

difference in settlement size, density and spacing among these physiographic units. 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 spatial dimensions of rural settlements, so primary data have been collected at village level sample survey. Secondary data have been collected from Census office and other departments.

### 3. RESULTS AND DISCUSSIONS

Rural settlement is a complex entity as a result of the varying arrangement of dwellings and parcels of land. One of the words which stand for village (namely 'Gaon') speaks more than the built up area and surroundings of it. Village is one of the important units of the Indian cultural landscape. The common features of the studied villages are caste hierarchy, structural unity, the *jajmani rajputi system*, kinship organizations, rituals and myths associated with worship of gods and goddesses and peaceful life to see the infinite reality through finite celebrations.

The population size speaks about the nature of desert topography, soil, socio-economic characteristics of the culture group of that particular area. 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. The villages have been categorized as small villages having population below 500, Medium villages (500-1000), Big villages (1000-2000) and Very big villages having population 2000 and above. 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.

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

The distribution pattern of settlements of various sizes in different parts of the district is also quite significant. In the North-Eastern irregular Sand Dune Region, there is a larger habitation due to IGNP (*Indira Gandhi Nahar Pariyojana*) irrigation facilities. The 48.5 percent of village with less than 500 populations is North-Eastern irregular Sand Dune Region. In South-Eastern Plain region it is about 51 percent. In the Western Longitudinal Sand Dunes Region about 82% villages comes under the small village category.

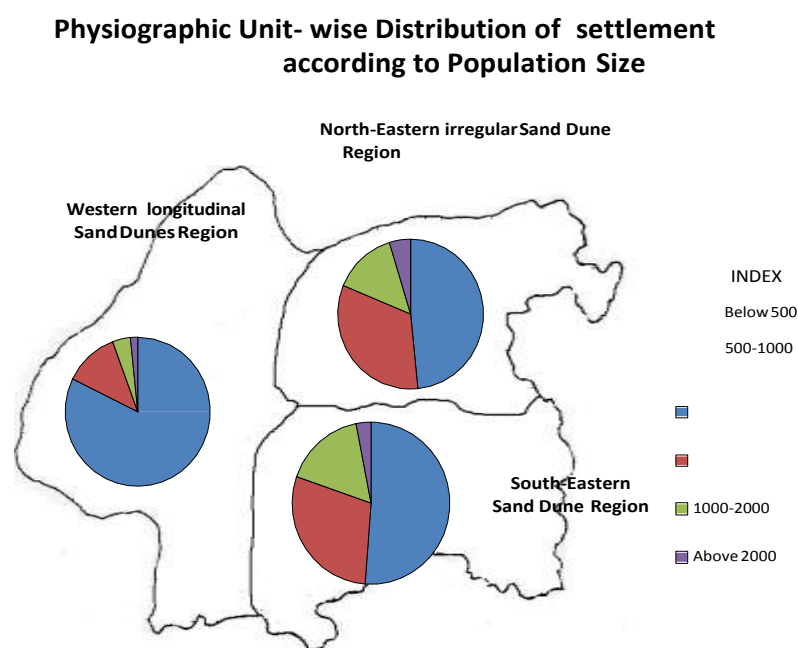


Fig1.

## Micro-Level Appraisal of Spatial Dimensions of Rural Settlements

Settlement is main part of cultural landscape. The needs of the people for shelter from hot and dusty climate, insecurity in the past, the need of providing shelter to live stock, transport system, religion and caste hierarchy are the major affecting factors which control the village landscape.

In the case of very big villages like *Nokha*, *Ramdora*, *Mohangarh* and *Ramgarh* the rural landscape is very complex. Lanes are crooked, irregular and dusty. Houses are *pucca* in the centre and deteriorate in size as well as in quality, from the centre to the periphery. There is no drainage system and dirty water stagnates in the lanes. Poor castes like *kumhars*, *chamars*, *suthar* and *nais* live in the isolated quarters on the margins of the village. The village square in the centre is the public common meeting place. There is a small market is located the crossing called *chauraha*. Small villages are typical of the arid areas. They are more in harmony with the natural environment. Thatched houses and huts huddle in a most irregular way with no street pattern and no definite lay out. Lanes are most tortuous and dusty. The central point is occupied by either a village well or a temple.

Physical characteristics of the desert influence the settlement pattern in the district such as the scattered location of water sources, the socio cultural heritage of certain castes the *Jagirdari system* and the traditional custom of bringing in tenant cultivations. Due to above factors, the Jaisalmer district does not have a uniform settlement pattern. Broadly, settlements can be grouped into two types, the nucleated or agglomerated, and the dispersed or scattered. The above two main classification can be further classified in to four sub-types; Compact, Semi-Compact, Hamlets, and Dispersed rural settlements.

The analysis of the spatial dimensions of rural settlement in context of physiographic units is very diverse. This has been calculated from the following grouping:

$$\text{Areality} = A = \frac{\text{Area of the physiographical unit in sq. km}}{\text{Number of rural settlements}}$$

**Table1.** *Spatial Dimensions of Rural settlements*

S. No.	Physiographic Region	Geographical Area( Sq. Kms)	No. of rural settlements	Areality score	Dispersion of village distribution
1	North-Eastern irregular Sand Dune Region	9931	64	155.17	Scattered or widely spaced
2	Western longitudinal Sand Dunes Region	14846	124	119.72	Medium Dispersion
3	South-Eastern Sand Dune Region	13624	330	41.28	Close Dispersion

The maximum numbers of 330 (63.7%) villages are situated in South-Eastern Sand Dune Region with an areality of 41.28; in Western longitudinal Sand Dunes Region 124 (23.9%) villages are situated with an areality of 119.7 whereas North-Eastern irregular Sand Dune Region has only 64 (12.4%) villages with the highest areality of 155.17. The North-Eastern irregular Sand Dune Region has the sparsest rural settlement pattern. Settlements are few and isolated. They are either located in the depressions encircled by sand dunes ridges or follow the lines of *Indira Gandhi Cannal*. Availability of land and the better facility of irrigation attracts migrants from nearby places construct their own separate hamlets. In Western longitudinal Sand Dunes Region compact settlements may take many forms as these are governed by a numbers of factors including the original site of the village, defence against international border dangers, the historical and social factors of its evolution and the method of farming practices. South-Eastern Sand Dune Region is better placed in this respect. This unit has comparatively good fertile soil, high density of livestock's and good network of lines of transport.

## 4 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 favored the big size villages with minimum spacing among the rural settlements. This shows high frequency of rural settlements and great efficiency in land use. The settlements in North-Eastern irregular Sand Dune Region, due to adverse physical characteristics reduces in the size with maximum spacing. There are various factors viz; topography, soil, side of the slope, favorable climate, transport routes, smaller business centre's, places of tourist interest, religious and cultural divisions decides the micro-level spatial distribution of the rural settlements.

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