

Study of Settlement Pattern of Dungarpur District of Rajasthan

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ABSTRACT

The settlement indicates the spatial pattern of the human's functional activities at the local level, including residence, street structure, community areas, etc. Settlements represent one of the most dominant features made by men on the earth in the process of habitation. In the genetic term, settlements are the almost permanent abode of an organism. They represent "An organized colony of human beings together with the buildings, paths, and streets over which they travel." The settlement pattern is also an essential aspect of settlement geography for research. Within a particular region, different types of settlement patterns were found. The settlement pattern is controlled by various socio-economic, climatic, and different factors. In this research, the authors attempt to highlight the various settlements' patterns, sizes, and responsible factors.

Keywords: - Human settlements, Size, Pattern, Dungarpur district.

INTRODUCTION

The systematic study of settlement patterns in a region represents the long history of its cultural development of habitation. Thus the geographical study of human habitat involves both the external and internal form of the habitation. House and street being the occupancy unit's chief elements, become the focal point of the study. The external form of the occupancy units is related to various locational factors, transport linkages, etc. It reflects the form of settlement as one unit concerning its surroundings. The internal arrangement of the habitat depends on the community. It reflects the architectural styles of the time and culture of its occupants. Gradual modifications in both external and internal forms of the settlements occur with the socio-cultural and technological advancement in the area.

The history of human habitation in Dungarpur lies in obscurity. Tradition and legends suffice that a few settlements existed along the Mahi river during ancient days. But the district has practically nothing to offer to the archaeologist before the advent of Parmar Rulers in about 10th to 20th century A.D." It is because earlier monuments have not survived the ravages of time and decayed. The then rulers established the most important early settlements either for then-administrative convenience or defence strategy with the temple as the landmark. But due to a lack of proper regional inter-linkages with other parts and sound economic base, these places either were mined or remained more or less stagnant in growth. Early settlements were

located at the foothills, along streams, and rivulets due to drinking water availability. The practice of shifting cultivation also did not encourage consolidated human occupancy.

The last quarter of the 19th century showed individual plots/fields and habitat sites. It restricted the movement of people from one place to another. With the establishment of an administrative network at district, tehsil, and taluk levels and police stations at regular intervals to take care of the security, the people started settling at places where they felt sufficient resources. The facilities were further provided in the post-independence period, and today, the district has a network of settlement patterns of different sizes and people. The development of roads, electricity, water supply system, and the establishment of marketing, educational, medical, and other social amenities have accelerated settlement development in the district.

Objective

- 1) It attempts to highlight the factors affecting the pattern of settlement.
- 2) The study intends to assess the existing pattern of the settlements.

Hypothesis

- 1) Various factors are mainly responsible for the development of different types of patterns of settlements.
- 2) Within a specific area, the pattern of settlements is not always uniform.
- 3) Regional development depends on settlements pattern.

The Study Area

Dungarpur district is situated in the extreme southern part of Rajasthan. It covers an area of 3780 sq. Km. Dungarpur is predominantly rural, as more than 92.70 percent of the population lives in villages. The total population is 13.89 lacs, and population density is 179 as per the district's 2011 census. Climatically, the district may be classified under sub-humid to dry sub-humid. The area of Dungarpur district is characterized by elongated Aravali hills and an undulating flat-topped Deccan trap.

Settlement Size

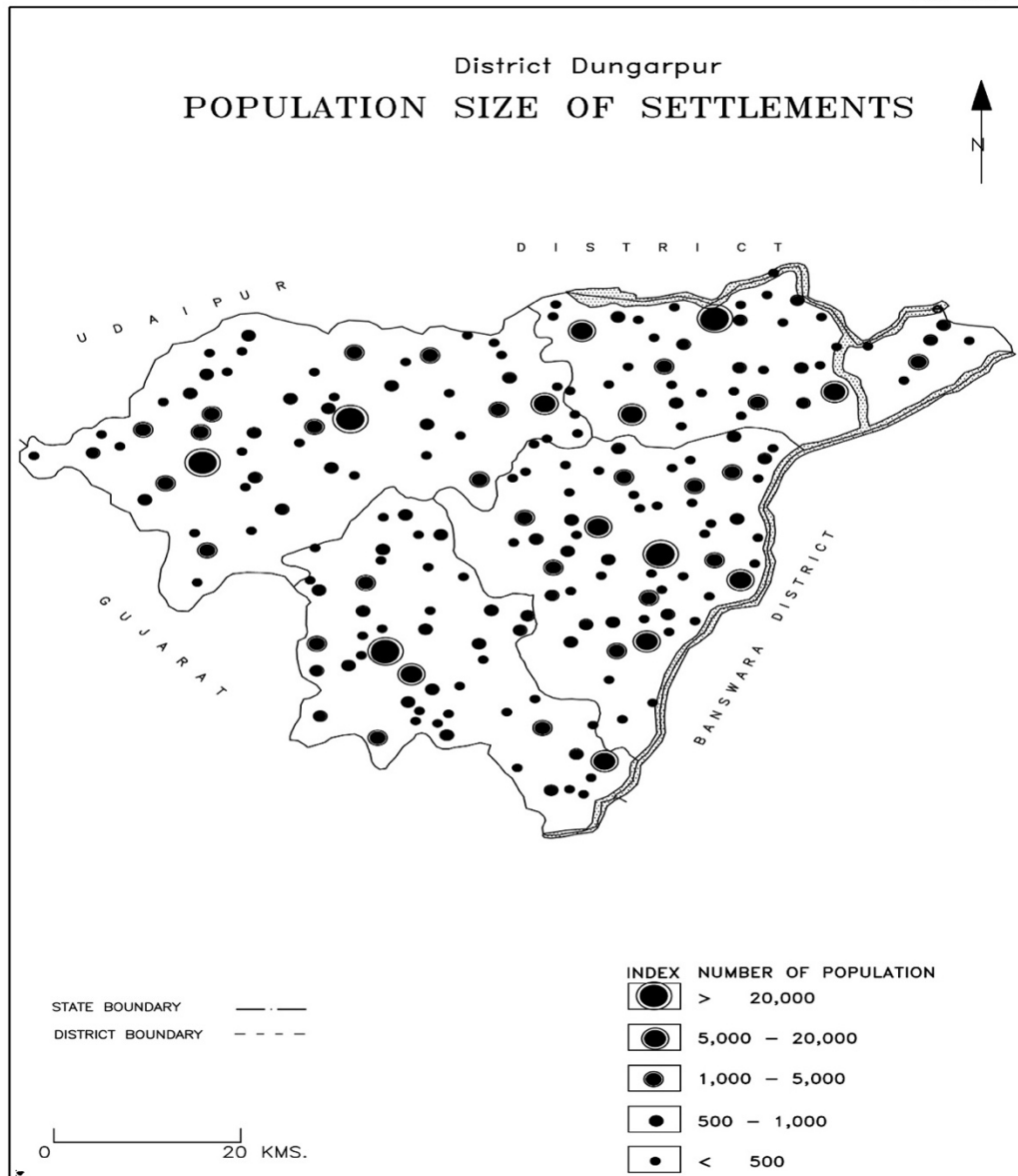
The district's total population resides in 858 settlements, which consists of only two towns, namely Dungarpur and Sagwara, which have been the seats of two principalities of the respective states. Table and Figure number 1 shows the distribution of settlements according to their size.

Table 1: Settlement Size Distribution

S.No.	Tehsil	Percentage of settlements according to population size				Total
		< 500	500 - 1000	1000-2000	> 2000	
1.	Dungarpur	79 28.11%	90 32.04%	77 27.40%	35 12.45%	281 100%
2.	Aspur	34 23.28%	44 30.13%	41 28.10%	27 18.49%	146 100%
3.	Sagwara	51 24.75%	70 33.98%	48 23.30%	37 17.97%	206 100%
4.	Simalwara	85 37.77%	59 26.22%	50 22.24%	31 13.77%	225 100%
	Total	249 29.02%	263 30.65%	216 25.17%	130 15.16%	858 100%

Source: Calculated by the Authors

FIG. NO. 1



The above table establishes that the district is predominantly covered by small size settlements as about 29.02 percent of the district's total settlements are below the population size of 500. In contrast, the number of settlements with a population of above 1000 is only about 40.33 percent. The dominance of small size settlements in the district is mainly due to its general backwardness, and tribal character as habitation's permanency started late. The distribution pattern of settlements of various sizes in different parts of the district is also quite significant (Fig.1). In the Aspur, which has better habitation, the percentage of villages of less than 500 population is only 23.28 percent. In Sagwara, it is 24.75 percent, which rises to approximately 28.11 percent in the Dungarpur and over 37.77 percent in the Simalwara tehsil.

FACTORS AFFECTING THE SIZE OF SETTLEMENTS

The variation in the size of settlements in different parts of the district results from various physical, socio-economic, technological, and other factors. The proper physical conditions like plain and fertile land, support a prosperous habitation. Thus the settlements will grow in size in such circumstances. Similarly, the safe areas from natural calamities and adequate rainfall, perennial drinking water supply, and infrastructural development may also promote large-sized settlements. An analysis of such a few factors like slope, cultivated areas, transportation network, etc. affecting the size of settlements has been done in the following paragraphs. The following table shows the relationship between slope and population size of settlements.

Table 2: Settlement Size and Slope Relationship

S.No.	Slope in Meters	No. of settlements according to population size				Total
		Below 500	500-1000	1000-2000	Above 2000	
1.	Below 10	179	97	36	11	323
2.	10 – 20	260	45	13	3	321
3.	20 – 80	172	21	6	3	202
4.	80 – 150	10	2	-	-	12
	Total	621	165	55	17	858

Source: Calculated by the Authors

The above table shows that the distribution pattern of settlement by size is inversely proportional to the slope, i.e., the lesser the slope, the higher the settlement's size. It can be evident through the table that only about 20 percent of the settlements in the below 10-meter slope areas have a population size of below 500. With the increase in the slope, the physical conditions become challenging and agricultural, and other economic activities deteriorate; subsequently, the human habitation also retards. This fact is established from the above table, where the proportion of large size settlement decreases with an increase in slope.

Village size correlation

The fact that the size of settlements in a region is associated with its cultural development cannot be disputed. Two important variables, namely road development and cultivated area have been selected to assess the above's validity. The correlation coefficient between settlement size and these two factors has been worked out to assess these two crucial factors' impact on settlement size growth in the region. The ranking has been done in all three cases, i.e., average population size, percentage of cultivated area, and percentage of roadside

settlements. The following table shows the region-wise average figures for the ranking of these variables.

Table 3: Showing ranking of physical divisions variables

S.No.	Name of Tehsil	Total Settlements	Average size of Settlements	% of villages having road	% of cultivated land
1.	Dungarpur	281	593	183	76.65 5.61%
2.	Simalwara	225	321	146	89.46 9.56%
3.	Sagwara	206	445	130	97.50 12.76%
4.	Aspur	146	177	101	69.42 10.03

Source: Calculated by the Authors

The correlation has been worked out by calculating the rank correlation coefficient formula as under:

$$P = 1 - \frac{6 \sum D_i^2}{n(n^2-1)}$$

(Where d_i is the difference in the ranks between two variables is the number of items)

Based on the above methodology rank correlation coefficient between population size and cultivated area works out to 0.8, which is relatively high, showing significant relation. Similarly, the correlation between population size and roadside settlement works out to 0.7, indicating a high degree of relationship. Thus, the transportation route and agricultural development in the area have been quite effective in the settlements' growth.

From the preceding discussion, it is evident that the Dungarpur district has small size settlements. The diversity in the physical features and backwardness in socio/economic development in different regions have equally contributed to the dominance of small-sized settlements in different parts. As the transportation network, which is one of the significant factors in settlement growth, has not yet developed properly, the region's uniform settlement pattern is, however, to develop.

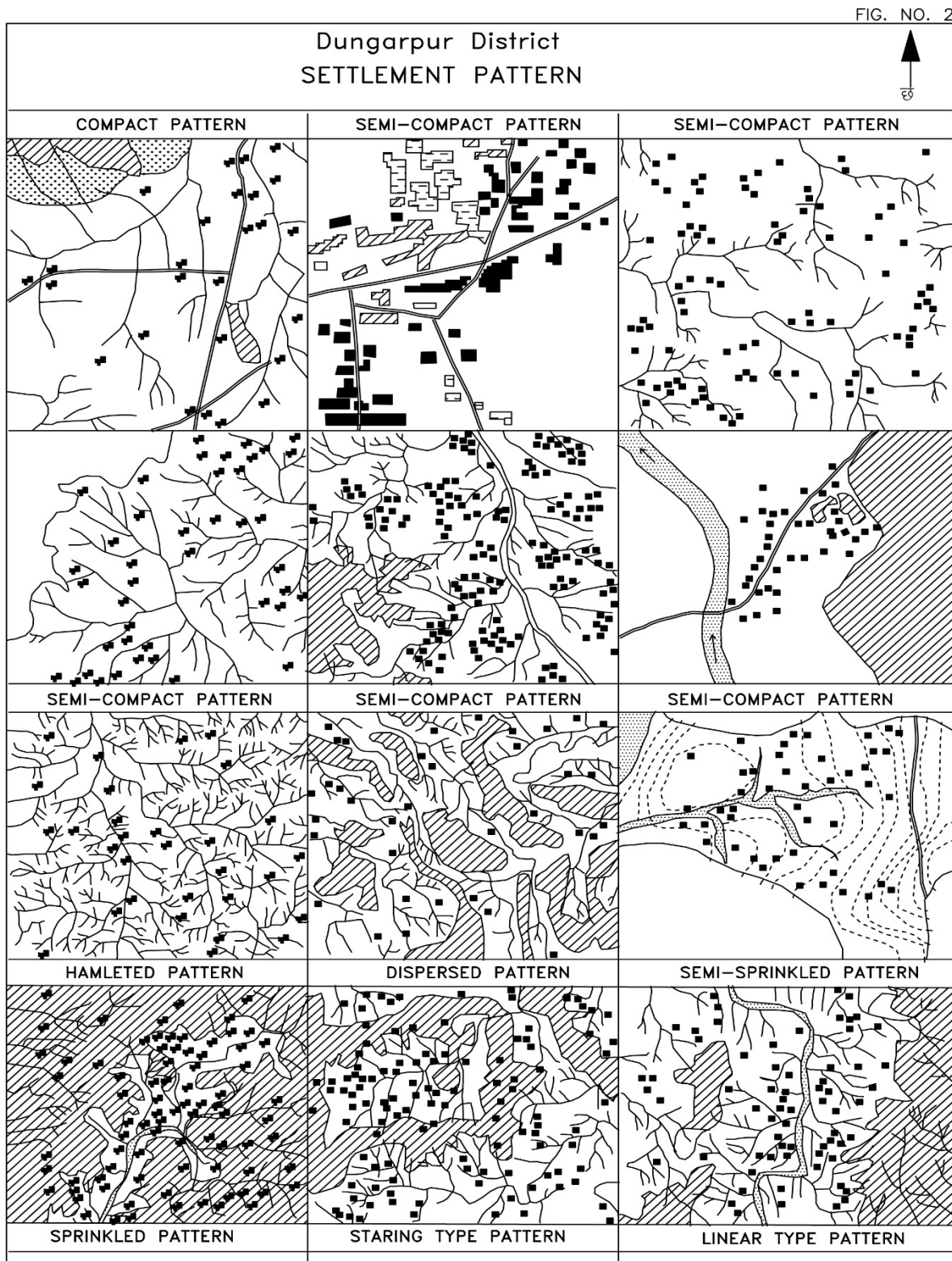
Settlement pattern

The study reveals that the Dungarpur district does not have a uniform settlement pattern all over the district due to varied physical and cultural factors in different parts. Broadly, settlements can be grouped into two types, the nucleated or agglomerated and the dispersed or scattered. In the former, houses piled up at one place are well-knitted along streets, while in the latter's families, residences remain distributed concerning their farm. Due to diverse physiographic and cultural conditions, none of the above extremes types of settlement patterns are expected in Dungarpur. Thus following five types of settlement (Figure No. 2) can be identified as sub-types of the above two main classifications.

1. Compact settlements.
2. Semi-compact or hamlet cluster settlements.
3. Hamlet settlements.

4. Sprinkled or dispersed settlements.

5. Linear type



Compact Settlements

Compact settlements are generally rare in Dungarpur district. Mainly these types of settlements are found in the plain area. In this type of settlement, almost all the dwellings are agglomerated and compacted. In the Plain region, a relatively developed agricultural pattern exists. A few such settlements exist on the elevated banks of Mahi and Som river. Several such types of settlements can be identified, such as Aspur, Amartiya, Waragonia, and Baroda, etc.

Semi- compact or Hamlet clusters

The semi-compact or hamlet clusters represent an intermediate stage of compact and dispersed settlements. Here 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. They develop with time due to ease of defence and lack of land in the main cluster for new houses. Due to the prevalence of caste systems in the area, such cluster settlements develop around the main settlements to house different clans or castes. In Dungarpur, this pattern is quite common near the Mahi. In tribal villages, small taparas of 3 to 5 hutments are built close to the main settlement by the Bhil Tribe. Generally, after marriage, the new couple moves to the new hut/home. Sometimes, due to the development of small foci like school, dispensary or temple, etc. a few hamlets are built around the main settlement. Thus the semi-compact type of settlements developed was due to the establishment of the police station, panchayat Samiti headquarters outside the main settlement has encouraged the development of such settlements. In the Dungarpur district, these settlements are the best examples like Gulabpur, Gariaueta, Gora, and Mirtiya, etc.

Hamlets or nucleated settlements

Hamlets or nucleated settlements comprise agglomeration of a very few dwellings at a place. Such settlements are essential characteristics of the tribal area. The tribal communities are located in the tiny nucleated settlements, mostly situated at the water point with agriculture and pastoral economy. The vast forested and uneven tract of the plateau is dotted with such nucleated settlements. The main stay of these tiny rudimentary hamlets is the combination of local resources, i.e., forests and animal husbandry. They generally prefer to lead a contented social life and accept the legality of the panchayat. The geographical condition of the area consisting of rugged terrain and uneven distribution of agricultural land also encourages nucleated settlement patterns like Amliya and Churiwad.

Dispersed type of settlements

This type of rural settlement is marked by the presence of complete diffusion of the homesteads over the entire revere, villages area. It has a longer distance between dwellings comparatively as compared to the congestion of plain settlements. In Dungarpur district, the dispersed settlements are found in various parts, with typical characteristics of tiny hamlets scattered at an irregular distance in close association with physical conditions and local resources. The dissected topography and diversity of soil resulting in the diffusion of arable land, liability to flood, and soil erosion have been some of the causes of these settlements. The typical Bhil tribe settlements consist of several laparas or detached huts standing on hillocks around the farmland. In the North-eastern Hills, huts are built on terrace fields, as can be seen from the village map of Tamtiya.

Linear type settlements

The linear type of settlement pattern is also found in the study region. Several hamlets have a clustering tendency along the streams in the form of string. The presence of innumerable streams dissecting the topography is the leading cause of this type of settlement pattern. Means of transport have contributed to the linear tendency of the settlement. Along all the major roads of the district, such patterns have been identified. The linear pattern of settlements has also developed along the river Mahi and Som rivers. Here the settlements have been established along the high bank of the river passing through the hills.

CONCLUSION

The present paper attempted to analyze the settlement pattern, size, and factors affecting the size of the Dungarpur district. The distribution pattern of settlement by size is inversely proportional to the slope, i.e., the lesser the slope, the higher the settlement's size. Due to various factors, the settlements' size and pattern are not uniform within the study area. The size of different settlements varies within the study area. The settlement pattern also varies due to many factors, i.e., compact and liner pattern.

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