

## **Dispersal Index Of Rural Settlement In Panhala Tahsil: A Statistical Approach**

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### **Abstract**

*Types, pattern and shape of the settlement are the significant characteristic of the settlements, which is considered morphology of rural settlement. The type refers to relationship of number of dwellings and number of sides (Singh, 1994). In the present paper to identify the types of rural settlements, dispersal index has been calculated along with shape index using the Haggett's (1965) formula. In the study area 34 villages have 'Pentagonal Shape' which are scattered all over in the blocks. Compact rural settlement is an outcome of productive land with a favorable climatic condition so the permanent agriculture. However, dispersed rural settlement is an expression of rugged and undulating topography whereupon the land use is segregated in varieties that lead to the dispersed rural settlement.*

### **Introduction**

According to Enayat Ahmad (1965) type means characteristic grouping of rural dwellings in that well-defined parcel of ground which is known as 'Mauza'. Aurrousseau, M. (1920) expressed types of settlement as an arrangement of rural settlements in the framework of geographical entities. Trewartha (1946) suggests two primary types of rural settlement as an isolated or dispersed and nucleated. However, Hadson (1976) took these types as a major pattern of rural settlements. Pattern of the settlement is always considered in respect of geometric form and shape of the settlements which can be categorized in different types. Since the agriculture is a major activity of rural settlement it is accordingly, the way cultivating the agriculture land directly influences the shape and an arrangement of the rural habitat. However, physical and socio-economic factors are also equally responsible for the type, pattern and shape of the settlements.

### **Objectives**

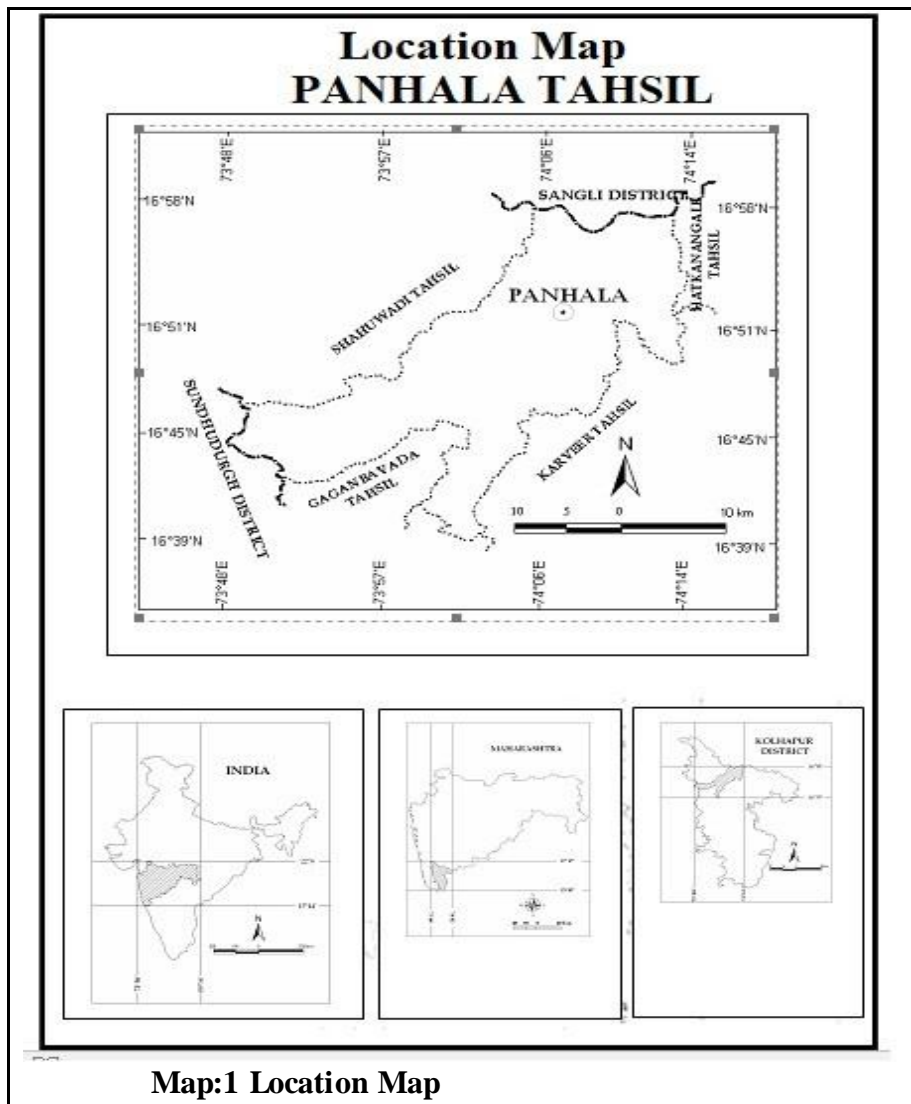
This research paper aims to study type of rural settlements.

### **Methodology and Database**

Present study is based on secondary data, which is collected from census of Maharashtra district 2001. Following statistical methods have been employed for the analysis of Dispersal Index and Shape Index. Formulae used for the dispersal index:

$$\text{Dispersal Index} = \frac{\text{Average Population Size of Settlement}}{\text{Average Spacing of Settlement}}$$

1. 
$$\text{AveragePopulationSize} = \frac{\text{RuralPopulation}}{\text{NumberofSettlement}}$$
2. 
$$\text{AverageSpacing} = \sqrt{\frac{\text{TotalArea}}{\text{NumberofSettlement}}}$$



**Study Region**

Panhala Tahsil of Kolhapur district is selected as a study area for the present investigation. It lays between 16° 39’ to 16° 58’ North Latitude and 73° 48’ to 74° 14’ East Longitude. The study region covers the total area 57018.57 hectares and total population is 206872 (Census, 1991). The study region has 130 villages and only one urban center.

**Types of Rural Settlement in Panhala Tahsil**

For the analysis of classification of rural settlements, a statistical method of Mandal (1979) has been applied and the results have been presented through a table and a map considering size and spacing of rural settlements.

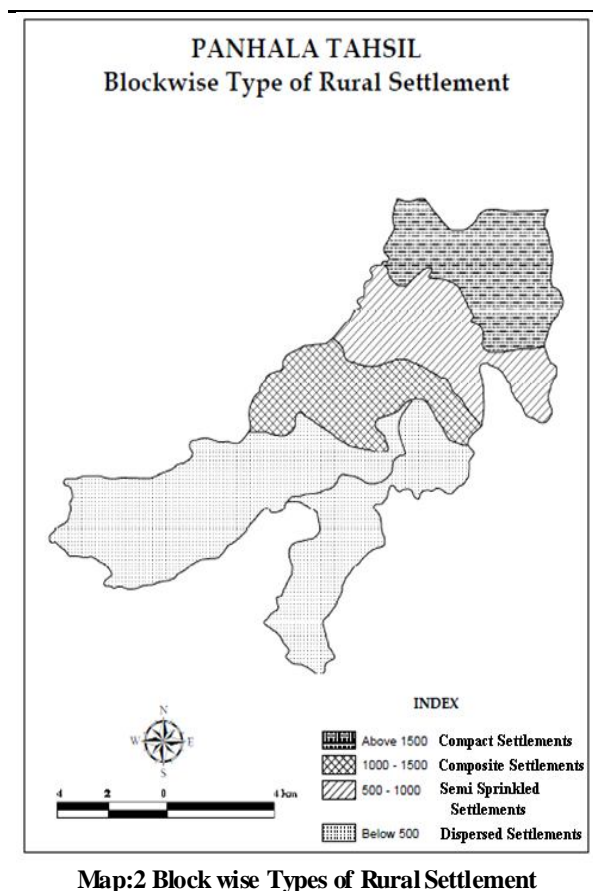
Values of dispersal index have been categorized according to their median values given in table: 2 and depicted in Map:2. The higher values indicate compact settlements whereas, lower values indicate sprinkled settlements. The dispersal values range from 102.18 to 1753.23. The spatial distribution of settlements according to types is as follows:

<b>Name of Block</b>	<b>Average spacing</b>	<b>Average population size</b>	<b>Dispersal index</b>
Kodoli	2.63	4611	1753.23
Panhala	1.86	1405	755.37
Kotholi	1.95	1962	1006.15
Bajarbhogaon	2.35	1042	443.40
Kale	1.83	187	102.18
<b>Tahsil</b>	<b>2.09</b>	<b>1807</b>	<b>864.59</b>
<b>Source: Based on Statistical Analysis.</b>			

<b>Dispersal Index Value</b>	<b>Types of Settlement</b>	<b>Area in sq km</b>	<b>% of Area</b>	<b>No of settlement</b>	<b>% of settlement</b>	<b>Mean Population Size</b>
Above 1500	Compact	104.31	18.22	15	11.53	4611
1000-1500	Composite	87.47	15.27	23	17.69	1962
500-1000	Semi-Sprinkled	101.11	17.66	29	22.30	1405
Less than 500	Dispersed/Sprinkled	279.59	48.83	63	48.46	1229
<b>Total</b>		<b>572.48</b>	<b>100.0</b>	<b>130</b>	<b>100.0</b>	<b>1807</b>
<b>Source: Based on Statistical Analysis.</b>						

**Compact Settlement**

The houses or dwellings in compact or nucleated settlements are closely located with the very narrow streets and lanes. The attraction at the centre may be a tank, well; temple, hill, fort, landlord’s house etc. around which the dwellings are located e.g. Kodoli, Jakhale, Pokhale, Satave, Savarde. It is therefore one can say that compact rural settlement is mainly found in the areas of river valleys of fertile soil and low relief as in the case of study region.



**Map:2 Block wise Types of Rural Settlement**

From the statistical point of view the dispersal values of the groups of compact settlements in study region are above 1500. Average population size is high than other blocks, it is 4611, spacing between two villages is high, and it is 2.63km whereas, the spacing between houses are very less. Average areal size of the rural settlement in this block is very high 6.95 sq km.

### **Composite Settlement**

Agglomeration of two nearby settlements forms composite, semi-compact or quasi-compact settlement. Composite settlements are more common in the relative plain and fertile areas and where availability of the water is more in the form of ground water, wells and river. In the study region Kotholi block has mostly this type of settlements like Kotholi, Marali, Satarde and Yevluj. The average population size of these villages is 1962 with an average spacing between two villages is 1.95 km. The range of dispersal values of this group is from 1000 to 1500.

### **Semi-Sprinkled Settlement**

Cluster of wadis, padas or hamlets forms semi-sprinkled settlement in the areas of rugged topography drained with innumerable streams and forested area of high relief. This type of settlements is observed in the Panhala block, where most of the land is of rugged type. Gude, Injole, Powar Wadi, Nikam Wadi, Rakshi, Waghve are the characteristic example of this type. Average population size in here is 1405, with average spacing between two settlements is 1.86 km and average areal size is very less, it is 3.48 sq km. The range of

dispersal values of this group is from 500 to 1000. The life in these settlements is rather hard in comparison to the other type of settlements.

#### Dispersed or Sprinkled Settlement

These types of settlements are mostly confined to the mountainous region of the Bajarbhogaon and Kale block where the houses are found far away from each other. Padsali, Nivade, Gothne in Bajarbhogaon block are the good example of this. The average population size of villages in these two blocks is 1229. Average spacing between settlements is very less; it is 1 to 2 km. The range of dispersal values of this group is less than 500. The considerable spacing between two wadis minimizes or almost declines the possibilities of the pollution of all kind. It is therefore, ecology in this area is good comparatively with other settlements. Immobility of the population and seclude ness is grate limitation of the development.

(Map: 2)

From the above study one can say that compact rural settlement is the product of permanent agriculture, productive land and favorable climatic conditions whereas dispersed rural settlement is found in areas of rugged topography where the land use is itself divided up in various facets leading to the dispersed rural settlement.

#### Conclusion

Compact rural settlement is the product of permanent agriculture, productive land and favorable climatic conditions whereas dispersed rural settlement is found in areas of rugged topography where the land use is itself divided up in various facets leading to the dispersed rural settlement. 63 villages are dispersed in nature, which is scattered in panhala, bajarbhogaon and Kale due to rugged topography. In the study area 34 villages have Pentagon shape which is scattered all Blocks.

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