CHAPTER - III
ANALYTICAL FRAME WORK OF DISPERSION OF SETTLEMENT AND SIZE, SPACING, TYPES IN JALNA DISTRICT

3.1   Introduction

3.2   Definition and Characteristics

3.3   Dispersion measurement Technique

3.4   Exact Distance measurement technique

3.5   Nearest Neighbor measurements

3.6   Size of rural settlement

3.7   Spacing of rural settlement

3.8   Types of Rural settlement

CHAPTER - III

Analytical Frame Work Of Dispersion Of Settlement and Size, Spacing, Types In Jalna District

3.1 Introduction:

In last chapter II we are studied on location and boundaries physical setup of the study region, Historical background geology climate, natural vegetation, soils are studied. In this chapter we are studied in analytical frame work of the Dispersion of settlements definition and characteristic of dispersion, dispersion measurement techniques, exact distance measurement technique nearest neighbor measurement techniques, quadrate measurement techniques etc. are discussed.

3.2 Definition and characteristics:

The rural settlement dispersion reflects the physico-cultural affects that have contributed to the character of a particular landscape. Analysis and understanding of the spatial characteristics of settlement dispersion may help to promote the construction of settlements models. However a survey of the relevant literature shows that research has not progressed much beyond the stage of classification even the studies covering cause and effect relationship of settlement dispersion are only a few in many of the published paper on settlement.

The term dispersion viewed as one dimensional characteristic of a spatial arrangement of points. meconell[1] says, It may be defined as the degree of deviation of a set of points from random relative to some

delimited area he also says or defines it as degree of dissemination of elements in spatial point sets irrespective of size of study area. Dispersion is a function of several factors including the process of evolution. The time lag changing socio-economic forces under the guidance of fast growing knowledge of science and technology and application of the same towards adjustment of nature. The pertinent quantifiable properties of dispersion are a) Clustering b) Randomness and c) Uniformity Based on these some questions might as follows are the points clustered sufficiently scattered to exhibit characteristics of uniformity or randomly distributed. The term clustered dispersed regular and random which have entered geography vie-statistical methods a were used widely by settlement geographers in earlier studies. The forms of settlement dispersions were conveniently termed as compact semi compact and dispersed depending on the inter dwelling space relationship and the degree of cohesion of cohesion and compactness of homesteads. The compact settlement is that in habited space where the individual dwelling are grouped and agglomerated settlement exhibit high degree of cohesion on the other hand the dispersed settlement is that inhabited space where the individual are diffused over the occupied territory and are separated by cultivated patches. The semi compact settlement represents the intermediate stage of two extremes. At present compact signifies clustering semi compact as uniform types of settlements.

The patterns and shape are both important aspects in settlement dispersion. Shape is a two dimensional characteristic of a spatial arrangement. Geographical data are always enclosed in which is

defined by a boundary or some of some kind and as a consequence it has a shape, where the boundary is clear, the area will have definite shape and where the boundary is not clear the shape may be quite amorphous[2]. Pattern should not be confused with shape as it is characterized by separate geometrical properties. Pattern is a zero dimensional characteristic of a spatial arrangement which describes the spacing of a set of objects with respect to one another.[3] Pattern is not related to the size of area under consideration. Another pertinent property is that a pattern is not necessarily indicative of the process which produced it.

The more complex process of regular random and clustered forms of dispersion require quantitative measurement. Application of quantitative technique is made to measure the settlement dispersion precisely and for determination of causal interrelationship. A review therefore has been made here to find out the properties of dispersion. In most of the world two methods of classification have been predominantly used. They are personal observation and quantitative methods for determining the terms of dispersion of rule settlements.

Although personal observation based on topographical map is successful but the diverse definitions and objectives view. However make it difficult to use such maps for comparative study. To avoid such difficulty a number of classifications have been devised and discussed by rural settlements Geographers. A careful examination shows that only some of these are applicable because of lack of statistical data of physical and cultural conditions the significance of some of these quantitative methods for measuring the indices for

agglomeration and dispersion have been discussed below. Most of these quantities methods are significant for the regions for which they were formulated only and some of them are applicable to the sample villages under study.

3.3 Dispersion measurement Technique :

The development of techniques of settlement dispersion analysis depend upon the work of plant ecologist and biometricians for distinct approaches.

a) Assessment of abundance

b) Exact distance measurement techniques

c) Nearest neighbor measurement technique and

d) Quadrates measurement technique.

A) Assessment of Abundance :

Description of the form of rural settlement for other than villages, are mostly numerical indices. They are largely the work of geographers and primarily refer to an average or hypothetical spacing of individual dwelling. In 1909 woeiko8.[4] A Russian Geographer produced of formula is

$$K = P/H$$

'K' is Index 'P' is number of inhabitants 'H' is number of inhabited places. This formula gives merely the average population size of rural settlement dispersion. In 1931 French scientist Bernard.[5] devised another formula as

$$C = HA/S^2$$

'C' is Index of concentration 'H' is number of houses 'A' is area 'S' is number of settlements. This formula fails to distinguish between settlement variations in 1931 another French scientist clozier.[6] devised new formula as

L = N/M

I is Index N is number places isolated M is total numbers of inhabited places. With same view and same year meynier[7] of France developed another formula as

G = 1/P

G is index of grouping I is total number of inhabitants P is total number of inhabited places demengeon[8] produced a new formula as -

C = (ExN)/T

C is index of dispersion E is populations of commune minus is chief place N is number of isolated settlements. T is total population in 1934 zierhoffer.[9] devised a new formula as

$$R = \frac{P \times s}{d} \times K$$

R is degree of dispersion P is average area per dwelling S is number of house groups in commune d is total number of inhabitants K is 0.005 in 1938 powloski[10] of Poland produced a new formula as -

$$C = \frac{A}{AS} \ and \ MC \ \frac{As}{S}$$

C is index of concentration A is area occupied by settlements MC is mean Index of concentration s is number of settlements in 1940 Robinson- Barnes.[11] of Midwest U.S.A. and Dntario produced a new formula as

$$D = 1.11 \sqrt{\frac{A}{N}}$$

D is average distance of a farmhouse to nearest six others a is total area N is numbers of farmhouses debouverie.[12] of Belgium produces new formula in 1943 as

$$K = \frac{X \times L}{H}$$

K is index of concentration X is minimum number of dwelling per settlement L is number of settlement units H is total number of dwelling per settlements Mather[13] from U.S.A. devised a new formula in 1944 as:

D is average distance of a farmhouse to nearest six other A is total area N is number of farmhouse   as in 1950 kant[14] of Estonia devised a new formula as

$$X = \frac{1}{M} \sqrt{\frac{A}{D}}$$

X is index of concentration $\frac{1}{m}$ is map scale A is area

D is density of habitations. In 1952 monk house[15] produced a new formula as:

$$1 = \frac{S}{H} \ also \ C = \frac{1}{S}$$

I is index of dispersion s is numbers of settlement H is number of isolated house. C is index of grouping 1 is number of inhabitants. S is number of settlements Houston [16] of France produced a new formula in 1953 based on Demangeon view as:

$$CS = \frac{S \times N}{T - E}$$

C is index of dispersion S is area of commune N is number of isolated settlements T is total population E is population of commune minus its chief place. In 1954 Clark Evans.[17] Produced a New formula as

$$R = \frac{Er}{N} / \frac{1}{2}\sqrt{P}$$

R is index of departure from random expectation of distribution of dwelling r is sum of distances to nearest neighbors N is number of measurements made 'P' is density of observed distribution number of individuals Tohika.[18] from Japan produced a new formula in 1957 as

$$M = \frac{S \times T}{S - N}$$

M is index of dispersion 'S' is area of map sheet 1.50000 T is percent of land cultivated 'S' is average agricultural area worked per family 'N' is average number of rural houses per village stone.[19] Produced a new formula in 1962 as R or F2 = Nh + Nr

R is region of continuous or discontinuous settlement F2 is fringe zone in discontinuous settlement regions Nh is pattern of permanent residences with in miles along 1-6 major directions for anyone permanent residence Nr is number (1.4) of inter - regional and local routes of transport within 10-20 miles of each permanent residence Birch[20] devised a new formula in 1967 and applied in U.S. A as :

$$R = \frac{rA}{0.5\sqrt{A/N}}$$

R is index of randomness of regularity or agglomeration of farmsteads rA is the observed mean distance between each point and its nearest neighbor. A is the area and N is the number of points. Singh[21] Produced a new formula in 1969 and applied in India as:

Hamlets Village Settlement Types

$$Hn = Vn = compact$$

$$Hn = Vn + 1 \text{ to } Vn \times 2 = semi \text{ compact}$$

$$Hn = Vn \times 2 + 1 \text{ to } 10 \; \frac{Oun \times 2}{3} = Hamlated$$

$$Hn = \frac{Oun \times 2}{3} + 1 \; to \; Oun = Dispersed$$

Hn represents the numbers of hamlets Vn is the number of villages in an administrative unit and oun is the number of occupance units in the same area. But this method is not applicable for all regions because of differences in physical setting and historical setting process e.g. the compact type of settlement discerned by Singh in the region is mostly confined to the hilly tract. In 1979 mandal [22] applied a new formula in the study of rural settlement in north Bihar plain as

$$Index \; of \; dispersion = \frac{Average \; Population \; size \; of \; tola}{Average \; spacing \; of \; tola}$$

$$Settlement \; from = \frac{Index \; of \; dispersal \; value \; grouped}{according \; to \; median \; quatile \; values}$$

This formula is simple and takes all settlements units and their dispersal. This method can be applied for determining the index of dispersal of rural settlements on the basis of population size settlement units tola divided by the spacing between then in the same unit area. The different values of the index of dispersal of settlements can be

grouped according to quartile values. This will give the settlement classes at different levels. The average population size of tola (Helment) is calculated by dividing the rural population of the anchal by the number of togas contained in it Similarly the average spacing between tolas is calculated by dividing the rural areas of the Anchal by the number of tolas and then taking square root of the figure to arrive at the distance in miles between tolas. The index of dispersal is thus the ratio between two values.

Although the above mentioned techniques and formulas are perfect in it self but not suitable and applicable in every area with each angle where as the settlement dispersion is a broad aspect and above formulas may be treated as a drop of water on dispersion desert. In this way we find above techniques and formals developed to measure dispersion of rural settlements but no method has yet been found universally recognized. Therefore another techniques known as distance recognized. Therefore another technique known as distance measurement to examine their efficiency in detecting forms of dispersions is described.

3.4 Exact Distance measurement Techniques :

It is a important techniques to measure the settlement dispersion while Geography is discipline of distance. The following works have done to measure the dispersion and agglomeration by citing exact distance of objects kristoffersach[23] classified the rural settlement's in 1924 as less than 50 meters spacing as dispersed and more than 50 meters as agglomeration. In 1926 Lefevre [24] used the number of house per square kilometer ground. In to classes of 1-10, 11-25,26-50, 51-

100, 101-250 to -150, 251, 500, 501- 1000 and 1000 + at the bases of classification of settlement types. But this method gives only the density classes of houses and not the types of settlement. In 1931 Biermann[25] of Switzerland expressed his idea as more than 60 meters spacing as dispersed in the same year kielezewaka[26] of Poland and millet of france expressed their ideas as more than 150 meters spacing as dispersed and more than 300 meters as dispersed respectively. In the same way. In 1960 Enequist[27] of normaly and in 1964 inouye of [28] Japan classified the rural settlement dispersion as more that 30 house per square kilometer is a cidlungs flanche less than 200 meters between house classed as grouping . Less than 50 meters between an agglomeration and 50 meters spacing for one group respectively. Inouye simplified his ideas by saying than isolated mean less than house with in 50 matters of each other Scattered. 3 or more houses or more houses less than 50 meters from each other concentrated more than half of the house in a village distributed into one group within 50 meters range. Condensed more than half of the house in a village centralized into one core. Robinson - Barhes [29] have developed a method in which if the number of settlement and area of the region are known we can determine the approximate distance between each under its nearest neighbor and would be under conditions of an even spatial distribution it can be computed by a simple formula :

$$Hd = 1.11 \sqrt{\frac{A}{N}}$$

Hd is the hypothetical distance A is the area of the region N is the number of settlement 1.11 is the constant value. In this methods A/N indicates the average area that belongs to a settlement.

Exact distance method is simple and useful but its main short coming is the concentration over hamlets and it does not emphasizes dispersion of parental village. This technique is not applicable everywhere therefore, another techniques known as nearest neighbor measurement is as :

Near self neighbor measurements:

In order to measure actual point patterns against a random point a regular and an agglomerated pattern, nearest neighbor measurement can be used. This straight line distance between each point and its nearest neighbor is measured and the mean of these is, obtained to give the observed mean distance (r.A). This figure can then be expressed in a ratio against the mean nearest neighbor distributed poises (rE) for the same density 08 randomly distributed point rA/rE or e can be derived from the formula

R= rA/5 (A/N) x $\frac{1}{2}$ where A is the area and N the number of points. A figure of 1 or close to 1 for R would indicate that the observed pattern was like a random pattern A figure for R, above 1 would indicate a more regular dispersal point. A figure of 1 or close to 1 for R. Would indicate a more regular dispersal of points reaching a maximum of R1=2.15 for the regular pattern. Agglomerated pattern give results between 1 and 0 depending on the degree of agglomeration.

Evens and clark[30] for the first time developed this method for measuring the spatial interrelationship of various plant communities. They applied this method to find out randomness in point by obtaining distance to their nearest one. The work of Events and cleark strongly contributed to the spatial analysis of pattern is geography credit goes to Dacy and king who first of all made an application of this techniques to geographical problems. At present four different near neighbor techniques are widely used in geography analysis as :

1) Reflective near neighbor technique
2) N th order nearest neighbor technique
3) First order nearest neighbor technique
4) Regional nearest neighbor technique

Reflective near neighbor techniques :

This technique was first introduced by Decey in Geography on the of primary ideas received from th plant ecologists. Decey[31] suggested the followings procedure for its measurement. At first the distance between each point and all other points are measured according to scale point and th number of points having corresponding nearest neighbor is determined which represent the proportion of whole number of points. This process is repeated to find out the proportion second third---and N the nearest neighbor which are reflexive. In the random pattern in one dimensional space the proportion of points corresponding N the order of reflexive nearest neighbors is equal to $(2/3)$ n. If the proportion is higher than $(2/3)$ n. It shows regularity and in case if lower it shows clustering. Therefore reflexive near neighbor technique is not suitable in every area.

N th order Nearest neighbor technique :

N th order neighbor technique measures distance from each individual to its first second third...... and N th neighbor it compares the mean distance to each order of nearest with an expected mean distance. If points are randomly distributed. This method was first introduced by morisita and elaborated by Thompson[32] to measure the departure from randomness in higher order. He derived the formula for expected man distances (rE) for each order.

$$E\ (rj) = (2j)iji\sqrt{m\ (2iji1)^2}$$

The j th order nearest neighbor distance of rE has devoted by E(rj) where j = 1,2 ......6 th nearest neighbor. The constants have been tabulated for the first four orders of nearest neighbor by thompson. N th order nearest neighbor method is suitable for every area, but its date collection is complicated.

First order nearest neighbor technique :

First order nearest neighbor measures the main distance between each point and its corresponding nearest neighbor in a sample distribution. According to Evans and clark nearest the mean distance between each point and its nearest neighbor which could be expected in such a random distribution as

$$rE = \frac{1}{2\sqrt{P}}$$

Where of is the main density of N points per unit area under consideration the distance from each point to its corrosponding nearest neighbor is measured. The mean observed distance is determined by

$$rA = \frac{r}{N}$$

Where r is the distance between and its nearness neighor. The ratio of the observed mean distance (rA) to the expected distance (rE) is know as nearess neighor analysis (R)

$$R = \frac{ra}{rE}$$

Where R may be called a scale and is a measure of the degree of departure from randomness in either of the two disrections towards uniformity or towards clustering.

Regional Nearest neighbor technique :

Regional nearest neighbor methods is the modifiled form of fisrt order nearest neighbor technique. This method was originally developed by Decey[33] and known analysis in this technique the circle corresponding each central point is divided into six equal sectors. A sextant is placed over each point in a distribution and straight line distances are measured to the nearest neighbor in each of the sector. Measurement in six sectors particularly in a point distribution implying that points are distributed a long a hexagonal lattice. The distance from central points called i. to any of its six nearest neighbors called J is Eh. The area of hexagon is $H = \sqrt{3(Eh)}\,^2/2$

There fore Eh $= \sqrt{2H/4\sqrt{3}} = 1.075\ \sqrt{H}$ or the Eh is twice of height of any one of the six equilateral triangles with in the inscribed hexagons. The straight line distance from I to j is called Dij Dacey derived the expected distance to K nearest neighbors.

## 3.6 Size of rural settlement in Jalna District :

The size of the rural settlements in the study region it is observed that there is direct relationships between population and the area size of settlement by population.

Small area unit may support larger number of people. If fertility of the soil is more and irrigation is available where in short the good land is available there is large number of population live. In the study region tahsils like Ghansavangi, Partur an Ambad have small average size but more population and occupied houses. It is similiarly rural population density and size of rural settlements are also linked the range of variation is from minimum of 188 and 194 per sq km. in Ghansawangi and Badnapur Tahsils Table No. 3.1 Shows population density in the district per sq. km. Maximum density per. km was found in Jalna tahsil 455 and Bhokardan 258 persons per sq. kms In the district. Maximum 90% of villages have a population ranging between 0 to 2000. This means comparatively small and medium sixed settlement are very common in the district.

Table-3.1

Size of Rural Settlements 2011

Sr. No.	Tahsil	Population density (R) km^2	Average size of village (Population)	Average size of the Village (Area)	Density of villages in 100 km^2
1	Bhokardan	258	1945	7.53	13.26
2	Jafrabad	221	1615	7.30	13.68
3	Badnapur	194	1671	8.61	11.60
4	Jalna	455	3530	7.75	12.88
5	Ambad	233	1866	8.00	12.48
6	Ghansawangi	188	1804	9.59	10.42
7	Partur	233	1869	8.02	12.46
8	Mantha	215	1468	6.82	14.64
9	Region (Jalna Dist.)	256	2034	7.94	12.58

Graph No.3.1

Urban Population density of all Tahsils in the study region 2011
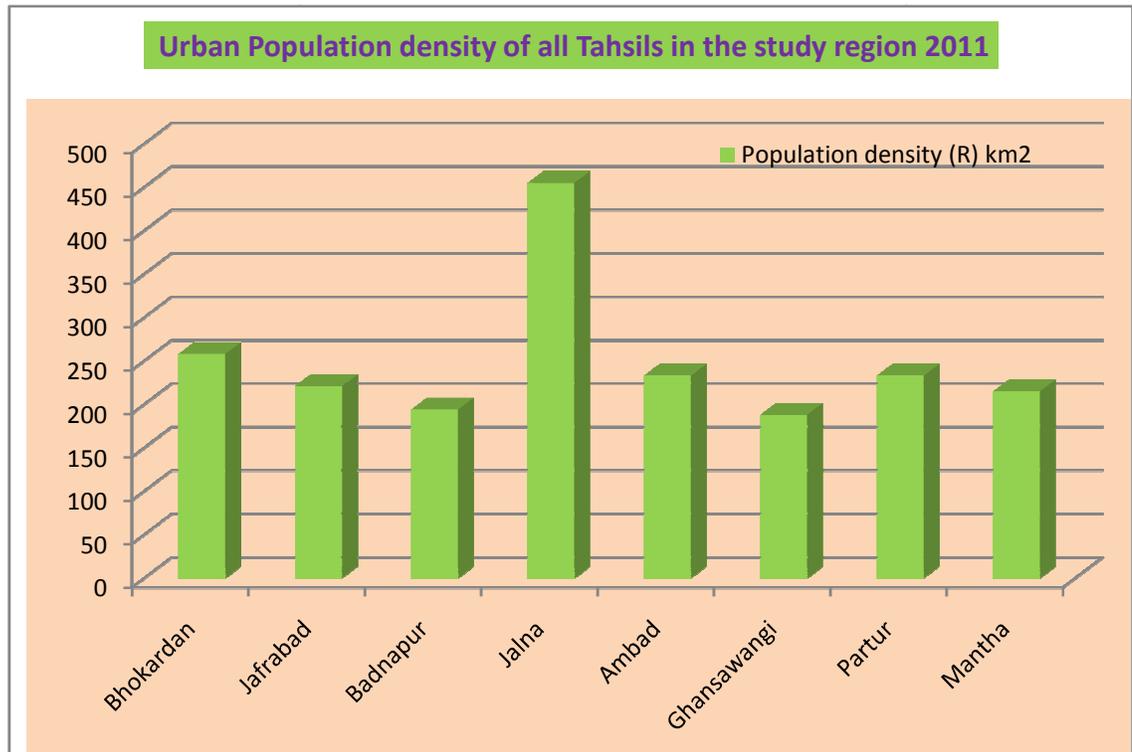
This also shows positive relationship between irrigated area par cultivator and population size.
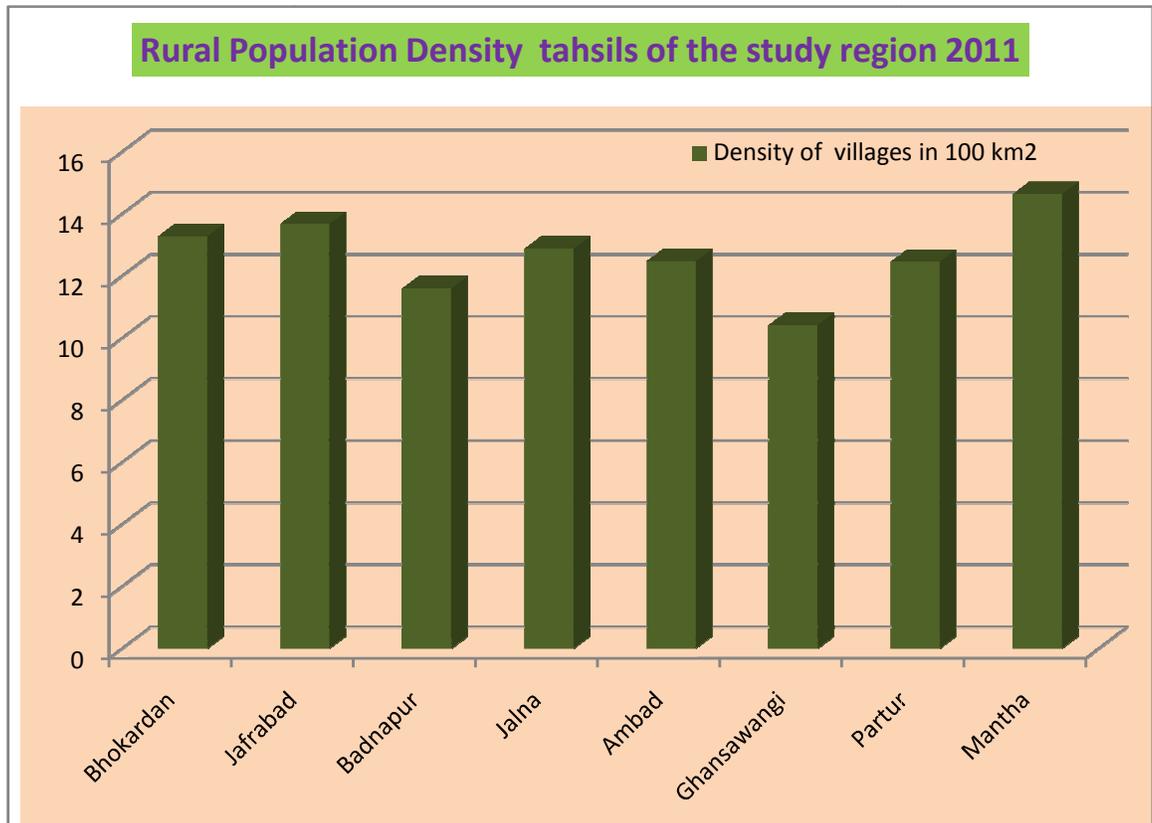
Average size of the village common to 2034 ranging from 1468 Mantha tahsil to 3530 population in Jalna tahsil. Out of the total population nearly 22% people live in small villages (population less than 1000) while about 40% live in medium sized settlements (1000 to 2999) about 38% people live in large sized settlement with more than 3000 persons each From these facts one may conclude that considerable part of the population in the district is concentrated with in few settlements. This is mainly because of agriculture prosperity in the tahsils like Ambad, Ghansawangi, Partur and Badnapur proportion of small size settlement, is more in the district as a whole but larger proportion of these small sized settlements is found in Jafrabad. Bhokardan and Mantha tahsils. This may be due to sizable area under rugged relief, poor soil in these tahsils medium size settlement are predominantaly found in Jalna, Jalna, Bhokardan and Jafrabad tahsils.

Table No.3.1 shows also density of villages in 100 km^2. The lowest density of villages was found in Ghansawangi (10.42) tahsils and the highest density of villages was recorded in Mantha (14.64) the medium density of villages was noticed in Partur Ambad and Jalna tahsils during the period of investigation.
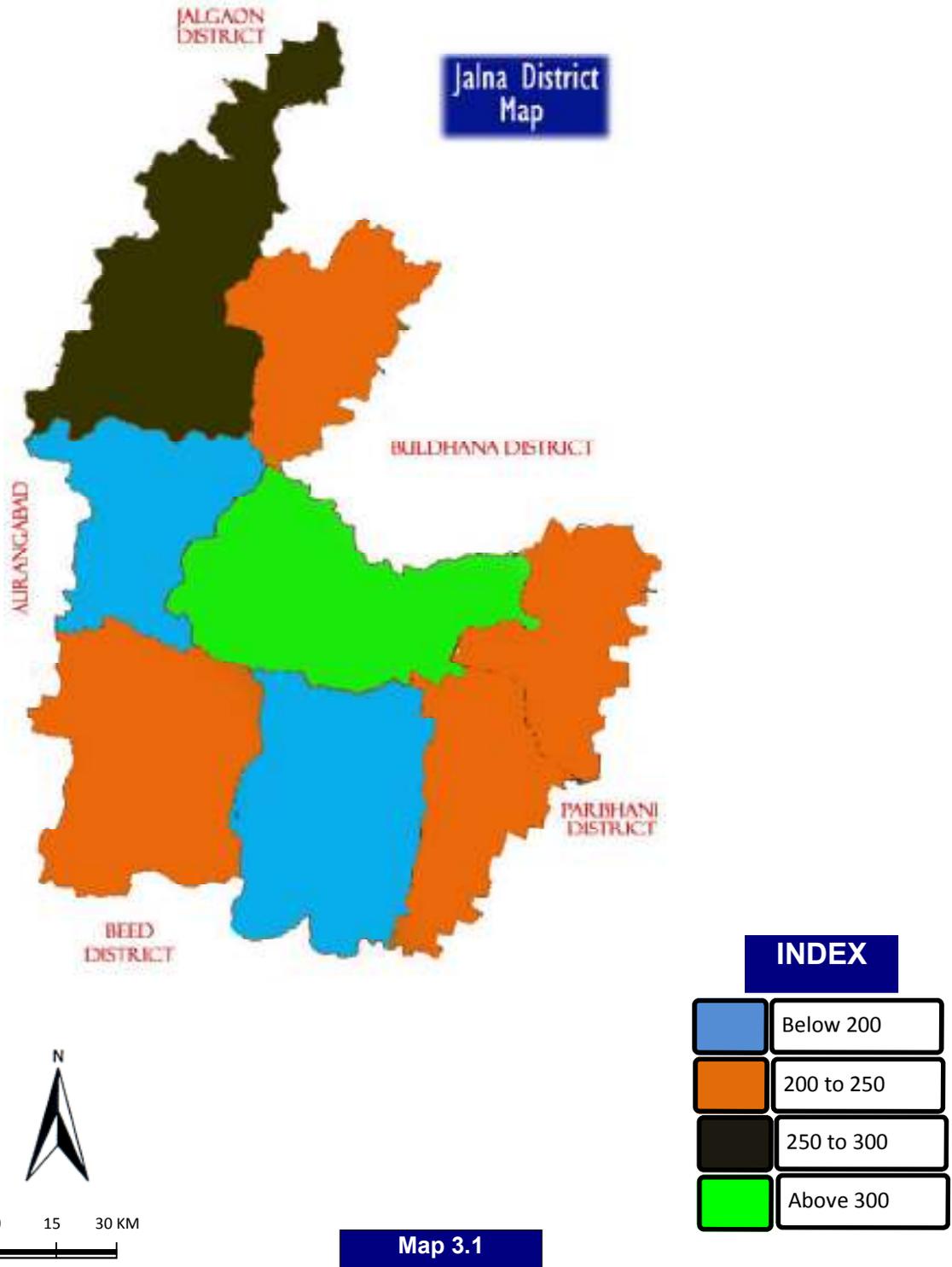
Table No.3.2

Spacing of Rural settlements   2011

Sr. No.	Tahsil	Density of villages in 100 km^2	Average size of the Village (Area)	Average Distance between Villages (Specing)
1	Bhokardan	13.28	7.53	3.90
2	Jafrabad	13.68	7.30	3.40
3	Badnapur	11.60	8.61	3.80
4	Jalna	12.88	7.75	3.35
5	Ambad	12.48	8.00	3.55
6	Ghansawangi	10.42	9.59	4.03
7	Partur	12.46	8.02	3.32
8	Mantha	14.64	6.82	3.67
9	Region (Jalna Dist.)	12.60	7.95	3.60

Graph No. 3.2

81

Population Density in Rural Settlement In study Region

JALGAON DISTRICT

Jalna District Map

BULDHANA DISTRICT

AURANGABAD

PARBHANI DISTRICT

BEED DISTRICT

N

0   15   30 KM

INDEX

	Below 200
	200 to 250
	250 to 300
	Above 300

Map 3.1

Average Size of Village (population) of Rural Settlement

JALGAON DISTRICT

Jalna District Map

BULDHANA DISTRICT

AURANGABAD

PARBHANI DISTRICT

BEED DISTRICT

N

0   15   30 KM

Map 3.2

INDEX

Below 1500

1500 to 2000

Above 2000
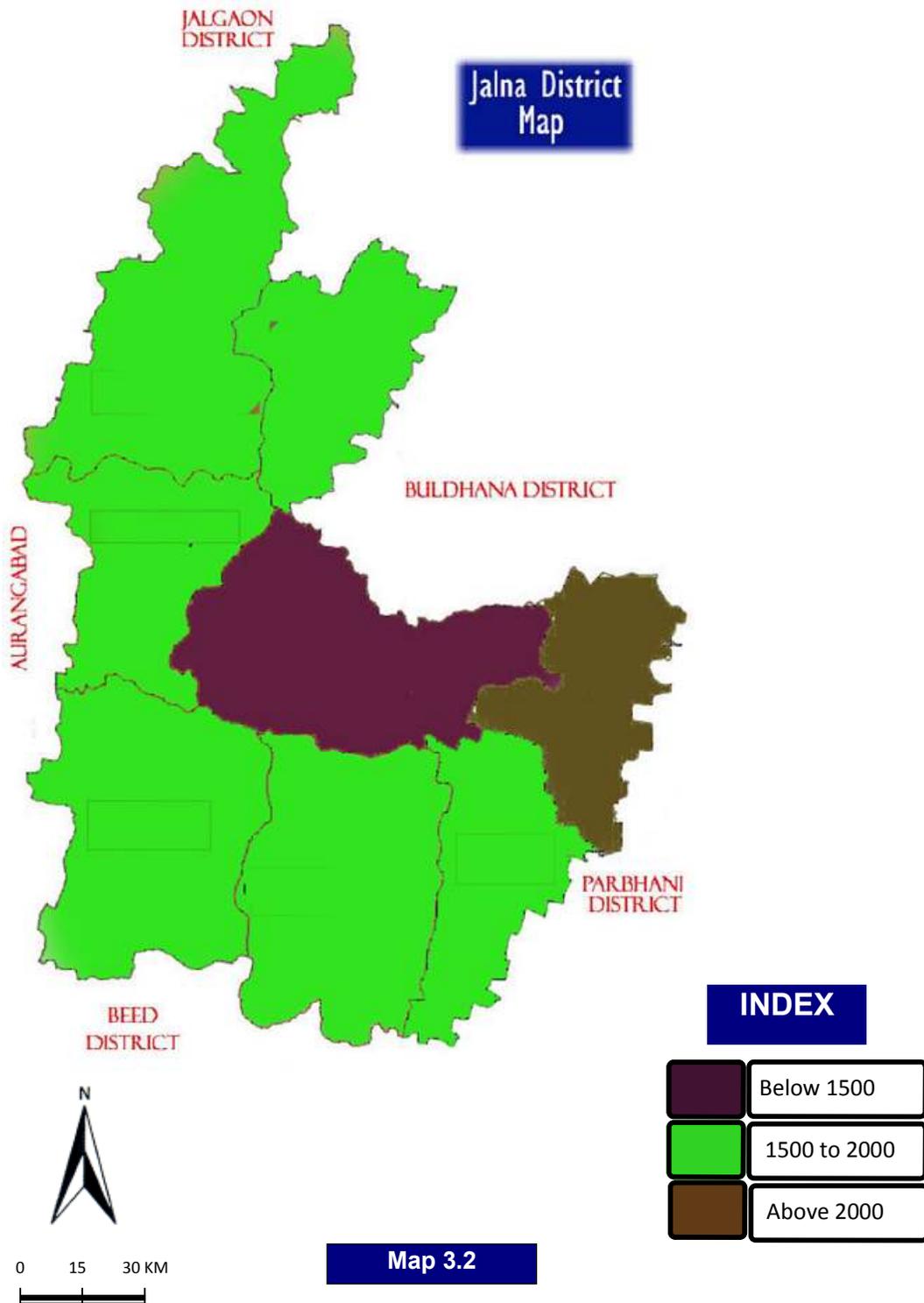
Average Size of Villages (Area) in Rural Settlement

Jalna District Map

JALGAON DISTRICT

BULDHANA DISTRICT

AURANGABAD

PARBHANI DISTRICT

BEED DISTRICT

N

0   15   30 KM

Map 3.3

INDEX

	Below 7.00
	7.00 to 8.00
	8.00 to 9.00
	Above 9.00
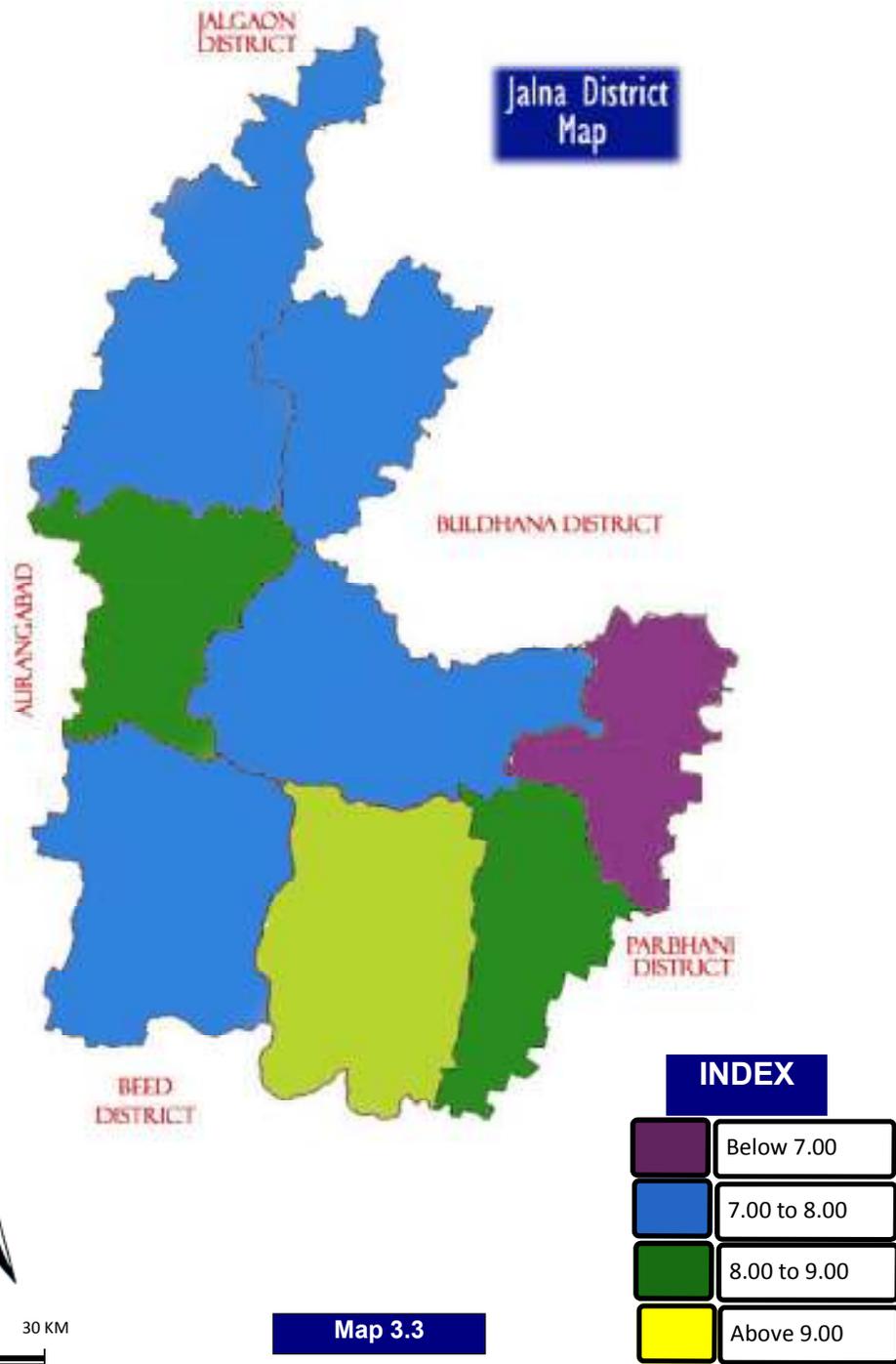
Density Of Villages in 100 km² Of Rural Settlement

JALGAON DISTRICT

Jalna District Map

BULDHANA DISTRICT

AURANGABAD

PARBHANI DISTRICT

BEED DISTRICT

N

0   15   30 KM

Map 3.4

INDEX

	Below 11.00
	11.00 to 12.00
	12.00 to 13.00
	Above 13.00
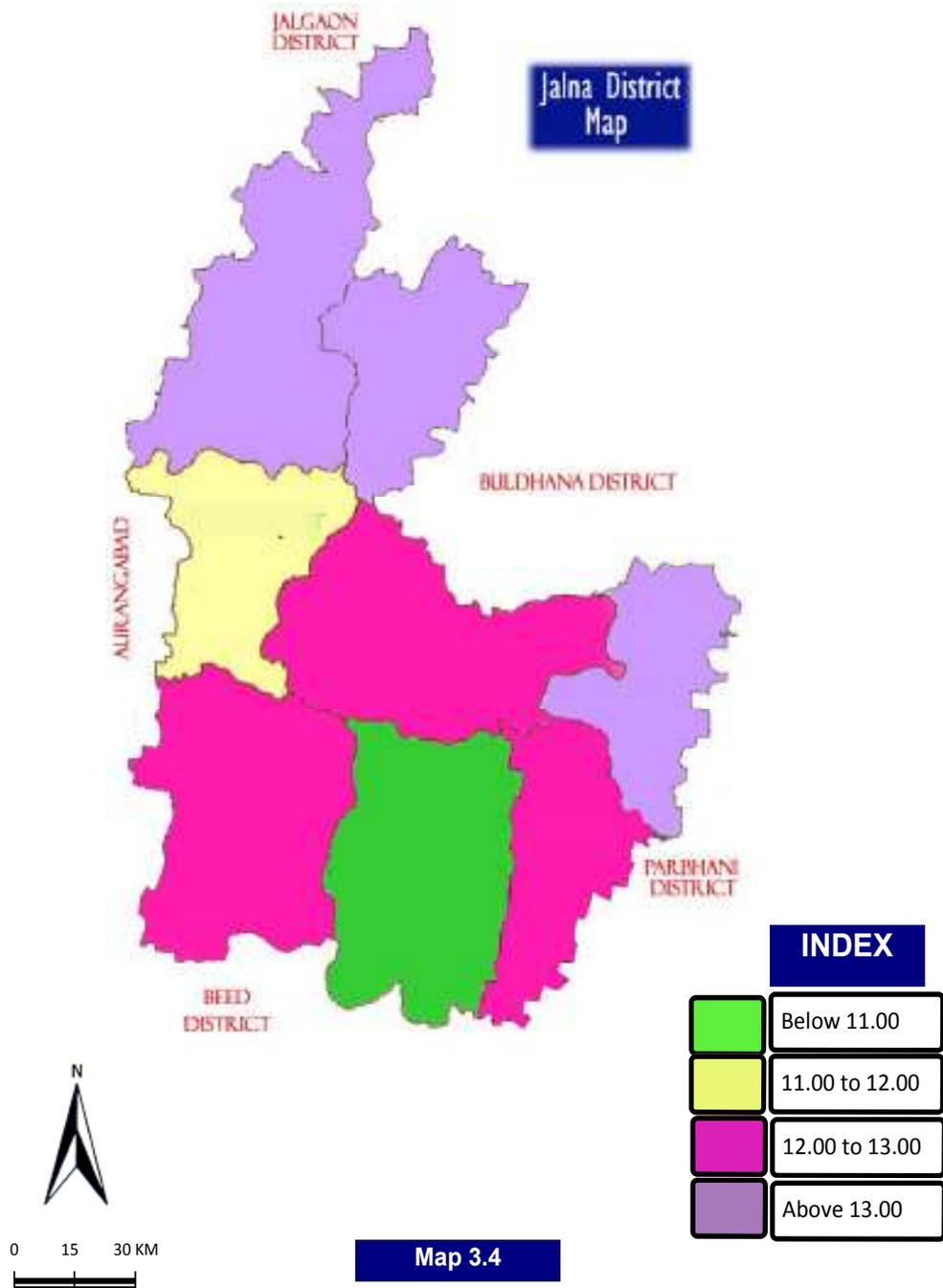
3.7 Spacing of Rural settlements in Jalna District

The district is varied in its character it has therefore equally striking variation in spacing of rural settlements. This reveals in range of variation from a minimum of 3.32 Km in partur tahsil to maximum 4.03 km in Ghansawangi tahsil. For the district as a whole the spacing of rural settlement come to 3.60 km.

The spacing between the rural settlements in the district is influnced by several factors such as proportaion of area under forest availability of water intensity of land use and accessibility map (3.5) (3.6) (3.7).
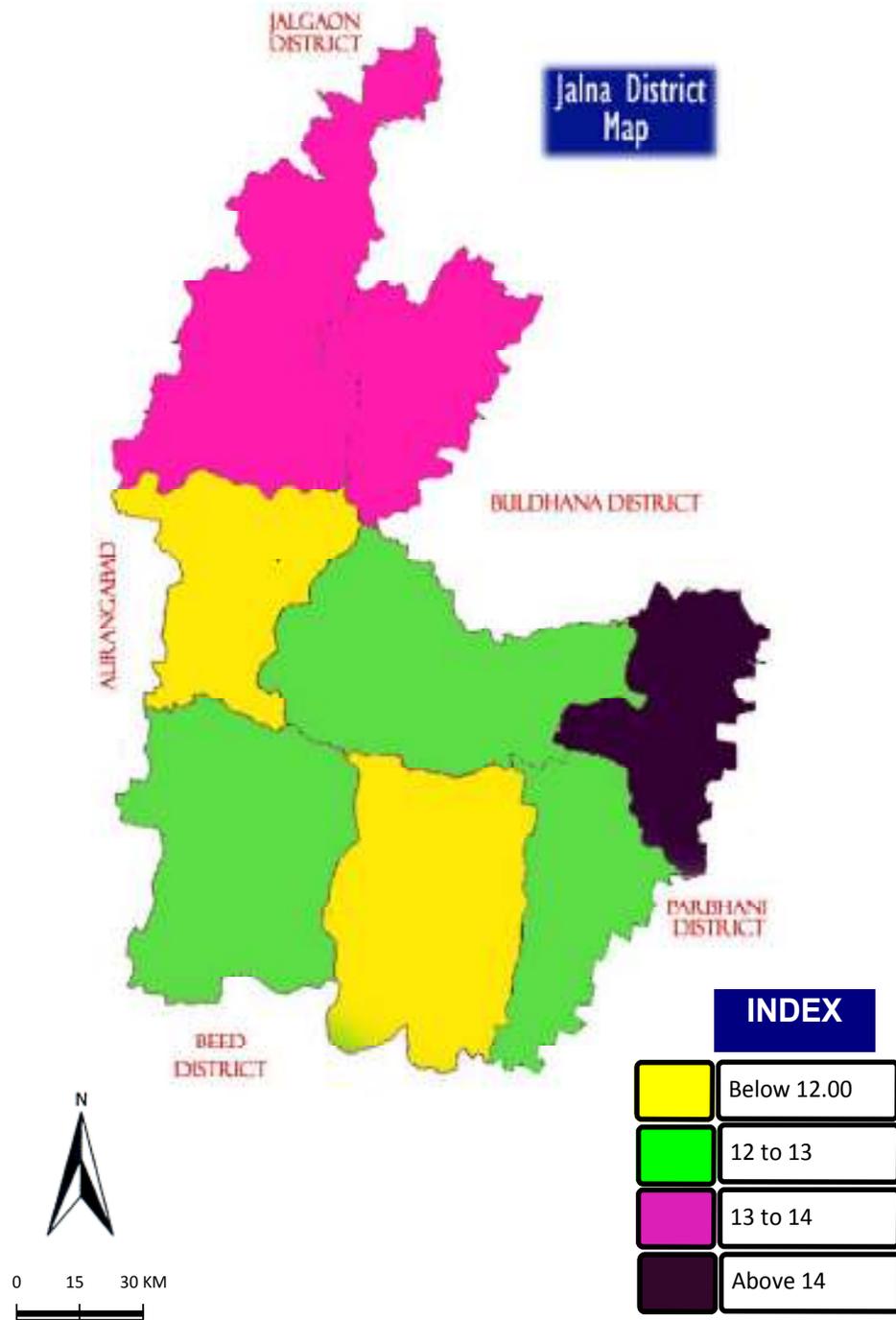
By using the different indices computed there are three categories, of spacing were identified.

1. Areas of high spacing (4.00 km or more) Ghansawangi tahsil comes under this category this tahsil forms a river Godavari basin. There is sufficient water available for drinking as well as irrigation purposes so the land under irrigation pet cultivator is also low. Hence there is high spacing between the settlements.

2. Areas of moderate spacing (3.50 to 4.00 km) Bhokardan, Badnapur, Ambad and Mantha tahsils comes under this category. This may be due to comparative higher irrigated land per cultivator in the tahsils.
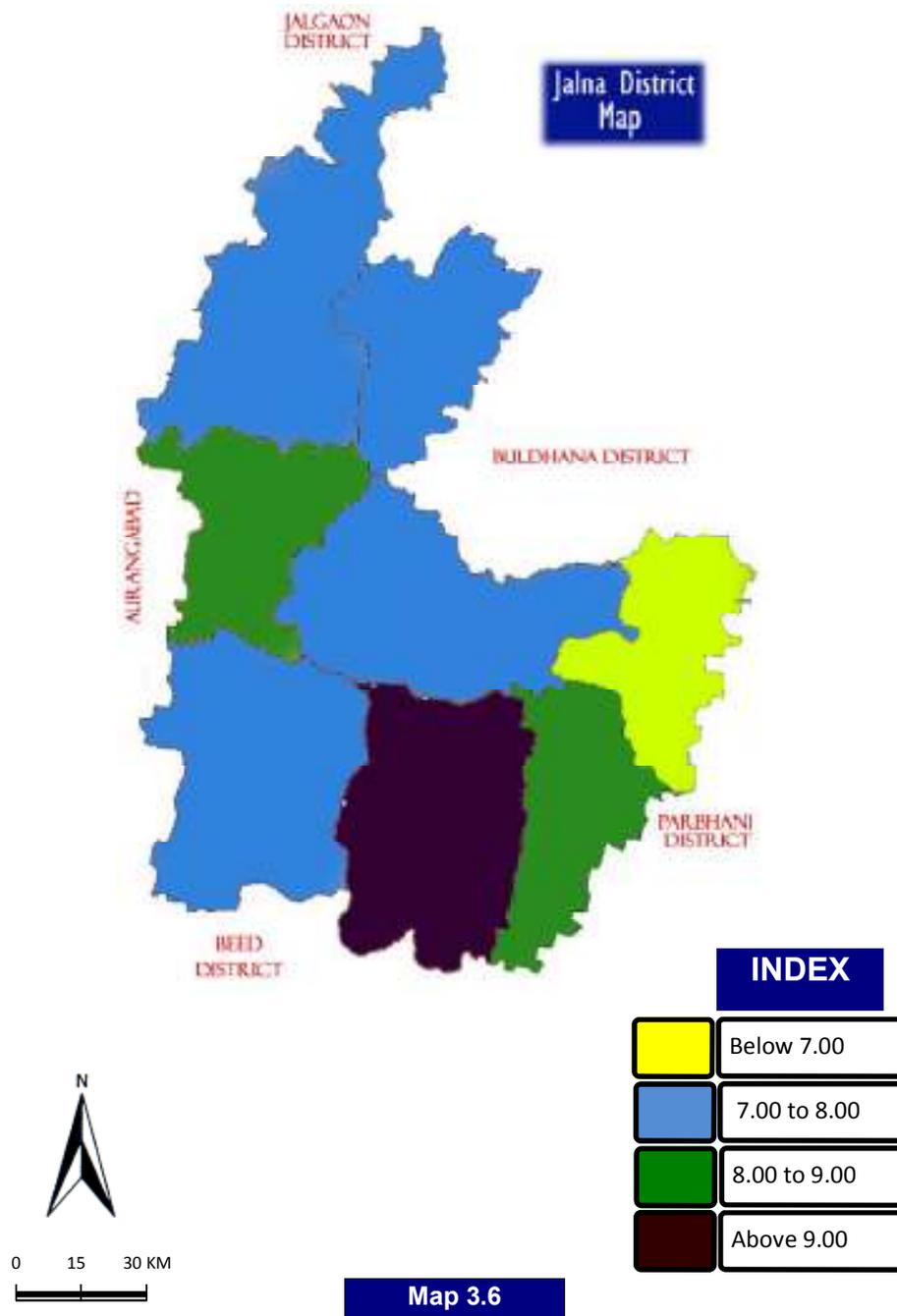
3. Areas of low spacing comes (less than 35 km) Jafrabad, Jalna and Partur comes under this category Jafrabad tahsils occupied hilly area topography that influence on low spacing. It may be concluded that large population size and high rural population density with low spacing in the north, East and north part of the district. The southern and Eastern part of the district well developed transportation network availability of fertile soil and irrigation facilities. The high spacing and small size of the villages in the south part. (Map.3.6).

Spacing Of Rural Settlement (Density of Villages In 100 Km²)
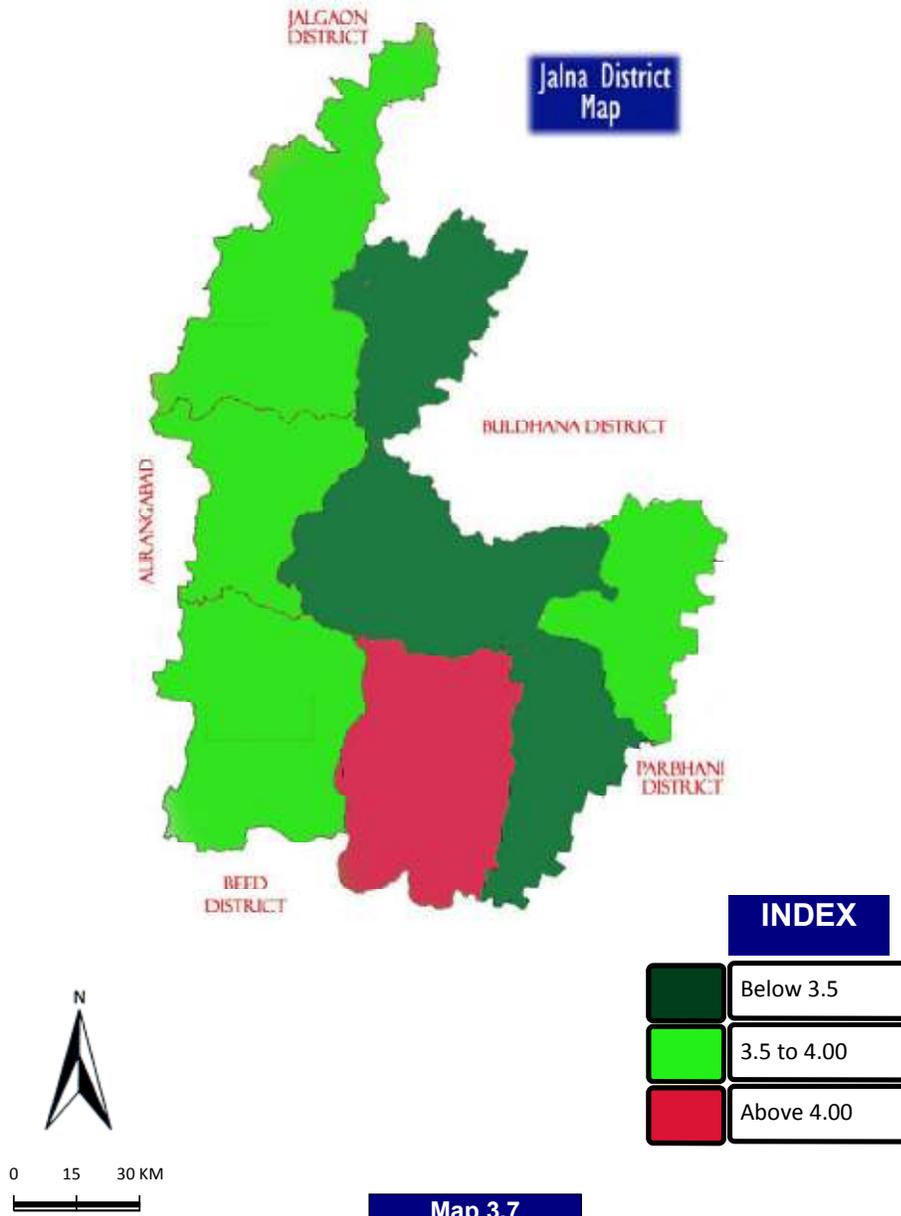
Jalna District Map

JALGAON DISTRICT

BULDHANA DISTRICT

AURANGABAD

PARBHANI DISTRICT

BEED DISTRICT

N

0   15   30 KM

INDEX

	Below 12.00
	12 to 13
	13 to 14
	Above 14

Map 3.5

Spacing Of Rural Settlement (Average Size of the Villages)

Jalna District Map

JALGAON DISTRICT

BULDHANA DISTRICT

AURANGABAD

PARBHANI DISTRICT

BEED DISTRICT

INDEX

Below 7.00

7.00 to 8.00

8.00 to 9.00

Above 9.00

N

0   15   30 KM

Map 3.6

Average Distance Between Villages (Spacing)

JALGAON DISTRICT

Jalna District Map

BULDHANA DISTRICT

AURANGABAD

PARBHANI DISTRICT

BEED DISTRICT

N

0   15   30 KM

INDEX

	Below 3.5
	3.5 to 4.00
	Above 4.00

Map 3.7

3.8 House Types of rural settlements and Building materiels

The house is a shelter a means of regulating the climate to meet the basic physiological requirements of the body. It may perform this function well or indifferently. The house then becomes a universal feature of regions permanently occepied by human beings. The rural houses of rural landscape is one of the aspect which provides the clues regarding the complex relations between man and his environment. represent the cultural heritage of the past and the survival of traditions and reflection of the social state. In other words human dwellings are governed by physical factors as well as tradition and cultural landscape. House as a geographic unit included the dwelling ranging from the small thatched but to the most elaborate massive mansion and other human structure where people agglomerate used as store for material goods and where social and cultural needs are satisfied rural dwellings are adopted to environment of the region. Which determines the nature of building material form of roof and layout of Houses. As pointed out by blache man has always tended to build his house with the nearest material at the hand.

Rural houses of a particular region present diversity in form size and functions as well as balanced adaption to the physical and cultural environment of the area when needs are dire, necessity becomes the mother of invention and it is therefore not to be wondered at that the influence of environment as features is reflected in man's works in a similar way in different localities. The natural environment determined mostly the building material and the form of the roof.

The houses are constructed out of local materials available or easily imported on the basis & field observation the impact of building genius is visualized with their general and particular aspects. So the dwellings the most universal elements of cultural landscape having a highly significant place in the geographical hierarchy of phenomena depict in any Region the symbol of its regionals, expressive of both its physical milieu as well as socio- economic structure.

Impact of physical factors:

Topographically the area drainage, soil and climate are the important factors which determine the types of rural houses climate is more predominant and influences building material shape of roof and ultimately the types of houses amount of rainfall, direction of wind, sunny sides are the important factors. Which Control the architecture and plan of rural dwellings. In the study area in the some parts heavy rainfall Houses in these area are made of braches of trees, bamboo, grass, mud and stone. In the Godavari bank side the houses are build from wood and stone some are built by stone, bricks walls.

It is observed that houses in some part of the district have sloping roofs because of heavy rainfall the roof material used is these parts is mud tiles, grass and straw Areas which experience the low rainfall have flat roofs constructed from mud, wood or corrugated iron or metal sheets.

Development of 'vastis' and wadi settlements have created new form of house type in the area Houses in the wadi settlements are built from stone or burns bricks'. These houses have separate arrangement

for cattle residence and strong agricultural implements and goods. This form of houses type belongs to a rich or 'Bagayatdars' where at the road side of the farm beautiful mansion like building is constructed nearly the main house separate arraignment is made to keep the agricultural. Implement small quarts are also constructed for the agricultural labours one part is fully developed to dairy development. Where cows buffalos are kept this form is particularly developed in Ghansawangi, Mantha and Badnapur, Jalna tahsils, Ghansawangi tahsils introduction and of cannot irrigations in the area.

Types of Houses :

Houses are classified according to their size building meterial used for wall and roof and the structure.

According to size:

According to size rural houses are classified as large, medium and small houses Large houses in size which are observed in the study area are generally known as "Wada's" the houses are constructed from stone or bricks with flat roofs and are found in river side. The percentage of these houses is very less two or three houses two or three houses of large size are found in a village and they are belong to rich farmers medium size houses have stone or mud walls with tilled flat roof or sloppy roofs with local tiles manglore tiles or corrugated iron sheets. These houses have front varandh. majghar, Deoghar and Kitchen such house are built from stone and mud. They have thatched or filled roofs. These houses are more commonly built by small farmers or agricultural labours.

According to wall material : (Mud stone Brick Timber)

It is observed that stone is the predominant building material used for walls with mud. Brick is the second important material used in agriculturally prosperous areas and grass-needs branches of trees are used as a wall material by poor people as well as by tribal's in the western part of the region.

According to roof material :

(Mud + other material, Tin, Tile, Thatch, wood)

The roofs of the houses in this area are predominatly constructed from wood and mud tiles. Corrugated sheets grass and in recent time by cement slab. In some parts of the northern side of district grass, reeds. leaves and local tiles are used as a roofing material where as in central and extern part mixture of wood and mud (Dhaba) is a common roofing material a part from this corrugated iron sheet and cement sheets are also used the slope of roofs goes on decreasing with the decrease in amount of rainfall particularly from west to east.

According to structure :

From the architectural point of view houses are classified but in this region old houses have little consideration of architectural style. Wada houses have front wall with little elevation of main door. Wadas are built on a raised plinth (Jote) and have open veranda some of the wooden caring may observed inside the houses where ceilings are made of small closely fitted wooden beams some houses are Two storied with walls constructed on stone and bricks they may with

walls constructed on stone and bricks they may have different parts of various   functional use such houses have separate cattle shade either in the front of or side by the houses.

Summarizing the salient features rural house types are far from ideal for living houses are very compact there is no space between the houses common wall is used for the differentiation between the houses, windows are not kept at any side so houses are poorly ventilated and congested especially in the river bank. There is no proper drainage and hence used water stagnates. There is a lack of civic sense. The lack of privy - places lead to the use of nearby areas of houses or outer parts of the gaonthan. The quality of the houses particularly low class people very low inadequate space, poor quality or building material and so on hence the poor man's house are just an a apology for shelter.

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