



## “GEOGRAPHICAL INVESTIGATION OF POPULATION CHARACTERISTICS IN KOLHAPUR DISTRICT USING GIS”

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### ABSTRACT

*Population is the main focus in all studies within the framework of geography because population and basic natural resources are intimately related to each other and with the prospects of socio-economic development and quality of the environment in a region. Therefore, the study and analysis of population growth, density, sex ratio, literacy and distribution in the socio-economic as well as urban development is the logical starting point for any research of the present nature. The present study reveals that the tahsil wise growth rate of population, density of population in Kolhapur district during 2011.*

**Key-word:** Population Growth, Population Density.

### INTRODUCTION:

Population Geography constitutes one of the recently developed branch of geography. Geography of population was concerned with demonstrating how spatial variations in distribution, Composition, Migration and Growth are related to the spatial variations in the nature of places. The growth of population may be positive or negative. The growth of population is depends on various factors such as birth rate, death rate and migration.

Population characteristics are closely related to the regional disparities in the socio-economic development. The study is further useful in development planning. In view of this an attempt has been made here to analyze briefly the population growth, density of population, sex ratio and literacy of the study area. The study of population growth and distribution is the logical starting point for any research of the present nature. The knowledge of population growth and distribution, density, sex ratio, literacy and composition help to understand various characteristics of population in a region. The knowledge associated with the spatial and temporal distribution of population helps planners to assess the existing pressure of population on available food and any plan for the future oriented development programme to solve the existing problems that region.

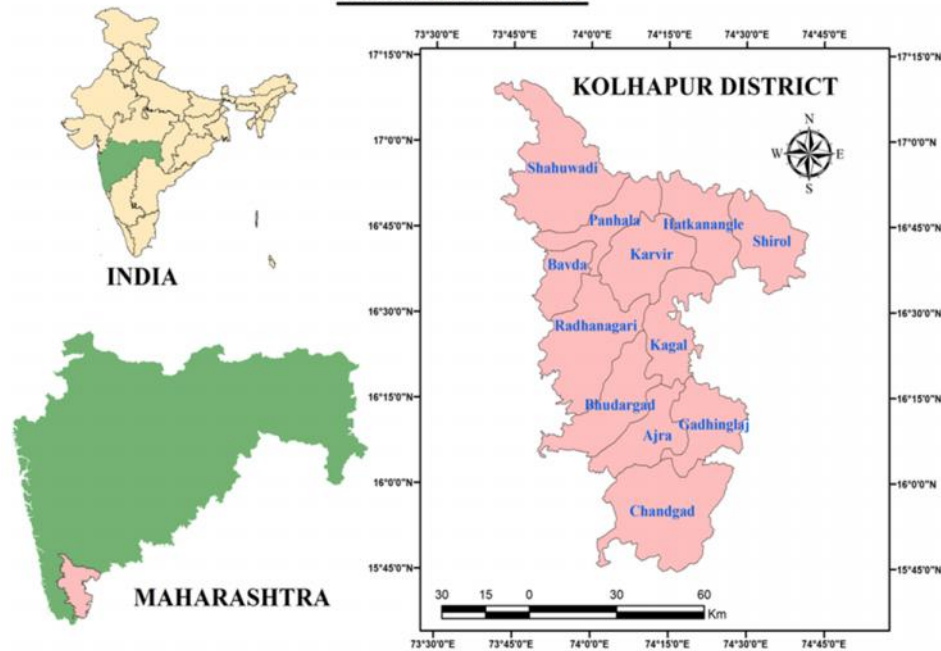
With this view we have discussed the tehsilwise population growth and density of Kolhapur district during 2011.

### STUDY AREA:

The study area of the present investigation is Kolhapur district. Kolhapur district is southernmost district of Maharashtra. The district is located at 15° 17' north to 17° 17' north latitudes and 73° 40' east to 74° 42' east longitudes with geographical area of 7685 sq.km i.e. 2.49 % of the states area. The District comprising 12 tahsils. Kolhapur district is enclosed by Sangli district in the north, in the south of Karnataka state in Belgaum district and in the west it is bounded by Ratnagiri and Sindhudurg districts. According to 2011 census the total

population of the district is 3876001. Kolhapur is the 'Historical and Religious City' is currently emerging as the largest educational centre of certain cool stations, goods and services. Kolhapur district having 18 towns and 1206 villages. The highest population in Kolhapur district is Karveer, Hatkangale and Shirol tahsils. The secondary data have been collected and computed by recent research techniques and the results have been brought through tables and maps. The distribution of the total population in the urban and rural areas is 1229896 and 1050353 respectively.

### LOCATION MAP



### OBJECTIVES:

1. To study the Growth of population in Kolhapur district.
2. To determine the Density of population in study area.

### DATA BASE AND METHODOLOGY:

Geography is an empirical science which requires data collection for various sources. Thus to fulfill the objectives outlined above the data source related to the study area secondary in nature. The present research work is based on only sources of secondary data. The data is collected from various sources are as follows:

- 1) District Census Handbook of Kolhapur 2001-2011
- 2) Census of India-2011
- 3) Socio-economic Review-2013
- 4) Directorate of Economics and Statistics, Maharashtra.
- 5) Published/unpublished Books, Journals, Thesis, Reports etc.

In this study tahsil is considered as a basic unit of investigation. With the help of Quantum GIS (Q-GIS 2.10.1) software the map is prepared and it shows the variations in population characteristics at tahsil level. The tahsils of Kolhapur district are grouped into three categories i.e. High, Medium and Low.

In this study following formulas has been used.

**Formula for measuring the growth of population:**

$$PGR = \frac{P2 - P1}{P1} \times 100$$

Whereas,

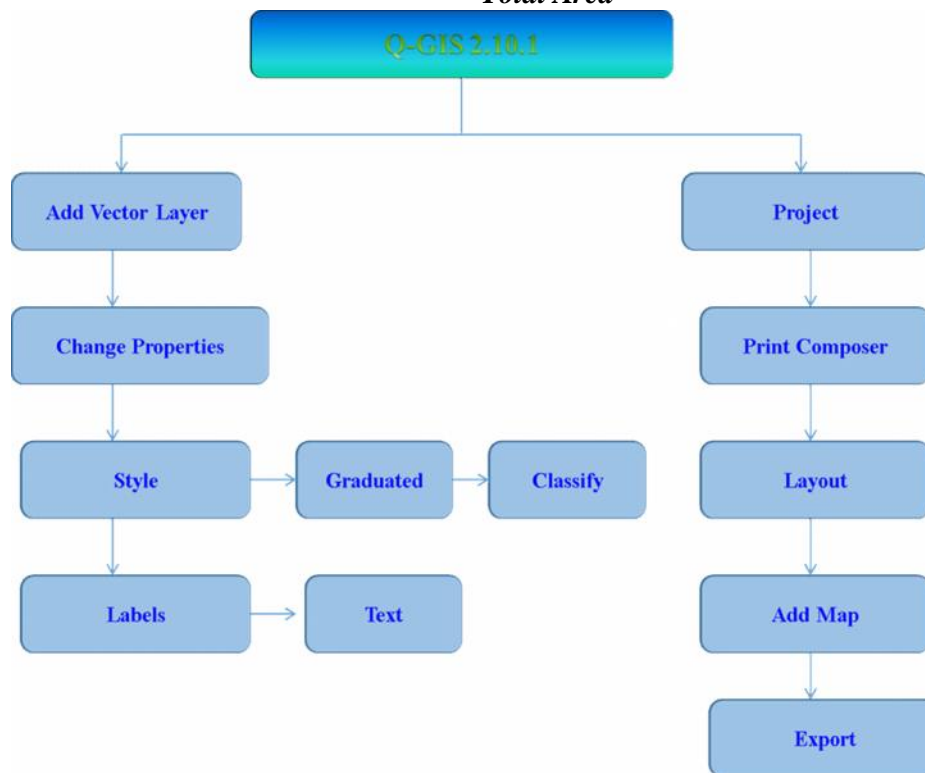
**PGR** = The Population Growth Rate.

**P2** = The Population of X tahsil in the later decade.

**P1** = The Population of the same tahsil of X initial decade.

**Formula for measuring the Density of population:**

$$\text{Density of Population} = \frac{\text{Total Population}}{\text{Total Area}}$$

**GROWTH RATE:**

Population growth rate is the average change in population as a result of the surplus of birth over the death in addition to the net migration in the country in a specified period of time. (Thorat S.D.2012) .

- According to census 2011, The growth rate of Kolhapur district is also declined as compared to 2001.
- It is found that the growth rate of Kolhapur was 17.85 during 1991-2001 and it is further declined in 2001-2011 is 9.95 percent respectively.

**Table-1**

**Growth of Population in Kolhapur District-2011**

Sr.No.	Tahsil Name	2001	2011	Growth in %
1	Karvir	9,06,866	10,37,318	14.38
2	Hatkanangle	7,09,628	8,07,483	13.79
3	Kagal	2,48,237	2,74,880	10.73
4	Gagan Bavda	32,525	35,777	10.00
5	Shirol	3,59,179	3,91,112	8.89
6	Panhala	2,38,383	2,59,182	8.73
7	Radhanagari	1,88,107	1,99,557	6.09
8	Shahuwadi	1,76,859	1,85,290	4.77
9	Gadhinglaj	2,16,257	2,25,633	4.34
10	Bhudargad	1,44,910	1,50,381	3.78
11	Chandgad	1,80,781	1,87,278	3.59
12	Ajra	1,21,430	1,20,124	-1.08
<b>Kolhapur District</b>		<b>35,23,162</b>	<b>38,76,001</b>	<b>9.95</b>

Source : Census of India, 2011      Compiled by Researcher

**1. High Growth Rate (More than 10.50 per cent):**

Table No. 1 shows the growth of population in Kolhapur district. It is reveals that the maximum total growth rate is 14.38 percent in Karveer tahsil followed by 13.79 percent in Hatkanangle tahsil and 10.73 percent in Kagal tahsil due to these tahsil has agriculturally well developed and growing various industries in these tahsil.

**2. Moderate Growth Rate (Between 8 to 10.50 percent):**

In this category includes Gaganbavda, Shirol and Panhala tahsil i.e. 10 percent, 8.89 percent and 8.73 percent respectively.

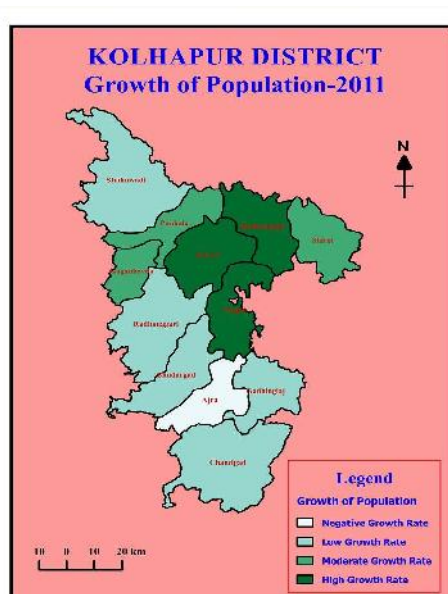
**3. Low Growth Rate (Between 3 to 8 percent):**

The low growth rate is found in the southern part of Kolhapur district, viz Radhanagari (6.09%), Shahuwadi(4.77 %), Bhudargad (3.78 %), Chandgad (3.59%) and eastern Gadhinglaj tahsil(4.37%). It is mostly hilly area and also agriculturally backward due to expansion of population in big cities of Maharashtra.

**Negative Growth Rate (-1.08):**

**4.**

Fig-1 Population Growth Kolhapur-2011



It is observed that in Ajra tahsil of Kolhapur district i.e. -1.08 percent, because economic backwardness and most of peoples in this tahsil has migrate towards Mumbai, Belgaum and surrounding cities for job opportunities.

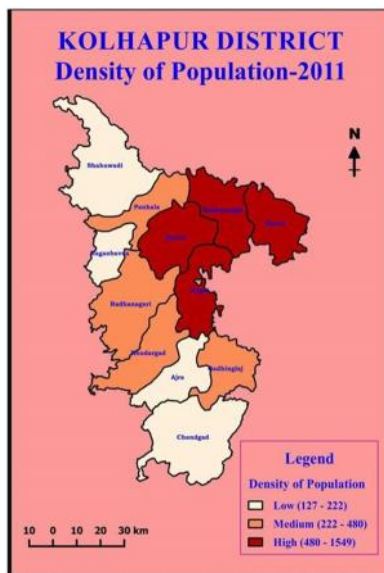
**DENSITY OF POPULATION:**

- The term ‘density of population’ refers to a ratio between population and land area.
- The concept of population density is one of the important factors used to determine population distribution, growth and migration.
- In this regard we have discussed the tahsil-wise population density of Kolhapur district in 2011.

**Table-2**  
**Density of Population in Kolhapur District-2011**

Sr. No.	Tahsil Name	Geographical Area in Sq.Km	Population Density-2011
1	Karvir	669.88	1549
2	Hatkanangle	614.38	1315
3	Shirol	503.00	777
4	Kagal	547.30	503
5	Gadhinglaj	480.92	469
6	Panhala	568.68	456
7	Bhudargad	643.53	234
8	Radhanagari	892.04	224
9	Ajra	548.74	219
10	Chandgad	952.82	196
11	Shahuwadi	1043.52	178
12	Gagan Bavda	282.30	127
<b>Kolhapur District</b>		<b>7685.00</b>	<b>504</b>

*Source : Compiled by Researcher*



The general population density of the study area is 504 persons per sq. km. (Census 2011). Table 2 shows that the Karveer tahsil is most densely populated (1549) and Gaganbavda is sparsely populated (127) tahsil. Based on the population density, study area is divided into three categories i.e. High, Medium and low density zones.

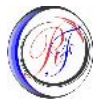
**1. High Population Density zones (above 500 persons per sq.km):**

The Karveer, Hatkanangle, Shirol and Kagal are included in this zone having density 1549, 1315, 777 and 503 persons per sq.km respectively. These tahsil cover the area of Panchganga basin where the development of irrigation facilities, commercial activities, agriculture and industries has taken place.

**2. Medium Population Density zones (224 to 500**

**persons per sq.km):** Fig-2 Density of Kolhapur-2011

In this zone there are Gadhinglaj, Panhala, Bhudargad and Radhanagari tahsils having population density 469, 456, 234 and 224 persons per sq. km respectively. In this tahsils medium density is found due to irrigation facilities, presence of fertile soil and well developed agro based industries.



### 3. Low Population Density zones (below 224 persons per sq.km):

Ajra, Chandgad, Shahuwadi, and Gaganbavda, tahsils have low population density, with 219, 196, 178 and 127 persons per sq. km respectively. These tahsil having low density of population due to unfertile soil, low proportion of arable land, hilly topography, heavy rainfall, thick forest and inaccessibility.

#### CONCLUSION:

The present study deals with the population characteristics in Kolhapur district. Population of Kolhapur district is increased in 2001-2011. The growth rate of Kolhapur district is found that 17.85 percent during 1991-2001, but it has further declined in 2001-2011 i.e. 9.95 percent respectively. In Kolhapur district high growth rate is also observed in Karveer tahsil (14.38 percent) followed by Hatkanangle tahsil (13.79 percent) and Kagal (10.73 percent) respectively. The highest concentration of population found in the eastern part of the district. The population density of some tahsils is very high, which some tahsils have medium or low density due to the variation of physical and cultural factors. The population density of Karveer, Hatkanangle, Shirol and Kagal tahsil is very high because these tahsils have fertile soil, sufficient rainfall, agricultural, industrial and educational development. Karveer tahsil is mostly urbanized. The general population density of the study area is 504 persons per sq. kms. The density pattern too, is high in eastern part of the study area and it is low in the western hilly areas.

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