



## Changing Pattern of Population Density in Upper Krishna sub-Basin of Satara District Maharashtra: A GIS Approach

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DOI - 10.5281/zenodo.18655796

### Abstract:

*In this paper the present study reveals the village wise changes of population in Upper Krishna sub Basin a part Satara district during 2000-2011. The growth of population in Upper Krishna sub Basin a part Satara district from 187997 during 2011. It has studied on the basis of India reports, Socio-economic Statistical Abstract and Census Handbook. It occupies area of 654.20 sq.km. 113 villages. Wai is the 'Historical City' is currently emerging as the largest educational center of certain cool stations, goods and services. The highest rural population observed in Upper Krishna sub Basin a part of Satara district. The total population of the Upper Krishna sub Basin a part district in rural area is observed 82.42 per cent whereas in urban area it is 19.58 during 2011. Total main workers 43.56 percent are cultivators, 19.62 percent are agricultural labors, 2.05 percent is house hold industry workers and remaining 34.76 percent are other workers. Out of total male population 92.29 percent are main workers and 7.71 percent are marginal workers. It is reported that Upper Krishna sub Basin a part of Satara district is in the growth of urbanization and consequently the rural area. The results have been discussed with the help of population growth rate refers to the change in population growth rate over a unit time period, often expressed as a percentage of the number of individuals in the population, at the beginning of that period.*

**Keywords:** Growth, Population, Change, Period, Percentage.

### Introduction:

India is the most populous countries in the world. Our country covers only 2.4 per cent of the land area of the world, whereas it is the home of more than 16.87 per cent of the world's population. About three-fourths of our total population is living in rural areas, indicating we are basically depending on agriculture and other activities. This is due to large scale migration of people from villages to towns and cities in search of opportunities of employment and better amenities of life. Cities and towns have registered a much higher growth-rate than that of the village. This is due to large scale migration of people from villages to towns cities in search of

opportunities of employment and better amenities of life.

The population of Maharashtra is constantly changing. To determine changes in population, the Government of Maharashtra State of the Census gathers data on counts of people, that distribution and their characteristics.

“Demographic processes are determinants of population change in a geographical region” (Roy and Yadav, 2008). Socio-economic factors influence the distribution of population in study region. Maximum area of study region is covered by hills and semi evergreen forest. The given table 3 describes the urban and rural population in study region.

**Study Region:**

The study area selected for the present study is upper Krishna sub basin in a part of Wai taluka. This basin drains Wai taluka of Satara district comprising 113 villages. Study region comprise 554.20 Sq.km. Area and lies between 17° 45' N to 18° 05' N Latitude and 73° 35' E to 74° 05' E Longitude. The region has diversified physiography whose western border is demarcated by Western Ghats. Minimum elevation of the area is 942 meter and maximum is 1400 meter. A vast plain area of river Krishna valley sloping east ward and southeast ward is noted in the central part of the region. A western part, north and south border area is hilly with rugged topography. Climate of study region is subtropical monsoon type. There is rapid decrease in rainfall from west to east. Western part of study region receives average 2124 mm rainfall while eastern part receives only 300 mm rainfall.

**Objectives of the Study:**

The present study has been undertaken with the following prime objectives.

1. To study the density of population in the upper Krishna river sub-basin.
2. To find out the changing pattern of population density in upper Krishna river sub-basin.

**Data base and Methodology:**

Table 1: Urban and Rural Population Distribution of study region

Region	No. of Households	%	Total Population	%	Male Population	%	Female Population	%
Rural	33212	80.01	151181	80.42	75143	80.20	76038	80.63
Urban	8300	19.99	36816	19.58	18552	19.80	18264	19.37
Total	41512	100	187997	100	93695	100	94302	100

Census of India, 2001 and 2011

The secondary data was collected from various Government offices such as Water Resources Department, Government of Maharashtra., State Irrigation Department, Government of Maharashtra, Taluka/Village Revenue offices, Published reports and documents like District Census Handbook of Satara District, Socio Economic Review and District Statistical Abstract of Satara District, Reports of Agriculture Office of Wai taluka were used for required secondary data.

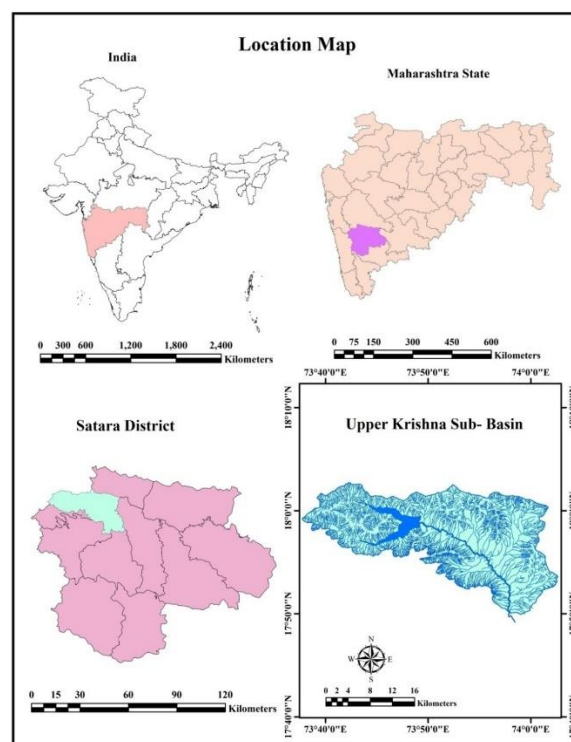


Fig: 1

According census-2011 the population of upper Krishna sub-basin is 187997 out of this 80.42 percent population is rural population.

#### Population Distribution:

According to census 2011 villages in upper Krishna sub-basin have been classified into following five classes.

#### Very Low Population (Below 1000):

Sixty-five villages have been observed in this class. Population of these villages is less than one thousand. These villages are mainly located in the western hilly and dense forest region. Villages from eastern dry region are also observed in this class. In some villages like Gove, Jambhulane, Golegoan, Asagoan population is less than hundred.

Table 2: Population Distribution of Study Region

Sr. No.	Population Region	No. of villages
1	Very Low Population (Below 1000)	65
2	Low Population (1000-2000)	27
3	Moderate Population(2000-3000)	10
4	High Population (3000-4000)	5
5	Very Population (Above 4000)	6

Census of India, 2001 and 2011

#### Low Population (1000-2000):

Twenty seven villages have been recorded in this class were population is between 1000-2000. These villages are mainly located in foothill region. Major villages in this class were Velang, Kusgoan, Pande, Dhom, Sultanpur, Eksar and Amrutwadi. In this class minimum population is recorded in Velang Village (1011) and maximum is recorded in Kisanveer Nagar (1916).

#### Moderate population (2000-3000):

Ten villages have been recorded in this class with population between 2000 to 3000. These villages were located in central and eastern part of the study region. Degoan, Shirgoan, Jabm, Vele, Asale and Bopardi are major villages in this class.

#### High Population (3000-4000):

Five villages have been recorded in this class with population between 3000 to 4000. These villages are observed in two patches. One

is located in the northeast part of study region and other in south part of the study region. Vele, Gulumb, Chandak, Kenjal and Shendurjane are the villages in this class.

#### Very High Population (above 4000):

Six villages with population more than four thousand are included in this class. Villages in this class are Kawathe, Pasarni, Ozarde, Yashwantnagar, Bhuinj, Bavadhan and Wai urban area is also included in this class.

According to census-2011 (table: 3) SC population in study region is 1750 which is 9.34 percent to the total population of study region. ST population in study region is only 3752 which is 1.99 percent to the total population of study region. In SC population male population is 49.57 percent and female population is 50.43 percent. In ST population 51.36 populations is of males and remaining 48.64 percent population is of females.

Table 3: SC and ST Population of Study Region

Population	SC Population	% of SC Population	ST Population	% of ST Population
Male Population	8704	49.57	1927	51.36
Female Population	8856	50.43	1825	48.64
Total	17560	100	3752	100

Census of India, 2001 and 2011

**Sex Ratio:**

Table 4: Sex Ratio of Study Region

Region	Male Population	Female Population	Sex Ratio	SC Male Population	SC Female Population	Sex Ratio of SC population	ST Male Population	ST Female Population	Sex Ratio of ST Population
Urban	75143	76038	988	6791	6970	974	1420	1331	937
Rural	18552	18264	1016	1913	1886	986	507	494	974
Total	93695	100404	994	8704	8856	983	1927	1825	947

Census of India, 2001 and 2011

The above (table 4) shows the rural and urban population as well as sex ratio of the upper Krishna sub-basin. In study region sex ratio is 994 females per thousand males. Sex ratio of rural area (1016 females per thousand males) is more than the urban areas (988 females per thousand males). Sex ratio of SC population is 983 females per thousand males. In ST population sex ratio is 947 females per thousand males. In SC and ST population rural sex ratio is more than urban sex ratio.

According to 2011-census (table 5) literacy rate of study region is 76.24 percent. Rural literacy rate (79.82) is higher than urban literacy (75.37). Male literacy rate is higher in both urban and rural areas.

**Literacy:**

Table 5: Literacy Rate of Study Region

Region	Literacy (%)	Male Literacy (%)	Female Literacy (%)
Urban	75.37	80.67	70.12
Rural	79.82	81.78	77.84
Total	76.24	80.89	71.62

Census of India, 2001 and 2011

**Occupational Structure:**

Occupational structure represents the economic development of the region. In these category three classes are considered for analysis of data. These classes are main workers, marginal workers and non-working population. The total

working population of study region is 85,164. Among them 74,767 are main workers and 10,397 are marginal workers. Main workers include cultivators, agricultural labors, household industries workers and other workers.

Table 6: Occupational Structure of Study Region

Occupation	Total	%	Male	%	Female	%
<b>Main Workers</b>	<b>74,767</b>	<b>87.79</b>	<b>48,811</b>	<b>92.29</b>	<b>25,956</b>	<b>80.42</b>
i) Cultivators	32,570	43.56	20,776	41.54	13,463	50.06
ii) Agriculture Laborers	14,671	19.62	6,812	13.96	8,593	30.28
iii) Household Industries	1,535	2.05	927	2.00	570	2.15
iv) Other Workers	25,991	34.76	20,747	42.50	5,436	20.20
<b>Marginal Workers</b>	<b>10,397</b>	<b>12.21</b>	<b>4,078</b>	<b>7.71</b>	<b>6,913</b>	<b>19.58</b>
<b>Non-Working</b>	<b>41170</b>	<b>48.34</b>	<b>27806</b>	<b>52.57</b>	<b>65429</b>	<b>58.95</b>

Census of India, 2001 and 2011

In study region out of total main workers 43.56 percent are cultivators, 19.62 percent are agricultural labors, 2.05 percent is house hold industry workers and remaining 34.76 percent are other workers. Out of total male population 92.29 percent are main workers and 7.71 percent are marginal workers. In female workers 80.42 percent are main workers and 19.58 percent are marginal workers. About 80 percent of female main workers are either cultivators or agricultural labors.

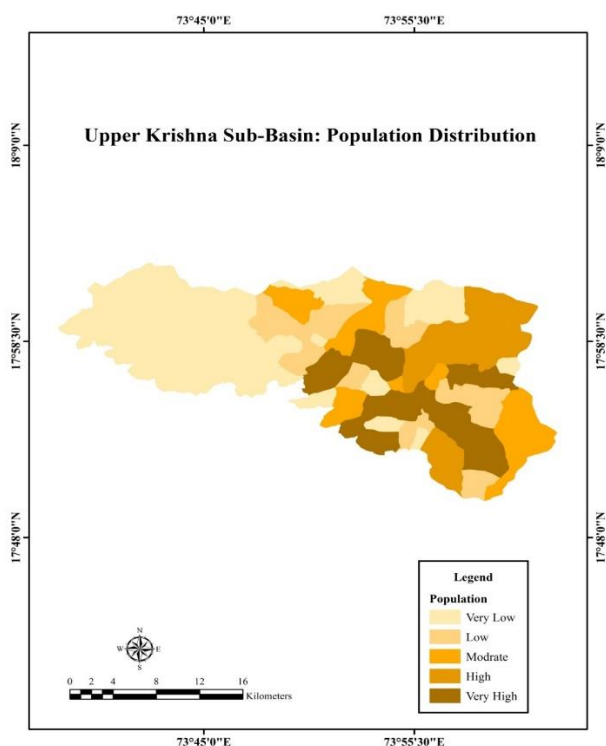


Fig 2

### Conclusion:

According to census-2011 the population of upper Krishna sub-basin is 187997 out of this 80.42 percent population is rural population. In upper Krishna sub-basin sex ratio is 994 females per thousand males. Sex ratio of rural areas is more than the urban areas. Literacy rate of upper Krishna sub-basin is 76.24 percent. Urban literacy rate (75.37) is higher than rural literacy (79.82). The total working population of study region is 85,164. Among them 74,767 are main workers

and 10,397 are marginal workers. Main workers include cultivators, agricultural labors, household industries workers and other workers.

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