

**“DEMOGRAPHIC CHARACTERISTICS OF  
SATARA DISTRICT”**

A Dissertation Submitted To The  
**TILAK MAHARASHTRA VIDYAPITH**  
**GULTEKDI, PUNE**  
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**MASTER OF PHILOSOPHY**  
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**GEOGRAPHY**

UNDER THE FACULTY OF MORAL AND SOCIAL SCIENCE

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**MARCH 2011**

## **CERTIFICATE**

This is to certify that the dissertation entitled

**“DEMOGRAPHIC CHARACTERISTICS OF SATARA DISTRICT”**

Which is being submitted herewith for the award of the Degree of Master of Philosophy in Geography of TILAK MAHARASHTRA VIDYAPEETH, PUNE is the result of original research work completed by **Mr. JITENDRA MANSING GODASE** under my supervision and guidance. To the best of my knowledge and belief, the work embodied in this thesis has not formed earlier the basis for the award of any degree of similar title of this or any other University or Examining body.

**PLACE: SATARA**

**Dr. ZODAGE S. B.**

**DATE: /03/2011**

**RESEARCH GUIDE**

## **DECLARATION**

I hereby declared that the thesis entitled **“DEMOGRAPHIC CHARACTERISTICS OF SATARA DISTRICT”** Which is being submitted to TILAK MAHARASHTRA VIDYAPEETH, PUNE for the award of the degree of Master of Philosophy in Geography under the supervision and guidance of Dr. Zodage S.B. is my original research work and the conclusion drawn therein are based on the data and information collected myself. To the best of my knowledge and belief, this work has not formed the basis for the award of my degree of similar title of this or any other University or examining body.

**PLACE: SATARA**

**Mr. GODASE J.M.**

**DATE: /03/2011**

**RESEARCH CANDIDATE**

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**Place: SATARA**

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# **CHAPTER-I**

## **APPRAISAL OF THE PROBLEM**

**1.1 Introduction**

**1.2 Review of literature**

**1.3 Study Region**

**1.4 Objectives**

**1.5 Source of Data**

**1.6 Methodology**

**1.7 Design of Research work**

**1.8 References**

# **CHAPTER 1**

## **APPRAISAL OF THE PROBLEM**

### **1.1 INTRODUCTION:-**

Population Geography is a systematic Branch of geography. It lays emphasis upon regional differentiation of areas in terms of their population. It does not study man as phenomenon in itself but as an area characterizing and area differentiating element (Ghosh- 1985).

The core geography is formed by the distribution and nature of physical and cultural factors over the surface of Earth. Man being the most important factor on the earth, the studies related to distribution of people and their characteristics become most important.

According to Chandana (1996) in modern Geography, nature and distribution of physical and cultural factors are studied. As well as in particular region, particular type of physical and cultural environment prevails should give stress on. This means that stress is given on cause-effect relationship. In study of man-environment relationship essential to know the characteristic of human group.

Ghosh (1985) stated that man is main focus of study in population Geography. In addition to the conclusion of man's cultures, his economic

activities and his general distribution at present or in the past, there exists need for better understanding of spatial aspects of population.

Similar to the distribution of any other natural resources, the distribution of population on the surface of the earth is uneven. The uneven distribution of population influences various aspects of human life.

According to Chandna (1996), it is essential to study distribution of population since it influences the future plans for development, political moves and rate of development, the concept of density of population is relation population size to the land area with a view of assessing crudely the pressure of population upon the resources of the area. The objective of course, has been arrived for a better understanding of the population resource relationship.

In the study of the growth of population, it is essential to study psychological aspects such is attitude of people towards family planning, study of population problem along with number, it is also necessary to consider resources that are available in the region. The size and composition of population decide the nature of production. Growth of population is influenced by economic factors such s standard of living, and precipitate income, migration aspects of population are influenced by political set up and government policies.

Population geographers give prime importance to the sex composition. The separate data for males and females are important for various types of planning and for the analysis of other demographic characteristics such as fertility, mortality, migration, marital status, economics characteristics etc. Chandana (1996) conclude that the balance of sexes plays partly contrasting and

partly complementary role in the economy and society, the study of sex composition assumes added significance for a population geographer.

According to population geographers, literacy is a main qualitative attribute of population, which is a fairly reliable index of socio-cultural and economic development of are. The trends in literacy are indicative of the pace at which the society of the region is getting transformed. Chandna and Sidhu (1980) stated that literacy is essential for eradicating poverty, removing mental isolation, cultivating peaceful and friendly relation and also for promoting a free play of the democratic process hence literacy for a region, is essential for its economic development, social advancement and democratic change. A part from this literacy influences various other democratic attributes like fertility mortality, economic pattern etc.

In a geographical analysis of population change migration holds a prominent place. Gosal (1961) stated of that it is moist fundamental content and space relationship of an area. The trends in migration have also been considered as sensitive index of changing pattern for economic opportunities in an area.

## **1.2 REVIEW OF LITERATURE**

Reference has been made of various seminal works on this topic executed at the international, national and regional level by geographers and social scientists. This has helped to clarify the concepts and to obtain a better understanding of the research.

The present review organizes the research publication under the following heads.

Prakash (1970) containing to the country's most populous state of Uttar Pradesh has mapped tahsil and district level data to analyses the patterns of density and distributions of population. Ghosh (1970) and Kumar (1971) have separately studied the distributional pattern of Bihars Population. Hiremath and Karennavear (1978) looked into the pattern of land utilizations in relation to population density and some other variables. Das (1980) made a detailed analysis of distributional pattern of scheduled caste population in Hissar District (Haryana). In 1971 Mehta and Matharoo (1980) made a detailed study of population in Bist Doab (Punjab).

Understanding of growth tends of population is important for any meaningful socio-economic planning of an area. However studies on population growth in India face certain data problems as statistics on births and death are from reliable. Singh (1970) has mapped the growth patterns in Uttar Pradesh. Mistra (1970) that in Ganga- Ghagra Doab and Singh (1969) has analyses the net migration and emigrational tendencies of rural population of Hissar district (Harayana).Above three studies deal mainly with growth of population at regional and local levels. Sawant and Khan (1982) examined factors responsible for the natural growth rate of population in western Maharashtra. Gill (1982) made a study of population growth in Hissar District during 1951-71.

Literacy Is crucial factor in demographic and socio-economic transformation. Krishna and Shy am (1977) made a comprehensive study of

literacy in India. In another study Krishna and Shyam (1978) discuss in detail the rural urban differentials in literacy. Siddiqui (1977) focused on literacy patterns in Uttar Pradesh, Gosal (1979) analysed in detail the spatial patterns of literacy in India. Dutta (1982) examined pattern of literacy in the southern districts of west Bengal. Shashikala (1982) examined changes in literacy patterns of Indian cities during 1921-71.

Sex ratio is very significant attribute of population. Apart from its impact on fertility it also determines the socio-economics pulse of a people. Ayyar and Srivastava (1978) focused on urban sex ratio of Madhya Pradesh. Sex ratio at birth, male female differential in mortality, migration studies by Chandan and Sidhu (1979) Pednekar and Sita (1980) analysed spatial patterns of sex ratio in south Konkan (Maharashtra) during 1951-1971. Siddiqui (1982) made a study of regional aspects of sex ratio in Uttar Pradesh.

Above all geographers have studied various population characteristics taking into consideration the above studies, and attention has been made to study population characteristics. A case study of Satara District.

### **1.3 STUDY REGION**

Satara is a town and a district in Indian state of Maharashtra. The name derives from the seventeen walls, towers and gates, which the town has supposed to possess. Satara District is located in the south western part of Maharashtra. Satara district lies between 17°5' to 18°11' north latitudes and

73°33' to 74°54' East longitudes. It is bounded by Pune District to the north, Solapur District to the east, Sangli District to the South and Ratnagiri District to the west. Raigad district lies to its north-west. Satara district covers an area of 10484 sq kms. with an east west expanse of 135 km and a north south expanse of 112 km.

The maximum temperature of the district is 37.5<sup>0</sup> C and the minimum temperature is 11.6<sup>0</sup> C Annual rainfall of the district is 1426 mm Koyana and Krishna is the major rivers of Satara District.

The district has three natural sub-divisions based on the topographical situations Hilly area in the west, plains of the Krishna River in the central part, and the plateau area in the east Satara district is part of the pune division. The district is divided into eleven administrative sun units (tahsils) Satara, Wai, Khandala, Koregaon, Phaltan, Khatav, Man, Karad, Patan, Jawali and Mahabaleshwar. The district headquarters Satara is well connected to the state capital Mumbai. Agriculture is the main land use in the district with more than 15 percent of the total area being used for agricultural activities.

As per 2001 census of India, Satara district had a population of 27, 96 906 male consists of 14, 02, 301 and female consists 13, 94, 605 of the total population. Average literacy rate is 78.52 percent of the total population male literacy rate is 88.45 percent and female literacy rate is 68.71 percent.

## **1.4 OBJECTIVES**

The objectives of the study is as follows.

- 1) To study Demographic Characteristics of Satara District.
- 2) To study the Spatio temporal distribution of population.
- 3) To examine the sex ratio of Satara district.
- 4) To highlight the literacy of population in Satara district.
- 5) To study population growth in Satara district.

## **1.5 SOURCE OF DATA**

The data collected from various sources such as:

- 1) State census hand book of Satara district 1991 and compact disc for 2001.
- 2) Data published by state government of Maharashtra and completed through various publication by respective departments.
- 3) The district Gazetteer of Satara district
- 4) Socio- economic abstracts of Satara districts.

## **1.6 METHODOLOGY**

The collected data will be tabulated & analyzed by using various statistical techniques. Wherever, necessary data will be represented with the



help of suitable cartographic techniques like line graph, bar graph, Choropleth maps, Corocromatic maps etc. Various statistical methods and quantitative techniques will be used determine the relationship between various demographic characteristics. Gibb's method is applied for the population growth rate and population projection.

**Formulas:**

**1) Decadal population growth rate**

$$\text{Log } (1+r) = \text{Log } \frac{P_1}{P_0}$$

Where

r = Decadal population growth rate

P1 = Last population

P0 = Next population

**2) Annual population growth rate**

$$X = \frac{P_2 - P_1}{t} \times 100$$
$$P_2 + P_1/2$$

Where

X = annual population growth rate

P1 = Pop 'n' size of at one point in time

P2 = Pop 'n' size of later point in time

T = number of years of the period

### 3) Population projection

$$F = P1 + (ri \times y)$$

Where

F = future population

P1 = population of the first time

ri = Growth rate of population

y = time interval

### 4) Density of population

$$= \frac{\text{Total population of a region}}{\text{Area in Sq. km. of a region}}$$

**5) Sex Ratio**

$$= \frac{\text{Female Population}}{\text{Male Population}} \times 1000$$

**6) Dependency Ratio**

$$\text{DR} = \frac{0 - 14 \text{ Age group population} + \text{Above 60 year population}}{15 - 59 \text{ Age group population}} \times 100$$

**7) Occupancy Ratio**

$$= \frac{\text{Total number of population}}{\text{Total number of Residential houses}}$$

## **1.7 DESIGN OF RESEARCH WORK**

It is proposed to organize the entire work in to chapters.

The first chapter deals with the importance of study, review of literature, study region, aims and objectives of the present work, source of data, methodology and design of research work.

The second chapter focuses attention on the geographical setting of Satara district in which location, Physiography, climate and rainfall, drainage, history, population characteristics, administrative divisions, transportation and economy have been studied.

The third chapter includes distribution of population, density of population, dynamics of population distribution, growth of population, occupancy ratio and dependency ratio of Satara district.

The fourth chapter deals with literacy, sex ratio, and rural – urban population of Satara district.

The last chapter i.e. fifth chapter related with conclusion and suggestions.

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# **CHAPTER II**

## **GEOGRAPHICAL SETTING**

**2.1 Introduction**

**2.2 Location**

**2.3 Physiographic**

**2.4 Climate and Rainfall**

**2.5 Administrative Divisions**

**2.6 Major Rivers**

**2.7 Economy**

**2.8 Transportation**

**2.9 Population Characteristics**

**2.10 References**

## **CHAPTER II**

### **GEOGRAPHICAL SETTING**

#### **2.1 INTRODUCTION**

Satara is a town and a district in Indian state of Maharashtra. The name derives from the seventeen walls, towers and gates, which the town has supposed to possess. Including Mahabaleshwar and Panchgani there are several beautiful places situated in Satara district.

#### **2.2 LOCATION**

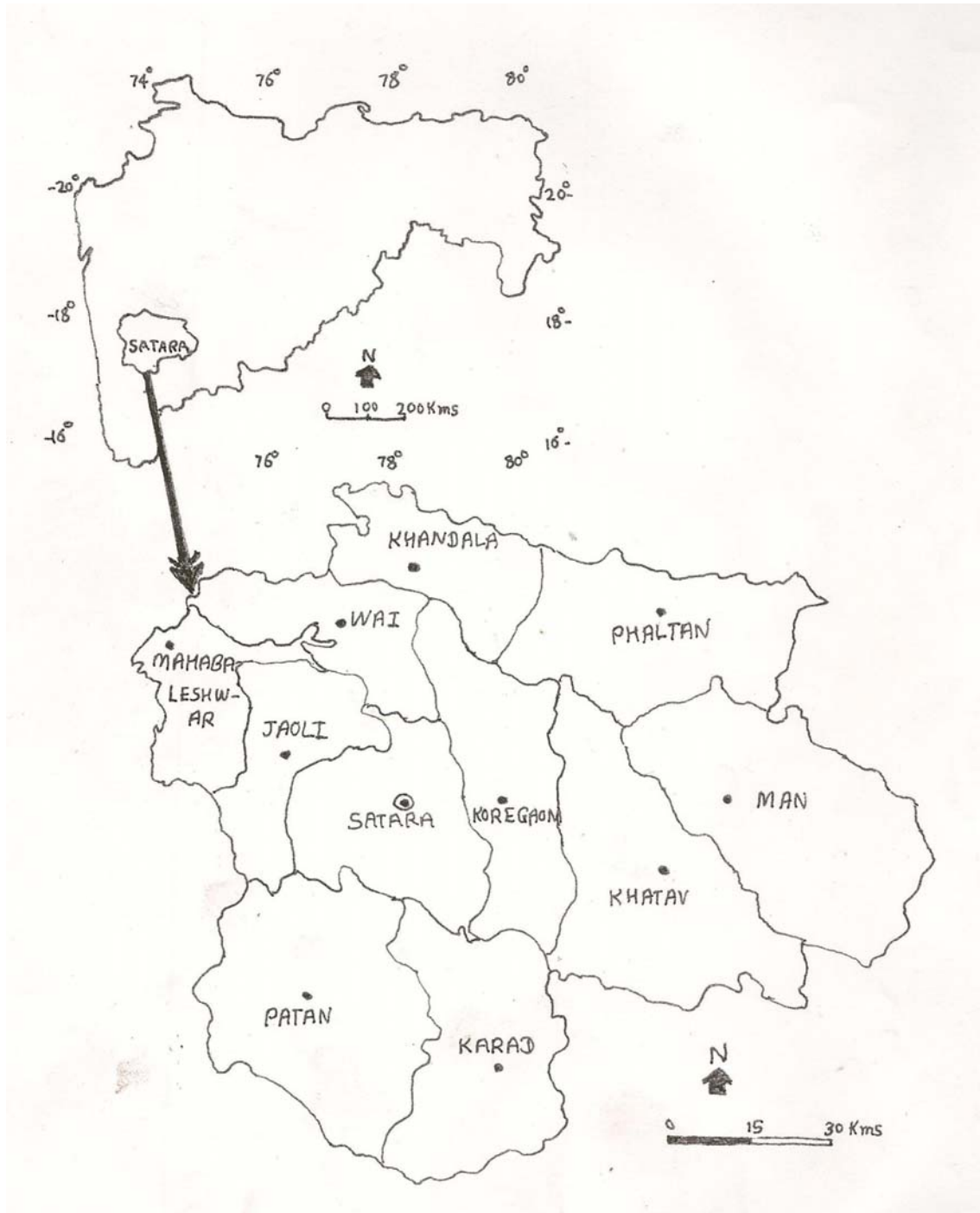
Satara District is located in the south western part of Maharashtra. Satara district lies between 17<sup>0</sup>5' to 18<sup>0</sup>11' north latitudes and 73<sup>0</sup>33' to 74<sup>0</sup>54' East longitudes. It is bounded by Pune District to the north, Solapur District to the east, Sangli District to the South and Ratnagiri District to the west. Raigad district lies to its north-west. Satara district covers an area of 10484 sq. kms with an east west expanse of 135 km and a north south expanse of 112 km. (Figure No. 2.1)

#### **2.3 PHSIOGRAPHY**

The Sahyadri range or main range of the western part runs north and south along the western edge of the district, separating it from Ratnagiri district. The Mahadeo range starts about 10 m. north of Mahabaleshwar and stretches east and south-east across the whole of the district. The Mahadeo hills



# LOCATION MAP OF SATARA DISTRICT



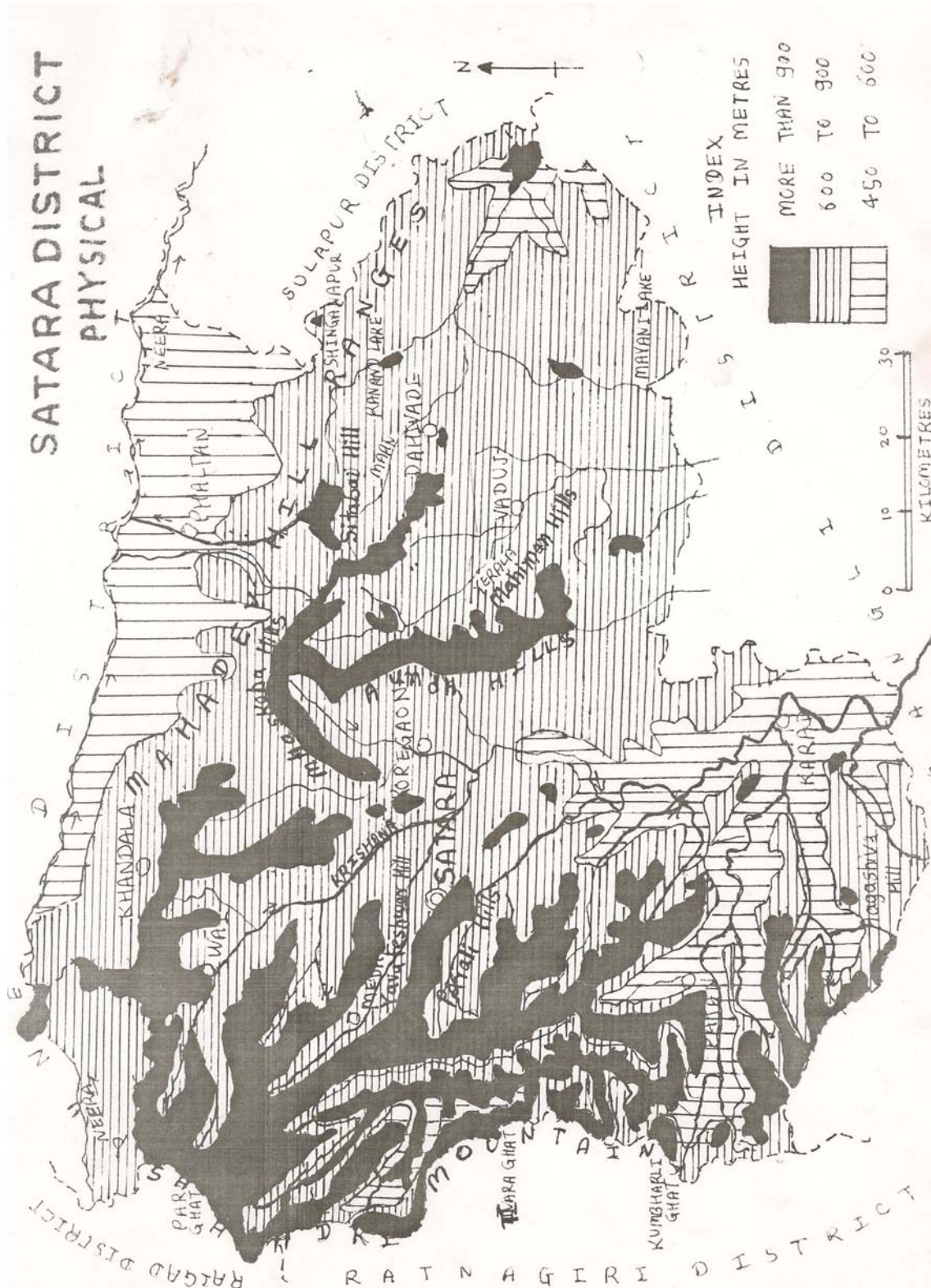
FigureNo.2.1

are bold, presenting bare scarps of black rock. The Satara district is part of two main watersheds. The [Bhima River](#) watershed, which is a tributary of the Krishna, includes the north and northeast of the district, north of the Mahadeo hills. The rest of the district is drained by the upper Krishna and its tributaries. The hill forests have a large store of timber and firewood. The whole of Satara district falls within the [Deccan Traps](#) area; the hills consist of trap intersected by strata of [basalt](#) and topped with [laterite](#). The vegetal cover too varies from the typical monsoon forest in the western part to scrub and poor grass in the eastern parts. Satara contains some important irrigation works including the Krishna canal. The Kalubai temple is situated in Madhardevi near Wai, located on hill 1417.32 meter above sea level. (Figure No. 2.2)

## **2.4 CLIMATE AND RAINFALL**

The maximum temperature of the district is 37.5<sup>0</sup> C and the minimum temperature is 11.6<sup>0</sup> C. The climate in general is moderate with temperatures during the summer months (March to mid June) reaching maximum of 34<sup>0</sup> C and in the winter months (November to March) dropping to 10<sup>0</sup> C. In the western part, the climate is pleasant during the monsoon. In the plain the climate is moderate throughout the year

The monsoon period starts in the month of June with the maximum precipitation in July and August. Total rainfall is 3104mm. Although



**Figure No.2.2**

there are large differences in the amount of precipitation over various parts of the district. The Sahyadri hill ranges chiefly in Mahabaleshwar tahasil in the western extremity receive more than 6000 mm. Patan and Jaoli tahasils also have rainfall in excess of 2000 mm. Moving eastward the rainfall amount drops to less than 600 mm. In the tahasils of Koregaon, Karad, Satara

## **2.5 ADMINISTRATIVE DIVISIONS**

Satara district is part of the pune division. The district is divided into eleven administrative sun units (tahsils) Satara, Wai, Khandala, Koregaon, Phaltan, Khatav, Man, Karad, Patan, Jawali and Mahabaleshwar. The district headquarters Satara is well connected to the state capital Mumbai. At present Satara district has four Sub-Divisions namely Satara Wai Karad and Phalatan. Sub-Division Tahsils incorporated in them. (Figure No. 2.3)

**Satara-** Satara, Koregaon, Jaoli.

**Karad-** Karad, Patan.

**Mahabaleshwar-** Mahabaleshwar, Wai, Khandala.

**Phalatan-** Phalatan, Khatav, Man.

## **2.6 MAJOR RIVERS**

The main rivers of Satara district are Koyna and Krishna. The Krishna is one of the three largest sacred rivers of southern India. Approx. 172 kms. of the river course falls inside the district. The Krishna river begins on the eastern brow of the Mahabaleshwar plateau and the source is about 1371.6 m.

# SATARA DISTRICT

## ADMINISTRATIVE DIVISIONS

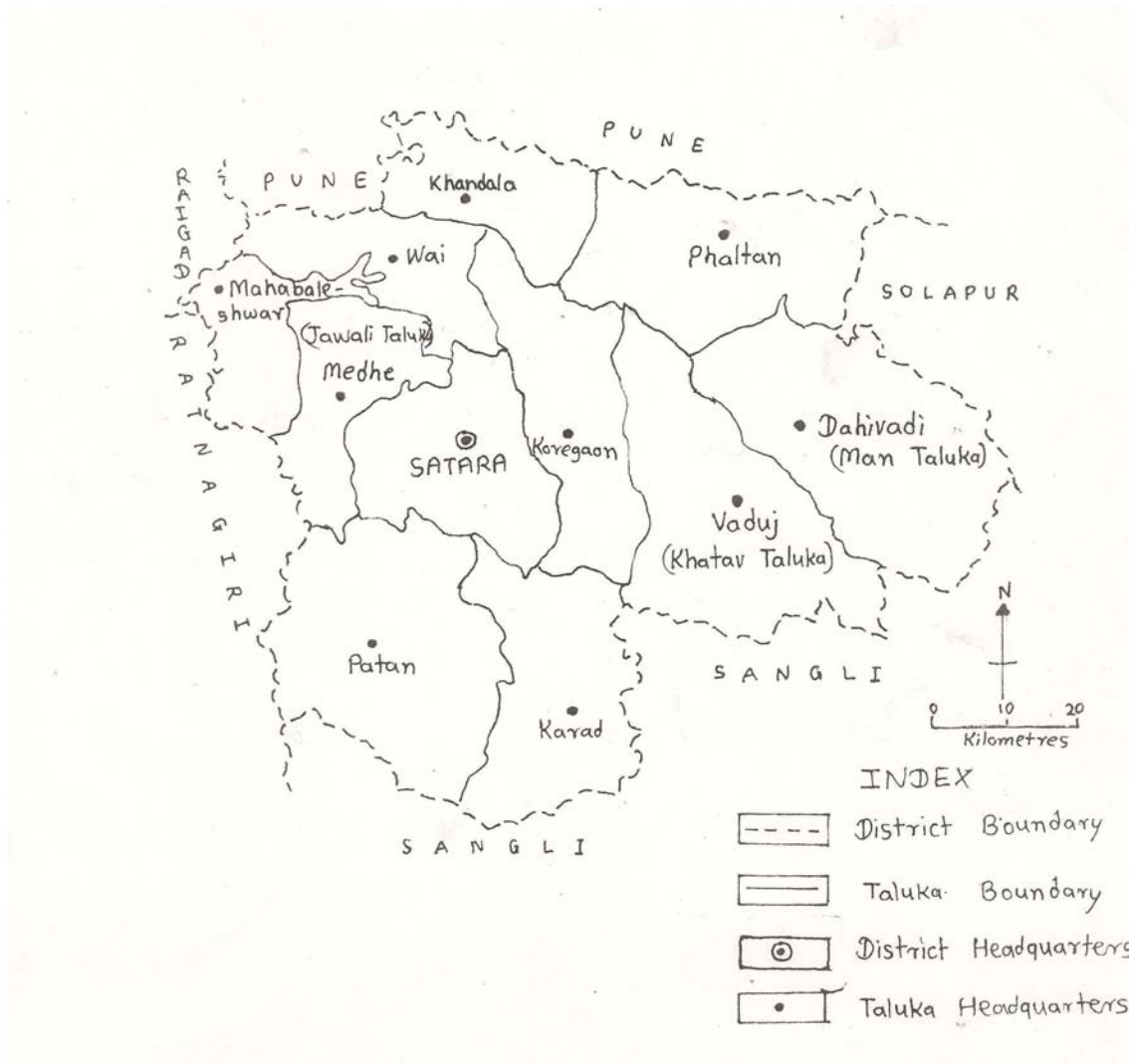


Figure No. 2.3

above sea level.

Kudali, Urmodi, Venna and Tarali are small feeder rivers of Krishna. Koyna is the largest tributary of the Krishna in the district. Neera and Manganga rivers are the two representative of the Bhima drainage in the north and north-eastern parts of the district respectively.

There are three measure dam projects in the district. Koyna dam on the Koyna river, Dhom and Kanher dam on the Krishna river. (Figure No.2.4)

## **2.7 ECONOMY**

Satara is mainly an agricultural district. The major crops of the district are Bajra, Jawar, Wheat, Rice, Ghewada, Sugarcane, Groundnut, Potato and Soyabean. Fish cultivation is another source of income in the district. There are total 14,000 hector land used for fish cultivation. There are 10 major, 13 medium and 80 minor irrigated projects are currently running. (Figure No 2.4)

Among several industries sugar industries spinning mills are becoming the major source of employment in Satara district.

## **2.8 TRANSPORTATION**

The district headquarters Satara is well connected to the state capital Mumbai and the major town of Pune and Kolhapur by the Mumbai-Banglore national highway number four. Satara is also well connected to other districts of Maharashtra by state highways and other roads. there is one railway line Mumbai to Kolhapur which passes through Satara district. (Figure No. 2.5)

# SATARA DISTRICT

## MAJOR RIVERS AND CROPS

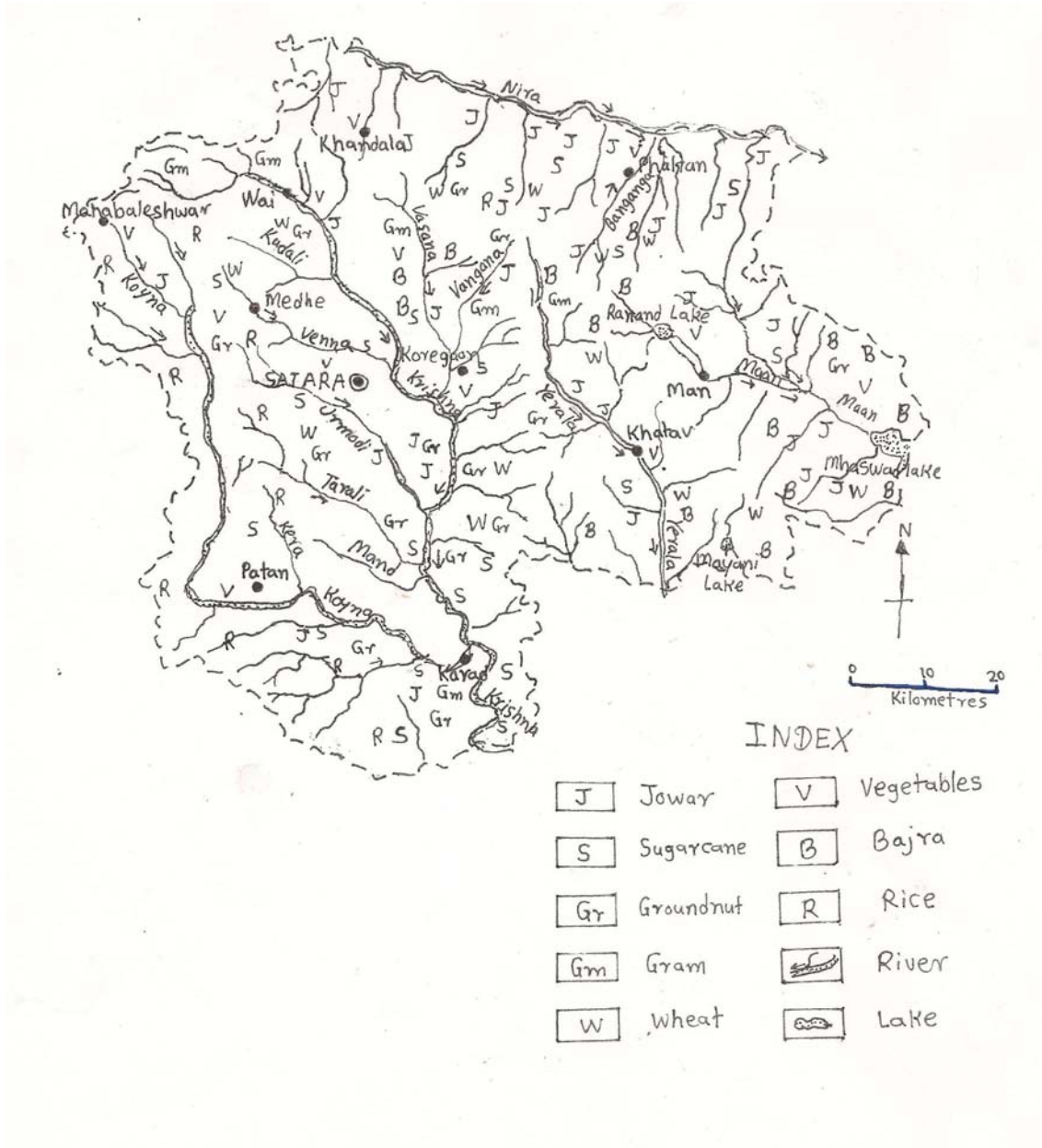


Figure No. 2.4

# SATARA DISTRICT

## MAIOR ROADS AND RAILWAYS

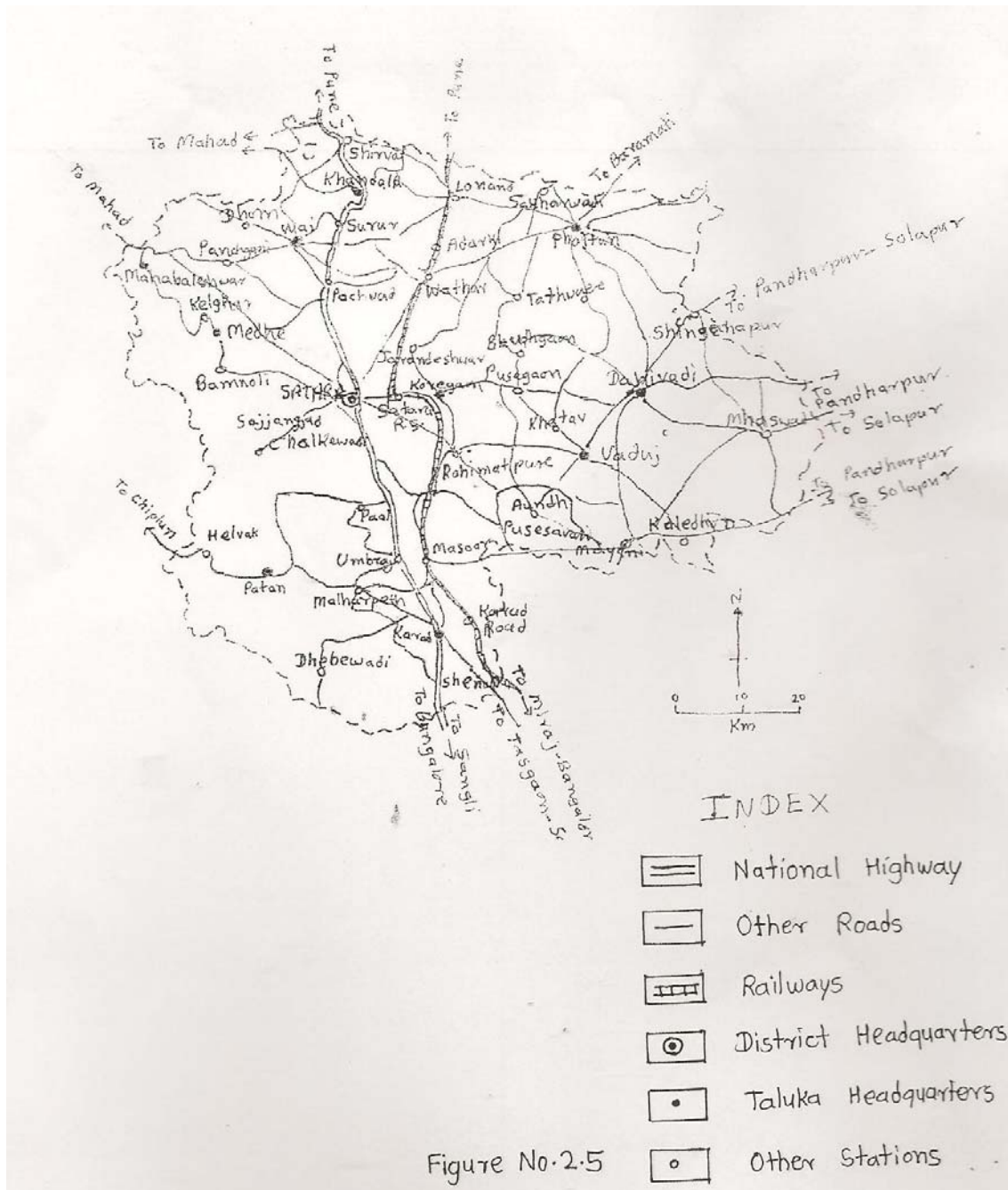


Figure No. 2.5

Figure No. 2.5



## **2.9 POPULATION CHARACTERISTICS**

As per 2001 census of India, Satara district had a population of 27, 96 906 male consists of 14, 02, 301 and female consists 13, 94, 605 of the total population. Density of population was 268 persons per sq.km. Sex ratio of Satara district was 995. Average literacy rate is 78.52 percent of the total population male literacy is 88.45 percent and female literacy is 68.71 percent.

## **2.10 REFERENCES**

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**CHAPTER III**  
**DEMOGRAPHIC CHARACTERISTICS**

**PART – 1**

**3.1 Introduction**

**3.2 Distribution of Population**

**3.3 Dynamics of Population Distribution – Percent**

**3.4 Density of population**

**3.5 Dynamics of population distribution – Density**

**3.6 Growth of Population**

**3.7 Projected Population**

**3.8 Occupancy Ratio**

**3.9 Dynamics of Occupancy Ratio**

**3.10 Dependency Ratio**

**3.11 References**

# **CHAPTER III**

## **DEMOGRAPHIC CHARACTERISTICS**

### **PART I**

#### **3.1 INTRODUCTION**

Satara is the eleventh populous district in the state of Maharashtra. The total population of the district as per the census of district 2001 was about 28 lakh. The district is thus home to about 3.11 per cent of the state population. The district has to support this large population on a land area amounting to mere 6.69 per cent of the total land area of the state.

#### **3.2 DISTRIBUTION OF POPULATION:-**

The spatial distribution of population in the district is highly uneven. This unevenness is clear from the fact that the most populous taluka of the district, Karad accounts for 19.35 per cent of the total population while the share of this taluka in the area of the district is only 9.61 percent. Mahabaleshwar on the total population though area- wise it has a share of mere 2.21 per cent. It is the least populous taluka of the district. The district headquarter of Satara, the second largest taluka in terms of population, accounts for 16.09 per cent for the total population with a share of 8.69 per cent in the total area of the district. Phaltan, the third ranking taluka in the total population and 11.89 per cent of the total area of the district. (Figure No. 3.1)

Man and Patan taluka accounts 17.72 per cent of the total area of the district and 27.46 per cent of the total population. In contrast, the two most populous taluka's of the district namely Karad and Satara account for 35.44 per cent to total population while their share in the total area is only 18.53 per cent. The remaining area amounting to about 81.7 per cent of the total area of the district supports only about 64.56 per cent of the total population.

Table III-I shows the ranks of various taluka's in terms of their total population as per census of district 2001.

Thus the areas where the chances of economic development are better and earning a livelihood is easier, are favoured for human settlement and the ones where either the life is hard due to scarcity of means of livelihood or due to harsh climate or any other reason and security to life is low, are the areas where people do not like to settle down and the density of population in such regions is low.

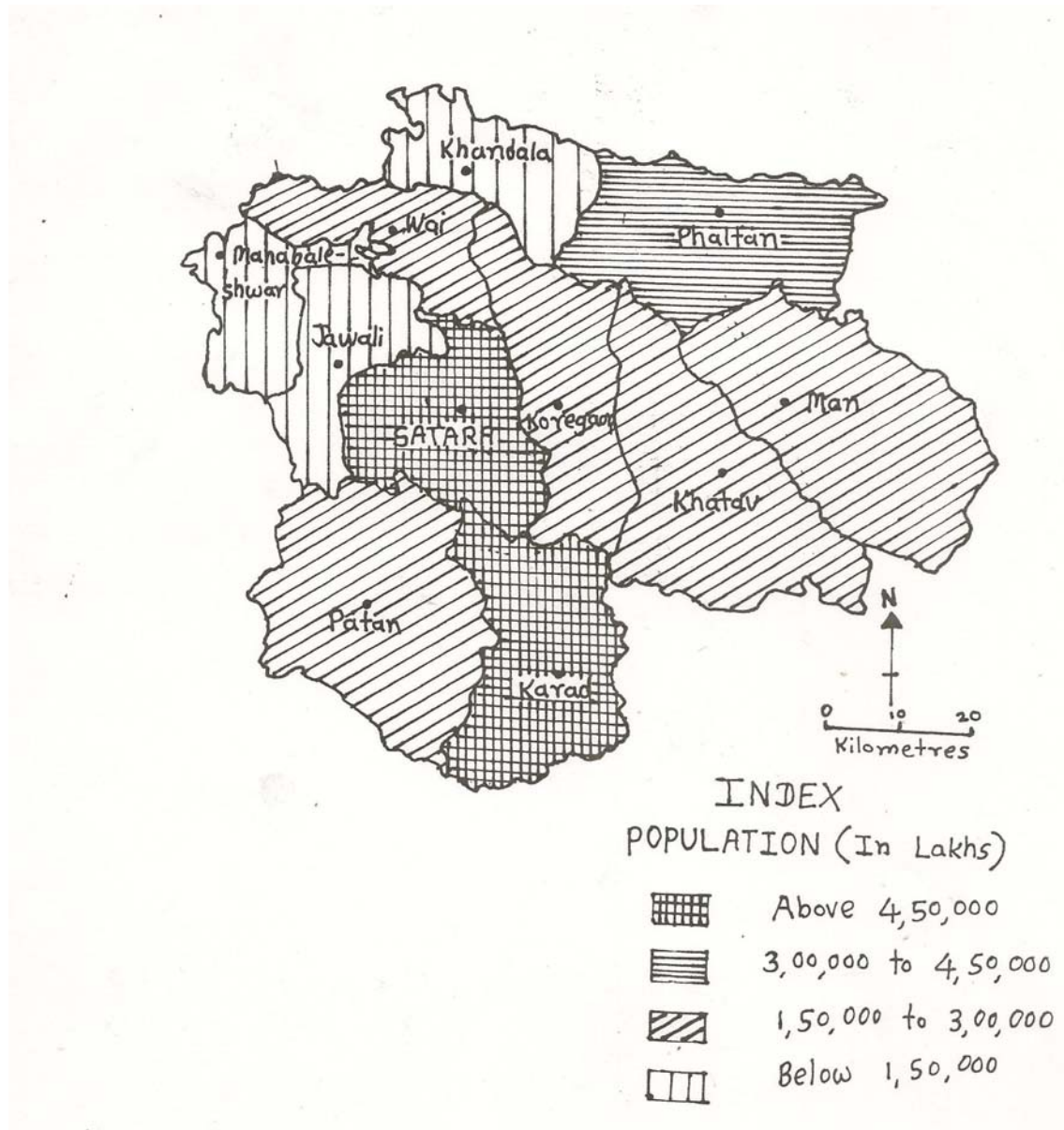
### **3.3 DYNAMICS OF POPULATION DISTRIBUTION – PERCENT**

There have been variations in the ranks of various talukas in terms of percent of population. The most conspicuous example of this difference during 1991-2001 is that of phaltan and patan, while patan had a higher population percent than phaltan in 1991, phaltan overtook patan in 2001 mainly due to an increase in the percent of population of phaltan due to a higher growth rate of population. (Figure No. 3.2)

**Table III-I****SATARA DISTRICT****TALUKA-WISE DISTRIBUTION OF POPULATION****(1991- 2001)**

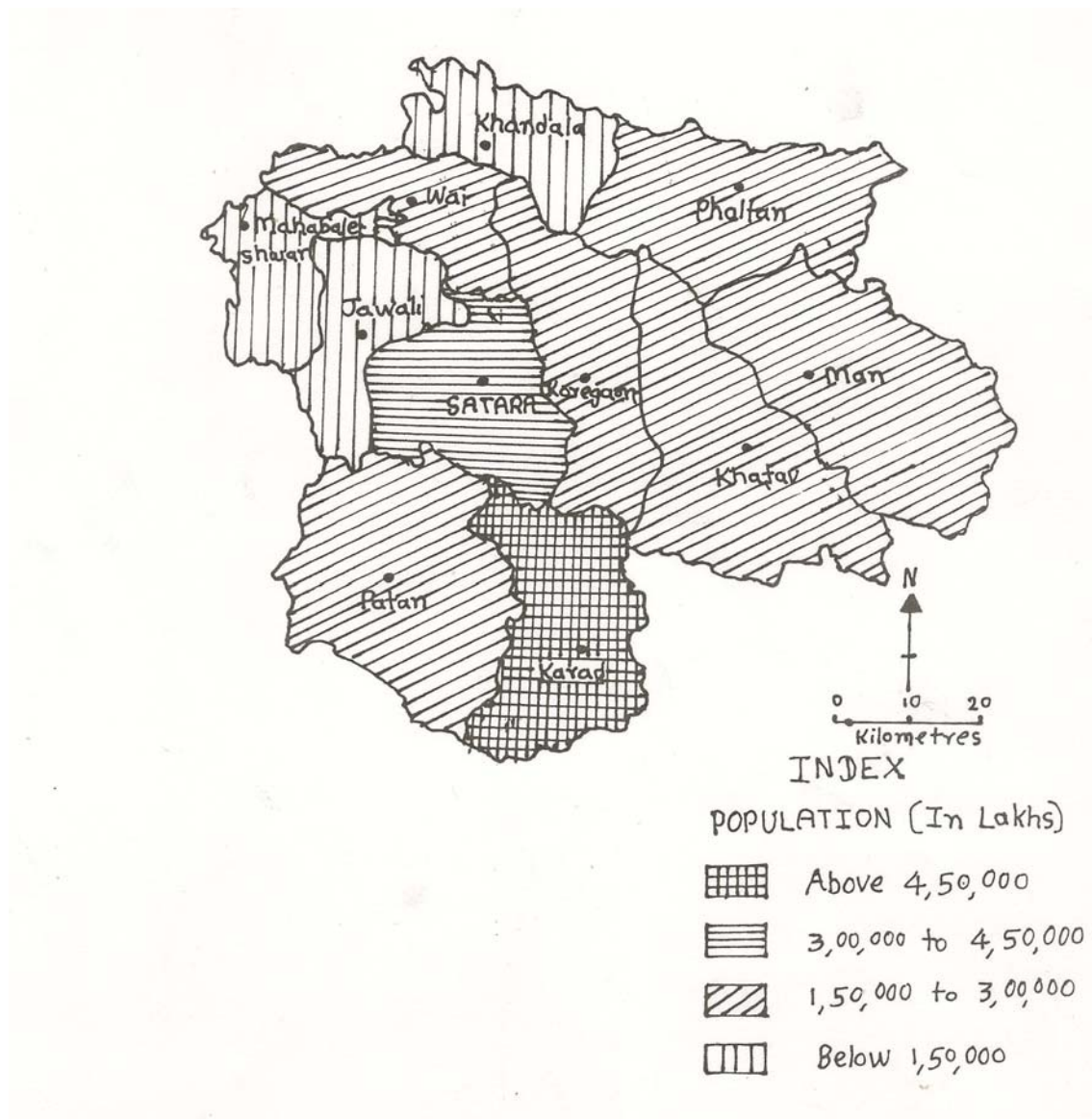
Rank (2001)	Taluka	Population (2001)	Percent to total Population (2001)	Population (1991)	Percent to total Populatio n (1991)	Rank (1991)
1	Karad	543,424	19.35	459,955	18.76	1
2	Satara	451,870	16.09	368,871	15.05	2
3	Phaltan	313,627	11.17	273,451	11.16	4
4	Patan	298,095	10.60	274,284	11.19	3
5	Khatav	260,951	9.29	234,182	9.55	5
6	Koregaon	253,128	9.00	225,002	9.18	6
7	Man	199,598	7.11	184,489	7.53	7
8	Wai	189,336	6.74	167,532	6.68	8
9	Jaoli	124,600	4.44	117,988	4.81	9
10	Khandala	119,819	4.27	101,105	4.12	10
11	Mahabalsh- war	54,546	1.94	44,513	1.82	11

**SATARA DISTRICT**  
**TALUKA-WISE DISTRIBUTION OF POPULATION**  
**(2001)**



**Figure No. 3.1**

**SATARA DISTRICT**  
**TALUKA-WISE DISTRIBUTION OF POPULATION**  
**(1991)**



**Figure No. 3.2**

### **3.4 DENSITY OF POPULATION-**

An analysis of population distribution in terms of density of population is more revealing than the above discussion on the basis of absolute population of different taluka's .Various expressions of density of population can be employed for highlighting the variations of population pressure on land. These expression is the crude density or the arithmetic density of population. The arithmetic density as persons per square kilometre and it can be calculated by dividing the population of region by its total area.

As per the census of district-2001 the density of population in Satara ranges between less than 140 persons per square km to more than 560 persons per square km. The density is highest in Karad, followed by Satara. In these regions the density is more than 300 per square km. However these taluka's are largely urban and therefore a high density of population seems to be a natural consequence of urbanization. Among the rest of the taluka's also the range of density is between 138 (Man-the lowest density in the district) and 561 (Karad-the highest density in the district)

According to census 2001, the average density of population for the district as a whole was 268 persons per sq. km. The variations in density of population from one taluka to the other are clear from the statistics in the table III-II showing the ranks of various taluka's in terms of density of population.

Among the taluka's the highest density of population is in karad followed by Satara, Wai and Koregaon. The density of population in all these taluka's is more than 275 persons per square km. These four taluka's have a density much higher than the district average. The lowest density for 2001 was found in Man followed by Jaoli. The density in these two taluka's is under 145 persons per square Km. (figure No. 3.3)



The density distribution of population in Satara reflects the unevenness of the distribution of resources and the population supporting capacity of various regions. This fact will be clear through a review of the factors affecting distribution of population in Satara. Distribution of population in Satara district depends upon a number of factors ranging from natural environmental factors to economic and socio-cultural factors. In brief, however, it can be said that the areas affecting ease of living and security of life always attract larger numbers of people and such areas therefore have a high density of population.

The areas of healthy climate, fertile soils, adequate rainfall and availability of minerals and other industrial raw material attract large number of people because of their higher economic potential such areas offer employment opportunities in diverse sectors of economy. On the other hand, areas of hard life, unhealthy climate, low farm productivity or poor soils or areas prone to natural hazards like floods and droughts are the areas of lowest density of population

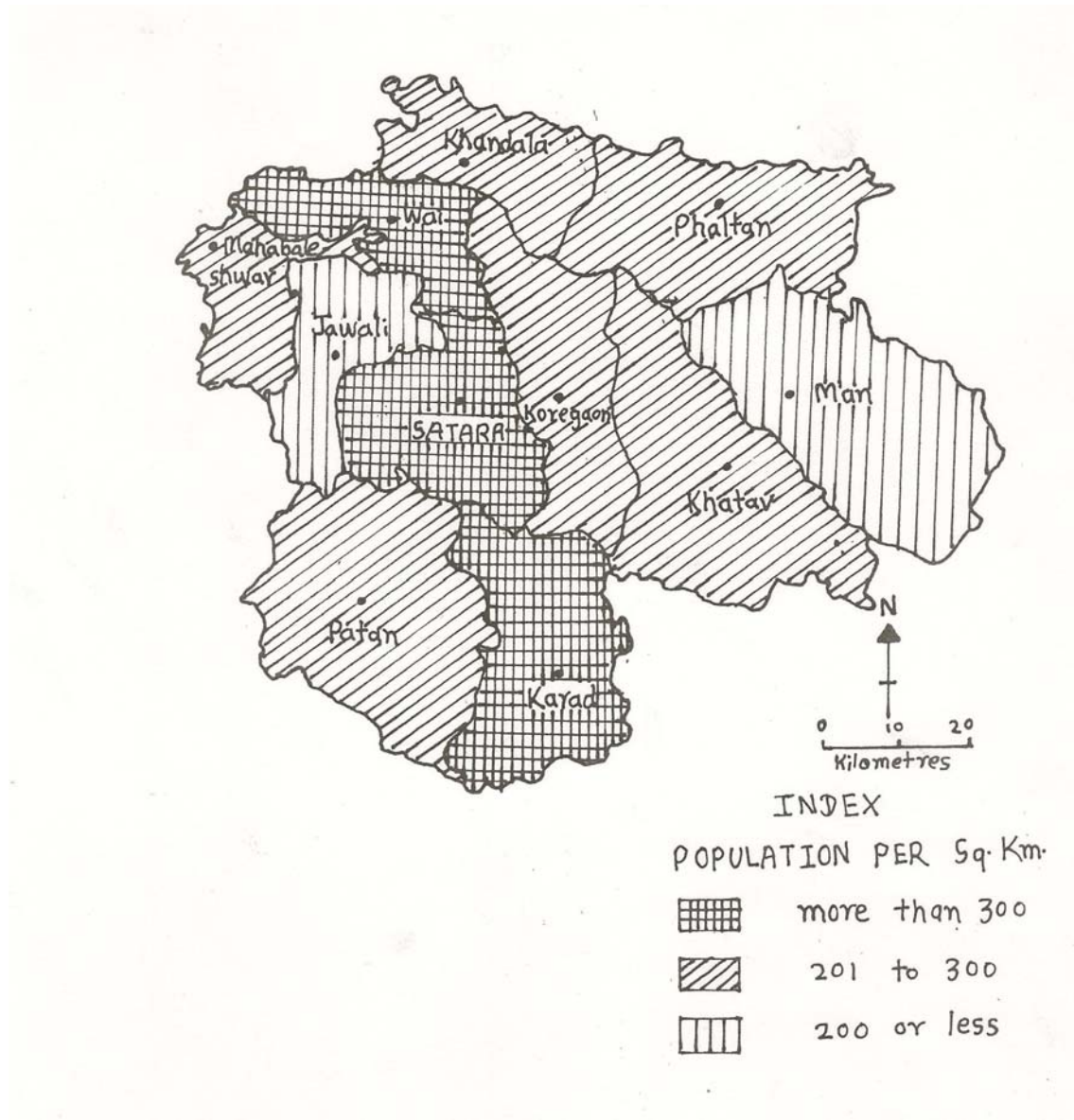
### **3.5 DYNAMICS OF POPULATION DISTRIBUTION DENSITY-**

The spatial pattern of population distribution does not necessarily remain unchanged over time. Although the major areas of high and low density of population have remained more or less the same over the last few decades, there have been variations in the ranks of various states in terms of density of population. Theoretically such changes in the pattern of population distribution can occur due to the varying rates of growth either due to differences in the rates of natural growth or due to migrations. Most of these changes in Satara, however, are a result of differences in the natural growth rates between different regions.

**Table No. III-II**  
**SATARA DISTRICT**  
**TALUKA-WISE DENSITY OF POPULATION**  
**(1991-2001)**

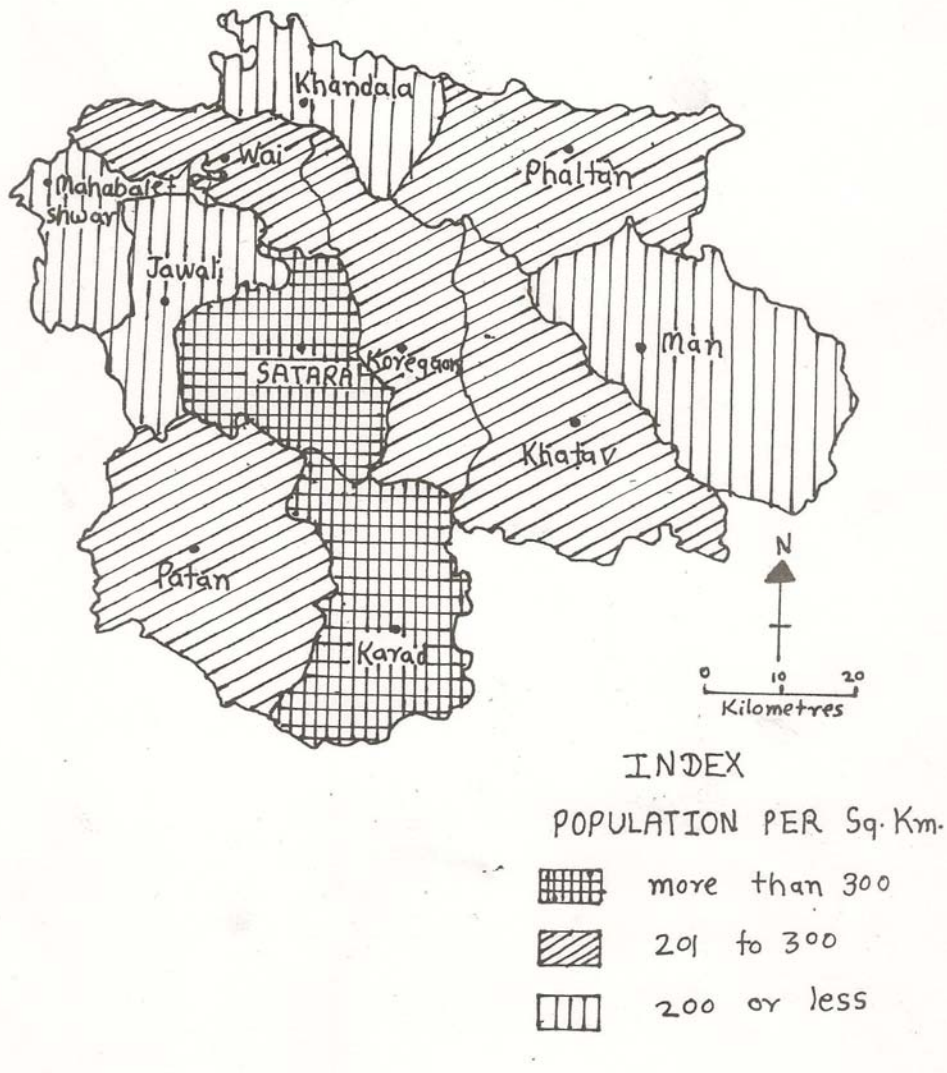
<b>Rank (2001)</b>	<b>Taluka</b>	<b>Percent to total area</b>	<b>Density of population (Persons/sq.k m) 2001</b>	<b>Density of population (persons/sq. km)1991</b>	<b>Rank (1991 )</b>
1	Karad	9.61	561	475	1
2	Satara	8.69	516	421	2
3	Wai	6.05	310	271	3
4	Koregaon	9.14	275	244	4
5	Phaltan	11.89	261	228	5
6	Mahabalesh war	2.21	245	200	8
7	Khatav	11.20	231	207	7
8	Khandala	5.19	229	193	9
9	Patan	13.09	226	208	6
10	Jaoli	8.57	144	136	10
11	Man	14.37	138	127	11
	Average		268	234	

**SATARA DISTRICT**  
**TALUKA-WISE DENSITY OF POPULATION**  
**(2001)**



**Figure No. 3.3**

**SATARA DISTRICT**  
**TALUKA-WISE DENSITY OF POPULATION**  
**(1991)**



**Figure No. 3.4**

The most conspicuous example of this difference during 1991-2001 is that of Patan, Khatav, Mahabaleshwar & Khandala. While Patan had a higher population density than Khatav, Mahabaleshwar & Khandala in 1991. These three taluka's overtook Patan in 2001-mainly due to a higher growth rate of population. The case of Khandala, Khatav & Mahabaleshwar is also similar while Khandala had a relatively higher density in 1991, Mahabaleshwar & Khatav surpassed it in 2001. The ranks of the top ranking regions like Karad, Satara, Wai, Koregaon, however remained the same during this period. (Figure No. 3.4)

### **3.6 GROWTH OF POPULATION-**

The growth rate of population is an important demographic characteristics which not only helps in understanding the population change that a society has undergone, but also helps in predicting the future demographic characteristics of an area. Therefore, it is useful to study the pattern of population growth, and analyse this pattern to identify the major factors that determine growth rate of population in the particular region.

In the beginning of the twentieth century district shows the decline trend. The population of Satara has been growing continuously since 1931. The total population of the district in 1901 was 849 thousand which grew to 2,808 was only during 1901-21 that population recorded a marginal decrease, and ever since it has been continuously rising. The year 1921 is considered a great divide in the growth rate of population of Satara district. (Figure No. 3.5)

The growth rate in 1901-11 was -1.69 per cent falling to - 5.85 in the following decade. In the next decade (1921-31), the growth rate was 13.81 percent which mounted to 21.50 percent during 1951-61. There has been a marginal decline in the growth rate since 1961. Another decade during which the

growth rate showed a marginal decline from 20.79 percent of 18.02 percent has been the period of 1971-81. In the decade 1991-2001 the growth rate showed a marginal decline from 20.24 percent of 14.59 percent. However, in spite of these marginal decline the aggregate numbers added to the population have been increasing since the great divide of 1921. The variations in the decadal growth rate and average annual exponential growth rate during various census decade since 1901 are given in table no. III-III. (Figure No. 3.6 and 3.7)

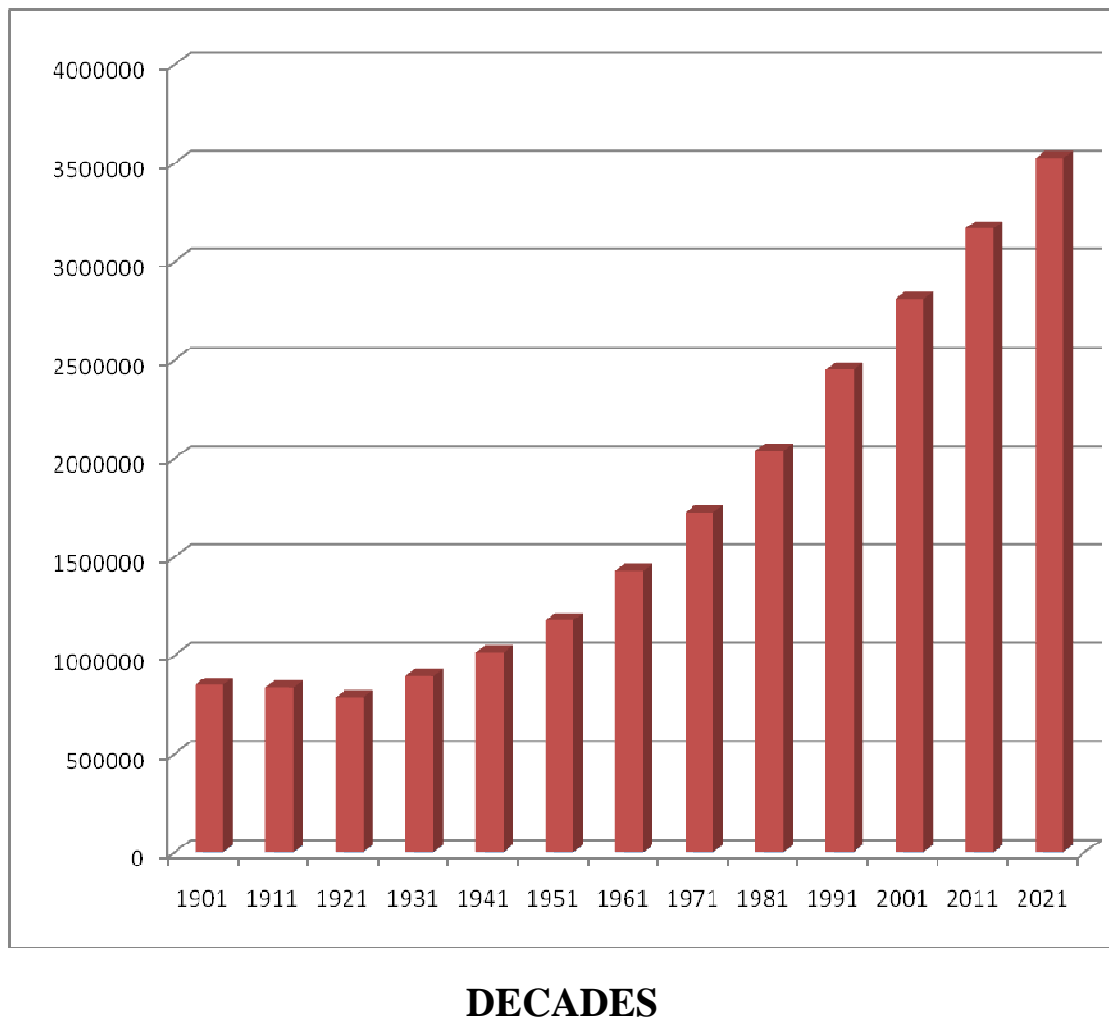
The growth rate of a population depends upon its fertility (birth rate), mortality (death rate) and mobility (migration). The growth of population in India is more a function of fertility and mortality rates. Migration is an important factor in the growth of some selected urban and industrial regions, but it does not have a significant impact on the national average. Hence the high growth rate of population in Satara is primarily in result of the widening difference between the birth rate and the death rate.

During the some census decades the decadal growth rate has come down. However, it does not mean that the growth in the population in the district has come down in absolute terms. Since the base population has been increasing during every decade the total number of people added during 1991-2001, in spite of a lower growth rate has been about 357,622 thousand. Thus the absolute number of people add during successive decades has been increasing even though the rate of growth shows some slackening.

**Table III-III**  
**SATARA DISTRICT**  
**POPULATION GROWTH**  
**(1901 TO 2001)**

<b>Census year</b>	<b>Population</b>	<b>Decadal Growth Rate ( per cent)</b>	<b>Average Annual Exponential Growth Rate (percent)</b>
1901	849,672	-	-
1911	835,337	-1.69	-0.17
1921	786,436	-5.85	-0.60
1931	895,014	13.81	1.29
1941	1,013,212	13.21	1.24
1951	1,177,016	16.17	1.50
1961	1,430,105	21.50	1.94
1971	1,727,376	20.79	1.80
1981	2,038,677	18.02	1.65
1991	2,451,372	20.24	1.83
2001	2,808,994	14.59	1.36
2011	3,166,616	12.73	1.20
2021	3,524,238	11.29	1.07

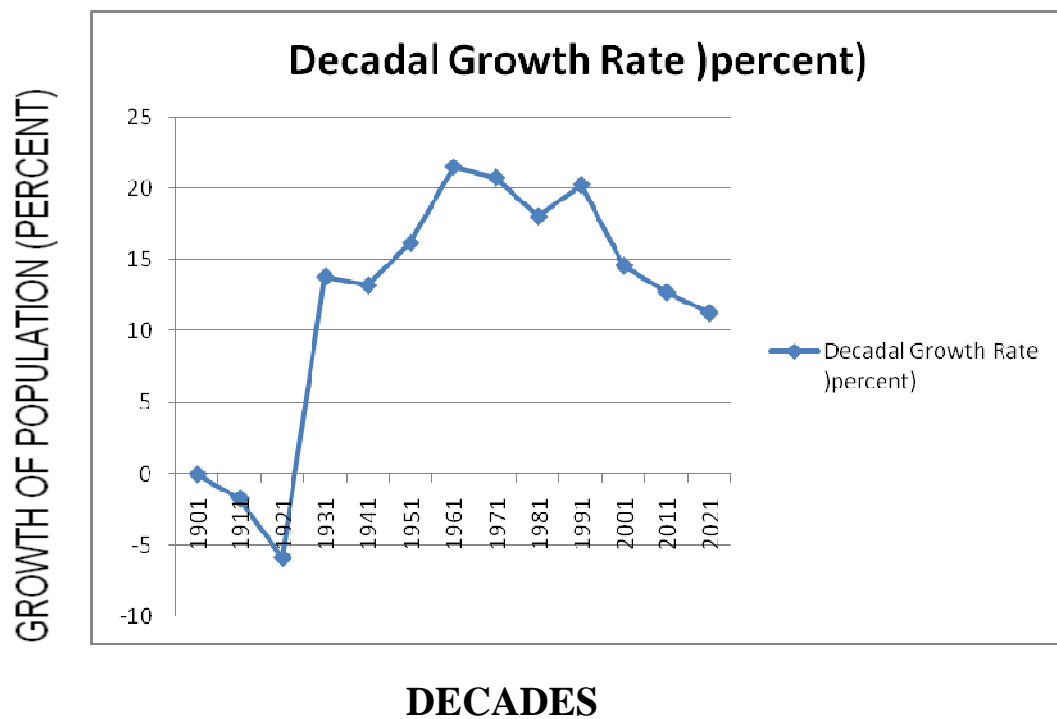
**SATARA DISTRICT  
POPULATION GROWTH  
(1901 TO 2021)**



**Figure No 3.5**

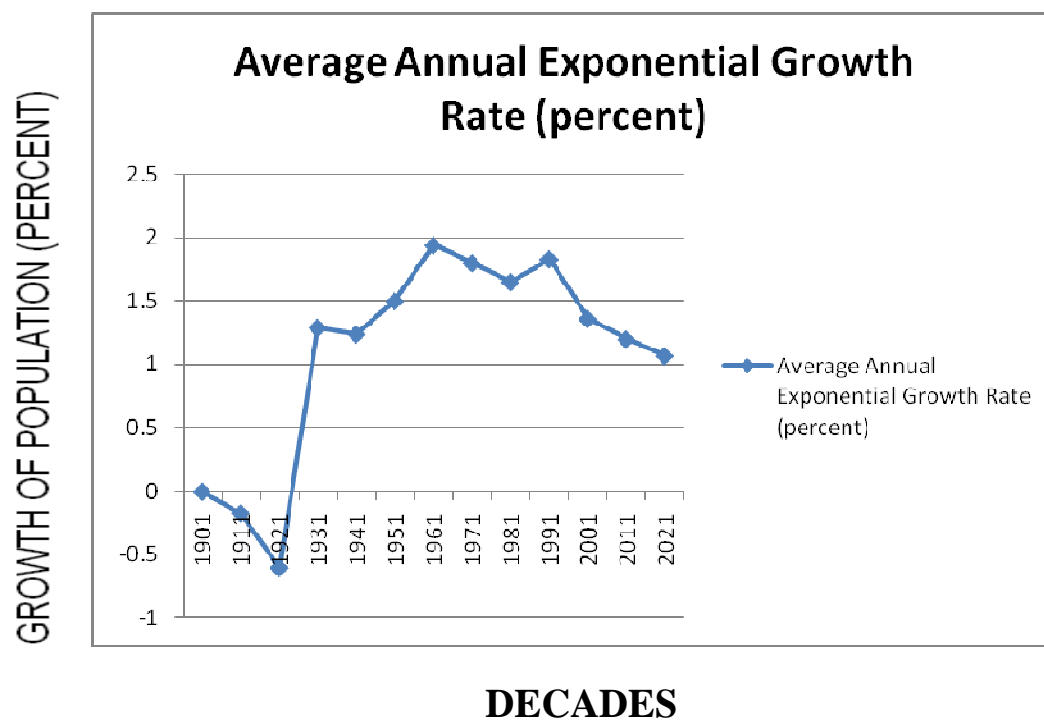


**SATARA DISTRICT**  
**DECADAL GROWTH RATE OF POPULATION**  
**(1901-2021)**



**Figure No 3.6**

**SATARA DISTRICT**  
**DECADAL GROWTH RATE OF POPULATION**  
**(1901-2021)**



**Figure No 3.7**

### 3.7 PROJECTED POPULATION

Population projection is an interesting part. It is useful for geographers, planners in respect of infra structure and social services. Projected population of Satara district will be 31,66,616 and 35,24,238 persons in the year 2011 and 2021 respectively.

The estimate population for the 2011 and 2021 year is calculated with the help of the following formula:

$$F = P_1 + (r_i \times y)$$

Where

F = future population

P<sub>1</sub> = population of the first time

r<sub>i</sub> = Growth rate of population

y = time interval

The rate of increase in population is calculated with the help of following formula:

$$R_i = \frac{P_2 - P_1}{Y}$$

Y

Where,

R<sub>i</sub> = rate of increase in population

P<sub>1</sub> = population of the first year

P2= population of the second year

Y= time period between P2 and P1

Example:

Projected population of 2011-

$$R_i = \frac{P_2 - P_1}{Y}$$
$$= \frac{28,08,994 - 24,51,372}{10}$$

$$R_i = 35,762.2$$

$$F = P_1 + (r_i \times y)$$
$$= 28,08,994 + (35762.2 \times 10)$$

$$= 28,08,994 + 357622$$

$$F = 31,66,616$$

### **3.8 OCCUPANCY RATIO:-**

Occupancy ratio is the ratio of total number of population and total number of residential houses. In decade 1991-2001 occupancy ratio is highest in Mahabaleshwar (5.67), followed by Phaltan, Man. The lowest ratio is found in Patan taluka.

The average occupancy for the district as a whole was 4.98 in 2001. The variations in occupancy clear from the statistics in the table no. III-IV showing the ranks of various talukas in terms of occupational ratio. (Figure No 3.8)

### **3.9 DYNAMICS OF OCCUPANCY RATIO**

Jaoli relatively lower occupancy ratios. In 1991 it surpassed in 2001. Jaoli, Koregaon, Khandala, Satara, show the changes in ranks between 1991 to 2001. The rank of the top ranking taluka's like Mahabaleshwar, Phaltan, Man and Karad, however remained the same during this period. (Figure No.3.9)

### **3.10 DEPENDENCY RATIO:-**

The dependency Ratio is one of the most common and useful index of studying age composition. It gives us an idea about the burden of inactive population on working population age group.

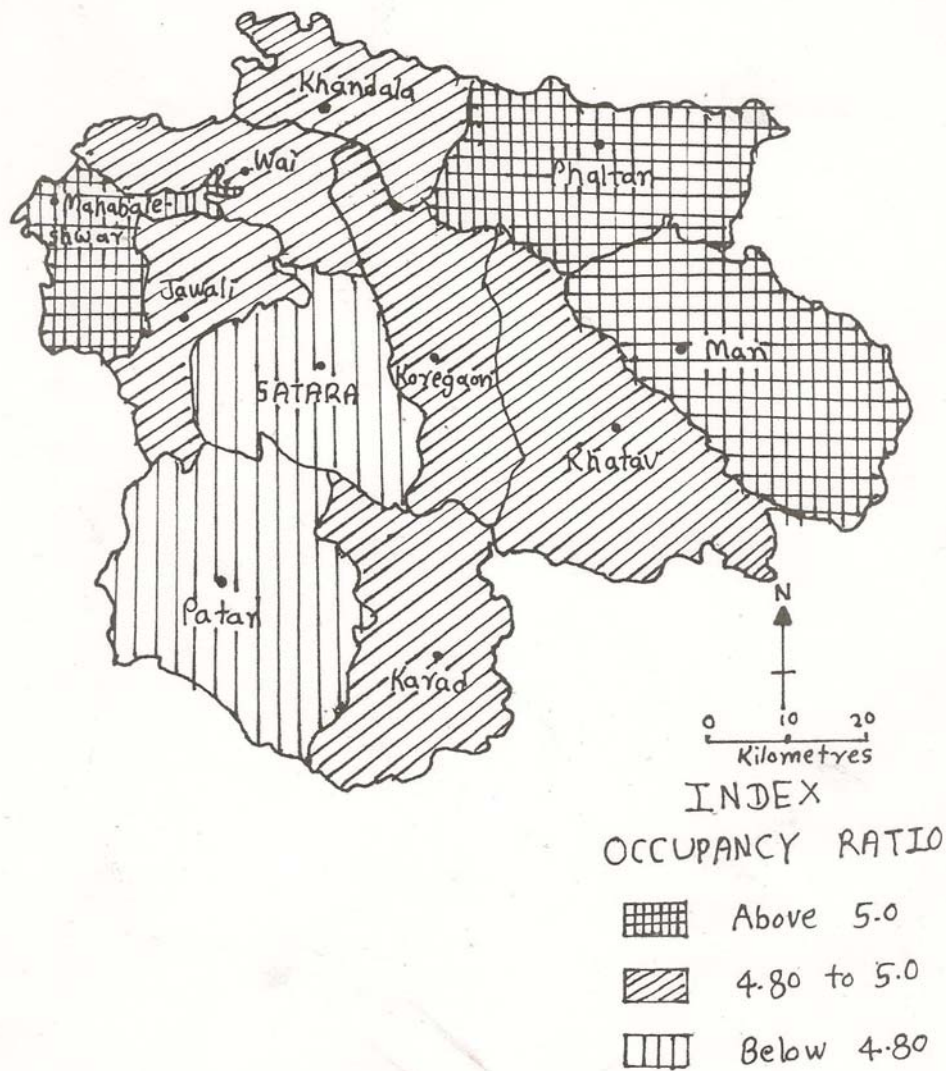
The dependency ratio value is 72-097 percent. This dependency ratio is high in the Satara district.

An expansion of the work force in the district in future offers possibilities of rapid economic growth.

**Table III-IV**  
**SATARA DISTRICT**  
**TALUKA-WISE OCCUPANCY RATIO**  
**(1991 - 2001)**

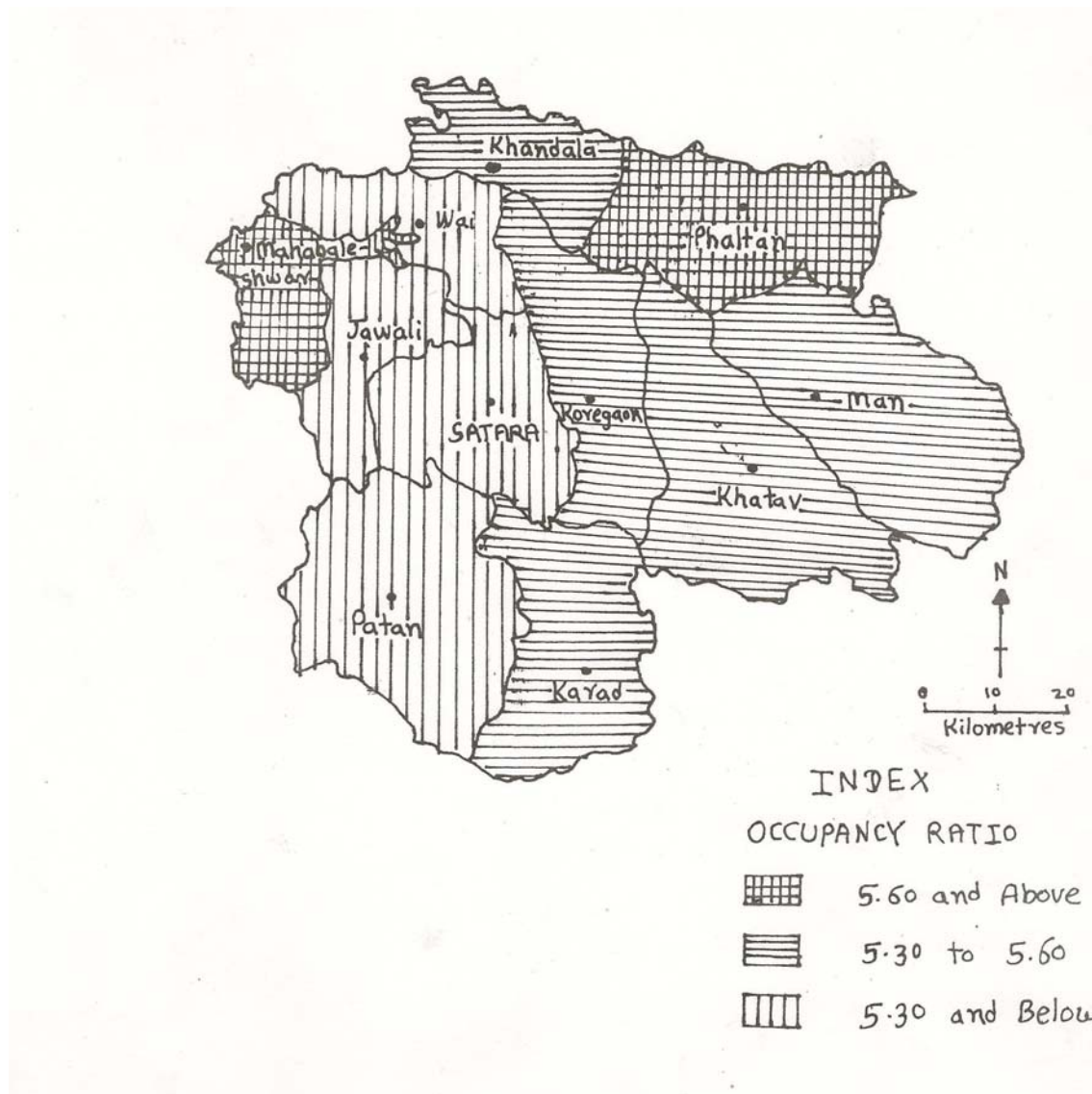
<b>Rank (2001)</b>	<b>Taluka</b>	<b>Occupancy Ratio (2001)</b>	<b>Occupancy Ratio (1991)</b>	<b>Rank (1991)</b>
1.	Mahabaleshwar	5.67	6.17	1
2.	Phaltan	5.12	5.63	2
3.	Man	5.05	5.58	3
4.	Karad	4.97	5.48	4
5.	Khatav	4.96	5.41	6
6.	Jaoli	4.93	5.26	10
7.	Karegaon	4.90	5.43	5
8.	Khandala	4.87	5.39	7
9.	Wai	4.81	5.27	9
10.	Satara	4.79	5.30	8
11.	Patan	4.73	5.15	11

**SATARA DISTRICT**  
**TALUKA-WISE OCCUPANCY RATIO**  
**(2001)**



**Figure No. 3.8**

**SATARA DISTRICT**  
**TALUKA-WISE OCCUPANCY RATIO**  
**(1991)**



**Figure No. 3.9**



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**CHAPTER IV**  
**DEMOGRAPHIC CHARACTERISTIC**  
**PART II**

**4.1 Introduction**

**4.2 Literacy**

**4.3 Literacy by Taluka's**

**4.4 Sex Specific literacy distribution**

**4.5 Sex Ratio**

**4.6 Sex Ratio by Taluka's**

**4.7 Rural and Urban Population**

**4.8 References**

# **CHAPTER IV**

## **DEMOGRAPHIC CHARACTERISTICS**

### **PART -II**

#### **4.1 INTRODUCTION**

According to population geographers, literacy is a main qualitative attribute of population, which is a fairly reliable index of socio-cultural and economic development of area. Sex ratio is very significant attribute of population. Population geographers give prime importance to the sex composition. Rural and Urban population is also important demographic characteristic

#### **4.2 LITERACY-**

Literacy is one of the important indicators of social development, which is considered to be an important sector in the process of modernization. A high level of literacy reflects the dynamic character of a districts population.

“A person who can both read and write with understanding in any language has been taken as literate by the Indian census”

The definition as literacy is very from country to country generally refers to the minimum level of literacy skill. The Indian census had adopted the definition suggested by ‘The population commission of united Nation’ the difference in the literacy rate is seen in rural – urban population, male and female, religious groups, caste system. There are numbers of determinants of literacy such as cost of education, degree of urbanization, general value system, standard of living status of women etc.

The rate of literacy in the district is increasing and as per the census 2001, this rate was 78.52 per cent. The fact that this rate is increasing rapidly is clear from the statistics presented in the following Table IV-I

The above table shows the increasing rate of literacy in Satara since 1961. Although the overall literacy has increased significantly since 1961-2001 the most spectacular increase has been registered in the case of literacy among females. While it was only 21.6 percent in 1961, by 2001 it had risen to 68.71 per cent. The proportion of the literates has increased much more rapidly after 1971.

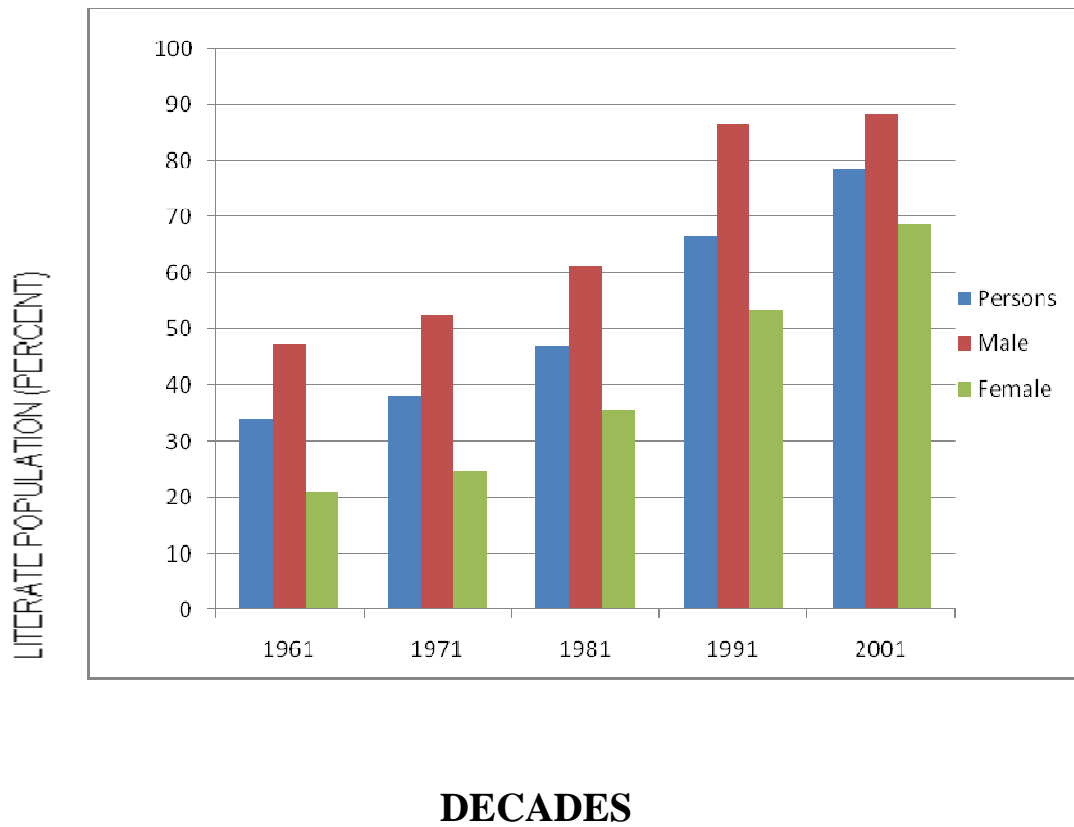
According to the census of district 2001, the literacy among males was higher (88.45 percent) than among females (68.71 percent) A closer look at the statistics also reveals that the rate of growth of literacy among females has been faster than among males. While literacy among males increased by 2 percentage points during 1991-2001 among females it increased by about 15 percentage points. (Figure No. 4.1)

It shows an increasing emphasis on the education of girl children and also on the fact that more women have become literates than men as a result of the drive to increase literacy among the adults. Since more of the women were illiterates, larger number of them could be accessed through the programmes of adult literacy.

**Table IV-I**  
**SATARA DISTRICT**  
**DECADAL GROWTH RATE OF LITERACY (PER CENT**  
**(1961 TO 2001)**

<b>Census Year</b>	<b>Persons</b>	<b>Males</b>	<b>Female</b>
1961	33.98	47.41	21.16
1971	38.32	52.38	24.77
1981	47.15	61.39	35.67
1991	66.67	86.61	53.65
2001	78.52	88.45	68.71

**SATARA DISTRICT**  
**DECADAL GROTH RATE OF LITERACY**  
**(1961-2001)**



**Figure No. 4.1**

### **4.3 LITERACY BY TALUKA'S**

There are wide spatial variation in the rate of literacy in the district. While Satara taluka with a literacy rate of 74.11 percent enjoys the top position among the taluka's . Man with a literacy rate of 58.93 percent is placed at the bottom.

As shown in the above table IV-II the rate of literacy varies a rate deal among taluka's. Besides, Satara, the taluka with the highest proportion of literates in its population. Mahabaleshwar, Koregaon also have high literacy rates. Out of a total of 11 taluka's in the district. 5 have a literacy rate lower than the district average (67.96 percent). The 6 taluka's that have literacy rate higher than the district average. Rate of literacy in man is lower than even 60 percent. (Figure No. 4.2)

### **4.4 SEX SPECIFIC LITERACY DISTRIBUTION**

Literacy between males and females also differs among various taluka's. The highest literacy among males is in Mahabaleshwar (58.98 percent) followed by Man, Phaltan, In all these taluka's the rate of literacy among males is higher than 57 percent. The lowest rate of literacy among males has been observed in Wai. In Satara, Koregaon, Jaoli also the rate of literacy among males is low.

The highest rates of female literacy (above 45) have been observed in Wai (45.22 percent), Satara, Koregaon & Jaoli. The lowest female literacy is in Mahabaleshwar (41.02 percent) (Table IV-II)

These statistics also show a relationship between low rate of literacy, especially among females, and the high rate of population growth. Most of the taluka's with a low literacy rate have a higher growth rate of



population. On the other hand, the areas of high literacy rate have a relatively low rate of natural growth.

Only the predominantly urban populations with a high literacy show higher growth rates of population. However, as pointed out earlier, the high growth rate of population in such regions is a result primarily of migration of large number of people for better economic opportunities here.

#### **4.5 DYNAMICS OF LITERATE POPULATION**

Literacy is one of the important indicators of social development, which is considered to be an important sector in the process of modernization.

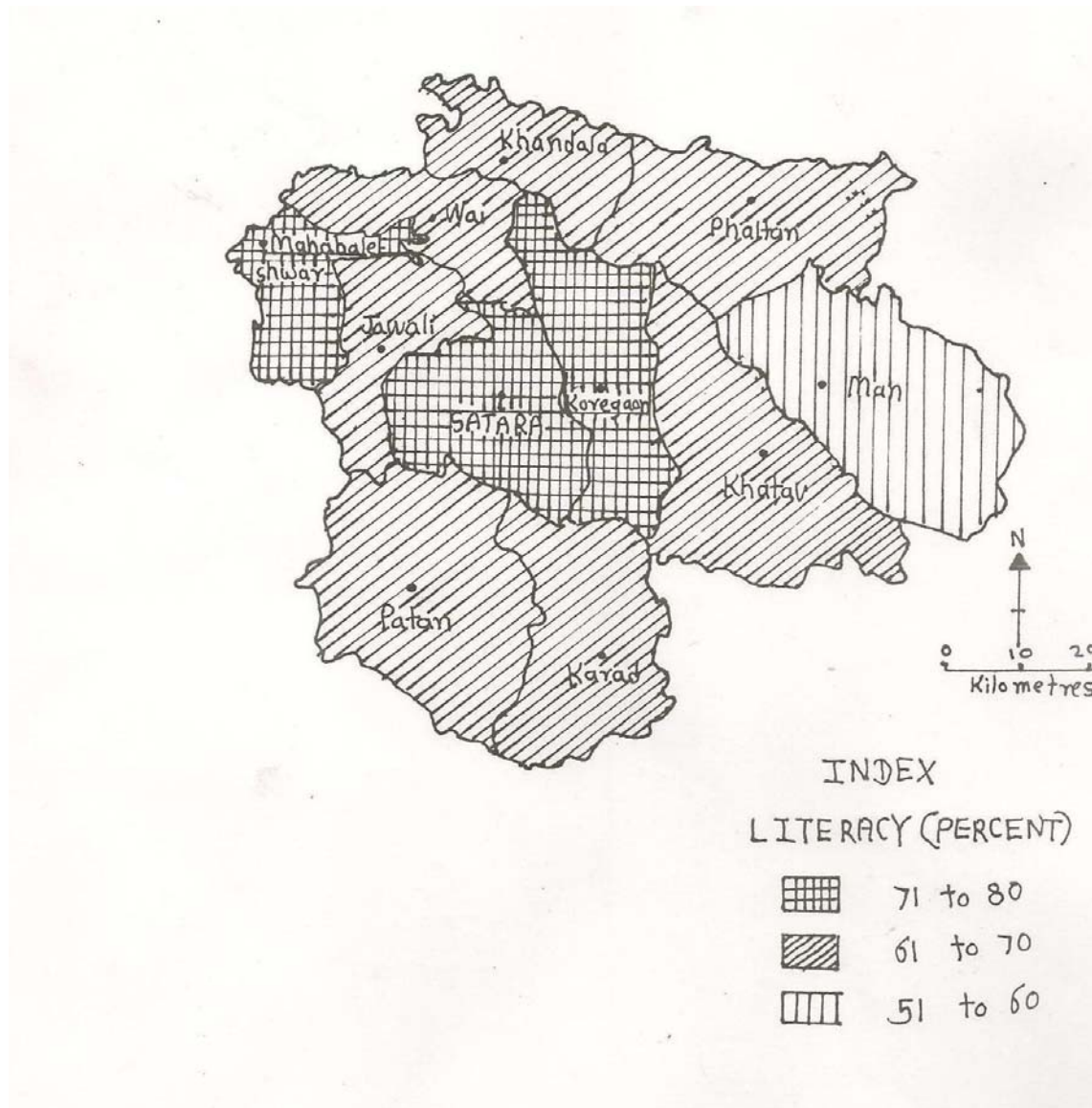
A high level of literacy reflects the dynamic character of a districts population. Here an attempt has been made to study the literacy pattern of Satara district for the decade 1991- 2001. It is observed that in 1991, nearly 55.87 percent population was literate out of which 59.08 percent was male population and 40.92 percent female population, which means that the illiteracy is mainly found in the female population.

In the present study area it is observed that nearly 67.96 percent population is literate and nearly 32.04 percent is still illiterate. When we consider only literate population, then it shows that nearly 75.91 percent population is male and 59.97 percent population is female. In illiterate population it is observed that nearly 24.09 percent male and 40.03 percent is female population. Arad had a higher literacy rate than Khandala in 1991, Khandala over took Karad in 2001. The rank of remaining taluka's remained the same during this period. (Figure No. 4.3)

**Table IV-II**  
**SATARA DISTRICT**  
**TALUKA-WISE LITERACY**  
**(1991 - 2001)**

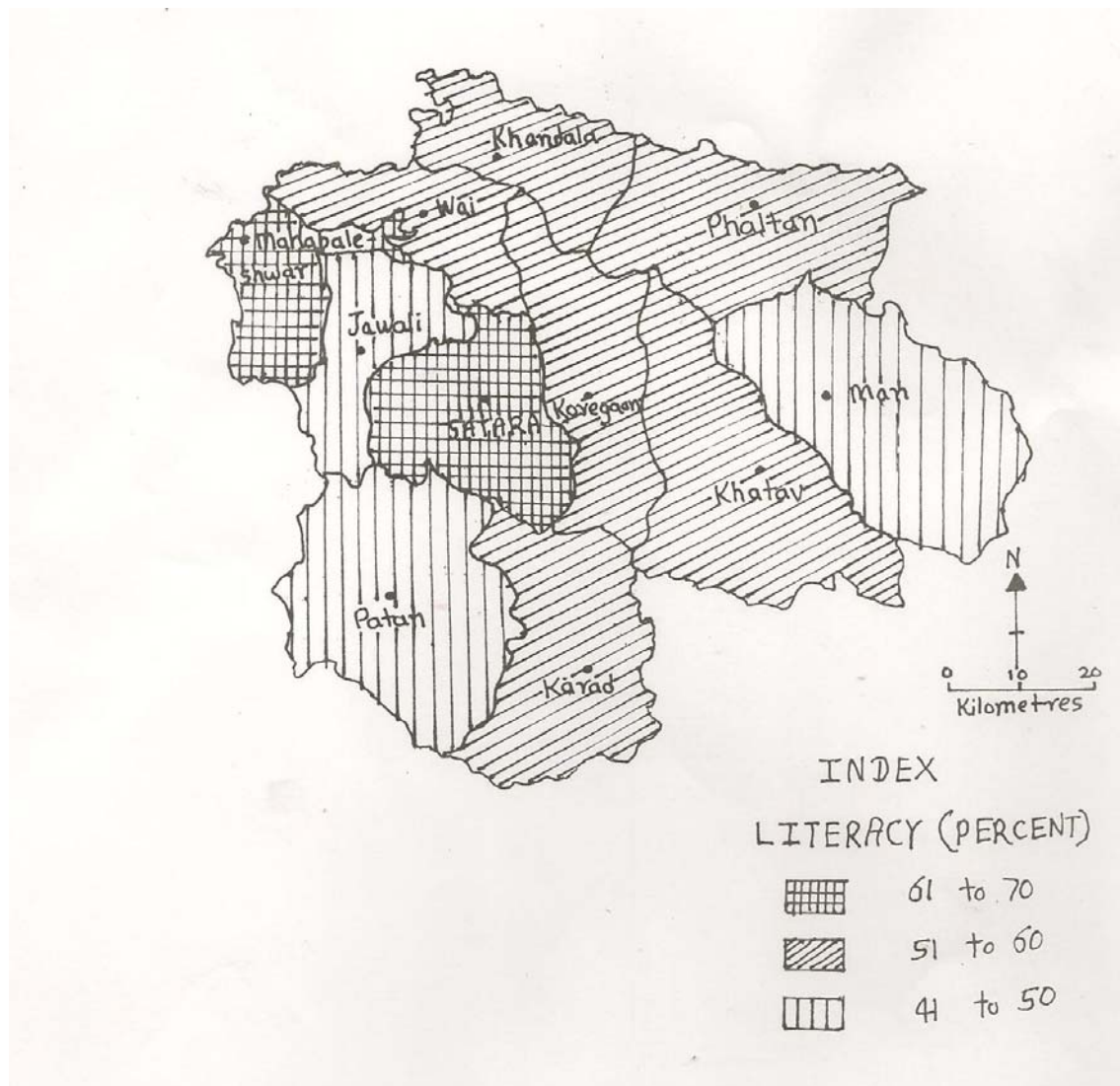
<b>Rank 2001</b>	<b>Taluka</b>	<b>Literacy (per cent) Persons 2001</b>	<b>Male % 2001</b>	<b>Female % 2001</b>	<b>Literacy Persons 1991</b>	<b>Rank 1991</b>
1	Satara	74.11	54.79	45.21	63.44	1
2	Mahabaleshwar	73.61	58.98	41.02	61.39	2
3	Koregaon	70.92	54.90	45.10	59.88	3
4	Wai	69.96	54.78	45.22	59.68	4
5	Khandala	69.54	56.61	43.63	57.72	6
6	Karad	68.95	56.61	43.39	57.97	5
7	Khatav	66.93	55.34	44.66	54.54	7
8	Phaltan	65.68	57.40	42.60	53.42	8
9	Jaoli	65.17	54.99	45.01	50.12	9
10	Patan	61.87	56.34	43.66	47.77	10
11	Man	58.93	57.99	42.01	45.27	11

**SATARA DISTRICT  
TALUKA-WISE LITERACY  
(2001)**



**Figure No. 4.2**

# SATARA DISTRICT TALUKA-WISE LITERACY (1991)



**Figure No. 4.3**

## 4.6 SEX RATIO

Sex ratio is a important demographic characteristic and it refers to the proportion of males and females in the total population of an area. Although it may be expressed in different terms, in India sex ratio is expressed as the number of females per 1000 males. Sex ratio has been considered an important indicator of the economy prevailing in an area and a useful tool for regional analysis by scholars like Franklin. The proportion of the two sexes in the population of a region has profound impact on other demographic elements such as growth, marriage rates, occupational structure etc.

In India the sex ratio at the time of enumeration is adverse. In other words, there are more males in India than the females.

Sex ratio according to the 2001 census of Satara district was 995, i.e. there are 995 females per 1,000 males. The sex ratio in 2001 has shown decline over the figure of 1029 during 1981-91 decade. Table IV-III shows the changes in the sex ratio from 1901 to 2001.

Table IV-III shows that the sex ratio in Satara district has been declining since 1901, when it was 1031 females per 1,000 males though there were highly increases during some of the census decades i.e. 1941(1035), 1951(1051), 1961(1047), 1971(1037) and 1981 (1061). The sharpest decline in the sex ratio took place during the decade of 1991-2001, when it fell by 34 per thousands. In Satara except the decade 1991-2001 there were positive sex ratio since beginning of the twentieth century. Highest sex ratio in the decade 1971-81 i.e. 1061 females per 1,000 males. (Figure No. 4.4)

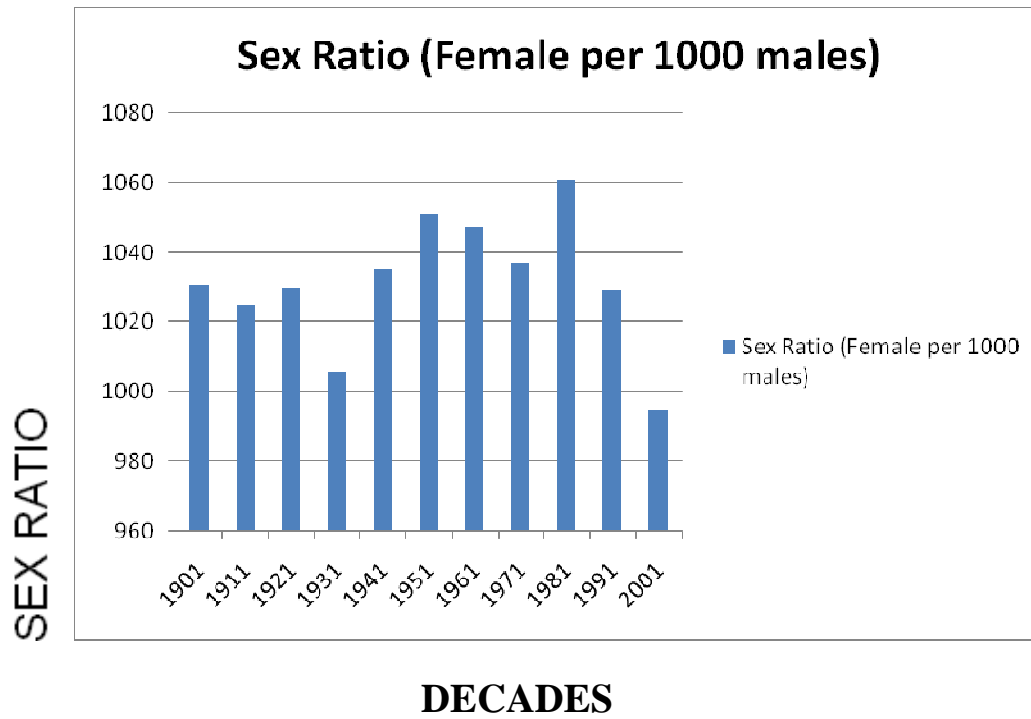
**Table IV-III**  
**SATARA DISTRICT**  
**DECADAL SEX RATIO**  
**(1901 to 2001)**

<b>Census Year</b>	<b>Sex Ratio (Female per 1,000 males)</b>
1901	1031
1911	1025
1921	1030
1931	1006
1941	1035
1951	1051
1961	1047
1971	1037
1981	1061
1991	1029
2001	995

# SATARA DISTRICT

## SEX RATIO

(1901-2001)



**Figure No.4.4**

## **4.7 SEX RATIO BY TALUKA'S**

The spatial pattern of sex ratio in 2001 there were five taluka's that had a positive sex ratio, i.e. the number of females in these areas exceeded that of males. The highest sex ratio in the district as per the census 2001 is in Jaoli (1100), the lowest sex ratio were observed in Mahabaleshwar (873), Phaltan (953), Khandala (960). Only the Phaltan taluka has registered an increase in the sex ratio during 1991-2001. Sex ratio in various taluka's are given in the following Table IV-IV. One serious problem concerned with sex ratio in the district is the rapid decline in the sex ratio in the age group of 0-5 years. Mahabaleshwar such a taluka's.(Figure No. 4.5)

Sex ratio at birth in some talukas as well as some urban pockets in the district is extremely low and is a cause of serious concern. It has been pointed out by social scientists and demographers that this sharp decline is a result of prevention of birth of female children. A low sex ratio in some of the areas in the district is also ascribed to female infanticide.

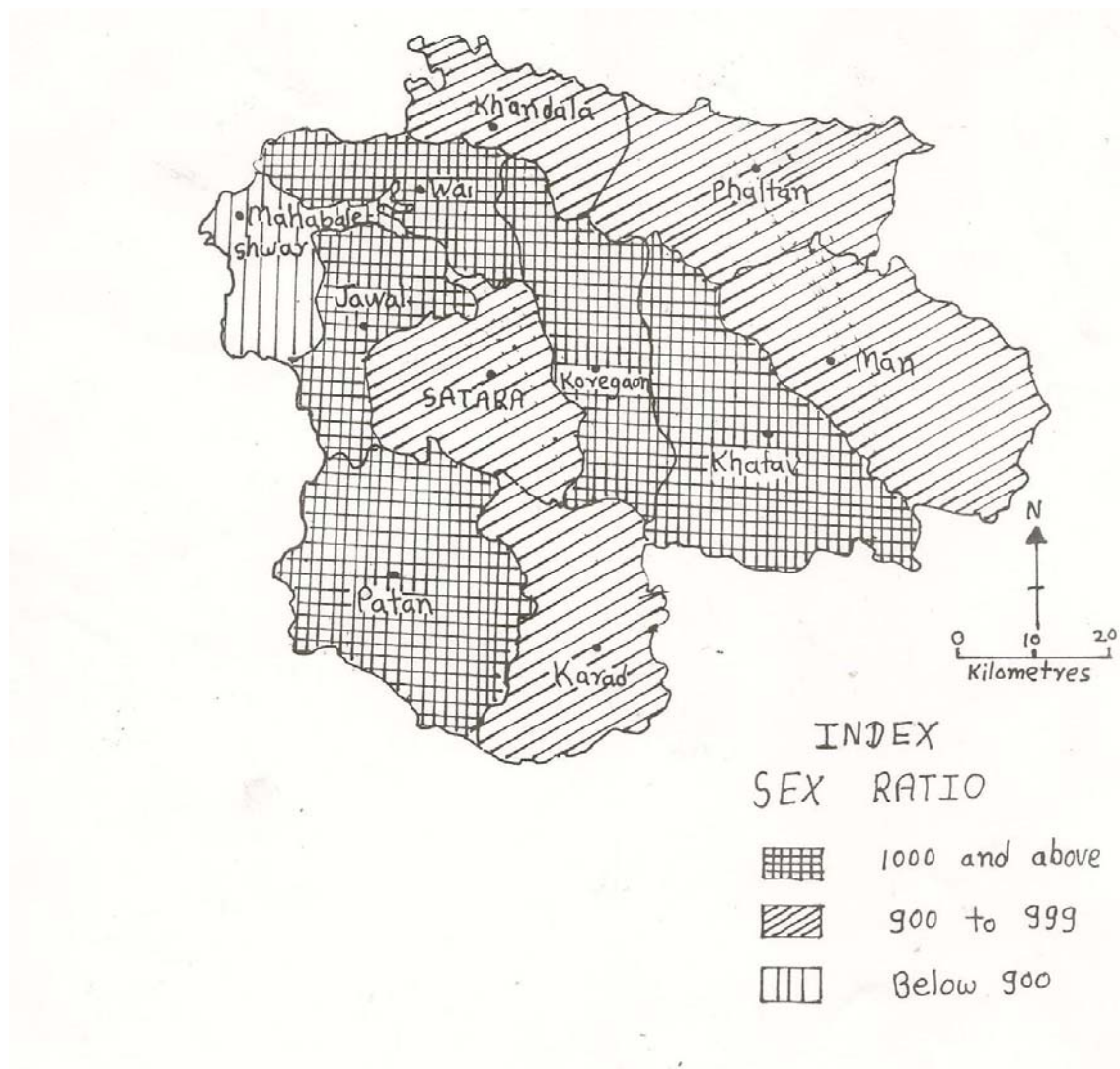
There is need to make the people aware of the dangers of rapidly falling sex ration in such areas. In view of this concern the government has adopted a number of policy means including a ban on the tests for sex determination of foetus.



**Table No. IV-IV**  
**SATARA DISTRICT**  
**TALUKA-WISE SEX RATIO**  
**(1991 – 2001)**

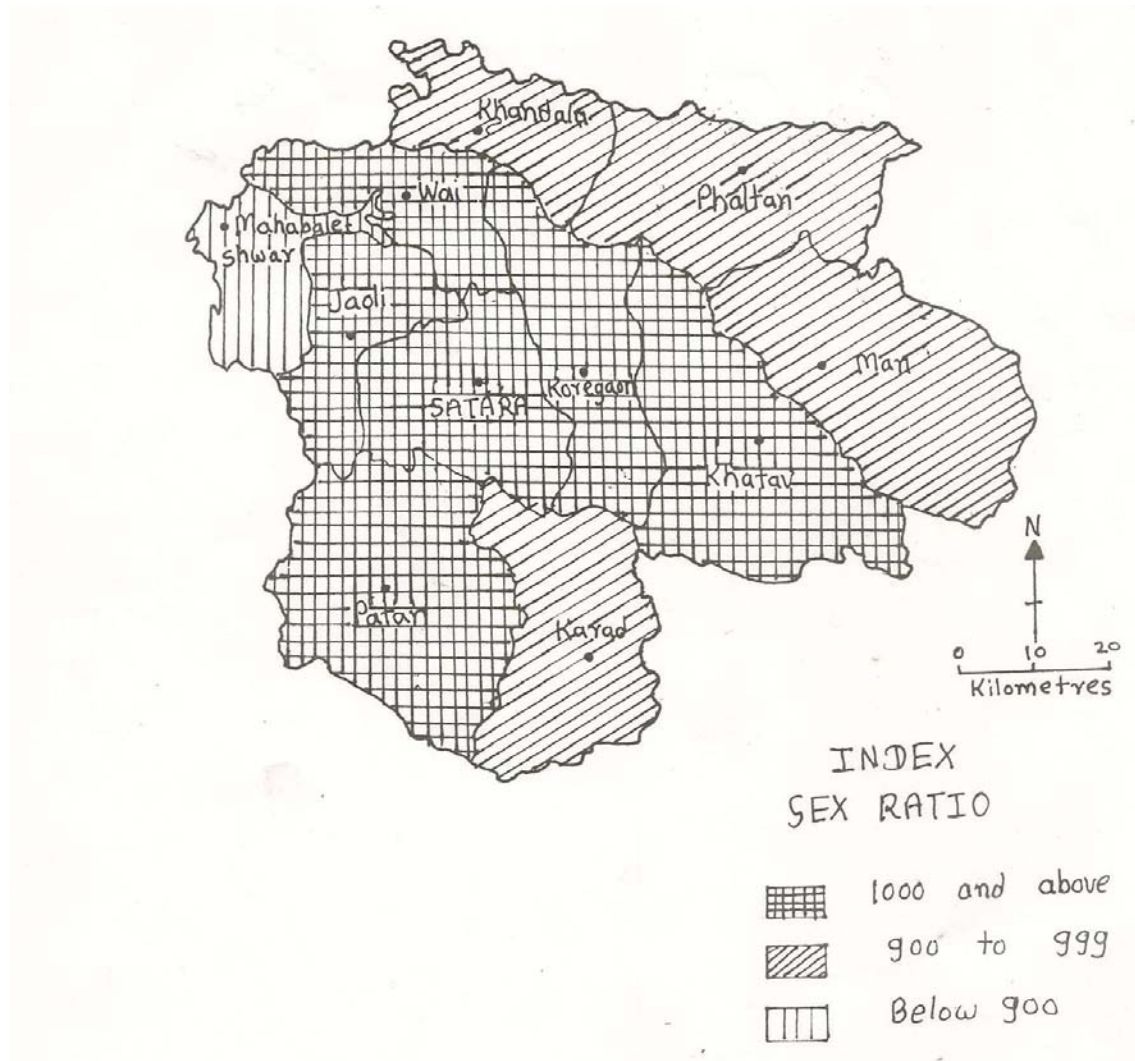
<b>Rank (2001)</b>	<b>Taluka</b>	<b>Sex Ratio(2001)</b>	<b>Sex Ratio(1991)</b>	<b>Rank 1991</b>
1	Jaoli	1100	1176	1
2	Patan	1089	1131	2
3	Khatao	1024	1064	4
4	Wai	1021	1076	3
5	Koregaon	1000	1050	5
6	Man	995	996	8
7	Satara	973	1013	6
8	Karad	961	985	10
9	Khandala	960	999	7
10	Phaltan	953	952	11
11	Mahabaleshwar	873	892	9

**SATARA DISTRICT**  
**TALUKA-WISE SEX RATIO**  
**(2001)**



**Figure No. 4.5**

**SATARA DISTRICT**  
**TALUKA-WISE SEX RATIO**  
**(1991)**



**Figure No. 4.6**

#### **4.8 DYNAMICS OF SEX RATIO**

There have been variations in the ranks of various talukas in terms of sex ratio. Only Phaltan an increase in sex ratio during the 1991-2001 decade. The remaining 10 talukas registered a decline during this period. (Figure No. 4.6)

#### **4.9 RURAL AND URBAN POPULATION**

India is called a country of villages and ever today about 70 percent of the people live in villages. Urbanization is often taken as an indicator of the economic development of any region.

In 1961, the urban population which amounted to 158 thousand and accounted for 11.08 percent of the total population of the district. The urban population crossed the 300 thousands mark during the late 1991. The urban population thus doubled itself in just 30 years.

Table IV-V gives the Rural Urban population of Satara district. (Figure No. 4.7 and 4.8)

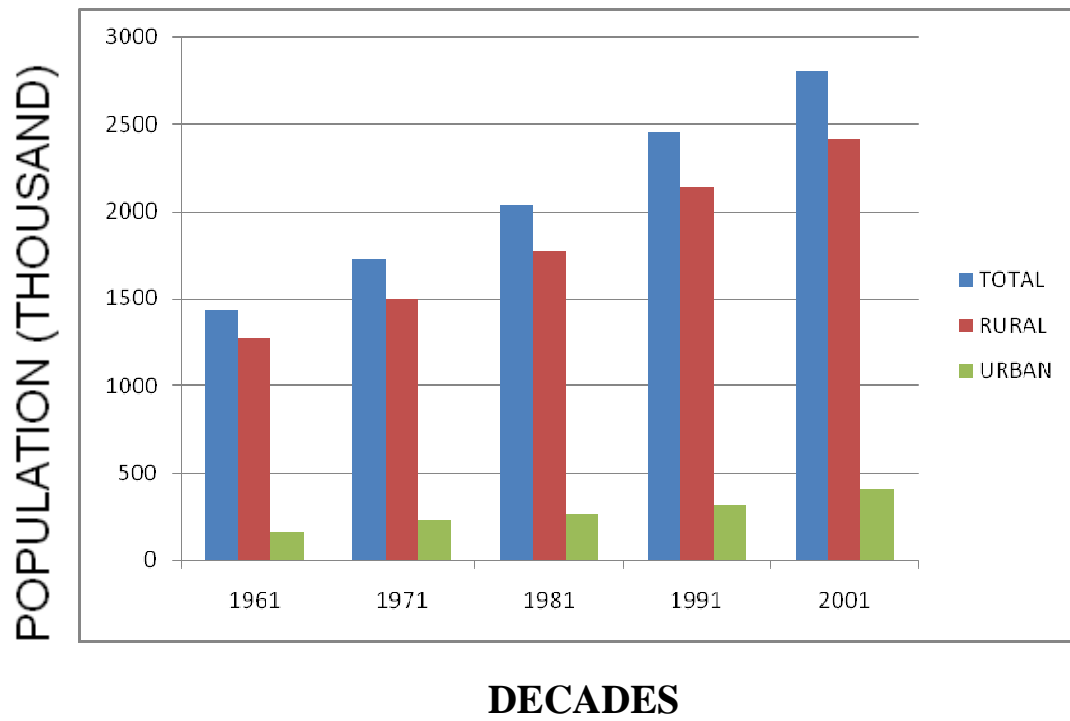
However a large part of this growth is not a result of natural growth rate of population in urban areas, but of rural to urban migration. Satara has a high rate of rural – urban migration and it is leading to phenomenal growth in the size of large cities. As a result, the small towns are growing into cities. The rapid expansion of urban population in the district is a cause of concern.

Most of the large cities in the district are facing problems of over crowding and excessive pressure of population on the urban infrastructures

**Table IV-V**  
**SATARA DISTRICT**  
**Rural – Urban Population**  
**(1961 to 2001)**

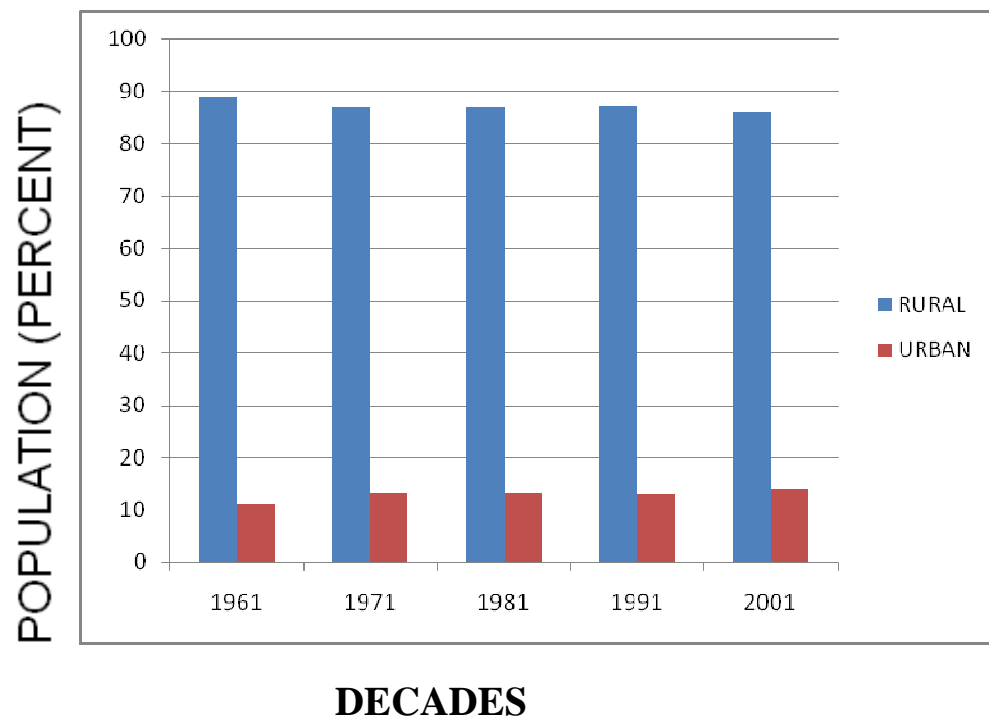
YEAR	URBAN (THOUSAND)	URBAN (PERCENT)	RURAL (THOUSAND)	RURAL (PERCENT)	TOTAL
1961	158	11.05	1272	88.95	1430
1971	227	13.14	1500	86.86	1727
1981	266	13.05	1773	86.95	2029
1991	316	12.89	2136	87.11	2452
2001	398	14.17	2411	85.83	2809

**SATARA DISTRICT**  
**RURAL URBAN POPULATION**  
**(1961-2001)**



**Figure No 4.7**

**SATARA DISTRICT**  
**RURAL URBAN POPULATION**  
**(1961-2001)**



**Figure No 4.8**

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## **CHAPTER V**

# **Conclusions and Suggestions**

## **CHAPTER V**

### **Conclusion & Suggestion**

The spatial distribution of population in the district is highly uneven. Karad is the most populous taluka. Satara is the second largest taluka & Phalatan the third ranking taluka of the district.

Patan had a higher population percent than Phaltan in 1991. Phaltan overtook Patan in 2001 mainly due to an increase in the percent of population of Phaltan.

As per the census of district-2001 the density of population in Satara ranges between less than 140 persons per square km to more than 560 persons per square km. Among the taluka's the highest density of population is in karad followed by Satara, Wai and Koregaon. Least density is in Man taluka. The average density of population for the district as a whole was 268 persons per sq. km.

Density difference during 1991-2001 is that of Patan, Khatav, Mahacbleshwar & Khandala taluka. The ranks of the top ranking regions like Karad, Satara, Wai, Koregaon, however remained the same during this period.

The total population of the district in 1901 was 849 thousand which grew to 2,808 was only during 1901-2001 that population recorded a marginal decrease, and ever since it has been continuously rising.

The growth rate in 1901-11 was -1.69 per cent. . The year 1921 is considered a great divide in the growth rate of population of Satara district. In the decade 1991-2001 the growth rate showed a marginal decline from 20.24% of 14.59%.

Projected population of Satara district will be 3166616 & 3524238 person in the year 2011 & 2021 respectively.

In 2001 occupancy ratio is highest in Mahabaleshwar (5.67), followed by Phaltan, Man. The lowest ratio is found in Patan taluka. The average occupancy for the district as a whole was 4.98.

In 2001 Jaoli relatively lower occupancy ratios in 1991 it surpassed in 2001. Jaoli, Koregaon, Khandala, Satara, show the changes in ranks between 1991 to 2001. The rank of the top ranking taluka's like Mahabaleshwar, Phaltan, Man and Karad, however remained the same during this period.

The dependency Ratio i.e. the burden of inactive population on working population age group is 72.97%. This dependency ratio is high in the Satara district.

The rate of literacy in the district is increasing and as per the census 2001, this rate was 78.52 per cent. Although the overall literacy has increased significantly since 1961-2001 the most spectacular increase has been registered in the case of literacy among females. While it was only 21.6 percent in 1961, by 2001 it had risen to 68.71 per cent. The proportion of the literates has increased much more rapidly after 1971.

According to the census of district 2001, the literacy among males was higher (88.45%) than among females (68.71%) A closer look at the statistics also reveals that the rate of growth of literacy among females has been faster than among males. While literacy among males increased by 2 percentage points during 1991-2001 among females it increased by about 15 percentage points. It shows an increasing emphasis on the education of girl children and also on the fact that more women have become literates than men as a result of the drive to increase literacy among the adults.

There are wide spatial variation in the rate of literacy in the district. While Satara taluka with a literacy rate of 74.11 percent enjoys the top position among the taluka's. Man with a literacy rate of 58.93 percent is placed at the bottom.

Literacy between males and females also differs among various taluka's. The highest literacy among males is in Mahabaleshwar (58.98%) followed by Man, Phaltan. In all these taluka's the rate of literacy among males is higher than 57 percent. The lowest rate of literacy among males has been observed in Wai.

The highest rates of female literacy have been observed in wai & lowest in Mahabaleshwar.

In Satara except the decade 1991-2001 there were positive sex ratio since beginning of the twentieth century. Highest sex ratio in the decade 1971-81. i.e. 1061 females per 1,000 males. The sharpest decline in the sex ratio took place during the decade of 1991-2001, when it fell by 34 per thousands. sex ratio according to the 2001 census of satara district was 995.

The spatial pattern of sex ratio in 2001 there were five taluka's that had a positive sex ratio, i.e. the number of females in these areas exceeded that of males. The highest sex ratio in the district as per the census 2001 is in Jaoli (1100), the lowest sex ratio were observed in Mahabaleshwar (873).

The urban population of the district in 1961 was 158 thousand (11.05 percent) which grew to 398 thousand (14.17 percent) was only during 1961 to 2001.

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