

# Maharashtra: Population Growth, Distribution and Density (Spatio-Temporal Analysis)

Dr. Pralhad Y. Vyalij

HOD, Department of Geography, L. V. H. College, Panchavati, Nashik, MH, India

Email: pvyalij2010@gmail.com

**Abstract:** Maharashtra is the third largest state in India having a geographical area of 307,713 square km. In this paper an attempt has been made to highlight the population growth, distribution and density. Growing population is one of the main factors for changing land use pattern and is the main threat to the land. The dynamics of land use and land cover changes differ in different part of the world. The use of land changes according to the changing needs of man.

Population distribution is a dynamic process, which is ever changing. Its cause and effect vary in the spatio-temporal frame. The economic characteristics of an area directly influence the population pattern through the resource and economic interchange. Study of relationship between man and environment helps to analyze the distribution of population. With intensive utilization of the natural resources, a region tends to increase in population. Natural resource and its relationship with man determine the degree of population density. It is apparent that the study region occupying 9.36 percent area of Maharashtra state in India.

**Key Words:** Population, Growth, Distribution, Density, Spatio- Temporal.

## 1. INTRODUCTION:

Population plays an important role in the economic development of a country. Population must be considered both from the angle of assets and liabilities connected with the attainment of economic development. For the attainment of overall development, proper utilization of both natural as well as human (population) resource is very much essential. Hence the study of the size and quality of population is important. The present research paper highlights Spatio temporal analysis of population growth, Population distribution and Population density.

### 1.1 STUDY AREA:

Maharashtra occupies the western and central part of the country and has a long coastline stretching 720 kilometres along the Arabian Sea. One of the more prominent physical features of Maharashtra is the Deccan plateau, which is separated from the Konkan coastline by 'Ghats'. The Ghats are a succession of steep hills, periodically bisected by narrow roads. The Western Ghats (or the Sahyadri Mountain range) provide a physical backbone to the state on the west, while the Satpura Hills along the north and Bhamragad-Chiroli-Gaikhuri ranges on the east serve as its natural borders. The state is surrounded by Gujarat to the North West, Madhya Pradesh to the north, Chhattisgarh to the east, Telangana to the south east, Karnataka to the south and Goa to the south west.

Maharashtra is the third largest state by area in India. Maharashtra has 36 districts, 355 talukas, and 6 administrative divisions. The Western Ghats better known as Sahyadri, are a hilly range running parallel to the coast, at an average elevation of 1,200 metres. Kalsubai, a peak in the Sahyadri, near Nashik city is the highest elevated point in Maharashtra. To the west of these hills lie the Konkan coastal plains, 30–80 kilometres in width. To the east of the Ghats lies the flat Deccan Plateau. Forests comprise 17% of the total area of the state. A majority of the forests are in the eastern and Sahyadri regions of the state. The main rivers of the state are Krishna, Bhima, Godavari, Tapi-Purna and Wardha-Wainganga. Since the central parts of the state receives low rainfall, most of the rivers in the region have multiple dams. Maharashtra has around 1821 notable large dams.

Maharashtra is divided into five geographic regions. Konkan is the western coastal region, between the Western Ghats and the sea. Kandesh is the north-western region lying in the valley of the Tapti River. Desh is in the centre of the state. Marathwada, is located in the south eastern part of the state. Vidarbha is the easternmost region of the state. Sahyadri range, is known for its crowning plateaus. Lying between the Arabian Sea and the Sahyadri Range, Konkan is narrow coastal lowland, just with an elevation below 200 meters. The third important region is the Satpura hills along the northern border, and the Bhamragad-Chiroli-Gaikhuri ranges on the eastern border, which form physical barriers preventing easy movement. These ranges also serve as natural limits to the state.

Maharashtra has a tropical climate, with three distinct seasons: Summer, Monsoon, and winter. However, dew and hail also occur sometimes, depending upon the seasonal weather. The winter between October to February is followed by summer between March and May and the monsoon season between June and September. Summers

(March, April and May) are extremely hot, the temperature rises from 22 °C to as high as 43 °C during the summer. The rainfall starts normally in the first week of June. July is the wettest month in Maharashtra, while August also gets substantial rain. The rainy season starts its retreat with the coming of September to the state. Rainfall in Maharashtra differs from region to region. Thane, Raigad, Ratnagiri and Sindhudurg districts, receive heavy rains of an average of 200 centimetres annually. But the districts of Nashik, Pune, Ahmednagar, Dhule, Jalgaon, Satara, Sangli, Solapur and parts of Kolhapur less than 50 centimetres. Rainfall is particularly high in areas adjacent to the Sahyadri Mountains such as coastal Konkan on the west and foothills of the mountain range on the eastern side. Central Maharashtra receives less rainfall. However, under the influence of the Bay of Bengal, eastern Vidarbha receives good rainfall in July, August and September. In winter, a cool dry spell occurs, with clear skies, gentle air breeze, and pleasant weather prevails from October to February. But the eastern part of Maharashtra sometimes receives some rainfall. Temperature rise from 12 °C to 34 °C during this season.

## 2. OBJECTIVES:

The main objectives of the study are to highlight the population growth, population distribution and density of population.

### 2.1 DATA BASE AND METHODOLOGY:

The entire data used for the present study have been obtained from secondary sources published by the Directorate of Economics and Statistics, Government of Maharashtra. The secondary data includes all published materials. Besides this, published records and abstracts such as socio-economic reviews, Census Handbook. Using simple statistical technique for finding the population density. Cartographic method throws light on the relative population occupy and density.

#### A] GROWTH OF POPULATION:

According to 1901 census the total population of Maharashtra was 19391643. Since then Maharashtra's population has been rising at varying rates except during the decade 1921, when it fall down by 3.0 percent. The present feature of population is the result of changes which have been taken place from the ancient periods. The change have been taken place during the last 110 years are given in the table.

**Table 1: Population of Maharashtra with Decadal Variation**

Decades	Total Population	Decade	% Variation of Decadal Population
1901	19,391,643	--	-
1911	20,849,666	1901-1911	+7.52
1921	21,474,523	1911-1921	+3.00
1931	23,959,300	1921-1931	+11.57
1941	26,832,758	1931-1941	+11.99
1951	32,002,564	1941-1951	+19.27
1961	39,553,718	1951-1961	+23.59
1971	50,412,235	1961-1971	+27.45
1981	62,782,818	1971-1981	+24.54
1991	78,937,187	1981-1991	+25.73
2001	96,878,627	1991-2001	+22.73
2011	112,374,333	2001-2011	+15.99

(Source: Census Handbook of Maharashtra )

The growth rate of Maharashtra population was 7.52 percent during the decade 1901-11, 11.57 percent during 1921-31, 27.45 percent during 1961-71, in 1971-81 the growth rate of population lightly decline 2.91 percent, 3.0 percent decline during 1991-2001 while it highly decline 6.74 during 2001-2011.

#### **Three phases may be observed from study of the table:**

1] **The first phase** 1901to 1941 is a period of extremely **slow growth**, and on the other hand population also decline slightly between1911-21. The year 1921 is considered to mark the 'Demographic Divide' between periods of fluctuating growth and continuous growth.

2] **The second phase** of growth is from 1941 to 1971. During this period population increased slowly, because the birth rate and death rate more or less is equal.

3] **The Third phase** of growth is from 1971 to 2011, during this period population annual rate has decline slightly.

The Maharashtra's population was 3.2 crores in 1951 and 11.24 Crores in 2011. The population has increased nearby six times for the last 110 years. At present Maharashtra is the second largest populated State of India.

Maharashtra is the home of 9.28 percent of the total countries population. The state however accounts for 9.36 percent of the total India's geographical area.

#### B] DISTRIBUTION OF POPULATION:

The distribution of population is highly uneven as environmental conditions vary from place to place. People are concentrating in favorable regions like river valleys, coastal plains. Forests, hilly region and semi-arid boundary lines areas have spare population. Maharashtra has 36 districts, divided into six revenue divisions for administrative purposes including Pune, Konkan, Aurangabad, Nashik, Amravati and Nagpur. Thane district is having the highest population with 12 million, followed by Mumbai Suburban and Pune with 10 million each. Below is the Maharashtra district wise population as per Census 2011 and 2020 projection. By 2011 55% is the rural population living in towns, villages and 45% is the urban population living in cities, currently there are 355 tehsils and 534 towns in this state. Total 40,959 are Inhabited Villages and 2706 are Un-Inhabited villages of the total population.

**Table 2: Distribution of Population**

Sr. No.	District	1991	2001	2011	Population (2020 est.)
1	Thane	5249126	8131849	11060148	12,608,569
2	Pune	5332532	7232555	9429408	10,749,525
3	Mumbai Suburban	NA	8640419	9356962	10,666,937
4	Nashik	3851352	4993796	6107187	6,962,193
5	Nagapur	3287139	4067637	4653570	5,305,070
6	Ahmadnagar	3372935	4040642	4543159	5,179,201
7	Solapur	3231057	3849543	4317756	4,922,242
8	Jalgaon	3187634	3682690	4229917	4,822,105
9	Kolhapur	2989560	3523162	3876001	4,418,641
10	Aurangabad	2213779	2897013	3701282	4,219,461
11	Nanded	2330374	2876259	3361292	3,831,873
12	Mumbai	9925891	3338031	3085411	3,517,369
13	Satara	2451372	2808994	3003741	3,424,265
14	Amaravati	2200057	2607160	2888445	3,292,827
15	Sangali	2209488	2583524	2822143	3,217,243
16	Yevatmal	2077144	2458271	2772348	3,160,477
17	Raigarh	1824816	2207929	2634200	3,002,988
18	Buldana	1886299	2232480	2586258	2,948,334
19	Bid	1822072	2161250	2585049	2,946,956
20	Latur	1676641	2080285	2454196	2,797,783
21	Chandrapur	1771994	2071101	2204307	2,512,910
22	Dhule	2535715	1707947	2050862	2,337,983
23	Jalana	1364425	1612980	1959046	2,233,312
24	Parbhani	2117035	1527715	1836086	2,093,138
25	Akola	2214271	1630239	1813906	2,067,853
26	Osmanabad	1276327	1486586	1657576	1,889,637
27	Nandurbar	NA	1311709	1648295	1,879,056
28	Ratnagiri	1544057	1696777	1615069	1,841,179
29	Gondiya	NA	1200707	1322507	1,507,658
30	Wardha	1067357	1236736	1300774	1,482,882
31	Bhandara	2107629	1136146	1200334	1,368,381
32	Washim	NA	1020216	1197160	1,364,762
33	Hingoli	NA	987160	1177345	1,342,173
34	Gadchiroli	787010	970294	1072942	1,223,154
35	Sindhudurg	832152	868825	849651	968,602

(Source: Census Handbook of Maharashtra)

The distribution of population by district wise, Thane District is the largest one of the district whose population is 11060148 or 9.84 percent of total population of the state. Pune district with 9429408 is the second largest in terms of population.

Mumbai Suburban, Nashik, Nagpur and Ahamednagar are other populous districts of Maharashtra. Six districts namely Thane, Pune, Mumbai Suburban, Nashik, Nagpur and Ahamednagar together accounted for 40.17

percent of total population. Sindhudurg is the least populated district with 849651 populations, only 0.76 percent of total population of Maharashtra.

### CJ DENSITY OF POPULATION:

The density of population per square km indicated the pressure on the land and is affected by population growth.

In 2011, population density of Maharashtra was 365 people per square kilometer. Population density of Maharashtra increased from 128 people per square km in 1961 to 365 people per square km in 2011 growing at an average annual rate of 19.49 percent.

**Table 3: Density of Population**

Sr. No.	District	1991	2001	2011
1	Mumbai Suburban	NA	19373	20980
2	Mumbai	63222	21261	19652
3	Thane	549	851	1157
4	Pune	354	462	603
5	Kolhapur	389	458	504
6	Nagapur	332	411	470
7	Nashik	248	322	393
8	Raigarh	255	309	368
9	Aurangabad	218	286	365
10	Jalgaon	271	313	360
11	Latur	234	291	343
12	Sangali	258	301	329
13	Akola	390	287	320
14	Nanded	221	273	319
15	Parbhani	341	246	295
16	Bhandara	516	278	294
17	Solapur	217	258	290
18	Satara	234	268	287
19	Dhule	352	237	285
20	Nandurbar	NA	220	277
21	Buldana	195	231	268
22	Ahmadnagar	198	237	266
23	Jalana	177	210	255
24	Gondiya	NA	229	253
25	Washim	NA	208	244
26	Hingoli	NA	205	244
27	Bid	170	202	242
28	Amaravati	180	214	237
29	Osmanabad	169	196	219
30	Wardha	169	196	206
31	Yevatmal	153	181	204
32	Ratnagiri	188	207	197
33	Chandrapur	155	181	193
34	Sindhudurg	160	167	163
35	Gadchiroli	55	67	74

(Source: Census Handbook of Maharashtra)

### Density Pattern

**1] Areas of Very High Density:** Area having more than 1000 persons per square km is termed as areas of very high population density. Mumbai Suburban (20980), Mumbai (19652), Thane (1157), Pune (603) and Kolhapur (504) are districts of very high density of population.

Mumbai Suburban, Mumbai and Thane has experienced one of the fastest population growths as a result of which its population density has increased considerably. This growth is primarily due to large scale migration of people from the surrounding areas and states of India. Pune and Kolhapur is located in the western Maharashtra which is one of the most fertile areas of the State. In addition, industrial cluster is located in the Pune city.

**2] Areas of High Density:** Area having population density of 501 to 1000 persons per square km is termed as areas of high population density. There is no any district of High Density.

**3] Areas of Moderate Density:** Area having population density of 251 to 500 persons per square km is termed as areas of moderate population density. The average for whole of Maharashtra (365 persons per square km) also falls in this class. Nagapur, Nashik, Raigarh, Aurangabad, Jalgaon, Latur, Sangali, Akola, Nanded, Parbhani, Bhandara, Solapur, Satara, Dhule, Nandurbar, Buldana, Ahmadnagar, Jalana and Gondiya are included in this class.

These areas are wide apart from one another and there are different reasons for moderate density of population in different districts e.g. Nashik, Ahmadnager, Sangali, Satara, Jalgaon, Solapur, Dhule has black cotton soil estates whereas Nagpur, Akola, Nanded, Parbhani, Bhandara, Buldhana, Jalana, Gondiya have agricultural and mineral resources. Raigarh is highly urbanized and industrial district.

**4] Areas of Low Density:** Area having population density of 101 to 250 persons per square km is termed as areas of low population density. The districts are Washim, Hingoli, Bid, Amaravati, Osmanabad, Wardha, Yavatmal, Ratnagiri, Chandrapur and Sindhudurg.

Ratnagiri, Sindhudurg and Chandrapur districts are hilly and forested areas of Maharashtra. Washim, Hingoli, Bid, Amaravati, Osmanabad, Wardha, Yavatmal districts is a part of the Deccan Plateau and is having rugged topography of hard rocks.

**5] Areas of Extremely Low Density:** Area having 100 persons per square km and less than that are included in this class. They include only Gadchiroli District. Gadchiroli are located in a remote and inaccessible part of Maharashtra.

### 3. CONCLUSION:

According to 1901 census the total population of Maharashtra was 19391643. Since then Maharashtra's population has been rising at varying rates except during the decade 1921, when it fell down by 3.0 percent. Maharashtra's population was 3.2 crores in 1951 and 11.24 Crores in 2011. The population has increased nearly six times for the last 110 years. At present Maharashtra is the second largest populated State of India. Maharashtra is the home of 9.28 percent of the total country's population. The state however accounts for 9.36 percent of the total India's geographical area. Six districts namely Thane, Pune, Mumbai Suburban, Nashik, Nagpur and Ahmadnagar together accounted for 40.17 percent of total population. Sindhudurg is the least populated district with 849651 populations, only 0.76 percent of total population of Maharashtra. In 2011, population density of Maharashtra was 365 people per square kilometer. Population density of Maharashtra increased from 128 people per square km in 1961 to 365 people per square km in 2011 growing at an average annual rate of 19.49 percent.

### REFERENCES:

1. Agarwala, S. N., 'Population' National Book Trust, India, New Delhi, 1977.
2. Bhat, L. S., 'Population Studies need for regional Approach', Bombay Geographical Magazine, Vol. 34, No. 1.
3. Bose. A. Ed., 'Patterns of Population Change in India, 1951-61', Allied Publishers, 1967
4. Bose. A. and Others, Ed., 'Population Statistics in India', Vikas Publishing House Pvt. Ltd., 1977.
5. Census Books of Government of India
6. Demko, G. J. and Others, 'Population Geography : A Reader', McGraw-Hill Book Company, 1970.
7. Lal, K. M. (1988) Population-Settlements Development and Planning.-A case study of the Son-Karnamasa north of Ghazipur and Ballia district ( U P ), Chugh Publication Allahabad- India.
8. Pralhad Y. Vyalij, Sept. 2009, "Population Growth and Changing Landuse Profile in Baglan Tahsil, Nashik District (Maharashtra)". International Research Journal, 'Research Analysis and Evaluation' Vol.1, Issue1, p. no.99-105, Jaipur, Rajasthan, India.
9. Pralhad Y. Vyalij, March 2010, "A Study of Population Distribution and Various densities in Malegaon tahsil Compared to Nashik district." National Research Journal, 'Research Link-72' Vol. – IX(1), P.No. 87-89, Indore, MP.
10. Venkatarayappa K.H. (1957): Bangalore – "A social economic study".