

Spatio-Temporal Variations and level of Urbanization in Maharashtra State, India. A Geographical Study

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Abstract:

Maharashtra State ranks third in terms of urbanization followed by Tamil Nadu and Kerala in terms of urbanization. It can be seen that the growth in the urban population of Maharashtra state has increased by 23.7% in the last decade. Also, from the census year 1901, we can see that the urban population of Maharashtra state is increasing steadily and rapidly. Although geographical, social, economic and technological factors are responsible for urbanization, the most important factor is considered to be human resources. The development of the entire geographical area depends on this human resource, be it any form of development. Also, if the natural resources available there are properly combined, all forms of development can take place in that place and there is scope for urbanization. Although urbanization is considered as a factor of economic development in countries like India, its effects are both positive and negative. However, secondary data has been used to study urbanization in the state of Maharashtra. The data is taken from Indian census 1901 to 2011, numerically processed and mapped.

Key word: Urbanization, Post Liberalization Era, Change, Maharashtra, Human Resources.

INTRODUCTION:

Social and economic development of any geographical area takes place. Along with this development, the factor of urbanization is also developing. Migration is the most important factor influencing the development of urbanization. People are migrating from rural areas or small towns to big cities. This migration is mainly organized for economic development, also people migrate to change the way of life of the people and the most important factor is to get employment. Urbanization or urban life is the physical growth of urban areas as a result of global change. Urbanization is closely linked to the sociological processes of modernization, industrialization and rationalization. Urbanization can describe a particular state, in which the total population or area is the proportion of time. Hence the term urbanization can verbally refer to the relative urban level. It can represent the rate at which population or urban population is growing. Individual and cooperative efforts to reduce time and costs in society naturally lead to urbanization and improve employment opportunities, education, housing, and transportation. The level of urbanization rose from 27.81% in 2001 to 31.16% in 2011. The number of urban units in India has increased by 2774 during the last decade [2] . “Ujjwala Khare (2020), The growth in urban population rose by 23 per cent during the last decade. The urban population in Maharashtra State has increased fourfold since the year 1961 from 1.2 million to 40 million .With an urban population of 45.23 per cent, Maharashtra is the third most urbanized among major Indian states - behind Tamil Nadu (48.45%) and Kerala (47.72%). Maharashtra has the higher number of people living in the urban areas. In terms of percentages, 45.23 percent population is urban as against 31.16 per cent at the national level. The growth of urban population for Maharashtra from 2001- 2011 show the urban population has grown by 23.63% in assessment with the rural population 10.34%. In terms of percentages 62.8 percent of population added during 2001-11 is in urban area only whereas this figure at the national level is 50.1 per cent.” Urbanization is taking place rapidly in many districts of Maharashtra state, the most important reason is the industrialization, development of transport in these areas, large number of people are migrating or attracted here. Gets although there are some positive and some negative effects due to this urban cause, the positive effects are less and the negative effects are more visible. For this study, how the processes of urbanization in the state of Maharashtra are, how is its geographical distribution, and how is it growing. Qualitative maps have been prepared with the help of GI for this to be studied. At the same time, which district of Maharashtra state has the

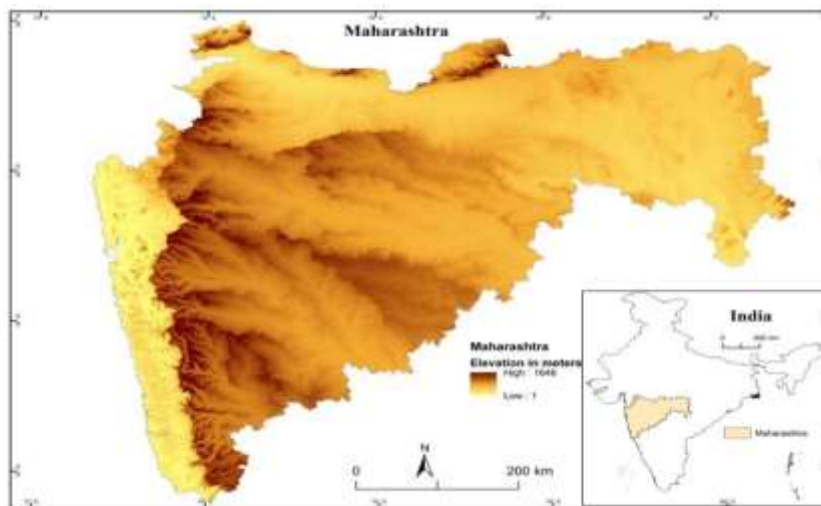
most urbanization and what are the reasons behind it are going to be studied. With this objective, the study of urbanization in Maharashtra state is the main objective and the said research has been done.

The study of urbanization in the state of Maharashtra will be useful for urbanization planning and resource allocation. At the same time, it would benefit from numerical processing of the application of GIS techniques for distributional mapping and studies of urbanization.

STUDY AREA:

Maharashtra State was formed on 1st May 1960. It extends from 15° 45' to 20° 6' north range and 70° 36' to 80° 54' east longitude (Map no 1). The entire geographical place is 3, 07,713 sq. Km. Maharashtra ranks third with recognize to region. The western Ghat is the bodily backbone of the Maharashtra kingdom. Deccan Plateau is geographical identity of state. Maharashtra occupies the western and central part of the country and has a long shoreline stretching nearly 720 Km along the Arabian Sea. The relative location of Maharashtra state is Chhattisgarh in the East, Andhra Pradesh in the Southwest, Karnataka in the South and Goa in the Southwest, Madhya Pradesh in the North. Maharashtra state has 36 districts and 355 Tehsils and 63663 villages under 6 subdivisions. According to 2011 census state has 35 districts and newly adds Palghar (total Districts are 36). According to 2011 census the sex ratio is 925 and population density is 365 per sq.km. Human Development Index (HDI) of Maharashtra state is 0.695 which ranks 15th rank in country according to 2017, current population is 124,862,220.

Map no 1: Location Map Maharashtra State



AMIS AND OBJECTIVE:

Its main aim is to study the changing graph of urbanization in Maharashtra state and the growth rate of urbanization in Maharashtra state 1991-2011 census Periods. The following objectives have been taken for this research paper.

1. To study the trend of urbanization in the state of Maharashtra.
2. To conduct a comparative study in interior districts of Maharashtra State.
3. To conduct a comparative study of urbanization in the state of Maharashtra and also to study the factors affecting urbanization

RESEARCH METHODOLOGY:

The population's studies are mainly focus on the urban population/ Urbanization characteristics and its distribution. A variety of methods and models has been used to project the urban population/ Urbanization changes, its distribution and causes. The present study reveals the spatial and temporal changes in the Urbanization structure of the study area. Various methods and materials are used in determining the transformation of Urbanization of the study region. The research methods can be then summarized as follows.

1. **Literature survey:** A vast amount of literature is present that explains urban population/ Urbanization and its distribution. The first phase of this study is to find the available literature and understand the materials, methods and models that has been extensively used in the published literature.

2. **Data Collection:** The second phase of this research is the collection and compilation of database essential for this study. The Urban population/ Urbanization data of the study area is gathered from Census of India online platform for the years 1991 and 2011. Secondly the spatial data that includes the shape file of the study area is gathered from online GIS platform. The other database includes various websites, news, journal articles that are extensively surveyed and incorporated in the present study.

3. **Analysis of Data and Statistical Methods:** The gathered population data for each district which is a part of the study area is compiled using MS-excel and SPSS. The data for

various urban population/ Urbanization are then extracted from the huge database and analyzed using different statistical techniques.

Table no 01: **Statistical Techniques**

No	Indices/ Methods	Formula	Where
1	Population Decadal Growth Rate (DGR)	$\frac{(P_2 - P_1)}{P_1} \times K$	P₂ = Population of current decade or Year. P₁ = Population of current Previous decade or Year s K= 100
2	Level of Urbanization	$\frac{U_p}{T_p} \times K$	U_p = <i>Urban Population</i> T_p = <i>Total Population</i> K= 100

4. Level of Urbanization:

Five groups have been formed to study urbanization level. Very low, low, moderate, high, and very high urbanization level groups have been created in this, and these groups have been drawn according to percentages.

Table no 02: **Urbanization level in %**

Sr. No	Level in %	Level
1.	Below 20	Very low
2.	20.1-36.1	Low
3.	36.2-60	Moderated
4.	60.1 -80.0	High
5.	80.1 -100.0	Very High

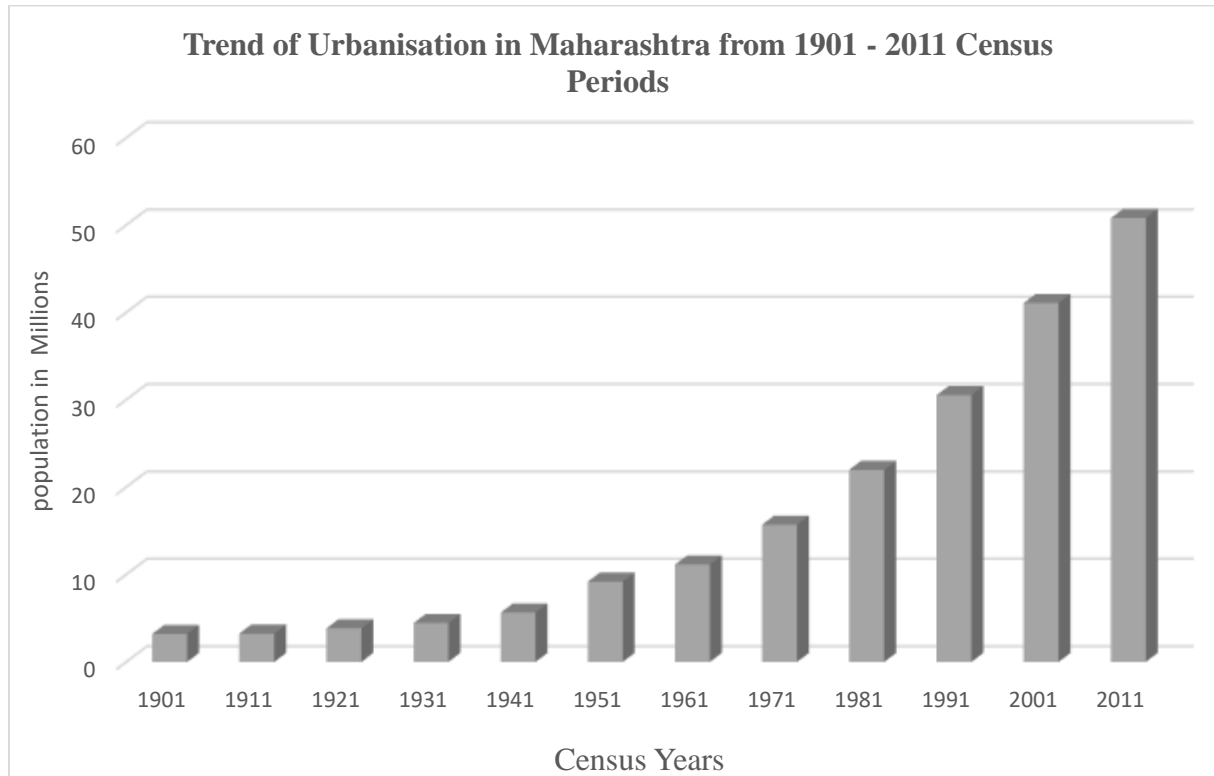
5. GIS Technique:

Maps have been prepared by GIS method to show geographical distribution of level of urbanization in Maharashtra state and to convert numerical data into qualitative Cartography or Maps, ILWIS software 3.3 has been used.

RESULT AND DISCUSSION:

Maharashtra (45.23%) is the third most urbanized state in India followed by Tamil Nadu (48.456%) and Kerala (47.72%). The total geographical area of Maharashtra state is 3,07,7 square kilometers and it has 35 districts. And the total population is 112.37 million. The state of Maharashtra is witnessing an increase in urbanization as industrialization is the highest and the state maintains a leading position in the industrial sector. One hundred percent of the population lives in the urbanized areas of Mumbai and its suburbs in Maharashtra. While in the districts of Gadchiroli and Sindhudurg, we can see that less than fifteen percent of the population has been registered. Whereas Maharashtra consists of six cities namely Greater Mumbai, Pune, Nagpur, Nashik and Aurangabad with a population of one million and above. From many corners of India, we see people migrating to cities like Mumbai in Maharashtra for livelihood and employment. Graph number 01 shows the flow of urbanization in the state of Maharashtra. Also, consumer number 02 shows the decadal growth rate of population urbanization in the state of Maharashtra. From this it can be seen that urbanization is increasing day by day in the state of Maharashtra. This means that we get to see the growth rate in terms of urbanization in the state of Maharashtra is higher than other states. The most important reason for this is considered to be the most important reason for the industrialization, road traffic in the states of Maharashtra. A large number of people migrate from rural to urban areas in the state of Maharashtra from various states. The important reason for this is that people migrate to urban areas for employment, livelihood, and to improve the standard of living. From graph number two it is clear that the year 1951 saw the highest increase in urbanization. After this, 1971, 1981, and 1991 showed a deficit in population growth, but a parallel growth rate can be seen this year. The lowest urbanization growth rate can be seen in the year 1911. But you can see negative urbanization growth rate in 1931, 1961, 2001 and 2011. This means how much population has been urbanized in the current year compared to the previous year. From the above figures, it can be seen that the growth rate and flow of urbanization is increasing in the state of Maharashtra. The most important reason behind this is that due to the right political direction and policies, the industrialization and development of transport in the state of Maharashtra is getting a boost in this respect. Due to this, people migrate from different states of India to Maharashtra state for employment, industry and other business. Due to this, the population living in various cities of Maharashtra state is increasing and urbanization is taking place.

Graph 1: Trend of Urbanization in Maharashtra from 1901 -2011 Census Periods



Graph no 2: Decadal Growth Rate of Urban Population in Maharashtra from 1901 -2011 Census Periods

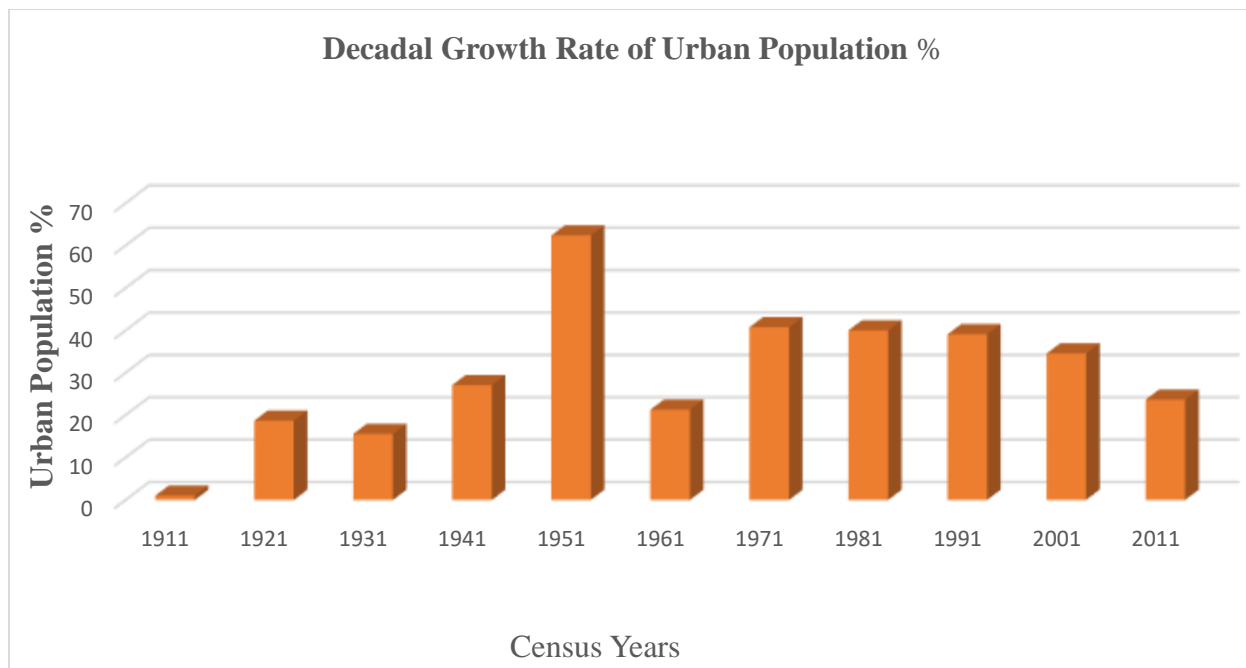


Table no 03: District wise Urbanisation in Maharashtra from 1991 -2011 Census Periods

District	1991	2001	2011
Ahmednagar	15.82	19.89	20.1
Akola	36.14	38.51	39.69
Amravati	32.6	34.5	35.19
Aurangabad	32.76	37.45	43.74
Bhandara	14.29	15.47	19.5
Beed	17.94	17.91	19.9
Buldhana	20.59	21.2	21.21
Chandrapur	28.04	32.11	35.08
Dhule	24.18	26.11	27.91
Gadchiroli	8.71	6.93	11
Gondha	11.97	11.95	17.07
Hingoli	13.66	15.6	15.17
Jalgaon	27.44	28.59	31.8
Jalna	16.91	19.15	19.26
Kolhapur	26.33	29.81	31.75
Latur	20.39	23.57	25.47
Mumbai City	100	100	100
Mumbai Suburban	100	100	100
Nagpur	61.78	64.26	68.3
Nanded	21.72	23.96	27.23
Nandurbar	15.4	15.45	16.73
Nashik	35.55	38.8	42.53
Osmanabad	15.19	15.69	16.96
Parbhani	28.15	31.76	31.04
Pune	50.74	58.08	60.89
Raigarh	18.01	24.22	36.51
Ratnagiri	8.95	11.33	16.35

Sangli	22.64	24.51	25.51
Satara	12.88	14.17	18.98
Sindhudurga	7.59	9.47	12.6
Solapur	28.77	31.93	32.4
Thane	64.64	72.58	76.92
Vardha	26.56	26.28	32.47
Washim	16.59	17.48	17.69
Yavatmal	17.18	18.6	21.59

Sources: Indian Census 1991 to 2011 Periods

Table number three shows the statistics of district wise urbanization from 1991 to 2011 Census Periods, the said statistics are shown in percentage. It is from this table that the maps are prepared by converting the numerical factors into qualitative characteristics. At the same time, the level of urbanization in the state of Maharashtra has been studied in table number four. In this five groups of level of urbanization have been made, mainly Very low, low, moderate, high, very high (1991-2011) Number of districts according to Census Periods.

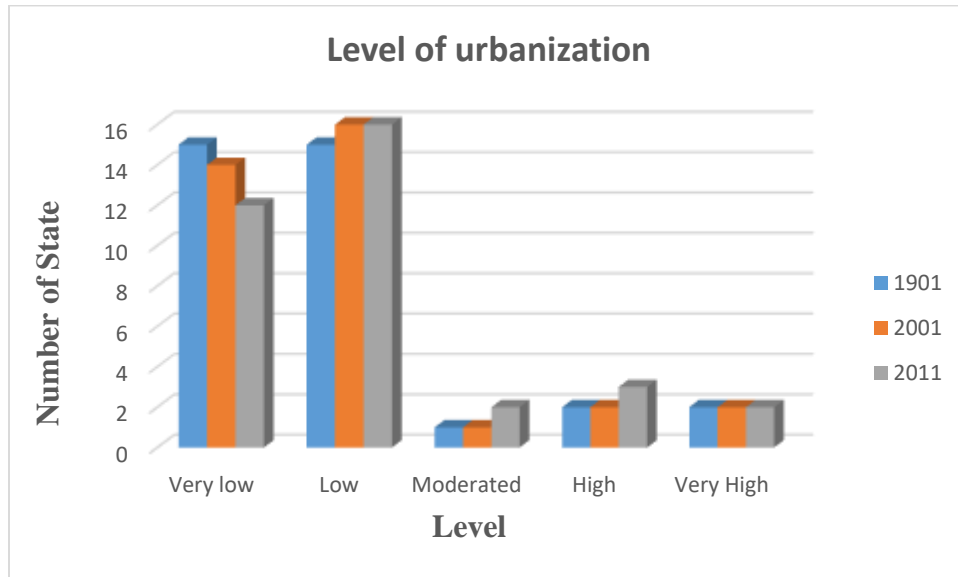
Table no 04: Level of urbanization

Sr. No	Level in %	Level	Number of State (Census Periods)		
			1901	2001	2011
1.	Below 20	Very low	15	14	12
2.	20.1-36.1	Low	15	16	16
3.	36.2-60	Moderated	01	01	02
4.	60.1 -80.0	High	02	02	03
5.	80.1 -100.0	Very High	02	02	02

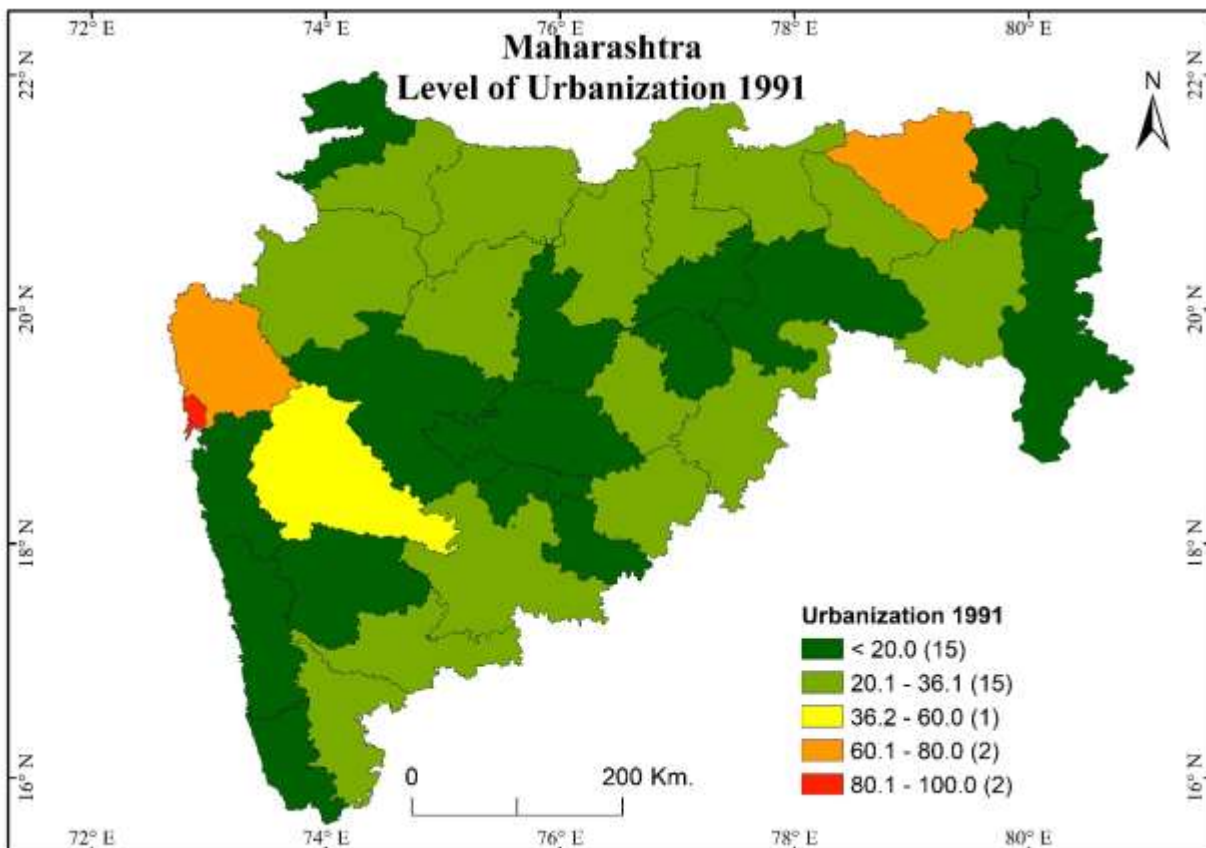
From this it can be seen that the most states are included in Very Low Urbanization and Low Urbanization 1901 Census year 15 states, 2001 Census year 14 states, 2011 Census year twelve states are included. So the low urbanization includes 15 states in 1901 Census, 16 states in 2001

Census, 16 states in 2011 Census. Whereas Very High means the most hundred percent urbanized state including two states/cities mainly. These areas have a very low level of urbanization because of very poor development of the agricultural and industrial sector, socio-cultural backwardness, and low levels of literacy rate. Considering the period 1991-2011, Ahmednagar, Bhandara, Beed, Buldhana, Washim, Satara, Osmanabad, Yavatmal Dhule, Gondia, Hingoli, Jalna, Latur, Nanded, Nandurbar, , and Sangli remained constant. These areas have a low level of urbanization due to peripheral location. And poorly developed infrastructural facilities are responsible for a low level of urbanization in these parts of the state. Considering the period 1991-2011, Akola, Amaravati, Aurangabad, Nashik remained constant. Hence these two districts remained in the category of areas with a very high degree of urbanization for the last three census period. The growth rate of population in urban areas of Maharashtra is seen to be high when compared to that of the rural population. Peoples are migration from the rural to the urban areas due to the availability of employment, education and business opportunities. Maharashtra is highly urbanized as 45.23% population lives in cities and it is high in literacy rate. Mumbai and Mumbai Suburban have 100% of urbanized districts in Maharashtra, while two other districts, Gadchiroli and Sindhudurga have less than 10% of their population living in the urban areas. Mumbai is known as the financial capital of Maharashtra as most of the various businesses in India are headquartered in Mumbai, as this Mumbai region has a large number of financial institutions, various banking facilities, insurance, as well as industrialization due to the creation of a large number of jobs and the financial income from various sources. Small and medium industrial establishment is seen in the state of Maharashtra, along with the agro-based processing industries are also concentrated in the said district. For example Nashik, Nagpur, Thane, Mumbai and Mumbai suburbs, Mumbai city has a large concentration of population. Due to the large concentration of factories in Thane, Mumbai and Mumbai suburbs and Pune, these areas witness a large degree of certification. Also, the infrastructure of roads, railways, air transport is seen to be largely developed in these districts. At the same time, literacy rate is also high in these districts, due to which people migrate from rural areas to urban areas in these districts. Also 100 percent urbanization in Mumbai and Mumbai suburbs.

Graph no 3: Level of urbanization with number of States (1901 -2011 census periods)

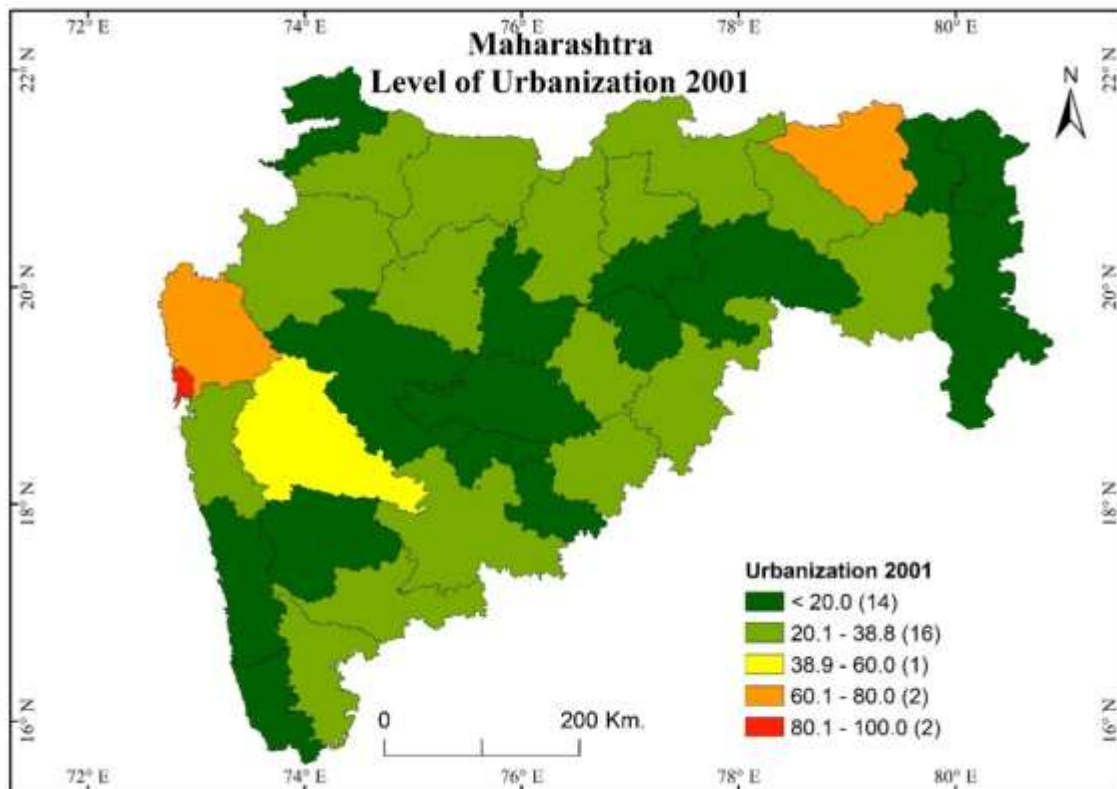


Map no 02: Level of Urbanization in Maharashtra 1991 census Year

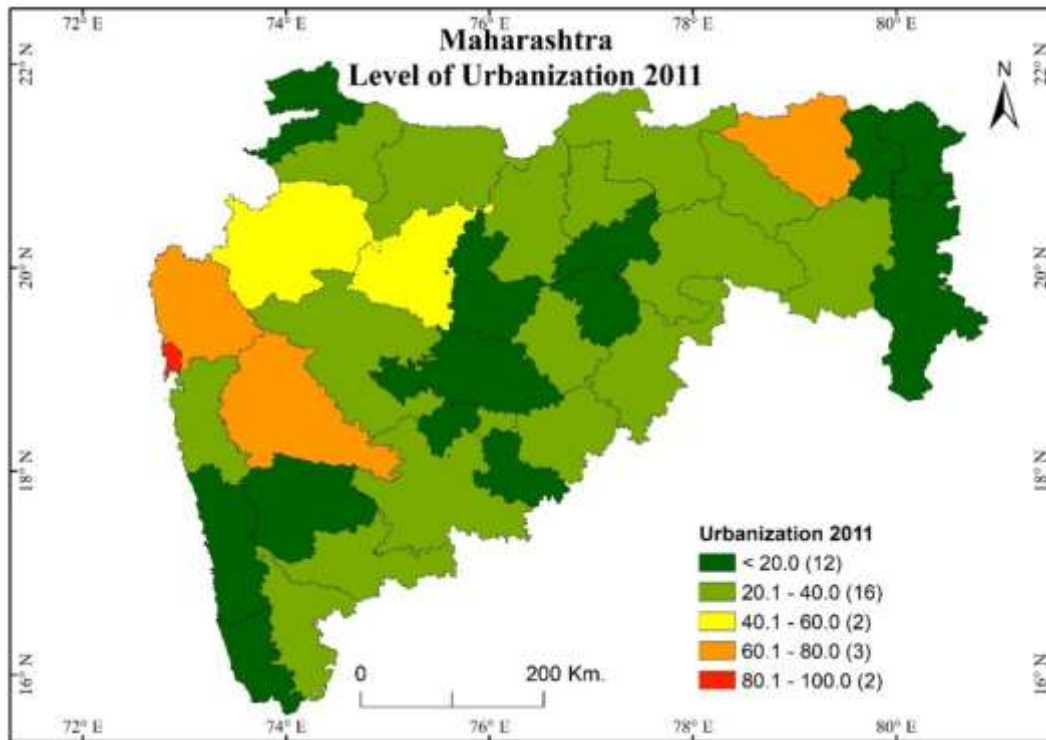


Maharashtra has seen fast urban growth. Maharashtra has the highest level of urbanization in India at 45.23 per cent compared to 29.5 per cent as the all India average in 2011. During the first decade of twentieth century, the decadal growth rate was 0.35 per cent in India and Maharashtra was 0.99 per cent to census 1901. Maharashtra is highly urbanized as 45.23 per cent population lives in cities and it is high on literacy. Conclusion it is observed that the population of India has been continuously increasing from 1901 to 2011 minimum urbanization was observed in 1911 i.e. 10.29 per cent. The all-India average of such percentage of urban population stands at 31.16 per cent in 2011. The all-Maharashtra average of such percentage of urban population stands at 45.23 per cent in 2011.

Map no 03: Level of Urbanization in Maharashtra 2001 census Year



Map no 04: Level of Urbanization in Maharashtra 2011 census Year



CONCLUSION:

Geographical, social, economic and political factors affect urbanization, Maharashtra state is the third largest state in India and mainly due to various reasons such as industrialization, road network, educational facilities, employment opportunities, and urbanization is seen here on a large scale. At the same time, we can see that the capital of Maharashtra like Mumbai has become 100 percent Shariyah. Below that, we can see this sharikaran in the states of Pune, Nagpur, Solapur, Nashik. We can see that Sindhudurg and Gadchiroli states have the least Sharikaran. The most important reason for this is the economic disparity in these areas, the underdevelopment of agriculture and industrialization, and the reasons for which urbanization is very low in these states.

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