

# **SPATIO-TEMPORAL ANALYSIS OF URBAN POPULATION GROWTH AND DISTRIBUTION IN AURANGABAD CITY**

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## **ABSTRACT**

The growth of urban population is dynamic process at the different time and its relation to environmental and physical, culture. India is the second largest populated country after china. The faster growing of urban population is mainly because naturally population growth and rural to urban migration. Rapid population growth is treated as a hard core factor responsible for the defining source and whole poor alive situation. Population is the main factor which directly impact on the urban markets movement as well as appeared to the attractions of financial activities of urban center and important demographic process with the political, environmental, historical and social background. Population has natural human source of the country and development of any area has depended of resident. Population growth is not due to the regular growth, but because of the migration of people in large numbers.

The population of Aurangabad city has been increased naturally, rural to urban migration and earlier under the record. The population of Aurangabad city was 592709 in 1991 then population has been increased up to 1175116 as per census of 2011. The growth of urban population in Aurangabad city considered from 1901 to 2011. The highest growth rate of

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population in Aurangabad city was observed in 1981 i.e. 91.48 and lowest the population growth rate was observed from 1911 to 1921 i.e. -6 per cent. Presently total population in Aurangabad city is 1175116 persons and its decadal growth rate in 41.17. The highest population growth rate was recorded in Aurangabad city by the compared to Maharashtra and India's population growth rate. Population has been uneven distributed in Aurangabad city. The total population varied from a minimum population of 7305 in ward number 93 Vedant Nagar and a maximum of 31584 in ward number 2 MayurparkJadhavwadi as per 2011.

**KEY WORD: Population Growth, Growth Rate, Distribution, Density**

### **INTRODUCTION:**

Urbanization in India is neither unique nor exclusive but is similar to a world-wide phenomenon. The process of urban growth is affected by population growth and migration. Population growth and consumption Patterns, economic development and other factors. The growth of population directly impact of the environments. Population is the main factor affecting the development and progress of the city. The urban areas in the developing world are under constant pressure of a growing population. Urbanization indicates population increase in urban areas, the growth of secondary and tertiary activities. Indian cities are experiencing an accelerated pace of growth since independence. The growth of urban population is dynamic process at the different time and his relation is environmental and physical culture. The faster growing of urban population is mainly because naturally population growth and rural to urban migration. Population has the important in entire industrialized condition rapid population growth is treated as a hard core factor responsible for the defining source and whole poor alive situation. Population is the main factor of directly impact on the urban markets movement. Population growth is has appeared to the vibrancy of financial activities of urban center. Growth population is the most of important demographic process with the political, environmental, historical, social background. Population has natural human source of the country and development of any area has depended of resident. Population growth is not due to the regular growth, but outstanding to the migration of people in large numbers. Population growth of any region has to be seen in the situation of its dynamic charges. The growth of population determines density, distribution and structure of population. Therefore population growth is the most important demographic process, which is directly related with other demographic characteristics.

The present study on growth of urban population in Aurangabad city considered from 1901 to 2011. The population of Aurangabad city has been increased naturally, rural to urban migration and earlier under the record. The population of Aurangabad city was 592709 in 1991 then population has been increased up to 1175116 as per census of 2011.

**OBJECTIVE:**

1. To Study of urban Population growth of Aurangabad city.
2. To Study of ward wise population distribution in Aurangabad city.
- 3 To compare the population growth of India, Maharashtra and Aurangabad city.

**STUDY AREA:**

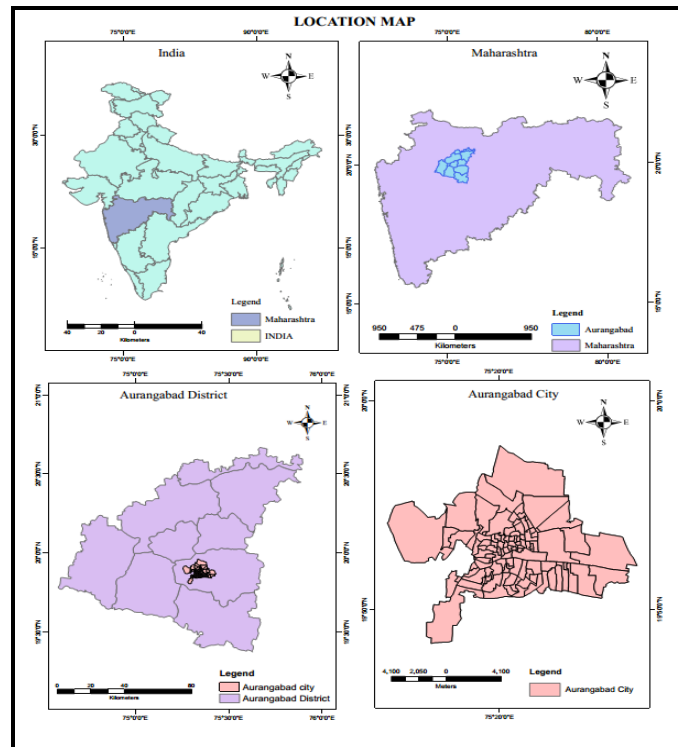
The selected study area was Aurangabad city in Marathwada region, it is a district and divisional headquarter of the Marathwada division. Aurangabad city is one of the famous industrial and fastest growing cities in Asia and which is well famous for its Industrial auto cluster. It is located in the central part of Maharashtra. The figure no.1 has been showing the location between 19 ° 53'59'' North latitude and 75 ° 22'46'' East longitude. The Aurangabad city is located on the Deccan trap stand by dhudhna valley between the Lakhwara ranges of the northern side and Satara hills are located in southern part of city. Aurangabad municipal corporation was "A" class municipal council it's having area about 54.4 Sq. Km in 1982. Then municipal council converts into Municipal Corporation in 1982 Additional 18 villages including corporation limits. It's having area of the city 138.50 Sq.Km In 2011. The total area of Aurangabad city was divided into 60 wards in 1991. In 2001, the number of ward has been increased up to 83 wards and in 2011 the number of wards is 99. The population of Aurangabad city was 592709 in 1991, in 2001 the total population of Aurangabad city was 873311, but in 2011 the population of the city increased up to 1175116.

**DATA BASE AND METHODOLOGY:**

The present study based on secondary data, district census of 1901 to 2011. Published Literature, city development plan 2015, Reports were collect the various libraries, institutes; Govt. The analyze the total growth of population change in parentage. The collected data has been tabulated process and analyzed by using different quantitative, statistical technique. Population growth rate has been calculated during a period of 1901 to 2011. Prepare the base

map on SOI toposheet no 47 M/7, 2001 and 2011 ward wise map of Municipal Corporation. Present work has carried out with the help of computer based GIS.

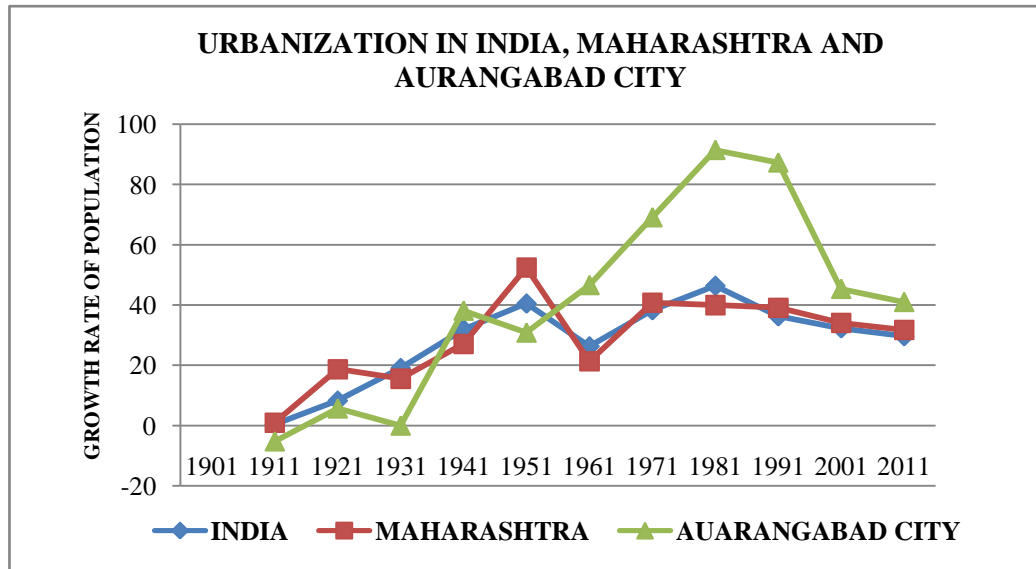
### Location Map of Study Area



**Table No.1 URBAN POPULATION GROWTH INDIA, MAHARASHTRA AND AURANGABAD CITY(1901 TO 2011)**

YEAR	India	Maharashtra	Aurangabad City
	Growth Rate %	Growth Rate %	Growth Rate %
1901	-	-	-
1911	0.35	0.99	-5.25
1921	8.29	18.71	5.66
1931	19.12	15.56	-0.02
1941	31.95	27.1	38.12
1951	40.52	52.42	30.85
1961	26.32	21.32	46.62
1971	38.3	40.74	69.14
1981	46.42	39.99	91.48
1991	36.29	39.09	87.32

2001	32.32	34.09	45.36
2011	29.68	31.72	41.017



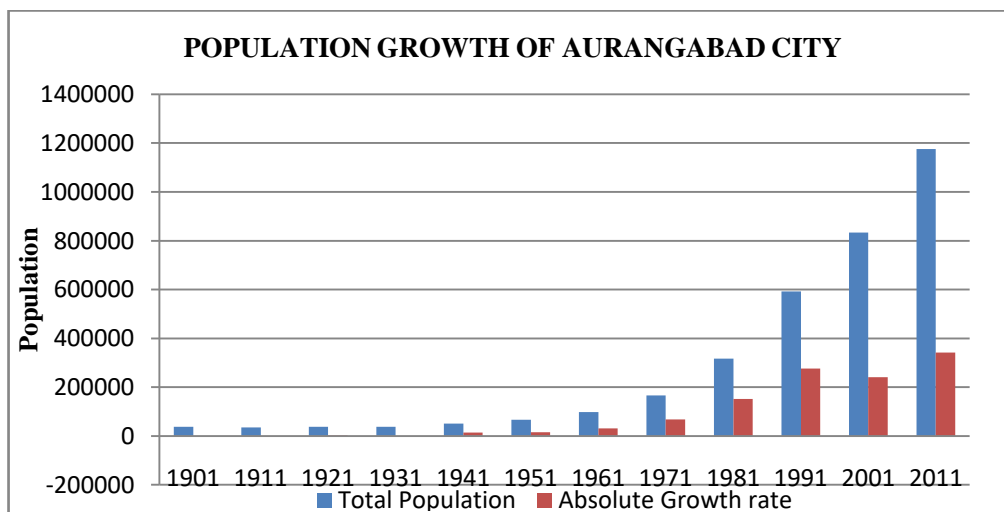
According to Table No.1 has showing the growth of urban population in India, Maharashtra and Aurangabad city from 1901 to 2011. It is observed urban population growth rate has been decreased in 1921 to 1931 by 5.66 and -0.02 in Aurangabad city. After 1931 population growth rate has been continually increased up to 1981. The highest growth rate of population in Aurangabad city in 1981 of 91.48 and lowest the population growth rate was observed from 1911 to 1921 i.e. -6 per cent.. Again After 1991 to 2011 population growth rate decreased 87.32, 45.36 and 41.01. The growth urban population of Maharashtra also increased comparatively faster from 1901 to 2011 Maharashtra's urban population growth has slowed down by more than 10% in the decade 2001-2011. The highest population growth rate was recorded in Aurangabad city by the compared to Maharashtra and India's population growth rate. Presently total population in Aurangabad city 1175116 persons and absolute growth rate of 341805 and its decadal growth rate in 41.017.

According to Table no.2 ha shows absolute growth rate of urban population in Aurangabad city. Growth Rate of population is expressed as the percentage growths or decreases in population over the previous census this is generally called as the decadal growth rates of population. The decadal growth of population indicates the percentage if the addition of population to the earlier census. The maximum growth rates are found in Aurangabad city followed by the 1971 to 1991 that time highest growth rate in, 1971 growth rate are 69.14, 1981

(91.48) and 1991 (87.32). These are highest growth rate found in 1981. Negative growths rates are found after in 1901. these are 1911 and 1931 which have registered negative growth rates of -5.25 and -0.02 percent.

**Table.No.2 GROWTH OF POPULATION IN AURANGABAD CITY**  
(1901 to 2011)

Sr.no	Year	Total Population	Absolute Growth Rate	Decadal Growth Rate
1	1901	36837		
2	1911	34902	-1935	-5.25
3	1921	36876	1974	5.66
4	1931	36870	-6	-0.02
5	1941	50924	14054	38.12
6	1951	66636	15712	30.85
7	1961	97701	31065	46.62
8	1971	165253	67552	69.14
9	1981	316421	151168	91.48
10	1991	592709	276288	87.32
11	2001	833311	240602	45.36
12	2011	1175116	341805	41.017



**Table No.3 Ward Wise Population Distribution 1991-2011**

Sr. No	ss (Population)	1991 (Wards)	2001 (Wards)	2011 (Wards)
1	Below 10000	5,43,29,27,55,33,28,26,25,30,34,6,52,42,2,31,35,17,19,10,14,41,45,50,46,46,51,16,40,24,18,32,15,23,8,39,47,21,3,2,,56,53,44,22,4,36 <b>Total 46 Ward</b>	83,81,60,78,71,59,39,67,79,62,43,56,40,34,38,64,32,61,51,54,66,82,68,69,35,10,63,50,80,37,5,33,15,25,42,76,77,53,27,22,36,18,74,6,58,31,29,65,28,37 <b>Total 50 Wards</b>	93,6,38,11,91,30,15,60,62,43,64,63,95,59,96,37,40,48,19,20,61,35,65,92,10,16,41,68,17,56,50,24,25,75,18,57,66 <b>Total 37 Wards</b>
2	10000 To 15000	13,54,1,60,9,57 <b>Total 6 Wards</b>	2,72,23,24,26,41,20,1,52,44,47,11,21,9,19,8,73,70,30,49,48,55 <b>Total 22 Wards</b>	55,34,14,58,3,33,31,69,36,71,83,13,39,90,51,26,12,67,72,47,74,9,46,73,89,78,42,53,94,45,49,32,27,28,54,44,79,22,52,76,85,80,87,29,86,97,23,70 <b>Total 48 Ward</b>
3	15000 To 20000	49,34 <b>Total 2 Wards</b>	45,57,4,5,14,13,12,7 <b>Total 8 Wards</b>	5,99,7,98,88,77,81 <b>Total 7 Wards</b>
4	Above 20000	38,12,58,7,59,18 <b>Total 6 Wards</b>	17,46,16 <b>Total 3 Wards</b>	84,4,8,21,84,1,2 <b>Total 6 Wards</b>

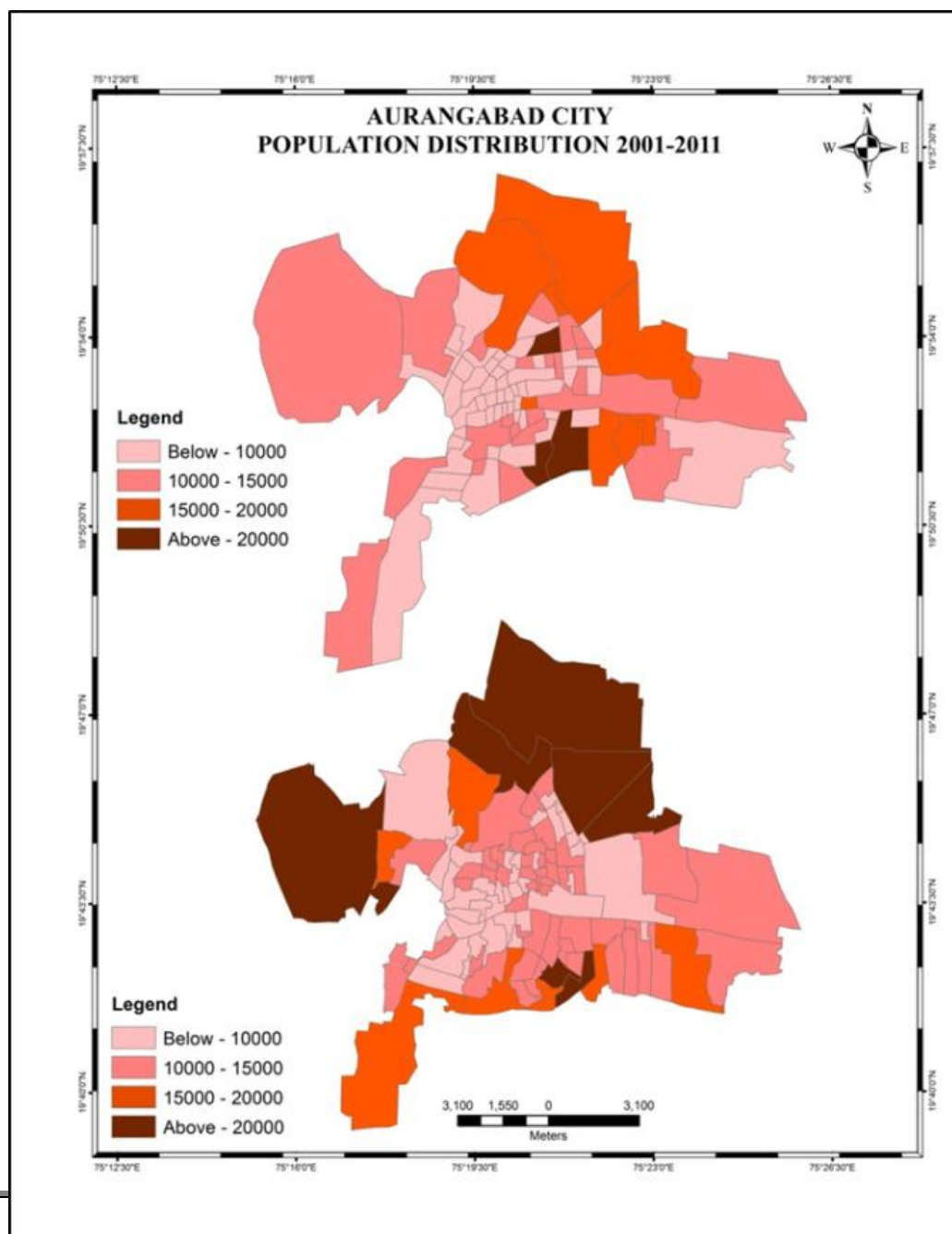
**Population Distribution:**

Population is the main factor affecting the development and progress of the city. Distribution of the people's population is shown in table no.3 in order to study deep into the ward level. According to census 1991, the total population of Aurangabad city was 597,095. In 1991, there were 46 wards distributed in population of less than 10000. The lowest population distribution in 1991 was 3245 in the ward no .5 and the highest population was 47557 in ward no. 11. There were 6 wards (38, 12, 58,7,51 and 18) on hearing the distribution of more than 20000 populations. According to the 2001 census, Aurangabad city had a population of 833311.

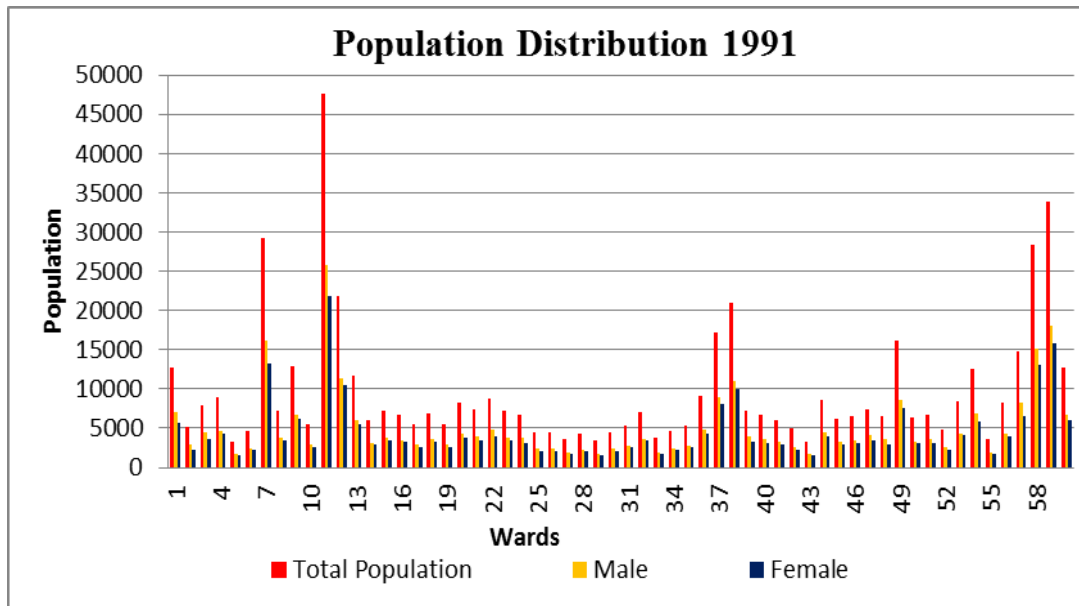
In Aurangabad city, there are 50 wards distributed with less than 10000 population and the lowest population was in Ward no .83 (Kundalik Nagar) 3402.

The total distribution of more than 20,000 people was 3 wards i.e. 17, 46, 16. In 2001, the highest population distribution was found in Ward no. 16.

According to 2011, the city's total population is 1175116 and it is distributed in 99 wards. Total distribution of population of less than 10000 people is 37 wards, and the lowest population distribution is 7307 in Ward No.93VedantNagar.In addition, the highest distribution is 31584 in Ward No. 2.MayurparkJadhavwadi.There is a total of 6 wards with population distribution Above 20000 i.e. 84,4,8,21,84,1,2.





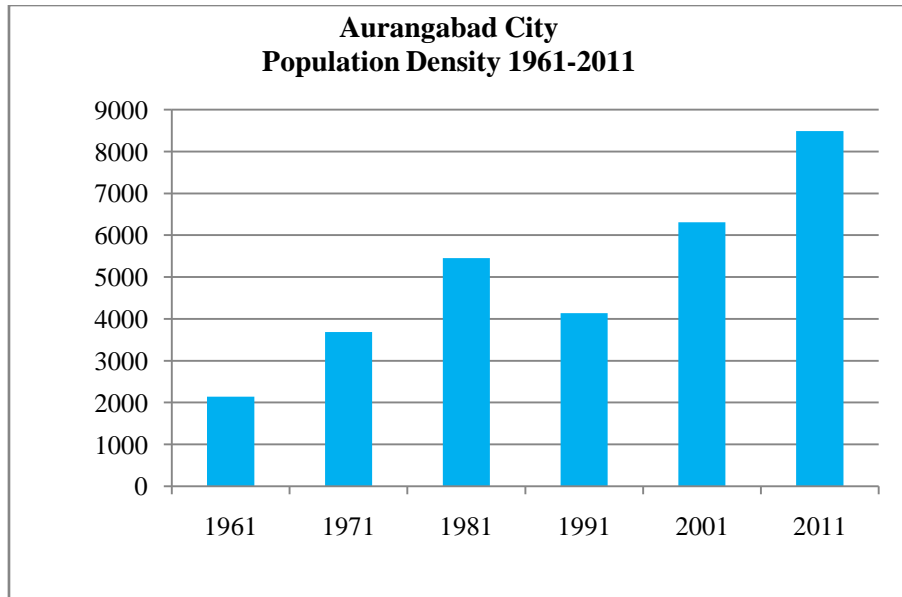


### Population Density:

The population density of the Aurangabad city calculated by the total population is divided by the total geographical area of the city. The high population density put on the infrastructural facility and environmental condition as well as public services. The density of population is the playing important role of urban management. Population density has been directly affecting by the urban land use, land cover and land value as well as urban environment. The population density is indicating the force on the urban land which in turn is impacting factor like availability, proximity and infrastructural facility etc.

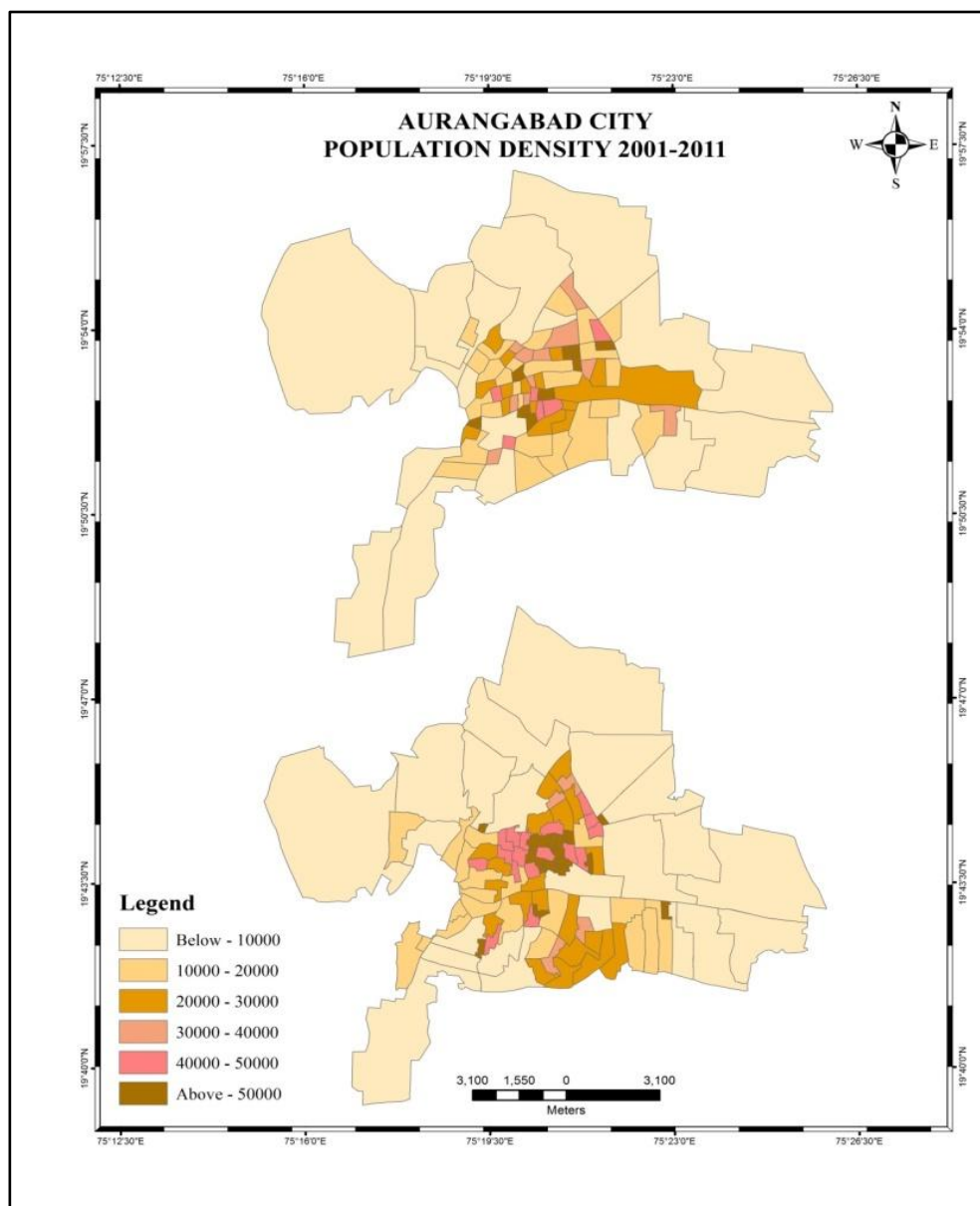
**Table No. 4 Population Density 1961-2011**

Sr.No	Year	Population	Area (Sq.km)	Population Density (per Sq.km)
1	1961	87579	40.87	2143
2	1971	150483	40.79	3689
3	1981	298937	54.2	5455
4	1991	573272	138.5	4139
5	2001	873311	138.5	6305
6	2011	1175116	138.5	8484

**Table No. 5 Ward Wise Population Density 2001-2011**

Sr.No	Class	2001 (Wards)	2011 (Wards)
1	Below 10000	1,4,5,28,10,9,30,2,7,3,11,27,36,1 4,24,37,43 <b>Total wards 17</b>	8,6,23,24,98,78,22,13,4,5,77, 50,2,21,93,9,96,89,88,72,76 <b>Total Wards 22</b>
2	10000 To 20000	22,21,31,29,75,83,17,78,74,15,6, 81,50,13,39,51,35,63,65,40,44,1 6,38,42,47,34 <b>Total Wards 26</b>	74,97,64,69,79,10,80,73,63,7, 61,11,95,35,59,26,94,62,87 <b>Total Wards 19</b>
3	20000 To 30000	62,80,60,20,58,54,66,64,71,18,5 2,76,8,32,41 <b>Total Wards 15</b>	70,27,3,81,65,91,17,14,82,99, 37,34,83,29,68,49,60,84,86,5 8 <b>Total Wards 20</b>
4	30000 To 40000	67,26,12,69,53,77,70,79,46,45,6 8 <b>Total Ward 11</b>	71,16,85,15 <b>Total Wards 4</b>
5	40000 To 50000	48,56,61,25,59,55 <b>Total Ward 6</b>	90,39,28,31,30,47,18,36,66,5 5,57,32,46,38,25,33,19 <b>Total Ward 17</b>
6	Above 50000	73,33,49,23,72,57,19,82 <b>Total Ward 8</b>	40,75,41,92,53,48,56,42,45,4 3,67,51,44,20,54,52,12, <b>Total Ward 17</b>

The average population density of Aurangabad city was 2143 persons per Sq.km in 1961, it increased up to 3689 and 5455 persons per sq.km in 1971 and 1981 respectively. Aurangabad municipal corporation was "A" class municipal council it's having area about 54.4 sq. Km in 1982. Then municipal council was converts into Municipal Corporation in 1982 Additional 18 villages including corporation. In 1982, the Municipal Corporation area increased by 84.30 Sq.km and total area has been extended up to 138.50 Sq.km. Population density is decreased in the year of 1991 as compared to population density in 1981. In 1991 density were 4139 persons per Sq.km, while in the year 2011 population density increased to 8485 persons per Sq.km.



The density means ratio of the total population and total area. Above table explain that the population density of Aurangabad city According to the 2001 and 2011. In 2001 there were a total of 17 wards having a density of less than 10000 persons per sq.km it is increased up to 22 wards in 2011. In 2001 there were 8 wards in the population density of more than 50000 persons per sq.km and in 2011 the number of Wards increased up to 17 wards. In 2001 the average density of the population was 6305 but in 2011 the average population density has been increased up to 8484 person's sq.km. In Aurangabad city the highest density of population is found in the center part of the city area because the small ward area in the central part and there is population is high due to which the population density is very high.

### **CONCLUSION:**

The growth of urban population in Aurangabad city considered from 1901 to 2011. The highest growth rate of population in Aurangabad city was observed in 1981 i.e. 91.48 and lowest the population growth rate was observed from 1911 to 1921 i.e. -6 per cent. Presently total population in Aurangabad city is 1175116 persons and its decadal growth rate in 41.17. The highest population growth rate was recorded in Aurangabad city by the compared to Maharashtra and India's population growth rate. Uneven Population distribution in Aurangabad city. The total population varied from a minimum population of 7305 persons in ward number 93 Vedant Nagar and a maximum of 31584 populations in ward number 2 MayurparkJadhavwadi as per 2011. In 2001 there were a total of 17 wards having a density of less than 10000 persons per sq.km it is increased up to 22 wards in 2011. In 2001 there were 8 wards in the population density of more than 50000 persons per sq.km and in 2011 the number of Wards increased up to 17 wards. In 2001 the average density of the population was 6305 persons per sq.km but in 2011 the average population density has been increased up to 8484 persons per sq.km. In Aurangabad city the highest density of population is found in the center part of the city area because the small ward area in the central part and there is population is high due to which the population density is very high.

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