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## RESEARCH ARTICLE

### GROWTH OF POPULATION CHANGE IN DROUGHT – PRONE TAHSILS OF JALGAON DISTRICT, MAHARASHTRA, INDIA

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#### ABSTRACT

The rate at which the population exceeds over a particular time affects the natural equilibrium of the region. The growth rate gives sign of the causes which may be the reasons such as exceeding growth rate if any. The growth of the regions shows wide disparity on a whole. In this paper the present study reveals the tahsil wise growth of population in the study region during 1991-2011. Jamner is the first largest tahsil regarding the geographical area and Chalisgaon second largest tahsil in respect of population in the study region. It has studied on the basis census Hand book of Jalgaon district for 9 drought prone Tahsils during 1991 and 2011. The secondary data have been collected and computed by recent research techniques and the results have been brought through tables and maps. About 21.2 per cent (4.4 lakhs) of the study region's population resides in the urban areas as against 42.04 percent (4.10 Crores) for Maharashtra. Growth rate of population in the study area is 10.59 percent where Maharashtra State's population growth rate is 16.01 per cent during the 2011. Chalisgaon tahsil is the biggest population of 394600 and constitutes about 28.4 per cent of total population of the study region. The growth rate of the study region is 10.59 percent and found equal in all Tahsils in 2001-2011 and 11.59 per cent in 1991-2001. The highest growth rate of Muktainagar tahsil is 19.4 per cent in 1991-2001 and 10.54 per cent in 2001-2011 and followed by, Jamner, Bhadgaon and Erandol tahsils 18.0 %, 11.3 % and 11.0 % respectively. The lowest growth rate comes from the Chalisgaon, Amalner and Dharangaon tahsils which is 8.4 %, 8.8 % and 9.6 % respectively. The results have been discussed with the help of population growth rate refers to the change in population growth rate over a unit time period, often expressed as a percentage of the number of individuals in the population, at the beginning of that period.

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## INTRODUCTION

India is the most populous countries in the world. Our country covers only 2.4 per cent of the land area of the world, whereas it is the home of more than 16.87 per cent of the world's population. This is the second largest followed by China i.e. 21.03 per cent. India's total population is about 3.6 times that of Brazil, 7 times that of Russian Federation, 33 times that of Canada and 55 times that of Australia. About three-fourths of our total population is living in rural areas, indicating we are basically depending on agriculture and other activities. India's population will be doubles in a period of just 40 years. Cities and towns have registered a much higher growth-rate than that of the village. This is due to large scale migration of people from villages to towns and cities in search of opportunities of employment and better amenities of life.

The population of Maharashtra is constantly changing. To determine changes in population, the Government of Maharashtra State of the Census gathers data on counts of people, that distribution and their characteristics. Population size and its distribution of geographical units are among the most important elements in the study of population. These elements are closely associated with the potential for population growth and decline, the economic situation, the age profile and other population characteristics. Information on population size and distribution is vital if programs relating to agriculture, health, education, transportation, housing, urban renewal, law enforcement and waste disposal are to be administered equitably. Changes of growth rate in the size of area's population are primarily the result of three processes (Bhende Asha and Kanitkar Tara, 2010) people are born, causing an increase in population (Census Hand book of Jalgaon district, 2011) people die causing a loss in numbers and (Chakrawarthy, 2006) people migrate, resulting in a decrease or increase in population, depending on the direction of their movement.

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When more births than deaths occur in a given area, the phenomenon is referred to as natural increase, while natural decrease occurs when there are more deaths than births. Further, a gain from migration occurs when more people move into an area than move out during a given period. Thus, changes in the size of an area's population involve two components, natural increase or decrease and net migration. The population of the Maharashtra State continues to increase of Konkan, Mumbai, and Ratanagiri district decline of the growth rate during the last decade. The population of Maharashtra as per 2001 census, stood at 9.67 Crores. It is second ranked among all States and Union Territories in the country. The decadal growth of population in this State has come down from 25.7 during 1981-1991 to 23.37 in 1991-2001 and 16.01 in 2001-2011.

**Study Area:** The study area is located in the drought-prone tahsils of Jalgaon district of Maharashtra state. These drought prone tahsils are identified by V Subramanian (1987), Review Committee appointed by the Maharashtra State Government. These tahsils are Amalner, Dharangaon, Erandol, Parola, Chalisgaon, Bhadgaon, Jamner, Pachora and Muktainagar. There are 09 tahsils which are selected for present study which cover an area 6994.54 sq.km. The area under study is located south of the Tapi River in Jalgaon district. It lies between 20°11' to 21°13' North latitudes and 74°46' to 76°24' East longitudes (Fig. 1). The study region is a plateau area with variations of some uneven lands on the banks of rivers. The River Girna and Waghur is the architect of this plateau area.



**Objective**

- The objective of this paper are to analyze the tahsil wise changes in growth rate of population in the study region during 1991-2011.

**DATA BASE AND METHODOLOGY**

The present study is based on the tahsil wise census Hand book of Jalgaon district data for 09 tahsils during 1991 to 2011. The data have been analyzed for total growth of population change in percentage. Calculate the most common way to express population growth is as a ratio. The change in population over

a unit time period is expressed as a percentage of the population at the beginning of the time period.

$$\text{Growth ratio} = \text{Growth rate} \times 100\%$$

The positive growth rate indicates that the population is increasing, while a negative growth ratio indicates the population decreasing. A growth rate of zero indicates that there were the same number of people at the two times-net differences between births, deaths and migration is zero. The secondary data have been collected and computed by recent research techniques and the results have been brought through tables and maps. Population growth rate (PGR) has been calculated during a period of time. PGR ordinarily refers to the change in population over a unit time period, often expressed as a percentage of the number of individuals in the population at the beginning of that period. The change in population growth rate is measured with the following formula.

$$\text{Formula} = \text{PGR} = \frac{P_2 - P_1}{P_1} \times 100$$

Where, PGR is the population growth rate. P2 is the population of 'X' tahsil in the later decade. P1 is the population of the same tahsil of 'X' initial decade.

**Spatio -Temporal Variation in Population Growth in the study region:** Table 1 and Fig.2 shows the growth of population, temporal as well spatial, is far from being even. This phenomenon was more prominent in the decade 1931- 41 and 1961-71 recorded population growth rate of 4.88 and 5.81 per cent as a result of which the year 1941 is called the "Demographic Divide" in the study region. The high mortality during this period was the product of large scale abnormal deaths due to epidemics of influenza, plague, small pox, cholera, etc. Food shortage caused by severe droughts in 1911, 1913, 1915, 1931, 1971, 1972 and 1920 claimed own toll. During 1921 growth rate registered in study region 9.32 percent. The developments helped in controlling epidemics. After 1971 registered growth rate 9.17 per cent this period very high rate of population growth this period of population explosion. Deaths rates declined much faster than the birth rates.

Sr. No	Year	Decadal Growth Rate change
1	1901-11	13.65
2	1911-21	9.80
3	1921-31	9.32
4	1931-41	4.88
5	1941-51	8.05
6	1951-61	7.09
7	1961-71	5.81
8	1971-81	9.17
9	1981-91	21.17
10	1991-2001	11.52
11	2001- 2011	10.59

Source: Compiled By Researcher

The improvement of health facilities, living conditions of the people enormously. This situation resulted in high natural increase. The highest growth rate recorded of 21.17 per cent in 1991 which continued in 2001 growth rate registered 11.52 percent followed by decline growth rate during the 10.59 per cent in 2011. During 1991 to 2011 this period birth rate declined rapidly. Decline trend of death rate continued but at a slower rate in 2011 growth rate recorded 10.59 percent.

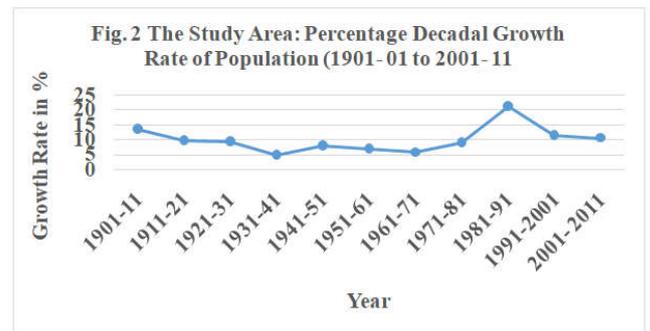
**Population Growth Rate and Distribution of Population in study region:** The below Table 2 and Fig 3 shows that the population of the study area, as per 2001 census stood at 19.11 lakhs. Having a share of 2.19 percent in Maharashtra's population. Jalgaon is sixth ranked among all districts in the Maharashtra. In 2011 census total population in study region 21.21 lakhs. The decadal growth rate of population in this region has come down from 11.5 during 1991-2001 and 10.59 in 2001- 2011 (Table No.2 and Fig.3). The percentage of decadal growth rate has declined during the census 2001-2011 as compared to 1991-2001 in Bhadgaon, Jamner, Parola and Muktainagar tahsils during this period declined of over 10.1 to 8.4 percentage points in decadal growth rate from the previous census was recorded in the Study region. The table reveals that the percentage of decadal growth rate of population equal in all tahsils, which is 10.59 percent.

S. No.	Total	1991	2001	Decadal Growth Rate (%) 1991-2001	2001	2011	Decadal Growth Rate (%) 2001-2011
1	Chavakhe	341709	367797	8.5	367959	397708	10.59
2	Dharangaon	246894	266882	9.5	266882	277732	10.07
3	Parola	254309	269329	10.2	269329	289328	10.59
4	Amalner	249788	269329	11.2	269329	289328	10.59
5	Chalisgaon	199607	209328	11.4	209328	229328	10.59
6	Bhadgaon	197925	207328	11.1	207328	227328	10.59
	Total	227437	237328	10.5	237328	257328	10.59
7	Jalgaon	246894	266882	10.2	266882	286882	10.59
8	Chavakhe	341709	367797	10.4	367797	397708	10.59
	Total	1049701	1104321	11.5	1104321	1204321	10.59

Source: Directorate of Census and Statistics, Government of Maharashtra

during the period 2001 to 2011. Average growth rate a decline of over 0.91 % during the census decade 2001-2011 in Study region. Population distribution is the geographical arrangement of the population within the physical space of the tahsil boundaries. The major factors that determine the pattern of population distribution are: (1) geographical factors, such as climate, terrain, soils and natural resources; (2) economic, social, and political factors, such as the type of economic activity and the form of social organization; and (3) demographic factors, such as the different growth rates that exist between areas as a result of differences in births, deaths and migration rates. Fig 3 shows that the percent of population changes in 1991-2001 and 2001-2011 in drought prone tahsils in Jalgaon district. There are three categories shows in the maps i.e. high, growth rate in the Muktainagar, Jamner and Bhadgaon tahsils i.e. 19.4% followed by Jamner (18.0 %) and Bhadgaon (11. 3%) tahsils registered high growth rate. The medium growth rate was 9 % to 10 % recorded in Dharangaon(9.6 %), Parola (10.1%), Pachora (10.8 %), and Amalner (8.8 %), Chalisgaon (8.4%) also have registered low growth rate. The regional variations in population growth rate are shown in Fig.3 during the period of 2001-2011. The equal growth rate has been recorded in all tahsils i.e. 10.59 percent. The national population policy issued in 2000 control the population growth rate and to improve the quality of life. The

attainment of compulsory and free school education up to age 14 years, and the reduction of drop-out rates to under 20 percent at primary and secondary school levels for boys and girls. The achievement of universal child immunization against all vaccine preventable diseases.



The promotion of delayed marriage for women to 18 years (legal age at marriage for women) and preferably to over 20. Moving in the direction of this target is clearly desirable. Their attainment increased financial resources and improvements of several social sector programs. Considering the significance of population control. World Population Day is celebrated on 11th July each year. Hence, the Study region is successes the decline growth rate of during 1991-2001 as compared to the decadal growth rate registered during the last decade.

**Conclusion**

The population of the study region is constantly changed during 1991-2001, while constant in all tahsils during 2001-2011. These population changes represent peoples' adjustment to economic development, opportunities of employment, development of educational facilities, immigration and outmigration occurs, agricultural development, industrial development, advanced technology, social environment and the exercise of residential preferences when more people move into an area than move out during study period. Thus changes of in the size of an area's population involve natural increase or decrease and net migration. It is clear that changes in population growth rate will increasingly affect our society. The population of study region, like the population of the India, will continue to change as long as people vary their fertility, mortality and migration behaviors. The population of study area is to reach 2121832. We face to challenge of anticipating these demographic changes and encouraging social institutions of education, family, economic, political, health and recreation at all organizational levels to plan in ways that will maximize the well - being and satisfaction of the population.

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