

## **An Assessment of Population Dynamics Distressing Agriculture in Nashik District, Maharashtra: A Geographical Perspective**

**Dr. R. A. Jadhav**

*Department of Geography  
S. P. H. College, Malegaon camp  
Nashik, Maharashtra, India.  
[rajujadhav111@gmail.com](mailto:rajujadhav111@gmail.com)*

### **Abstract**

*The population of any region is as important as the natural resources of that region. Not only the availability of natural resources but also the use of those resources to achieve economic progress and overall development requires skilled and quality population. Population is the most important factor in agricultural development as managers, producers and consumers. According to the 2011 census, the total population of Nashik district is 6,107,187. Male 3157186 females 2950000 are 5.43% of the total population of Maharashtra. The population density is 367.52 per sq km and the annual growth rate is 5.43%. Scheduled Tribes constitute 9.08% of the total population and Scheduled Castes constitute 25.62%. Thus 34.07% of the population of the district is backward class. Out of the total population, 42.53% are urban and 57.47% are rural. Population growth has a huge impact on agricultural development. As the population grows, so does increase in the use of agricultural apparatus and agricultural land, as the food and clothing needs of the growing population and it has been distressing agriculture.*

**Keywords:** Population Dynamics, Agriculture, Density, Occupational Structure, Nashik

### **Introduction:**

India is an agricultural country and agriculture is the livelihood of about 68% of the people in India. Natural, economic, cultural and social factors affect agricultural productivity. (Chandra, D. G., & Malaya, D. B. 2011). Agriculture is the backbone of the Indian economy. 68% of India's population lives in rural areas and agriculture is the main occupation and food is the basic human need met through agricultural production. (Stamoulis, K., & Zezza, A. 2003). Agriculture not only supplies food grains and essential commodities but also contributes to the economic development

and social transition of the country.(Pingali, P. 2007).Although the number of people engaged in agribusiness is declining in the present industrial age, the importance of agriculture seems to have increased.(Blinder, A. S. 2006).Agriculture is not only a means of subsistence but also a supplementary occupation to modern farming, animal husbandry, fisheries, goat rearing and poultry farming.(Upton, M. 2000).

Currently, the importance of commercial crops like sugarcane, cotton, grapes, hemp, rubber, tea, coffee, tobacco is increasing. At the same time, wheat, rice, sorghum, millet and pulses, which are known only as food grains, are being grown on a commercial basis. The purpose of agribusiness changed and agricultural techniques developed. The nature of agriculture is becoming more and more classical. (Kandaswamy, A. 1988).India is an agricultural country. (Singh, H., Singh et al. 2007). And it will continue to be agricultural for many centuries to come. This is because the textile industry, sugar industry, food processing industry, hemp industry, tea, coffee industry, plant processing industry are developing on the raw materials obtained from agriculture. When India became independent, India was underdeveloped. Due to its efforts over the last 65 years, it falls into the group of developing countries. However, it does not yet sit in the ranks of developed or advanced countries. The agricultural dominance of this country has continued unabated. Due to population growth and relatively low growth of industry, India will continue to be an agricultural country in the future. (Sharma, V. P., & Jain, D. 2011).

The maximum population of the district is in rural areas. The maximum impact on agriculture is on the rural population. Because rural people are mostly farmers and so they have an impact on agriculture.(Pandit, P. M. 2012). As a result of the Green Revolution, social imbalances were also created. Only large and wealthy landowners benefited from the need for more capital for all the improvements like new crops, pesticides, fertilizers. The widening of the social gap between large landholders and smallholders in such a way as to deprive the minority landowners. Constructive plans require for planning at the macro or micro level as well as large regional plans. For this, it is important to have a thorough study of agriculture at small scale.

#### **Data base and methodology:**

Agricultural and Population data was collected by from following sources

1. District Gazetteer of Nashik

2. Agricultural Department of Maharashtra State ([www.mahaagri.gov.in](http://www.mahaagri.gov.in))
3. Divisional Agriculture Department, Pune
4. Directorate of Agriculture, M.S. Pune and District Inspector Land Records, Nashik.
5. Socio-Economic Abstract Nashik District
6. Census hand book Nashik district

Empirical & analytical methodology used as following

1. Digital image analysis in QGIS software
2. Measuring central tendency
3. Population Density
4. Agricultural Density

### **Study Area**

The city of Nashik is situated on the banks of the river Godavari, which originates in the Sahyadri. All the diversity in Maharashtra can be seen in Nashik district it is situated between 19.33 'to 20.53' north latitude and 73.16 'and 75.16' east longitude. The area of Nashik district is 15,530 sq. Km. It covers 5.04% of the total area of the state. The district ranks third in the state in terms of area. Also, the height of Nashik city from sea level is about 565 m.

Nashik district has been divided into 4 sections for administrative convenience. It is divided into 15 talukas. 1) Nashik Subdivision: Dindori, Igatpuri, Nashik, Nashik Road, Peth and Trimbakeshwar 2) Malegaon Subdivision: Chandwad, Malegaon, Nandgaon 3) Niphad Sub-Division: - Niphad, Sinnar, Yeola 4) Kalvan subdivision: - Deola, Kalvan, Baglan, Surgana. Nashik district is now known mainly for its grape, onion and pomegranate crops. Pimpalgaon (Basawant) is the largest market for grapes and Lasalgaon is the largest market for onions in Nashik district.

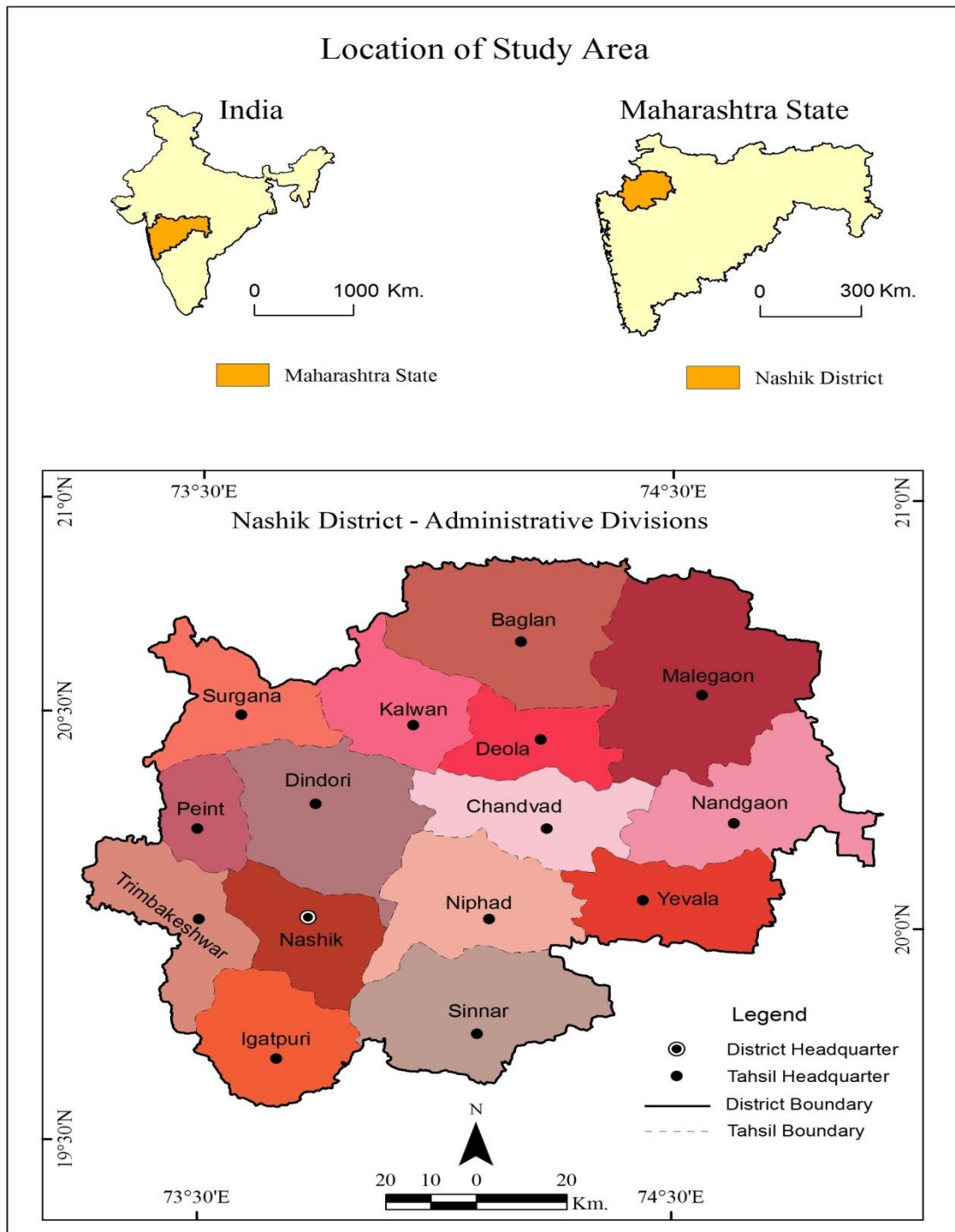


Fig.01 Location Map of the study area

**Objectives:**

1. To assess the population growth and density in the Nashik district

2. To review the agricultural density burden of population in Nashik district
3. To analyze the occupational structure of the study area
4. To appraise the population growth affecting agriculture of study area

### **Results and Discussions:**

#### **Population Growth and Population Density of Nashik District**

If the population of a region increases, its burden falls on that land. If production does not increase in proportion to population growth, living standards are likely to decline. The population of Nashik district from 2001 to 2011 is given in Table No. 01

**Table No. 01** Decadal Growth of Population in Nashik District 1991-2011

Year	Total Population	Growth	Growth in Percentage
1901	823080	--	--
1911	831490	+8410	+1.11
1921	915698	+84208	+9.19
1931	1009583	+93885	+9.29
1941	1127597	+118059	+10.46
1951	1429916	+302319	+10.46
1961	1855246	+425330	+21.14
1971	2359544	+514298	+21.70
1981	2922001	+552477	+18.90
1991	3851796	+929795	+24.13
2001	4993796	+1142000	+22.86
2011	6107187	+113391	+18.23

Source: Census Handbook 2001 and Socio Economic Abstract 2011

The total population of Nashik district was 823080 in 1901, 1009583 in 1931, 1127597 in 1941 and 1429916 in 1951. The population has been growing steadily since 1931. From 1931 to 1971, the population has been growing steadily, while from 1981 to 2011, the population has doubled. It can be found from Table no.1. In the year 2000-01, the population of Nashik district was 4993796. In the ten years 2010-11, the population of the district reached 6107187, which means an increase of 18.23% in the population of the district. The population of Nashik district has been steadily increasing positively.

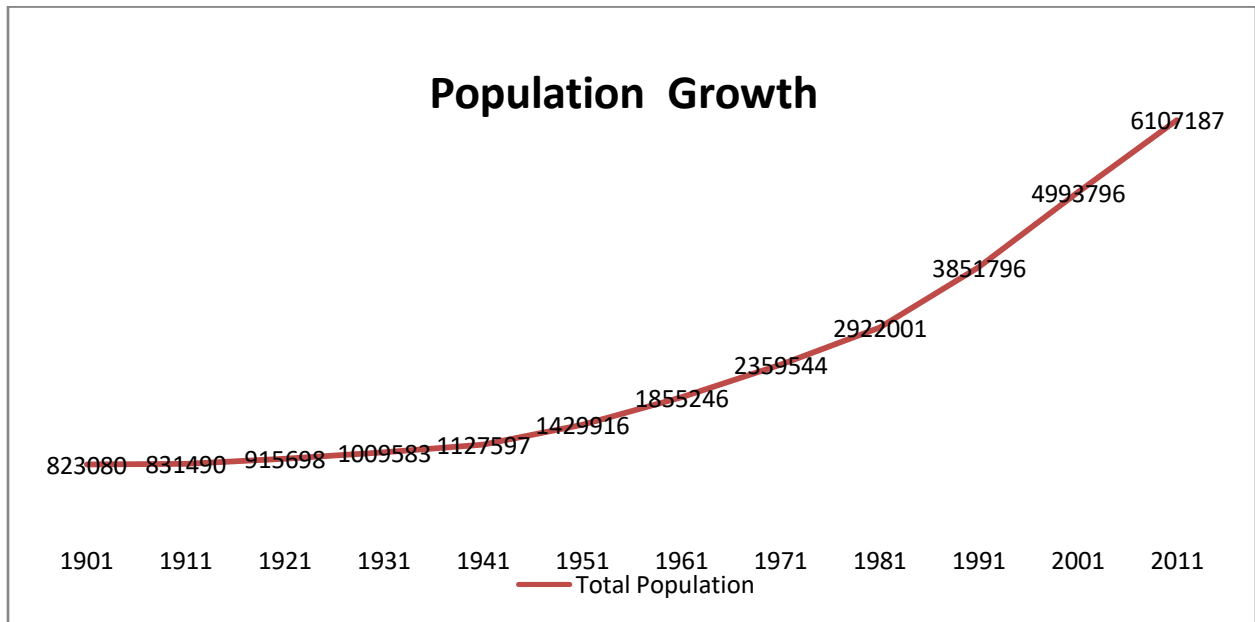


Fig.02 Decadal Population Growth Nashik District

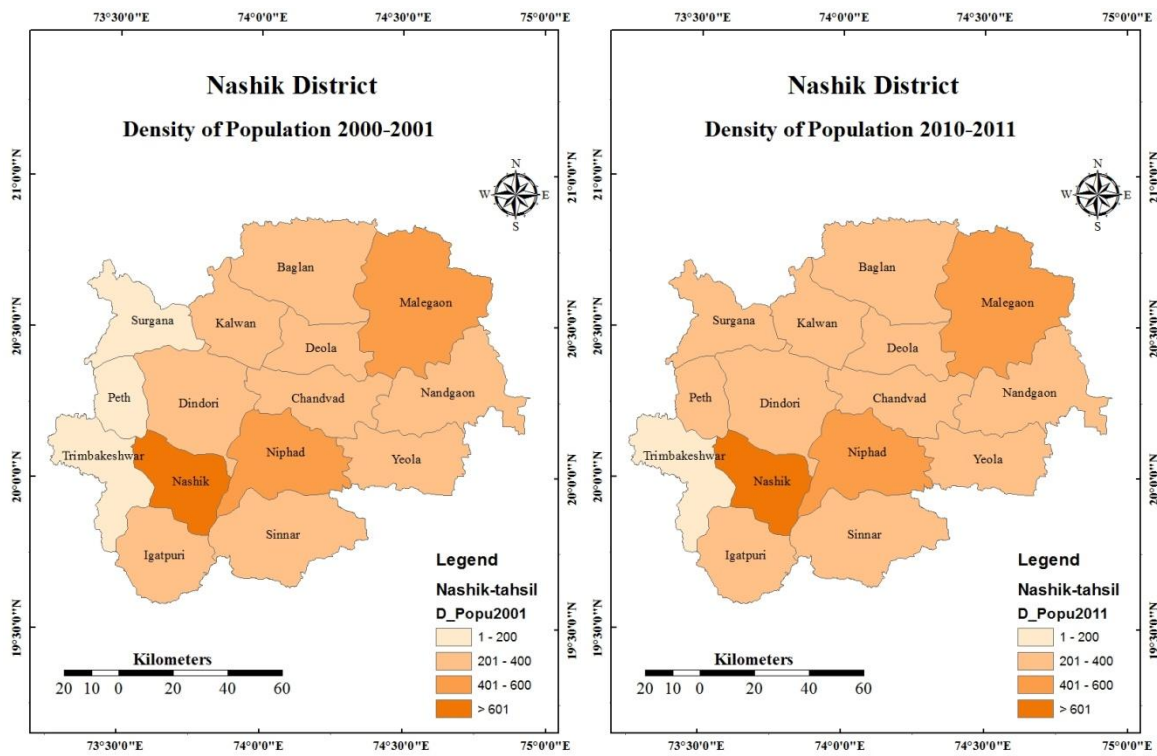


Fig.03 Population Density Nashik district

The population distribution in Nashik district is unequal. The total population of the district is 6107187. It is mainly located in Malegaon, Nandgaon, Chandwad, Nashik taluka. Due to the predominance of industrial and other occupations in Nashik and Malegaon talukas, there is concentration of factory workers and third and fourth tier workers. . Besides, the land of this taluka is under cultivation.

1. Dense Population Area: -An area with a density of more than 300 persons per sq km is known as densely populated area. Malegaon, Trimbak, Igatpuri and Niphad are part of Nashik tahsil in Nashik district.

2) Area of medium population: - Area with a density of 151 to 300 persons per sq. Km is known as area of medium population. Apart from the above talukas in Nashik district, the taluka is included in the area of moderate population.

3) Areas of sparse population: - Areas with density of less than 150 persons per sq. Km are known as sparsely populated areas. There is not a single sparsely populated taluka in Nashik district. Nashik district has a density of 367.52 persons per sq. Km as per the year 2000-01. In 2010-2011, it was 401.33. Considering the population density in both the decades, the population density has increased everywhere.

### **The agricultural density and burden of population in Nashik district**

Agricultural density is an important indicator of population burden on agriculture. The higher the density of agriculture, the higher the population burden on agriculture. And if density affects productivity, then knowing the ratio of agricultural land and the population involved in agricultural work (rural) is an accurate measure of the population's burden on agriculture. In Nashik district in the year 2000-2001, the agricultural population was 2025272 while the agricultural area was 8651.61 sq. Km. that is; the agricultural density of the population per sq. Km. It was 234.10. However, due to the increase in the population related to agriculture in 2010-2011, the highest agricultural density has been 236.59 and the density has increased by almost 2%. In Niphad taluka, fertile land and irrigation facilities have increased the agricultural density. The agricultural density of Surgana, Kalvan, Malegaon, Peth, Niphad and Yeola talukas is around 200. In 2000-2001, the agricultural density in Deola, Baglan, Malegaon, Nandgaon, Chandwad, Dindori, Trimbak, and Nashik was less than 100. That is, the population burden on agriculture was less. However, in 2010-2011, the agricultural density in Malegaon increased.

Due to the growing population, the burden of population on agriculture has also increased.(Fig.04)

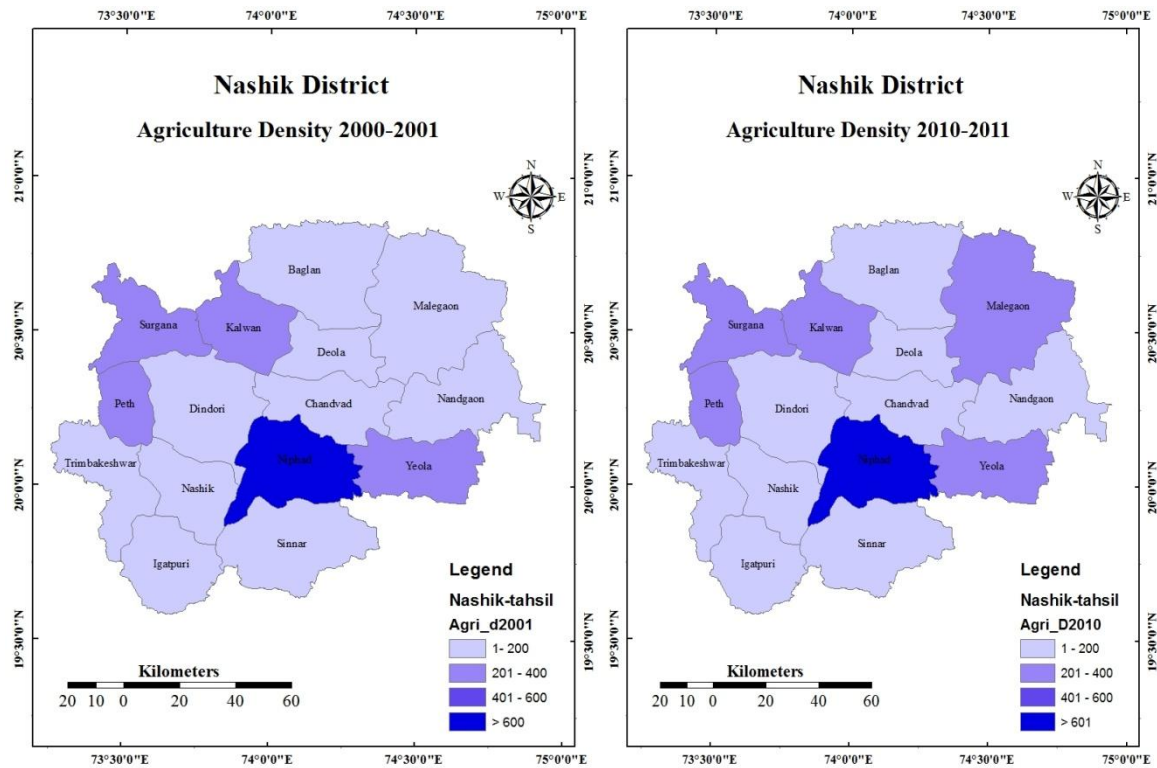


Fig.04 Agricultural Density Nashik district

### Occupational structure of the study area

The population of Nashik district was divided as follows according to occupation.

#### A) Farmers:

A farmer is a laborer (male or female) who actively works with his family in his own or a government or other person's field in value or in partnership is called a farmer. The economy of Nashik district is mainly dependent on agriculture. Here 60.09 per cent farmers work in their own or other farms. The proportion of farmers is less in Nashik and then in Igatpuri, Peth, Surgana and Malegaon. But in all other talukas more than 50% farmers are found. Most of the farmers are found in Niphad, Yeola, and Sinnar talukas. These talukas are mainly industrialized and agricultural.

#### B) Agricultural labor:

If a farmer's field is large in size, he needs farm labor. It also requires agricultural labor for sowing, planting, harvesting and threshing of grain. Except Niphad taluka, all other talukas have high proportion of agricultural laborers. In Surgana, Baglan, Trimbak, Nandgaon, Kalvan, Deola,



Dindori, Nashik talukas, the proportion of agricultural laborers is more than 30%. Because of the large size of agriculture here and mainly these talukas are famous for the production of grains as well as orchards and vegetables. Igatpuri, Chandwad, Kalvan, Sinnar and Yeola talukas have the same number of agricultural laborers as the district average.

C) Population engaged in small industry:

In Nashik district, some population works in small industries like graphs, juice, pickle, and wine by processing vegetables and fruits. Deola and Peth talukas have a large number of small industries. Deola accounts for about 2.04 per cent and Peth for 3.4 per cent. This type of population is less in other talukas.

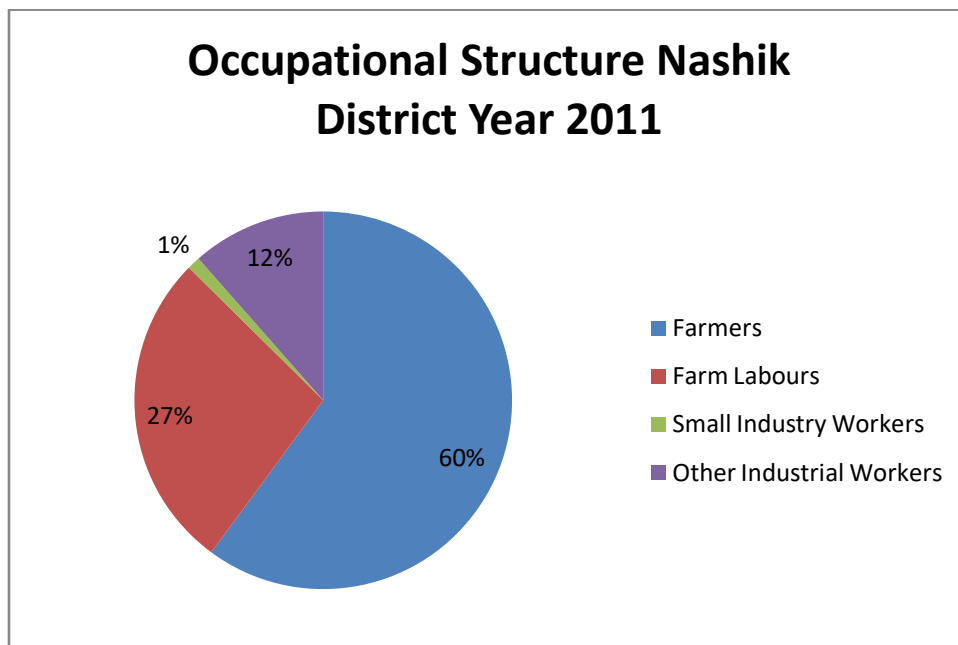


Fig.05 Occupational Structure Nashik District Year 2011

D) Population engaged in other industries:

Other industries mainly include workers in the power loom, handloom business cottage industries, manufacturing, housing, transport and communications trade and commerce, manufacturing services repair services etc. This proportion is highest in Malegaon taluka which is 32.15%. The main reason for this is that there are a large number of handlooms and power looms in Malegaon. At the same time, many small and big industries have been set up here. It is followed by Igatpuri and Kalvan. There are a large number of hotels in Igatpuri and other industries in Kalvan area. The population involved in other talukas is less. Considering the entire

district, there are 1431999 farmers working in the district, 650548 agricultural laborers, 26577 working in manufacturing, services and repairs, 275891 working in domestic industries and 273891 working in other industries.

### **The impact of population growth on agriculture of study area**

As a producer and consumer, the population has a maximum relationship with agriculture. On the other hand, the growing population weighs heavily on agricultural land use, agricultural practices, technologies used in agriculture. Land is used extensively as the population grows. At the same time, agricultural technology and its use are changing. In the form of planners and producers, the population related to agriculture is the controller of their development.

According to the 2001 census, the total population of Nashik district was 4993796, but in the next ten years, according to the 2011 census, it became 6107187. This means that the population has increased by more than 11 lakh in the last ten years. The availability of agricultural land in the district is limited. And mineral resources are limited. The population of Yeola, Peth, and Kalvan talukas is almost the same because the population of this taluka is more dependent on agriculture. Compared to these talukas, the population of Trimbak, Malegaon, and Dindori talukas is engaged in agriculture, forest based business or agriculture. This means that the rural population is higher in the district as a whole and the urban population is lower. As the main industry in the district is agriculture, this population is dependent on agricultural production. The population of the district is increasing day by day. And the productive area is shrinking. Therefore, in this study, it is necessary to check whether the development of agriculture is going in the direction it should be due to the increasing population burden on agricultural production.

### **Discussion and Conclusion**

The maximum population of the district is in rural areas. The maximum impact on agriculture is on the rural population. Because rural people are mostly farmers. And so they have an impact on agriculture. In 1951, the rural population of the district was 1040 thousand. After that, the population increased to 1380 in 1961, in 10 years, the population increased by 340 thousand and it increased by 32.69 percent. The rural population continued to grow. Production, however, has not increased that much. The highest population growth was during this decade at 32.69 per cent. After that, however, the rate of population growth slowed down. The population grew by 13.12 per cent in the decade 2001-2011 but declined again in 1971, 1981, and 1991 and increased by an average of 22% in 2001. Agricultural production also increased. The population of the district

was brought under maximum cultivation on agriculture. Twice the crop was harvested in the same field. Varieties of traditional tools began to be used with tools made with new technology. For example, instead of wooden plows, iron plows and treadmills were used to plow the land. The land was brought under maximum cultivation. Similarly, new seeds began to be used. The use of chemical fertilizers began to increase. The means of irrigation began to increase. At the same time, the area under food crops increased, and for all these reasons, agricultural production increased. The number of agricultural laborers in the district is more than required. As a result, the problem of semi-unemployment and underemployment has arisen in large numbers in the district. In order to overcome it, it is necessary to develop irrigation facilities, build roads, and create agro-based businesses in rural areas for the employment of the unemployed. This can lead to proper utilization of manpower. Extensive planning is needed to address this regional and social inequality. Such plans require micro or small scale planning as well as large regional planning. For this, it is important to have a thorough study of agriculture and population and implementation of wise policy for well being of society.

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