

## IMPACT OF POPULATION GROWTH ON SUSTAINABLE DEVELOPMENT IN RANCHI DISTRICT, JHARKHAND

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### ABSTRACT

In Human Geography, population growth is the increase in the number of individuals in a population. Population growth denotes the change in population during a given period of time. The concept of population growth is generally used to connote the negative or positive change in the number of inhabitants of a region or country during a specific period of time. This population change may be measured both in terms of absolute numbers and in terms of percentages. The challenge of the century is to solve the problem of meeting the increasing needs and expectations of a growing population while at the same time modifying the current production and consumption patterns to achieve a more sustainable development mode and address the links between development and rapid population change. Countries should work to expand choices of people, resourcefulness, creativity, and resilience, by adopting policies that are human rights-based and gender-responsive. We must take very serious measures to protect land, water, and natural system to feed the growing population. Controlling population growth is a basic principle for population sustainable development. For a country with an excessively big population, relatively inadequate resources, and a relatively underdeveloped economy, population sustainable development requires first of all a continued control of the population size and achievement of zero population growth as soon as possible. The population growth rate in developing states like Jharkhand, particularly in Ranchi District affects sustainable development negatively. The purpose of this study is to analyze the impact of population growth on sustainable development.

The present study is an empirical research conducted in Ranchi district, Jharkhand, which is based on secondary data. In this paper, an attempt has been made to throw light on the very popular issues of population growth and its impact on sustainable development.

**Keywords:** - Sustainable development, Population growth, Population density, Resources, Ecological Balance.

### 1.0 INTRODUCTION

Population resource is one of the most important resources on the Earth. The stretch of early human history was characterized by deaths cancelling out birth in most part of the world. India is the second most populated country in the world with nearly a fifth of the world's population. Also, our population is what contributes to our socio-Economic structure and the diverse cultural scenario. Jharkhand ("Bushland" or The Land of Forest") is a state in eastern India, carved out of the southern part of Bihar on 15th November 2000. It is the 15th largest state by

area and the 14th largest state by population. Ranchi district is one of the 24 district of Jharkhand state in Eastern India. It was established as a district in 1899. As of 2011, it is the most populous district of Jharkhand (out of 24 districts).

In this 21st century, the world is facing a major problem of overpopulation which has become equivalent to global crisis now. In today's time the growing population has become one of the leading problems of developing countries like India. It requires a quick and serious attention from all of us. The worst situation due to growing population now can be seen in Jharkhand, particularly in Ranchi District where people are struggling with shortage of food, shelter, pure water and also have to breathe polluted air.

This crisis is growing day by day and affecting completely our natural resources as more people results in more consumption of water, food, land tree and also the fossil fuels badly impacting the environment in many ways. In current time, our population has become a curse to the existence of Natural beauty. People are suffering from various diseases due to polluted air in the environment.

The population may cause unemployment and also affects the economic development of any country. Due to consistently, increasing level of population, poverty is also growing in many developing countries like India. People are bounded to live under limited resources and supplements. In many countries including India, particularly in Jharkhand, population has crossed all its limits and as result we find high illiteracy level, poor health services and lack of resources in the rural areas.

This population growth negatively effects the sustainable development of Ranchi District. Its consequences can be seen in social, economic and environmental development in Ranchi district.

Population growth rate is needed to be controlled to save the world especially in developing countries with faster growth rate. It will balance the system as manpower is required for the growth of country like India.

## 1.1 Objectives of the Study

1. To evaluate the population growth in Ranchi district.
2. To analyze the growth, density and distribution of population of Ranchi district.
3. To evaluate the causes and effects of population growth in Ranchi District.
4. To analyze the impact of population growth on sustainable development for Ranchi District.
5. To study and analyze the social, economic and environmental factors affecting sustainable development in Ranchi District.

## 1.2 Study Area

The area under study is Ranchi district ranks 1st in terms of population and 3rd in terms of Area. Ranchi District is located at 23°03'N latitude and 85°02'E longitude. Geographical area of Ranchi District is 5097 Sq. Km. The tropic of cancer at 23½° N passes through Ranchi district (at Ormanjhi). The average altitude of Ranchi is 600m above the sea level with

undulating land features. The total population of Ranchi district is 2,914,253 (29.14 lakh) where 1,494,937 Males and 1,419,316 Females population during census year 2011. In 2011, the population growth rate of Ranchi District is 23.98%.

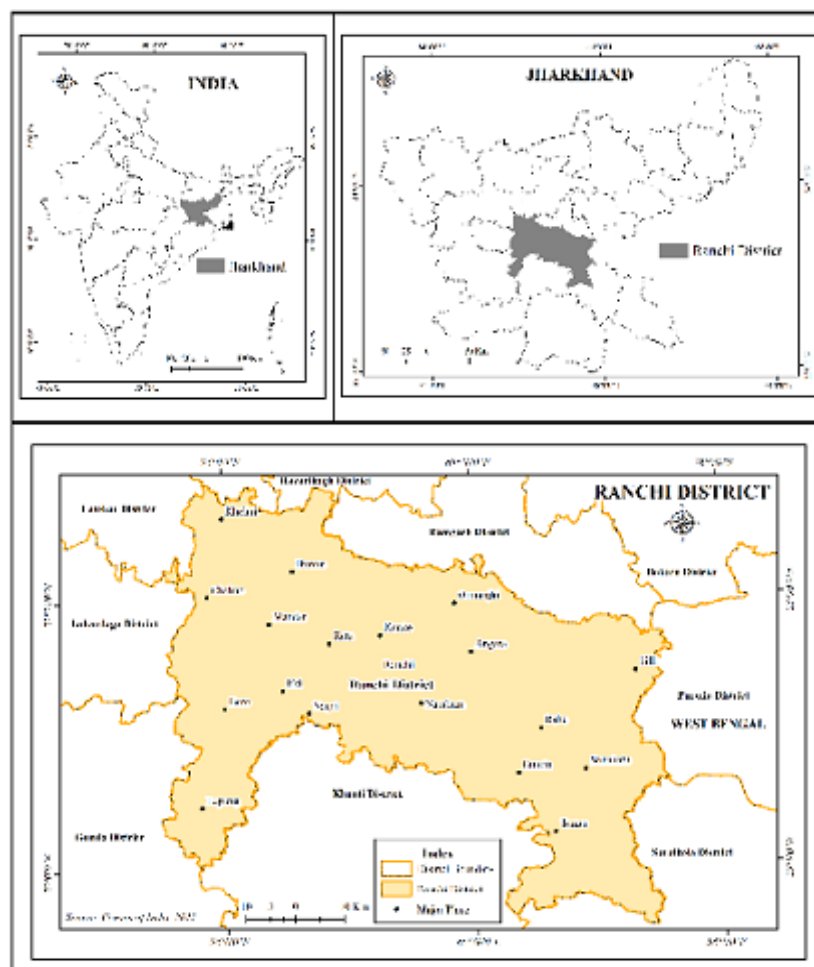
In terms of population Density, Ranchi is the 7th densely populated district in the state with 572 persons per square kilometer. The sex ratio of this district is 949 Females per thousand Males (census 2011).

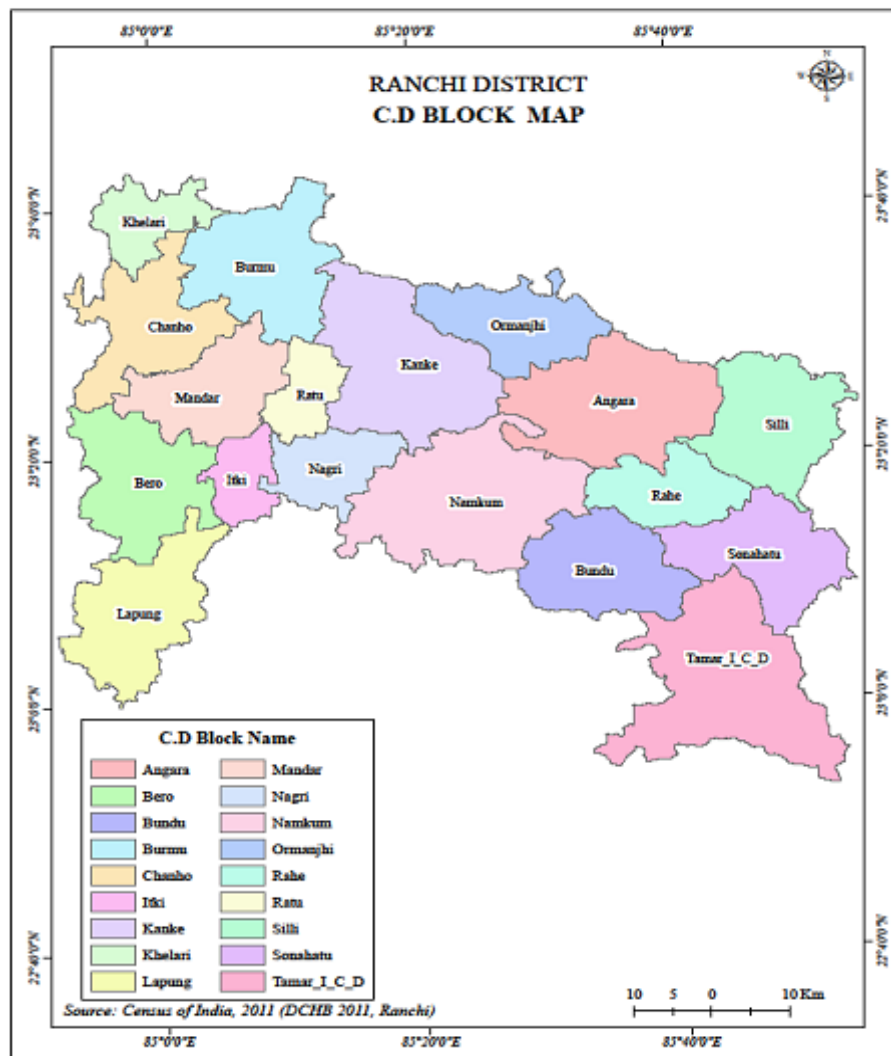
Ranchi district is divided, into Ranchi and Bundu sub-divisions. Ranchi district consists of 18 C.D. blocks (community Development blocks) and 303, Panchayats. Under Ranchi sub-division, there are 14 C.D. blocks and Bundu sub-division consists of 4 C.D. blocks. It has also 15 towns.

The Ranchi district is bounded on the North by Ramgarh, Chatra, and Hazaribagh district, on the south by the district of Khunti, on the East by Purulia district of West Bengal and Saraikela-Kharsawan district and on the west by the district of Gumla, Lohardaga and Latehar.

## Location Map of Ranchi District

LOCATION MAP





**2.0 METHODOLOGY**

The paper attempts to examine the impacts of population Growth on sustainable Development in Ranchi District. Present study is based on secondary data. It will be calculated and tabulated with the assistance of suitable statistical methods and represented by diagrams.

Finally, through the medium of this paper I will try out best to give concrete suggestion which would be beneficial for sustainable development in Ranchi District.

**Statistical Methods:-**

- ❖ Formula for calculating population growth rate

$$\text{Population Growth Rate} = \frac{(V_{\text{present}} - V_{\text{past}})}{V_{\text{past}}} \times 100$$

Where,

$V_{\text{present}}$  = Present value

V<sub>past</sub> = Past value

PR = Percent Rate

Population Growth Rate is calculated in percentage value (%).

$$\diamond \text{ Population Density} = \frac{\text{Total Population}}{\text{Total Area}}$$

Population Density is a ratio calculated as Number of persons per square kilometer (Person/Km<sup>2</sup>)

## 2.1 Brief Discussion

The phenomenon of population growth has special significance for a human geographer, because he values it as a vital index of a regions social, economic and cultural development and political ideology. All the other demographic characteristics of a region are intimately related with population change and form which they derive their significance.

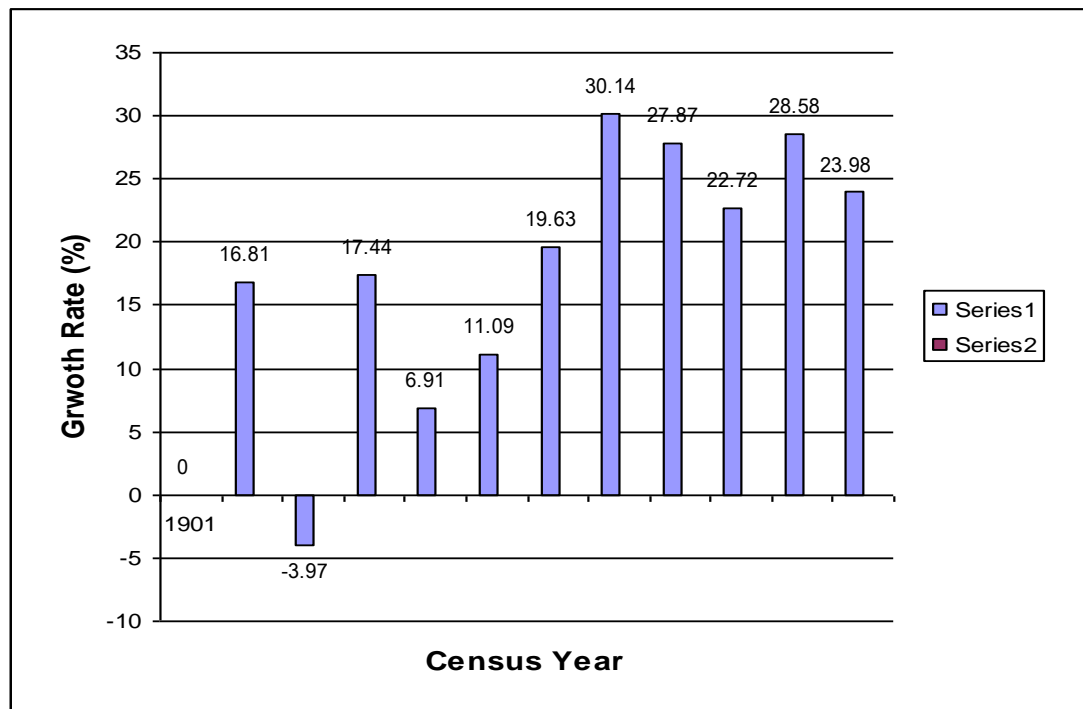
In a number of developing countries like India, the accelerating growth of population has created anxiety concerning the future supply of food and other Resources.

**Table: 1.1 Decadal Population growth Rate of Ranchi District Since 1901 to 2011**

Census Year	Total Population	Growth Rate (%)
1901	477,249	-----
1911	557,488	16.81
1921	536,346	-3.79
1931	629,863	17.44
1941	673,376	6.91
1951	748,050	11.09
1961	894,921	19.63
1971	1,164,661	30.14
1981	1,489,303	27.87
1991	1,827,718	22.72
2001	2,350,245	28.58
2011	2,914,253	23.98

**Source:** Ranchi District census hand look, 2011

**Fig 2.1 Decadal Population growth rate of Ranchi District.**



From table 1.1, we will describe about Decadal population growth rate of Ranchi District since 1901 to 2011. In this table, we have seen that total population of Ranchi District is increasing continuously from 1901 to 2011 except the census year 1921.

Because, the year 1921 was time of Pre-independence period. At that time our country was very underdeveloped. This year was year of Drought and Famines. At that time Fertility and mortality level of our country was very high due to low level of medical and sanitation facilities, education, unemployment and Natural disasters like flood and Famines. Our state Jharkhand was also affected by these disasters and particularly Ranchi District. That's why, growth rate of Ranchi District in 1921 was negative which is equal to -3.79%. It is lowest value of growth rate.

The highest value of population growth rate in Ranchi District is equal to 28.58% in 2001. Thus, population growth was high during 1991 - 2001.

In recent census year 2011, this growth rate of population is equal to 23.98%. Thus the above table shows the decadal percentage growth rate of population of Ranchi District. This increasing growth of population is harmful for socio-economic and environmental development of Ranchi District and it could be dangerous in Future.

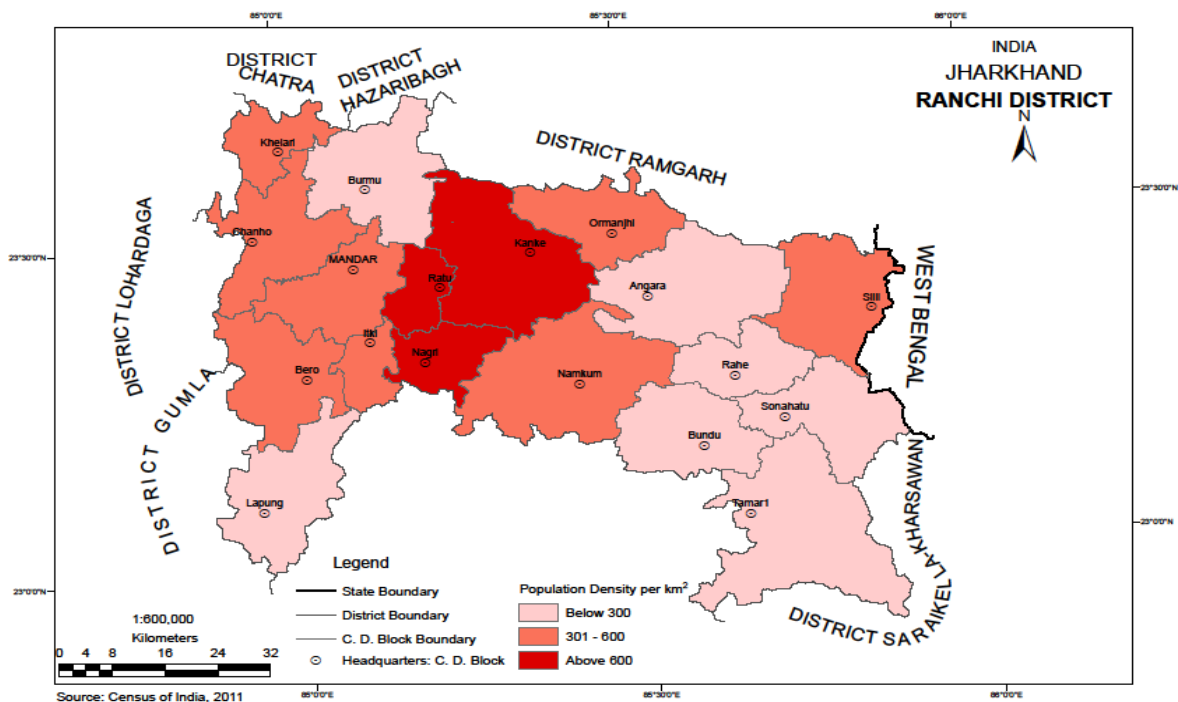
**Table 1.2 Population Density of Ranchi District, 2011**

Sl. No.	Name of Blocks	Total Population	Area (in Km <sup>2</sup> )	Population Density (Person/ Km <sup>2</sup> )
1.	Burmu	89,889	319.67	281
2.	Khelari	78,219	131.38	595
3.	Kanke	244,072	347.11	703

4.	Ormanjhi	94,137	227.97	413
5.	Angara	112,759	398.56	283
6.	Rahe	53,916	180.42	299
7.	Silli	113,798	289.54	393
8.	Sonahatu	77,252	273.12	283
9.	Namkum	145,841	415.61	351
10.	Ratu	76,565	104.47	733
11.	Nagri	76,442	121.93	627
12.	Mandar	128,585	238.24	540
13.	Chanho	107,503	272.80	394
14.	Bero	113,090	290.70	389
15.	Itki	50,058	96.86	517
16.	Lapung	63,053	300.88	210
17.	Bundu	61,921	250.85	247
18.	Tamar	132,672	513.53	258
	<b>Total</b>	<b>2,914,253</b>	<b>5097</b>	<b>572</b>

Source: - Ranchi District Census Hand Book, 2011

Fig 2.2 Population Density of Ranchi District, 2011



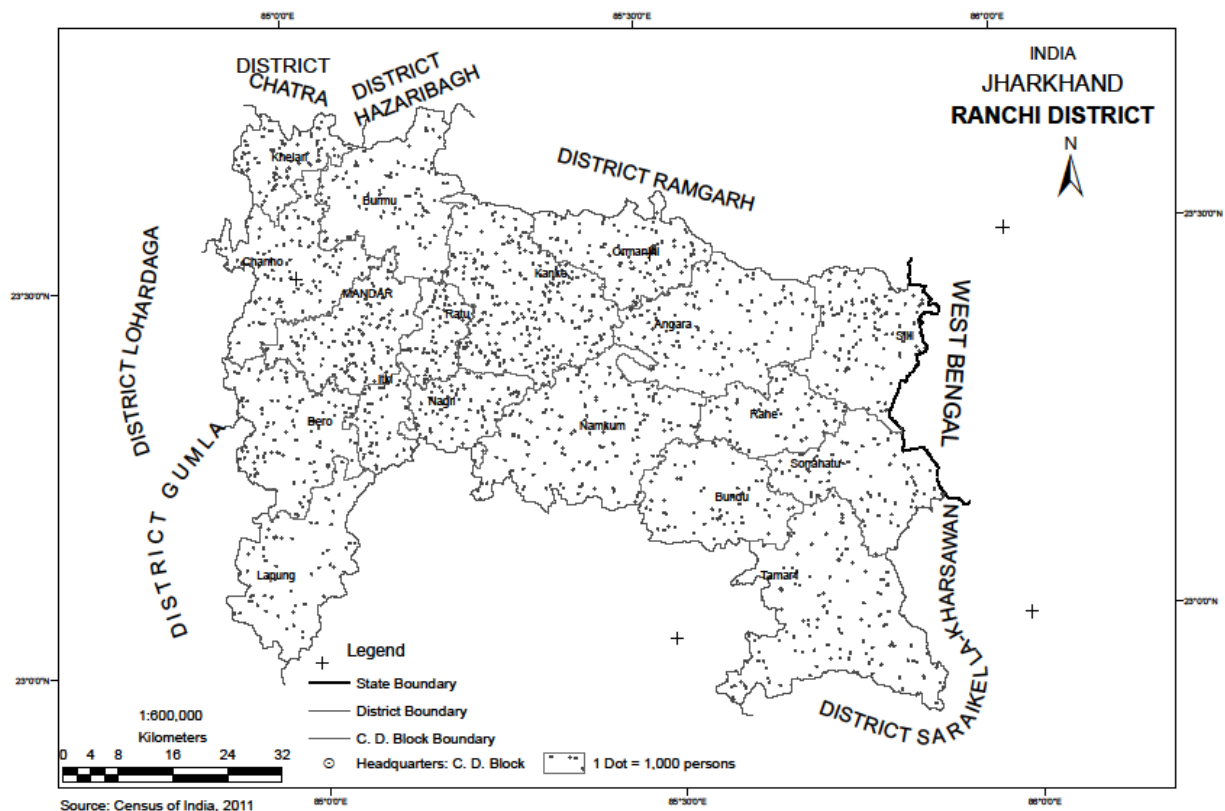


The term population density can be defined as the ratio of number of persons per square kilometer. Total population density of Ranchi District is equal to 572 persons/Km<sup>2</sup> according to census 2011.

The above table 1.2, shows the Block-wise population density of Ranchi District 2011. In this table 1.2, the lowest population density is found in Lapung block which is equal to 247 persons / Km<sup>2</sup> according to census 2011. In 2011, the highest population density is found in Ratu block which is equal to 733 person/Km<sup>2</sup> is higher than the average population density of Ranchi district (572persons/sq.km). Thus, the table 1.2 shows that some blocks of Ranchi district are densely populated like Ratu, Kanke, Nagri and Khelari while some blocks like Lapung, Bundu, Tamar I are sparsely populated.

**Fig 2.3 Title - Population Distribution of Ranchi District, 2011**

**B. (Dot - Method)**



The above figure 2.3, reveals that the population distribution of Ranchi district by Dot Method. These dots shows the distribution of population in different C.D. blocks of Ranchi District. Population are concentrated in some blocks like Kanke, Ratu, Nagri etc. and In some blocks like Lapung, Bundu, Tamar I etc. populations are sparsely distributed.

**2.2 Causes of Population Growth**

- 1) Low level of Education and Poverty.
- 2) Rural to Urban Migration.



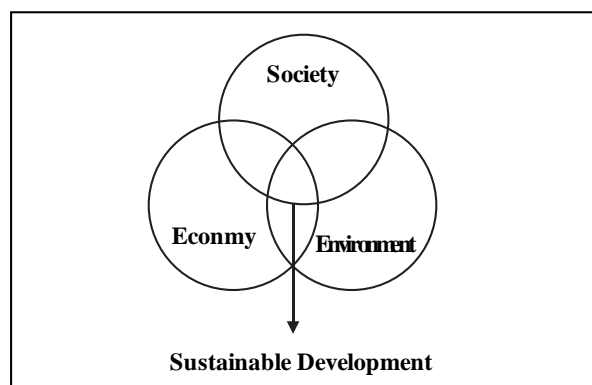
3) Improvement in Medical technology and treatment.

## 2.3 Effect of Population Growth

- i. More consumption of Natural Resources.
- ii. Increased demand for everything while the production of the necessary items doesn't keep up as population growth.
- iii. Increase in Unemployment.
- iv. Government has to spend more on basic necessities while the revenue are not increasing as per population growth, so demand and supply difference is consistently increasing, resulting and increase in prices of items.
- v. Unemployment reduces the capacity of expenditure and families spent its saving o basic need and can't afford the good education for their children. This results in low qualification and low chance of employment for children when they reach their working Age. If affects the growth in Economy and industrial expansion.
- vi. Overpopulation has increased the acts of violence and aggression as people are competing with each other for getting resources and achieving good lifestyle.

\*Effects of population growth on sustainable development

**Figure: 2.4 Components of Sustainable Development**



**Source:** Peeters, 2012; 293

As seen in figure 2.4, it is generally assumed that the sustainable development concept is a social, environmental and Economic Infrastructure. Accordingly the intersection of these three variables indicates the sustainability of the regions development. For this reason, sustainable development is often shown as overlapping regions of three variables. The concept of sustainable development, which is located at the intersection of the triangle of Economy, society and environment, can be a sign of the activity field of these three variables.

Therefore, the Ecosystem is the most important factor that attracts the burden of Economic activities of societies.

The "Future generations" of the sustainable development, as defined in the Brundtland Report, mean a very long time for human life. Thus, the use of resources that will not deprive future generations of their ability to meet their own needs is possible only if the ecosystem, i.e. the

environment, is protected for a very long time (Parkin, 2010). In that case, the community should produce goods and services that will be used to meet the consumption need, and give at least the environment.

However, environmental pollution, which is caused by the continuous increase of the population and the consumption, makes it difficult to protect today's environment day by day. When the activities of the social, Economic and Environmental variables are handled separately, it is known that the results to be produced by each are a problem for another variable in the long run. It means that social, economic and environmental development of Ranchi district is badly affected by population growth.

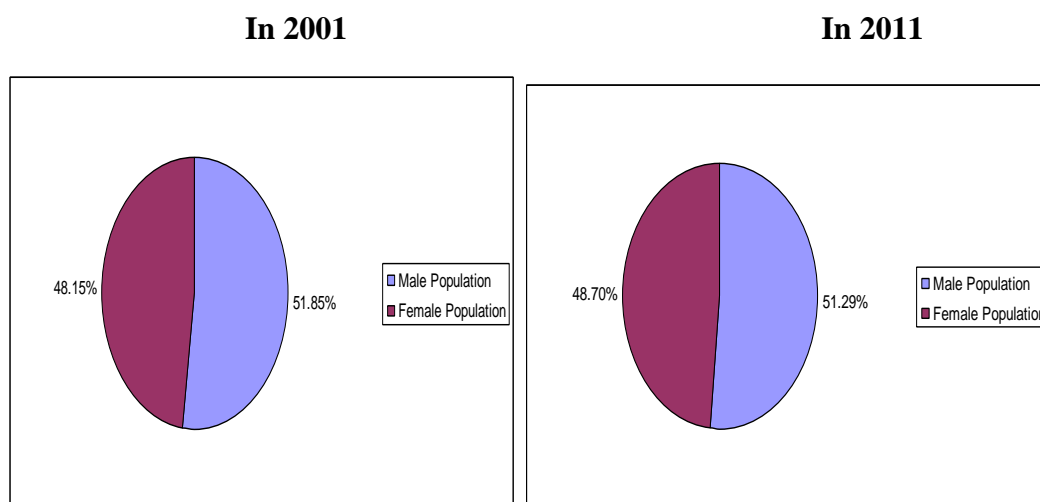
For social development, some indicators are very important like population of Males and Females, Literacy rate (including Male and Female) percentage of Rural-Urban population.

**Table 1.3 Ranchi District (2001-2011)**

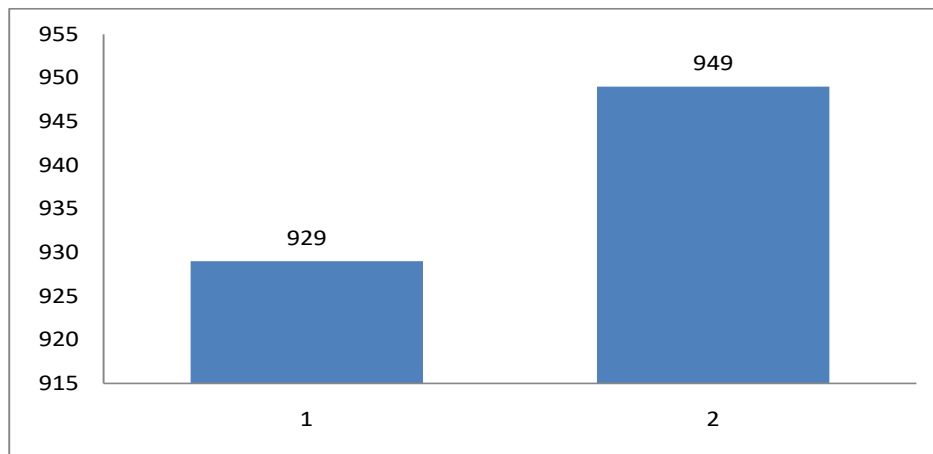
Variables/Census Year	2001	2011
Total Population	2,350,612	2,914,253
Total Male Population	1,218,830	1,494,937
Total Female Population	1,131,782	1,419,316
Male Population (%)	51.85%	51.29%
Female Population (%)	48.15%	48.70%
Sex - ratio	929	949

Source: - Ranchi District Census Handbook, 2011

### Pie chart for Male - Female percentage population



### Sex - Ratio of Ranchi District (2001-2011)



The above table 1.3, shows that the total population of Ranchi district is increased from 2,350,612 to 2,914,253 persons. The Sex-ratio is also increased from 929 to 949 females for thousand Males (2001-2011). There are 51.29% of Male population and 48.70% of female population are found in Ranchi District. (Census 2011)

**Table 1.4 Rural - Urban population of Ranchi District, 2011**

Variables / Census Year	2011
Total Population	2,914,253
Total Rural Population	1,656,918
Total Urban Population	1,257,335
Rural Population (%)	56.85%
Urban Population (%)	43.14%

Source: - Ranchi District census Hand book, 2011

**Pie - Chart (Percentage of Rural-Urban Population)**

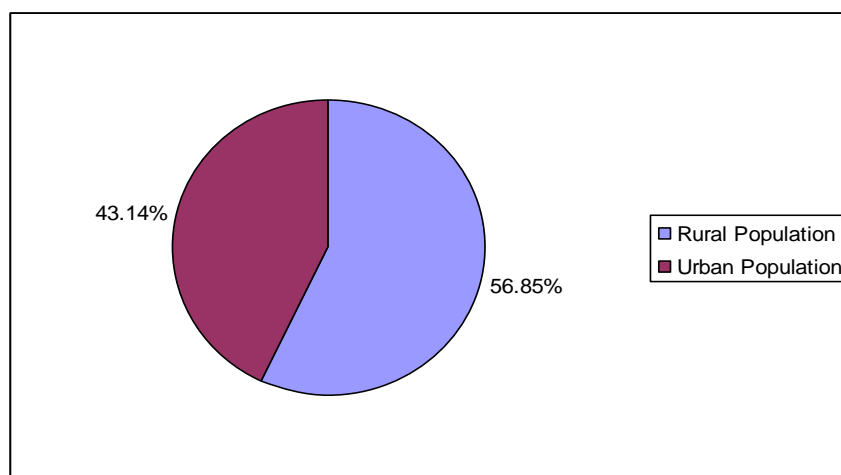


Table 1.4 reveals that In Ranchi district total Rural population is equal to 1,656,918 (56.85%) and total urban population is equal to 1,257,335 (43.14%) in census 2011. It means that in Ranchi district, mostly population are rural and less are urban. Thus, 56.85% of population are lives in villages and rural areas and 43.14% of population are lives in Urban areas (Like Town, City, etc.)

**Table 1.5 Literacy Rate of Ranchi District (2001&2011)**

Variables/Census Year	2001	2011
Total Literacy Rate	66.71%	76.06%
Total Literacy Rate	78.18%	84.26%
Female Literacy Rate	54.27%	67.44%

**Source:** - Ranchi District Census Hand book, 2011

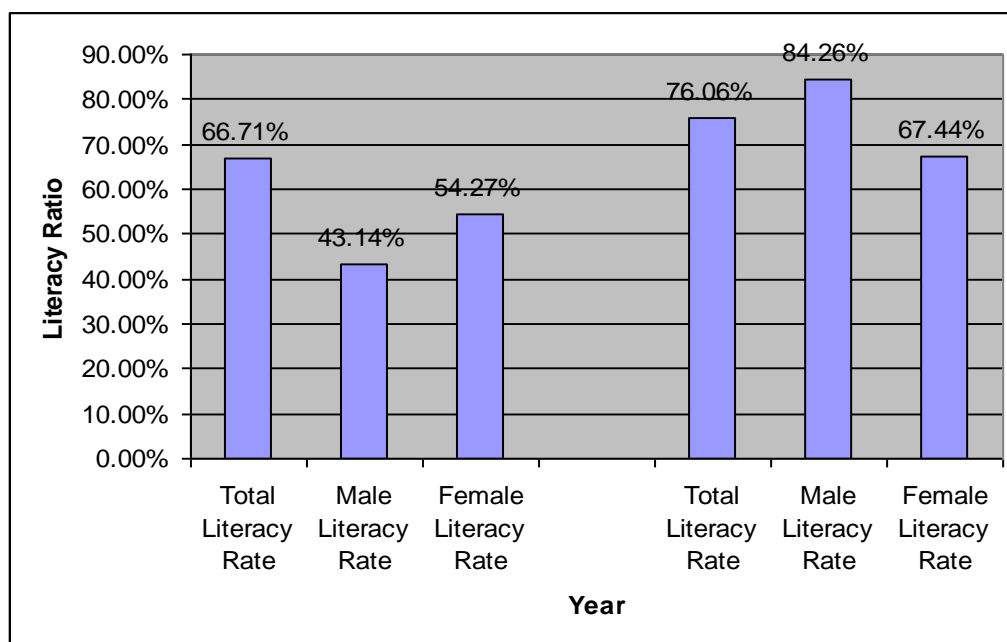


Table 1.5, reveals that the total Literacy rate of Ranchi district is increased from 2001 to 2011 census year. Total Literacy rate increased from 66.71% to 76.06%, while it increased for Males 78.18% to 84.26%, and for Females 54.27% to 67.44%. Increases in Literacy rate shows a positive sign in social development and economic development also and greatly contributed in sustainable development.

For Economic development we took some indicators to reveal it like total working population and Total Non-working population.

**Table 1.6 Ranchi District, 2011**

Variables/Census Year	Total	Male	Females
Total Working Population	1142867 (39.22%)	743967 (49.77)	398900 (28.11%)

Total Population	Non-Working	1771386 (60.78%)	750970 (50.23%)	1020416 (71.89%)
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**Source:** - Ranchi district census Handbook, 2011

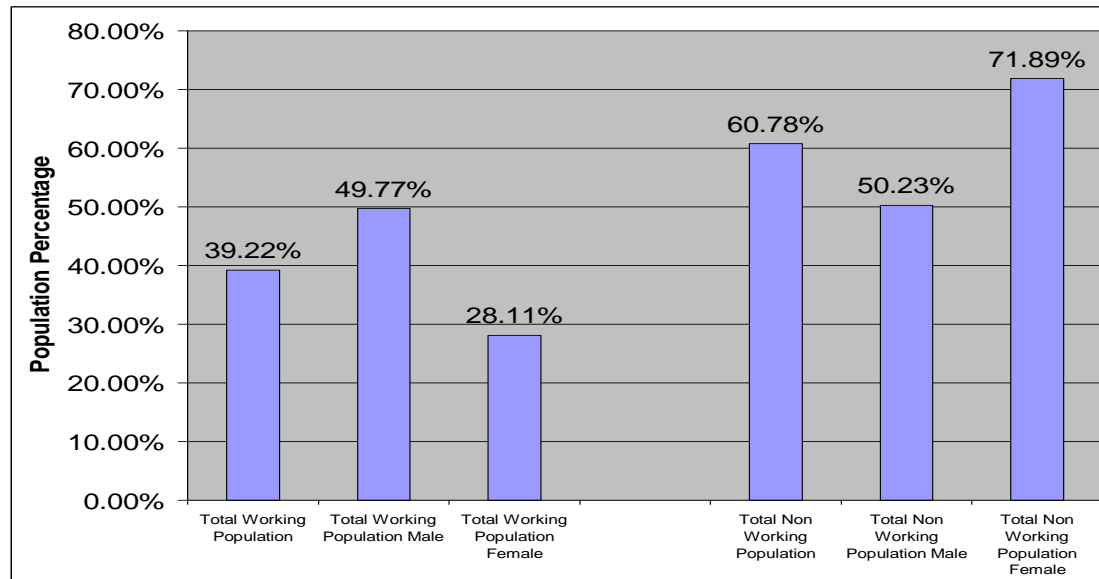


Table 1.6 reveals that in census year 2011, only 39.22% of population are working or who are doing any Job. And 60.78% of population of Ranchi district are unemployed or have no Jobs. They are Non-working population. Thus, the level of unemployment is higher in Ranchi district during 2011. Total Male working population is 49.77 and female working population is equal to 28.11 in census year 2011. It means that Male population are more employed than Female.

Total Male Non-working population is equal to 50.23% and Female Non-working is 71.89% in 2011. In 2011, Level of unemployment is higher in female population than Males in Ranchi district.

Thus, the Main Reason behind these social and Economic backwardness in Ranchi District is population growth.

This growing population of Ranchi district, also influence its environmental condition.

Ranchi district is located on the southern part of the Chotanagpur plateau which forms the eastern edge of the Deccan plateau system. Ranchi has a hilly topography and is surrounded by dense tropical rain Forest. The climate is generally dry with average rainfall 1316 mm.

The temperature varies between 180C to 290C. However, due to global warming, the temperature goes high upto 400C to 440C.

The fertile land comprises of Red and Yellow soil with some amount of sand. But most of the terrains are rocky covered with pebbles. This acts as check on fertility of soil. Ranchi district is well endowed with forest in an area of 99584 hectares, which is 22.024% out of total area.

This figure is below the National average of 24% Major Crops grown in the district are rice and pulse.

In Ranchi district, Forests are depleting to cater the growth of urbanization that is affecting animals in the forest, causing pollution and ecological imbalance. Natural Resources are depleting very fast due to overuse like coal, petroleum etc. It is creating serious effects on environment.

With the increase in population of Ranchi district, number of vehicles and industries has increased significantly, badly affecting the quality of air. Rise in amount of release of greenhouse gases causing global warming, which increasing the temperature of Ranchi district to 40°C - 44°C respectively.

The biodiversity of Ranchi district is depleting due to excess and unsustainable harvesting. Therefore, need to conserve these valuable wild resources are mandatory to ensure the future demand.

### 3.0 CONCLUSION

The purpose of this study is to analyze the impact of population growth on sustainable development for Ranchi district. While today's society meets its needs, it must make use of today's resources, taking into account future generations. Because overuse of today's resources may cause future generations to be unable to meet their need. One of the biggest threats to this situation, defined as sustainable development is population growth. The relationship between population and sustainable development is as important for today's society as it is for future society.

According to the estimates obtained by data of decadal growth rate of Ranchi district since 1901 to 2011 increasing continuously, negatively affect the sustainable development level. When the population growth rate increase, sustainable development will decrease. The results obtained support the view that the literature suggests that the population will negatively affect sustainable development. We must take very serious measures to protect the land, water and natural system to feed the present and future populations.

This is particularly needed for Ranchi district to reduce their population growth rate, to increase the level of economic growth, and to reduce the final consumption expenditure of households and the public.

To live a better life every family need to have proper family planning in manner to provide their kids complete nutritious food, proper shelter, best education and other important resources. Thus, controlled population as the key to the success for Ranchi district (Jharkhand).

### 4.0 SUGGESTION

1. Government should create awareness among people about the importance of family planning, equality of boys and girls, by various advertisement or TV, posters in village etc.

2. In Ranchi district, people are not well educated and have no proper idea about family planning. If the education improves then they will understand disadvantage of having more than one or two children.
3. Government should impose some restrictions to control the number of children per couple.
4. Government should also provide some incentives or tax exemption to curb overpopulation.

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