

**Programme:** Master in Sociology  
Postgraduate Department of Sociology,  
Patna University

**Semester II**

**Course: CC-6 (Sociology of Population Studies)**  
**Unit-III (Part B) Distribution and Density of Population**

**Learning Objectives:**

- To understand the factors influencing the distribution and density of population.
- To explain distribution of population in India.
- To explain density of population in India.

**Introduction:**

One of the most important aspects of India's population is its uneven distribution. On one hand the population of India is highly concentrated in some pockets such as highly urbanized and industrialized areas and areas of high agricultural productivity, while on the other hand there are virtually demographic deserts in high mountains, arid lands, thickly forested areas and some remote corners of the country. Such a situation needs some explanation and the explanation is found, to a great extent, by the study of some geographical factors which affect the distribution and density of population in a given area. Besides some social, demographic, political and historical factors play their own role in influencing the distribution and density of population. It may further be emphasized that these factors act in totality and not individually. While some scholars attach more importance to natural factors, Clarke and Zelinsky are of the view that cultural factors are prominent in determining the concentration of population in an area. According to Clarke, economic conditions, technological development, social organization, government policy, etc. play a vital role in the distribution of population. This part of Unit III would be focusing on distribution and density of population in India and various determinants of distribution and density of population.

**Determinants of Population**

Major factors influencing the distribution and density of population are:

1. Physical Factors

The role of improving technology notwithstanding, the pattern of population distribution in the world continues to reflect the influence of a variety of physical determinants. The cold lands, the hot deserts, the barren mountains, the swamps, the marshes and the humid tropics even today continue to be devoid of effective human settlement. Included among the various physical factors that affect the distribution and density of population are climate (temperature and precipitation), landforms, soils, energy resources and mineral raw materials, and space relationships (accessibility).

2. Climate

Climate influences the spatial distribution of population through temperature conditions, amount of precipitation and length of growing season. It has for long been recognized that man cannot go beyond the limits set by the climate. The severity of climate whether attributed to

the extremities of temperature or precipitation or both has been the chief cause of man's aversion of these lands for occupancy.

### 3. Landforms

Landforms influence the distributional pattern of population both at macro and micro scales. The most striking evidence of the influence of landforms upon population at macro level has been observed between mountain lands and plains. The factors like attitude, slope, drainage, subsoil water table have been affecting population distribution more clearly at local level.

### 4. Soil

The attractiveness of region for human settlement may depend partly upon the quality of the soil. However, the precise assessment of the role of the factor of soil may pose some difficulties because the differences in the quality of soils of different regions are intimately related to their differences in climate, vegetation and landforms.

### 5. Energy Resources and Minerals

Energy resources and mineral raw materials have, of recent, gained their influencing power as far as population distribution is concerned. The power of these raw materials to attract population is found to be in consonance with (i) the importance of the minerals as raw material, (ii) availability of the minerals at other places, (iii) the cost of transportation.

### 6. Socio-cultural factors affecting population

Clarke observes a diminishing influence of physical environment upon the pattern of population distribution with rapid urbanization. Among the various cultural factors that have controlling effect upon the population spread are a history of settlement, the type of economy, the advancement in technology, political decisions and social organization. Historically speaking, the reagency of discovery and settlement of the areas of human occupancy goes a long way in giving an insight to the understanding of the factors explaining the existing pattern of population distribution and density.

### 7. Economy

The economic factors, of course, are supreme as nothing can impede the human occupancy of an area than its economic viability of an area lies in the carrying capacity of the area and in its ability to provide employment opportunities. This in turn would affect not only the size of population but also its spacing. The type of economy an area has, governs to a large extent, the supporting capacity of an area. A specific economic system tends to arrange people in a specific distribution pattern. A network of settlements in primarily agrarian society is bound to be different from that of an industrialized society due to the basic differences in the needs of the two situations.

### 8. Technology

The technological advancements do add other dimensions to the controls of population distribution and density. Technology is both a cause and effect of the emergence of a variety of industries and hence the advancement made in this field may bring a sea change in the degree of diversification of economy of an area. Consequently, it may increase the supporting capacity of such areas and may lead to higher density of population. Similarly, the technological innovations may make a human habitation possible in areas which formerly had been devoid of human population. For instance, the extension of irrigation facilities in the areas suffering from deficiency of precipitation have turned many deserts into fertile farming areas.

### 9. Political Factors

A variety of political factors which have affected population distribution and density in different areas at different times include the emergence of political boundaries, buffer-zones

and the public policies with regard to population movements and trade. The population map of different regions of the world has often been modified by these factors at micro-level.

#### 10. Public Policies

The role of public policies in directing the distributional tendencies among populations has, of recent, been increasing. In countries like former USSR and present China where the governments were in a position to implement their harsh decisions effectively, the political decisions play a decisive role in channelizing currents of migration and in generating re-distributional tendencies within their territories. Attempts have also been made in many countries to shift anti-national minorities from their border areas to relatively interior regions. The government policies with regard to trade connection with countries across their international borders, particularly in case of land borders, do affect the degree of population concentration in the frontiers.

#### 11. Social Organizations

At micro level, factors like social organization and inter-group antipathies can also influence the distributional patterns of population in specific position. The distribution of population is quite often affected by the objectives which a society strives to achieve and by the form of social actions which are taken to achieve the said objectives. Some geographers have greatly emphasized the role of this determinant of population distribution. It has been argued that different societies can subject to different principles of population distribution.

#### 12. Demographic Factors

The demographic factors of vital rates and migration introduce another dimension to the inventory of determinants of population distribution and density. There are wide regional variations in the patterns of fertility, mortality and mobility, which give rise to regional differences in the magnitude of pressure being exerted by population. Consequently, the pattern of change in the density of population is affected significantly by this varying pattern of rate of natural increase.

Apart from these major physical, socio-cultural and demographic factors affecting the distribution and density of population, some physical and social disasters have also been mentioned as factors temporarily altering the population. Earthquakes, land-slides, volcanic eruptions, floods, glacial advances, storms, epidemics, fire, severe draughts constitutes the physical disasters and wars, genocides, forced transfers of population and repatriations constitute the social disasters.

### **Distribution of Population:**

The total population of India for census 2011 is 1,210,854,977 with 623,724,248 males and 586,469,174 females. A casual look at Table 1 below will reveal that the distribution of India's population is very uneven. Contrasts in population distribution are quite clear at the state level and are further sharpened at the level of districts. Uttar Pradesh has the largest population of 199.8 million. This is followed by Maharashtra (112.37 million), Bihar (104.09 million), West Bengal (91.27 million) and Andhra Pradesh (84.58 million). These five states account for more than half of the country's population. More than one-fourth of our people live in the two states of Uttar Pradesh and Maharashtra alone. Uttar Pradesh has more people than the two largest states of Rajasthan and Madhya Pradesh put together. The three southern states of Kerala, Karnataka and Tamil Nadu together have less people than Uttar Pradesh alone. In fact, more people live in Delhi than in the state of Jammu and Kashmir or in all the Union Territories put together.

**Table 1: Population and Decadal Change by Residence: 2011 (Persons)**

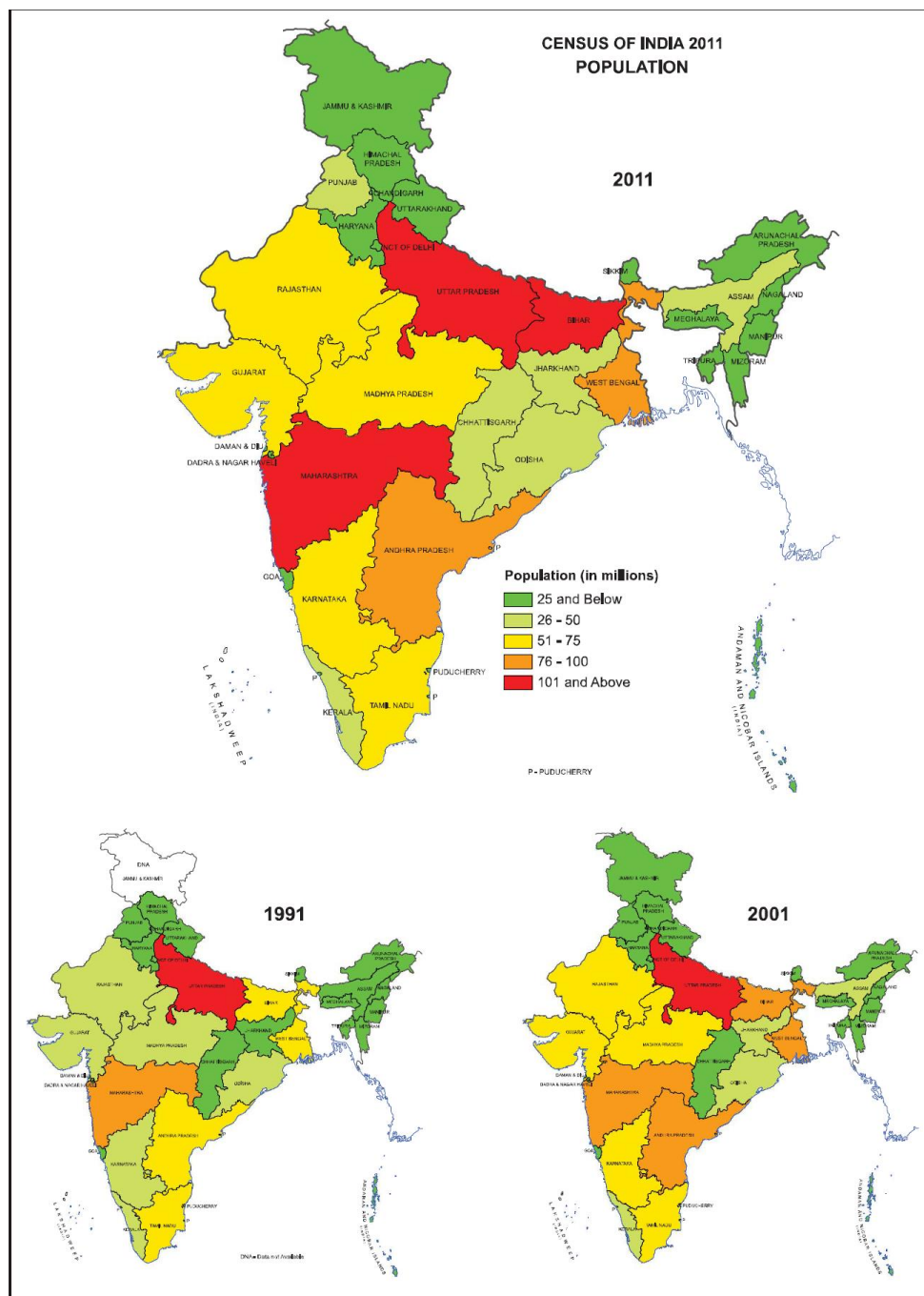
State/ UT Code	India/ State/ Union Territory #	Population 2011			Percentage decadal change 2001-2011		
		Total	Rural	Urban	Total	Rural	Urban
1	2	3	4	5	6	7	8
	<b>INDIA</b>	<b>1,21,05,69,573</b>	<b>83,34,63,448</b>	<b>37,71,06,125</b>	<b>17.7</b>	<b>12.3</b>	<b>31.8</b>
01	Jammu & Kashmir	1,25,41,302	91,08,060	34,33,242	23.6	19.4	36.4
02	Himachal Pradesh	68,64,602	61,76,050	6,88,552	12.9	12.7	15.6
03	Punjab	2,77,43,338	1,73,44,192	1,03,99,146	13.9	7.8	25.9
04	Chandigarh #	10,55,450	28,991	10,26,459	17.2	-68.5	27.0
05	Uttarakhand	1,00,86,292	70,36,954	30,49,338	18.8	11.5	39.9
06	Haryana	2,53,51,462	1,65,09,359	88,42,103	19.9	9.8	44.6
07	NCT of Delhi #	1,67,87,941	4,19,042	1,63,68,899	21.2	-55.6	26.8
08	Rajasthan	6,85,48,437	5,15,00,352	1,70,48,085	21.3	19.0	29.0
09	Uttar Pradesh	19,98,12,341	15,53,17,278	4,44,95,063	20.2	18.0	28.8
10	Bihar	10,40,99,452	9,23,41,436	1,17,58,016	25.4	24.3	35.4
11	Sikkim	6,10,577	4,56,999	1,53,578	12.9	-5.0	156.5
12	Arunachal Pradesh	13,83,727	10,66,358	3,17,369	26.0	22.6	39.3
13	Nagaland	19,78,502	14,07,536	5,70,966	-0.6	-14.6	66.6
14	Manipur	25,70,390	17,36,236	8,34,154	18.6	9.1	44.8
15	Mizoram	10,97,206	5,25,435	5,71,771	23.5	17.4	29.7
16	Tripura	36,73,917	27,12,464	9,61,453	14.8	2.2	76.2
17	Meghalaya	29,66,889	23,71,439	5,95,450	27.9	27.2	31.1
18	Assam	3,12,05,576	2,68,07,034	43,98,542	17.1	15.5	27.9
19	West Bengal	9,12,76,115	6,21,83,113	2,90,93,002	13.8	7.7	29.7
20	Jharkhand	3,29,88,134	2,50,55,073	79,33,061	22.4	19.6	32.4
21	Odisha	4,19,74,218	3,49,70,562	70,03,656	14.0	11.8	26.9
22	Chhattisgarh	2,55,45,198	1,96,07,961	59,37,237	22.6	17.8	41.8
23	Madhya Pradesh	7,26,26,809	5,25,57,404	2,00,69,405	20.3	18.4	25.7
24	Gujarat	6,04,39,692	3,46,94,609	2,57,45,083	19.3	9.3	36.0
25	Daman & Diu #	2,43,247	60,396	1,82,851	53.8	-40.1	218.8
26	D & N Haveli #	3,43,709	1,83,114	1,60,595	55.9	7.7	218.2
27	Maharashtra	11,23,74,333	6,15,56,074	5,08,18,259	16.0	10.4	23.6
28	Andhra Pradesh	8,45,80,777	5,63,61,702	2,82,19,075	11.0	1.7	35.6
29	Karnataka	6,10,95,297	3,74,69,335	2,36,25,962	15.6	7.4	31.5
30	Goa	14,58,545	5,51,731	9,06,814	8.2	-18.5	35.2
31	Lakshadweep #	64,473	14,141	50,332	6.3	-58.0	86.6
32	Kerala	3,34,06,061	1,74,71,135	1,59,34,926	4.9	-25.9	92.8
33	Tamil Nadu	7,21,47,030	3,72,29,590	3,49,17,440	15.6	6.6	27.0
34	Puducherry #	12,47,953	3,95,200	8,52,753	28.1	21.3	31.5
35	A & N Islands #	3,80,581	2,37,093	1,43,488	6.9	-1.2	23.5

Source: 2011 census data.

Fig 1 below shows the state-wise distribution of population which brings out clearly uneven distribution of population in different parts of the country. It is usually observed that different states of India have unequal share not only in population but also in area. As a matter of fact there is little relationship between area and population. For example, Rajasthan is the largest state and accounts for about 10% of the total area of the country, but it accommodates only

5.66 of her population (as can be analysed from Table 1). On the other hand Uttar Pradesh is fourth largest state of India with respect to the area. This state covers only 7 percent of the total area but accounts for as much as 16.5 percent of India's population. Delhi is another extreme example which provides home to 1.38 percent of India's population on less than 0.05 percent of land. Bihar has 8.6 percent population on 2.86 percent of area. In all, in eleven states and six union territories population size is much larger in comparison to the areas. This means that these states have higher pressure of population than the national average. On the other hand, Jammu and Kashmir covers 6.76 percent area but supports only 1.03 percent population of India. Arunachal Pradesh has 0.11 percent of population on 2.55 percent of area.

**Fig 1**



**Source:** Census of India 2011.

## Density of Population:

Density of population is a better measure of understanding the variation in the distribution of population. It is expressed as number of persons per unit area.

**Table 2: Density of Population (per Sq. Km.) by Residence: 2001-2011**

State/ UT Code	India/ State/ Union Territory #	Density of population (per Sq. Km.)	
		2001	2011
1	2	3	4
	<b>INDIA</b>	325	382
01	Jammu & Kashmir	100	124
02	Himachal Pradesh	109	123
03	Punjab	484	551
04	Chandigarh #	7,900	9,258
05	Uttarakhand	159	189
06	Haryana	478	573
07	NCT of Delhi #	9,340	11,320
08	Rajasthan	165	200
09	Uttar Pradesh	690	829
10	Bihar	881	1,106
11	Sikkim	76	86
12	Arunachal Pradesh	13	17
13	Nagaland	120	119
14	Manipur	97	115
15	Mizoram	42	52
16	Tripura	305	350
17	Meghalaya	103	132
18	Assam	340	398
19	West Bengal	903	1,028
20	Jharkhand	338	414
21	Odisha	236	270
22	Chhattisgarh	154	189
23	Madhya Pradesh	196	236
24	Gujarat	258	308
25	Daman & Diu #	1,425	2,191
26	D & N Haveli #	449	700
27	Maharashtra	315	365
28	Andhra Pradesh	277	308
29	Karnataka	276	319
30	Goa	364	394
31	Lakshadweep #	2,022	2,149
32	Kerala	820	860
33	Tamil Nadu	480	555
34	Puducherry #	1,989	2,547
35	A & N Islands #	43	46

**Source:** Census of India 2011.

In other words, it is the ratio of total population to the total area of the country or a part thereof. For example, the total population of India according to 2011 census is 1210.57 million living on a total area of 3.166 million square kilometres (excluding the area of J & K illegally occupied by Pakistan and China). Therefore, the density of population in India in 2011 is:

$$\frac{\text{Total population}}{\text{Total area}} = \frac{1210.57}{3.166} = 382 \text{ persons per square}$$

**Table 3: Increase in Density of Population of India**

Census Year	Density of Population (Persons per sq. km)
1901	77
1911	82
1921	81
1931	90
1941	103
1951	117
1961	142
1971	177
1981	216
1991	267
2001	325
2011	382

**Source:** Census of India 2011, Primary Census Abstract

With an average density of 382 persons per sq. km in 2011, India is considered to be one of the most thickly populated countries of the world. The most striking feature of India's density of population is that it has been consistently increasing since 1901 (Table 3). At the beginning of the twentieth century, i.e., in 1901, the density of population in India was as low as 77. This increased to 82 in 1911 and fell slightly to 81 in 1921. This was due to fall in total population which was caused by epidemics, starvation deaths and World War I. Since 1921 (the year of demographic divide), the population density has been increasing steadily. There had been more than four-fold increase in population between 1921 and 2011. The density of population increased rapidly after independence.

Table 2 shows that there are large scale variations in the population density in India from one state/union territory to another. These variations are depicted in Fig 2.

The Table 2 shows that the national average of 382 persons per sq. km does not give a clear idea of nature of unevenness of population density as it varies from a minimum of 17 persons per sq. km in Arunachal Pradesh to 1,028 persons per sq. km in West Bengal. Among the union territories, Delhi is the most thickly populated with 11,320 persons per sq. km, while Andaman and Nicobar Islands have the lowest density of only 46 persons per sq. km.

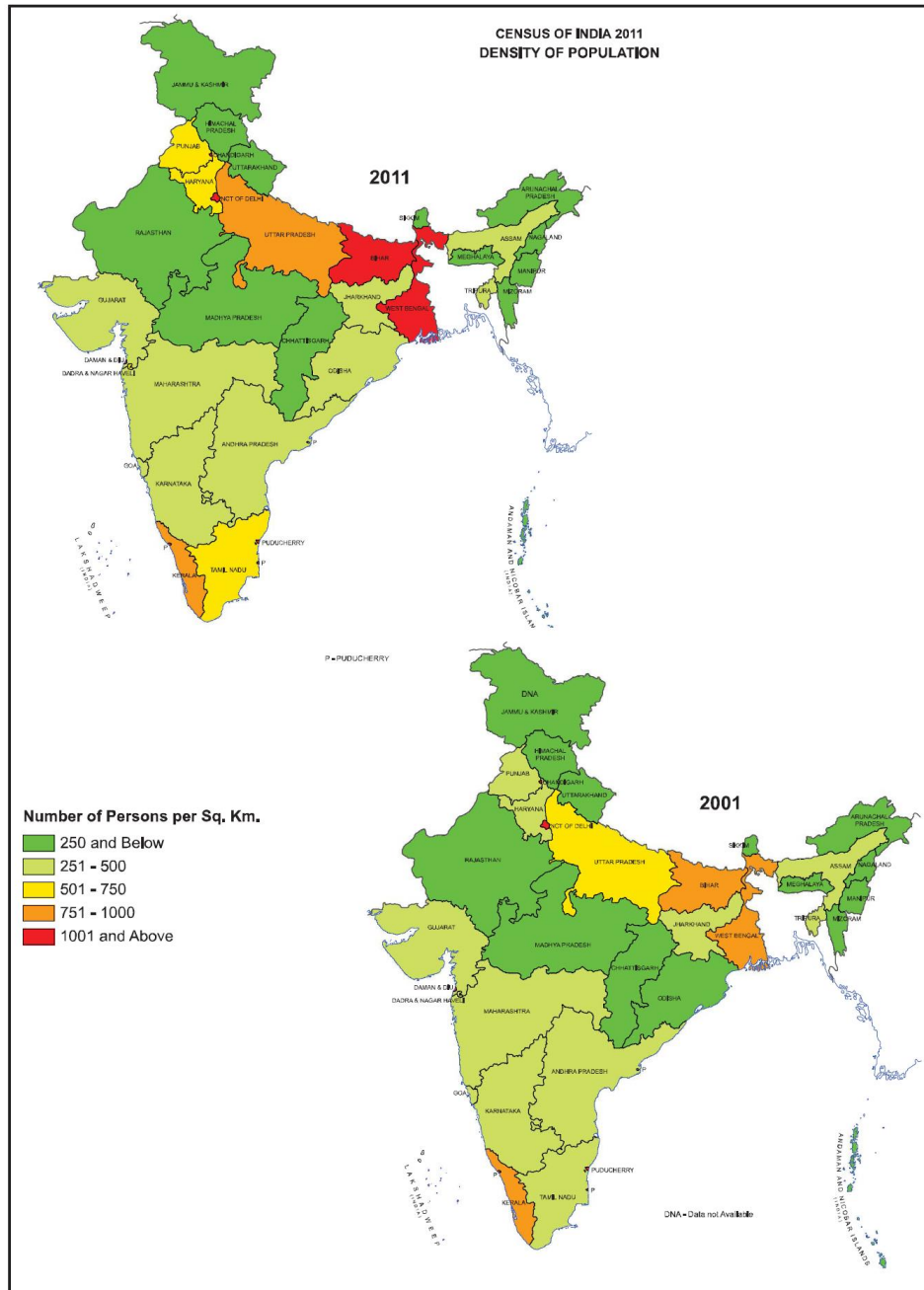
For the sake of convenience, the spatial distribution of population density is classified into following five categories:

1. **Areas of Extremely Low Density:** Areas having 250 persons per sq. km and less than that are included in this category. Such areas include Arunachal Pradesh (17), Mizoram (52), Andaman and Nicobar Islands (46), and Sikkim (86). Arunachal Pradesh and Mizoram are located in a remote and inaccessible part of north-east India. Sikkim is



also a mountainous area with low density of population. Andaman and Nicobar Islands are situated far away from the Indian mainland. Hot and humid climate of these islands is injurious to health and very little economic development has taken place here.

**Fig 2**



**Source:** Census of India 2011, Primary Census Abstract.

2. **Areas of Low Density:** Areas having population density more than 100 and up to 250 persons per sq. km are included in this category. Such areas include Meghalaya (132), Manipur (115), Himachal Pradesh (123), Nagaland (119), Chhattisgarh (189), Uttarakhand (189), Rajasthan (200), Madhya Pradesh (236) and Jammu and Kashmir (124). Meghalaya, Manipur and Nagaland are hilly, forested and dissected areas of north-east India. These areas suffer from almost the same problems as those of Arunachal Pradesh and Mizoram, although to a lesser extent. Himachal Pradesh and



Uttarakhand are parts of the north-western Himalayan region and have a very little level land to support high population density. Rajasthan is the largest state of India. There are obviously large variations in the density of population in different parts of the state depending upon the local conditions. Most of Rajasthan is a sandy desert lacking in water resources and does not support high population density. Madhya Pradesh is a part of the Deccan Plateau and is having rugged topography of hard rocks. Likewise, Chhattisgarh also has rugged topography, is thickly forested and is largely inhabited by the tribal people. As such, the population density in this state is also low. Jammu and Kashmir has vast areas devoid of population. Only some parts of Jammu region and Kashmir valley are thickly populated.

3. **Areas of Moderate Density:** Areas having population density of 251 to 750 persons per sq. km are included in this category. The average for whole of India (382 persons per sq. km) also falls in this class. Odisha (279), Gujarat (308), Andhra Pradesh (308), Karnataka (319), Tripura (350), Maharashtra (365), Goa (394), Assam (398), Jharkhand (414), Punjab (551), Haryana (573), Tamil Nadu (555), Dadra and Nagar Haveli (700) are included in this class. These areas are wide apart from one another and there are different reasons for moderate density of population in different areas. For example, Assam has tea estates whereas Andhra Pradesh, Karnataka and Jharkhand have agricultural and mineral resources. Maharashtra is highly urbanised and industrialised state. The neighbouring state of Gujarat also has urban and industrial growth, although at a scale smaller than Maharashtra. Among the north-eastern states, Tripura has sufficient level land which supports moderate population density. Punjab and Haryana have highly developed agriculture based on heavy inputs in the form of highly yielding varieties of seeds, chemical fertilizers and canal and tube-well irrigation. Similarly, Tamil Nadu's population is based on agriculture and industries.
4. **Areas of High Density:** These are areas having population density of 751 to 1500 per sq. km. Four states – Uttar Pradesh (829), Kerala (860), West Bengal (1,028) and Bihar (1,106) are included in this category. West Bengal is located in the Ganga delta which is one of the most fertile areas of the world, producing 3-4 crops of rice in a year. In addition, India's biggest industrial cluster is located in the Hugli basin. These factors combine together to make West Bengal the most densely populated state of India. The coastal plain of Kerala is also very fertile. However, Kerala has started showing decline in the growth rate of population. The reversal of order between Kerala and West Bengal is due to high growth rate in West Bengal and low growth rate in Kerala. Uttar Pradesh and Bihar are located in the fertile plain and support high density of population.
5. **Areas of Very High density:** Areas having more than 1500 persons per sq. km are termed as areas of very high density. Union territories of Lakshadweep (2,149), Daman and Diu (2,191), Puducherry (2,549), Chandigarh (9,258) and Delhi (11,320) are areas of very high population. Delhi has experienced one of the fastest population growth as a result of which its population density has increased considerably. This growth is primarily due to large scale migration of people from the surrounding areas. People migrate to Delhi in large numbers in search of livelihood, and better amenities of life. On an average, Delhi's population grows at an annual rate of 4 lakhs out of which 2.5 lakh is on account of migration.

Thus, it may be seen that the Eastern region has by far the highest density and the North Eastern region the lowest. Eastern region has recorded the highest increase in density followed by Central and Western region respectively.

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