



Government of Tamilnadu

Department of Employment and Training

Course : TNPSC Group I Mains Material
Subject : Geography
Topic : Population

© Copyright

The Department of Employment and Training has prepared the TNPSC Group-I Preliminary and Main Exam study material in the form of e-content for the benefit of Competitive Exam aspirants and it is being uploaded in this Virtual Learning Portal. This e-content study material is the sole property of the Department of Employment and Training. No one (either an individual or an institution) is allowed to make copy or reproduce the matter in any form. The trespassers will be prosecuted under the Indian Copyright Act.

It is a cost-free service provided to the job seekers who are preparing for the Competitive Exams.

Commissioner,

Department of Employment and Training.

POPULATION

Introduction:

1. Population Geography is a study of demographic phenomena which includes natality, morality, growth rates etc., through both space and time.
2. Human being is an important element of the environment and is probably the latest occupant of the earth, as its evolution took place less than two million years ago. Although distribution and growth of human population are influenced greatly by the physical environment, they have tremendous capacity to modify the physical environment.

Demography is the statistical study of human population. It includes the study of size, structure and distribution of population as well as changes in time and location in response to birth, migration, aging and death.

‘Population explosion’ is one of the greatest challenges that we are facing today.

India is the second most populous country in the world next only to china. India covers only 2.4 percent of the land area of the world, but is the home of about 17.5 percent of the world’s population. It shows that the proportion of population of India is far higher than the proportion of its area.

Thus, a little more than one out of every six persons in the world is from India. Our population is almost equal to the combined population of the USA, Indonesia, Brazil, Pakistan, Bangladesh and Japan and total population of these six countries is 1214.3 million.

Distribution of Population: People have inhabited the earth for several thousands of years, but for a long period of time, their numbers remained limited. It is only during last few hundred years that human population has increased at an alarming rate. Population is spread unevenly across the continents. Only a few areas support large concentration of people while vast areas support few people. A large number of factors influence the distribution and growth of population over the earth’s surface.

◆.....◆

The distribution of population in India is quite uneven because of the vast variation in the availability of resources. Population is mostly concentrated in the regions of industrial centres and the good agricultural lands. On the other hand, the areas such as high mountains, arid lands, thickly forested areas and some remote corners are very thinly populated and some areas are even uninhabited. Terrain, climate, soil, water bodies, mineral resources, industries, transport and urbanization are the major factors which affect the distribution of population in our country.

Uttar Pradesh is the most populous state in the country with a population of 199.5 million followed by Maharashtra (112.3 million), Bihar (103.8 million) West Bengal (91.3 million) and the combined Andhra Pradesh (84.6 million).

These five states account for about half of the country's population. More than one fourth of the population live only in the two states of U.P and Maharashtra. Sikkim is the least populous state of India (0.61 million). Delhi with 16.75 million population tops among the Union territories.

The uneven distribution of population in the country is the result of several factors such as physical, socio-economic and historical ones. The physical factors include relief, climate, water, natural vegetation, minerals and energy resources. Socio-economic factors consist of the religion, culture, political issues, economy, human settlements, transport network, industrialization, urbanization, employment opportunity etc.

The factors influencing the distribution of population:

1. Relief

- Rugged mountains pose various obstacles such as unsuitable conditions for the construction of rail-roads and highways, unfavourable conditions for agricultural crops because of short growing season, lack of cultivable land and snowy winters do not encourage large settlement areas. Hence, the mountainous areas support a few people. On the other hand, a large concentration of population is found in the fertile lowlands such as the Ganges and Brahmaputra in India.
- This is mainly due to flat level land which is fertile, favourable conditions for agriculture, long growing seasons and suitable condition for the settlement.



2. Accessibility

- Areas with well developed transport infrastructure and links through road, rail, shipping, canals and air are likely to be more densely populated than areas which are poorly connected with transport network.
- In earlier times, in the absence of water transport, all islands remained virtually uninhabited. One of the reasons why mountains are not inhabited by people is lack of accessibility.

3. Adequate water supply

Population distribution is affected very much by the presence or absence of water in any region. Water supply is essential for human survival and development. Areas which have sufficient water tend to have denser population than areas which are dry or suffer from regular drought. Well watered regions of the Great Northern plains of India are densely populated whereas drought prone areas of Sahara are sparsely populated.

4. Soil

Fertile alluvial soils of river valleys throughout the world have encouraged dense settlement of population because they support agricultural activities. The high density of population in parts of East and South-East Asia is dependent mainly on fertile soil.

For example, dense population is found in the Ganges valley of India, and Indus valley of Pakistan on the other hand, desert soil of Sahara region is sparsely populated.

5. Economic and political factors

Unfavourable economic condition, unemployment, religious intolerance, conflicts and wars do not favour more population.

Census:

1. Population census is the total process of collecting, compiling, analysing or otherwise disseminating demographic, economic and social data pertaining, at a

specific time, of all persons in a country or a well-defined part of a country. It happens in an interval of ten years.

2. The data collected through the census are used for administration, planning, policy making as well as management and evaluation of various programmes by the government.
3. In India the first census was carried out in the year 1872. But the first complete and synchronous census was conducted in 1881. And the 2011 census represents the fifteenth census of India.

Density of Population:

1. Absolute numbers do not give any indication of the impact of population on the land and its resources. The number of persons living per unit of land areas gives a better picture. This is expressed in the form of density of population per sq.km of land area.
2. It is obtained by dividing the total land area by the total population, the quotient being the number of people per square kilometre. Compared with simple arithmetic density, physiological or nutritional density is a more refined method of calculating man-land ratios.
3. According to 2011, the average density of population of India is 382 persons per sq.km. India is one of the most thickly populated ten countries of the world. The most densely populated state of India is Bihar and the state with least population density is Arunachal Pradesh. Among the union territories, Delhi is the densely populated one with 11,297 per sq.km, while Andaman and Nicobar Islands have the lowest density of population.

Spatial pattern of population	Density
Very Low Density (less than 150 persons per sq.km)	Arunachal Pradesh (17), Andaman and Nicobar Islands (46), Mizoram (52), Sikkim (86) Nagaland (120), Manipur (122), Himachal Pradesh (123), Jammu and Kashmir (124) and Meghalaya (132)

Low Density (150 to 300 persons per sq.km)	Arunachal Pradesh (17), Andaman and Nicobar Islands (46), Mizoram (52), Sikkim (86) Nagaland (120), Manipur (122), Himachal Pradesh (123), Jammu and Kashmir (124) and Meghalaya (132)
Moderate Density (300 to 500 persons per sq.km.)	Gujarat (308), The combined Andhra Pradesh (308), Karnataka (319), Tripura (350), Maharashtra (365), Goa (394), Assam (397) and Jharkhand (414) are the states with moderate population density. Assam has tea estates, Andhra Pradesh, Karnataka and Jharkhand
High Density (500 to 1000 persons per sq.km.)	Punjab (550), Tamil Nadu (555), Haryana (573), Uttar Pradesh (828) and Kerala (859) The union territory of Dadra and Nagar Haveli (698)
Very High Density (greater than 1000 persons per sq.km)	West Bengal (1029), Bihar (1102), Lakshadweep (2013), Daman and Diu (2169), Puducherry (2598), Chandigarh (9252) and Delhi (11,297).

Physiological or Nutritional density is the ratio between total population and total cropped area. The total arable land in the world is 13.3% and the nutritional density of the world is 325 per sq.km of land. The total percentage of arable land is 48.83 in India and its nutritional density is 753 per sq.km of land. Singapore has the highest nutritional density of population of 440,998 per sq.km of land the world.

Population Growth and Change:

- After the introduction of agriculture about 8,000 to 12,000 years ago, the size of population was small, roughly 8 million. In the first century (C.E) it was below 300 million. The expanding world trade during the sixteenth and seventeenth century, set the stage for rapid population growth.
- Around 1750, at the dawn of Industrial Revolution, the world population was 550 million. World population exploded in the eighteenth century after the Industrial Revolution. Technological advancement achieved so far helped in the reduction of birth rate and provided a stage for accelerated population growth.
- The growth rate of population is an important demographic feature. It not only helps in understanding the population change that a society has undergone in

the past but also helps in predicting the future demographic characteristics of an area. Population growth refers to the change in the number of inhabitants of a country/territory during a specified period of time. The growth of population is expressed in percentage and is described as the growth rate of population.

- Growth of population in India has gone through the different phases. Population of the country in 1901 was 238 million and it grew to 1,210 million over a period of little more than a century.

The 2011 census reveals growth of youth population which is described as ‘demographic transition’.

The Period of Stagnant Population (1901-1921):

During the first phase of 20 years (1901-1921), the population of India grew by 15 million. The year 1921 registered a negative growth rate of -0.31% which happened only once throughout the demographic history of India and is called the year of Great Demographic Divide.

The Period of Steady Growth (1921-1951):

During the second phase of 30 years (1921-1951), the population of India grew by 110 million.

The Period of Steady Growth (1951- 1981):

During the third phase (1951- 1981), the population of India grew from 361 million in 1951 to 683 million in 1981. Growth rate in this period is almost doubled when compared to the previous phase of growth rate. This period is often referred to as the period of population explosion.

The period of High Growth with Definite Signs of Slowing Down (1981-2011):

Population of India increased from 685 million to 1210 million during this phase. The growth rate of population decreased from one census to other. This marks the beginning of a new era in the demographic history of India.

◆.....◆

Population change refers to an increase or decrease of population of an area from one period to another period. Population growth is influenced by the birth rate, death rate and migration. These three make the changes in population. Birth rate refers to the number of live births per thousand people in a year and the Death rate refers to the number of deaths per thousand people in a year. The rapid decline in death rate is the major cause of the rapid growth of population in India.

Census Year	Population (in crores)	Average annual growth rate
1901	23.84	-
1911	25.21	0.56
1921	25.13	-0.03
1931	27.90	1.04
1941	31.87	1.33
1951	36.11	1.25
1961	43.92	1.96
1971	54.81	2.20
1981	68.33	2.22
1991	84.33	2.16
2001	102.70	1.97
2011	121.02	1.66

Composition of Population

Composition of Population includes sex ratio, literacy rate, age pyramids etc.

Sex Ratio:

- The sex ratio is the ratio of males to females in a population. It refers to the number of females per 1,000 males. It is an important indicator to measure the extent of prevailing equity between males and females at a given point of time. In India, the sex ratio is more favourable to males than to females. In Kerala, the adult sex ratio is 1084 as in 2011. According to 2011 census, the sex ratio of the country is 940 females per 1000 males. This suggests that the size of female population is lower than males.

- ◆.....◆
- Only in the state of Kerala and the union territory of Puducherry the sex ratio is greater than 1000. It is 1084 in Kerala and 1038 in Puducherry. The lowest sex ratio is recorded in the union territory of Daman and Diu (618).

Census year Sex ratio (Number of females per 1000 males)

1951	946
2001	933
2011	940

The recent census (2011) shows that there has been a marginal increase in sex ratio. Haryana has the lowest sex ratio of 877 (2011) among other states, while Kerala provides better status to women as compared to other States with 1084 females per 1000 males.

Literacy Rate:

The people who are able to read and write are known as **literate**s. It is an important indicator of quality of people. The percentage of literate people to the total population is termed as **literacy rate**.

In 1951, only one-fourth of the males and one-twelfth of the females were literates. Thus, on an average, only one-sixth of the people of the country were literates. In 2011, 82% of males and 65.5% of females were literates giving an overall literacy rate of 74.04% (2011). When compared to other developed countries and even Sri Lanka this rate is very low.

There has been a steady improvement in the literacy levels in India. India's literacy rate as per 2011 census is 74.04%. From this, the literacy rate of male is 82.14% and the female is 65.46%. It shows that still there is a vast gap (16.68%) between the male and female literacy rates. Kerala ranks first in the country with a literacy rate of 93.91% followed by union territory. Lakshadweep with 92.28%. The lowest literacy rate is found in Bihar (63.82 %).

Population Age Pyramids:

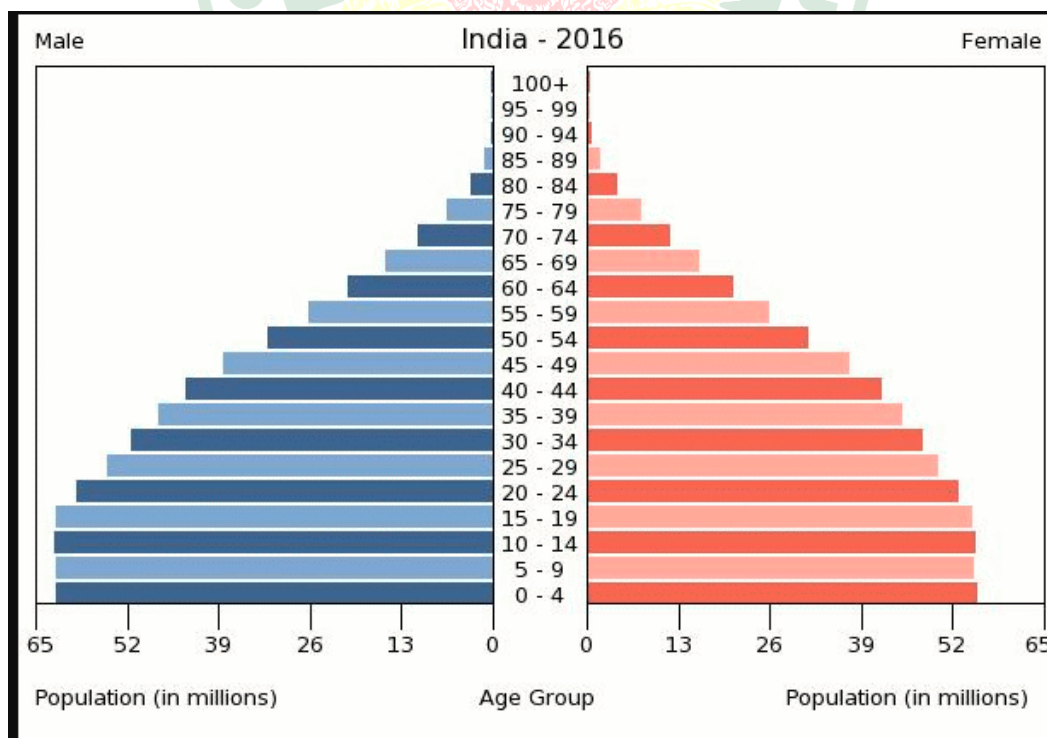
Population pyramids are graphical representations of the age and sex of a population. For this reason, population pyramids are also referred to as **age-sex pyramids**.

The Purpose of the Age - Sex Pyramid:

The purpose of making this Age – Sex pyramid is to find out the comparison between the number of men and women, the number of workers, and the structure of the population in a country quickly.

We refer to these graphs as pyramids because they are usually shaped like triangles and population pyramids also take other shapes. Population pyramids usually have males on the left side and females on the right. There is also a vertical line in the middle of the graph that separates the males from the females.

In addition, the creation of the Age - Sex Pyramid also has a purpose to assist the government in taking development policies.



Population of Tamil Nadu:

- People of a country are the greatest assets for development. People living in an area together are known as population. The study of population is known as demography. People are considered as resources because of their ability to change available natural resources into value added products.
- Human potential, knowledge and energy are used for the betterment of individuals, the society and the nation. Every individual contributes to the nation's development.
- Therefore, the size of population and its individual capacity in terms of education, health and work force decides the pace of national development. For this reason, people of the country should be nurtured in proper manner to maintain the quality and quantity.

Population of Tamil Nadu

As per 2011 Census, the population of Tamil Nadu was about 7,21,38,958 and which 3,61,58,871 was males and 3,59,80,087 was females. Tamil Nadu as a whole has 5.96% of the total national population (India).

Growth of population

The population of Tamil Nadu has doubled over a period of 60 years from 1951 to 2011.

- The difference between birth and death rates gives the natural increase of population of regions. When expressed in percentage it is known as the growth rate. The annual growth rate is 1.1%, which is lower than that of India.
- When birth rate is continuously high, a nation has to provide education and health facilities for more number of children. Other environmental problems also increase with high population. Tamil Nadu has shown a considerable rate of reduction in growth rate in recent years.

Distribution of population

Chennai possesses the largest share of 6.4% of the total population of Tamil Nadu. This is followed by Coimbatore, Vellore and Salem districts. Preamble has the least population of (0.078%)

Factors influencing the distribution of population

- Generally, plains with suitable climate support a huge population.
- Coastal plains with mild temperatures and good opportunities for economic activities support huge population.
- Job opportunities in large towns and cities attract both literates as well as illiterates.
- Dry regions generally support a small population.
- Mountainous regions with steep slopes and forest cover support a small population as well.

Population Density:

Number of persons per square Km	Density	Districts (Density is given in brackets)
Less than 400	Low	Nilgiris (288), Ramanathapuram (320), Perambalur (323), Sivagangai (324), Dharmapuri (332), Pudukkottai (348), Dindigul (357), Krishnagiri (370), Karur (371), Thoothukkudi (378), Ariyalur (317), Erode (397), Tiruvannamalai (399)
400-800	Medium	Theni (433), Virudhunagar (354), Tirunelveli (458), Tiruppur (476), Viluppuram (482), Namakkal (506), Thiruvavur (533), Tiruchirappalli (602), Vellore (646), Salem (663), Nagapattinam (668), Thanjavur (691), Cuddalore (702), Coimbatore (748)
Above 800	High	Madurai (823), Kancheepuram (927), Thiruvallur (1049), Kanniyakumari (1106), Chennai (26903)

From the table, it may be understood that eight districts exhibited high population density. Seventeen districts have medium densities and five districts fall under low population density. Chennai, the capital city, a centre for administration, education, industry, trade, commerce and recreation, has the highest density of population. Sivagangai has the lowest density of population.

Composition of Population in Tamil Nadu

- As per 2011 census, 37% of population in Tamil Nadu is below 20 years, 54% is between 20 and 60 years, and 9% is above 60 years.
- Percentage of Schedule Castes and Schedule Tribes is 20% and 1.1% respectively.
- In Tamil Nadu there are about 88% Hindus, 5.5% Muslims, 6% Christians and the rest are of religions such as Sikhs, Buddhist and Jains.
- The state has a sex ratio of 996 women for 1,000 men. The highest sex ratio is in Thuthukodi (1042) and the least is in Dharmapuri (946). Fifteen districts record more females than males.
- In Tamil Nadu, 51.55% of the people live in rural areas and 48.45% of the population live in urban centres.

Migration:

- Migration means the movement of people from one place to the other. It is an important control of population growth after fertility and mortality. Migration of people into an area from outside is called immigration or in-migration while movement out of an area to other regions is called emigration or out-migration.
- Immigration leads to an increased growth rate of population; emigration lowers the growth rate of population in the source region.
- Immigration does not change the size of population of a country but it influences the distribution of population in a nation. It plays an important role in changing the composition and distribution of population.
- In India, the mass migration is from rural to urban. Unemployment and under employment in the rural areas are the push factors and the employment opportunity and higher wages in the urban areas caused by the industrial development are the pull factors of migration in the country. 45 out of 121 crores of people in India are reported to be migrants as per 2011 census.

- ◆.....◆
- Migrants constitute about 37% of population. Migrants are 48% from female and 52% from male.

Brain Drain

Brain drain is related to educationally specific selective migrations. Some countries are losing the most educated segment of their population. It can be both a benefit for the receiving country and a problem to the country of origin.

Causes of Migration:

We can divide factors causing migrations into two groups of factors as push and pull Factors.

Push and Pull factors

- Push and pull factors are those factors which either forcefully push people into migration or attract them.
- A push factor is forceful, and a factor which relates to the country from which a person migrates. A pull factor is something concerning the country to which a person migrates. It is generally a benefit that attracts people to a certain place.
- Push and Pull factors are usually considered as north and south poles on a magnet.

Push Factors: Not enough jobs, few opportunities, desertification, famine/drought, political fear/ persecution, poor medical care, loss of wealth, natural disasters, death threats, slavery, pollutions, poor housing, landlords, bullying and poor chances of finding courtship.

Pull Factors: job opportunities, better living conditions, political and or religious freedom, enjoyment, education, better medical care, security, family links, industry, better chances of finding courtship.

- **Overpopulation:**

Overpopulation is the state whereby the human population rises to an extent exceeding the carrying capacity of the ecological setting. In an overpopulated

.....◆
environment, the numbers of people might be more than the available essential materials for survival such as transport, water, shelter, food or social amenities.

- This regularly contributes to environmental deterioration, worsening in the quality of life, or even the disintegration of the population. Due to immigration, the decline in mortality rates, medical breakthroughs, and increased birth rates, populations will always increase and eventually gives rise to overpopulation.

Impacts of Overpopulation:

Overpopulation thus contributes to some of the most compelling environmental problems which encompass:

1. Depletion of Natural Resources

As human population keeps on increasing, exhaustible natural resources such as arable land, coral reefs, fresh water, fossil fuels, and forests continue to drop sharply. This creates competitive demands on the vital life-sustaining resources and contributes to an incredible decline in the quality of life.

2. Accelerated Habitat Loss

- The increased loss of the ecosystems including wetlands, wildlife, rainforests, coral reefs, aquatic life forms, and grasslands are highly influenced by overpopulation. For example, rainforests originally covered 14% of the entire earth's surface. Today, rainforest only cover about 6% of the earth's surface and scientists' project it may even become less in the next four decades judged by the current rate of vegetation removal, logging, and deforestation.
- Besides, due to environmental pollution, 30% of the ocean reefs have been lost because of acidification and global warming since 1980. Also, more than half of the original wetlands have been lost.

3. Amplified Climate Change and Global Warming

- The more the number of people, the more the number of vehicles and industries would be. Furthermore, more population tends to increased use of energy sources such as coal and firewood which contributes to increased greenhouse gas emissions.

- ◆.....◆
- Hence, because of the accumulation of human generated greenhouse gases and carbon footprint in the atmosphere, the planet has continued to witness amplified global warming and climate change. The effects of climate change and global warming are resulting in extreme hunger, drought, flooding, and loss of habitat.

4. Loss of Biodiversity

Overpopulation has caused encroachment into frontier forests and destruction of natural ecosystems that has led to the mass extinction of species. The number of threatened species persists to multiply in number whereas some have completely gone extinct. This is because of human activities such as acidifying water, over exploitation of natural resources, pollution, over fishing, poaching, and destruction of natural systems which are necessary for the survival of different species.

5. Decrease of fresh water

The unrelenting nature of overpopulation on the earth has destroyed most of the world's fresh systems. Most of the lakes, streams, rivers and ground water making up fresh water have been polluted. According to the global outlook of water resources, these activities influenced by overpopulation have only left less than 1% of the planet's fresh water readily accessible for human utilization. Water vulnerability is already affecting many overpopulated nations, especially in some developing countries, as the demands for water tend to be more than the accessible water. Millions of fish species from freshwater ecosystems are on the verge of extinction. Thus, as human inhabitants rise in number, so will the problem of quality freshwater accessibility.

6. Lower Life Expectancy and Diminished Quality of Life

- Overpopulation lowers the standards of living since it creates stress on the vital resources for survival and increases the difficulty of accessing the consistent supply of quality food, water, energy, health, security and shelter.
- Consequently, it makes the poor to become poorer, and they often opt for poor living conditions to survive. Eventually, it gives rise to lower life expectancy. The

.....◆
situation is serious in developing nations such as southern Asia and sub-Saharan Africa where most of the poor populations submit to inadequate and poor diets.

7. Rise in Unemployment, Crime Rate, and Violence

- In overpopulated nations, the available jobs are fewer than the overall job seeking population. This contributes to high levels of unemployment. In turn, lack of unemployment leads to elevated crime rates because of theft, drug cartels, and militia groups which are exploited as options for attaining basic resources and necessities such as food, good living standards, and wealth. Violence and conflicts arise when people start competing for the available limited resources.

8. Increased Intensive Farming

As population has grown over the years, farming practices have evolved to produce enough food to feed larger numbers of people. However, intensive farming methods also cause damage to local ecosystems and the land, which may pose problems in the future.

Measures to control overpopulation:

Here are some unique solutions to overpopulation:

1. Creating Awareness Campaigns:

Using both social and mainstream media, we can clearly tell people around the world the truth about overpopulation crises and what must be done to solve them the right way.

2. Promotion of Adopting child:

Adoption become a consideration for family planning, particularly among socially conscientious communities. And today, it has become a de-facto solution for people who are interested in starting a family, yet having concerns about overpopulation.

◆.....◆

3. **Aiming for Single-Child Families:**

According to statistics, hundreds of thousands of people are being added to the planet every day, which is an unsustainable rate. Hence, it is need of hour we should aim for single-child families.

4. **National Security issue:**

Over populated countries should treat population boom as an issue of national security. As you can see, similar to food insecurity and climate change, uncontrolled and rapid population growth can be a national security threat in a way that it results to instability.

5. **Changing Social Norms:**

Some couple choose not to have children and we have to respect their decision. This way we will be able to help curb the problem of overpopulation.

6. **Providing Tax Benefits or Concessions:**

Governments of various countries can come up with various regulations and policies related to tax exemption to help solve overpopulation. For example, they can waive certain parts of income tax or lower income tax rates for couples who have one or two children.

Questions

1. Elucidate the factors influencing the distribution of population.
2. Discuss about the population growth & change in India.
3. What are the impacts of overpopulation? Give a short note on measures of controlling population.