

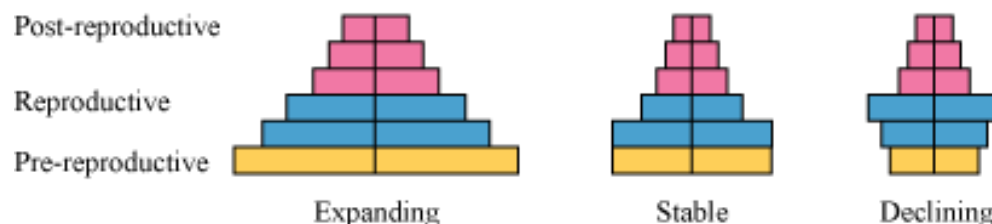
Population

Population:

- It is a group of similar individuals living in a geographical area, sharing similar resources, and capable of interbreeding.
- Population has certain attributes, which individual organisms do not possess:
- **Birth rate** *per capita* births
- **Death rate** *per capita* deaths
- **Sex ratio** – Ratio of number of males to females in a population
- **Demography**: It refers to the statistical study of human population considering the following factors:
 - Distribution of population
 - Size and Density of population
 - Birth rate
 - Death rate
 - Growth rate of population (Growth rate = Birth rate - Death rate)

Age distribution

- A population can be composed of individuals of different age groups.
- Age distribution plot for a given population is given by the age pyramid.
- The structure of the age pyramid determines the growth status of the population, whether it is growing, stable, or declining.



Population size, more technically, is referred to as population density (N), which indicates the number of individuals inhabiting a particular niche.

If the population is huge, then relative density is measured instead of absolute density whose measurement is time-consuming.

Population Explosion and Its Reasons

Population Explosion

Population explosion is a known threat to all of us as it creates a lot of problems and over-utilisation of resources. The developing countries suffers the most because of the rising population.

In the earlier times, around 50,000 years back, the total world population of man was only around 1 million. Now-a-days the story has changed; the population has reached around 7 billion and still increasing. Man has now started leading a luxurious life, resulting in exploitation of maximum resources.

Reasons Behind the Population Explosion

Rapid rise in population has been observed in past few decades and two main reasons behind it are:

(i) Industrial Revolution

- Growing industries made human life much more comfortable.
- It resulted in more job opportunities, as well as more production of food.

(ii) Advancements in Medical Sciences

- Discoveries of antibiotics and vaccination have extended the life span of humans.
- Healthcare facilities have become easily accessible for all age groups.
- Better medical aids have resulted in decreased infant mortality rates.
- Increased awareness among masses regarding healthcare and immunisation has also played a major role in protection against fatal diseases.

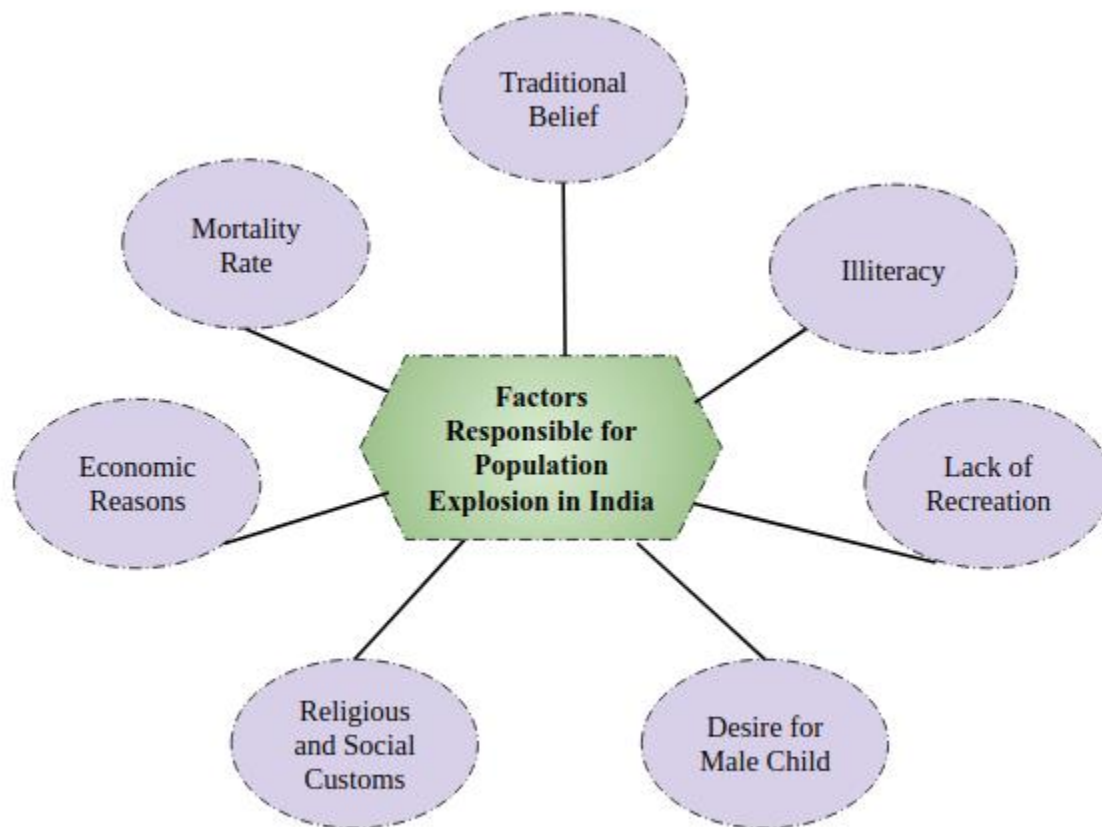
Trends of rise in population of India

The population in India is steadily increasing over the years, which is an alarming situation.

Year	Approx. population of India (in millions)	Year	Approx. population of India (in millions)
1901	238	1961	439
1911	252	1971	548
1921	251	1981	685
1931	279	1991	846
1941	318	2001	1027
1951	369	2011	1210

If the present trend of population growth remains as such, India will overtake China and become **World's highly populated country** by the year 2025.

Factors Responsible for Population Explosion in India



Consequences of Population Explosion

Do you know that the rate at which population is increasing will lead to serious consequences? And the effect that population explosion is exerting on the earth can be easily seen in the form of greenhouse effect and global warming.

Some of the other effects that population explosion will have are:

- Environmental pollution
- Acute shortage of resources (land, food, clothing, drinking water)
- Depletion of natural resources, especially the non-renewable ones to a great extent
- Non-availability of proper facilities, be it medical, educational, or commodity-related
- Increased rate of unemployment
- Poverty, crimes, and natural calamities

- Due to shortage of resources, price hike will be a major problem.
- Slum dwellings will increase and due to lack of proper sanitation, more diseases will occur.

Pressure on Natural Resources

As mentioned in the previous section, the already scarce natural resources will further deplete as a result of population explosion. Some of the natural resources and the effects of population explosion on them are given as follows:

- **Food** – As said by Malthus, “population rises in geometric pattern while food production increases in arithmetic progression”, therefore, it is obvious that food production will definitely fall short for the rising population.
- **Forests** – Forests are used by human beings for fibre, timber, medicines, paper, etc. These requirements of human beings have led to deforestation. Deforestation, if unchecked, will lead to serious consequences such as soil erosion, floods, famines, and extinction of plant and animal species.
- **Water** – Water as a natural resource is getting degraded in quantity as well as quality. The wastage of fresh water and water pollution will lead to scarcity of clean drinking water.
- **Land** - Most of the useable land is brought under cultivation or construction of buildings, hence reducing the availability of land.
- **Mineral Resources** – Non-renewable resources such as iron, copper, aluminium are being depleted at a fast rate. According to an estimate, copper reserves will be exhausted within hundred years.

Fossil Fuels – Already scarce fossil fuels such as coal and petroleum will deplete to a greater extent.

Sustainable Use of Resources:

Using the resources in such a manner that it is available for the future generation as well and there is no ill effect on the resource is known as sustainable development. It can be achieved by:

- Optimum utilisation of resources
- Recycling and reusing
- Using renewable resources

Birth Control

Increase in the population density of a country results in a number of social and economic concerns.

- Per capita income gets decreased.
- Health of population is affected.
- Over utilisation of natural resources occurs.

It is essential to educate the people about population explosion and its adverse effects. Some measures that can be taken for the same are:

- Creating awareness among people about advantages of small family.
- Educating married couples to have gaps between two children.
- Advising people about family planning.

Successive governments have come out with various programmes that encourage smaller families by means of various contraceptive methods.

Contraceptive methods are of two types:

- Natural means of contraception
- Artificial means of contraception

Natural Methods

Avoiding the coming together of ovum and sperm

- **Periodic abstinence:** Avoiding coitus from days 10 to 17 of the menstrual cycle
- **Coitus interruptus:** Withdrawal of penis before ejaculation
- **Lactational amenorrhea:** It is the absence of menstruation during lactation. So, in the lactation period, the chances of conception are almost zero.

Artificial Methods

- Physically preventing the coming together of ovum and sperm
- **Barriers:** Include condoms, diaphragms, cervical caps and vaults
- **Intra uterine devices (IUDs):** They release hormones to cause phagocytosis of sperms, or they release copper ions to decrease sperm motility.
- **Oral contraceptive pills:** They contain hormones—either progesterone or progesterone–oestrogen combination.
- **Surgical methods:** Include vasectomy (removal of a part of the vas deferens in males) and tubectomy (removal of a part of the fallopian tubes in females)