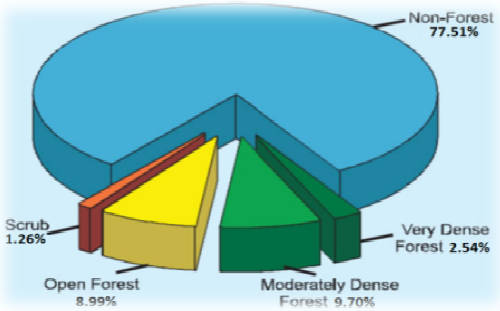
13. NATIONAL ENVIRONMENTAL ISSUES

- India's growing population has been one of the major causes of environmental degradation.
- Rapid growth of human population has been accompanied by rising expectation and increase in the standard of living, more good houses, better transport facilities, more energy and so on.
- This growing human need have resulted in depletion of natural resources, deforestation, loss of biodiversity, water and energy scarcity, increasing exploitation of mineral resources etc.
- This has further led to the degradation of the environment. It is important to identify and address important issues to conserve and improve the environment.
- **Map showing land and forest of India**

- **Map of India showing the physical features**

Pie-chart showing the forest cover of India



- **Different types of forest in India**

The major types of forest in India are:

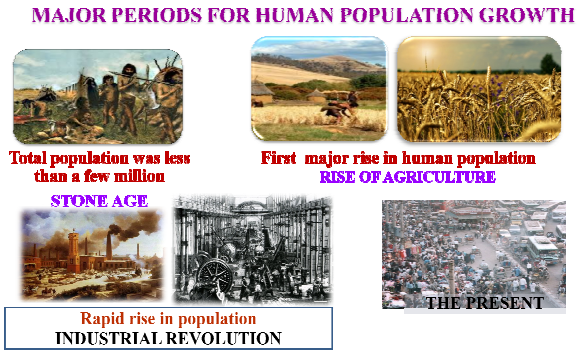
1. Tropical rain forest
2. Tropical deciduous broad leaf forest
3. Temperate broad leaf forest
4. Temperate needle-leaf or coniferous forest
5. Alpine and tundra vegetation

- **Population**

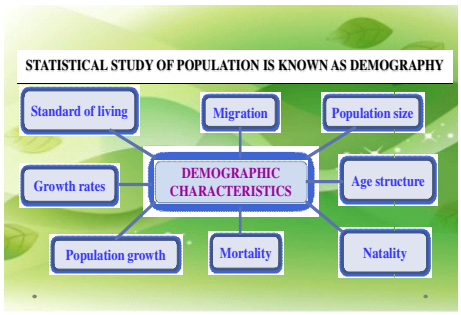
Population is defined as a group of individuals living in the same given area and capable of interbreeding and sharing genetic material

- **Why study about population**
  - ➢ To ensure sustainable future for humanity and the environment;
  - ➢ To know the growth and infrastructure of country social and environmental issues are centered on population growth.
  - ➢ To know how organisms interact with each other and with the environment.
  - ➢ To make better perditions about then factors that may cause the change in population growth and population size.

- **Major periods for human population growth**



- **Statistical study of population is known as demography**



- **Population size**: Number of persons of a region per country.
- **Growth rate:** Rate of change in population size over time. It depends on the population size, birth rate and death rate.
- **Birth rate or Natality**: Number of live births per thousand of population per year.
- If, total number of individuals in a population is N.
- Number of births per unit time in population N is B.
- Then, Natality or birth rate is-

$$b = \frac{B}{N}$$

- Death rate or Mortality rate: Number of deaths per thousand of population per year.
- If, total number of individuals in a population is N.
- Number of deaths per unit time in population N is D. Then, death rate or mortality rate is-

$$d = \frac{B}{N}$$

- If, Total number of births per unit time (B)
- Total number of deaths per unit time (D)
- Total number of individuals in a population (N), Then,

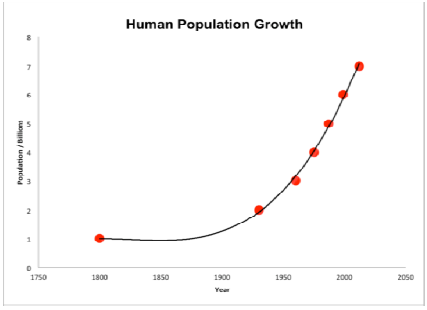
If **(B-D) = G** Then,

- Growth rate: Difference between the total births and the deaths per unit time divided by total number of individuals in a given population.

$$\text{Growth rate} = \frac{B - D}{N}$$

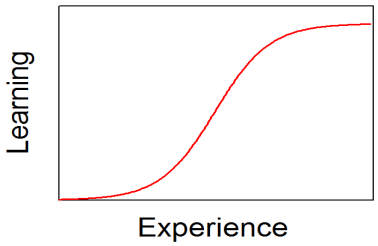
$$\text{Growth rate} = \frac{G}{N}$$

- Migration: Movement of individuals of a population from one place to another.
  - ➢ Emigration: To leave one country and settle in another either temporarily or permanently.
  - ➢ Immigration: To come to a country which is not a native.
- Internal immigration: Movement of an individual from one region of a country into another region of the same country.
- **Exponential Growth Rate**
- Exponentially means that the population is increasing in number or size at a constantly growing rate.
- When the population approaches the full carrying capacity (the capacity sustain itself at equilibrium), the growth rate decreases and the growth changes from J-shaped curve to S-shaped curve. (Sigmoid curve).



- When bacteria divide every 30 minutes, their number increases exponentially.

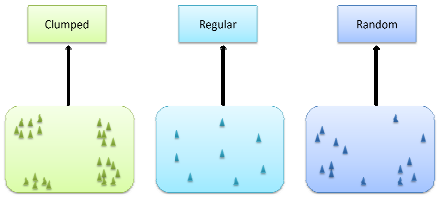
- This Number of bacteria's in thousands set of figures assumes a zero death rate, but even if a certain percentage of each generation of bacteria died,
- Exponential growth would still occur; it would only take a bit longer to reach the high number.
- When data is graphed, the curve of exponential growth has a characteristic "J" shape.



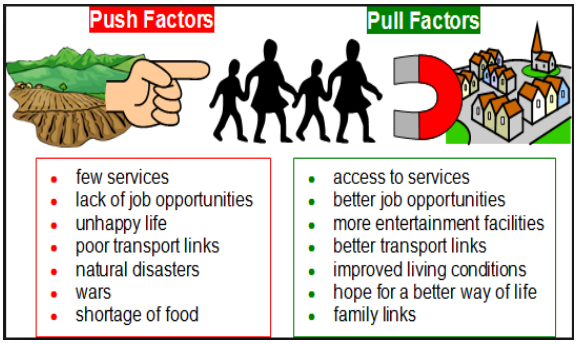
- **Demography** of any place provides a basis for predicting future trends and making decisions, for the formulation, implementation and evaluation of plans, policies and programs for:
  - Education
  - Health
  - Housing
  - Transportation
  - Employment
  - Recreational and other social services
- **Structure of population**

- Structure of a Population is determined by population density, dispersion, age structure and sex ratio
  - **Population density**: Number of individuals of a species inhabiting a unity area
  - **Dispersion**: Dispersion of its individual members relative to one another in a given area as shown in fig.

Population dispersion patterns

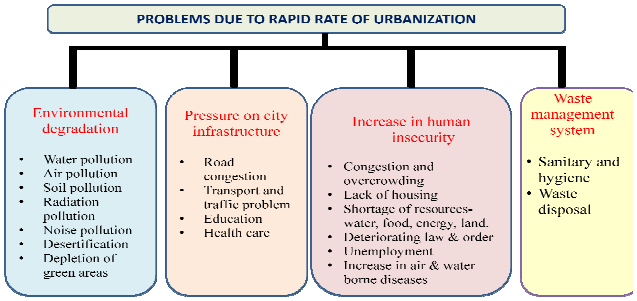


  - **Age structure:** Proportion of individuals in each age group
  - Age structure gives us information about :
    - current and future status of age profile,
    - possible effects on environment, media or social or housing or health needs,
    - economy status of society,
    - status of elderly people needing social support now and in future,
    - Current and future educational needs and job needs.
- **Sex ratio:** Number of males and females in a population.
- Human population and the environment
- People move from rural areas to urban cities due to



- Consequences of population growth can be.
  - Inability to grow enough food leading to hunger and feminine.
  - Over cultivation soil erosion, depletion of fertility,
  - Loss of biodiversity.
  - Depletion of natural resources,
  - Depletion of water resources,
  - Cutting down of trees,
  - Environmental degradation ,
  - Land abuse and loss of productivity and
  - Conflict over obtaining new resourcesas

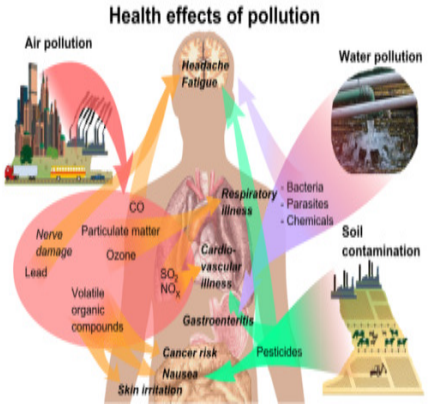
- **Problems due to Rapid Rate of Urbanisation**



- **Urbanization and Limited Energy Resources**
  - ➢ Supply of energy is far less than its demand- overconsumption
  - ➢ Increase in infrastructure like vehicles and electronic goods and development of industries cause energy crises
  - ➢ In order to provide more infrastructure using excessive non-renewable sources of energy causes energy crises
  - ➢ Mismanagement of energy resources
- **Urbanization and scarcity of water**

  Scarcity of water is man made due to rapid population growth and rising migration from villages to cities in search of better life.

- Pollution cause various ill effects on human health as shown in figure



- Population growth and urbanization has led to water crises in cities. Some of the other causes are:
  - ➢ Industrialization
  - ➢ Pollution from municipal and industrial discharges
  - ➢ Growing urban water and sanitation demand
  - ➢ Climate changes
  - ➢ Overexploitation of natural resources

Check Yourself

1. According to the area of the India, it is ---- largest country in the world.
   a. Third
   b. Fifth
   c. Seventh
   d. Ninth
2. Teak, Sal and Sandal wood plants are the important trees of ---------- forest.
   a. Tropical rain
   b. Tropical deciduous
   c. Temperate broad leaf
   d. Temperate needle leaf
3. Geogrametic representation of age structure is a characteristics of-----
   a. Landscape
   b. Ecosystem
   c. Population
   d. Biotic community
4. A J-shaped growth curve corresponds to-
   a. Exponential growth
   b. Biotic potential
   c. No environmental resistance
   d. Abiotic potential
5. A population has more young individuals compared to the older individual. What would be the status of the population after some years.
   a. It will increase
   b. It will decrease
   c. It will stabilize
   d. It will first decline and then stabilize

Ans: 1: c 2. b. 3.c 4.a 5.a

Stretch Yourself

1. Name three human activities which are responsible for degradation environment
2. Mention the reasons of water scarcity in urban areas.
3. Define the terms: population, age structure, density, natality and mortality.
4. Differentiate between immigration and emigration

Test Yourself

1. Discuss the parameter for the study of demography.
2. Describe the impact of rising population on environment.
3. Mention the causes of scarcity of water in an urban area.
4. How census does help to any country. Explain