

## **HUMAN POPULATION AND THE ENVIRONMENT (UNIT- 5)**

### **\* Population explosion**

The enormous increase in population due to low death rate (mortality) and high birth rate (natality) is termed as population explosion.

#### **Causes for population explosion:**

- **Increase in birth rate:** Lack of awareness in terms of birth control has resulted in a rapid explosion in population.
- **Decrease in mortality rate:** The advanced science and medical technologies have reduced the mortality rate to a large extent.
- **Increase in life expectancy:** Growth and development in terms of living conditions, sanitation and hygiene have ensured greater life expectancy, thus resulting in population explosion.
- **Lack of recreation:** In rural areas, due to lack of recreation, people engage in sexual activities without taking protective measures to control birth.
- **Illiteracy:** Education makes people aware. Illiteracy, on the other hand, results in lack of awareness regarding family planning, female education and their age of marriage. Illiterate people think that more the hands in the family more will be the family income- a concept which is faulty in itself.

#### **Effects of population explosion:**

- **Over population:** This is a condition wherein the limited resources are to be shared by a huge population when earlier it was being shared by only a small population. This means that a comfortable living will not be attainable by one and all.
- **Poverty:** Population explosion is directly proportional to poverty. As population grows beyond control, scarcity of resources will be faced, thus resulting in poverty.
- **Unemployment:** Population explosion, again, is directly proportional to unemployment. This means that the economy will not be able to create sufficient employment for an unchecked, sudden growth in population.
- **Poor health and economy:** The demand will be greater than the supply, thus, resources such as proper food, shelter and clothing along with monetary aspects will not be available to every hand of the nation.
- **Pollution:** Population explosion will increase the demand for goods. This means that more raw materials will be extracted from the earth. In turn, this will cause more by-products and waste, thus causing pollution.

### **Measures to control population explosion:**

Control measures must be taken in order to put a stop to population explosion. The government must join hands with every individual of the society to bring about a productive change. This can be done by firstly educating people and creating more awareness regarding population explosion and its repercussions. Secondly, family planning norms must be followed by every single household of India. Thirdly, the minimum age of marriage should be increased, and fourthly, the government should give certain incentives to families who adopt birth control measures.

Population explosion is an urgent issue in India which needs to be resolved in order to ensure every citizen a comfortable, healthy living and at large, a greener and cleaner earth.

### **\*Family welfare and planning programmes**

#### **Family welfare programme:**

Family welfare programme was implemented by the government of India as a voluntary programme. It is an integral part of overall national policy of growth covering human health, maternity, family welfare, child care and women's right.

#### **Objectives of family welfare programmes:**

- 1) Slowing down the population explosion by reducing the fertility.
- 2) Pressure on the environment due to over exploitation of natural resources is reduced.

The government are concerned with the enormous increase in births and promulgated some rules and regulations to restrict population growth.

The following are some of the rules to be followed for family welfare.

- 1) The marriage age is 21 for men and 18 for women.
- 2) Use of family planning techniques is recommended when the couple has 2 children.

Family planning methods include:

- 1) Tubectomy for women
- 2) Vasectomy for men
- 3) Use safety during intercourse
- 4) Announcement of incentives for those who observe family planning and undergo tubectomy and vasectomy.
- 5) Giving publicity to family welfare programmes among rural population and illiterate public.

**The advantages of family welfare measures are:**

- 1) Restriction of human population
- 2) Increase GDP and productivity
- 3) Better utilization of the natural resources
- 4) Economic development of the nation.
- 5) Increase of the average nation income.

**\* Environment and human health**

Environment and human health are two inseparable entities. If one gets disturbed other will be automatically disturbed. Generally a physically fit person, not suffering from any disease, is called a healthy person. But, the factors like nutritional, biological, chemical or psychological, which cause harmful changes in the body's conditions are called disease.

Earth surface and the surrounding environment is very important to human health. The environment is polluted due to manmade activities. Millions of people die every year due to illness caused by environmental pollution.

**Important hazards and their health effects (or) Deterioration of environment and health effect.**

**1) Physical hazards and their health effects:**

S.No.	Physical Hazards	Health effects
1.	Radioactive radiations	a) Affects the cells in the body and the function of glands and organs. b) Suffer from cancer.
2.	UV radiations	Skin cancer
3.	Global warming	Temperature increase causes famine, mortality
4.	Noise	Painful and irreparable damage to human ear.

**2) Chemical hazards and their health effects:** A large number of chemicals are introduced in the environment by anthropogenic activities.

S.No.	Chemical hazards	Health effects
1.	Combustion of fossil fuels: Liberates SO <sub>2</sub> , NO <sub>2</sub> , CO <sub>2</sub> , and particulate matters.	Asthma, Bronchitis and other lung disease.
2.	Industrial effluents (Toxic)	Kill cells and cause cancer and death.
3.	Pesticides like DDT and Chlorinated pesticides	Affect the food chain
4.	Heavy metals like Hg, Cd, Pb, fluoride and nitrite	Contaminate water cause ill effects

**3) Biological hazards and their health effect:**

Biological hazards	Health effects
Bacteria, viruses and parasites	Diarrhoea, malaria, parasitic worms, anaemia, respiratory diseases, cholera, etc.

### **\* Human rights**

Human rights are the fundamental rights, which are possessed by all human beings irrespective of their caste, nationality, sex and language. These rights can not be taken away by any legislature or any government act. As natural rights they are seen as belonging to men and women by their very nature.

Environment is also a part of the universal system. Populations living on this planet earth in different countries are protected by certain human rights. Common human rights are the following:

- ❖ Right to live freely and independently.
- ❖ No other individual should do anything leading to loss of life.
- ❖ Life is linked to productivity of the organisms.
- ❖ No individual should cause any harm to kill others.
- ❖ No life should be subjected to torture by others.
- ❖ Torture free, independent life is a fundamental human right.

**1) Right to life:** Life is a gift given by God to all living organisms. So this human right called right to life can be applied to plants and animals present in the environment also. So “live and let others also live” should be the maxim that everyone should follow. We should allow all living organisms to lead a normal life.

**2) Right against loss of life:** No other organism in the environment should think of killing or cutting off various parts of others.

**3) Productivity is linked to life:** Productivity is a metabolic property observed in all types of living organism. No step should be taken that will hinder the process of natural reproductive methods of plants and animals or human beings. It is also against human rights.

**4) Avoid killing others:** Some people are fond of hunting animals and birds. That is also killing other living organisms. They are also liable for some deterrent punishment. So gaining should be prohibited. It is equal to murdering others.

**5) Law against torture:** Apart from killing or murdering, we should not allow torturing of anybody others. No one should be allowed to torture others.

**6) Law against, torture free, independent life:** Living organisms whether they are animals or plants should be allowed to live a torture free, stressless, independent happy existence as long as they live. They should be subjected to either stress or torture by anybody even by their own kith and kin.

### **\* Value Education**

Value education is an instrument used to analyse our behaviour and provide proper direction to our youths. It teaches them the distinction between right and wrong, to be compassionate, helpful, loving, generous and tolerant. So that a youth can move towards the sustainable future.

**Value-based environmental education:** Value-based environmental education provides knowledge about the principle of ecology, fundamentals of environment and biodiversity. It creates a sense of duty to care for the natural resources and to manage them in a sustainable way.

When environment gets degraded it affects our health, well-being and our future. So it is important to know all about the environment and also have a right to safe and clean environment.

An awareness is needed to save the environment, the Earth of man. It is inoculated through environmental value education.

The environmental value education involves the following aspects:

- ❖ Teaching the importance of Earth.
- ❖ Knowledge on environment..
- ❖ Understanding the natural resources.

- ❖ Appreciating the environmental assets.
- ❖ Understanding the balance of nature.
- ❖ Experience the problems caused due to our destruction of our environment.
- ❖ The problems created by the technology and economic growth.
- ❖ Regulated use of natural resources.
- ❖ To keep our environment neat and clean.
- ❖ To use less fertilizers and pesticides.
- ❖ To conserve water and energy.
- ❖ To separate the garbage into degradable and non-degradable items.
- ❖ Effects of consumerism and pollution
- ❖ Ill effects of deforestation.
- ❖ Impacts of global warming.
- ❖ Causes and impacts of acid rain.
- ❖ To understand the ill effects of atom bomb explosion.

### **\* AIDS/HIV**

AIDS is the abbreviated form of Acquired Immuno Deficiency Syndrome caused by a virus called HIV (Human Immune Deficiency virus). Many myths have been spread about AIDS and it is very important for everyone to know the facts about HIV/AIDS.

#### **Factors influencing modes of transmission of HIV:**

HIV is spreading due to the following activities.

- 1) HIV from infected person can pass to a normal person through blood contact, generally during unprotected sex with infected person.
- 2) Using needles of syringes, contaminated with small quantities of blood from HIV positive person, also transmit HIV to others.
- 3) HIV can also pass from infected mothers to their babies during pregnancy, delivery or breast feeding.
- 4) Blood transfusion from the infected person, at the time of accidents or pregnancy also results in HIV/AIDS.
- 5) Women are more vulnerable to HIV, biologically the male to female transmission of HIV is 2 to 4 time more efficient than female to male transmission.
- 6) Women around 18-20 years are at more risk, since their cervical tissue is more vulnerable to invading HIV.

7) Since the majority of HIV infections occur in women of child-bearing age, transmission of HIV to their new born babies happen easily.

**Factors not influencing transmission of HIV:**

HIV is not spreading by the following activities.

Tears, food and air, cough, handshake, mosquito, flies, insect bites, urine, saliva, sharing of utensils, clothes, toilet, bathroom, etc.

**Symptoms for HIV/AIDS:**

Many people have no symptoms, when they are infected with HIV. But some people get fever, headache, fatigue. During this time HIV is present in large amounts in semen and vaginal fluids and it is very easy to pass the infection to another person.

HIV is very active inside a person's body. The virus multiplies and kills more and more T-cells of the immune system.

Consumption of alcohol increases the susceptibility to infection and progress of AIDS.

**Minor symptoms:**

- 1) Persistent cough for more than one month.
- 2) General skin disease
- 3) Viral infection
- 4) Fungus infection in mouth and throat.
- 5) Frequent fever, headache, fatigue

**Major symptoms:**

- 1) Fever for more than one month.
- 2) Diarrhoea for more than one month
- 3) Cough and TB for more than six month.
- 4) Fall of hairs from the head.
- 5) 10% of body weight get reduced within a short period.

**Control and prevention measures of AIDS:**

Once a person is infected with HIV the person remain infected for life. There is neither a cure nor a vaccine but can be prevented.

The basic approaches to control AIDS are.

**1) Education:** Health education enables people to avoid indiscriminate sex and encourages the use of safety. One should avoid the use of sharing razors, needles and syringes.

**2) Prevention of blood borne HIV transmission:** People in high risk groups should not donate blood. Blood should be screened for HIV before transmission and strict sterilization practices should be followed in hospitals.

**3) Primary health care:** AIDS awareness programmes should be encouraged. Voluntary health agencies should participate in large. Training programmes to doctors and paramedical workers should be conducted.

**4) Counselling services:** Counselling services should be provided either in person or through telephone.

**5) Drug treatment:** Testing HIV treatment does not mean the end. They can still stay healthy leading productive lives for many years. Seeking early medical care and staying active are very vital in managing HIV. The immune system has to be kept boosted by taking nutritious diet and maintaining a stress-free mid.

### **Effects of HIV/AIDS:**

- 1) Large number of deaths occur, which affect environment and natural resources.
- 2) Due to large number of deaths, there is loss of labour and level of production decreases.
- 3) More water is required for maintaining hygiene in AIDS affected locality.
- 4) The people affected by HIV, can not perform work well due lack of energy and frequent fever and sweating.

## **\* Women and Child Welfare**

### **Women and Child welfare Schemes**

Women and children are very important identities of human society. The adult women are the creators of next generation, and children are the hopes of future. Therefore they should be cared to utmost degree. No doubt, their welfare is being looked after by societies and families. However, this is just not sufficient. In this regard, Governments also devise and implement various welfare measures for them. Some of the women and child welfare measures are listed below.

- 1) Sarwa Siksha Abhiyan
- 2) Balika Samridhi Yojana
- 3) Indira Mahila Yojana
- 4) Programme of Development of women and Children in Rural areas
- 5) Mahila Samridhi Yojana
- 6) Integrated Child Development Services
- 7) Employment and Income Generating Training-cum-Production centers



- 8) Rashtriya Mahila Kosh
- 9) Short Stay Home for Women and Girls

### **Problems affecting Women and Child Welfare**

The major problems faced by Women and Children are:-

- 1) Under nourishment
- 2) Malnutrition
- 3) Limited education
- 4) Lower socio-economic status

**A brief discussion of these issues is given below:-**

#### **(i) Under nourishment**

Under nourishment means the lack of sufficient calories in food. The lack of energy and nutrients make them prone to infectious diseases. It causes weakness and sickness also. Mainly the poor women and children are severely influenced by it. They are generally subjected to following ill-effects.

- 1) weakness and giddiness
- 2) lower working efficiency due to weakness
- 3) sickness at increased frequency
- 4) poor growth of children
- 5) social and mental disorders
- 6) mental retardation

#### **(ii) Malnutrition**

Malnutrition means lack of specific ingredients such as vitamins, proteins, minerals, etc. in the food. Pregnant women, nursing mothers and children are more susceptible to malnutrition. It causes the following ill effects in women and children.

- 1) Illness like anemia, goiter, pellagra, etc.
- 2) Less weight of child at birth.
- 3) High rate of child mortality.
- 4) Miscarriages, maternal depletion, toxemia of pregnancy in pregnant women.

According to demographic data and estimates, the projections in the year 2002 for India are as follows;

Infant mortality rate = 68.

Life expectancy at birth (total life) = 63.3.

### **(iii) Limited education**

The number of school going children is still far from satisfactory. Less than 50% reach to primary school. Also a substantial number of them than drop out at elementary level. The drop-out rate of girls is much higher than those of the boys. It is probably because the girls have to perform many household works also. The literacy rate of women and children to given below reveals more facts in this regard.

Literacy in the year 2001 at national level=65.38%

- a. The literacy rate in males = 75.85%
- b. the literacy rate in female =54.16%

### **(iv) Lower socio-economic status**

The socio-economic status of women is generally lower than man in under-developed countries. This can be understood well by the fact that the number of school going boys at all levels of education is generally more than the number of girls. Also the grown up and adult women are depend in respect of social and economical decisions.

The lower socio-economic status of women and children can also be understood by the following status

- a. Women labour force in the year 2001 = 90 million
- b. Child labour force in the year 2001 = 11.28 million

### **\* Role of information Technology in environment and human health**

Information technology has tremendous potential in the field of environment education and health as in any other field like business, economics, politics or culture. Development of internet facilities, Geographic Information System (GIS) and information through satellites has generated a wealth of up-to- date information on various aspects of environment and health.

A number of software have been developed for environment and health studies which are used friendly and can help an early learner in knowing and understanding the subject.

### **Database on Environment System:**

Database is the collection of interrelated data on various subjects. It is usually in computerized form and can be retrieved whenever required. In the computer the information of database and can be very quickly retrieved. The comprehensive database includes wildlife database, conservation database, forest cover database etc. database is also available for diseases like HIV/AIDS, Malaria, Fluorosis, etc.

**(a) National Management Information System (NMIS):**

NMIS of the Department of Science and Technology has compiled a database on Research and Development Projects along with information about research scientists and personnel involved.

**(b) Environmental Information System (ENVIS):**

The Ministry of Environment and Forests, Government of India has created an information System called Environmental Information System (ENVIS). With its headquarters in Delhi, it functions in 25 different centres all over the country.

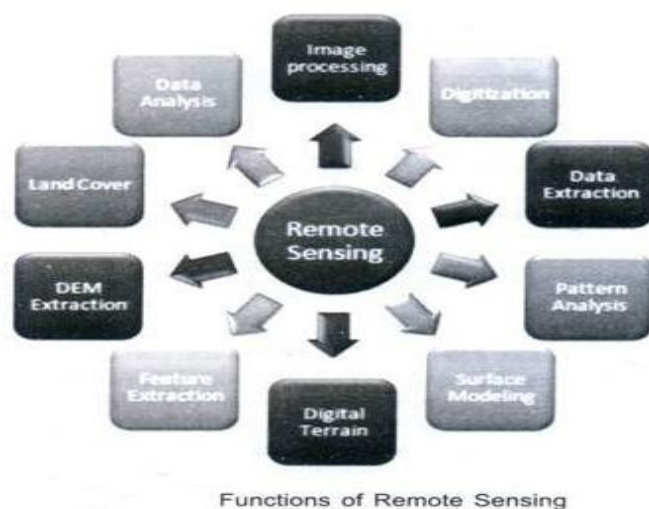
The ENVIS centres work for generating a network of database in areas like pollution control, clean technologies, remote sensing, coastal ecology, biodiversity, western Ghats and eastern environmental management, media related to environment, renewable energy, desertification, mangroves, wildlife, Himalayan ecology, mining etc.

**(c) Remote Sensing and Geographical Information System (GIS):**

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We are able to gather digital information on environment aspects like water logging, desertification, deforestation, urban sprawl, river and canal network, mineral and energy reserves and so on.



#### (d) Geographical Information System (GIS):

GIS has proved to be a very effective tool in environmental management.

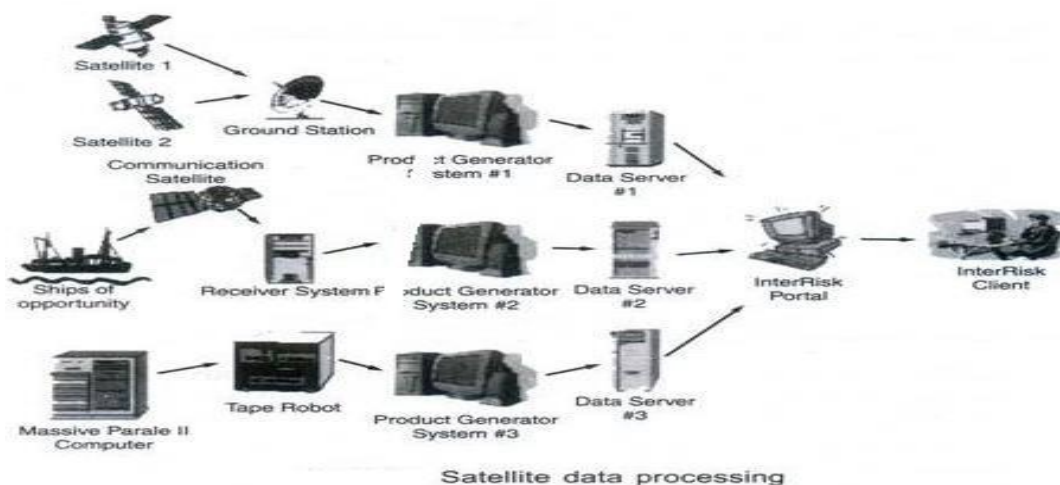
GIS is a technique of superimposing various thematic maps using digital data on a large number of inter-related or inter dependent aspects. Several useful soft-wares have been developed for working in the field of GIS.

Different thematic maps containing digital information on a number of aspects like water resources, industrial growth, human settlements, road network, soil type, forest land, crop land or grassland etc. are superimposed in a layered form in computer using software.

There are several Distribution Information Centres (DICs) in our country that are linked with each other and with the central information network having access to international database.



They also provide information of atmospheric phenomena like approach of monsoon, ozone layer depletion, inversion phenomena, smog etc. We are able to discover many new reserves of oils, minerals etc. with the help of information generated by remote sensing satellites. Thus remote sensing and GIS play a key role in resource mapping, environmental conservation, management, and planning and environmental impact assessment.



**(e) The World Wide Web:**

With resources material on every aspect, class-room activities, and digital files of photos, power-point lecture presentations, animations, web-exercises and quiz has proved to be extremely useful both for the students and the teachers of environmental studies.