

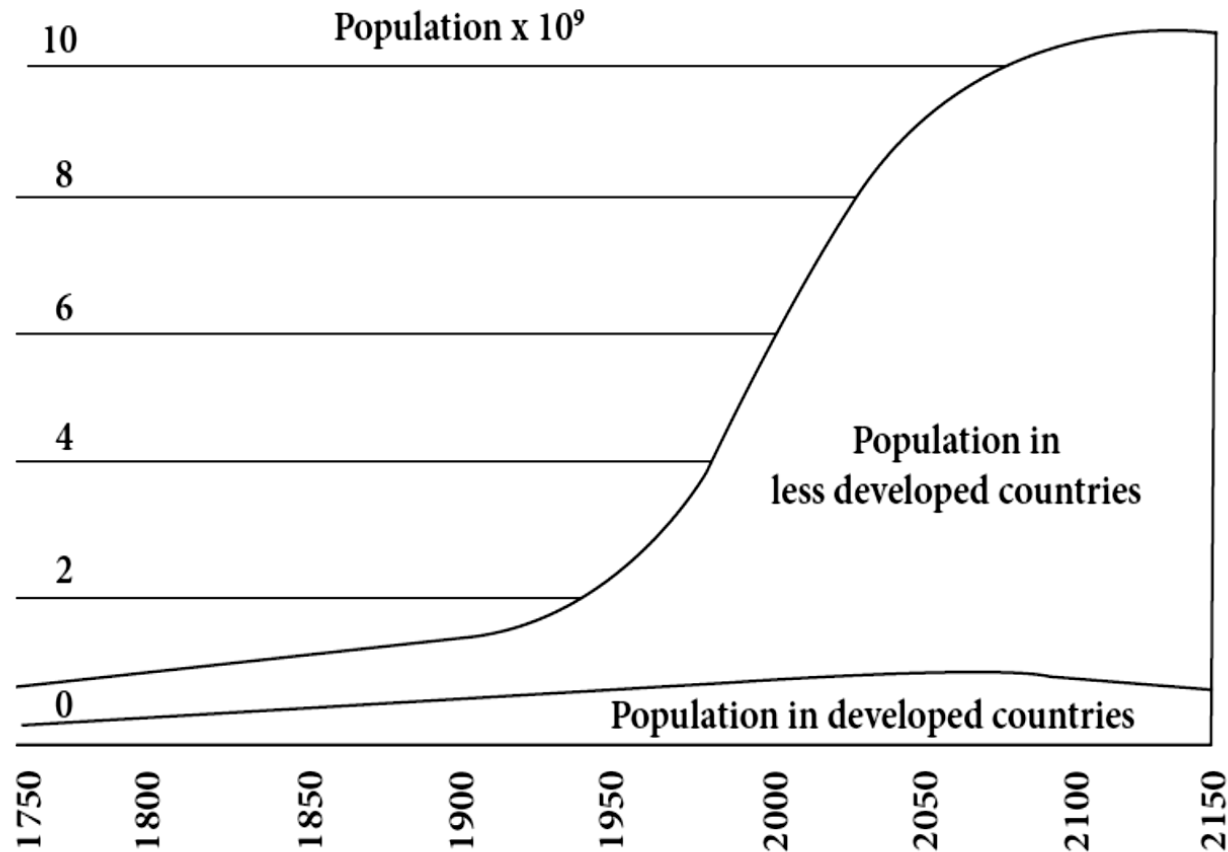
## Unit IV

Human Population and Environment: Population Growth, Human Rights, Family Welfare Programmes, Environment and Human Health, HIV/AIDS, Women and Child Welfare, Role of IT.  
[8Hrs] [T1,T2]



# Population Explosion

- Population explosion throughout the world and in developing countries in particular, is increasingly threatening the global environmental balance because of the increasing environmental degradation and pollution.
- Over-population and overuse of resources are the root causes of environmental degradation and pollution.
- It depends on:
  - (i) Size of population.
  - (ii) Per capita consumption of resources.
  - (iii) Extent of population and degradation per unit of resources consumed



→ Very rapid population growth is expected to prevail in a number of developing countries, the majority of which are least developed.

→ The population of the 50 least developed countries is projected to more than double

# Life expectancy

- Global life expectancy at birth was 46 years in 1950–55 which rose to 65 years in 2000–2005 and is likely to increase to 75 years in 2045–50. In the developed countries, it is now 75 years and likely to be 82 years by 2045–50.
- Among the least developed countries, the life expectancy today, is less than 50 years which is likely to increase to 66 years, by 2045–50.
- The primary consequence of fertility decline especially in combination with increasing life expectancy is population ageing whereby the share of older persons in a population increases vis-a vis that of younger persons.

# Family Welfare Programme

- The objective of the National Family Welfare Programme, launched in 1951 in India has been 'reducing the birth rate to the extent necessary to stabilize the population at a level consistent with the requirement of the national economy.'
- The family welfare programme not only covers family planning to contain population growth but also extends welfare measures to children, women, the aged, handicapped and less privileged.
- It aims to provide food, shelter, education, medical and developmental assistance so as to protect them from hunger, poverty, undernourishment and underdevelopment which are the consequences of population growth and overexploitation of natural resources and the environment.

# Family planning

- To save the earth and sustain its fast-depleting resources for future generation's, population control is extremely important
- Family planning programmes provide educational and medical services which help couples choose the size of their family and the timing of starting one.
- Illiteracy and lack of education are associated with high rate of population growth in developing and underdeveloped countries including India.
- Population can be effectively controlled with sex education, information on methods of birth control, distribution of contraceptives, information on sterilization and abortions and other family planning methods.

- Family planning has become very successful in China, Indonesia, Singapore, Hong Kong, Sri Lanka, Cuba, Thailand, South Korea and some other developing countries while it achieved moderate results in the countries of the Indian sub-continent and in Brazil, Nigeria and other developing and underdeveloped countries.
- The success of population control programmes depends on committed leadership, wide availability of contraceptives and family planning services, suitable implementation methods specific to social and cultural characteristics, the role of print and electronic media to propagate sex education, level of education and wealth in the society.

# Environment and Human Health

- Health is an outcome of the interactions between people and their environment. Human activities in every sphere of life have continuously been changing our environment which in turn is affecting human health
- Millions of people, mainly children, suffer from malnutrition and poor health due to parasitic infections such as amoebiasis and worms occurring from infected food or water.
- About three million children die each year across the world from water-borne diseases such as diarrhea. In India, it is estimated that every fifth child below the age of five dies due to diarrhea.
- Contaminated water results in gastrointestinal diseases in the communities and even sporadic large epidemics.
- Cholera, typhoid, diarrhoea, dysentery, polio, meningitis, hepatitis A and E are caused due to impure drinking water.
- Arsenic poisoning due to presence of arsenic in water; cancer, infertility and neurological diseases due to the harmful pesticides that contaminate water, and blood disorders due to excessive nitrate content in water
- Aquatic organisms such as guinea worm which affect the feet and roundworm which affects the small intestine cause a variety of water-based diseases.
- Malaria and filariasis are water-related vector diseases spread by insects that breed in stagnant water



- Human health and quality of life depend on the physical, chemical, biological, social and psychological factors in the environment.
- Climate and weather too, affect human health.
- Public health depends on adequate, safe and quality food, water and shelter. Floods, storms, hurricanes and tsunamis kill many people every year.
- Unprecedented drought and rainfall cause water-borne diseases; global climate change and global warming cause serious health implications.
- The transmission of vector-borne diseases such as malaria depends on the weather and climate.

- **ORAL REHYDRATING SALTS:** Diarrheal diseases are very common among young children and are also a leading child-killer.
- About 2.2 million children die from dehydration occurring due to diarrheal diseases every year. Diarrhea is the discharge of watery stool. This means body fluids and salts are quickly drained out of the body and the child becomes dehydrated. This is very dangerous and may even be fatal
- Diarrhoea is caused by bacteria or viruses. The main factors are unclean water and dirty hands and malnourished children are more likely to suffer
- Oral Rehydration Therapy (ORT) is the process of continuous replacement of essential body fluids and salts in proper quantities during an attack of diarrhea. By replacing lost body fluid, ORT prevents dehydration and nurses the child back to health.

- ORT is best administered with the use of pre-packed formulae called Oral Rehydration Salts (ORS) available in a sachet to make a liter of solution. According to UNICEF, these sachets should be stocked in each household to prevent or treat dehydration
- Oral rehydration salts are a combination of salt electrolytes and sugar meant to be taken orally.
- The combination of electrolytes and sugar stimulates water and electrolyte absorption from the gut and this prevents or reverses dehydration and replaces lost salts in conditions such as diarrhoea and vomiting.
- ORS is used for the following purposes:
  - (i) Dehydration.
  - (ii) Fluid and salt replacement in conditions such as sudden diarrhoea and vomiting.
  - (iii) Severely low concentration of salts in the blood (severe electrolyte depletion)

- The environment and human health are interdependent. A sustainable environment cannot be achieved without proper health care.
- Clean potable drinking water and nutrition are absolutely essential for human health and thus for a sustainable environment.
- Industrial pollution and transport emissions cause ill-health and need to be reduced. The use of renewable non-conventional energy instead of thermal power generation, contribute to improving human health.
- Factors like population control and reduction in the consumption of natural resources are instrumental towards this cause. We must aim for a sustainable environment, which ultimately will result in 'health for all.'

# Human Rights

- Man gets his sustenance from the environment which in turn is greatly affected by humans. Therefore, human rights and environmental issues are closely interlinked.
- The General Assembly of the United Nations, on December 10, 1948 adopted and proclaimed the Universal Declaration of Human Rights which needs to be disseminated, displayed, read and expounded principally in schools and other educational institutions
- In spite of the widening gap between the rich and the poor, components of human rights such as equality and social justice are essential for men and women, irrespective of their caste, creed and nationality.
- The right to the use of natural resources is a human right. For example, tribal people should have access to fuel woods and forest products for their livelihood and water should be available to the villagers, irrespective of their caste or wealth.

- The right to life and thus proper nutrition and health are fundamental human rights.
- Traditional medicines, complementary and alternative medicines, herbal products, yoga and naturopathy are widely used in our country since ancient times. Now, the western world is taking patents for the same which may lead to denial of this type of medication or royalty payment to MNCs
- Over one-thirds of the population in developing countries does not have access to essential allopathic medicines. The provision of safe and effective traditional medicines and complementary and alternative medicines could increase health care. Therefore, there is a need for serious and proper handling of intellectual property rights.

# Value Education

- Values are one's own beliefs, principles, perceptions, feelings and behavior to judge what is right or wrong.
- Value education in the context of a sustainable environment must transmit environmental values, values for nature's bounty, cultures, human heritage, equitable use of resources and common property resources, social justice, protection of environment and so on.
- The National Resource Centre on Value Education was set up at National Council of Educational Research and Training (NCERT) by the Government of India to cultivate good values in the future citizens of India

- **Environmental values are also emphasized in the Constitution of India in the following articles:**
  - **Article 51A(g):** The constitution expects citizen of the country to 'protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for all living creatures'.
  - **Article 48A:** The state shall endeavor to protect and improve the environment and to safeguard the forests and wildlife in the country.
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- **Value education in the context of the environment must teach us the following:**
    - (i) Environmental values.
    - (ii) Values for nature.
    - (iii) Values for culture.
    - (iv) Values for social justice.
    - (v) Values for human heritage.
    - (vi) Values for equitable use of resources.
    - (vii) Values for sharing common property resources.
    - (viii) Values to stop/minimize environmental degradation.



# HIV/AIDS

- AIDS is one of the most serious deadly diseases in human history. The first cases of AIDS in the world were reported in New York and San Francisco, USA in 1981.
- In India, the first HIV infection report came from Chennai, 1986.
- HIV stands for Human Immunodeficiency Virus. A person infected with HIV is referred to as a HIV positive person. Only a blood test can establish one's status.
- HIV causes AIDS; it destroys a type of defense cells in the body called CD4 helper lymphocyte cells (CD4 cells).
- Under normal circumstances these cells help the immune system to function normally and fight-off certain kinds of infections by acting as messengers to other immune system cells telling them to become active and fight against an invading germ.

- The HIV attached to these CD4 cells infects them and uses them to multiply resulting in loss of ability of CD4 cells to do their job of fighting infections. The name for this condition is Acquired Immuno Deficiency Syndrome (AIDS).
- Because their immune systems are weakened, people who have AIDS are unable to fight-off many infections particularly tuberculosis, pneumonia, meningitis, encephalitis and cancers.
- AIDS is fatal.
- It is essential therefore to detect AIDS/HIV at an early stage through blood tests.
- The amount of time it takes for the AIDS symptoms to appear varies from person to person.
- It is possible to infect others with HIV even if the person with the virus has absolutely no symptoms.
- In a person infected with AIDS symptoms can include extreme weakness or fatigue, rapid weight loss, frequent long fevers, heavy sweating at night, minor infections that cause skin rashes and sores in the mouth, anus or genitals, swollen lymph glands, white spots in the mouth or throat, chronic diarrhea, loss of memory and consistent cough

- HIV can spread from one infected person to another in the following ways:
  - (i) Unprotected sex: HIV is transmitted mostly through semen and vaginal fluids during unprotected sex.
  - (ii) Contaminated blood: HIV can be transmitted through transfusion of blood and blood products.
  - (iii) Using contaminated syringes and needles: Sharing of syringes and needles among intravenous drug users can transmit HIV and the chances of transmission are the highest via this.
  - (iv) From an infected mother to her baby: HIV can be transmitted to the baby from an infected mother before birth, during birth and after birth. Breast milk can also transmit HIV infection to the infant

- HIV is not transmitted by casual contact such as touching, holding hands, body contacts in crowded places, shaking hands, working or playing together, sharing food vessels and clothes or eating food, cooked or handled by an infected person.
- HIV/AIDS does not spread by donation of blood, by mosquito or insect bites.
- Swimming pools and toilet-sharing also are not known to spread HIV infection.
- HIV has been found in small amounts in body fluids such as saliva, feces, urine and tears but no evidence has been found that it could spread through these body fluids.
- Prevention is the only solution against HIV/AIDS. Awareness and proactive action only can ensure a HIV/AIDS-free society.
- Some of the **protective actions** are safe sex (use of condoms), having a faithful monogamous sexual relationship with an uninfected partner, use of sterilized disposable syringes, sterilization of needles, transfusion of unaffected blood and blood products after proper test.

- A tolerant, compassionate and non-discriminatory attitude towards people with HIV infection is very important, as ill based fear of HIV and AIDS affects the patient's environment adversely.
- Proper medical care for HIV positive pregnant women can prevent HIV infection to the newborn. Every woman should know about HIV and AIDS to protect herself and her family.
- According to a World Health Organization estimate, approximately 44 per cent of the 40 million adults living with HIV/AIDS are women.
- No cure for AIDS has been found till date and the medicines used in the treatment are very costly therefore beyond the reach of many people.
- This severely affects the economic condition of the whole family and in turn the community and the country

# Women and Child Welfare

- Woman and child welfare are very important for a sustainable environment and a healthy society
- Women, especially in lower income group families both in towns and villages work for longer hours than men. Their work pattern also differs and is more prone to health hazards. They are often the last to eat and fed mostly on leftovers and may not get enough nutrition.
- Each year about 11 million children die due to diseases and malnutrition in the world. Pneumonia, diarrhoea, measles, malaria and malnutrition are the main causes of such deaths
- Oven smoke is the third highest cause of diseases and death after dirty water and lack of sanitation. Around the globe about 4, 40,000 women suffer from HIV/AIDS.
- In India, the Department of Women and Child Development was set up in 1985 as a part of the Ministry of Human Resource Development to give the much needed impetus to the holistic development of women and children.
- Department formulates plans, policies and programmes, enacts/amends legislation, guides and coordinates the efforts of both governmental and non-governmental organizations working in the field of women and child development

- The Department has three autonomous organizations namely National Institute of Public Cooperation and Child Development (NIPCCD), Rashtriya Mahila Kosh (RMK) and the Central Social Welfare Board (CSWB) working under its aegis.
- Some of the women welfare programmes are:
  - (i) Providing assistance to women welfare organizations such as mahila samajams/mandals by giving equipment and raw material for manufacture of garments, handicrafts and tailoring products.
  - (ii) Establishment of self-reliant women's self help groups.
  - (iii) Conducting seminars/workshops/exhibitions on mother and child care.
  - (iv) Organizing medical awareness camps on the health aspects of women.
  - (v) Organizing meeting of mothers on health and nutrition especially for pregnant and lactating mothers.
  - (vi) Providing additional central assistance for foodgrains to undernourished adolescent girls, pregnant and lactating mothers.
  - (vii) Organizing special programmes on nutrition and swayam sidha through establishment of self-help groups.



# Role of IT in Environment and Human Health

- The development of information technology has caused knowledge explosion and our society has become a technical society where IT is used in all spheres in mega-cities and remote villages in the field of arts, advanced sciences, environment management, weather forecasting, agriculture, banking, industry and medical profession.
- Information technology, Internet and satellite communication enhance interaction between people and institutions and allow people to communicate with the government more easily and instantaneously and share information globally.
- An environmental information system is an essential part of governance at the local, national or international level and can be done with the support of modern information technology so as to acquire, store, manage, disseminate information and awaken and warn people and the society of any eventualities.
- Information technology has an important role in planning, developing, policymaking, statistics generation and maintenance, natural resource management, census demographic research analysis and forecasting and in other spheres of governance



- Some of the applications of IT in the environment and human health are:
  - (i) Telemedicine, advanced diagnostic, health care and operation equipment.
  - (ii) Statistics based on IT for planning, decision making and developmental activities, family welfare, population control and health care.
  - (iii) Use of radio sensing technology in wildlife tracking census and study.
  - (iv) Environmental pollution monitoring and weather forecasting through remote sensing and geographical information system.
  - (v) Communication, collaboration and coordination among environmental scientists for decision-making.
  - (vi) Computer-based modelling and simulation of environmental scenarios for analysis and prediction.