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FACULTY OF ENGINEERING AND
TECHNOLOGY

Lecture- 32

Human population and the environment



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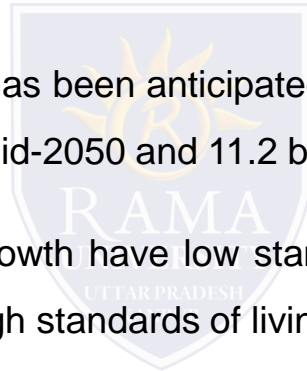
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Population growth and variation among nations

- Population growth is the increase in the number of individuals in a population.
- Global human population growth is around 83 million annually, or 1.1% per year.
- The global population has grown from 1 billion in 1800 to 7.8 billion in 2020.
- It is expected to keep growing, and it has been anticipated that the total global population will reach to 8.6 billion by mid-2030, 9.8 billion by mid-2050 and 11.2 billion by 2100.
- Many nations with rapid population growth have low standards of living, whereas many nations with low rates of population growth have high standards of living.
- Different regions of the world show different stages of demographic transition from high to low mortality and fertility.



- The population of the nation is classified on the basis of age structure i.e., pre-reproductive (0-14), reproductive (15-44) and post-reproductive (above 45) age group represented by age pyramids i.e., pyramids shaped, bell shaped and urn shaped.
- India, Bangladesh, Nigeria and Ethiopia are countries that show large population in pre-reproductive age that soon enter reproductive age group representing pyramid shape which indicates increasing population trend.
- Countries like France, Canada and United Kingdom population in re-reproductive and reproductive age group are almost equal representing bell shape pyramid that indicate stable population.
- Population in pre-reproductive age is less than reproductive age group that indicate declining population representing urn shape pyramid. E.g., Germany, Italy, Sweden.

Population explosion

- Rapid growth in human population leads to population explosion.
- India is the second most populous country of the world with 1 billion people. If the current growth rates continue, it will have 1.63 billion people by 2050 and will become the most populous country surpassing China. India is heading toward very serious consequences of the population explosion. As per the population status every 6th person in this world is an Indian.
- Population explosion is the severe cause for resource depletion and environmental degradation. Natural resources like land, water, fossil fuels, minerals etc. are limited and due to over-exploitation, these resources are getting exhausted. Even many of the renewable resources like forests, grasslands etc. are under tremendous pressure. Industrial and economic growth are raising our quality of life but adding toxic pollutants into the air, water and soil. As a result, the ecological life-support systems are getting jeopardized. Therefore, there is an urgent need to reduce population growth at present rate.

Family welfare programme

- The International conference on Population and Development held in 1994 established an international consensus on a new approach to achieve population stabilization.
- In 1951 India became the first country in the world to launch a family planning programme to reduce population growth in the country.
- The department of Family welfare undertook many pilot activities for implementation of the family welfare program to meet the needs of women who are at risk of unwanted births and has assisted the country to accelerate fertility decline.
- In 1997, India changed the strategy of National Family welfare program to Reproductive and child Health.

Family Welfare Programmes mainly include:

1. Family planning information, counselling and services to women for healthy reproduction.
2. Education about safe delivery and post-delivery of the mother and the baby and the treatment of women before pregnancy.
3. Health care for infant's immunization against preventable diseases.
4. Prevention and treatment of sexually and reproductive tract infection.

Environment and Human health

- According to World Health Organization (WHO) **health** is a “state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”.
- Human health is influenced by many factors like nutritional, biological, chemical or psychological. These factors may cause harmful changes in the body’s conditions called disease.
- The natural environment contributes significantly to people’s health through the quality of air we breathe, the food we eat and the water we drink. On the one hand, environment offers health enhancing economic and recreational opportunities, while on the other, it is threatened by our own activities such as industrial processes, vehicles, agricultural and waste management practices, etc.
- The Environment and Human Health (E&HH) Programme was formulated to find solution for problem or question “How do we effectively manage the natural environment to improve human health?” by addressing issues:
 - The effect of global environmental change on vector-borne diseases and parasites;
 - The survival and persistence of pathogens;
 - The characteristics of particles (including nanomaterials) that impact on human health;
 - The toxicity of mixtures of chemicals, particularly at low levels; and
 - Long-term low level exposure to toxins.

Human rights

- To provide dignified and secure living conditions to all humans, the Universal Declaration of Human Rights (UNDHR) by the UNO came into existence on December 10, 1948.
- This declaration provided comprehensive protection to all individuals against all forms of injustice and human rights violations.
- The UNDHR defines specific rights, civil, political, economic, social as well as cultural.
- It defines the rights to life, liberty, security, fair trial by law, freedom of thought, expression, conscience, association and freedom of movement.
- It emphasizes right to equal pay for equal work, right to health care, education, adequate rest etc.
- Although the human rights are universal, there is a wide disparity between the developing and the developed countries.
- Population and poverty are often found to be the most important causes of violation of human rights in the third world countries.
- World Health Organization estimates indicate that one out of every five persons in this world is malnourished, lacks clean drinking water, lacks proper hygienic conditions and adequate health facilities; one out of three persons does not have enough fuel to cook or keep warm and one out of five persons is desperately poor.

Value education

- Education is one of the most important tools that help to bring about socioeconomic and cultural progress of a country.
- The objective of education should not merely be imparting training to the students to get through the examinations with good results and get good jobs. Education should mean acquiring a lot of information that must be used within the spectrum of ethical values.
- In the mad race of development and progress, man has become too materialistic, self-centered and over ambitious and has forgotten ideals of a real good life.
- Thus, value-based education plays a very significant role in providing proper direction to youth
- Value education helps in arriving at value-based judgements based on practical understanding of various natural principles rather than acquiring certain prejudices.
- Value education encompasses human values, social values, professional values, religious values, national values, aesthetic values and environmental values.
- Value education increases awareness about our national history, our cultural heritage, national pride, constitutional rights and duties, national integration, community development and environment.

AIDS, the Acquired Immuno Deficiency Syndrome is not a hereditary disease but is caused by HIV (Human Immunodeficiency Virus).

HIV from an infected person can pass to a normal person through blood contact, unprotected sex with infected person, using needles or syringes contaminated with small quantities of blood from HIV positive person and from infected mothers to their babies during pregnancy, delivery or breast feeding.

HIV, however, does not spread through tears, sweat, urine, faeces or saliva. It also does not spread by sharing utensils, towels, clothing, toilet seats or insect bite like that of mosquito or bed bug.

According to a recent estimate about 40 million people are living with HIV/AIDS worldwide and 70% of them are from Sub-Saharan Africa.

HIV/AIDS has been identified as the fourth largest cause of mortality.

AIDS itself does not kill humans. The deaths occur due to attack by other diseases because of the weakening of immune system. HIV destroys or disables T-cells which are the key infection fighters in the immune system, as a result of which various types of infectious diseases due to microbial invasion occur.

Women and Child welfare

Women welfare

- Women are the worst social victims that usually suffer gender discrimination and devaluation at home, workplace, in public life, etc., particularly in developing countries. The gender violence, victimization and harassment take many forms across culture, race or nation.
- The statistical data provided by the Ministry of Women and Child Development reported exceptionally high number of cases of abduction, dowry deaths, rape, domestic violence, criminal offences and mental torture to women.
- These issues needs immediate attention and reforms in the interest of the women.
- There is Ministry for Women and Child development that aims to work for the welfare and upliftment of women encompassing family planning, health care, education and awareness.
- Besides the government initiatives, number of NGO's, mostly as Mahila Mandal's are there, that create awareness amongst women of remote villages.
- International Convention on the Elimination of all forms of Discrimination Against Women, 1979 (CEDAW) has been accepted as an international standard for the protection and promotion of women's human rights and socio-economic upliftment.

Child welfare

- The statistical figures shows that million babies, out of 21 million born every year in India are abandoned after their birth due to different socio-economic reasons.
- Around 20 million children in our country are estimated to be working as child labors.
- Poverty is the main reason to drive these children into long hours of work in miserable, unhealthy conditions and violating their basic right to healthy food, education, accessibility to clean air and water, and recreational facilities.
- The UN General Assembly in 1959 adopted the Declaration of the Rights of a child that became International Law in 1990, to promote and protect the well being of children in a society.
- The law defines right of the child to survival, protection, development and participation.
- India is also a signatory to the World Declaration on Survival, protection and development of children. A national plan of action for children has been formulated by the Ministry of Human Resource Development (MHRD), Government of India in which a strategic plan has been formulated for children's welfare in the priority areas of health, education, nutrition, clean and safe drinking water, sanitation and environment.

Role of IT in environment and human health

- Information technology has tremendous potential in the field of environmental education and health.
- Development of internet facilities, worldwide web, geographical 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's have been developed for environment and health studies which are user friendly and can help an early learner in knowing and understanding the subject.
- Database is the collection of inter-related data on various subjects. It is usually in computerized form that is arranged in a systematic manner to ease the management and for quickly retrieval.
- The Ministry of Environment and Forests, Government of India has taken up the task of compiling a database on various biotic communities such as wildlife database, conservation database, forest cover database, fluorosis disease, HIV/AIDs, etc.
- Official systems that facilitate compilation of database:
 - National Management Information System (NMIS)
 - Environmental Information System (ENVIS)
 - Remote Sensing and GIS
 - World Wide Web

