

MODULE 22 - IMPACT OF HUMAN POPULATION ON ENVIRONMENT

OBJECTIVES

After a study of this e-content module the learners will be able to:

1. Describe concept of human population growth.
2. Describe the ecological impact of population on the physical and biological environment.
3. Explain the social impact of population growth.
4. Explain the remedies of overcome impact of population growth.

SUMMARY

Around the world, populations are experiencing unprecedented demographic change. The most obvious and best-known example is the expansion in human numbers. World population today is approx 6.1 billion. The growth in human numbers has been a principal cause of a rising demand for food, water and other natural resources in the past, and this will continue to be the case for the foreseeable future.

There are many other important demographic trends. Women are bearing fewer children, people are living longer and healthier lives, populations are aging, and increasing numbers of migrants are moving from villages to cities and from one country to another in search of a better life. Our world is also increasingly heterogeneous, and a sharp contrast still exists between today's poorest nations in Africa, Asia, and Latin America with their rapidly growing and young populations, and the more demographically advanced and richer nations with near zero growth and aging populations.

TRANSCRIPTION

Concept of Population Growth

The human population refers to the total human inhabitants of a specified area, such as a city, a country, a continent or the world, at a given time. The study of human population as a discipline is known as Demography and one who studies population at the advanced stage is a Demographer. Demography, as a subject of study is an interdisciplinary field which involves mathematics and statistics,

biology, medicine, sociology, economics, history, geography and anthropology. It is concerned with the size, composition and distribution of populations along with patterns of changes of populations overtime through births, deaths and migration as well as the determinants and consequences of such changes. Population study is important particularly for governments for planning in the field of health education, housing, social security, employment and preservation of environment. Demographic studies provide information much needed to formulate the population policies of governments as governments are concerned to modify demographic trends so as to achieve the objectives of economic and social developments. World population has been growing at an alarming rate since 1650 to 2011 and onwards. The unprecedented surge in population has caused and is still causing rise in individual consumption of food, water, and exploitation of natural resources like land, water, fossil fuels, minerals, vegetation etc. The combined effects of population growth, consumption, overuse, wastage and misuse of resources has strained the capacity of the earth to sustain life. That's why the study and control of human population is very important today. In this lesson we are going to study the impact of growth of human population on environment in particular.

Current Population of India

India, with 1,210,193,422 (1.21 billion) people is the second most populous country in the world, while China is on the top with over 1,350,044,605 (1.35 billion) people. The figures show that India represents almost 17.31% of the world's population, which means one out of six people on this planet live in India. Although, the crown for being the world's most populous country has belong to China for decades, India is all set to claim the numerous no positions by 2030. With its population growth rate at 1.58%, India is predicted to have more than 1.53 billion people by the end of 2030.

Ecological Impact of Population Growth

The scientific study of inter-relationships among organisms and between organisms, and all aspects- living and non-living, of their environment is termed as Ecology. Thus ecology relates to environment and ecological impact of population means impact of population on environment and its various components.

The Ecological Impact of population growth includes - impact of population growth on Physical and Biological components of the natural environment.

1. Impacts of Population Growth on the Physical Environment

Physical environment means – non living environment i.e. land, air, water, soil and minerals. There has been a manifold increase in the utilization, overuse and misuse of physical resources due to the growth of human population. As stated earlier, more population means more mouths to feed which requires more agricultural production. More agricultural production demands two things – (i) more cultivable land, and (ii) advanced agriculture. More cultivable land has been made available by clearing forests and by reclaiming wet lands, ponds and green belts. Advanced agriculture requires utilization of more water, more fertilizers and more pesticides. Application of fertilizers and pesticides makes the soil infertile. Clearing of forests has its own serious impacts and the environment on the whole gets imbalanced.

More population requires more space to construct houses and greater demand for consumer goods. It also requires more means of transport, more consumption of fossil fuels and causes more pollution of air, land and water. Thus growth of population leads to pollution of air, land and water. Different types of pollutants are causing numerous problems in the physical environment that in turn affect the biological environment seriously.

2. Impacts of population growth on biological environment

The population explosion of earlier days and of the present day as well, has already caused and continues to cause serious impacts on global environment. As far as biological environment is concerned human population has dangerously impacted the biological systems, comprising flora and fauna as well as biological diversity.

An Ecosystem is the smallest unit of the biosphere. Since most of the components of the physical components are under serious threat due to population explosion, all biological components are bound to suffer the consequences. And, hence most of the natural processes have been altered seriously that have caused serious imbalances in ecosystems. Let us take a look at these imbalances-

2.1. To increase cultivable land, forests have been cleared on large scales. Illegal timber trade by timber mafias and local pressure for fire wood have further depleted our forest resources. These destructive activities of human being have driven away many species of wild animals from their habitats which has caused extinction of certain species. Forests have also been cleared for setting up industries and for urbanisation. Thus the habitats of varieties of birds, and other animals have been destroyed through human activities. There are other reasons

for forest destruction as well. Two of those reasons are forest fires and Jhooming. Jhooming is the practice of growing crops after clearing forest land by burning the vegetation. It is also known as slash and burn cultivation. Intensive agriculture and mining have also caused large scale destruction of habitats.

2.2. Frequent water crises in many parts of the world caused failure of agriculture leading to hunger and starvation. Several varieties of plants and animals have become endangered extinct due to water crises. Frequent water crises often lead to migration of people and animals to migrate to other places thus causing overload on the resources of those areas.

2.3. Poaching and killing of wild animals and illegal trade in their body parts have already caused the extinction of several species of animals.

2.4. Generation of wastes due to increasing consumerism and population explosion the cause for the causing spread of serious epidemics and deaths of people in many parts of the world.

Social Impact of Population Growth

Explosive growth in human population brings in its wake a number of serious problems like food-scarcity, overcrowding, poverty, health problems, drudgery for women, slums in urban areas, increasing consumption, encroachment on monuments, strain on common social facilities, stress on civic services etc.

Food Scarcity: when population growth leads to population explosion it causes severe economic disparities and gives birth to - competition for resources, price rise, hunger, malnutrition, and mass starvation.

The gap between the rich and the poor has increased due to population growth. The rich people exploit more resources than poor people. Malnutrition is one of the most common effects of these problems. The poorest people in developing countries do not get adequate calories to remain healthy. In Ethiopia, almost half of all children under the age of 5 suffer from malnutrition. Most poor children and adults suffer from severe vitamin and mineral deficiencies. These deficiencies cause failure of senses, mental disorders and damage to vital organs. There are millions of starving people through out the world. As per estimates, from 5 to 20 million people die of starvation across the world, every year.

Overcrowding: There is limited habitable space on earth. Overpopulation has caused severe strain on available land which has in turn made inroads into forests and agricultural areas.

People migrate to cities in search of jobs and so cities are becoming overcrowded. Semi-urban lands and cultivable lands near cities have already

gone under construction of houses. Even government lands like railway platforms, areas around monuments, and parks are encroached upon. Increasing crowd in cities is aggravating the problem of pollution and insanitation leading to the spread of epidemics. Green belts in urban areas and even sea beaches have been reclaimed for housing and industrial purposes.

Poverty: poverty means having insufficient resources or income. In its extreme form, poverty is lack of basic human needs like food, clothing, housing, drinking water, and health services. The world's poorest people are found in Africa, Asia, Latin America, and Eastern Europe. They struggle continuously for food shelter and clothing. So they generally suffer from malnutrition, famine, disease outbreaks, epidemics and war.

In developed countries, poverty has led to drug edition, crime, and mental illness. Overpopulation, unequal distribution of resources, inability to meet the cost of living, inadequate education and unemployment, degradation of environment, unsustainable demographic trends and exploitation are primary causes for poverty. Life in developing countries represent a picture of misery, hunger and poverty. Many of these countries have entered the second stage of Demographic Transition in which a high birth and reduced death rates along with a rising life expectancy accelerates population growth.

Health Problem: The lack of safe drinking water supply, malnutrition and poor hygienic conditions in the villages and cities of our county has resulted in serious health problems. The prevalence of water-borne and washed diseases are a serious concern. Women and children are the main sufferers.

Female Drudgery: Men and women must have equal socio-economic status but in our society women are treated differently, though women generally contribute more to the economic growth of the family. In agro-economic activities women contribute more than men. Beside household duties such as collecting fuel wood, drinking water and washing, they are also involved in all agricultural activities except ploughing. Shortage of fuel, fodder and drinking water compels village women to walk long distance to fetch water, collect fuel wood and fodder.

Increasing Consumption: It is a simple truth that more people consume more food, wear more clothes, drink more water, need more houses to live in, need more medicines, make more noise, create more pollution, generate more waste etc.

Some countries of the world have nearly stabilized their population but their life style has become consumption based. We may take the example of United

States of America. Though, it is not overpopulated it alone consumes about 40% of the resources of the world and produces more than 21 % of the world's carbon dioxide which is a green-house gas.

It has been observed by ecologists the world over that powerful people and developed nations consume more resources than weak and poor people and developing or under developed countries. Thus, increase in the rate of consumption at one end is causing an increase in hunger and crime at the other end. Only, 20% of the world's population lives in the developed and richest countries. According to United Nations the world's richest 20% of population consumes about 86% of resources of the world. Thus, the population growth and the changing pattern of consumption are responsible for the severe stress on environment.

Encroachment on Monuments : A monument is a building, column or statue of historical importance built in the past to remind future generations about a famous person or event. People who migrate from rural areas and work in cities often face difficulties and most of them spend their nights out in the open. They take shelter on pavements, abandoned railway buildings and in spaces around historical monuments. Gradually, they build temporary shelters round these places and bring their families. Some of them set up their business in these places and gradually a colony of such persons is established. This is happening around most of our uncared monuments today.

People who have encroached on monuments sites and government buildings later stake a claim on the land. This is illegal and a criminal attitude. However, this condition is the by-product of population explosion.

Stress on Common Social Facilities: We need facilities both on the family front and on the social front. More people means more use of available facilities. But facilities may be limited. So, there will be a great rush and competition for available facilities causing severe strain on those facilities. Community Halls, Bus Stops, Railway Junctions, Parks, Play Grounds, Hospitals and even roads are some common social facilities that face tremendous pressure due to population explosion. One can see long lines of people standing for hours to get their work done. There is heavy traffic on the roads round the clock. And these social facilities are often heavily polluted due to careless practices of human beings.

Impact on Urbanization

The developed world is already heavily urbanized, but in the developing world only a quarter of the population lives in urban areas. Recent studies have

projected that India will face problem because of over urbanization. 350 million Indians will move to cities by 2030. This number is likely to double to 700 million by 2050. This is 2.5 times the size of the US's present population and will be the largest urban movement in the world. This implies that every minute during the next 20 years, 30 Indians will leave rural India for settling in urban area.

As India urbanises, it will face severe challenges. But there are huge opportunities for sustainable growth which can have a dramatic impact on the quality of life of the expected 700 million urban cities.

These trends have important implications. In the past, world population growth was absorbed in both the developed and developing world. But in the developed world as well as in the rural areas of the developing world population has virtually stopped growing. As a result, most of the 3 billion people are expected to be added to cities in poor countries. In many of these cities, rapid future growth will further strain already overburdened infrastructure and public services.

Remedies to Overcome Impacts of Population Growth

1. Population Policy Options

Future population growth in the developing world is attributable to three main causes: unwanted childbearing, desire for large family size, and population momentum. For a country that wishes to reduce rapid growth, a comprehensive population policy would ideally address all three causes by pursuing several strategies:

1.1. Strengthen family planning programs to provide women with the knowledge and means to regulate their fertility. These programs can lower fertility if they successfully provide clients with high-quality services, because there is still a substantial unmet need for contraception and abortion. Meeting this need will reduce unwanted pregnancies, which now account for about one in four births.

1.2. Emphasize "human development," in particular education, gender equality, and child health. Improvements in these areas are instrumental in reducing desired family size. Since desired family size is still above two in most of the developing world, population growth will continue unless fertility decline further.

1.3. Encourage delays in childbearing. This is a relatively new, but potentially effective population policy option aimed at reducing population momentum. One of the more desirable ways to achieve childbearing delays is by raising investments in education, especially of girls, because it is associated with later marriage and onset of childbearing.

To be effective in addressing the expected population expansion in the developing world, policies should therefore not only include, but also go beyond

the provision of services. Voluntary fertility reduction as a societal development goal is best achieved through mutually reinforcing investments in family planning, reproductive health, and socioeconomic measures. Such policies operate beneficially at both the macro and micro levels; the same measures that slow population growth improve individual health and welfare.

Conclusion

It is crucial that there is of ecological harmony between balanced population growth and sustainable environmental condition. In other words growth and population must be in tune with sustainable ecological harmony. Human population and environment are two faces of the same coin that is our world. Therefore human population growth within ecological limit can alone ensure our sustainable common future.

GLOSSARY

1. Demographer : One who studies population at the advanced stage.
2. Demography : Study of human population as a discipline.
3. Ecology : The scientific study of inter-relationship among organism and between organism, and all aspects of living and non-living of their environment is called Ecology.
4. Physical Environment : Non-living environment like-land, air, minerals etc.
5. Biological Environment : An ecosystem is a biological environment consisting of the entire organism.
6. Starvation : Fast, the condition of being hungry, famine.
7. Malnutrition : Lack of proper nutrition, unbalanced nutrition.
8. Epidemic : Extremely prevalent, widespread.
9. Drudgery : Monotonous work, unpleasant work.
10. Foreseeable : Predictable. Probable, likely, expected.

FAQ's

1. Why is population an important topic?

Ans. The human race has an *enormous* impact on this planet. We control and modify the Earth more than any other species. How do we meet the needs of human beings and also preserve Earth's finite resources, biodiversity, and natural beauty? This is the fundamental question of our time, and **the challenge is becoming more problematic as we add more people**. Meanwhile, in every locality, it's important to know how fast population is growing, so that we can build sufficient sewers, roads, power plants, and schools.

2. Do we know exactly how many people there are in India today?

Ans. There are so many people on this planet that counting them up, exactly, is impossible. However, experts believe there are about 1.2 **billion people** in India today. Which is second most populous country in the world.

3. How fast is the world's population growing?

Ans. In terms of net gain (births minus deaths), we are adding over 200,000 people to this world *everyday*, or 140 every minute. That equates to 70 million more people every year, about the same as the combined population of California, Texas, and New York. Although we have made encouraging progress in slowing the growth rate, any rate of growth is unsustainable in the long term, so we must stabilize population soon for the good of future generations.

4. Are there any parts of the world where population is not growing?

Ans. Yes. Roughly speaking, populations are holding stable (zero population growth) in Australia, Japan, and Western Europe. Populations are decreasing somewhat in Russia and some Eastern European countries.

5. Does India have enough food to feed so many people?

Ans. India's population has increased a little less than three times. In the corresponding period, food grain production has risen four-fold. India used to import grain earlier; now she is an exporter. So the argument about food shortage is not valid. The real problem is that many people in the country cannot get enough food because of poverty, lack of work and problems with food management and distribution.

6. What is the difference between birth control, family planning and population control?

Ans. Birth control is an individual woman's right to control her fertility, and, at most, a couple's attempt to determine family size.

Family planning is the language used by the government for population control , which is the governments' attempt to limit the number of its citizens.

Population control emphasizes women's reproductive role, not their overall health; national goals, not individual life choices; coercive government programmers, not individual empowerment.

CASE STUDY

1. Urban Environment

Nearly half of the world's population now lives in urban areas. The high population density in these areas leads to serious environmental issues. Today, more than 290 million people live in towns and cities in India. There were 23 metros in India in 1991, which grew to 40 by 2001.