



# learnkwniy

## **Chapter – 9**

### **Environment and Sustainable Development**

## **(I) MEANING OF ENVIRONMENT**

**Environment is the natural world of land, water, air, plants and animals that exist around us and form the basis of our existence and development. In simple word, environment includes all biotic and abiotic factor that influence each other. Biotic elements includes all the living elements like birds, animals, plants, forest, fisheries etc. On the other hand, abiotic elements includes air, water, land etc.**

**Nature and mankind form an inseparable part of the life support system. The Five elements i.e. Flora, fauna, air, water and land are interdependent and inter - related and have co-evolved and co-adopted. Disturbance in one gives rise to an imbalance in others. Hence maintenance of balance among five elements is termed as ecological balance.**

## **FUNCTION OF ENVIRONMENT**

**Environment normally performs four functions:**

- 1. Environment supplies renewable and non - renewable resources to the economy. Renewable resources refers to those resources which do not deplete or exhaust with their use. Examples are - trees in the forests and fishes in the ocean. On the other hand, non - renewable resources refers to those resources which are exhausted when they are used. Fossil fuel is a good example of non - renewable resources.**
- 2. Environment assimilates waste.**
- 3. It creates aesthetic services in the form of scenery etc.**
- 4. It sustains life by providing genetic and bio - diversity.**

## **STATE OF INDIA'S NATIONAL RESOURCES AND ENVIRONMENT**

India is normally regarded rich in its natural resources. It has rich quality of soil, hundreds of rivers and tributaries, plenty of mineral resources, vast stretch of Indian Ocean, ranges of mountains etc. Apart from it, India is rich in flora and placed in the tenth Position in the world and fourth position in Asia in plant diversity. Nearly 23 % of the total land area is under forest which is much less than that is required. India's water resources are substantial India is one of the wettest countries in the world, with average rainfall of 1100 mm.

Thus, in short, India's natural resources are rich, climatic conditions are favourable, soil is fertile and water, mineral and fuel are available in abundance.

## **EFFECT OF ECONOMIC DEVELOPMENT ON RESOURCES AND ENVIRONMENT**

After Independence, India launched a series of economic plans for rapid expansion in agriculture, Industry, transport and other infrastructure, with a view to increase production and employment. At the same time because of growing population and high degree of industrialisation the demand for natural resources risen tremendously. As a result of it, many resources have become extinct and the pressure on the absorptive capacity of the environment have increased. Absorptive Capacity means the ability of the environment to absorb degradation. Thus, the process and pattern of development has created many environmental problems in the country that has led to environmental degradation.

## **ENVIRONMENTAL DEGRADATION IN INDIA**

**Environmental degradation refers to the damage to the quality and quantity of natural resources in the course of production and consumption.**

**The country is facing a number of problem in the field of environment. The main environmental problems in India related to air, soil, and water pollution and degradation of forests and land.**

### **(1) Air Pollution**

**Air Pollution may be defined as occurrence in the atmosphere, which is harmful to man, animals and vegetation. It indicates the presence of some air pollutants in the atmosphere. Further, the air pollutant means any solid, liquid or gaseous substance present in the atmosphere in such concentration as may be injurious to human beings or in other living creatures.**

**Deterioration in air quality is globally one of the major and the more widespread environmental problems.**

**There are three broad sources of air pollution -**

**(i) use of fossil fuels in industries and thermal power plants (ii) use of liquid fuels like diesel, petrol etc. in vehicles. (ii) Burning of bio- fuels such as cow dung, fuel wood, crop residues etc. especially in rural households.**

**The air pollution are generally catagorised into suspended Particulate Matters (SPM) and gaseous pollutants.**

**Air pollution can cause Chronic and acute respiratory diseases, ventilatory malfunction, heart diseases, cancer of lungs, hyper tension, eye irritation, neurological problems etc.**

### **(2) Water Pollution**

**Water pollution may be defined as the presence of some inorganic, organic, biological, radiological or physical foreign substances in the water that tends to degrade its quality. It thus make undesirable adverse changes in the composition of water such that it becomes unsuitable for its natural resources.**

**The most important sources of water pollution are industrial wastes, (untreated sewage, agricultural waste materials, thermal pollution and radioactive wastes.**

### **(3) Loss to Bio-diversity**

**The sustainable use of bio-diversity is fundamental to sustainable development. India is one of the 12 mega diversity countries of the world. However, during the past few decades, industrialisation has put a strain on the ecosystem, altering and even destroying it. The extension of agriculture, filling up of wet land, conversion of rich bio-diversity sites for human settlement and Industrial development, destruction of coastal areas and uncontrolled commercial exploitation.**

**Besides them, solid wastes (paper, plastic, cloth, metal, glass, organic matters etc.) generated from households, commercial establishments and markets, largely in urban areas are also causing Pollution and health hazards in the country.**

### **DEGRADATION OF RESOURCES**

**Degradation of natural resources pose serious problems for an economy. It reduces productive capacity of the economy and hence erodes the base of development. Two important forms of degradation - (i) Degradation of forest or Deforestation and (ii) Land degradation.**

#### **4. Degradation of Forest or Deforestation**

**Forest play an important role in environmental and economic sustainability. They provides numerous goods and services, and maintain life-support systems essential for life on earth.**

**India is facing the problem of deforestation. A continuous large reduction in forest area is termed as degradation of forest or deforestation. The main reason for deforestation are - Reckless felling of trees for use as fuel and industrial wood; intensified shifting cultivation; construction of river valley projects, roads, industrial projects etc.**

**The evil consequences of large scale deforestation are as follows:**

- (i) Deterioration of land and water resources.**
- (ii) Adverse effect on plant life and wildlife.**
- (iii) Adverse effects on the life and economic activities of the people living near the forest areas.**
- (iv) Deterioration in the natural environment of the country.**

#### **5. Land Degradation and Soil loss**

**Land, a non-renewable resources, is central to all primary production systems. Over the years, the country's landmass has suffered from different types of degradation. Degradation of land is caused by biotic and abiotic pressures. Soil erosion is the most serious cause of land degradation.**

**Main causes of land degradation are as follows:-**

- (i) Loss of vegetation occur due to deforestation**
- (ii) Encroachment of forest land**
- (iii) unsustainable fuel woods and fodder extraction**
- (iv) Shifting cultivation**
- (v) Forest fires and over grazing.**
- (vi) Non-adoption of soil Conservation measures**
- (vii) Indiscriminate use of chemical fertilisers and pesticides**
- (viii) Wrong crop rotation**
- (ix) improper planning and management of irrigation system**
- (x) Excess extraction of ground water**

## **6. Global warming and ozone depletion**

**Global warming refers to the gradual increase in the temperature of the earth's lower atmosphere.**

**Indiscriminate industrialisation gives rises to emission of greenhouse into the atmosphere which further leads to rise in global temperature. The main greenhouse gases which creates global warming are carbon dioxide, methane, nitrous oxide, CFC etc.**

**The main factor that contributes to global warming are burning of fossil fuels, deforestation, animal wastes etc. Global warming may cause rise in sea levels and tropical storms.**

**Ozone depletion refers to the reduction in the amount of ozone in the stratosphere. Ozone depletion is mainly the result of increasing atmospheric concentration of chlorine originating from CFCs. CFCs are normally used in air conditioner, refrigerators etc. Ozone layers prevents most harmful ultraviolet rays from passing through earth atmosphere. Ozone depletion could result in an increase in skin cancers, increase in eye damages and could also have adverse impact on plant productivity, forestry and natural ecosystem.**

### **CAUSES OF ENVIRONMENTAL DEGRADATION**

- 1. Mindless and ruthless exploitation of natural resources**
- 2. Rapid rise of our population**
- 3. Fast spreading urbanisation**
- 4. Widespread poverty and unemployment**
- 5. Mismanagement of renewable resources.**
- 6. Over fishing, over exploitation of forests and underground water and exposing soils to erosion.**
- 7. Emission of pollutant such as cigarette smoke, traffic fumes, industrial effluents etc.**
- 8. Increasing deforestation.**
- 9. Discharge of industrial wastes in the rivers, streams, drains and other water resources.**
- 10. Indiscriminate use of chemical fertilizers and pesticides in**



**agriculture.**

**11. Generation of domestic, urban and industrial wastes and pollution beyond the earth's capacity to absorb.**

## **IMPACT OF ENVIRONMENTAL DEGRADATION**

**Environmental degradation is having a number of adverse effect on the Indian economy. We are facing the problem of depletion of the stock of non-renewable resources (like metals and minerals). We are also experiencing a growing scarcity of renewable resources essential for human survival due to deforestation, soil erosion, water depletion, declining of fish stocks and loss of bio-diversity.**

**Environmental degradation has mainly three potential cost to present and future human welfare: (i) it harms human health and increases expenditure on health (ii) it reduces economic productivity and (iii) it leads to loss of amenities**

## **MEASURES FOR ENVIRONMENTAL PROTECTION IN INDIA**

**Environmental protection covers all those activities which relates to those activities which relates to the formulation of policies and programmes for prevention of pollution and conservation of ecology. Protection of environment is regarded as our national duty.**

**A number of measures for environment protection have been initiated by the government of India.**

**1. A separate ministry of Environment and Forests is created for Planning, promotion, co-ordination and implementation of the various environmental programmes in the country.**

**2. The central Pollution Control board (CPCB) has been constituted for the prevention and Control of water and air pollution in the country. At the state level, this work is performed by the State Pollution Control Boards.**

**3. An Eco-mark" label has been introduced to label consumer product that is eco-friendly.**

**4. Under the scheme for adoption of clean technology in small scale industries training and awareness programmes are being implemented.**

**5. A major programme for improvement of automotive fuels is being introduced in the country.**

**6. Action plan to Control pollution for major cities have been prepared and implemented by the concerned state government.**

**7. Priority is accorded to promote environmental education and awareness among various age-groups.**

**8. A number of measures have been initiated to encourage the participation and involvement of people, social organisations and NGOs in environmental protection.**

**9. The whole issue of pollution Control is deal with by a combination of command and control methods as well as voluntary regulation, fiscal measures, promotion of awareness and involvement of public.**

## **SUGGESTIONS**

**Measures in the following directions should be strengthened in order to have effective plan for environment protection:**

- 1. Polluting industries should not be located near the crowded places;**
- 2. Highly polluted traditional industries should adopt cleaner technology.**
- 3. Industries should shift to environment friendly product.**
- 4. Growth pattern should be redesigned so that it becomes less energy intensive and less resources-intensive.**
- 5. Growth state of population should be controlled more effectively.**
- 6. Peoples participation an environmental programmes should be further encouraged.**

## **SUSTAINABLE DEVELOPMENT**

### **MEANING OF SUSTAINABLE DEVELOPMENT**

**The concept of sustainable development was introduced by the world commission on Environment and development in 1987. Sustainable development may be defined as development that meets the needs of the present generation without compromising the ability of the future generations to meet their own needs.**

**The ability to meet the needs of the people depend on 3 types of capital:**

- (i) Natural Capital (natural resources, clean air and water etc.)**
- (ii) Physical Capital (machines, tools, equipment etc.) and**
- (iii) Human Capital (education, technical advance)**

## **MAIN FEATURES OF SUSTAINABLE DEVELOPMENT**

- 1. It stresses meeting the needs of the present generation and future generations.**
- 2. Preservation of human capital, physical Capital and natural**
- 3. Cost of development, particularly cost of environmental loss, should be taken care of. Hence, there is strong need for Protection of environment.**
- 4. Sustainable development aims at making use of natural resources, and environment for raising the existing standard of living such a way as not to reduce ability of future generation to meet their needs.**

**To make the sustainable development in a reality, effort should be made in the following direction**

- 1. There should be restraints on wasteful luxurious consumption pattern.**
- 2. Effort should be made to invent environment and employment friendly appropriate technology.**
- 3. Fast growing population should effectively checked especially in developing countries.**