

UNIT-5

Environmental Protection Act 1986 :- [23rd May, 1986]

The Act comes into force on Nov. 1986.
It is an Act to provide for the protection and improvement of environment and for matters connected therewith:

Whereas the decisions were taken at the United Nations conference on the human environment held at Stockholm in June 1972, in which India participated, to take appropriate steps for the protection and improvement of human environment.

And whereas, it is considered necessary further to implement the decisions aforesaid in so far as they relate to the protection and improvement of environment and the prevention of hazards to human beings, other living creatures, plants and property.

It extends to the whole ^{of} India. This act gives the definition of:

a) "Environment" includes water, air and land and the inter relationship which exists among and between water, air and land and human beings, other living creatures, plants, micro-organisms and property.

b) "Environment pollutant" means any solid, liquid or gaseous substance present in such concentration as may be or tend to be injurious to environment.

① "Environmental pollution" means the presence of any environmental pollutants in the environment.

② Hazardous Substance means any substance or preparation which by reason of its chemical or physico-chemical properties or handling, is liable to cause harm to human being, plant, micro-organism, property or the environment.

• This act consists of 4 chapters containing 26 sections.

Silent features of EPA:-

• Planning and execution of nation wide programme for the prevention, control and abatement of environmental pollution.

• Laying down standards for the quality of environment in its various aspects.

• Laying down standards for emission or discharge of environmental pollutants from various sources.

• Restriction of areas in which any industries, operations or processes shall not be carried out or shall be carried out subject to certain safeguards.

• Laying down safeguards / procedures for the prevention of accidents which may cause environmental pollution and remedial measures for such accidents.

- Laying down procedures and safeguards for the handling of hazardous substances, examination of such manufacturing processes, materials and substances as are likely to cause environmental pollution.
- Carrying out and sponsoring investigations and research relating to problems of environmental pollution.
- Establishment or recognition of environmental laboratories and institutes to carry out the functions entrusted to such environmental laboratories and institutes under this act.
- Collection and dissemination of information in respect of matters relating to environmental pollution.
- The central government may appoint officers with such designation as it thinks fit for the purposes of this Act and may entrust to them such of the powers and functions under this act as it may deem fit.
- The central government may, by notification in the official Gazette, make rules in respect of all or to protect and improve environment.
- No person carrying on any industry, operation or process shall discharge or emit or permit to be discharged or emitted any environmental

pollutants in excess of such standards as may be prescribed.

- No person shall handle or cause to be handled any hazardous substance without any safeguard as may be prescribed.

- For the purpose of protecting and improving the quality of the environment and preventing the abetting pollution, standards have been specified under schedule-1-IV of environmental protection Rule 1986. for emission of gaseous pollutants and discharge of effluent/waste.

- Under the environmental (protection) Rule 1986, an amendment was made in 1994.

for environmental Impact Assessment (EIA) of various development projects. There are 29 types of projects which required clearance from the central government before establishing.

Issues involved in EPA 1986 :-

- The offenders of the wildlife (protection) Act are not subjected to very harsh punishment. (only 25,000 Rs fine with 3 years of imprisonment)
- Jammu and Kashmir State has its own wildlife Act which does not follow the central wildlife Act (Results into hunting and trading of several endangered species).

• In wildlife (Protection) act the ownership certificates for animal Articles (like tiger, leopard skin etc) are permissible which serves as a tool for illegal trading.

• Since the Chairman and members of the board are either from forest services or administrative services, they don't have technical background in pollution control and they find difficulties in providing proper guidance to their subordinates.

• Due to insufficient funds the pollution control boards are not able to pursue the legal actions.

Initiatives By Non-Government Organizations (NGOs)

• There are many kinds of Non-Government organizations engaged in working towards the improvement of the social, economic, environmental and political conditions of the country.

• NGOs include citizens associations, professional societies, foundations, some universities and research centers and network of experts or institutions.

• The National population policy (NPP) 2000 and National health policy (NHP) 2002, states that there should be greater involvement of NGOs in the implementation of different health and family welfare programmes in the country.

• WWF India was the first NGO in India to promote nature conservation on a

nation wide basis at a time when this was regarded as an eccentric elitist whim. Through its Conservation Action Support Programme (CASP), WWF India supports grass roots level activities taken up by the smallest NGOs. Since 1984, WWF India has been a part of the Environmental information system (ENVIS) of the Ministry of Environment and Forests.

The spectrum of missions provided by NGOs are.

- Promoting environmental education.
- Conducting awareness camp.
- Safeguarding environment through social mobilization and community participation.
- Biodiversity and wildlife conservation.
- Various other research activities and movements.

Institutions involved in Environmental Activities

① Environmental Training Institutes

ETI is a common platform that offers training to pollution control board staff, industries, the Urban Sector as well as NGOs.

② TATA Research Institute

The Tata ^{energy} Research Institute (TERI) has launched a major project called Growth with ~~new~~ resource Enhancement of environment and Nature (Green India 2047) has recently rigorously estimated the reduction in India's key natural resources

during the period 1947-97. and has computed economic values of consequent losses,

- on the basis of past experience and a careful analysis of the cost behind the degradation that has taken place in the past. Strategies for the future have been developed, whereby a fresh and creative approach can be taken in the next 50 years.

③ National Institute of Health and Family Welfare (NIHFW)

- The main objective of the institute is to serve as an apex technical institution to promote national health and family welfare programmes in the country through education and training, research, evaluation and monitoring, consultancy and advocacy and providing certain specialized services.
- NIHFW is an autonomous institute funded by the Ministry of Health and Family Welfare, Government of India. It is situated in South Delhi.

Human population and the environment

- Human population and the environment are linked in a way that is impossible to separate.
- Population size, age, mobility, settlement pattern, human fertility and resource availability and consumption of resources all influence the impact

We have on the environment.

- These resources include biomass (oil, gas and coal), Minerals, Wood, water, air, Medical care, food, Land use etc.
- The increased population physically impact the environment. As they need more food to eat, there is exploitation of resources. They cause more pollution, climate change, soil erosion, poor air quality and undrinkable water.
- Population growth also causes change in land use (land to live, school, hospital, industries). These land use changes result in habitat loss, the primary cause of species decline.
- Population growth uses huge energy that leads to increase CO_2 emission. (Green house gases)
- Population Characteristics:- It is defined as qualities and characterization of various types of populations within a social and geographic group. with emphasis on demography, health status and socioeconomic factors.
- Exponential growth:-
Population growth takes place exponentially and that explains the dramatic increase in global population in the last 50 years. In India, the population growth rate is 1%. Whereas birth rate and death rate is 17.16 births/1000 population.

and 9.4% deaths / 1,000 population respectively.

• Doubling Time: population doubling time is useful to demonstrate the long term effect of a growth rate but should not be used to project population size.

• The growth rate can be used to determine a country or region or even the planet's doubling time.

$$T_d = 70/r$$

Where T_d = the doubling time in years.

r = the annual % growth rate.

• Total fertility rate:—

Total fertility rate (TFR) is the average number of children each woman would have in her

life time.

• Infant Mortality rate:—

Infant mortality rate (IMR) is the number of infants age 0 to 12 months who die per 1000 live births in a given population.

• For India the IMR data is

Total IMR = 28.71 deaths / 1,000 live births.

• Age Structure:—

It can be represented by age pyramids

based upon people belonging to different age classes

• Replacement level:-

Replacement level is the level of fertility at which a couple has only enough children to replace themselves or about two children per couple but due to infant mortality rate this replacement level is usually changed.

• Zero Population Growth

Zero Population Growth (ZPG) is the absence of population growth in birth and death rates create a stable human population.

• Life expectancy

Life expectancy is the average number of years remaining for a living being at a given age to live. The life expectancy is also defined as the age at which $1/2$ of age cohorts have died. It is also called as average life span or mean life span.

• Male Female Ratio

This is the number of male to the number of female present in a particular area or any country. Due to Female infanticide and gender based abortion the ratio has reduced in many countries.

• Demographic Transition:-

"Demographic Transition Model" that describes the population changes over time. Population growth is usually related to economic development. There occurs a typical fall in death rates and birth rates due to improved living condition leading to low population growth.

• Environmental Education:-

- The systematic study of our environment and our interaction with it is known as "environmental science". Environmental science is a multidisciplinary subject because it involves botany, zoology, Geology, Microbiology, biochemistry, biotechnology, and genetics.
- Environmental education is a process that creates awareness and understanding of the relationship between humans and their many environments - natural, man-made, cultural and technology.
- Environmental education is concerned with knowledge, values, and attitudes and has as its aim responsible environmental behaviour.
- Environmental education includes.
 - i) Developing personal awareness of the environment and one's connection to it.
 - ii) Developing an understanding of environment concepts.

and knowledge of ecological, scientific, social, political and economic system.

iii) The capacity to act responsibly upon what a person feels and knows, in order to implement the best solutions to environmental problems.

Objectives of Environmental Education:-

- Awareness: To help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems.
- Knowledge: To help social groups and individuals gain a variety of experience in and acquire a basic understanding of the environment and its associated problems.
- Attitudes: To help social groups and individuals acquire a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection.
- Skills :- To help social groups and individuals acquire the skills for identifying and solving environmental problems.
- Participation: To provide social groups and individuals with an opportunity to be actively involved at all levels in working towards resolution of environmental problems.

Public Awareness

- Environmental education is a process of recognising values and clarifying concepts in order to develop skills and added tools necessary to understand and appreciate the interrelations among man, his culture and his biophysical surroundings.
- The Ministry of Environment and Forests, (MoEF), Govt. of India has been interacting with the Ministry of Human Resource Development (MHRD), NCERT, state department of education et al to ensure that environmental components are adequately covered at the school level by infusion into the school curricula at various levels.
- Environmental Education, Awareness and Training plays a significant role in encouraging and enhancing people's participation in activities aimed at conservation, protection and management of the environment, essential for achieving sustainable development.

WOMEN'S EDUCATION

- Women constitute almost half of the population in the world. But the hegemonic masculine ideology made them suffer a lot as they were denied equal opportunities in different parts of the world.
- Access to education has been one of the most pressing demands of these women's rights movements.
- Women's education in India has also been a major preoccupation of both the government and civil society as educated women can play a very important role in the development of the country.
- Educate a man and you educate one person. Educate a woman and you educate the whole family: Jawaharlal Nehru.
- Women's education in India has been one of the major issues of concern of Government of India as well as the society. It is because of the fact that today the educated women play a very significant role in overall development and progress of the country. Women hold a prominent position in the Indian society as well as all over the world.

- Women's education in India plays a very important role in the overall development of the country. It not only helps in the development of half of the human resources but in improving the quality of life at home and outside.
- Educated women not only tend to promote education of their girl children, but also can provide better guidance to all their children. Moreover, educated women can also help in the reduction of infant mortality rate and growth of the population.

OBSTACLES

- Gender discrimination still persists in India. And lot more needs to be done in the field of women education in India. In India the male literacy rate is more than 84%. according to 2021 census, the female literacy rate is just 71.5%.
- Low enrollment of girl child in the school, engagements of girl children in domestic work and high dropout rate are the major obstacles in the path of making all Indian women educated.

5 Year's
University Paper Questions
(AKTU Question Bank)



B. Tech I Year [Subject Name: Environment & Ecology]

Unit-I

1. What is meant by environment? Enumerate and discuss its various components. Define the term biodiversity? Explain in details about Biomagnifications with neat and clean diagram.
2. Write an explanatory note on the multidisciplinary nature and importance of environmental studies. Explain the term food chain and food web. Depict the various types of food chains and food web with suitable examples.
3. Define ecology and ecosystem. Explain the role of producers, consumers and decomposers in an ecosystem.
4. With the help of flow chart, describe the Environment Impact Assessment process, and clearly mention the criteria of EIA.
5. What are ecological pyramids? Explain their types in details with suitable examples.
6. Explain Agriculture, Mining, Industry and Transport on the environment and their effects in details.
7. Explain the structure and composition of forest ecosystem in details.
8. Define aquatic ecosystem. Explain in details about the structure and composition of pond and sea ecosystem.
9. What is sustainable development of environment and write its significance. What are the different ways to restore the damage of ecosystem? Explain In situ approach for conservation of ecosystem.
10. Write the structure and composition of grass and desert ecosystem with suitable examples.
11. Write a note on scope, importance and public awareness of environment education.

Unit-II

1. Draw and explain nitrogen cycle. Explain nitrification and denitrification process.
2. What is deforestation? Enumerate and discuss the various causes of deforestation, and also give the remedial measures to conserve forest resources.
3. What is water induced diseases? Explain the fluoride problem in drinking water. What measures should be taken to control the fluoridation?
4. What is material cycle? Name and explain the various steps carried out in sulphur cycle.
5. Write a note on water resources, their availability, and quality aspects. Add a note on hydrological cycle and its significance.
6. Explain the different energy resources in environment and add a note on conventional and non conventional types with suitable examples.

7. Write a note on environment impact on forest depletion.
8. Give detailed explanation on material cycles. Define biomass and biogas energy. Explain the different types of biogas plant with suitable diagram. Explain why water logging and salinity are responsible for decrease in soil fertility.
9. What is water borne and water induced diseases with suitable examples. Explain any one with its remedy.
10. Write a detailed note on arsenic problems in drinking water and how to rectify the same.

Unit-III

1. Explain the need of education for controlling the pollution? What are bioindicator and their types?
2. What is air pollution? Explain the different sources, effects and controlling measures of air pollution.
3. What do you understand the term 'solid waste management'? Name and briefly discuss the basic functional elements of solid waste management.
4. What is water pollution? What are the sources and effects of water pollutants?
5. Explain how to control water pollution. Discuss the adverse impact of urbanization and industrialization on environment and suggest suitable remedial measures.
6. What is noise pollution? What are the suitable sources and suggest the remedies.
7. Explain a note on waste water treatment for various purposes in details.
8. What are the sources, causes and effects of solid waste in the environment?
9. What are the different air pollutants? Explain their effect on environment and human health.
10. What is soil pollution? Write in details about the cause and effect. Add a note on control measure of soil pollution.

Unit-IV

1. Explain greenhouse gases and their potential to cause global warming.
2. Define acid rain.
3. Define population growth.
4. Explain doubling time and total fertility rate (TFR).
5. Define Greenhouse effect.
6. What is Ozone hole? What are the causes of Ozone hole formation? Write the effects of depletion of ozone layer on environment and ecosystem.

B. Tech I Year [Subject Name: Environment & Ecology]

7. Explain mechanism of acid rain formation.
8. Discuss variation of populations based on pyramids and population control measures.
9. Write detailed note on the mechanism of ozone layer depletion, their causes and effects.
10. Write detailed essay on burning of paddy straw, associated environmental problems and their available solution.

Unit-V

1. Explain roles of non-government organization. Discuss in brief the salient feature of the Water (Prevention and Control of Pollution) Act, 1974.
2. Define Population Growth. Describe what are the functions of NGOs for the controlling the pollution.
3. Define Objectives of environment education.
4. Discuss the role of government and legal aspect in environmental protection.
5. Define Environment Protection Act 1986.
6. Enlist the NGO's working in environment area and also explain their roles.
7. Explain problems on population growth.
8. Discuss various effect of population increment on environment and also explain population control measures.
9. Write an explanatory note on the issue of economic security.
10. Write detailed essay on woman education and its need. Discuss the strategy and policy adopted by Government of India for the development of women education.