UNIT 4

ENVIRONMENTAL PROBLEMS, POLICIES AND PROTECTION OF ENVIRONMENT

CONTENTS

Major Environmental Problems

Global Warming

The level of carbon dioxide and carbon monoxide in the atmosphere is going on increasing, due to which the average temperature in all the regions across the world has raised significantly. This is referred to, as 'Global Warming'.

As a result of global warming, the following effects have been observed.

A) Glaciers have started melting fast, flooding the rivers which results in the rise of sea level, immersing the adjoining low lying areas.

B) Seasons in many parts of the world become erratic.

C) There may occur severe famine for drinking water across the world.

Green House Effect

Greenhouse effect is an analogy to the heat- trapping process caused by the gases (particularly Carbon dioxide) present in the atmosphere, 20 to 50 km above the earth's surface.

The warm soil radiates the heat energy in the form of low frequency (longer wavelength) infra-red rays (IR). Hence the glass walls and roof of the greenhouse partly reflect and partly absorb the IR rays emitted by the soil surface. In fact the outgoing IR rays are reflected back to the earth's surface, due to which the temperature of the earth's atmosphere steadily rises up, which is known as 'Global-warming.

Climate Change

The weather of a place goes on changing depending upon the pattern of wind flow, humidity in air, amount of rainfall and prevailing temperature. The average weather conditions of a place i.e, the maximum and minimum temperatures constitutes its climate.

The Principal reason for climate change is the excessive use of fossil fuels such as coal and petroleum. The drastic climatic changes will result in the emergence of environmental hazards to human health such as extreme weather, ozone depletion, loss of biodiversity, stress to food producing systems and the global infectious diseases.

Ozone Layer Depletion

The ozone layer is very thin protective layer in the stratosphere. It absorbs most of the ultra-violet (UV) rays from sun.

The UV rays Influence body in many ways. Out of beneficial effects is the formation of vitamin D. UV radiation also causes ageing of the skin and in cancer. It influences the Immune system. UV rays may also Increase be incidence of diseases like measles, chickenpox and other viral diseases.

In 1985, atmospheric scientists of the British Antarctic Survey came out with a startling report indicating the vast depletion of ozone in the atmosphere over the Halley Bay in Antarctica. The concentration of ozone is decreasing at a rate of 0.3 per cent every year. At this rate all life on earth may come to an end within 60 years.

Causes of Ozone Depletion

It has been found that the Chemical Chlorofluorocarbon (CFC) is one of the main destroyers of the ozone layer.The chlorofluorocarbons are made up of chlorine, fluorine and carbon. This is used in AC, refrigerator, etc.

Measures to Control Impact on Atmosphere

1) Controlling the level of Co in the atmosphere is raising large number of trees possible, apart curtailing deforestation.
2) Drastically cut the use of fossil fuels in our to day life.
3) Using bio-insecticides instead of synthetic pesticides.
4) Developing new technologies, replacing the ones which use chlorofluorocarbon (CFC).

Acid Rain

Acid rain, generally known by the term 'acid precipitation', reaches the earth the form of acid snow, acid sleet, acid fog, acid frog, acid dew as well as acid rain. Acid rain has an impact on the bio system. In addition to loss of fish life, loss of hundreds of other organisms such as certain types of algae, molluscs and insects is also reported. Acid rain reduces forest growth and increases the amount of calcium and other nutrients leached from agricultural soil.

Extinction of Flora and Fauna

Because of the extensive habitat changes brought by mankind, we are losing a species a day. Man's greed is destroying rainforests, the home of half of the world's life forms. Also, traditional farmers the world over, have developed a variety of crops and livestock. This precious resource too has been eroded over the last few decades with lakhs of traditional crops and livestock breeds being replaced by cash crops laboratory generated hybrids.

Factors Responsible for Flora and Fauna Extinction

1) Water Pollution
2) Air Pollution
3) Acid Rain
4) Global Warming
5) Ozone Depletion
6) Industrialization
7) Deforestation

Measures to Conserve Flora and Fauna

The government should revise the agricultural policy and incorporate conservation and upgradation of indigenous crop and livestock varieties. Biodiversity concerns should be incorporated in the existing Environmental Impact Assessment procedures.Local communities should be involved in the conservation efforts.

The convention on Biodiversity stipulated the following measures for conservation of biological diversity. Each contracting party shall as far as possible and as appropriate:

1) Establish a system of protected areas where special measures need to be taken to conserve biological diversity.
2) Prevent the introduction of control or eradicate those alien species, which threaten ecosystems, habitats or species.
3) Develop or maintain necessary legislation and/ or other regulatory provisions for the protection of threatened species and populations.

Environment Protection and Policies in India

Conservation of Environment

Environment conservation means proper management. Available resources on this earth should be used in such a way that it should not be depleted. Environment management is possible only by the awareness among people.

Objectives of Conservation

1. Proper ecological balance including blot community management and other basic component like earth, air, soil, water, trees etc.
2. To keep the diversity of organisms on eat and their development.
3. For the conservation of natural resources to a long time on this earth "Think globally and ad locally" - Rene Dubos.

Environmental Conservation Measures Taken in India

To protect the environment, Indian Government resorted to certain activities like laws, seminars, camps, amendments in the Constitution etc

Lists of some Acts for protection of Indian environment

1847 Indian Fisheries Act
1905 Bengal Smoke Nuisance Act
2010 The National Green Tribunal Act
2011 E-Waste (Management and Handling) Rules

Constitutional Amendments Made in India

1) **42nd Amendment in the constitution:** According to this 42nd amendment, the problems regarding forests, wild life and environment were considered.
2) **Article 51-A clause (g):** "It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wild life and to have compassion for living creatures".
3) **Department of Environment and Forests (1972)**:In 1972 different departments and scientists collectively worked for the study of various environmental problems and their solutions.

4) Factories Act, 1948 (Amended in 1987)

• Section 12, of constitution says that it is the duty of every industrialist to properly treat and manage and dispose waste in accordance with the plans made by the state Government.
• Any harmful effluent producing factory should be away from habitats of human beings.
• Limited quantity of harmful waste should be emitted.

5) Environment Conservation Act, 1980 (Amended in 1988)

According to this law-

1. Natural forests on the earth should not be converted into other plantation without acceptance of the Government.
2. Proper check on illegal land capture and crop- rotation.
3. Encouragement to tribal community.
4. Forest planning and management should be stressed.

6) Forest (Conservation) Act, 1980 (Amended in 1988)

1. Diversion of forest land for non-forest purposes (Including cultivation of rubber plants, palms, medicinal plants, spices, tea, coffee etc.).
2. Forest land, less than 20 hectare, can be used for nonforest purposes with the approval of State Government.
3. A control should be exerted over shifting cultivation and encroachments.
4. Tribal rights and concessions must be highlighted along with control mechanisms.

Advantages:

a) Guidelines were issued in June 1990 to involve tribal, forest dwellers and village communities for regeneration of degraded forests on the basis of sharing.
b) The various measures undertaken under the law as well a thorough policy guidelines have reduced the trend of deforestation from 1.3 million hectares per annum down to 0.15 million hectares and then to only 3600 hectares.
c) With the coming up of forest protection committees, more than 0.5 million hectares of degraded land has come under forest cover.

Limitations:

a) As the timber prices rise, cases of excessive lumbering, stealing and smuggling of timber have increased.
b) Small, slow encroachments by Individuals are on the rise.
c) There is an increase in the number of grazing animals. They stray into prohibited areas too often.
d) Fuel collectors often scrap and peel off the bark of trees.

7) **Wildlife (Protection) Act, 1972 (Amended in 1991):** Wildlife is living component of nature which has not been tamed by humans. It includes both plants and animals. Wildlife is essential for maintaining ecological balance, preventing soil erosion, obtaining a number of economic products, potential source for breeding improved varieties, new fodder, drugs, beverages, etc.

Under the Act, certain biogeographical areas have been set which are of three types national parks, sanctuaries and biosphere reserves

(1) National Parks. They are reserve areas maintained by Government where cultivation, grazing, forestry and habitat manipulation are not allowed.
(2) Sanctuaries. They are tracts of land with or without lakes where animals are not hunted. Other activities like tilling of land, collection of forest products, lumbering, etc. are not allowed.
(3) Biosphere Reserves. They are multipurpose protected portions of different ecosystems where wildlife, tribals, domesticated plants and animals are allowed to live in harmony.

1. Wildlife Protection Act prohibits hunting and trapping of wildlife.
2. Trading in wildlife products like skins and ivory is banned.
3. Human activity is not allowed in the core zone of biosphere reserves and national parks.
4. No new arm license is to be normally issued within ten km of a sanctuary.

Liberation

(1) Enforcement of wildlife Act has helped in Increasing population of many endangered animals.
(2) Ecological balance has been restored at several places where human activity is restricted under the Act.
(3) It has opened avenues for recreation and tourist attraction.

Limitations

(a) Stress is more on conservation of one or two species in an area. A holistic approach is missing.
(b) Human beings have been uprooted at a number of places to make room for wildlife
(c) Less attention is being paid to endangered plant species.

7) Water (Prevention and Control of Pollution) Act, 1974 (Amended in 1963): Water Act was enacted under article 252 (1) of Constitution as a social welfare measure to prevent and control water pollution and maintain or restore wholesomeness of water.

Under the Act, authority is vested in Central and State Water (Pollution Control) Boards.

× **Central Board:** The board has a full time nominated chairman possessing specialized knowledge or experience in environmental protection. There are a maximum of five central government officials, a maximum of five state board members, a maximum of three nonofficials and a full time member-secretary.

× **State Board:** There is a whole time or part- time chairman with specialized knowledge, a maximum of five state government official, five representatives from members of local authorities, three nonofficials representing, two representatives of state corporations and a full time member-secretary.

Under the amended Act of 1988, the boards ha been renamed as Central **Pollution Control Board and State Pollution Control Board** as they de with both water and air pollution control.

Functions of Central Board:

1) To advise Central Government and state boards about Issues related to water pollution.
2) To provide technical assistance and guidance to state boards and industries.
3) To carry out and sponsor investigations and research related to water pollution.

Functions of State Board:

1) To collect and disseminate information related to causes, prevention and control of water pollution.
2) To seek guidance and training of persons connected with prevention of water pollution.
3) To lay down and modify effluent standards and quality of receiving water.

Powers

1. To recommend to State Government to declare any area or areas within the state as air pollution control area or areas.
2. It can withdraw consent given to any industry and impose new conditions.
3. The board can give instructions to authorities under Motor Vehicle Act regarding standards for automobile emissions.
4. To call information from any industry with regard to pollutants emitted into atmosphere.
5. To take air or emission samples for analysis.

8) Motor Vehicle Act, 1938 (Amended in 1988)

1. The vehicle must have passed the test of VRDE Ahmednagar, ARAI Pune or CMTTI Bundy.
2. Each vehicle must have all the components of the standards laid down by Bureau of Indian Standards.
3. The vehicle must meet all the safety standards.
4. Manufacturer is to ensure that the vehicle does not cause pollution i.e., It is "pollution free".
5. The vehicle is fitted with tune up and catalytic converter.

Advantages

i) Motor Vehicle Act imposes condition on manufacturer to improve the design for reducing mechanical and electrical breakdown.
ii) The owner is required to keep the vehicle fit.

Limitations

a) Despite requirements of obtaining 'Pollution under control certificates, very few vehicle: owners do so.
b) The facility for testing the degree of pollution is not available in small towns.
c) Very old vehicles are seldom discarded.

9) Environment (Protection) Act, 1986: According to Environment Protection Act, environment includes water, air and land; inter-relationships which exist among and between water, air and human beings and other living creatures, plants, microorganisms and property.

Functions

1. Plan and execute nationwide programme for prevention, control or abatement of environmental pollution.
2. Carry out and sponsor investigations and research.
3. Collect and disseminate information.
4. Lay down standards for the quality of environment in its various aspects.

Powers

1. A person empowered by the Central Governmert shall have the right to enter any establishment at all reasonable times.
2. To give directions to authorities or person for taking steps for prevention, control and abatement of environmental pollution.

Penalties: Each failure of contravention under this Act is punishable with imprisonment for a term which may extend to five years or fine which may extend to one lakh rupees or both,

Efforts Taken in India to Ensure Environmental Protection

In India many laws have been legislated which are Indian Fisheries Act, Smoke Nuisance Act, Forest Conservation Act, Mines and Minerals Act, The Factories Act, Water Act (Prevention and Control of Pollution), Wildlife Protection Act, Agricultural Pests and Diseases Act, etc.

National Green Tribunal

Origin of National Green Tribunal

India established the National Green Tribunal (NGT), under an Act passed by the Parliament on 18.10.2010. This court can rightly be called a 'special' because India is the third country following Australia and New Zealand to have such a system. Justice Lokeshwar Singh, Panta became its first Chirman. Currently it is chaired by Justice Adash Kumar Goel.

Role and Functions of NGT

The Tribunal has original jurisdiction of "substantial question relating to environment" (Le a community at large is affected, "damage to pubic health at broader level) and damage to environment due to specific activity" (such as pollution).

In short it could be said NGT has been established for effective and speedy disposal of cases relating to environmental protection and conservation of forests and other natural resources. As this system does not allow for frequent adjournment of cases, filing appeal after appeal against the orders passed, by knocking the doors of higher courts of judiciary, (agaist the order of the NGT, only the Supreme Court could be approached) speedy disposal of cases related to environment has been made possible

Central Pollution Control Board

Central Pollution Control Board (CPCB) of India is a statutory organisation under the Ministry of Environment and Forests. It provides technical advice to the Ministry of Environment and Forests and coordinates the activities of State Boards by offering technical assistance and guidance and resolves disputes among them. It is an apex organisation in the country in the field of pollution control, as technical wing of Ministry of Environment and Forests.

Administrative Structure and Functions of CPCB

The Central Pollution Control Board is led by its Chairman, who is nominated by the Central Government. Its important functions are:

1. Conducting environmental assessment and research.
2. Maintaining national standards under a variety of environmental laws, in consultation with zonal offices, tribal and local governments.
3. Monitoring the water and air quality and maintaining respective quality data.

State Pollution Control Board

All States in India have established their own boards to continuously monitor and control air, water and noise pollution. State Pollution Control Boards (SPCBs) undertake appropriate measures to regulate Industries in their respective states.

Tamilnadu Pollution Control Board (TNPCB)

TNPCB, established in 1982, functions with head office at Chennai, headed by Chairman, Member Secretary, 2 Additional Chief Environmental Engineers and 10 Joint Chief Environmental Engineers, etc.

Functions of TNPCB

1. Granting Permission to Industries
2. Penalising the Erring Industries
3. Delegating Powers to Field Officers
4. Assisting to Establish Common Effluent Plants
5. Taking Steps for Disposal of Hazardous Wastes
6. Developing Environmental Awareness

International NGOs and Environmental Protection

A Non-Government Organisation (NGO) is a social service organisation working towards a better society. It perseveres to bring a positive change by uniting people who share the common vision of a developed India and pay back to the society which helped us.NGOS are involved in the whole spectrum of developmental activities from creating environmental awareness to undertake watershed development: from disaster management to sustainable livelihoods: from joint forest management with the government to giving inputs to government policies; They range from clubs which encourage nature camping agencies to organisations which undertake research and monitoring.

Some of the widely known international environmental organisations are 'Green Peace', "Worldwide Fund For Nature', 'ConservationInternational', 'Environmental Foundation for Africa', International Union for Conservation of Nature', 'Friends of the Earth', 'Earth First' etc.

Notable NGOs in India working in the field of environmental conservation are:

i) Assam Science Society
ii) Bombay Natural History Society
iil) Centre for Science and Environment (CSE)
iv) Centre for Environmental Education (CEE)

Role of NGOs in the Protection of Environment in India

i) Creating awareness among the public on current environmental issues and solutions.
ii) Facilitating the participation of various categories of stakeholders in the discussion on environmental issues.
iii) conducting participatory rural appraisal.
iv) Being Involved in the protection of human rights to have a clean environment.
v) Protecting the natural resources and ensuring the equitable use of resources.

Environmental Foundation of Africa (EFA)

EFA was founded in United Kingdom in 1992 as the 'Environmental Foundation for Sierra Leone. In 1993 During the height of the war years, the organisation shifted to adjoining the country Liberia and started working under the current name "Environmental Foundation of Africa (EFA).

EFA's Important Work and Strategies

1. Protecting the environment of West African region and restoring the degraded lands and forests by making them greener.
2. Providing environmental education and raising awareness on environmental issues in all sectors of the populations, appreciation and understanding of environmental management and the impacts of environmental damage on lives and livelihoods.
3. Working with other partners, preventing the degradation of the environment and undertaking projects to conserve pristine forests and various species of fauna.
4. Providing technical assistance and advice in environmental issues.

Worldwide Fund for Nature (WWF)

The World Wide Fund for Nature (WWF) is an International non-governmental organisation founded on 29th April 1961, working in the field of biodiversity conservation and reduction of human intervention in the environment.

WWF-India is the largest and one of the most experienced conservation organisations in the country. In order to suit India's specific ecological and socio-cultural situation WWF-India articulated its mission in 1987as follows:

"The promotion of nature conservation and environmental protection as the basis for sustainable and equitable development".

Five Broad Programmes of The WWF-India Mission

1. Promoting India's ecological security; restoring the ecological balance.
2. Conserving biological diversity.
3. Ensuring sustainable use of the natural resource base.
4. Minimising pollution and Wasteful consumption.
5. Promoting sustainable life styles.

Key Environmental Programmes Undertaken by WWF-India

1) The tiger conservation programme.
2) Freshwater and wetlands programme.
3) River dolphin conservation programme.
4) Wildlife trade monitoring

Conservation International (CI)

Conservation International (CI) is an American nonprofit environmental organisation established by Spencer Beebe and Peter Seligmann in 1987 with headquarters in Arlington, Virginia, U.S.A. Its goal is to protect nature as a source of food, fresh water, livelihoods and a stable climate.

Important Functions of CI

CI's work focuses on science, policy and partnership with businesses and communities. The aim of CI is to analyse the problems most dangerous or harmful to nature and build a foundation dedicated to solve these issues on a global scale. This organisation:

1. Detects the problems most threatening to nature.
2. Prevents the Industry side of the world from being detrimental to nature

Green-Peace

'Green Peace' is an environment-friendly international non-profit organisation founded in America in 1971. At present it is functioning with Amsterdam of Netherland as its head quarters. It aims at promoting environmental awareness. It is an independent, campaigning organisation, addressing the environmental abuse through direct, non-violent confrontations with governments and business companies. It exposes the global environmental problems and provides solutions for a healthy environment.

Mission of Green-peace

1. Stop Climate-Change
2. Protect Ancient Forests
3. Save the Oceans
4. Stop Whaling.
5. Say ‘No’ to Genetic Engineering
6. Stop the Nuclear Threat
7. Eliminate Toxic Chemicals
8. Encourage Sustainable Trade

Major Achievements of 'Green- peace

1. A ban on toxic waste exports to less developed countries.
2. A moratorium on commercial whaling.
3. A United Nations Convention providing for better management of World fisheries.
4. A Southern Ocean Whale Sanctuary.
5. A 50 year moratorium on mineral exploitation in Antarctica.

International Union for Conservation of Nature (IUCN)

IUCN was established in France in October 1948 and its headquarters at present is located in Gland, Switzerland. Its full legal name is International Union for Conservation of Nature and Natural Resources. It shortly referred to as IUCN at present.

Functions of IUCN

IUCN is working in the field of nature conservation and sustainable use of natural resources. It is involved in data gathering and analysis, research, field projects, advocacy and lobbying and education.

Aims of IUCN

IUCN's mission is to "influence, encourage and assist societies throughout the world to conserve nature and ensure that any use of natural resources. is equitable and technologically sustainable.

Nature and Activities of IUCN

Unlike other NGOs, IUCN does not itself aim to mobilize the public in support of nature conservation It tries to influence the actions of governments, business and other stakeholders by providing information and advice, and through lobbying and partnerships.

Organisational Structure of IUCN

IUCN works on the basis of four year programmes determined by the General Conference of the membership.
The three thrust areas identified by the work programme are:
1) Valuing and conserving nature.
2) Effective and equitable governance of nature's use
3) Deploying nature-based solutions to-global challenges in climate, food and development.

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Thank you