SHREE H.N.SHUKLA GROUP OF B.ED. COLLEGES

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PE - 7 ENVIRONMENTAL EDUCATION

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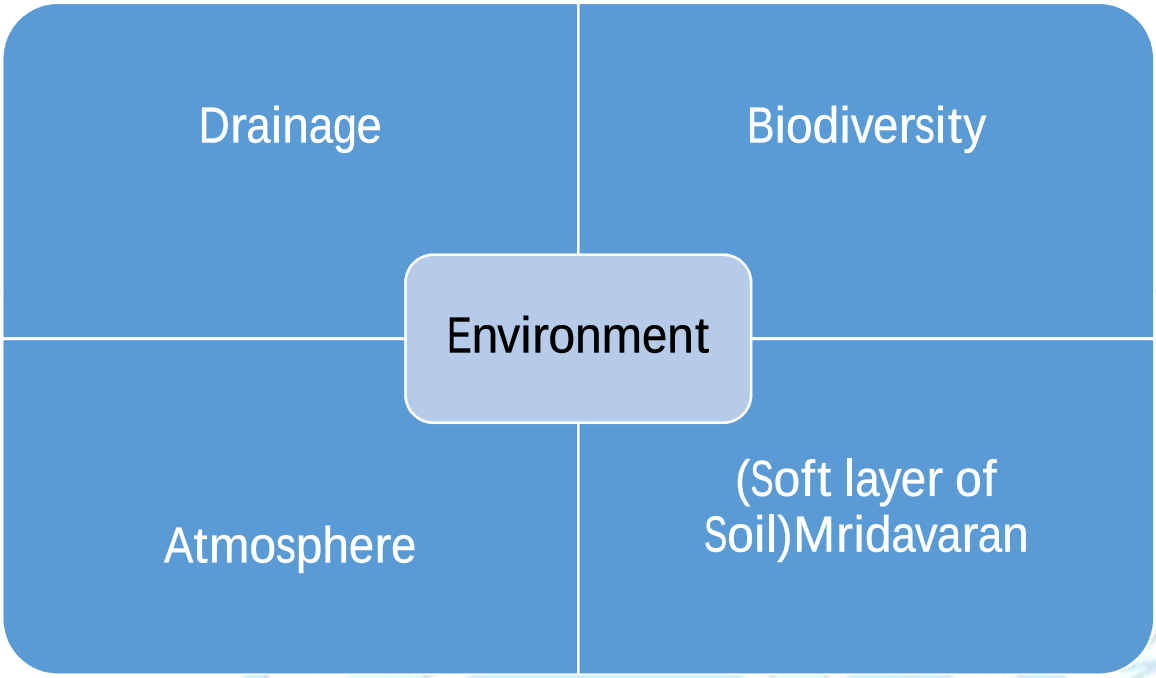
UNIT 1
Environmental Education and Conservation

1.1 Meaning of Environment:

The literal meaning of environment (Pariyavaran) is what lies around us. The word environment is made up of two words 'Pari' and 'Avaran'. ‘Pari’ means all around and ‘Avaran’ means cover or covering. The environment surrounding the human body can be called environment. Accordingly, what surrounds us in various ways is our environment.

In English, the word 'Environment' is used for the environment. The word 'Environment' means surrounded, and 'Ment' means all around. Hence 'Environment' literally means surrounded. The word 'Environment' is not originally from Gujarati language but from Hindi language. The Gujarati word for environment is Pariyavaran. However, the atmosphere is not only the covering of matter (air) but all the natural forces coming under the context of the environment.

Thus, environment means covering of natural factors. In addition to climatic, geophysical and biological factors, the social, cultural conditions affecting the biological system are called environment. It includes many natural elements like geographical location of human territory, topography, water forms, climate, flora, fauna etc. of the earth in the mantle of these elements including soil, water, atmosphere and biome. The environment is a composite shell made up of these four layers. All these envelopes are closely related. Apart from this, the cultural cover created by man is also a part of the environment itself.



All these coverings come together to form the environment. Hydration includes water. The earth's crust covers all of the earth's crust, soil, rocks, metals, minerals, and ecosystems, including all human organisms. Man cannot live without atmosphere. It consists of different types of gases.

1.2 Meaning of Environmental Education:

Environmental education is education that is imparted through the environment, about the environment and for the environment. That is, environmental education is education for the environment and through the environment. The environment teaches man to adapt to the environment and also to change the environment to suit man. is. It provides the individual with the ability to control the environment. Environmental education prepares the individual for life by developing knowledge and values related to the environment. In short, we can say that Environmental Education is an education which -

Develops attitudes and skills for environmental protection by developing a comprehensive knowledge of environmental components, knowledge of the relationships and interdependence between the environment and humans, and environmental awareness. To better understand the meaning of environmental educationthe following points of Environment must be understood:

(1) As education through environment:

The human environment – natural and man-made – is beautiful and instructive. When a child is attracted to animals and birds by seeing them, giving information about them can be said to be teaching through environment. This kind of education is much more important than the education imparted within the four walls of the classroom. Thus environmental education is education imparted through environment.

(2)Education about environment:

Man always works in contact with the environment for his survival and development. Man cannot stay away from the environment in any way, man understands his environment by coming in contact with the environment around him. John Dewey said, “The whole education of mankind is when the individual starts participating in social activities.”

How humans get food from their natural environment, how grains are produced, etc. gives information. Acquiring the above knowledge in environmental subject is environmental education. Thus environmental education is education about the environment.

(3) Education for environment:

Due to population explosion there has been a revolution in environment. Due to industrialization and population growth, the problems of water pollution, air pollution, transport pollution, social pollution, noise pollution etc. have arisen. All these problems have made human life very difficult. Protection of environment is very important to deal with all these problems. For environmental protection and conservation knowledge is environmental education. Environmental Education is both Education content andthe method of education. Environmental control in the form of education for the environment,is concerned with establishing ecological balance and controlling environmental pollution.

Thus environmental education is education for the environment.

Some definitions are needed to better clarify the meaning of environmental education.

Concept and Definitions of Environmental Education:

(1) According to the UNESCO (1970) Working Committee:
"Environmental education is the process of recognizing values and clarifying concepts in order to develop skills and attitude necessary to understand and appreciate the interrelatedness among man, his culture and his bio-physical surroundings. It also entails practice in decision making and self-formulation of a code of behaviour about problems and issues concerning environmental quality."

2) Seminar in UNESCO (1976):
"Environmental education is a way of implementing the goals of environmental protection. It is not a separate branch of science or field of study. It should be carried out according to the principles of life-long integral education."

(3) According to P.K.Gupt:
"Environmental education involves a comprehensive, lifelong education, on responsive to changes in a rapidly changing world. It prepares the individual and communities for life, through an understanding of the major problems of the interaction of the biological, physical, social, economic and cultural aspects of the individual and communities. It provides skills and attitudes needed to play a productive role in improving life and values in order to enable people to enjoy good health and high quality of life."

(4) According to Chapman Taylor:
"... The use of the whole curriculum is to focus attention on environmental problems and values, with the intention of producing good citizens, who are interested, informed and responsible in environmental matters."

(5) According to S.V.Chatargee:
"The interaction between education and environment leads to environment education."

(6) Dr. According to Dr. Harishankar Singh:
"Environmental education not only teaches a person to establish co-relation with environment, but it is a link joining one human being to others."

(7) According to Kimson:

"Environment is the teacher and the job of education is to adapt the student to it."

(8) According to Adam:
"Environmental education is the education of the wider living and physical environment from the perspective of human beings."

(9) According to American author Bossing:
“The function of education is to establish harmony in the individual from the environment to that boundary in which individual and society can get satisfaction.”

(10) According to Encyclopaedia of Educational Research (1982):
“Defining environmental education is not an easy task. The subject area of environmental education is a little more clearly compared to other courses. Yet it is widely recognized that environmental education should be multi-disciplinary in that it draws content from biological, social, political, economic and human resources. For this education, ritual is the best."

(11)According to Natubhai Raval:
"Environmental education is the kind of education that makes man develop empathy and sympathy with the animate and inanimate elements of nature."

Based on the above definitions, the concept of 'Environmental Education' can be understood as follows:

- Environmental education provides comprehensive knowledge and awareness about the environment. Hence, environmental education directly or indirectly provides an opportunity to think and understand about the conservation, maintenance and improvement of the environment.

- Environmental education is an interaction in which the environment influences man and the human influences environment.

- Environmental education is humanistic education in which individuals are motivated to improve the environment by teaching

their responsibilities towards nature and society. This education helps in one's decision making process and brings legislative change in practice.

- 'Environmental education' is the process of imparting knowledge, awareness and information about the environment through its merits and demerits about various human activities.

1.3 Conservation and Management of Natural Resources:

Integrated management of natural resources is essential for environmental management. Certainly ours when we talk about environmental management while on the other hand, one of our purest concepts is the quality of the environment. The end result is with the quality of life. Environment and quality of life is with our natural resources like water, land, air, trees etc. If we manage all these properly then the growing problem of environment will be definitely reduced. Water, air, soil, trees are all the bases of environment. So, environmental management is imperative in the current perspective.

In the name of development and progress, human nature and its perpetual cycles have been disrupted. Due to human comforts, the balance of nature has been disturbed. Behind this disturbed balance is man's neglected view of the environment. So every human being should understand that without the word natural environment we can neither lead a happy life nor think about a peaceful future. So everyone has to be serious about environment management. Now we will discuss conservation and preservation of natural resources within environmental management.

Conservation and Management of Water:

Water is essential for living things. Life is not possible without water. Water is an important medium for the biological activities of organisms. Since water is a universal solvent, all the important components required by the organism are easily available in the form of solution. Water is a supreme natural resource, a basic human need and an invaluable national treasure. Both surface water and ground water are available in our country. The main source of water is rain.

Apart from vast coastlines, our country has valuable sources of water such as rivers, lakes and valleys. Our country is estimated to have about 1869 cubic kilometres of river water and 432 thousand kilometres of groundwater resources. For cooking, cleaning, irrigating agriculture, in factories, we use water for various purposes like drinking, solutions and in different modes of harvesting and bio-electrical energy etc. In our country, the average annual rainfall is 16 posh. And accordingly the rainy regions are insured:

- Wet Zone:

This region receives very heavy rainfall. It rains more than 100 to 200 centimetres.

- Intermediate Zone:
  Rainfall is high in this region. About a 100centimetres of rain falls in this region.
- Semi-Arid Zone:
  Rainfall in this region is very low. The region receives about 20 to 50 centimetres of rainfall.

Water gets collected in deep depressions. This water is ground water. This rain water is absorbed into the soil by gravity. At some level below the Earth's surface, the soil is saturated with groundwater. It is called saturated region. The surface above this saturated region is the water level. The water table, expressed relative to sea level, is of course the distance from the Earth's surface to the water table called the water level. The water table reaches the surface in rivers, lakes, lowlands etc. and remains much lower in mountain tops and arid regions. Soil provides the water required for plant growth. Mostly ground water is used for drinking.

Clean water is essential for living things. Special care must be taken in its maintenance and management. Man depends on fresh water, but the ocean is just as useful. Due to this, the water cycle continues to circulate. The amount of fresh water is maintained regularly. For that one has to depend on rain. Rain sometimes creates desolation; sometimes its lack leads to drought. In summer, the ground water level drops, so the supply of drinking water is not sufficient. Such a scarcity situation urges us to prevent wastage of water and to conserve water properly.

Following measures should be taken for water conservation and management:

(i) Integrated planning of drinking water for irrigation and industrial use should be undertaken.
(ii) Dams should be constructed to control floods and prevent rainwater from flowing into the sea.
(iii) Areas with surplus water should be drained by inter-linking of rivers in deficit areas.
(iv) Where possible to increase the amount of ground water, arrangements should be made to drain rain water into the ground by constructing small and large dams. Recharging of wells should be planned.
(v) Public awareness campaign should be conducted on a large scale through various media for proper use of water and prevention of wastage and pollution of water.
(vi) To prevent and control the pollution of water and land at the national and state levels of Pollution Control Boards (Pollution control Board) should be established.

Water is a resource found in the natural heritage that plays a role as not only an important but also an essential component of sustaining creation in the universe. If there is water, there is the world. On the other hand, if there is no water, then nothing, as water is life itself. According to Goeche "everything is produced with water. And everything lives by water."

As many living animals and plants as there are, water is an important part of its structure. 65% of the human body is water. Not only has this, but the contribution of water been important in its daily activities and also in sustaining its own life. Water is necessary to keep plants and vegetation green. Fruits and flowers, vegetables and anything produced in nature cannot exist without water. Trees contain up to 40% water. Some aquatic plants contain up to 90% water. Aquatic fish (marine animals) contain 95% water, 74% eggs, and 95% water in cucumbers. We drink water when we feel thirsty. We use water for cooking, agriculture, bathing, washing clothes, factories, industries and also for power generation. Water is essential everywhere, all the time. Even animals and birds cannot survive without water. So water is the basis of the whole world and its activities. So water management is essential. Water management is an excellent way to solve water related problems. That is why we can conserve and manage water in the following ways:

(1)Rain water harvesting system:

Usually, excess rainwater runs off into the sea. Humans cannot use it. It should be managed to be stored. For that it is necessary to build reservoirs by building dams. In excess of it, water retention should also be managed in continuous flow and movement.

(2) Water supply in towns:

Water supply in towns should be done efficiently. It is often seen that the water pipes are burst at many places in the city. Most of the water in it is wasted, so it is necessary that the water authority should visit the town to inspect the lines and replace the broken ones with new ones immediately.

(3) Controlling water supply:

It has often been observed that people waste water in towns where water is supplied 24 hours a day. To avoid this wastage water supply should be done only twice in a day at fixed times.

(4) Attention to ground water:

Due to low rainfall and use of tube wells for irrigation, the amount of water in the soil decreases. This water level is continuously decreasing. Rainwater should be managed in such a way that the groundwater level can be increased. For this, strong embankments should be built all around the fields and efforts should be made to increase the amount of ground water by digging deep pits in the fields and filling them with rain water.

(5) Cleaning of water bodies:

As ponds and wells accumulate water over the years, depositing silt on the bottom affects the capacity to hold water. The water reservoir is reduced in it. So it is necessary to dig its soil and make it deep.

(6) Management Water Quality Monitoring:

Monitoring water quality is also a part of water management. After taking the sample of water and getting it tested in the laboratory, it should be allowed to use it for domestic and agricultural purposes.

(7) Awareness raising:

Public awareness is essential for water conservation. It is essential for prison management to motivate people to stop wastage of water

and educate them about their duties to prevent pollution of clean water.

(8) Appropriate use of polluted water:
Waste water from industries which contains many types of impurities is treated and is thrown away without treatment is the water that mixes with drinking water sources. The final destination of such domestic sewage is some water source. It is the source that supplies drinking water to people. It becomes polluted and its use is reduced or stopped. Due to which there is lack of water. In such a situation, water resources should be properly managed and used for irrigation or other purposes.

Thus, in view of the growing water problem in the country, water management is very important. All the people of the country will have access to water only if we use it wisely and stop misuse of water. The water which is available is precious. Water should be properly utilized by managing it properly.

Experience in water availability and management in India:

(i) Scheme of Rajiv Sub-Water Mission

(ii) Pradhan Mantri Peta Jal Yojana : Providing water to all

(iii) Request by Chief Ministers to stop misuse of water in the regions.

(iv) Rain water harvesting scheme. Cleaning of old wells and dams.

(v) Public awareness to maintain loan culture.

(vi) Construction of dams and distribution through rivers for village-to-village water supply.

(vii) Public awareness for wise use of water through voluntary organizations at regional and district level.

viii) Construction of dikes for water conservation

(ix) Requirement of rainwater harvesting system in new complexes and high-rise buildings etc....

Conservation and Management of Soil:

Soil is an essential natural asset for the survival and development of organisms. Many substances necessary for the life of organisms are obtained from soil. The uppermost layer of the soil is called soil. Soils are formed as a result of interactions between chemical, physical processes and biological components.

Plants get the nutrients and water they need from the soil. Soil is not only made up of matter itself but also has organic components mixed into it. Due to the unwise actions of humans, the land loses its productivity day by day qualities are being lost. If it were not for this unwise action of man, the productivity of the land would be permanent. With these productive qualities, the soil is able to provide a rich supply of nutrients to the world. Today's human being is exploiting the land against the laws of nature. Due to which the productive power of the land is destroyed day by day. Land management is essential to address this problem. This problem can be controlled to a certain extent by adopting appropriate land use and various technologies. According to an estimate, about 53% of India's land is degraded.

Soil structure and properties must be maintained. Some human activities reduce soil fertility. Soil pollution affects plants and animals. Excessive use of synthetic chemical fertilizers and pesticides to produce essential food grains leads to increased soil pollution. Contaminated water from industrial estates flows into rivers and pollutes the soil.

To maintain and conserve soil fertility the following is important:

(i) Crop rotation is necessary.
(ii) Soil fertility can be maintained as well as increased by planting legumes.
(iii) Organic and chemical fertilizers and pesticides should be used sparingly.
(iv) Vegetation cover should be raised on the soil surface for soil conservation to prevent soil erosion by wind and water.

(v) Bio fertilizers should be used.
(vi) Acidic soil can be reduced by adding lime.
(vii) The salinity can be reduced by obtaining sulphur powder.
(viii) Farms where high winds and storms occur Green box should be arranged all around.
(ix) Intensive planting of trees around farms.

Thus proper land management can prevent land exploitation. And the productivity of land can be increased. Biological and mechanical methods can also be used in land management as follows:

(1) Biological procedure:

- Partidar farm
- Page numbering
- Vegetative habitat
- Fertilizer application
- Guard belts
- All the above rituals are common and the farmer himself also adopts them. Such as crop rotation, use of fertilizers etc. should be emphasized. Thus, vegetation protection is an essential part of soil conservation.

(2)Mechanical procedure:

Erosion of soil can be prevented by construction of supreme agricultural Vedic construction and control of various canals in mechanized practices. It is therefore necessary to stop the flow of water. Another aspect of land management is protection of soil productivity is also because the continuous use of land gradually depletes its productivity. That means regular soil testing and educating farmers to use these practices to prevent the land from becoming unproductive.

Thus, if we pay proper attention to land management, the decline in productive capacity of land can be prevented. Land is a very important resource. Majority of people in India depend on agriculture. Thus, we can become financially prosperous with the conservation of land.

Conservation and Management of Forest:

A tree is a major component of the environment. Trees provide many benefits to humans. That is why it is necessary to pay attention to the conservation and management of forests. This tree is a natural resource that we have benefited from for endless years. This work is possible only through Puno's management. For this it is necessary to preserve the forest.

Most of the destruction of trees in our country is for obtaining wood. Proper management of water is essential for this task. It is necessary for that to maintain proper proportion of trees. Trees should be allowed to grow to their full potential without cutting them down prematurely. For tree management, a fixed proportion of trees should be maintained in each area. In our country, the prevalence of infested galls was earlier 33%. At present this is below 3%. It is necessary to stop heavy cutting of trees. And re-planting is necessary after suitable trees have been felled. Once this work is started, wood will also be harvested regularly and the number of trees will not decrease. It is very important for tree management to control uncontrolled felling and emphasize planting more trees.

'Gulmvan' of trees is essential for forest management. Gulmvan is an ancient method. In which the trees are cut down in such a way that they can re-sprout. Hence the felling of trees for obtaining fuel should be done in such a way that only the branches are cut.

Forest area should be delineated first to conserve forest for tree utilization. And then it should be cut in Chinese style. One viable solution for conservation of trees is to develop them as national parks. It will protect the trees on one hand and also generate income from tourists on the other hand.

Development of social consciousness is also necessary for forest management. Tree management should be valued. Also, the use of

plastic or other materials in place of wood should also be encouraged. Thus, forest management is very important for environmental conservation.

As necessary and important as the development and conservation of forests is the management or monitoring of forests. Just as a tree is planted and then not cared for, or a seed is planted in a field and not cared for, it perishes. Going. For that, management of trees is necessary. The following are essential for tree management:

(i) Indiscriminate felling of trees should be strictly prohibited.
(ii) Alternative fuels such as cooking gas, solar energy etc. should be made available to people at reasonable prices in place of firewood for fuel.
(iii) In areas where cultivation is not possible, trees should be planted.
(iv) Measures should be taken to prevent exploitation of forests.
(v) Plans should be made for the development and conservation of the wood.
(vi) Forest research should be encouraged and intensified such and less exploitative and economically viable species of trees should be planted.
(vii) Forest Department and comprehensive authority to protect and monitor forests be given.
(viii) The contract practice of felling of trees should be abolished and the forest department should cut down the same trees scientifically and plant new trees in place of the trees which have been declared mature by the forest officer.
(ix) According to the principle of ten for one, if one tree is cut down, ten trees should be planted in return. If four or five of them are destroyed, four trees will be saved.
(x) Indiscriminate grazing of animals in forest areas should be stopped.
(xi) Construction of fire escapes on public places and roads in forest areas. By which this spread in the forests can be stopped. These fire escapes are sort of open roads which prevents the fire from spreading further.
(xii) To establish monitoring posts at the above locations for the protection of forests.

In this way forests can be properly managed and conserved keeping in mind the above points.

Unit 2
Pollution: Problems, Causes and Remedies

Global Problems:

-Green House Effect

- Holes in the ozone layer

-Acid rain

GREEN HOUSE EFFECT

Green houses are used in some cold regions of Europe. Fruit and vegetable plants do not grow properly and seeds do not germinate due to

lack of heat in cold regions. The solution to this problem can be obtained through greening. The walls and roof of the greenhouse are made of glass or polythene.Glass and polythene have the property that short-wavelength rays of sunlight can pass through them (inside the greenhouse), but block reflected heat rays which are of longer wavelength. As a result heat starts to accumulate in the greenhouse. And the temperature of greenhouse increases. So that the temperature is favourable for seed germination and plant growth. Greenhouses are commonly used for research in countries like India.

A practical example of a green house is a car parked in the sun. Sitting in a car parked in the sun, if its windows and doors are closed, the inside feels unbearable heat because the rays of sunlight pass through the window glass and enter inside, but the light energy cannot be converted into heat energy outside the car glass. As a result the temperature inside the car increases. A similar effect of this type is also studied in the context of Earth. In this phenomenon, some gases in the atmosphere act as a transparent medium. The shorter wavelength rays of solar radiation are allowed to reach the Earth, but the longer wavelength heat rays reflected from the Earth's surface are not allowed to pass out of the atmosphere and reflect back to the Earth.

As a result the temperature of the earth gradually increases, from a scientific point of view greenhouse and greenhouse effect can be defined as follows:

"A Greenhouse is a building in a garden or park which has glass walls and glass roof and in which you grow plants that need to be kept warm or protected from winds or frost."

Collins cobuild English language Dictionary, Ed.John Sinclair and others, 1988, P.637: "The Greenhouse effect is the problem of the gradual rise in the earth's temperature because heat is absorbed from the sun but cannot leave the atmosphere."

Collins cobuild English language Dictionary, Ed John

Sinclair and others, 1988: “The green effect is the problem of the ongoing increase in the Earth's temperature. Because the heat from the sun is absorbed but the heat is not reflected from the atmosphere."

Causes of Greenhouse effect:

The main drivers of the greenhouse effect are several gases in the atmosphere, with carbon dioxide (CO_2.) being the most important factor. In addition there are methane (CH_4), chlorofluorocarbons (CFC), nitrous oxide (N_2O) and water vapour.

Greenhouse effect is very important up to the natural level as it maintains the normal temperature of the earth. But when the amount of these gases exceeds its normal level, the temperature of the atmosphere also rises above its normal temperature. This is a serious matter.

These are the five gases that play an important role in the greenhouse effect. They are called triple gases. Their contribution in percentage in producing the Greenhouse effect is as follows:

- Carbon dioxide 50%
- Methane 18%
- Chlorofluorocarbons14%
- Ozone12%
- Nitrites oxide6%

Apart from this, other gases like nitrogen, sulphur, chorine, bromine, iodine are also responsible for the greenhouse effect in small quantities.

1. Combustion of fossil fuels used in mills, factories, factories, vehicles, power stations increases the amount of carbon dioxide gas in the atmosphere.
2. Deforestation by humans increases CO_2 emissions as plants absorb CO_2 and make their own food. And cutting down trees stops the absorption of CO_2, a gas from the atmosphere. In addition, burning of wood from felling of trees releases additional CO_2 gas into the atmosphere.
   [Note: Before 1960 CO in the atmosphere. was 28–290 ppm. which has now reached 350–360ppm as a result of the Industrial Revolution.]

3. Chlorofluorocarbons (CFCs) are man-made chemicals. Which is widely used in air conditioners, form elastics, fire extinguishers and perfume sprays which finally reaches the atmosphere.
   [Note: Chlorofluorocarbon gas absorbs heat 20000 times more than carbon dioxide.[So even a small amount of it is very harmful.]
4. Methane (CH_4) gas is usually produced by the decay of dead plants, animals and their excrement and other organic matter. In addition, the burning of fossil fuels and some industrial processes also produce methane gas that mixes with the atmosphere.

5. Nitrous oxide (N_2O) is produced by the burning of fossil fuels is. Apart from this some are also produced by industrial and biological processes. In which the amount of N_2O is high in the atmosphere. Thus, mostly due to the combustion of fossil fuels (petrol, diesel, kerosene etc.) in vehicles, industries, factories etc. and due to some industrial processes, the amount of greenhouse gases in the atmosphere increases.

In short,

“Increase in the temperature of the atmosphere due to the effect of greenhouse gases has caused the greenhouse effect.”

Damages from the greenhouse effect / side effects:

Below is the estimated loss from greenhouse effect:

1. The increase in temperature will cause the soil moisture to evaporate into the atmosphere and thus have a negative effect on vegetation due to the reduction in soil moisture content.
2. The rate of transpiration will increase with increase in temperature. As a result, water availability from vegetation will decrease. This effect will cause more damage to wheat and corn crops.
3. An increase in temperature will create a favourable environment for insects so that the infestation of insects will increase.
4. CO_2 dissolves in excess of water to form carbonic acid. For CO in the atmosphere. As the amount of water increases, sea and lake

water will become acidic (PH will decrease.) which will prove to be harmful to aquatic animals and plants.

5. According to one estimate, E.S. By 2030, Earth's temperature will rise by about 1.5 to 4.5 C. As a result of the increase in temperature, the ice in the Polar Regions will melt; causing the sea level to rise by 20 to 140 cm. will rise up. So that the coastal areas will slowly sink into the water. And due to this the cultivable land will decrease by 15%.
6. Soil nitrogen fixation by bacteria will increase with increasing temperature but decrease soil moisture content at higher temperatures will reduce the decomposition of organic matter and thereby reduce chemical pollution.
7. Fertilizers have been used more. Due to increase in temperature, there will be an imbalance in the natural cycles. Apart from this, there will be changes in the seasons and unexpected changes in the atmosphere, conditions like cyclones will occur.
8. Climate change will also affect human health. In some environments, diseases like malaria, cholera, pneumonia are especially prevalent.
9. Temperature reaches 46 – 47°C in May-June in some parts of India. A rise in this temperature of 1 to 2°C can cause heatstroke, especially for children and the elderly.
10. A gradual increase in temperature will eventually eliminate the existence of some plants and animals in forests.

Measures to Avoid Greenhouse Effect:

1. Use of fossil fuels should be reduced and use of non-conventional energy sources such as solar energy, wind energy, etc. should be increased instead.
2. Stop deforestation and grow more trees so that by doing this, the amount of CO in the atmosphere can be reduced.
3. Research should be done to find alternatives to fossil fuels.
4. Alternatives to harmful gases like chlorofluoro carbon should be found and their use should be stopped completely.
5. Waste gases and smoke from industries must be released into the atmosphere after passing through a mixture of chemicals to remove greenhouse gases.

6. Programs like social aforestation and tree plantation should be accelerated.
7. Population growth should be stopped so as to reduce the use of natural resource can be.
8. People should be encouraged to adopt simpler lifestyles so as to conserve natural resources and energy and in sum Greenhouse gases in the atmosphere can be reduced.
9. Better efficiency mantras should be developed with minimum use of fossil fuel so that more work can be done with less fuel consumption.
10. Public awareness should be created to use buses and bicycles for commuting instead of cars and motorcycles. Because it reduces the consumption of fossil fuels and in total the amount of greenhouse gases in the atmosphere can be prevented.

Holes in Ozone Belt:

Sunlight contains a mixture of seven colours of light like purple, indigo, blue, green, yellow, orange, red etc. This is the part of sunlight that can be seen by the human eye. There is also a part of the sun's rays which cannot be seen by the human's naked eye. This part of solar rays includes rays like ultraviolet, translucent. These ultraviolet rays of the sun are harmful to living organisms.

The ultraviolet rays of the sun are harmful to living things but they do not reach the earth's surface. The ozone layer in the atmosphere absorbs ultraviolet rays. Thus, the ozone layer acts as a protective umbrella for life on Earth.

The ozone gas layer is located in the stratosphere of the Earth's atmosphere. Usually 15 to 30 km above the Earth's surface. The amount of ozone gas is highest among them. In the presence of ultraviolet rays in the stratosphere, three molecules of oxygen combine to form two molecules of ozone. This process continues continuously. Due to this, the amount of ozone in the stratosphere is maintained.

But in recent years, ozone levels in the stratosphere have started to decrease as a result of some of the chemicals released into the atmosphere by humans. Due to this, there is a reduction in the amount of

ozone in some parts of the stratosphere; there are gaps in the ozone layer called ozone holes. And through these holes in the ozone layer, the sun's harmful ultraviolet rays reach the earth's surface.

Scientists discovered a hole of 40 km diameter in the ozone layer above the South Pole in 1984. Current research shows that this hole in the ozone layer is getting bigger every day. And now it is moving towards Australia. Apart from this, chances of holes in the ozone layer are also increasing over Canada, Western Europe, Russia, Norway and some parts of Sweden.

In short, as the number and shape of the ozone holes increases, more and more of the sun's ultraviolet rays will reach the Earth, and as a result, the risk of UV damage to living organisms will increase.

Causes of hole in ozone layer:

1. The biggest cause of the hole in the ozone layer is a man-made chemical called chlorofluorocarbon. Being of this chemical, it has been used extensively in the manufacture of refrigerators, air conditioner, and plastic form, for making medicines and for fire fighting.
   This chemical slowly reaches the stratosphere after mixing with the atmosphere. Where under the effect of ultraviolet rays, the atom of chlorofluorocarbon decomposes and chlorine molecules are released from it, which reacts with ozone and turns it into oxygen.The chlorine monoxide produced here combines with another oxygen molecule to release a chlorine molecule that is able to break down more ozone molecules.
2. Free radicals of chlorine, halon gas used for fire fighting, and nitrous oxide gas produced by industrial processes and fossil fuel combustion are also responsible for the ozone hole. (Note: Scientists estimate that only chlorofluorocarbons and halons are responsible for 90% of the destruction of the ozone layer.)
3. Chlorine gas released from combustion of booster rocket fuel attached to space shuttles and volcanic eruptions also damage the ozone layer.

4. Gases released from the explosion of nuclear bombs and polar cyclones have also been found responsible for the hole in the ozone layer.

Harmful Effects of Hole in Ozone Layer:

Harmful ultraviolet rays from the sun due to the hole in the ozone layer Earth reaches the surface and has the following effects:

1. A decrease of 1% ozone gas in the ozone layer leads to a 2% increase in skin cancer on Earth. Because ultraviolet rays damage DNA, the carrier of heredity.
2. Ultraviolet rays also affect the human immune system. So the chances of various types of diseases increase.
3. Ultra violet rays also affect human and animal eyes. It can lead to cataracts and sometimes blindness.
4. . Ultraviolet rays are harmful to humans and animals as well as plants. It affects the photosynthesizing action of the plant thereby reducing the productive power of the plant.
5. Ultraviolet rays also damage marine vegetation. Because of that there is also a reduction the number of fish feeding on sea vegetation and the balance of the ocean habitat is disturbed.
6. Due to the holes in the ozone layer, the sun's ultraviolet rays will reach the earth's surface and increase the temperature of the earth, thus causing the problem of global warming. And in sum the climate of the world also changes.
7. The temperature of the stratosphere can also be erratic.

Thus, holes in the ozone layer are harmful to humans, animals, plants and the entire environment of the earth. So prevention of both ozone holes is the urgent need of the day. And if we fail to do so, our next generation may not forgive the option. Therefore, December 16 is celebrated as World Ozone Day and efforts are being made to make people aware of this issue.

Measures to prevent holes in the ozone layer:

Holes in the ozone layer are a huge and global problem that affects everyone which will have very serious consequences in the future. So the only way to stop the hole in the ozone layer is to gradually phase out the use of appliances and refrain the use chlorofluorocarbons.

1. To replace CFCs in the manufacture of refrigerators, air conditioners, perfume sprays, agricultural sprays and plastic chemicals with other chemicals that do not harm the ozone layer.
2. Efforts should be made to prevent release of other ozone depleting chemicals like halogen gases and nitrous oxide etc. into the atmosphere.
3. Research should be accelerated for the invention of pollution free technologies.
4. Farmers should not use methyl bromide in soil for fumigation.
5. Insist on buying appliances labelled ozone friendly or CFC free.
6. People should be made aware of the hole in the ozone layer and its loss.

Global efforts to save the ozone layer:

In 1987, under the Montreal Protocol, A target was set to reduce the production and use of CFCs by 50% by 2000. India has also signed this agreement. But this agreement was not effective.

Helsinki in 1989. In (Denmark) All European countries and 82 other countries organized a convention and prepared a time-bound program to protect and protect the ozone layer by phasing out the production and use of CFCs.

In August 1990 it was agreed upon that the CFC and Chemicals such as halon which were used to be closed by 2000.

On February 22, 1992, 12 European countries met in Portugal and passed a resolution that E. By 1995, production of CFCs should be phased out and their use cut by 85%.

Finally, scientists around the world have emphasized the use of other chemicals to replace ozone depleting chemicals but many governments

and environmental organizations are not ready to use new alternatives as these alternative chemicals have also been found to be ozone depleting.

Acid Rain:

The acidity of water is usually measured in pH. Pure rain has a pH of 5.6. But when the pH of the rainwater falls below 5.6, the rain is acidified. Acid rain actually contains dissolved sulphuric, sulphuric, nitrous and nitric acids. Due to which the pH of rain water decreases. Acid rain typically contains 60-70% sulphuric acid and 30-40% nitric acid.

Acid rain is rain that has a pH less than 5.6 due to high concentrations of uric and nitric acids. For organisms when the pH of acid rain is below 4becomes harmful. Acid rain in America and other European countries is called Lake Killer, because it kills the organisms in the lake.

Causes of Acid rain:

1. The main cause of acid rain is the increasing amount of gases like SO, NO, CI, etc. in the atmosphere. [SO_2 = sulphur dioxide, NO_2 = nitrogen dioxide, Cl= chlorine gas]
2. The amount of pollution in the atmosphere is increasing day by day due to industrialization. Fossil fuels used by humans are high in sugar and nitrogen. Especially oxides of sulphur (SO_3 and SO_2) from combustion of coal, petrol, diesel etc. Gases like nitrogen dioxide, nitrous oxide are produced. So their amount in the atmosphere keeps increasing.

In addition, some industrial processes also produce gases like sulphur dioxide and nitrogen dioxide which are released into the atmosphere.

Oxides of sulphur and oxides of nitrogen in the atmosphere dissolve in rainwater and are converted into acids. And when such acid rain water reaches the earth, it is known as acid rain. The reactions of oxides of sulphur with water are as follows:

$SO_2 + H_2O \rightarrow$ H2SO3 (sulphurous acid)

$SO_3 + H_2O \rightarrow H_2SO_4$ (sulphuric acid).

The reactions of oxides of nitrogen with water are as follows.

$2NO_2 + H_2O \dashrightarrow HSO_2 + HNO_3$ nitrous acid nitric acid

$NO + NO_2 + H_2O \rightarrow 2HNO_2$
$2HNO_2 + O_2 + 2HNO_3$

In addition, in the presence of sunlight, chlorine gas released from industries in the atmosphere also reacts with water to form hydrochloric acid.
$2Cl_2 + 2H_2O \rightarrow 2HCl + O_2$ hydrochloric acid.

Thus, as mentioned above, oxides of sulphur, oxides of nitrogen and very small amounts of chlorine gas also form different types of acids by processing with water in the form of moisture in the atmosphere. Which dissolves in water and reaches the earth in the form of acid rain.

Harmful Effects of Acid Rain:

1. Due to acid rain which immediately adversely affects the productivity of forests and vegetation in the area. Because of it damages the leaves of the plant and sometimes leaves holes in them.
2. Soils exposed to acid rain experience a drastic reduction in biological processes. Because the microorganisms in the soil are destroyed. As a result, the benefit of these microorganisms to the soil stops. (As the decomposition of organic matter in the soil is stopped or slowed down.)
3. . Acid rain also reduces soil productivity as it destroys nutrients in the soil and becomes unattainable.
4. Acid rain also contaminates drinking water sources and as a result their water becomes unfit for drinking.
5. Acid rain has a bad effect on the living organisms of rivers, lakes, lakes. The number of these organisms decreases. And sometimes the growth and development of these organisms stops. Many reservoirs in countries like America, Sweden, and Canada are fishless as a result of acid rain Management. The main reason for this happens is that the load and sediments in the soil are dissolved in the acidic water and the water flows into the river and lake. High levels of salts in river and lake water along with toxic metals like aluminium, lead, mercury become fatal for fish and other organisms like algae.

6. Acidic water dissolves the copper from the copper pipe and dissolves it in the water. As a result such water becomes toxic. It causes diarrhea in children. If aluminium metal is mixed in the water, it causes mental disturbance and difficulty in breathing.
7. Acid rain also damages buildings. The acids it contains usually damage building stones and metal. India's historic building Taj Mahal is also a victim of this type of pollution. The SO_2, NO_2 released from the Mathura refinery, 40 km away from the Taj Mahal, is raining on the Taj Mahal in the form of acid rain, due to which the stones of the Taj Mahal are gradually wearing away and its colour is also fading.

Measures to Avoid Acid Rain:

1. To create public awareness about the energy sources that increase the amount of SO, and NO, in the atmosphere and to give an understanding of its fatal consequences so that the use of such energy sources can be reduced.
2. Use non-polluting energy sources instead of fossil fuelsshould be increased like solar energy, wind energy, hydro energy etc
3. Use of fuel in vehicles and machinery which has low sulphur and nitrogen content so that the combustion of such fuel reduces the production of SO_2, NO_2 gases.
4. If the SO_2 gas produced in industries is contained at its source with the help of scrubbers, it can be prevented from being released into the atmosphere.
5. The use of hiccup vehicles should be reduced instead of larger vehicles like buses, trains should be used so that more people can travel on less fuel. And it will also reduce the production of SO_2, NO_2.
6. Gases produced from fuel combustion should be passed through a layer of special chemicals to remove SO_2, NO_2instead of being released directly into the atmosphere.
7. The use of water while disposing of coal precipitates the sulphur present in it. In this way, it should be used by reducing the amount of sugar in it.
8. . If the fuel is burnt in the presence of lime, the sugars in it are absorbed by the lime. Consequently, SO_2 gas is not produced.

9. Catalytic converter should be used in vehicles to remove NO_2 from its exhaust.
10. The amount of gases likeSO_2, NO_2 etc. in the atmosphere should be continuously recorded so that strategies can be prepared to avoid its harmful effects
11. Vehicles with low efficiency engines cause more pollution. Therefore, the use of such vehicles should be banned.
12. Lime should be added to reduce the acidity of soil and lakes.

Some examples of acid rain in the world:

In February 1979, the city of Toronto, Canada experienced rainfall with a pH level of 3.5. In 1981, rainfall in Los Angeles, USA had a pH of 2.2. To date, acid rain in the town of Healing in West Virginia had a pH of 1.4, a record.

Acid rain has killed many lakes in Norway and Sweden. 50,000 ponds and lakes out of 2.50,000 lakes in the province of Ontario, Canada are severely affected by acid rain. 10,000 out of Sweden's 90000 lakes currently have no fish left alive. And the aquatic life of 40000 other lakes is also on the brink of destruction.
In 1950 the pH of rainwater in Europe was 5.0.Rainfall in Pitlochry, Scotland in 1984 had a pH of 2.02.

In India, Kolkata city has an average pH of 5.5, Hyderabad has 5.73, Madras has 5.85, Delhi has 6.21 and Bombay has an average of 4.8. This situation is likely to worsen as more and more thermal power plants are being set up by NTPC so that SO_2 and NO_2 in the atmosphere. The amount will continue to increase.

Special Note:
The biggest problem with acid rain is that someone is responsible and someone else suffers the damage. Sulphur and nitrogen oxides emitted from tall chimneys of industries and factories are carried thousands of kilometers in the atmosphere in the direction of wind speed and then fall on the earth as acid rain along with water. The adverse effects of SO_2, NO_2, emitted from factories in North America have been observed in Canada. Similarly SO_2, and NO_2 from Britain and France factories. It

reaches as far as Norway and Sweden where it causes damage as acid rain.

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Acid rain is not a big problem in India yet (perhaps a survey is needed for this.) But due to the growing industries this problem does not seem far away so we should impose restrictions on industries in our country that release oxides of sulphur and nitrogen into the atmosphere which are responsible for acid rain.

LOCAL PROBLEM

Salinity ingress:

Groundwater is the only source of water in irregular and low rainfall regions. Gujarat's arid and semi-arid regions, which have experienced frequent disasters like droughts and erratic rainfall, are prone to over-exploitation depending on groundwater. Over-extraction and insufficient recharge of groundwater, resulting in lowering of aquifers. The ground water table dropped below the sea water level resulting in intrusion of salt water and thus the ground water became saline. Farmers use this groundwater, which contains dissolved salts, for irrigation. As this water evaporates, the process of formation of salts in the soil increases.

At present, there are different estimates of the total area affected by salt intrusion in the state. According to an estimate in 1960, a total of 12.2 lakh hectares of land in the state was affected by salinity. While according to another estimate, 30 lakh hectares of land in 14 districts of Gujarat state are affected by this problem.

Especially sodium, calcium, magnesium in groundwater increases amounts of salinity.

Salinity is a serious current environmental problem. Due to the reckless misuse of water by man, the salinity of ground water and soil is increasing. Due to which it becomes useless.

Causes of salinity ingress:

1. Excessive irrigation
   This problem has arisen due to excessive irrigation. Greater reliance on saline subsoil for irrigation in areas where soil fertility is naturally high has increased leaching. Coastal soils of Kutch and Saurashtra, which are known for cultivation of cash crops, have been delayed in quality of fish and crop production. This process of groundwater tapping through irrigation is responsible for the salinity of the soil in the coastal belt up to Madhavpur. Lack of drainage
2. Lack of drainage:
   In coastal areas due to indiscriminate irrigation with canal water due to lack of drainage system in the aquifer, soil salinity increases. Flooding of areas due to over-irrigation in canal sector areas occur and consequently moderate salinity occurs.

   E.g. At Ukai, Kakrapar and Mahini Nori field projects

   1.85 lakh hectares of land has been affected by the population mine.

   In South-Gujarat, soil salinity in Hansot, Allpad, Choryashi etc. talukas is caused by water logging due to irrigation from Noor water.
3. Salty winds:
   Winds blowing in coastal areas also carry salt and salty sand particles, which then gets scattered in the agricultural lands. e.g. Due to the salty sea breeze in the strip from Madhavpur to Dwarka. But then the soils have become saline
4. Sea Tide:
   Intrusion of saline water into coastal areas in excess of normal rainfall which adds to the problem of salinization of coastal soils e.g. Due to the salt agars between Dwarka and Malia, tidal fluctuations of

the sea have also played an important role in increasing the salinity of the soil.

Harmful Effects of Salt Intrusion:

1. Soil fertility is decreasing as a result of increasing salinity. Due to that it cannot be cultivated well.

2. Soil-dwelling organisms and plants on that soil are also hampered in their growth and development due to the salinity effect.

3. Increasing salinity in ground water makes it unfit for drinking and irrigation purposes.

4. There has been an increase in the incidence of osteoporosis in villages of Gujarat due to use of saline water for drinking.

Prevention of Salinity ingress:

(1) Limited and reasonable use of ground water.

(2) Implementation of aforestation scheme.

(3) Providing water to agriculture through irrigation schemes so that ground water can be used less.

(4) Construction of check dams at villages and rivers.

(5) Making maximum use of rain water.

(6) To make efforts to maintain the amount of seasonal rainfall.

(7) Adoption of water recharge method through wells.

(8) Controlling greenhouse gas (CO_2) emissions from vehicles to indirectly prevent sea level rise.

(9) Non-disturbance of geographical areas to maintain seasonal rainfall by Government Meteorological Department.
(10) To stop rain water from going into the sea and take measures to drain it underground.
(11) Proportionate use of water for irrigation so as not to cause water logging (water logging/swamping) of the soil.

(12) Legislation may be enacted to prevent over-exploitation of ground water.

Earthquake:

Meaning:

Rocks feel vibrations. When these vibrations are sudden and powerful, the Earth's surface and humans feel these vibrations. This action is called an earthquake. The intensity of the tremors which are produced as a result of earthquake is noted by the earthquake graph or Richter scale. The place from where earthquake waves are generated. That place is called an earthquake epicentre.

Causes of Earthquake: Actions occur as a result of invisible forces operating beneath the Earth's crust. Due to this, earthquakes occur on the surface of the earth. The main causes of earthquakes are as follows.

(1) Volcanic eruptions

(2) Level Breach Procedure

(3) Geo equilibrium situation

(4) Water vapour

(5) Human beings.

(I) 68% of earthquakes occurring on Earth's surface are associated with volcanic eruptions. When this happens with an explosion in action, the hot

magma then tries to escape. And strong earthquakes are felt in an area of about 150 to 200 km around the volcano.

(2) Stresses and pressures on rock strata as a result of subterranean and earthquakes. Due to these forces, rock layers are separated by abrupt break surfaces. The rock layers stop before, after, or above. Thus this column is destroyed by process or levelling action. Such a stratification process is responsible for earthquakes in new grade mountain ranges such as the Himalayan Alps and in the rift valleys of Africa.

(3) Sometimes the Earth's relative position is disturbed. Magma then migrates high enough to reset the position which causes vibrations to be produced in rock layers. It is for this reason that the Buddha is born on the Hindu Kush Mountain at the foot of the Pamir plateau. Its effect is far-reaching. The Hindu Kush earthquake on March 4, 1949 had an impact as far as Lahore (Pakistan).

(4) Surface water descends into the earth's subsoil. Then due to internal heat it gets converted into steam. Steam occupies 1300 times more space than water. The pressure of this steam causes earthquakes in weak parts of the earth.

(5) Man-made underground nuclear explosions also cause artificial earthquakes. Earthquakes are also caused by pumping fluids in oil fields to increase hydraulic pressure and increase oil production. Building huge dams on rivers also increases the chance of earthquakes.

Large-scale rock slides in mountainous areas, large-scale landslides due to avalanches and meteorites in some areas but earthquakes happen.

- Tsunami:

The people of India have become aware of the ferocity of Tsunami. India is prone to many cataclysmic storms, river floods and earthquakes. But the green of this devastating earthquake was very unique and beautiful. Dt. On 26–12 2004, an in-water earthquake and ocean swell engulfed the

coastlines of about 11 countries from Thailand to East Africa. There was uproar all around.

This earthquake, which occurred at around 6.20 am according to Indian time, had a terrifying magnitude of about 8.9 on the Richter scale in the eastern Indian Ocean. The epicentre of the earthquake was more than 10 kilometres below the sea floor near the northwest coast of Sumatra island, Indonesia. The shaking of the ocean floor generated tsunami waves up to 1 meter high and travelling at speeds of around 700 km/h. The tsunami waves hit the area from Thailand to East Africa. By the time these waves hit the coast of Tamil Nadu, their speed had reached 40 km per hour and their height had increased to 10 meters.

Meaning of Tsunami:

‘Tsunami is originally a Japanese word; which is actually made up of two different words. Among these two words, 'su' means coast or port and 'nami' means huge wave. In the past, tsunamis were known as tidal waves.

Causes of Tsunami:

(1) An earthquake at sea.
(2) Landslides
(3) Volcanic eruptions in the sea.
(4) Terrible explosions.
(5) Tsunamis are caused by meteor showers.
(6) Earthquakes in the ocean floor cause turbulent movement at the bottom. Due to this, thousands of tons of water flowed up and down simultaneously resulting in huge waves which are generated on the surface of the sea.

Devices of Tsunami:

Geologists from all over the world are trying to prevent the tsunami and doing various searches in this regard. The following measures should be taken to avoid the danger of this tsunami.

(1) People should keep getting information and instructions about Tsunami through TV or Radio.

(2) Don't be tempted to go near the sea and see it when an earthquake occurs.

(3) When an earthquake occurs or is informed by an official agency

Then immediately go away from the sea.

(4) Coastal warnings may be given.

(5) Special sound waves of T = Phase type are seven times more powerful than tsunami waves and produces a type of sound waves. Such predictions can be made by him.

(6) In America, tsunamis can be predicted by a tool called SSWWS (Smack Sea Wells Warning System).

(7) Tsunami waves can enter a river mouth and create a river bank. Hence, as soon as the possibility of a tsunami appears, one should move away from such places.

Functions of Pollution Control Board (State Level):

- Relating to prevention and control of water pollution and air pollution
- Formulate and implement state wide program for prevention and control of pollution.
- Planning and arranging training for persons involved in pollution control programmes.
- Publication of effective measures for pollution control and related statistics.

- For disposal of contaminated water and waste water from industrial units

- Preparation of guide books.

- Dissemination of notices, production of pamphlets on diffuse pollution and its prevention.

- To keep every district of the state active and aware of its responsibility for pollution control. Setting up laboratories for measurement of pollution.

- Pollution Control Boards determine the amount of pollution in water, air, etc.

- The main function of the Pollution Control Board is to enforce the central and regional rules, laws and regulations made from time to time to prevent pollution.

- Controlling pollution caused by factories.

- To organize waste collection and disposal at one location.

- Organizing programs, events, seminars, workshops etc. related to pollution.

- To create public awareness to control pollution.

- Establishing check posts to prevent pollution caused by increasing vehicular traffic on a daily basis.

- Make rules for Production Storage, Transformation and Disposal of Harmful Chemicals.

- Conduct cleaning programs within major cities.

- Various information on controlling water and air related pollution to collect

According to this, Pollution Control Board makes different efforts to prevent pollution at every level. For which it prepares the plan and works to implement it.

Unit 3: Biodiversity

Introduction

According to Darwinian evolution, those organisms that were able to adapt to the Earth's environment survived and the rest became extinct. This process has been going on since time immemorial on Earth and is still going on. Due to this process of evolution, many types of trees, insects and animals exist on earth, as well as microbes and viruses that cannot be seen by the naked eye. This diversity found in organisms means biodiversity All these organisms depend on each other for their needs.
Biological diversity is also very important in human life. Many of the necessities of human life (such as clothing, housing, etc.) are available because of this biological diversity. In short, human life is based on biological diversity. So biodiversity destruction can directly affect human life. So we have to prevent the destruction of biological diversity at any cost.

Meaning and Definition:

Biodiversity means the diversity of organisms in terrestrial marine and other aquatic ecosystems and the

environmental complexities of which these organisms are a part. Biological diversity includes intra-species diversity, inter-species diversity and ecosystem diversity.

“Biodiversity is a collective term. It includes all types of living things on earth like plants, micro-organisms and animals. It also includes diversity within species, between species and within habitats."

"Biodiversity is a term referring to the variation that occurs in different populations, animals, communities, and ecosystems."
-C. R. Babu, Joshi and Sardesai.

3.1 Relationship between Biodiversity and Environment:

There is a close relationship between biodiversity and the environment. Biodiversity includes the differences between a microcosm and the trees, plants and animals found throughout the world. In this way, biological diversity is a group that includes all types of living organisms in the biosphere, including trees, micro-organisms and animals. All these are intimately related to the environment because trees, animals, animals and birds are all related to the environment. Biodiversity includes the interaction of all living and non-living things in all regions, places, water bodies and air bodies of the earth which relates to the environment.

The environment is also known as the atmosphere. The environment is perceived by our surroundings which are related to nature, and nature is related to plants, animals and animals of society. It is a part of biodiversity. The environment must maintain a balance of the same substances, animals and humans found inside the soil, outside and on the Earth. The imbalance of nature due to the exploitation of arbitrary (over) amount of natural resources are produced which affects the atmosphere which in turn affects biodiversity. And thus environment and biodiversity are related to each other.

Natural resources include biological and non-biological resources. Which is related to both biodiversity and the environment? The biological resources include those sources which have life such as plants,

agricultural produce, animals, birds, insects etc. abiotic resources include those resources in which there is no life. This includes land, water, air, climate and energy, heat, natural gas, minerals etc.

Environmental pollution is one of the biggest problems of today. This is harmful to humans and other creatures. Land pollution, water pollution, air pollution, noise pollution etc. affect biodiversity. Smoke from factories and different types of gases make the air bad/polluted. The water gets contaminated with various chemicals and harmful wastes. This creates water to become hard due to excessive salts and unwanted minerals which also destroy the creatures living in the sea. All organisms are affected by noise and land pollution. Increasing pollution and destruction of the environment are causing many species to die out. Thus it can be said that there is a close relationship between environment and biological diversity. Thus conservation of both is essential in the present context.

3.2 Challenges to Biodiversity (Threats to Bio-diversity):

Extinction of biological diversity is a threat to an ecosystem. In today's modern times, due to industrialization, urbanization and consumerist culture; human beings have started overexploiting their life resources. As a result of which our biodiversity is in trouble. According to an estimate, more than 100 species of animals and plants are being lost every day due to various human activities.
A research report by Umbridge-based Birdlike International reports that about 2750 birdlike species are found in PramaShea. Out of this 10 species of birds are on the verge of extinction. All the components of the environment play a role in keeping the Earth's environment in balance. Due to human development, important components of power have been involved in one way or another. The name of development is the path of man's own destruction. Adding some things like the following to this journey of development, the creatures living with the help of nature, animals, birds have had very opposite effects and day by day their existence is getting affected.

Today many of our precious animals are facing extinction. Their existence on the face of the earth is on the verge of extinction. Similarly, many

species of animals like antelope, leopard, and white tiger are also becoming extinct. Due to regional peculiarities some regional animals or birds that were found only in that region are now becoming extinct due to environmental pollution. E.g. The Aspie lions, a species found only in the Gir region of the world, are being farmed today.

The Causes of extinction of Biodiversity are:

1. Deforestation:
   Forests are the natural habitat of many animals and plants. Man is constantly cutting down forests and replacing them with agriculture, factories, houses, dams etc. Due to this wildlife and plants are getting destroyed.

2. Modern Agricultural Activities:
   Biodiversity is being named as such by modern agricultural activities. First, new crops and other agricultural products using genetic knowledge species are being developed. These new species are more useful, and because of this, new species are replacing old species. And biodiversity is declining as older species slowly die out. Apart from this, farming methods were simple in earlier times. It did not harm biodiversity. But now-a-days many types of chemicals are used in agriculture like pesticides, herbicides, insecticides etc. This is increasing the amount of toxic chemicals in the soil. Due to this, the insects and micro-organisms living in the soil are being destroyed. These toxic chemicals destroy crops and destroy insects. But also destroys beneficial insects to the soil and crops which is a big loss to the environment and it destroys biodiversity.

3. Water, Land and Air Pollution:
   Various types of organisms are slowly disappearing due to increasing pollution of water, land and air due to various human activities.

4. Temptation of Man:
   Due to the high prices of meat, bones, elephant tusks, rhinoceros' horns, snake skins, antelope skins, tusks etc. in the international market, many wild animals have been killed. And because of that many species have ceased to exist.

5. Population Growth:
   The increase in population has led to an increase in the demand for goods. Natural resources are being used indiscriminately to meet these needs. Due to which biological diversity is being destroyed.

6. Government Policy Rules:
   Due to lack of necessary government policies to compensate for the damage done to the environment and to prevent the damage, the laws are also not properly implemented due to which the biological diversity is continuously decreasing.

7. Lack of public awareness:
   The general public is largely ignorant of the damage done to the environment. In addition, not enough work is being done to create public awareness to preserve the environment and without the support of the general public.

3.3 Organizations Working for conservation of Biodiversity: (Gujarat level):

(1) Gir National Park, Junagadh

(2) Desert of Kutch, Gujarat

(3) Vidyanagar Nature Club, VallabhVidyanagar, Gujarat.

(4) Valladar National Park, Bhavnagar – Gujarat.

(5) Kalpa tree

(6)Gir Foundation, Gandhinagar, (7) ArkvahiniSrishti, Gujarat (NBA)

(8) Gujarat Wildlife Society.

(9) International Plantation Institute, Vadodara.

(10) Pollution Control Board, Gujarat.

(11) Saurashtra LokMela Service Organization, (Ahmedabad) (SEWA)

(12) NalSarovar Bird Sanctuary, Ahmedabad.

(13) Narayana Sarovar Sanctuary, Kutch.

(14) Marine Sanctuary and National Park, Jamnagar.

(15) Vansada National Park, Valsad.

(16) Shul Paneswar Wildlife Sanctuary, Bharuch. (17) Hingolgarh Nature Education, Rajkot.

(18) Paniya Sanctuary, Amreli.

(19) Thole Wild Animal Sanctuary, Ahmedabad.

(20) Porbandar Bird Sanctuary, Rajkot.

(21) Jessore Sanctuary, Banaskantha. (22) Nehru Foundation for Development, Ahmedabad.

(23) International Society for Naturalists, Vadodara.

(24) Disha, Sabarkantha, Gujarat.

(25) Gujarat Ecology Commission, Vadodara.

(26) International Plantation Institute, Vadodara.

In India, efforts are being made to identify and conserve our rich biodiversity to save it from extinction. Efforts are being made at two levels to conserve biodiversity in India.

1. The Wildlife Protection Act, 1972 provided for penal action on poaching of wild animals and made the offenders punishable for

poaching other extinct species of animals like lions, tigers, rhinoceroses, elephants, deer etc.

2. On the basis of the strategy made by UNESCO in the year 1968, an idea has been given to protect the rare species in the environment by preserving them in their original habitat and providing them with conditions of change. It was given the name of biosphere reserve as a result of which biosphere was established in India. It received scientific recognition in 1972. These biomes are like Sundarbans (West Bengal), Manas (Assam), Panchmani (Madhya Pradesh) Desert of Kutch (Gujarat) etc.
3. Government of India has separately created some projects for the conservation of some special insects and organisms apart from biosphere reserves, national parks, and sanctuaries. In which there is a president.
   (1) Project Tiger

   (2) Project Elephant

   (3) Gir Lion Project

   (4) Conservation Project

   (5) Watch Reproduction Project
4. Gir Singh Sanctuary Scheme:

In 1972, the Gujarat Government started this project with the help of the Central Government for the conservation, protection and improvement of Gir Singh Sanctuary.

Unit-4

Environmental Education : Curriculum

Objectives of Environmental Education for Secondary School Children:

(1) The student recognizes the various components and problems of the environment.
(2) The student describes the natural consequences of various environmental problems.
(3) Suggest solutions to various problems of the student environment.

(4) The student analyzes the current state of the environment.

(5) The student evaluates the efforts made in preserving the environment.
(6) The student presents a plan to improve the current state of the environment.

(7) The student shows active interest in environmental activities in the school or community.

(8) Conduct student environmental activities.

(9) The student applies the knowledge of solving environmental problems to the local situation.
(10) Development of social consciousness among students is done through environmental education.
(11) To motivate the students to protect the environment.

(12) To develop good citizenship in students through environmental education so that they understand environmental problems and are motivated to solve them.

(13) To motivate students for population control by making them aware of the serious effects of population growth on the environment.

(14) To protect and respect the heritage of national wealth. To develop emotions in the students.

(15) Environmental improvement should be the goal of every citizen. Development of commitments towards this goal in students through environmental education is intended to do.

(16) To make students aware of natural materials (biological components). Develop awareness about it.

(17) Cultivate conservation and enrichment of abiotic components.

(18) To impart information about environment day among the students.

(19) To create awareness among students that environment is a part of life.

(20) To create awareness about environment.

(21) To provide information about the impact of population growth on the environment.

(22) To inform the student about environmental management.

(23) To provide students with information related to pollution in the environment and

(24) To give knowledge of environment facts, concepts, processes among students.

(25) Providing students with environmental, spiritual, social, psychological and religious information.

(26) Familiarize students with different castes, religions and cultures

(27) To explain to the students the importance of equality, freedom, fraternity, truth and justice.

(28) To explain the importance of forest and wildlife to the students.

(29) Students of environmental protection instruments and acts

(30) To make students aware and sensitive towards environment.

(31) Helpful in imparting current environmental knowledge to the student

(32) To explain the importance of environmental cleanliness to the students.

Points included in Environmental Curriculum for Secondary class children: Points included in Environmental Curriculum for Secondary class children are as follows.

(1) Dependence of man on animals and nature.

(2) Nature and health.

(3) Adaptation to nature

(4) Pollution – water, air, soil, etc.

(5) Water and Energy

(6) Food and health.

(7) Trees and cattle.

(8) Population.

(9) Animal husbandry.

(10) Miscellaneous crops,

(11) Conservation of nature and natural resources,

(12) Duties to social organizations and the environment.

(13) Ecology and its problems.

(14) Social Varniki.

(15) Preservation of environment.

(16) Environment National Parks and Forest Sanctuaries.

(17) Environmental problem

(18) Our Environment.

(19) Moral pollution

(20) Environmental Management.

Co-relation of Environmental Education with other subjects:

Environment teacher has close relationship with other subjects like sociology, economics, geography, political science, geology, botany, biology, chemistry etc. which are as follows.

Sociology

Geography

Politics

Geology

Botany

Biology

Economics

Chemistry

(1) Co-relation between Environment and Sociology

Natural environment is important. To the extent that humans create favorable conditions for themselves by creating a cultural environment, humans fulfil their needs from the natural environment and are selective. When it fails, some changes occur. Thus, there are sometimes interactions between the natural environment and the man-made environment, such as adaptations and non-adjustments.

In the early stages of human development, he lived a wandering life to meet his needs and over the time he learned some things from nature and left the wandering life to animal husbandry, collecting tubers from the forests, and started to lead a settled life with agriculture as his basic support. Thus he started getting his needs from nature. Started farming on vast plains. And started producing grain but was not satisfied with this and when he wanted to get something more, scientific knowledge started to produce different things by setting up industries based on technical knowledge. Due to which the relationship between nature and man begins to close. Thus, there is a close relationship between environment and sociology.

(2) Co-relation between environment and geography

The basis of nature in the reciprocal relationship of man and nature is embedded in geography. This subject is a periodic evaluation of physical environment and human actions. According to the sage Innocent Cassimol, "the basis of geography is policy in environmental and environmental studies," thus environmental geography is intimately related. Geography includes water, places, rivers, springs, hills, population etc. and it is also included in the environment. Hence, there is a correlation between these two. We can say that the study of the relationship between man and environment is the subject of geography. Such as environment in geography and Management Ecological definition and attempts to understand and evaluate the elements and biological relationships, economic relationships, environment and flora, environment and animal, social and cultural relationships of a region or environment. Hence, geography inspires the study of environment.

(3) Co-relation between environment and geological science
The biosphere is so vast that it extends into the atmosphere, the atmosphere and to some depth underground. Changes in the subsurface affect the environment of the biosphere. Different types of rocks and minerals do not occur underground. Internal

and external forces help initiate the biodegradation cycle by breaking down rocks. Hence there is a good relationship between environment and geosciences.

(4) Co-relation between environment and economics

Environment and economics are inextricably linked. The instruments of production discussed in economics are of three main types. Natural resources, human resources, physical resources and production resources are directly related to the environment. Land is the main means of production. It is important in agriculture. Agriculture is dependent on natural tools, factors and environment. Environment is the basis of economic development.

Allocation of resources is discussed in economics. The blackness of equipment and its use has an impact on the environment. Environmental impact is also seen in product selection, raw material selection, production site selection, equipment allocation, production husbandry and energy selection.

Economics studies economic policies, these policies include industrial, agricultural development, financial, political, welfare policies etc. Environment is considered in the formulation and implementation of these policies. Given the seriousness of environmental issues, the government formulates environmental policy as part of economic policy. A separate Ministry of Environment is formed to implement it. The Ministry of Environment is also called a 'Super Ministry'. Because industries like, agriculture, energy, chemicals, vehicles and communications could not proceed without the approval of the Ministry of Environment. Economics deals with economic issues which includes environmental issues. Most of the financial practices are related to environmental issues, poverty, overpopulation, unemployment etc. are related to environmental issues. Environmental issues arise from economic issues and environmental issues from environmental promotion.

From all these details it can be seen that the principles, decisions, methods, questions and policies of economics are related to the environment.

(5) Environment and Political Science

Environment and political science are interrelated. Political science studies political formation, national and inter-national relations and political functions of a country. Many components of the environment such as natural state and resources, soil fertility, population, sea coast position directly and indirectly influence the relationship of a nation's government to other nations' political structure. The degradation and improvement of a nation's environment depends on the policies of the national government, central government of a country.

(6) Environment and Biology:

Environment and biology are closely related. Biology is an aid to environmental studies. In biology, the knowledge of the types of animal organisms, their physical structure, nutrition of organisms, working systems etc. is obtained. Biological factors are of particular importance in environmental studies. Animals are the main biological components. Biological components are related in some way to the environment therefore environment is closely related to biology and zoology.

(7) Environment and Chemistry:

Environment and chemistry are closely related. Chemistry deals with the study of mixtures of different chemicals and the effects of mixtures of different chemicals. In environmental studies it is difficult to understand different types of environmental pollution without chemistry. Water pollution, air pollution, land pollution etc. affect human plants and animals. Explanation of these effects and pollution control are not possible except in chemistry. For this, chemistry and environment are related.

(8) Environment and Botany

Botany studies the physical structure and social organization of plants. A tree's activity influences its nutritional processes, genetics and other characteristics. All these aspects of ecology plant science study the adaptation process. Thus, let's try to understand the role of plants in the environment and help others trying to understand their role about how plants cooperate with the environment. Hence, it can be said that there is a close relationship between environment and plant science.

Programs for Secondary School Children:

The role of school is very important for environmental awareness. Organizing extra-curricular activities for secondary school students to make them informally aware of the environment and indirectly change attitudes towards the environment. For this the following programs should be organized.

(1) To assign work to students related to environment projects, survey visits etc.

(2) Essay competition or oratorical competition should be organized on environment.
(3) A tree plantation program can be organized and each student or a group of students can be given the task of taking care of some tree.

(4) Painting and painting competitions should be held

(5) The school and its surrounding environment or access to the city Program can be held

(6) A competition for environmental awareness slogans should be held.

(7) Students should take pride in remembering the garden around the school. Planting dense and medicinal plants and taking care of them

(8) Nature camps can be organized for students.

(9) Students can be given information about wildlife and environment through films, projects, videos.

(10) Dramas, silent performances, monologues related to environmental awareness should be held.

(11) Tree plantation programs should be conducted on a large scale,

(12) Exhibition of models, charts, pictures regarding the environment should be arranged.

(13) By celebrating World Environment Day

(14) Editing of wall papers.

(15) By publication of manuscript issue.

(16) By holding lectures by environmental experts.

(17) Visiting environmental organizations.

(18) Organizing Group Discussions and Seminars.

(19) Conducting Environmental Quiz Programmes.

(20) By arranging tours in natural places.

(21) A child is a tree spirit.

(22) Tree adoption programs should be held.

(23) By composing environmental poems, poetic links, short stories and such literature.

(24) Paryava awareness rally as well as street dramas, dance programs should be organized by the students in the village or town around the school.

(25) Students can be given information about endangered animals, birds and other animals through posters, pictures.

(26) A student may arrange to present something on the environment for two minutes each day in the prayer meeting,

(27) Expert lectures can be arranged for children on topics like frugal use of natural resources, its procurement etc.

(28) By seeing the students conduct laboratory experiments for testing soil and water quality and taking measures to improve it.

(29) Visits to charitable organizations working for environmental protection may be arranged for the students.

(30) An attitude should be created that there is a 'wilderness among plants'.

Role of Teacher for Environmental Awareness

Environment is a summit, which helps human beings and their actions. All living things, including humans, are a gift to the environment! From the point of view of a good citizen, everyone needs to have knowledge about the environment. It is the responsibility of everyone in society at large to drive the campaign for environmental protection and improvement. But the teacher is the mirror of the society. This responsibility increases on top of that. The world is related to students of different age groups. It is able to create awareness among the students about the disorder. A well-informed demonstration can inspire students to innovate and develop successful solutions by exposing them to various nutritional problems. Today environmental pollution is a pressing problem that affects the entire world both directly and indirectly. A teacher can eradicate those problems by creating environmental awareness among their students. Reason 3 A teacher is a sensitive and responsible person who researches such problems in a hospital like Vidyalaya. Lick organizes the following programs to create environmental awareness among their students.

(i) The teacher can help in improving the present state of environment by organizing various book based experiments in his presence. The teacher imparts the knowledge of various subjects in the school to the students. So it can provide

information about the subject as well as the environment in a simple way to the students in different ways.

(ii) To protect and maintain tree plantations and green gardens.

(iii) Cleaning of parks and water bodies and putting up or releasing leaflets and messages written in clear and beautiful letters by the students at various places to make the public aware about cleanliness.

(iv) Taking school students to slums and rural areas to present programs to sensitize people about environmental improvement.

(v) Organizing exhibitions related to environment by students.

(vi) To present various cultural programs related to environment bringing public awareness.

(viii) To create environmental awareness by organizing voluntary tourism.

(ix) The teacher himself should act as an extension worker among parents and common people in villages and cities to create awareness about the environment.

(x) To organize essay and oratorical competition on the subject of environment.

(xi) Organizing nature camps to create awareness in environment.

(xii) Organizing dramas to create environmental awareness.

(xiii) World Environment Day should be celebrated with pomp.

(xiv) Organizing environmental quizzes.

(xv) Creating and screening environmental films.

Thus, the teacher can play a creative role in developing students' environmental knowledge, skills, values and attitudes among students. A teacher is not only a giver of instructions but he is expected to be a facilitator of learning-oriented situations that provide children with knowledge of the state of the environment, its safety and conservation. The teacher should organize activities in the classroom situation that will make the children aware of the environment.

The position of the teacher as the chief administrator of educational activities is paramount. A teacher directly influences the students not only by his verbal

competence, but also by his interest, aptitude, behavior, attitude, behavior and other human elements. That is why it has been said that “a flag is like a teacher” so an excellent or excellent teacher is one who can inspire students.

In short, the role of the teacher is important in carrying out the task of environmental education in a systematic way, in creating public awareness about environmental problems and in understanding the human hazards that arise from them. Therefore, the teacher can create awareness about the environment through his influence and activities.

Introduction of National Green Tribunal

The National Green Tribunal (NGT) was established on 18th October 2010 under the NGT Act of 2010 as a specialized body for handling any environmental disputes that involve multi-disciplinary issues. It was formed by replacing the National Environment Appellate Authority. It also draws inspiration from Article 21 of the Indian Constitution which assures to provide a healthy environment to the citizens of India.

The National Green Tribunal (NGT) is a specialized body that was formed under the NGT Act, 2010 for effective and expeditious disposal of cases that are related to the protection and conservation of the environment, forests, and other natural resources. India has become the third country in the world after Australia and New Zealand, to set up a specialized environmental tribunal and also the first developing country to do so. The National Green Tribunal has a total of five places of sitting namely: Bhopal, Pune, New Delhi, Kolkata, and Chennai, amongst which, New Delhi is the Principal place of sitting.

Objectives of National Green Tribunal (NGT)

Some of the major objectives of the National Green Tribunal (NGT) are as follows:

- Effective and expeditious disposal of cases that are related to the protection and conservation of the environment, forests, and other natural resources.
- To give relief and compensation for any damages caused to persons and properties.
- To handle various environmental disputes that involve multi-disciplinary issues.

Structure of NGT

The National Green Tribunal (NGT) comprises three major bodies namely:

1. The Chairperson
2. The Judicial Members, and
3. The Expert Members.

Also, there should be a minimum of 10 and a maximum of 20 full-time Judicial as well as Expert members in the NGT.

Term of NGT Members

All these members are required to hold the office for five years and are not eligible for reappointment.

Who appoints NGT Chairman?

The Chairperson of the National Green Tribunal (NGT) is appointed by the Central Government of India in accordance with the Chief Justice of India.

Who appoints NGT members?

A Selection Committee is formed by the central government of India for the appointment of Judicial Members and Expert Members.

Powers of NGT

Over the past few years, the National Green Tribunal (NGT) developed as an important body for regulation of the environment and passing strict orders on issues related to pollution, deforestation, waste management, etc. Some of the major powers of the National Green Tribunal include:

- NGT provides a way for the evolution of environmental jurisprudence through the development of an alternative dispute resolution mechanism.
- It helps in the reduction of the litigation burden on environmental matters in the higher courts.
- NGT provides a faster solution for various environment-related disputes that are less formal and less expensive.
- It curbs environment-damaging activities. NGT ensures the strict observation of the Environment Impact Assessment (EIA) process.
- NGT provides relief and compensation for any damages caused to persons and properties.
- The National Green Tribunal resolves various civil cases under the following seven laws that are related to the environment:
    - Water Act (Prevention and Control of Pollution), 1974
    - Water Cess Act (Prevention and Control of Pollution), 1977
    - Forest Act (Conservation), 1980
    - Air Act (Prevention and Control of Pollution), 1981
    - Environment (Protection) Act, 1986
    - Public Liability Insurance Act, 1991
    - Biological Diversity Act, 2002

The National Green Tribunal (NGT) is a great initiative taken by the Central Government of India.

Introduction to Environment Protection Act-1986

The Environment Protection Act (EPA) is a comprehensive legislation aimed at safeguarding the environment. It provides a legal framework for regulating pollution, conserving natural resources, and ensuring sustainable development. The EPA sets standards for air and water quality, controls hazardous waste management, and enforces penalties for environmental violations.

It empowers-regulatory bodies to monitor and enforce environmental laws, promoting public health and ecological balnice. By establishing clesi guidelines and responsibilities, the EPA plays a crucial role in mitigating environmental degradation and fostering a healthier, cleaner environment for present and future generations.

What is the Environment Protection Act, 1986?

The Environment Protection Act, enacted in 1986, aims to safeguard and improve the environment. Its pumary objective is to provide a legal framework for the protection, conservation, and enhancement of environmental resources while addressing issues related to environmental degradation and pollution control. This legislation empowers the government to egulate activities that impact the environment and insures stricter measures for its proservation.

It provides authority to regulate industrial activities, set omission standards, and monitor compliance. The act also facilitates the coordination between various agencies and the public in addressing environmental issues. It serves as a critical tool for environmental conservation and sustainable development in India.

Salient features of the Environment Protection Act
Here are some of the salient features of the Environment Protection Act (EPA)

Constitutional foundation: The Environment (Protection) Act, 1986 is bared on the Dinctive Principins of State Policy under Article 4HA and the Fundamental nuties outlinosi in Article 51A(g) of the Indian Constitution.

Central government empowerment: The Act grants the Central Government authority to implement comprehensive measures for pollution contral, environmental protention, and

improvement, ollen in collaboration with State Covernments. This includes the power to plan and execute a national program for preventing and controlling pollution.

Setting environmental criteria: the Act rambles the Central Government to establish coterie for environmental quality acorns various components and regulate the discharge or omission of pollutants from different sources.

Limitation on Industrial activities: The Central Government is empowered to designate specific areas where certain industrial activities procuresses or operation can or cannot be conducted ensuring adherence to environmental safeguards.

Appointment of officials: The Act allows the Central Government to appoint officials for various purposes, assigning them specific duties and responsibilities related to environmental protection.

Special procedure for hazardous substances: The Act outlines a distinct process for managing hazardous substances, requiring adherence to approved procedural safeguards.

Establishment of environmental labs: The Central Government holds the authority to establish environmental laboratories or recognize others capable of cordoning necessary environmental analyses.

Appointment of government analyst: A Government Analyst is appointed to assess samples of air, water, soil, or other substances in recognized environmental laboratories.

Pollutant discharge restrictions: The Act prohibits the emission mission or discharge of environmental pollutants that exceed established legal limits.

Relaxed "locus standi" rule: The Environment (Protection) Act relaxes the traditional locus standi rule, allowing ni dinary citizens to approach the Court by giving a sixty-day notice of the alleged offence and expressing intent to file a complaint.

Immunity for government officers: Government officers are anted immunity for actions carried out under the Act's provisions or in exercising powers assigned by it.

Restriction on civil courts: The Ant provents Civil Courts from entertaining suits related to actions, orders, or directions issued by the Ceritral Government or other statutory authorities.

Precedence over inconsistent enactments: The provisions of the Environment (Protection) Act, along with any rules or orders it take precedence over any conflicting laws. ensuring that environmental protection remains a priority.

Penalties for violations: Offences under the Act can result in imprisonment for up to five years, fines up to one lakh rupees, or both, depending on the severity of the violation.

Corporate offences: If a company commits an offence, individuals in direct control of the firm at the time are presumed guilty unless proven otherwise

Government department offences: In the case of the case of a violation by a government department, the Head of the Department is presumed guilty unless proven otherwise. Other responsible officers may also lace prosecution.

Initiation of offence proceedings: No court can take notice of any off rice under this Act unless a complaint is filed by the Central Government or an authorized authority.

Aims and objectives of the Environment Protection Act

The main aims and objectives of the Environment Protection Act, 1986 are outlined below:

1. Implementing the resolutions made at the United Nations Conference on the Human Environment held in Stockholm.

2. Establishing a government authority to regulate industries, with the power to issue direct orders, including closure orders.

3. Coordinating the activities of various agencies operating under axisting laws.

4. Enacting legislation aimed at protecting the environment

5. Imposing penalties on individuals who jeopardise the environment, safety, and health. Penalties for violations can include imprisonment for up to five year,, lines of up to Rs. 1 lakh, or both, with potential extensions of up to seven years in certain cases.

6. Promoting sustainable development of the environment

7. Ensuring the protection of the right to life as outlined in Article 21 of the Constitution

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