

ENVIRONMENTAL ISSUES

Pollution is undesirable change in physical, chemical or biological properties of air, land, water or soil. The substances that cause undesirable change are called pollutants.

Air Pollution and Its Control

Thermal power plants, smelters and other industries release particulate and gaseous air pollutants along with harmless gases such as nitrogen, oxygen etc.

Electrostatic Precipitator- can remove over 99% of particulate matter present in the exhaust from thermal power plant.

A scrubber can remove gases like sulphur dioxide.

- According to CPCB (Central Pollution Control Board) particulate size less than 2.5 micrometers cause greatest harm to human health.

Automobiles are main cause of atmospheric pollution in metro cities. Proper maintenance of automobiles.

Catalytic converters contain platinum, palladium and rhodium as the catalyst, are fitted into automobiles for reducing emission of poisonous gases. As the exhaust passes through the catalytic converter, unburnt hydrocarbons are converted into carbon dioxide and water. The vehicles fitted with catalytic converter should use unleaded petrol because lead in the petrol inactivates the catalyst.

In India, the Air (Prevention and Control of Pollution) Act came into force in 1986. It was amended in 1987 to include noise as an air pollutant.

Water Pollution and Its control

The Government of India has passed the water (Prevention and Control of Pollution) Act, 1974 to protect the water resources.

Domestic Sewage and Industrial Effluent

The sewage that comes out from house and office makes the domestic sewage. More than 60% of the population in India does not have access to proper sewage treatment facilities. This makes domestic sewage unfit for human use.

!Biological Oxygen Demand BOW

The microbes that decompose organic wastes in water bodies consume a lot of oxygen that result into sharp decline in dissolved oxygen downstream from the point of sewage discharge. This decrease in dissolved oxygen in water bodies is called ROD. The main effects include mortality of fish and other aquatic creatures.

Algal Bkmxn

Presence of large amount of organic nutrients in water causes excessive growth of plancton or free floating algae called algal bloom. Due to this colour of water is changed. This may cause deterioration of the water quality and fish mortality. Water hyacinth (Eichhornia crassipes) is the world's most problematic aquatic weed.

This weed is called as "Terror of Eriogail",

biomagnification or Biological Magnification

The increase in concentration of toxicant at each successive trophic levels is called biological magnification. The most common toxicant that gets accumulated at successive trophic levels includes DDT and Mercury.

Eutrophication

It is the natural aging of a lake by biological enrichment of its water. Due to addition of nutrients such as nitrogen and phosphorus that encourage the growth of aquatic organism the accumulation of organic remains in course of time leads to shallowing of lake.

The pollutants from man's activities such as effluents from the industries and homes radically accelerate the aging of lake. This phenomenon is called Cultural eutrophication. Main contaminants include nitrates, phosphates that act as plant nutrients.

Solid Wastes

Agro-chemicals and other Wastes

Use of inorganic fertilizers and pesticides has been increased many fold due to green revolution for enhancing crop production. They are biomagnified in the terrestrial ecosystem.

Organic Farming

Integrated organic farming is a cyclic, zero-waste procedure in which waste products from one process are cycled in as nutrients for other processes to allow the maximum utilization of resource and increase the efficiency of production. It includes bee-keeping, dairy management, water harvesting, composting and agriculture.

Radioactive Waste

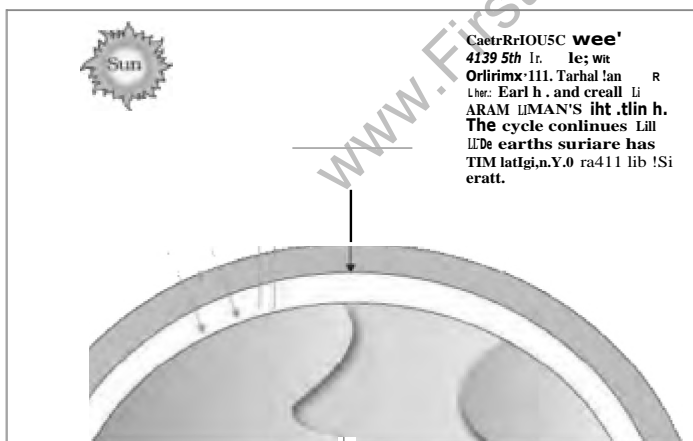
Nuclear energy has two very serious problems —

- Accidental leakage
- Safe disposal of radioactive wastes

The radiation released from nuclear wastes is extremely damaging to biological organisms as it causes mutations to occur at very high rate.

Green House Effect and Global Warming.

The greenhouse effect is a naturally occurring phenomenon that is responsible for heating of Earth's surface and atmosphere due to increase in concentration of carbon dioxide and methane gas..



Global warming is caused due to greenhouse effect.

Global warming can be -controlled by

- Cutting down use of fossil fuel
- Improving efficiency of energy usage
- Reducing deforestation
- Planting trees
- Slowing down the growth of human population.

Ozone Depletion In the Stratosphere

The thickness of the ozone in a column of air from the ground to the top of the atmosphere is measured in terms of Dobson units (CU).

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Due to increase of ozone degradation by chlorofluoromethanes (CFCs) used in refrigerants ozone in stratosphere is increased. Ozone depletion is marked over the Antarctic region called as ozone hole. High dose of UV-B causes inflammation of cornea, called snow blindness cataract.

Deforestation

It is the conversion of forested areas to non-forested ones due to human activities like slash and burn agriculture also called shifting cultivation. Use of fertilizers and cutting of trees for industries and residential use. Main consequence of deforestation includes-

- Enhanced carbon dioxide concentration
- LESS of biodiversity
- Distorted hydrological cycles
- Soil erosion
- Desertification etc.