Pollution: A rising environmental problem

Pollution: The addition of any such constituent to air, water or land which deteriorates the natural quality of the environment. substances that are responsible for pollution are called pollutants.

Biodegradable pollutants: These pollutants are degraded by decomposers. Eg food, kitchen waste etc.

Non-biodegradable pollutants: These pollutants are not degraded or decomposed. Eg DDT, styrofoam, plastics etc.

Type of Pollution

Based on the components of the environment being affected.

- Air pollution
- Water pollution
- Soil pollution
- Noise pollution
- Radiation

etc, causes particulate air pollution.

Brick Kilns: fire heated enclosures enclosures used for making bricks that are used in construction purposes. The wastes produced by these enclosure are large quantities of ash and broken small pieces of bricks, which causes air pollution.

Water Pollution any change in the water quality which make it unsuitable for use by humans and by other living organisms. Five major sources are:

Household detergents: Detergents and soaps used for household purposes i.e for washing clothes and utensils and for bathing release dirty water.

Sewage: Discharge of untreated and partially treated sewage into rivers, canals, tanks etc causing spreading of water borne disease like dysentery, typhoid, cholera, jaundic etc.

Industrial waste: Discharge of untreated waste (waste from fish processing industries, breweries, dyeing, paper, pharmaceutical industries etc) of industries into nearby river or lakes.

Oil spills: Spills from oil wells and refineries and washing of tankers during loading and unloading. These spills are always in danger of catching fire and spreading over the surface of water and killing planktons etc.

- There is reduced oxygenation of underlying water as a result many aquatic life forms such as fishes, etc are killed.

Thermal Pollution: Thermal power plants, oil refineries and nuclear power plants use water for cooling their machinery.

Harmful effects: Interferes in communication and concentration of thought.

lowers efficiency of work, disturb sleep, can damage eardrum and lead to deafness.

- Bird life gets disturbed by aircrafts landing or taking off from airpa

Controls: Prohibiting blowing of horns and restriction on loudspeaker (during night specially).

- Planting trees by the road, door closed in the house and do not burn fire crackers.

Radiations: It is the form of energy which consists of high energy particles such as photons, X-Ray etc.

Sources of radiation are mainly X-Rays and radioactive rays release from nuclear power plants.

- X-Rays contains a huge amount of energy particles which may damage the body cells.
- Eg: Explosions in Japan (11 march 2011, Fukushima Daiichi Nuclear plant) and chernobyl (1986, ukraine) was Iodine 131, which was responsible for haemorrhage and even thyroid cancer.
- Carelessly discarded radioactive material like cobalt 60 caused severe problems in Mayapuri, De (2010) like burns and even deaths.

Effects of various types of pollution

1. Air pollution: Damage of kidney, liver, brain muscles, reproductive system etc

Smog leads to asthma and poor visibility. Exhaust - CO_2 cause bronchitis, Carbon mononide binds with Haemoglobin and causes

→ Deforestation, reducing CO_2 absorption through photosynthesis.

- In the last 30 years, Earth's temperature has risen by 0.5°C causing:
  → Melting ice caps rising sea levels.
  → Decline in agriculture & fishery resources.

Ozone layer depletion

- Ozone is a triatomic molecule (O_3) of oxygen found in the upper atmosphere. In the stratosphere, helps in absorbing harmful UV radiations (UV-B) coming from the sun.
- The absorption of UV radiation is directly proportional to the thickness of ozone shields.
- Global averages ozone layers thickens is declining, because of escape of CFCs, CH_4 and N_2O.
- Ozone depletion is particularly marked over the Antarctic region.
- This led to formation of a large area of thinned ozone layer, called the ozone hole.
- Chlorofluorocarbons break-down in chlorine atoms which in turn breakdown ozone into Oxygen (O_2) and O.
- Increases in UV radiations causes skin cancer including melanoma
- UV radiations, reduces the immune system.
- UV radiations, spoils photosynthesis and obstructs the food chain and indirectly affect the human.

Abatement of Pollution

- Pollution cannot be totally stopped but several steps can be taken to curtail it.
  → Diesel buses should be replaced by CNG buses.
  → Use of unleaded petrol in cars and two wheelers.