

Pollution Definition:

Pollution is when something is added to the environment harmful or poisonous to all living things. In other words, pollution means a sudden change in the environment due to emission of pollutants such as carbon monoxide etc. Pollution is thus direct or indirect change in any component of the biosphere that is harmful to the living components and in particular undesirable for man, affecting adversely the industrial progress, cultural and natural assets or general environment of living society.

Types of Pollution:

- Air Pollution
- Water Pollution
- Land Pollution
- Noise Pollution
- Light Pollution

1. Air Pollution:**Introduction:**

Air pollution occurs when harmful or excessive quantities of substances including gases, particulates, and biological molecules are introduced into Earth's atmosphere. It may cause diseases, allergies and even death to humans; it may also cause harm to other living organisms such as animals and food crops, and may damage the natural or built environment. Both human activity and natural processes can generate air pollution.

Causes and effects:

- Air pollution is caused when air in the atmosphere is filled with particulate matter.
- The largest source air of pollution in cities is from vehicle exhaust fumes.
- Carbon monoxide is the largest air pollutant in the United States, and it's number one source is from vehicle exhausts.
- Air pollution causes irritation in the throat, nose, lungs and eyes. It causes breathing problems and aggravates existing health conditions such as emphysema and asthma.
- Contaminated air reduces the body's defenses and decreases the body's capacity to fight other infections in the respiratory system.

Control Air Pollution:

- Keep your car properly maintained to keep it in good running condition to avoid smoke emissions.
- Use eco-friendly or biodegradable materials instead of plastic which are made up of highly toxic substances injurious to your health.
- Industries should use fuel with lower sulphur content.
- Industries should monitor their air emissions regularly and take measures to ensure compliance with the prescribed emission standards.

2. Water Pollution:**Introduction:**

Water pollution is one of the greatest crises facing the country. The largest source of it is the sewage water without treatment, as also water coming from pesticides-ridden fields, and chemical waste producing small and big industries. In addition to the acute problems of water pollution in developing countries, developed countries also continue to struggle with pollution problems.

Causes and effects:

- Industrial waste from factories, which use freshwater to carry waste from the plant into rivers, contaminates waters with pollutants such as asbestos, lead, mercury and petrochemicals.
- Oil Pollution caused by oil spills from tankers and oil from ship travel. Oil does not dissolve in water and forms a thick sludge.
- Human-produced litter of items such as plastic bags and 6-pack rings can get aquatic animals caught and killed from suffocation.
- Water pollution causes flooding due to the accumulation of solid waste and soil erosion in streams and rivers.
- Oil spills in the water causes animal to die when they ingest it or encounter it. Oil does not dissolve in water so it causes suffocation in fish and birds.

Control of Water Pollution:

- Avoid using the toilet as a wastebasket. Most tissues, wrappers, dust cloths, and other paper goods should be properly discarded in a wastebasket. The fiber reinforced cleaning products that have become popular should never be discarded in the toilet.
- Avoid using a garbage disposal. Keep solid wastes solid. Make a compost pile from vegetable scraps.
- Install a water efficient toilet. In the meantime, put a brick or 1/2 gal container in the standard toilet tank to reduce water use per flush.

3. Land Pollution:**Introduction:**

Land pollution is defined as a degradation or even destruction of the earth's surface and soil as a result of human activities. It can be direct, for example, from dumping toxic chemicals directly on to a site, or indirect, for example where toxic chemicals leach through the soil from particulates that have settled from air pollution from a nearby lead smelter.

Causes and effects:

- Acid rains increase the acidity of soils that is injurious to plant growth. It is caused by the presence of pollutants in the environment. The major causes of acid rains includes human activities such as burning of fossil fuels, and introduction of harmful gases.
- The toxic chemicals in the form of solid and liquid wastes that are disposed by industries and factories is the major source for soil pollution.
- The nuclear power plants are responsible for producing radioactive wastes. These are harmful for the soil.
- The decomposition of various waste materials causes harmful gases and bad smell.
- Clogging of micro-holes of the soil by particles in the sewage destroy the soil micro-organisms.
- Land pollution is one of the main causes of air and water pollution.

Control of Land Pollution:

- Controlled and judicious use of chemical fertilizers and pesticides, insecticides and herbicides
- Proper treatment of liquid wastes from industries and mines must be done.
- Faulty sanitation practices must be improved.
- Formulation and effective implementation of stringent pollution control legislation also helps in controlling land pollution.

4. Noise Pollution:

Introduction:

Noise pollution is generally defined as regular exposure to elevated sound levels that may lead to adverse effects in humans or other living organisms. According to the World Health Organization, sound levels less than 70 dB are not damaging to living organisms, regardless of how long or consistent the exposure is. Exposure for more than 8 hours to constant noise beyond 85 dB may be hazardous. If you work for 8 hours daily in close proximity to a busy road or highway, you are very likely exposed to traffic noise pollution around 85dB.

Causes and effects:

- Hypertension is, in this case, a direct result of noise pollution caused elevated blood levels for a longer period of time.
- Hearing loss can be directly caused by noise pollution, whether listening to loud music in your headphones or being exposed to loud drilling noises at work, heavy air or land traffic, or separate incidents in which noise levels reach dangerous intervals, such as around 140 dB for adult or 120 dB for children.
- Sleep disturbances are usually caused by constant air or land traffic at night, and they are a serious condition in that they can affect everyday performance and lead to serious diseases.
- Physical damage by cracks and broken windows.

Control of Noise Pollution:

- Check equipment to make sure it is operating properly. This is the engineering side of noise pollution reduction. If your equipment is overly aged or damaged, it will be louder than newer equipment. You may need to replace these items to keep decibel limits within a non-harmful range.
- Offer employee hearing tests. Employees should be regularly tested for hearing loss when they are exposed to high levels of noise pollution. They may need to be transferred to another department within your company if they experience ill-effects from noise pollution.

5. Light Pollution:

Introduction:

Light pollution, also known as **photo pollution**, is the presence of anthropogenic light in the night environment. It is exacerbated by excessive, misdirected or obtrusive uses of light, but even carefully used light fundamentally alters natural conditions. As a major side-effect of urbanization, it is blamed for compromising health, disrupting ecosystems and spoiling aesthetic environments.

Causes and effects:

- Smog, and clouds cause the sky to appear a lot brighter than normal because they reflect light given off by cities.
- Street lamps: Those without proper covering cause lots of unnecessary light to flood the sky.
- Excessive and immoderate use of lighting causes over-illumination which is also a type of light pollution.
- Light trespass during nights can disrupt our sleep which may lead to long term health problems. Exposure to excessive light at night is known to suppress the production of melatonin which is responsible for boosting our immune system.
- Light pollution is also linked to change in migratory patterns of birds
- Light pollution around beaches and river shores may effect predatory-prey roles and mating and hunting habits of pelagic organisms.

Control of Light Pollution:

- Light pollution is to switch off unnecessary lights whenever and wherever possible. Also, the outdoor lights should be switched off when you are about to sleep or you don't have any work outside your house.
- Festival seasons consume a lot of lighting. Many people keep the bright lighting on throughout the day and night. The use of such decorative lighting should be lessened. Instead, the use of candles and 'diyas' should be encouraged, especially during the festive season.
- Using motion & occupancy sensors at places like malls, parking areas, parks, etc., will help switch off lights automatically when not in use.

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