

# Chapter 14 : Pollution

---

## 1. Introduction:

Pollution is the introduction of harmful substances or contaminants into the environment, leading to adverse effects on living organisms and ecosystems.

---

## 2. Types and Sources of Pollution:

### 1. Air Pollution:

- **Sources:**
  - Vehicular emissions, industrial discharges, burning garbage, brick kilns.
- **Major Pollutants:**
  - Carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), particulate matter (PM).
- **Effects:**
  - Respiratory problems, smog formation, global warming, and acid rain.

### 2. Water Pollution:

- **Sources:**
  - Household detergents, sewage, industrial waste, oil spills.
- **Major Pollutants:**
  - Chemicals, heavy metals, oil residues, plastics.
- **Effects:**
  - Contamination of drinking water, harm to aquatic life, disruption of ecosystems.

### 3. Thermal Pollution:

- **Sources:**
  - Industrial cooling systems, power plants.
- **Effects:**
  - Increases water temperature, reducing dissolved oxygen levels, affecting aquatic organisms.

### 4. Soil Pollution:

- **Sources:**
  - Industrial waste, urban and domestic waste, chemical fertilizers.
- **Major Pollutants:**
  - Pesticides, heavy metals, plastics.
- **Effects:**
  - Decreased soil fertility, contamination of food crops.

### 5. Biomedical Waste:

- **Sources:**

- Hospitals and clinics.
  - **Examples:**
    - Used needles, syringes, soiled dressings.
  - **Effects:**
    - Spread of infections and diseases.
6. **Radiation Pollution:**
- **Sources:**
    - X-rays, radioactive fallout from nuclear plants.
  - **Effects:**
    - DNA mutations, cancer, radiation sickness.
7. **Noise Pollution:**
- **Sources:**
    - Motor vehicles, industrial establishments, construction sites, loudspeakers.
  - **Effects:**
    - Hearing loss, stress, sleep disturbances.
- 

### 3. Biodegradable and Non-biodegradable Wastes:

- **Biodegradable Wastes:**
    - **Definition:** Wastes that decompose naturally.
    - **Examples:** Paper, vegetable peels.
  - **Non-biodegradable Wastes:**
    - **Definition:** Wastes that do not decompose naturally.
    - **Examples:** Plastics, glass, Styrofoam.
    - **Harmful Pesticides:** DDT, which accumulates in the food chain.
- 

### 4. Effects of Pollution:

- **Climate Change:**
    - Greenhouse effect and global warming.
  - **Environmental Impact:**
    - Acid rain damaging vegetation, water bodies, and structures.
    - Ozone layer depletion leading to increased UV radiation.
  - **Human Health:**
    - Respiratory problems, cardiovascular issues, skin diseases.
  - **Other Organisms:**
    - Disruption of habitats, reduced biodiversity.
-

## 5. Control Measures:

- **Air Pollution:**
  - Use of unleaded petrol and CNG in automobiles.
  - Switching off engines at traffic signals.
- **Water Pollution:**
  - Setting up sewage treatment plants.
  - Reducing industrial discharge into water bodies.
- **Soil Pollution:**
  - Promoting organic farming.
  - Ban on polythene and plastic products.
- **Noise Pollution:**
  - Restrictions on loudspeakers and vehicle horns in residential areas.
- **General Measures:**
  - Social forestry to increase green cover.
  - Adoption of Euro Bharat vehicular standards for reduced emissions.
  - **Swachh Bharat Abhiyan:**
    - A national campaign aimed at promoting cleanliness and reducing pollution.