

# COURSE n°8: Environmental Protection - Waste Management

## 1. INTRODUCTION

**Environment** can be defined as a sum total of all the living and non-living elements and their effects which influence human life.

**Environmental Pollution** is the introduction of contaminants into the natural environment that cause adverse change. Pollution can take the form of any substance or energy. Pollutants, the components of pollution, can be either foreign substances/energies or naturally occurring contaminants.

## 2. TYPES OF POLLUTION

Environmental Pollution occurs in different forms: **air, water, soil, radioactive, noise, heat/ thermal and light**. Every form of pollution has two sources of occurrence; the point and the nonpoint sources. The point sources are easy to identify, monitor and control, whereas the non-point sources are hard to control.

### 2.1. Air Pollution

It is the most prevalent and dangerous form of pollution especially considered to go hand in hand with urbanization. There are many reasons to it. Primary among these is the excessive fuel combustion which has become a basic necessity for cooking, transport and other industrial activities. This releases umpteen no. of chemicals to the air which are far from being removed from it. These are directly affecting our existence.

### 2.2. Water Pollution

Every living being depends, directly, on water so this has taken a heavy toll on the entire living population. Other than direct dependencies, more than 60% of the species live in some form of water. Thus water pollution is another major type of pollution that needs to be curbed.

It can be attributed to many factors -industrial effluent dumped into the rivers and sea causes a huge imbalance in the water properties which renders the water bodies unfit for aquatic lives. Water pollution is also a major cause of diseases caused to the non-aquatic species.

Insecticides, pesticides which are sprayed on the plants, pollutes the ground water system and oil spills in the oceans have caused irreparable damage to the water bodies. Eutrophication is another big source; it occurs due to daily activities like washing clothes, utensils near lakes, ponds or rivers; this forces

detergents to go into water which blocks sunlight from penetrating, thus reducing oxygen and making it inhabitable.

### 2.3. Soil pollution

Also known as Land Pollution, this occurs due to incorporation of unwanted chemicals in the soil due to human activities. Use of insecticides and pesticides absorbs the nitrogen compounds from the soil making it unfit for plants to derive nutrition from. Release of industrial waste, mining and deforestation also exploits the soil. Since plants can't grow properly, they can't hold the soil and this leads to soil erosion.

### 2.4. Noise pollution

It is caused when a noise which is of higher intensity than 85 db reaches our bare ears. It may lead to psychological problems like stress & hypertension. It can also lead to permanent hearing impairment, which is worse. It is mainly caused by loud pumps and compressors in the chemical industries. Even marriage functions and rock music concerts are often ignored contributors to this type of pollution.

### 2.5. Radioactive pollution

This is considered one of the most dangerous pollution because of its permanent effects. It can cause cancer – skin, blood, infertility due to exposure, birth defects and blindness; it has the ability to permanently change soil, air and water – the major sources of life. It can even cause mutation in species which can propagate for ages.

### 2.6. Thermal/heat pollution

This is caused as a result of excessive heat release in the environment. This leads to irreversible and undesirable changes of almost permanent nature. Industries and Vehicles are direct contributors to this. Deforestation is an indirect contributor.

### 2.7. Light pollution

Whenever illumination available is more than what's required in an area, this pollution kicks in.

## 3. Effects of Pollution?

### 3.1. Environment Degradation:

Environment is the first casualty for increase in pollution weather in air or water. The increase in the amount of CO<sub>2</sub> in the atmosphere leads to smog which can restrict sunlight from reaching the earth. Gases

like Sulfur dioxide and nitrogen oxide can cause acid rain. Water pollution in terms of Oil spill may lead to death of several wildlife species.

### **3.2. Human Health:**

The decrease in quality of air leads to several respiratory problems including asthma or lung cancer. Chest pain, congestion, throat inflammation, cardiovascular disease, respiratory diseases are some of diseases that can be caused by air pollution. Water pollution occurs due to contamination of water and may pose skin related problems including skin irritations and rashes. Similarly, Noise pollution leads to hearing loss, stress and sleep disturbance.

### **3.3. Global Warming:**

The emission of greenhouse gases particularly CO<sub>2</sub> is leading to global warming. Every other day new industries are being set up, new vehicles come on roads and trees are cut to make way for new homes. All of them, in direct or indirect way lead to increase in CO<sub>2</sub> in the environment. The increase in CO leads to melting of polar ice caps which increases the sea level and pose danger for the people living near coastal areas.

### **3.4. Depletion of the Ozone Layer:**

Ozone layer stops ultra violet rays from reaching the earth. UV exposure in excess can lead to skin cancer. Due to release of CFCs & aerosols in the atmosphere which contributed to the depletion of ozone layer. This removes the sheet that protects us from the harmful UV-rays which is more than just threatening.