

# **Air Pollution, Water Pollution and Noise Pollution**

## **BSc. Part I Zoology (Hons) Paper II**

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### **Introduction**

Pollution is defined as the introduction of substances into our environment liable to cause harm to humans and other living organisms. Many human activities pollute our environment, adversely affecting the water we drink, the air we breathe, and the soil in which we grow food.

It is a fabricated problem mainly caused by human waste material, release of poisonous gases and other chemical pollutants from the industry, agricultural pollutants like pesticides, and chemical fertilizers, pollutants by automobiles and dumping of chemical and nuclear wastes, etc. It has led to a worldwide environmental crisis. In many ways, it has changed both the individual and social ways of life.

### **Air Pollution:**

The main sources of air pollution in India and elsewhere are mineral dust and gases, automobiles, thermal power plants and industries. Any contamination in the air may not only cause many diseases and loss of vision but can also disturb the entire atmospheric system. Air pollution can also cause acid rain that damages soil, vegetation and aquatic life of the region.

The heavy use of automobiles causes pollution and smog from automobile emissions. This has become a serious problem in almost all the countries—developed and developing.

The bad urban air burns the eyes, damages lung tissues and increases the levels of lead and other poisons in the human body and agricultural products. It is not known how many deaths occur nationally because of air pollution. Air pollution caused massive smog in London in 1952 killing some 4,000 people.

### **Water Pollution:**

Contamination of water from any external source that makes it harmful to life is known as water pollution. With the fast industrial development and modern civilization, the problem of water pollution is increasing day by day. The major sources of water pollution are domestic effluents, agricultural effluents, sewage disposal, industrial wastes, radioactive wastes and oil leakages, etc.

All the Indian rivers, including the holy river Ganga, have become highly polluted today. Even, the Ganga Action Plan to control its water from pollution has not been proved successful. The impact of water pollution is widespread. It causes many severe water-borne diseases, such as diarrhea, trachoma, intestinal worms, hepatitis, jaundice, etc.

According to WHO, 21 per cent of all communicable diseases in India are water-borne diseases. Oil is the major pollutant of the seawater. Huge tankers routinely dump oil into the sea. This act of dumping poisons smothers or coats sea plants and animals and kills them.

### **Noise Pollution:**

Not all sounds are noise. Noise is any sound that is unwanted and goes beyond its certain limit, i.e., above 80 decibels. Harsh sounds of lightning and thunder, noise produced by machines, automobiles, railways, aero planes and the blaring sound of loudspeakers and some musical instruments come under the category of noise pollution.

More and more noise is the creation of modern civilization and has now become a major environmental pollutant, especially in urban areas. The most notable effect of noise pollution is on hearing. It may cause total loss of hearing that may result in the reduction of worker's efficiency.

At the higher levels, it may lead to physical and psychological damage. There is evidence that noise is one of the major causes of stress and anxiety. It also causes headaches and irritability. It may also affect blood pressure and heart beat. Air, water and noise pollutions are very common which are creating havoc for all types of life. They have disastrous transnational consequences.

### **Sources of Pollution:**

1. **Domestic:** Sources of pollution include toilets and wastewater from kitchens and bathrooms. If these wastes are properly contained and prevented from getting into the environment, they will not cause pollution. However, frequently this is not the case. Open defecation obviously releases human waste into the environment, which can then be washed into rivers and other surface waters. Solid wastes from households and also from shops, markets and businesses include food waste, packaging materials and other forms of rubbish. Domestic sources are also responsible for gaseous pollutants in the form of smoke and carbon dioxide from domestic fires.
2. **Industry:** Industrial processes produce polluting waste substances that are discharged to the environment, frequently through chimneys (to the air) or through pipes (to surface water). Among the most polluting industries are food processing, tanneries and textiles with processing plants and factories that produce liquid effluents that are discharged into rivers, often without treatment. In practice, rivers frequently receive polluting discharges from many different sources all at the same time.
3. **Agriculture:** Agricultural activities use pesticides and fertilizers that contain phosphate and nitrates. Agriculture is also responsible for gaseous pollutants in the form of methane produced by livestock and solid pollutants from crop residues, packaging materials and

other wastes similar to those produced domestically. Animals also contribute to waste products and potential pollutants with their excrement.

4. **Transport:** Gaseous pollutants from vehicular exhaust is one of the most important factors for increasing greenhouse gases. Older vehicles and improperly maintained vehicles produced more exhaust. These gases act as irritants to our lungs and also reduce visibility.

## **Pathways of pollution**

The pathway of pollution is the way the pollutant moves from the source, enters into the environment, and finally how it reaches the human body or other recipient. The pathway between source and recipient can take several different forms depending on the type of pollutant. Primary recipients for pollution are water, air, and soil. Pollutants usually reach humans through the consumption of contaminated and polluted water and food, and breathing polluted air.

Once released into the environment, the worst effects of many pollutants are reduced by one or more of the following processes:

- Dispersion – smoke disperses into the air and is no longer noticeable away from the source.
- Dilution – soluble pollutants are diluted in the water of a river or lake.
- Deposition – some suspended solids carried in a river settle (are deposited) on the riverbed.
- Degradation – some substances break down (degrade) by natural processes into different, simpler substances that are not polluting.

In each case, the effect is to reduce the concentration of the pollutant. Concentration is a measure of the amount of the substance in a known volume of water or air. The units used for water pollutants are usually milligrams per litre (mg/l, also written as mg l<sup>-1</sup>), although sometimes you may see ppm which stands for ‘parts per million’.

These processes do not apply to all pollutants. Some persistent pollutants remain intact when released into the environment because they do not break down by natural processes.