



Al-Mustaqbal University
College of Science



Department of Medical physics
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Environmental Pollution

First Lecture

Introduction to Environmental

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What is Pollution?

Pollution

Pollution is the introduction of contaminants into the natural environment that cause adverse change. Pollution can take the form of chemical substances or energy, such as noise, heat or light. Pollutants, the components of pollution, can be either foreign substances/energies or naturally occurring contaminants. Pollution is often classed as point source or nonpoint source pollution. In 2015, pollution killed 9 million people in the world. Major forms of pollution include: Air pollution, light pollution, littering, noise pollution, plastic pollution, soil contamination, radioactive contamination, thermal pollution, visual pollution, water pollution.

Pollution throughout history

Prehistory

Since the ancient Stone Age, the human race had some effects on the environment. Man's attempt to ignite the fire was having bad effects on it. The manufacture of tools in the Iron Age by sharpening minerals led to small chips and trying to extract slag from them to form them into images that can be used in daily life to accumulations Minor environmental pollutants.

In the Middle Ages

Population growth increased near the end of the Middle Ages and concentrated more inside the cities, creating hotbeds of pollution that contributed to the spread of infectious diseases such as bubonic plague.

In the modern era

Pollution became a popular issue after the Second World War, and the use of nuclear weapons in it, which led to the emergence of many laws and treaties that call for combating pollution.

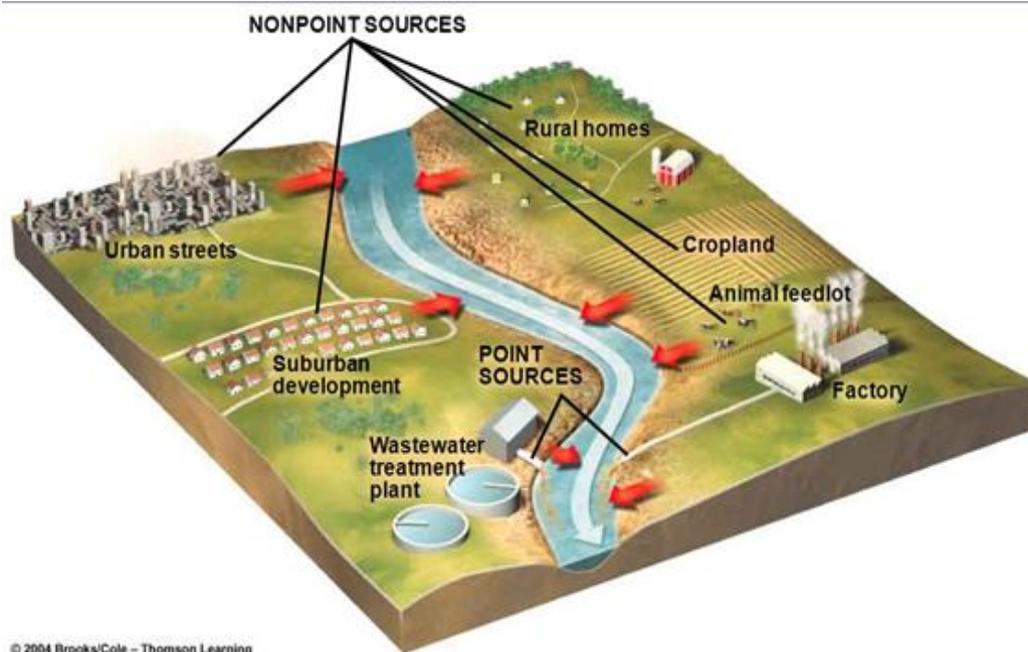
Sources of pollution

Sources of pollution can be categorised as point or non-point sources:

1- Point sources are identifiable points or places that you can easily locate. An example is a diesel truck that produces visible black exhaust fumes from its tailpipe. Liquid waste released from a pipe into a river

2- Nonpoint source is derived from the concept that there is no single point from which the pollution comes; it comes from everyone and everywhere.

Examples of sources of NPS pollution include construction sites, city streets and parking lots, surface coal mines, and forestry.



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Major forms of pollution include:

- 1- Chemical contamination
- 2- Biological pollution
- 3- Radioactive contamination
- 4-Air pollution.
- 5-Water pollution.
- 6-Soil pollution.
- 7-Noise pollution.
- 8-Light pollution.
- 9-Thermal pollution.

The nature of the pollution

It divides the pollution given the nature or given the type of material contaminated to:

1- Chemical contamination

pollution means pollution with manufactured chemicals, whether Chemical those that are used for special purposes such as **cleaning materials and car oils** or those that are produced as a by-product of the industrial process, and these materials can be dumped into **waterways** or spread into the **air**, causing environmental pollution, and this type of pollution with very serious effects on the various elements of the environment. The effects of this type of pollution appeared clearly in the **second half of the twentieth century** as a result of the tremendous industrial progress that he witnessed, especially in the field of **chemical industries**. The effects of chemical pollution may reach food through the use of **materials clipboard, colors, dyes, and gains taste** smell in the food industry , and the role of these substances in causing **malignant carcinomas** has been proven beyond reasonable doubt .

The lead and hydrogen sulfide compounds of mercury , cadmium , arsenic and compounds of cyanide , pesticides and chemical fertilizers and oil from the most polluting substances harmful to the environment , the health of human, and chemical pollution caused by industrial accidents in factories as a result of not taking the necessary precautions to prevent such kind of accidents from occurring, industrial accidents have drawn the world's attention to the pollution caused by them, and have prompted many bodies and governments to pay attention to the necessity of developing an international program that includes setting safe and tight regulations related to the manufacture of chemicals, and the methods of transporting and storing them and to impose permanent supervision on them in order to preserve the lives of workers in these factories, and to preserve the environment surrounding these industries.



Biological pollution

Biological or biological pollution is considered one of the oldest forms of pollution known to man, and this pollution arises as a result of the presence of

visible or invisible living organisms , plants or animals such as bacteria, fungi and others in the environmental medium such as water, air or soil. Mixing disease-causing organisms with food that is eaten by humans or water. what he drinks or the air that he inhales causes biological pollution, which leads to disease.

Biological contamination occurs when sewage and sewage disposal - before they are chemically treated - by dumping them into fresh water resources, or because household garbage is spread in the streets without observing the health rules in collecting, transporting, and disposing of them in a scientific way, or because the dead animals are left out in the open or discarded in Water resources, as well as when healthy methods of food preservation and manufacture are not followed, which exposes them to pollution.



Radioactive contamination

Radioactive contamination means the leakage of radioactive materials into one of the components of the environment, such as water, air, and soil. It is considered

one of the most dangerous types of environmental pollution in our time, as it is not seen, smelled, does not feel, and is easy and easy. The radiation is transmitted and infiltrates into living organisms everywhere without any resistance, And without evidence of its presence, and without first leaving an impact, and when radioactive materials reach the cells of the body, they cause apparent and inward damage that often leads to human life, and radioactive pollution may occur from natural sources such as the rays from outer space and the radioactive gases rising from the crust Earth , or Sources of Industrial nuclear power stations of atomic reactors and radioactive isotopes used in industry, agriculture, medicine or other.

