



YBN University, Ranchi

Geography

Human population growth: Impacts on environment, human health and welfare.

There are various types of pollution chiefly arising as a result of anthropogenic causes. Also contributing to pollution is globalization, where humanity's constant need for natural resources has slowly started to change the face of the earth.

Though the quality of living has drastically improved, other new issues have risen that gradually impact human health and the environment. In this article, we shall explore the meaning, causes and types of pollution. Also, we shall analyse the repercussions of pollution on human health and the environment.

What is Pollution?

“Pollution is the introduction of substances (or energy) that cause adverse changes in the environment and living entities .”

Pollution need not always be caused by chemical substances such as particulates (like smoke and dust). Forms of energy such as sound, heat or light can also cause pollution. These substances that cause pollution are called pollutants.

Pollution, even in minuscule amounts, impacts the ecological balance. Pollutants can make their way up the food chain and eventually find their way inside the human body. Read on to explore the types of pollution and their implications.

Also Read: Industrial Melanism

Types of Pollution

As stated before, there are different types of pollution, which are either caused by natural events (like forest fires) or by man-made activities (like cars, factories, nuclear wastes, etc.) These are further classified into the following types of pollution:

- Air Pollution
- Water Pollution
- Soil Pollution
- Noise Pollution

Besides these 4 types of pollution, other types exist such as light pollution, thermal pollution and radioactive pollution. The latter is much rarer than other types, but it is the deadliest.

Air Pollution

Air pollution refers to the release of harmful contaminants (chemicals, toxic gases, particulates, biological molecules, etc.) into the earth's atmosphere. These contaminants are quite detrimental and in some cases, pose serious health issues. Some causes that contribute to air pollution are:

- Burning fossil fuels
- Mining operations
- Exhaust gases from industries and factories

The effects of air pollution vary based on the kind of pollutant. But generally, the impact of air pollution ranges from:

- Increased risk of respiratory illness and cardiovascular problems
- Increased risk of skin diseases
- May increase the risk of cancer
- Global warming
- Acid rain
- Ozone depletion
- Hazards to wildlife

Among the other types of pollution, air pollution is theorized to have a planet-wide implication. Scientists have even speculated an apocalypse-like scenario where air pollution if left unchecked, can bring about an extreme form of global warming called the runaway greenhouse effect. Though this is purely speculative, it is a phenomenon that has already occurred on Venus.

Water Pollution

Water Pollution

Water pollution is said to occur when toxic pollutants and particulate matter are introduced into water bodies such as lakes, rivers and seas. These contaminants are generally introduced by human activities like improper **sewage treatment** and oil spills. However, even natural processes such as eutrophication can cause water pollution.

Other significant causes of water pollution include:

- Dumping solid wastes in water bodies
- Disposing untreated industrial sewage into water bodies
- Human and animal wastes
- Agricultural runoff containing pesticides and fertilisers

The effects of water pollution are very pronounced in our environment. Furthermore, toxic chemicals can bioaccumulate in living beings, and these chemicals can travel their way up the food chain, ultimately reaching humans.

Among the other types of pollution, water pollution has severe consequences on humans. For instance, in 1932, a grave case of water pollution incapacitated the inhabitants of an entire city in Japan with neurological diseases and mental illness for many decades. However, the immediate cause was not apparent but was eventually attributed to acute mercury poisoning. Methylmercury was dumped into the surrounding bay and had ultimately bioaccumulated inside the fish. The local population then consumed these fish, and this resulted in the manifestation of ill effects and neurological diseases.

Other consequences of water pollution include:

- Disruption of the ecosystem
- Threats to marine life
- Increased risk of water-borne diseases
- Increases toxic chemicals (such as mercury) in water bodies
- Eutrophication

Soil Pollution

Soil pollution, also called **soil contamination**, refers to the degradation of land due to the presence of chemicals or other man-made substances in the soil. The xenobiotic substances alter the natural composition of soil and affect it negatively. These can drastically impact life directly or indirectly. For instance, any toxic chemicals present in the soil will get absorbed by the plants. Since plants are producers in an environment, it gets passed up through the food chain. Compared to the other types of pollution, the effects of soil pollution are a little more obscured, but their implications are very noticeable.

Some of the common causes of soil pollution are:

- Improper industrial waste disposal
- Oil Spills
- Acid rain which is caused by air pollution

- Mining activities
- Intensive farming and agrochemicals (like fertilisers and pesticides)
- Industrial accidents

The effects of soil pollution are numerous. Specific wastes, such as radioactive waste become particularly hazardous when they are not well-contained. A well-documented example is a nuclear accident in Chernobyl, which has left an area of 2,600 km² uninhabitable for several thousand years.

Other effects of soil pollution include:

- Loss of soil nutrients, which renders the soil unfit for agriculture
- Impacts the natural flora and fauna residing in the soil
- Degrades vegetation due to the increase of salinity of the soil
- Toxic dust (such as silica dust) can cause respiratory problems or even lung cancer

Noise pollution refers to the excessive amount of noise in the surrounding that disrupts the natural balance. Usually, it is man-made, though certain natural calamities like volcanoes can contribute to noise pollution.

In general, any sound which is over 85 decibels is considered to be detrimental. Also, the duration an individual is exposed plays an impact on their health. For perspective, a normal conversation is around 60 decibels, and a jet taking off is around 150 decibels. Consequently, noise pollution is more obvious than the other types of pollution.

Noise pollution has several contributors, which include:

- Industry-oriented noises such as heavy machines, mills, factories, etc.
- Transportation noises from vehicles, aeroplanes, etc.
- Construction noises
- Noise from social events (loudspeakers, firecrackers, etc.)
- Household noises (such as mixers, TV, washing machines, etc.)

Noise pollution has now become very common due to dense urbanisation and industrialisation.

Noise pollution can bring about adverse effects such as :

- Hearing loss
- Tinnitus
- Sleeping disorders
- Hypertension (high BP)
- Communication problems

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Noise Pollution