Silent Pollution : A Disguised Threat to Man and Environment

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The advancement of science and technology brought us 'easy living' and satisfactory life by all means. With time, the man could realize that the application of such technologies has caused pollution of his environs leading to various consequences such as climate change, global warming, and health problems etc., which do not permit to enjoy the benefit of innovated technology. At present, scientific and technological strategies are explored to mitigate the impact of such consequences. Most forms of pollution are invisible to the human eye and come in a variety of different forms. In the past there were 7 major types of pollution accepted as causal factors for above consequences and recently another type was identified as electromagnetic pollution.

Water Pollution

This type of pollution refers to the contamination of bodies of water including groundwater. As all living organisms depend on water to live, the pollution of a body of water tends to affect every level of the ecosystem, including human health. Common causes of water pollution include industrial waste, insecticides, pesticides, and fertilizers, detergents and oil spills. These pollutants either work by killing off organisms through their toxicity (industrial waste, insecticides), or reducing oxygen levels in the water (known as eutrophication) by blocking out sunlight (detergents, oil).

Air Pollution

Air is usually comprised of 78% nitrogen (N), 21% oxygen (O_2), 0.9% oxide gases and 0.1% inert gases. When the air becomes contaminated with other elements such as poisonous gases or particles, it can cause serious problems to human health. The most common causes of air pollution include partially combusted exhaust gases, poisonous gases, which are a by-product of industry including sulphur dioxide (SO_2) and carbon monoxide (CO), and carcinogenic gases released through the burning of plastic, rubber and wood. Air pollution works either by poisoning living organisms, which breathe it in, or by disturbing the atmosphere

and mixing with air and clouds to cause acid rain. In the case of particle contamination, particles such as asbestos fibres become airborne and are inhaled, irritating the respiratory system and causing health conditions.

Soil Pollution

Soil can be mixed with chemical pollutants such as fertilizer, agrochemicals etc. and it is known as soil pollution. Common causes of soil pollution include pesticides, insecticides, agricultural chemicals, industrial waste, and radioactive waste. Plants depend on the nutrients in the soil in order to grow, but many of these poisonous chemical compounds absorb the nitrogenous compounds present in the soil, which is also required for the plants. Soil pollution is a common cause of erosion, as plants and other living organisms, which keep the soil held together, die off, the soil splits and begins to erode. The heavy metals, which are mixed with soil through chemical pollution, also have a devastating effect on the ecosystem as they alter the metabolism of microorganisms and arthropods living in the soil. These heavy metals are more concentrated as they move up the food chain, often wiping out predator or consumer species at the apex.

Thermal Pollution

Many industries release heat energy as a by-product and once released into the environment, this thermal energy is partially responsible for global warming. Manufacturing industries release thermal energy into the air as well as into water bodies of water. The problem arises from the excess of carbon dioxide (CO_2) in our atmosphere, as CO_2 prevents heat moving out through the atmosphere. Then the heat from the sun, combined with this trapped thermal energy raises the temperature of the atmosphere dramatically. The result is global warming, which is responsible for melting the polar ice caps, which in turn cause sea level to rise.

Radioactive Pollution

When radioactive metals disintegrate, they release alpha, beta and gamma rays, which can cause a whole host of mutative diseases in living organisms, hence this is known as radioactive pollution. As the name suggests, radioactive pollution mostly comes from the nuclear power industry, either in the form of radioactive waste being dumped or improperly disposed of and then making its way into water bodies, or from the accidental release of radioactive substances when a nuclear reactor is damaged. Once radioactive pollution is present in the environment, it can linger for decades, making large areas of land endangering the human life.

Noise Pollution

Noise pollution refers to an excess of unpleasant sounds creating from industry, infrastructure, heavy machinery, transportation, and even human activities. The noise pollution can have a detrimental effect on both mental and physical health and has been linked to high stress levels, hearing loss, hypertension, depression, sleep disturbances and an increase in incidences of coronary artery disease. Noise pollution also reduces the amount of viable habitat for wildlife as it interferes with sounds and communication, making it difficult for animals to navigate, mate and detect predators or prey.

Light Pollution

The excessive, obtrusive, and misdirected use of light in areas of human habitation as well as in industry cause light pollution. Light pollution is defined as the alteration of natural light levels in both indoor and outdoor environments through human interference. Light pollution causes headaches, fatigue, stress and anxiety. Light pollution disrupts eco systems by confusing animal navigation, altering predator-prey relations, disrupting plant growth and pollination, and change competitor interactions.

Electromagnetic Pollution

Electromagnetic pollution, caused by increasing human activity, in the area of utilization of electrical and electromagnetic energy, is slowly increasing without much appreciation of the consequential implications. While everyone is aware of the benefits derived from the high-tech electrical and electronic devices and systems, only few users are aware of the real or unsuspected dangers from them. At present, domestic and working place environments, sources of electromagnetic radiations are increasing rapidly. Increasing radiations from sources like power lines, microwave, telecommunication, electrical appliances, radar, transmissions of radio and television etc. are causing the problem of increasing electromagnetic pollution of environment.

Consequence of these pollution types cannot be distinguished easily as it brings an accumulated danger gradually, and the human health is affected through relatively as a slow process.

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