



CHEMICAL POLLUTION, HEALTH HAZARDS AND REMEDIES

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Abstract

There are numerous negative health impacts that might result from high air pollution levels. It increases the risk of respiratory infections, heart disease, and lung cancer. Both short-term and long-term exposure to air pollution has negative effects on health. In people who are already unwell, the effects are more severe. Infants, older and those in poverty are more susceptible to risk. The pollutant that is most detrimental to health and strongly associated with early death are fine PM 2.5 particles because they thoroughly penetrate the pulmonary passages.

Keywords: Human activity, Chemical pollution, Health risks, Treatment....

Introduction:

Earth is regarded as the most blessed planet among all because it is the only planet in the universe where life can be sustained. Earth's ecology, life, and environment are the products of millions of years of evolution and mutation, which produced a variety of life forms and ecosystems, all of which were in a balanced state. However, because of the human race's ongoing innovations and wants, it has transformed the environment to suit those needs in order to have the most space possible, among other things, and in doing so, has irreparably damaged the planet. Pollution has presented the greatest harm to the environment. The damage it has done to the environment, living things, and the ecology as a whole has been greatest.

It is so important that if we do not alter our behavior, the environment will be destroyed and human health would suffer. Therefore, protecting the environment and reducing pollution will also help to save our lives. Today, pollution is a major cause for worry because it presents several health risks. There are several illnesses and issues that have emerged in both urban and rural areas that cannot be overlooked. Health risks are caused by various types of pollution in various ways. However, air pollution is the one that has the most impact on human health, aside from the fact that it harms both flora and wildlife, and it is also a cause for concern not just in India but around the world. The topic of air pollution and the various health risks it can bring will now be covered.

Objectives:

- 1) To investigate how the environment affects human health
- 2) To make recommendations for strategies to lessen the impact of environmental issues on human health

Hypothesis:

Human health is impacted by climatic circumstances.

Sources of data:

The information was gathered from numerous research journals, medical books, news publications and websites that dealt with this subject.

Air Pollution & Health Hazards:

In scientific terms, air is a stable mixture of water, carbon dioxide, nitrogen, and oxygen, in addition to other inert gases. As we all know, air is a mixture of gases. It is necessary because it is the foundation of life. A change in the ratio of the gas mixture in the air is therefore considered air pollution. When substances like chemicals, particles, or biological materials are released into the atmosphere, it is known as air pollution. These substances can harm individuals by causing discomfort, disease, or even death. They can also harm other living things like food crops and the ecosystem.

Sources of Pollution:

The numerous places, activities, or other elements that cause pollutants to be released into the atmosphere are referred to as air pollution sources. There are two broad groups into which these sources can be divided:

By human activity:

Emissions from cars, cruise liners, planes, and other moving objects, as well as the sound they make, furnace smoke, industrial smoke, emissions from burning agricultural waste, emissions from forest fires, etc., as well as fumes from paint, hairspray, varnish, aerosol sprays, and other solvents, as well as military emissions like those from nuclear weapons, toxic gases, and rocketry.

Natural sources:

- Natural sources of dust, typically covering enormous swaths of land with little to no vegetation
- Methane is a gas produced when animals, including cattle, digest food.
- The Earth's crust contains radon gas as a result of radioactive decay. Radon is an invisible gas.
- Naturally occurring, without smell wildfire smoke and carbon monoxide
- Volcanic activity, which results in ash, sulfur, and chlorine particles

Health Hazards Caused:

The WHO estimates that 4.6 million people die each year from causes directly attributable to air pollution and many other deaths due to indoor air pollution problems like aggravated asthma, bronchitis, emphysema, lung and

heart diseases and respiratory allergies. The worst short term pollution crisis with long term aftermath was seen in 1984 i.e. Bhopal gas leak. In that disaster more than 2000 people died outright, injured from 1,50,000 to 6,00,000 people and UK suffered same disaster in 1952 due to great smog in which nearly 4000 people died and 8000 in next 4 months.

Other health problems that air pollution can cause are like:

- Premature aging,
- Skin cancer,
- Suppression of the human immune response system,
- Damage to eyes
- Breathing problems

Water Pollution & Health Hazards:

Water pollution is another form of pollution that has a significant negative impact on human health. Without it, one cannot survive. Water is necessary for life. According to science, water is a tasteless, odorless, and colorless substance. Water contamination is defined as any contaminant that renders water unfit for human consumption. Water is thought of as an all-purpose solvent and is very easily contaminated.

- Sources of Water Pollution: following are some major reasons behind water pollution:
- Industrial discharge
- Poor or ill-treated discharge of sewage in rivers
- Oil spill
- Fertilizers in runoff from agriculture
- Run off from construction sites
- Acid rain

Soil Pollution:

Another type of pollution that seriously harms people's health is water contamination. One cannot survive without it. Life is dependent on water. Water is a substance that has no flavor, no odor, and no color, according to science. Any contaminant that makes water unfit for ingestion by humans is referred to as water pollution. Water is considered to be a universal solvent and is particularly susceptible to contamination.

Health Hazards caused by it are:

Soil pollution primarily has an adverse effect on human health by contaminating sources of drinking water, such as reservoirs, groundwater, and wells. Pesticides, bacteria, and metals including aluminum, lead, and cadmium are examples of contaminants. Depending on the contaminant and its concentration in the water, several effects will occur on human health: An illustration. Breathing difficulties may be brought on by fertilizer ingredient nitrate in low amounts. Aluminum, on the other hand, can seriously harm the central nervous system. Almost all poisons are found in the environment naturally. However, due to soil pollution and disruption caused by human activity, more pollutants are now being transported to sources of drinking water. According to the US Environmental Protection Agency, over 5,000 water systems that supplied over 19 million people in 2009 detected contamination in their water that were above the legal limit for venous compounds.

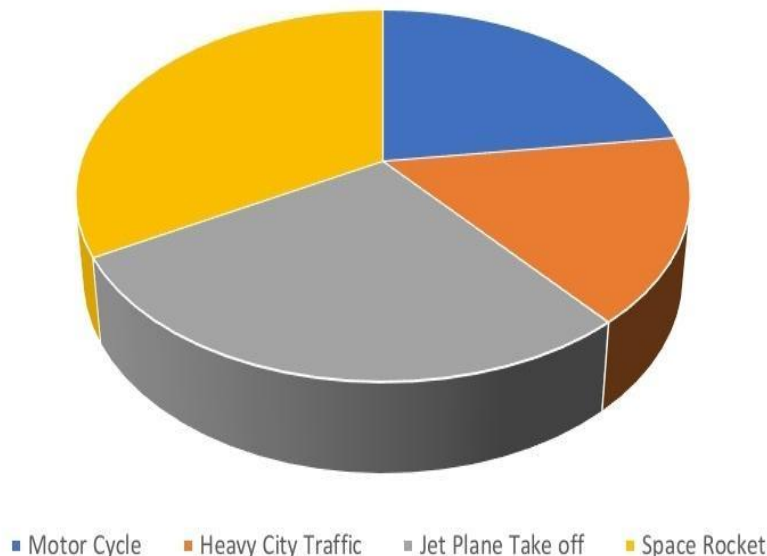
Noise pollution and the health hazards posed by it:

One of the main urban pollutants is considered to be noise pollution. Unwanted noise is known as noise pollution. Noise is simply a collection of random vibrations. Heavy traffic noise, loudspeaker noise, airplane noise, and other loud noises that are louder than what human ears can tolerate are the main causes of noise pollution. Health Risks It can have both physiological and psychological repercussions and is brought on by noise pollution. Noise levels above 85 to 90 decibels (dB) are harmful to human hearing.

Following chart will show the noise created by different things.

Sr. No	Sound Source	Decibel
1	Space rocket	170
2	Jet Plane take off	150
3	Motor cycle	118
4	Heavy city traffic	85

Sound Created By Different Sources



Physiological Effects:

Noise more than intensity of 90 dB can damage eardrums, noise more than intensity of 125-150 dB can harm respiratory system, it can also cause permanent hearing loss.

Psychological Effects:

Annoyance, difficulty in communication, nausea, lack of concentration, insomnia etc.

Radiations and Health Hazards:

All radiations are not harmful, however radioactive radiations are more problematic. When uranium-238, thorium-232, potassium-40, and radon-87 decay, an invisible gas called radon is released that can be harmful if inhaled. In addition to X-rays, radium, radio-isotopes, luminous watch dials, gas mantles, cargo handling, and television viewing are other man-made sources of radiation that may cause indirect health risks.

Health Hazards:

A cell is the basic building block of life and is the primary location of radiation damage. Radiation damage can cause hair loss, mouth ulcers, a decrease in blood count, skin reddening, and when these symptoms are severe, it can even cause death. Leukemia, cardiovascular conditions, cataracts, sterility, and rapid aging are some further effects that it may have. In addition to this, radiations can also harm sex cells, and when damaged sex cells produce fertilized ovums, the resulting progeny will have both severe and small physical flaws.

Following table shows the range of radiation and its effects

Dose (Radiation)	Effects
Less than 25	No observed defects
About 25	Threshold level
About 50	Slightly temporary blood changes
About 100	Nausea, fatigue and vomiting
200-250	Fatalities possible but with chances of recovery
About 500	One of the victims would die
About 1000	All victims would die

Efforts taken by Constitution and other Legislations for Protection of environment and for prevention of individual rights:

Article 21 of the constitution gives everyone the right to life and includes the rights to a livable environment, clean air to breathe, and drinkable water. Based on this provision, limitations have been placed on the freedoms granted by article 19 of the constitution. Article 14 also mentions the right to equality, which means that everyone will have access to it without any form of discrimination. Only citizens are granted access to this right. And under articles 32 and 226 of the Indian Constitution, one may petition the Supreme Court and high Court for the implementation of rights outlined in article 21, such as the right to a healthy environment to live in.

Common Law: Public nuisance is also a crime under section 268 of the IPC, which allows for fines of \$200 to be imposed on anyone who causes a nuisance by endangering the environment or engaging in similar behavior.

Additional Regulations:

- Water (prevention and Control of pollution) Act, 1974
- The Air (Prevention and control of pollution) Act, 1981
- The Wildlife Protection Act, 1972
- The Forest Conservation Act, 1980
- Environmental Protection Act, 1986
- Public liability Insurance Act, 1991
- Noise Pollution (Regulation and Control) rules, 2000
- Control and Regulation of Hazardous and Solid Wastes under the EPA, 1986
- Atomic Energy Act, 1962

The least amount of person involvement is the reason why things are not working even with so many laws in place, and we are not receiving the desired results. It takes a team effort from the state and the people to minimize pollution and consequently lessen health risks.

Conclusion:

Knowing the different types of pollution available, it is clear that this is the biggest issue confronting us right now. It affects us all on a global scale, has a significant impact on our health, and—most importantly—can have disastrous consequences if it is not decreased or regulated in a timely manner. There are many different international and national laws in place to govern it, but the most crucial factor is personal cooperation since without it, the desired outcome is impossible to attain. "You must bring the Change; you wish to see in the world," said Mahatma Gandhi before his death. To preserve the environment and lessen pollution, we should all sign an oath.

References:

Article on How to reduce pollution and health hazards available a

t

- Nature 555, S20-S22 (2018)
- <https://en.m.wikipedia.org/wiki/Pollution>
- Sónia M. Rodrigues, Paul F.A.M. Römkens, in Soil Pollution, 2018
- H. Ali and E. Khan, "Environmental chemistry in the twenty-first century," Environmental Chemistry Letters, vol. 15, no. 2, pp. 329–346, 2017.
- <http://www.livestrong.com/article/137030-how-does-soil-pollution-affect-your>
- Connell, D.W. (2005). Basic Concepts of Environmental Chemistry (2nd ed.). CRC Press. <https://doi.org/10.1201/b12378>
- R. Johnston (1986) Aquatic Chemistry and the Human Environment, Chemistry and Ecology, 2:2, 125-169,
- health/#ixzz2Ei8hDb3n Constitutional Law of India by Dr. J.N. Pandey
- Khaiwal Ravindra, Ranjeet Sokhi, Rene Van Grieken
- Atmospheric environment 42 (13), 2895-2921, 2008
- Environmental pollution by H.V. Jadhav Introduction to Environmental Law by S. Shanthakumar's
- Environmental law Pollution and management by K.N. Madhavan
- Dr. Sudhakar Jagannath Borase, Effects of Space pollution on Environment and Human Health, Educreator Research Journal IX(Special Issues-I), March-April, 7-11.
- Environmental law and citizens by Dr. Nikhil Jaiprakash Gupta Environmental Law by P.S. Jaswal
- Introduction to Environmental Awareness by Dr.Prassana P. Sethy
- Paryavaran bhugol by Dr. Rajendra parmar and Dr. Sudhakar Borase