

# Environmental Pollution is the Ultimate Cause for the Transformation of Incredible Earth into the Most Degraded Planet

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**Abstract:** On the basis of astronomical explorations and evidences collected so far, the astronomers came to the conclusion that life exists only on one planet of our solar system and i.e.- our beautiful earth. The mesmerizing nature in the form of mighty mountains, flowing of water in the rivers, green forest cover and existence of various natural resources helped human beings to survive and made this planet worth and incredible for living. Impact of urbanisation and industrialization along with economic development has been seen in different parts of the globe by way of indiscriminate cutting of forests and hunting of wild animals and exploiting of natural resources by humans for their own deeds and greed. All these activities of human beings have made this heavenly planet very vulnerable to many problems. Environmental pollution is the biggest problem which transform the incredible earth into the most degraded planet of the solar system. This paper makes an attempt to explain various types of environmental pollution, assess and explore the impacts of human activities and their effects in the forms of greenhouse effect, global warming and climate change over the globe.

**Keywords:** Blue Planet, Biodiversity, Contamination, Microorganisms, Radiation.

## 1. INTRODUCTION:

Earth the third terrestrial planet from the Sun on which 71 percent area is covered with water and only 29 percent is land surface. Due to the presence of huge water mass, it is known as *Blue Planet*. Moreover, its atmosphere is consisting of many life supporting gases like- nitrogen, oxygen, carbon-dioxide and many more. The incredible biodiversity and beautiful nature in the form of mountains, rivers, forest and various natural resources that helped human beings to survive and made this planet worth and incredible for living. Such life sustaining favourable conditions doesn't exist on any other planet, therefore, earth is the only planet where every type of living organisms including humans have evolved since ages.

Prior to eighteenth century everything was good on the earth's surface, but after Industrial Revolution, with the development of human culture, evolving of cities and improved life style, everything has been changed. Now man has started behaving differently and misusing natural resources. Indiscriminate cutting of forests and hunting of wild animals and exploiting of mineral resources for his own deeds and greed has made this heavenly planet very vulnerable to many problems. The problem of environmental pollution on the earth's surface is so big and unabated that threat has been posed to the very existence of many species including humans. Therefore, the protection of environment for the well-being of the human generation is the common responsibility of each and every one of us (Jianping et.al., 2014).

## 2. MAJOR QUESTIONS OF INQUIRY:

This paper makes an inquiry into different types of environmental pollution caused by human deeds and greed and this has posed danger to the very survival of all the living organisms on this earth.

1. To highlight various types of environmental pollution which are responsible for the transformation of this incredible earth into degraded planet.
2. To assess the impact of various human activities which are responsible for rising the level of environmental pollution on the earth's surface.
3. To highlight the main effects of the environmental pollution which has been experienced on the earth's surface.

### 3. ENVIRONMENTAL POLLUTION:

For the survival of humans, we don't have any option to make another planet as our home, therefore, we have only one earth for the very survival of human beings. If we continuously exploit this earth indiscriminately for our deeds and greed, the earth will not be left suitable due to consequences of environmental pollution for the very survival and existence of human beings in future.

#### Types of Environmental Pollution:

Pollution means the introduction of the contaminated material into the natural environment that cause adverse change to the flora and fauna on the earth's surface. It is an unwanted change caused in air, water and soil by man and his activities. It is caused due to dumping or adding of unwanted substances and such dumping in the long run changes the quality of air, water, soil and even the entire ecological systems as a whole.

Following are the major types of environmental pollutions commonly found worldwide (See Fig.-1):

- Air pollution
- Water pollution
- Soil pollution
- Noise pollution
- Radiation pollution
- Thermal pollution

#### • Air pollution:

Air pollution is contamination of the indoor or outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere. One of our time's greatest menaces is air pollution, on account not only of its impact on climate change but also its impact on public and individual health due to increasing morbidity and mortality (Maniatis, I. et al., 2020). According to WHO, air pollution kills an estimated seven million people worldwide every year. WHO data shows that almost all of the global population (99%) breathe air that exceeds WHO guideline limits.

From smog hanging over the cities to smoke found inside the home, air pollution poses a major threat to the health and climate. The combined effects of ambient/outdoor and household air pollution cause millions of premature deaths every year, largely as a result of increased mortality from stroke, heart disease, chronic obstructive pulmonary disease, lung cancer and acute respiratory infections.

#### • Water Pollution:

Water pollution occurs when any water source becomes contaminated, usually by chemicals or microorganisms. Water pollution can cause water to become toxic to humans and the environment as well (Smith, A. (2020). The requirement of clean water to all living creatures is vital for their survival. Clean water is also used in manufacturing and for social and economic development of civilizations. However, according to the United Nations (UN), 2.2 billion people lack access to safe drinking water services all over the world. The impact on child mortality rates is devastating with more than 700 children under the age of five years die every day from diarrhoeal diseases due to poor sanitation, poor hygiene, or unsafe drinking water worldwide.

#### • Soil Pollution:

Soil pollution refers to the presence of toxic chemicals (pollutants or contaminants) in soil, in high enough concentrations to pose a risk to human health and/or the ecosystem. When the amounts of soil contaminants exceed natural levels, pollution is generated (Shaltami, Osam R. et al., 2020). Soil is often a neglected domain of biodiversity (eee, 2020). Soil pollution poses a worrisome threat to agricultural productivity, food safety, and human health, but our knowledge is too little to the known about the scale and severity of this threat. Industrialization, war, mining and the intensification of agriculture have all left a legacy of soil contamination across the planet (FAO, 2018).

#### • Noise Pollution:

Noise pollution refers to the unwanted or excessive sound that can have harmful effect on human health, wildlife and environmental quality. Noise pollution is commonly generated inside many industrial complexes and some other workplaces, but it also comes from highway, railway, and airplane traffic and from outdoor construction activities

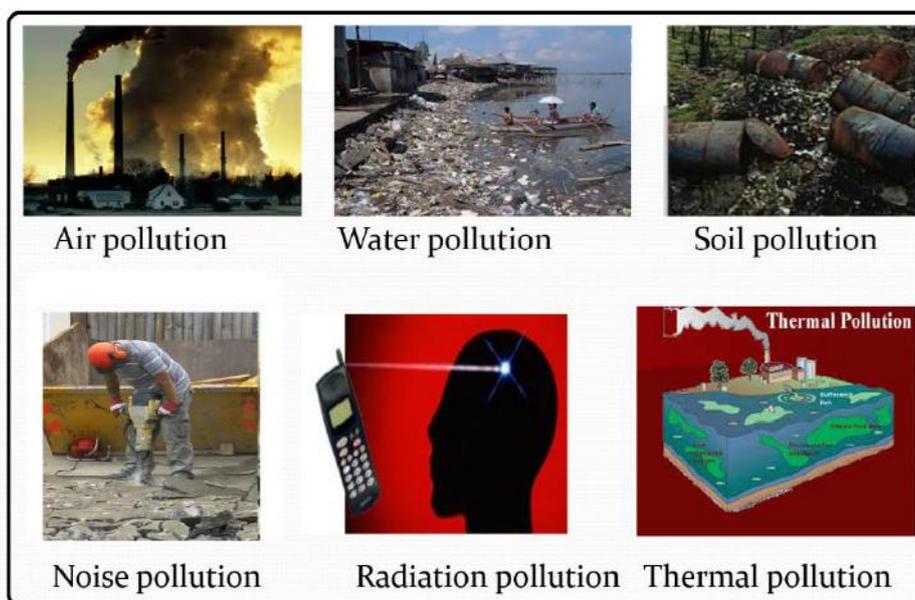
(Encyclopaedia Britannica). The potential health effects of noise pollution include increased stress levels, sleep disturbance, or hearing damage.

- **Radiation Pollution:**

Radiation pollution refers to the increase in the natural radiation levels caused by different human activities. The human activities that can release radiation involve activities with radioactive materials such as mining, handling and processing of radioactive materials, handling and storage of radioactive waste, as well as the use of radioactive materials to generate energy, along with the use of radiation in medicine and research. Excessive use of cell phones, microwaves, radio transmitters, wireless devices, computers, and other common commodities of today's life also creates radiation pollution. It is estimated that about 20% of radiation we are exposed to is due to different human activities (EPC, 2022).

- **Thermal Pollution:**

Thermal pollution refers to the degradation of water quality by any process that changes ambient water temperature. Thermal pollution is the act of altering the temperature of a natural water body, which may be a river, lake or ocean environment. Cause of thermal pollution is the use of water as a coolant by power plants and industrial manufacturers. When water is used as a coolant is returned to the natural environ at a higher temperature, the change in temperature decreases oxygen supply and affects ecosystem composition (Longdom, 2020).



**Fig.-1: Types of Pollutions**

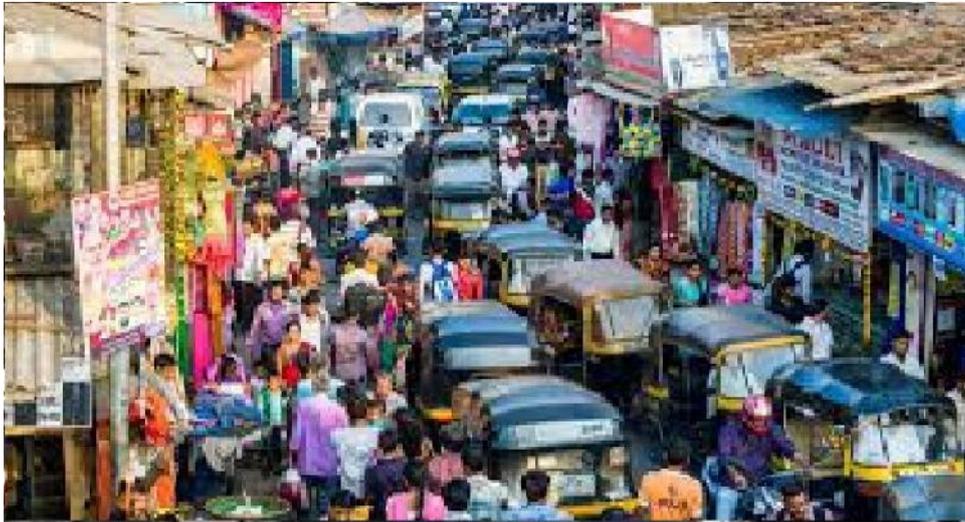
#### 4. HUMAN ACTIVITIES VIS-À-VIS ENVIRONMENTAL POLLUTION:

By different activities human is entirely responsible for the transformation of the incredible earth into the most degraded planet. Earth's physical environment is getting polluted by various unprecedented human deeds and never-ending greed to get maximum dividend to exploit the natural treasure of the earth. Following are the various types of human actions which are responsible for the environmental pollution:

- Human Activities
- Factories and Industries
- Cutting of Trees
- **Human Activities:**

On this small and lively planet, the world population of humans was estimated to have exceeded 7.9 billion as of November, 2021 (Wikipedia). Such exponential growth of human population has posed a great threat to our planet by increased human activities such as- turning green earth into concrete earth, adding more and more vehicles on daily basis to this most crowded sphere, establishing many industrial hubs, discriminate exploiting of natural resources and many more. This growth results in an increase in the demand for land, food, water, energy and other resources. With the

increasing of human numbers, other species and their habitat got diminished. All such activities are detrimental to earth's biological resources which are indispensable to human beings for their economic and social development (Chand, 2022). As a result, it is a universal truth that biological diversity is a global asset of tremendous value to present and future generations (See Fig.-2). But marine and terrestrial biodiversity on this earth is decreasing due to a wide range of human activities (Secretariat of the Convention on Biological Diversity, 2010).



**Fig.-2: Congestion Problem due to Human Activities**

- **Factories and Industries:**

For economic development of any nation, it is imperative to establish its own factories and industrial hubs based on availability of raw material in its territorial jurisdiction. After Industrial Revolution, the establishment of factories and industrial hubs have witnessed tremendous growth in the developed world. However, in the twentieth century the rapid growth of factories and industrial hubs have also been seen in the developing countries. But, fast development of this sector has shown rapid adverse impact on the physical environment of the earth by way of excessive emission of pollution. It is generally accepted that pollutant concentrations are exceedingly high in many developing countries imposing substantial health costs and shortened lives of the people (Chen, et. al., 2013). Factories and industries cause air, water and soil pollutions and emission of greenhouse gases has increased the temperature of the earth; therefore, climate change has been witnessed in every corner of the globe (See Fig.-3).



**Fig.-3: Emission of Pollutants from Factories and Industries**

- **Cutting of Trees:**

The green cover is vital for the growth of living species on the earth's surface. For the well-being of the humans, one-third area of the land surface of the earth should be covered with the forests. Forests produce the most vital component of our life, the oxygen gas without charging any cost and neutralise the carbon dioxide gas produced by the living creatures. We can't supplement the natural oxygen by way of producing it in the oxygen plants. Indiscriminate cutting of trees has reduced this vital forest cover to an average of 31 percent and in many developed and developing countries, the situation is very grim and the forest cover has been found very less to the world average and it lies between 20-25 percent.

Now on commercial basis maximum cutting of trees are done with machines and even the equatorial rain forests, which were earlier considered safe and out of the reach of the human activities are now not left far away from the jaws of human greed (See Fig.-4).



**Fig.-4: Cutting of Trees**

## 5. EFFECTS OF ENVIRONMENTAL POLLUTION:

Environmental pollution is reaching worrying proportions worldwide. Urbanization and industrialization along with economic development have led to increase in energy consumption and waste discharges. Now a days the global environmental pollution, including greenhouse gas emissions and acid deposition as well as water pollution and waste management is considered as an international public health problem (Kelishadi, 2012). The effects of environmental pollutions have been seen everywhere in the form of greenhouse effect, global warming and climate change.

- **Greenhouse Effect:**

It has been proved by the climatologists that increasing atmospheric concentration of carbon dioxide and other greenhouse gases like - methane and nitrous oxide released by human activities, by burning of fossil fuels and deforestation, are warming the earth and this mechanism is commonly known as the greenhouse effect. These gasses in the atmosphere act like the glass of a greenhouse, letting the sunlight in and preventing heat from escaping (See Fig.-5). But the human activities have altered the chemical composition of the atmosphere through the excessive emission of greenhouse gases (Latake et. al. 2015, p. 333).

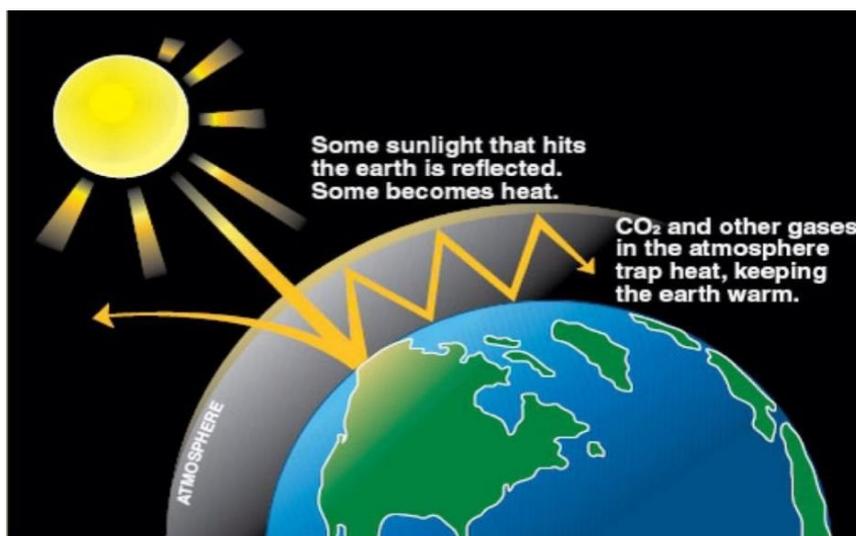


Fig.-5: Greenhouse Effect

- **Global Warming:**

Global warming occurs when carbon dioxide and other air pollutants accumulated in the atmosphere and absorb sun light as well as outgoing solar radiation from the earth's surface. Normally this radiation would escape into space, but these pollutants, which can last for many years and in some cases even remains for centuries in the atmosphere, trap the heat and rises the temperature of the earth. The 2021 report of the Intergovernmental Panel on Climate Change (IPCC) indicates a rise of the average global surface temperature by  $0.6 \pm 0.2^{\circ}\text{C}$  since 1861 and forecasts a further rise by  $1.5^{\circ}\text{C}$  to  $5.8^{\circ}\text{C}$  until 2100 and a rise of the sea level of between 9cm and 88cm. Climatologists agreed that the rising temperatures of the earth are responsible for more frequent droughts, heavier rainfall, and more powerful hurricanes in different parts of the world (See Fig.-6).



Fig.-6: Global Warming

- **Climate Change:**

According to United Nations, climate change refers to long-term shifts in temperatures and weather patterns. These changes observed in earth's climate since the early twentieth century are primarily driven by human activities, particularly like burning of fossil fuel, natural gas and coal. Burning of these materials increases the levels of heat-trapping greenhouse gases in the atmosphere. These gases trap heat from the sun rays inside the atmosphere, therefore, the average surface temperature of the earth rises (NASA, 2022). Climate change increases the risks of climate-related disasters, which cause the loss of lives and livelihoods, and weaken the resilience of vulnerable ecosystems and societies as well.



Fig.-7: Impacts of Climate Change

The combined effects of greenhouse effect, global warming and climate change are experienced in the form of temperature increase on the earth's surface, melting of polar icecaps and glaciers, untimely torrential rains, widespread floods, rising in the water level of oceans and seas, frequent outbreak of cyclones, hurricanes and typhoons, occasional droughts, depletion of the ozone layer or fast expanding of ozone hole etc. Our environment is totally polluted; hence we are suffering from many diseases, we are drinking polluted water, inhaling dusty air and so on... Now the global warming is showing its impact very fast that climate change becomes worldwide phenomena. Environmental pollution has created many problems and put the mother earth not even in danger but posed the threat to the very existence of many species including humans. Let us come together to save our 'life-giving and life-saving' mother earth.

## 6. CONCLUSION:

Earth is a lively planet which has been truly termed as the home of man and other living beings. Man has dominated this planet since ages but exponential growth of human population has posed a great threat to the biodiversity of the earth. In Pre-Historic time everything was good on the earth's surface, but after Industrial Revolution, with the development of human culture, evolving of cities, development of industries and improved life style, everything has been changed. Indiscriminate cutting of forests and hunting of wild animals and exploiting of natural resources has made this heavenly planet very vulnerable to many problems.

The problem of environmental pollution is so big that it is reaching worrying proportions worldwide. Urbanization and industrialization along with economic development has led to increase in energy consumption and waste discharges. Now a days the effects of global environmental pollution has been experienced everywhere in the form of greenhouse effect, global warming and climate change. The climate change has become a reality now. The combined effect of greenhouse gases, global warming and climate change is so big and unabated that threat has been posed to the very existence of many species including humans. Now man has started behaving differently and misusing natural resources. To fulfill his own greed by getting more and more from the earth's surface by his different activities has ultimately transformed this incredible earth into the most degraded planet of our solar system.

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