

# A State of the Art Review on Environmental Pollution

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**ABSTRACT:** *The burden of sickness and mortality caused by pollution is becoming a public health issue across the world, particularly in emerging nations. Pollution of the environment is a widespread issue that is likely to have a significant impact on human health. This article gives an in-depth look at the effects of environmental pollution on humans, animals, or trees or plants from the perspectives of air pollution, water pollution, as well as land/soil waste pollution. According to the findings, various types of pollution not only harm humans with diseases and issues, but also animals or trees or plants. There is still time for global organizations, governments, or local authorities to utilize advanced resources to balance the environment for life and initiates the breathed intellectuals to live in an environmentally responsible manner. Because effective contamination response is primarily based on human evaluation of the situation by people of all ages, contamination management programs emerge as a countrywide fixed cost-sharing effort dependent on voluntary involvement. Future Prospects, take these additional steps to reduce pollution on days when high particle level are expected, Cut down on the amount of automobile journeys you make, Reduce or eliminate the usage of a fireplace or a wood stove. Leaves, garbage, and other items should not be burned, Gas-powered lawn or garden equipment should be avoided.*

**KEYWORDS:** *Air Pollution, Environment, Land Pollution, Noise Pollution, Water Pollution.*

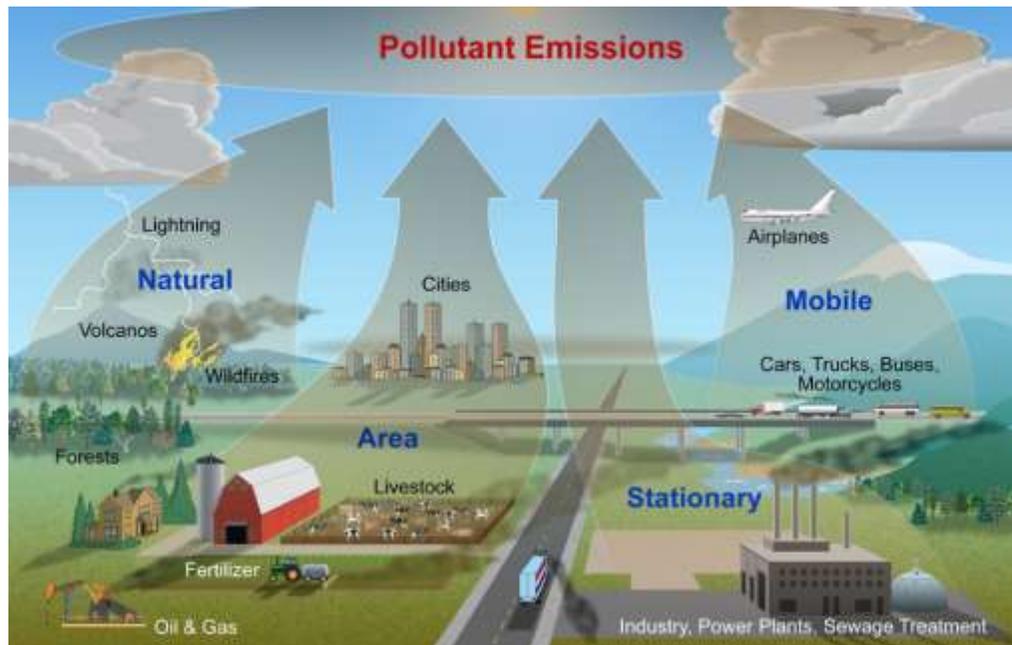
## 1. INTRODUCTION

We call it pollution when we introduce harmful materials into the ecosystem. Pollutants is the term used to describe these dangerous substances. As one example, volcanic ash may be a pollutant. Some of them are the result of man-made activity such as the disposal of trash and Contaminants wreak havoc on the ecosystem, whether it's in the form of air, water There are a lot of things that are good for people, yet By way of their exhaust pipes, automobiles produce pollution. When coal is used to create electricity, it pollutes the air. Industry or residential waste can pollute land and water. Toxic chemicals used to kill weeds and insects, pesticides pollute waterways and threaten wildlife. No matter how little or large they are, all life on Earth relies on the Earth's supply of oxygen and water. Pollution causes harm to all forms of life. Pollution is an issue that affects everyone. As a result, even while metropolitan areas tend to have higher pollution levels compared to rural areas, pollution has the potential to migrate to remote locations. Pesticides and other pollutants, for example, have been discovered in the Antarctic ice sheet. An collection of microscopic plastic particle called the Great Pacific Garbage Patch may be seen in the northern Pacific Ocean. There are air and water current that can carry pollutants. Ocean currents & migratory fish carry marine pollutants far and wide. Inadvertently released radioactive material from a nuclear power station can be picked up by the wind and dispersed all over the world. This occurs when smoke from a power station in one country travels.[1], [2].

### 1.1. Type of Source:

- Cars, buses, aircraft, trucks, and trains are examples of mobile sources.
- Power plants, oil refineries, industrial facilities, and factories are examples of stationary sources.
- Local sources, such as agricultural areas, cities, and wood stoves.
- Wind-blown dusts, flames, and volcanoes are examples of natural sources.

Air pollutions in the United States is mostly caused by mobile sources, according to the Environmental Protection Agency, with the automobile being the greatest mobile producer of air pollution. When pollution is released from a single source, it is called a point source. Sources in an area come from a variety of small pollution sources that, viewed individually, aren't a big issue, but can be It is true that natural sources can be significant at times or unlike the other kinds of sources, they seldom produce long-term air pollution Mobile, stationary, area, and natural sources all contribute to pollution emissions into the air shown in Figure 1.



**Figure 1: Illustrate the pollutant emissions into the air through Mobile, stationary, area, and natural sources [3].**

### 1.2. Major types of pollution:

#### 1.2.1. Air Pollution:

Pollution in the air might be seen at times. The exhaust pipes of large vehicles or companies, for examples, emit a dark smoke. Air pollution, on the other side, is often difficult to detect. Even if the contaminants aren't apparent, polluted air may be hazardous. People's eyes might burn as breathing becomes difficult. In addition to this, lung cancer is a possibility[4]. As a result of an accident at a pesticide plant in the Indian city of Bhopal in 1984, a lethal chemical In just a few days, at least 8,000 people died. It is estimated that hundreds of thousands of people were permanently disabled as a result of the catastrophe that Nitrogen, water Vapours, oxygen, and inert gases make up 99 percent of the air we breathe. As a result of the introduction of things that aren't normally present in the air, air pollution Humans send particles into the air when they burn fuels, which is a common kind of air pollution. There are millions of tiny particles floating in the air that make up this pollution, which looks like soot. As a result of natural disasters, pollution levels can spike suddenly. Volcanoes throw volcanic ash and gases into the sky when they erupt. Some volcanoes have been known to spew ash. There were fewer harvest in Europe and North America due to the darker sky. "Equatorial smoke stream" is a phenomenon that has been studied by meteorologists for many years.

#### 1.1.2. Land Pollution:

Environmental damage can be caused by household trash and industrial waste. Americans created around 258 million tons of solid waste in 2014, according to the US Department Of Environment. About half of the waste (136 million tons) was disposed of at landfill sites. Recycled or composted trash accounted for just 34% of Biodegradable garbage accounted for more than half of all waste generated, according to the Commercial and industrial garbage makes up a large portion of solid waste. To create a year's worth of essentials for the average American household, corporations use 4 million pounds of resources, according to the University. Materials such as construction materials including medical waste are classified as "non-hazardous" (surgical gloves, surgical instrument, bandages, discarded needle, etc.). Hazmat waste refers to any liquid, solid, or sludge waste which contains qualities that are toxic or potentially harmful to human health or the environment. Among the hazardous wastes created by houses include paints including solvent, motor oil, fluorescent lights and aerosol cans, as well as[6].

#### 1.2.2. Water Pollution:

Toxic elements such as pesticides and fertilisers from agricultural runoff, as well as heavy metals like lead and mercury, can contaminate water. It is estimated by the Environmental Protection Agency that 44 percent of stream miles as well as 64 percent of lake miles, as well as 30 percent of bay & estuary regions, are unsuitable

According to the Environmental Protection Agency, bacteria, mercury, phosphorus, and nitrogen are the most common contaminants in the United States. In addition to agricultural runoff and air pollution, there are also water diversions and stream channelization[6].

National Oceanic & Atmospheric Administration (NOAA) estimates that land-based pollution contributes 80% to marine pollution via runoff. By polluting the water, we endanger the marine life To give just one example, sewage encourages the spread of illness, while organic and inorganic compounds in water can change the composition of this precious resource's When organic chemicals, such as sewage, are broken down and released into the water, they dissolve.

### *1.2.3. Noise pollution:*

In spite of the fact that people can't see or smell noise pollution, it has a negative influence Noisy pollution occurs when the sound from jets, factories, or other sources exceeds dangerous levels. According to studies, there is a strong link between noise and health, including stress-related illnesses, hypertension, speech interference, and hearing loss. Hearing loss may be responsible for hundreds of thousands of deaths each year, according to a study by the WHO's Noise Environmental Burden on Disease working group. In accordance with the Clean Air Act, the Environmental Protection Agency (EPA) is responsible for regulating machine and aircraft In addition to disrupting whale navigation systems, ship-generated underwater noise has been shown to negatively impact other species that depend on the natural undersea As a result of noise, wild animals tend to talk louder, which may shorten their.

### *1.2.4. Pollution caused by light:*

- The majority of people can't imagine living without electricity's modern comfort. Lights, on the other hand, have changed how the natural world operates during the day and night. Some of the consequences of light pollution include:
- Scientists have discovered that extended artificial days can influence migratory timetables by allowing for prolonged feeding times, which allows certain birds to sing at abnormal hours in the presence of artificial light.
- Streetlights may be perplexing for freshly hatched sea turtles who rely on starlight reflected off the waves to get from the beach to the ocean. They frequently go the incorrect path.
- Sky glow, or light pollution, makes it difficult for astronomers, both professional & amateur, to view the stars clearly.
- Artificial light may completely alter a plant's blooming and developmental cycles.

### *1.3. Effects of Dying Environment on Human, Animals as well as Plants:*

Pollution effects are defined as "direct or indirect negative effects of contaminants on the marine environment, such as harm to living resources or marine ecosystems, such as loss of biodiversity, hazards to human health, impediment to marine activities, such as fishing, tourism, recreation, as well as other legitimate uses of the sea, impairment of the quality for use of sea water, as well as reduplication of the cost of using the sea." Giardiasis, Amoebiasis, Hookworm, Ascariasis, Typhoid or other waterborne diseases are caused by polluted drinking water or chemically tainted water. Whether it's Alzheimer's disease, non-lymphoma cancer, Hodgkin's multiple sclerosis, As a result of hormonal abnormalities, development and reproduction might suffer. Diseases such as cancer, heart disease and neurodegenerative disorders can affect children in the womb. Other problems include DNA damage and Parkinson's disease or even

Meanwhile, polluted beach water has infected people with stomach pains, vomiting, encephalitis, Hepatitis, diarrhea, gastroenteritis, respiratory infections, earaches, pink eye, and rashes. Soil contamination causes cancer, including leukemia, according to the vista, so it is especially hazardous for young children because it can impair their brain growth. Mercury in soil also causes neuromuscular obstruction, headaches, renal failure, central nervous system depression, eye irritation or skin rash, nausea, and tiredness, according to the study. As with air and water pollution, soil contamination has a wide range of negative effects. High levels of air pollution have been linked to an increase in infant mortality Also, global warming and acid rain are indirect effects of air pollution on human health.[7].

#### 1.4. *Effect of environmental pollution on the human eye:*

Allergies, chemicals, and other contaminants in the air can irritate people's eyes, making them uncomfortable. Some people's eyes may get red and inflamed on days when air pollution levels are high. The Air Quality Index (AQI) is a statistic that measures how clean or dirty the air is. For the month of November, the Buffalo, NY region's combined average air quality was 86.2 percent excellent and 13.8 percent moderate. How does 13.8 percent severe air pollution affect your vision? Air pollution can cause temporary eye pain, but the eyes generally clear up as the pollution level lowers. Residents of polluted areas have a 3-4 times greater risk of developing a condition known as dry eye syndrome. A condition known as dry eye syndrome occurs when there aren't enough tears to lubricate the eye. As a long-term issue, dry eyes can be difficult to deal with, but there are prescription treatments that can help you to keep your eyes healthy and In order to cure dry eyes, the best thing you can do is consult with an eye care professional who can help you add tears, save tears or enhance tear production, as well as treat inflammation of the eyelids or eye surface that may . Other strategies to protect your eyes from air pollution include limiting your time outdoors if the air appears "hazy" due to pollution. When you're outside, use sunglasses or clear safety glasses to protect your eyes. If you wear contact lenses, clean them well to ensure that they are disinfected or free of any debris.

#### 1.5. *Impact of environmental pollution of human health:*

Some of the most serious negative outcomes of environmental pollutants include perinatal illnesses, allergies, infant mortality, respiratory diseases, malignancies, cardiovascular disorders, elevated oxidative stress, endothelial, mental disorders, or a slew of other issues. Though the short-term effects of environmental pollutants are widely discussed, the vast variety of hazards associated with air pollution that begin in infancy and their potential impact on chronic noncommunicable diseases in adulthood should be highlighted. More than a dozen studies have linked environmental particle exposure to an increased risk of morbidity and mortality from a wide range of disorders including organ abnormalities, cancers, and other chronic conditions Because of this, it's time to act and decrease pollution now before it' Degradation will occur if waste from human activities (consumption/heating/transportation/agriculture/mining/manufacturing Consider several remedies depending on the amount of scientific knowledge regarding pollution's harmful effects on human health as well as the scale of their public health impact. Along with industrial issues, public awareness should be promoted in this regard. Similarly, healthcare providers have a unique potential to aid in the prevention and mitigation of negative environmental effects, which should be highlighted in their daily practice.

### LITERATURE REVIEW

Jianzhou Wang et al. studied about Air pollution is described as a phenomena that is damaging to the ecological system as well as normal human existence or development when the concentration of certain chemicals in the atmosphere exceeds a particular level. Scholars have performed a large amount of relevant study in the face of increasingly critical environmental pollution concerns, or air pollution forecasting has been of crucial relevance in those studies. As a precaution, air pollution forecasting is the foundation for implementing effective pollution management measures, as well as accurate air pollution forecasting has become a critical responsibility. This research examines the theory and implementation of air pollution forecasting models in order to offer a thorough picture of the subject. Furthermore, the pros and disadvantages of various forecasting approaches are presented based on a comparison of different forecasting systems. This research intends to give academics a summary of air pollution forecasting methodologies for simple access which will be useful in future research[8].

Q. Liu et al. carried a research on In their research, they looked at pollution and its effects on the ecosystem. Contamination of the environment has prompted considerable concern across the world. Existing research on the link between foreign direct investment as well as environmental pollution, on the other hand, has seldom taken regional effects into account. From 2003 to 2014, this study evaluated the spatial agglomeration effects and dynamics at work in FDI as well as environmental pollutant (specifically, waste soot and dust, sulphur dioxide, and wastewater) in 285 Chinese cities using global and local metrics of spatial autocorrelation. Researchers found significant spatial autocorrelation in foreign direct investment (FDI) as well as pollution levels, all of which had strong route dependency characteristics in their geographical Many agglomeration regions have been identified in the process of When it came to environmental pollution, the high and low-

value FDI agglomeration zones were not fully compatible. Increasing FDI inflows, on the other hand, did not necessarily lead to increased environmental pollution. Spatial panel data models were also used to investigate the effect of FDI on environmental contamination. The findings of a spatial lag model (SLM) and a spatial error model (SEM) showed that FDI inflows had differential impacts on various environmental contaminants, supporting the Pollution Heaven and Pollution Halo hypotheses[9].

Nikhil Sharma et al. studied about Air pollution prevention is a costly endeavor for a person or a nation on a global scale. Because air pollution poses a threat to both humans and the environment, it's important to understand its origins, causes, and health consequences. This book gives an overview of air pollution and suggests relevant air pollution prevention techniques. This book covers a wide range of topics, including air pollutions from internal combustion engines (IC engines), primary organic aerosols, the health consequences of volatile organic compounds (VOCs), and even more sophisticated topics like numerical modelling of airflow in hospitals. Different engine methods for decreasing air pollution from road traffic are also discussed in this book, such multipoint port fuel injection (MPFI), common rail direct injection (CRDI), or the gasoline direct-injection (GDI). In addition to nuclear pollution, which poses a threat to human life and the environment[10].

## 2. DISCUSSION

Pollution is defined as the creation of harmful materials into the environment. These harmful components are referred to as pollutants. Environmental pollution is a common problem that is likely to have a negative influence on human health. From the viewpoints of air pollutions, water pollution, especially land or soil waste contamination, this article examines the impacts of environmental pollution on humans, animals, trees, and plants. Pollutants such as volcanic ash can arise from the environment. Human actions, such as rubbish or industry waste, can also cause them. Pollutants pollute the air, water, and land, wreaking havoc on the ecosystem. Polluting the environment are a number of elements that are useful It appears that air pollution may be a significant cause of stroke, based on the available data Studies on the effects of acute exposure are rising in number. In spite of the fact that the data for chronic exposure is less conclusive and that additional study is needed, there is enough evidence to recommend air pollution reduction as a preventative strategy A company's or country's greatest asset is its people. These societally beneficial initiatives will require careful adaptation of existing information from different contexts, taking into account variations in pollutant mixes, concentration levels, exposure pattern, as well as numerous underlying population characteristics.

## 3. CONCLUSION

Polluted environments appear to be a worldwide concern, with the international community bearing much worse consequences than they already have. Because effective pollution response is primarily reliant on human assessment of the situation, pollution control programs emerge as a countrywide fixed-cost-sharing effort that relies on voluntary involvement. Education, research, and lobbying are all missing as pollution prevention strategies in the area, particularly in Asia. Environmental auditing is now voluntary in any economic area, but future law may make it necessary, and there is still time to employ technology and information for environmental health decisions. To minimise the negative health impacts of air pollution, policymakers in developing nations must establish programs, set regulations, and take action. Human resources, or healthy people, are the most important aspect of every successful firm or country. These societally beneficial activities will need careful adaption of current data from various contexts, taking into account differences in pollutant mixtures, concentration levels, exposure patterns, and a variety of other underlying population factors. Take these additional actions to prevent pollution on days when high particle levels are predicted, Future Prospects. Reduce the number of trips you take in your car. Use of a fireplace or a wood stove should be reduced or eliminated. It is not recommended to burn leaves, rubbish, or other materials, and it is also not recommended to use gas-powered lawn or garden equipment.

## REFERNCES

- [1] L. A. Barrie, "Arctic air pollution: An overview of current knowledge," *Atmos. Environ.*, vol. 20, no. 4, pp. 643–663, 1986, doi: 10.1016/0004-6981(86)90180-0.
- [2] A. Kamimura, B. Armenta, M. Nourian, N. Assasnik, K. Nourian, and A. Chernenko, "Perceived environmental pollution and its impact on health in China, Japan, and South Korea," *J. Prev. Med. Public Heal.*, 2017, doi: 10.3961/jpmph.17.044.

- [3] "Where Does Air Pollution Come From," *national park service*. .
- [4] B. Brunekreef and S. T. Holgate, "Air pollution and health," *Lancet*, vol. 360, no. 9341, pp. 1233–1242, 2002, doi: 10.1016/S0140-6736(02)11274-8.
- [5] M. A. Ashraf, M. J. Maah, I. Yusoff, and K. Mehmood, "Effects of Polluted Water Irrigation on Environment and Health of People in Jamber , District Kasur , Pakistan," *Int. J. basic Appl. Sci.*, vol. 10, no. 03, pp. 37–57, 2011.
- [6] Mashhood Ahmad Khan and Arsalan Mujahid Ghouri, "Environmental Pollution: Its Effects on Life and Its Remedies," *Res. World J. Arts, Sci. Commer.*, vol. 2, no. 2, pp. 276–285, 2011.
- [7] M. Brauer *et al.*, "Air pollution and development of asthma, allergy and infections in a birth cohort," *Eur. Respir. J.*, vol. 29, no. 5, pp. 879–888, 2007, doi: 10.1183/09031936.00083406.
- [8] X. M. 1OrcID andHaiyan L. 2 Lu Bai 1, Jianzhou Wang 1,\* , "Air Pollution Forecasts: An Overview," 2018.
- [9] Q. Liu, S. Wang, W. Zhang, D. Zhan, and J. Li, "Does foreign direct investment affect environmental pollution in China's cities? A spatial econometric perspective," *Sci. Total Environ.*, 2018, doi: 10.1016/j.scitotenv.2017.09.110.
- [10] N. Sharma, A. K. Agarwal, P. Eastwood, T. Gupta, and A. P. Singh, "Introduction to Air Pollution and Its Control," *Energy, Environ. Sustain.*, pp. 3–7, 2018, doi: 10.1007/978-981-10-7185-0\_1.

