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Bsc-II

Environment Project – Air Pollution

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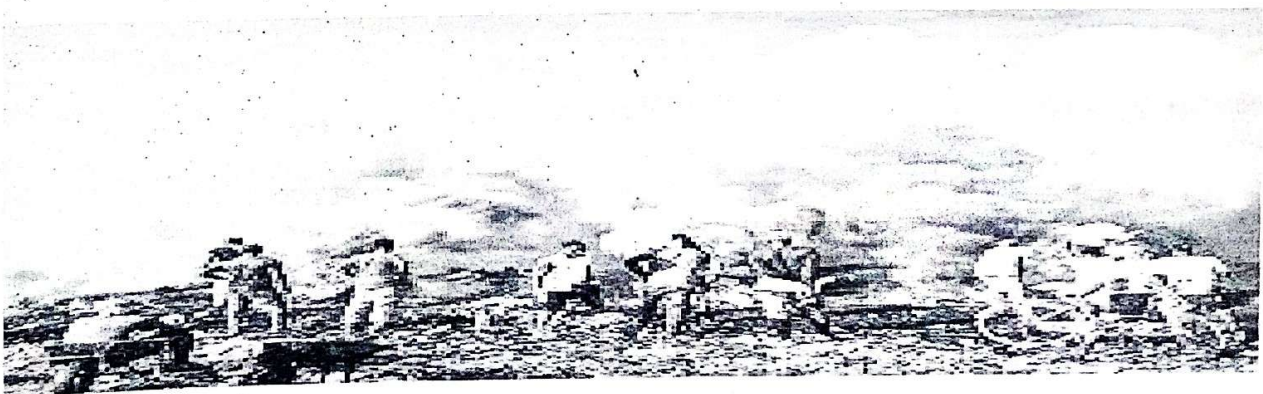


# Introduction

Environmental pollution is one of the biggest threats to mankind in today's era. Growing population, growing out of control industrial sector and growing cities and irresponsible use of natural resources lead to environmental pollution. Pollution has serious effects on the environment with harmful effects on the environment. Three basic human needs namely water, land and air are polluted by various human activities.

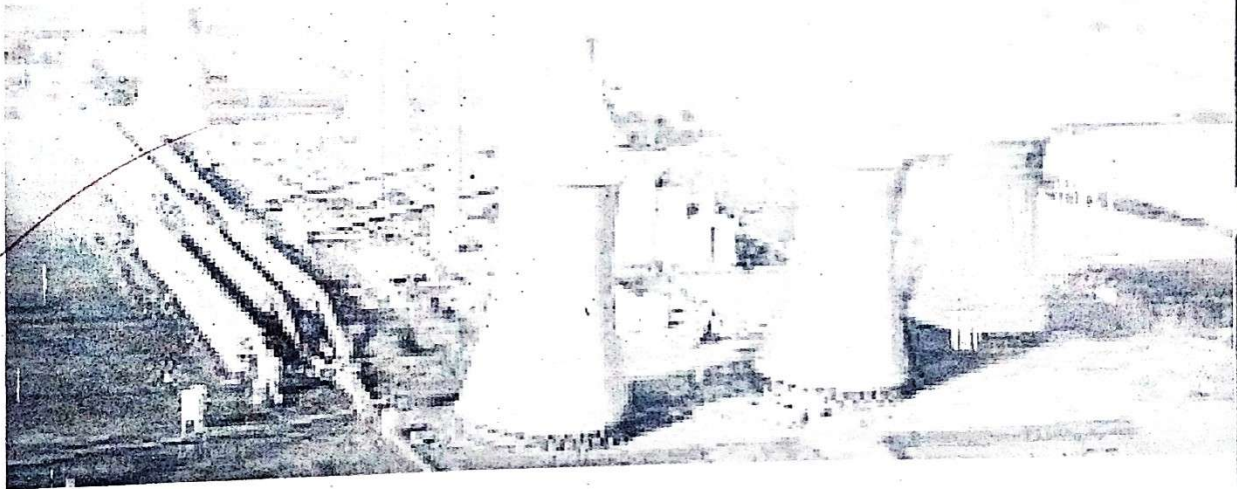
If we look at the history of air pollution, the air in the past was many times cleaner than the air we have today. The beginning of the industrial revolution and the subsequent increasing industries and the growing population, the facilities provided to the population and the equipment created for it, the air of the earth is becoming polluted day by day due to the various types of gases released from them.

What are the causes of air pollution, what are the factors that cause air pollution and what measures should be planned to prevent air pollution or what should be done and what should not be done through the project Air Pollution



# Principles

- • To know the concept of air pollution.
- • To learn about the effect of air pollution on the environment.
- To know the measures taken to reduce the harmful effects of air pollution on the environment.
- • Understanding air pollution, and the factors that cause air pollution.
- • To know the measures taken by the government to prevent air pollution.
- • To inform others about the harmful effects of air pollution





# Hypothesis

While doing the project on air pollution I used news printed in newspapers to get information about the project and also collected information about the project using information available on the internet. I followed the method of interview, questionnaire and field visit to get the information about the air pollution that may occur in large amount of water and its impact on human life as well as environmental impact as per the project topic.

In order to collect information about this project, some people in the locality were asked through a questionnaire about the rising pollution levels in the locality. And that information was collected. At the same time, detailed information was collected about the points prepared from the questionnaire based on books on environment.

In order to find out more detailed information about the issues raised, I used the websites of academic websites available on the Internet. It was possible to get more information about the project through them. The collected information is organized into points and the information is further incorporated into the project. On the basis of the above mentioned information, observations, analysis and conclusions of the project were recorded.



# Data Collection

Air pollution is the contamination of air due to the presence of substances in the atmosphere that are harmful to the health of humans and other living beings, or cause damage to the climate or to materials. It is also the contamination of indoor or outdoor surrounding either by chemical activities, physical or biological agents that alters the natural features of the atmosphere. There are many different types of air pollutants, such as gases (including ammonia, carbon monoxide, sulfur dioxide, nitrous oxides, methane, carbon dioxide and chlorofluorocarbons), particulates (both organic and inorganic), and biological molecules. Air pollution can cause diseases, allergies, and even death to humans: it can also cause harm to other living organisms such as animals and food crops, and may damage the natural environment (for example, climate change, ozone depletion or habitat degradation) or built environment (for example, acid rain). Air pollution can be caused by both human activities and natural phenomena.

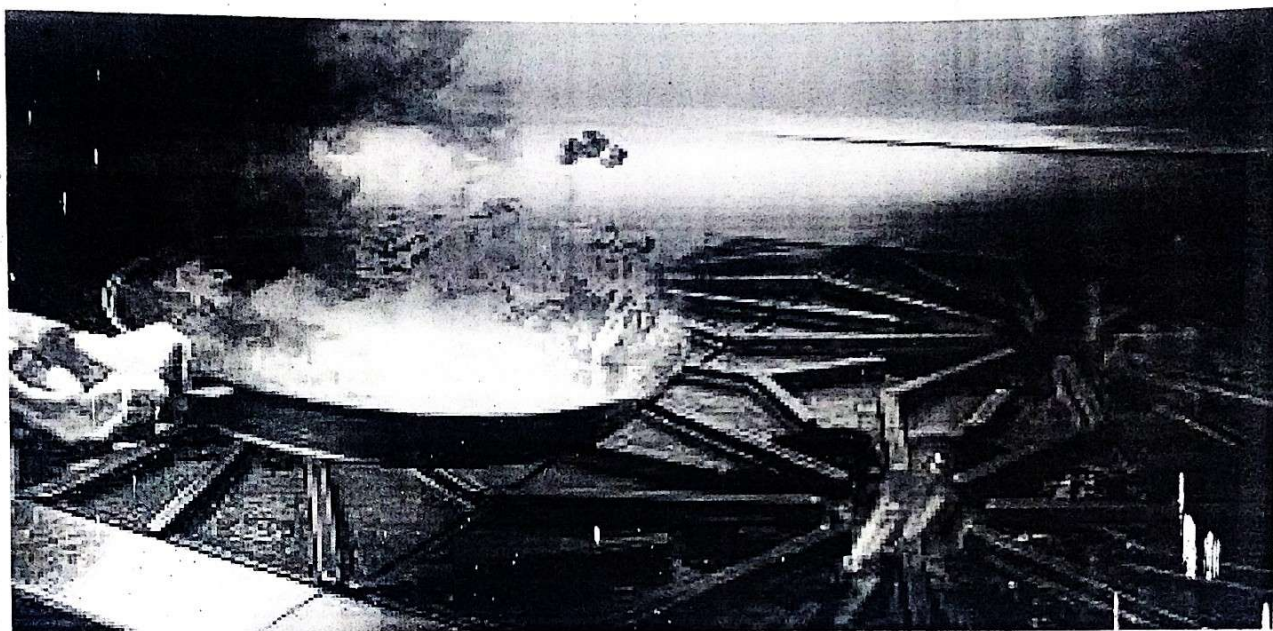
Air quality is closely related to the earth's climate and ecosystems globally. many of the contributors of air pollution are also sources of greenhouse emission i.e., burning of fossil fuel.

Air pollution is a significant risk factor for a number of pollution-related diseases, including respiratory infections, heart disease, COPD, stroke and lung cancer. [Growing evidence suggests that air pollution exposure may be associated with reduced IQ scores, impaired cognition, increased risk for psychiatric disorders such as depression and detrimental perinatal health. The human



health effects of poor air quality are far reaching, but principally affect the body's respiratory system and the cardiovascular system. Individual reactions to air pollutants depend on the type of pollutant a person is exposed to, the degree of exposure, and the individual's health status and genetics.

Outdoor air pollution attributable to fossil fuel use alone



causes ~3.61 million deaths annually, making it one of the top contributors to human death, with anthropogenic ozone and PM2.5 causing ~2.1 million. Overall, air pollution causes the deaths of around 7 million people worldwide each year, or a global mean loss of life expectancy (LLE) of 2.9 years, and is the world's largest single environmental health risk, which has not shown significant progress since at least 2015. Indoor air pollution and poor urban air quality are listed as two of the world's worst toxic pollution problems in the 2008 Blacksmith Institute World's Worst Polluted Places report. The scope of the air pollution crisis is large: 90% of the world's population breathes dirty air to some degree. Although the health consequences are extensive, the way the



problem is handled is considered largely haphazard or neglected.

Productivity losses and degraded quality of life caused by air pollution are estimated to cost the world economy \$5 trillion per year but, along with health and mortality impacts, are an externality to the contemporary economic system and most human activity, albeit sometimes being moderately regulated and monitored. Various pollution control technologies and strategies are available to reduce air pollution. Several international and national legislation and regulation have been developed to limit the negative effects of air pollution. Local rules, when properly executed, have resulted in significant advances in public health. Some of these efforts have been successful at the international level, such as the Montreal Protocol, which reduced the release of harmful ozone depleting chemicals, and the 1985 Helsinki Protocol, which reduced sulphur emissions, while others, such as international action on climate change, have been less successful.

### **Sources of air pollution**

Anthropogenic (human-made) sources

Controlled burning of a field outside of Statesboro, Georgia, in preparation for spring planting

These are mostly related to the burning of fuel.

- Stationary sources include:
  - fossil-fuel power plants and biomass power plants both have smoke stacks (see for example environmental impact of the coal industry)
  - Oil and gas sites that have methane leaks

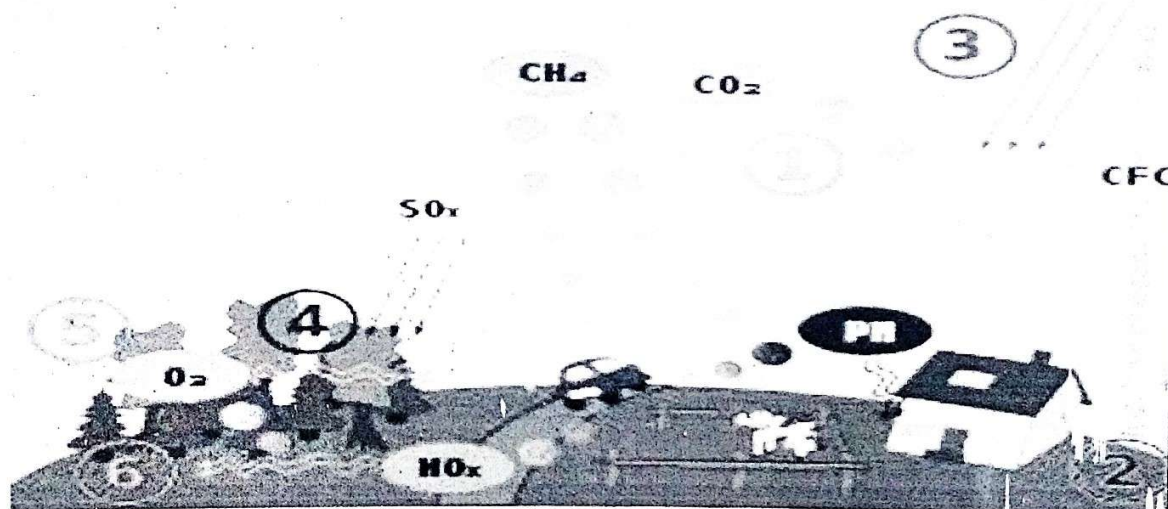


release. The weight of the pollutant divided by a unit weight, volume, distance, or time of the activity generating the pollutant is how these factors are commonly stated (e.g., kilogrammes of particulate emitted per tonne of coal burned). These criteria make estimating emissions from diverse sources of pollution easier. Most of the time, these components are just averages of all available data of acceptable quality, and they are thought to be typical of long-term averages.

There are 12 compounds in the list of persistent organic pollutants. Dioxins and furans are two of them and intentionally created by combustion of organics, like open burning of plastics. These compounds are also endocrine disruptors and can mutate the human genes.

## Pollutants

**Main articles:** Pollutant and Greenhouse gas emissions



Schematic drawing, causes and effects of air pollution:

- (1) greenhouse effect,
- (2) particulate contamination,
- (3) increased UV radiation,



- (4) acid rain,
- (5) increased ground-level ozone concentration.
- (6) increased levels of nitrogen oxides

An air pollutant is a material in the air that can have adverse effects on humans and the ecosystem. The substance can be solid particles, liquid droplets, or gases. A pollutant can be of natural origin or man-made. Pollutants are classified as primary or secondary. Primary pollutants are usually produced by processes such as ash from a volcanic eruption. Other examples include carbon monoxide gas from motor vehicle exhausts or sulfur dioxide released from factories. Secondary pollutants are not emitted directly. Rather, they form in the air when primary pollutants react or interact. Ground level ozone is a prominent example of a secondary pollutant. Some pollutants may be both primary and secondary: they are both emitted directly and formed from other primary pollutants.

Pollutants emitted into the atmosphere by human activity include:

- **Carbon dioxide (CO<sub>2</sub>):** Because of its role as a greenhouse gas it has been described as "the leading pollutant"[86] and "the worst climate pollutant". Carbon dioxide is a natural component of the atmosphere, essential for plant life and given off by the human respiratory system. This question of terminology has practical effects, for example as determining whether the U.S. Clean Air Act is deemed to regulate CO<sub>2</sub> emissions. CO<sub>2</sub> currently forms about 410 parts per million (ppm) of earth's atmosphere, compared to about 280 ppm in pre-industrial times, and billions of metric tons of CO<sub>2</sub> are emitted



annually by burning of fossil fuels. CO<sub>2</sub> increase in earth's atmosphere has been accelerating.

- **Sulfur oxides (SO<sub>x</sub>):** particularly sulfur dioxide, a chemical compound with the formula SO<sub>2</sub>. SO<sub>2</sub> is produced by volcanoes and in various industrial processes. Coal and petroleum often contain sulfur compounds, and their combustion generates sulfur dioxide. Further oxidation of SO<sub>2</sub>, usually in the presence of a catalyst such as NO<sub>2</sub>, forms H<sub>2</sub>SO<sub>4</sub>, and thus acid rain is formed. This is one of the causes for concern over the environmental impact of the use of these fuels as power sources.
- **Nitrogen oxides (NO<sub>x</sub>):** Nitrogen oxides, particularly nitrogen dioxide, are expelled from high temperature combustion, and are also produced during thunderstorms by electric discharge. They can be seen as a brown haze dome above or a plume downwind of cities. Nitrogen dioxide is a chemical compound with the formula NO<sub>2</sub>. It is one of several nitrogen oxides. One of the most prominent air pollutants, this reddish-brown toxic gas has a characteristic sharp, biting odor.
- **Carbon monoxide (CO):** CO is a colorless, odorless, toxic gas.[93] It is a product of combustion of fuel such as natural gas, coal or wood. Vehicular exhaust contributes to the majority of carbon monoxide let into the atmosphere. It creates a smog type formation in the air that has been linked to many lung diseases and disruptions to the natural environment and animals.
- **Volatile organic compounds (VOC):** VOCs are a well-known outdoor air pollutant. They are categorized as either methane (CH<sub>4</sub>) or non-methane (NMVOCs). Methane is an extremely efficient greenhouse gas which contributes to enhanced global warming. Other hydrocarbon VOCs are



also significant greenhouse gases because of their role in creating ozone and prolonging the life of methane in the atmosphere. This effect varies depending on local air quality. The aromatic NMVOCs benzene, toluene and xylene are suspected carcinogens and may lead to leukemia with prolonged exposure. 1,3-butadiene is another dangerous compound often associated with industrial use.

- Particulate matter/particles, also known as particulate matter (PM), atmospheric particulate matter (APM), or fine particles, are microscopic solid or liquid particles suspended in a gas.[94] Aerosol, on the other hand, is a mixture of particles and gas. Volcanoes, dust storms, forest and grassland fires, living plants, and sea spray are all sources of particles. Aerosols are produced by human activities such as the combustion of fossil fuels in automobiles, power plants, and numerous industrial processes. Averaged worldwide, anthropogenic aerosols – those made by human activities – currently account for approximately 10% of our atmosphere. Increased levels of fine particles in the air are linked to health hazards such as heart disease,[96] altered lung function and lung cancer. Particulates are related to respiratory infections and can be particularly harmful to those with conditions like asthma.
- Persistent free radicals connected to airborne fine particles are linked to cardiopulmonary disease.
- Toxic metals, such as lead and mercury, especially their compounds.
- Chlorofluorocarbons (CFCs): Emitted from goods that are now prohibited from use; harmful to the ozone layer. These are gases emitted by air conditioners, freezers, aerosol sprays, and other similar devices. CFCs reach the stratosphere after being released into the atmosphere. They



interact with other gases here, causing harm to the ozone layer. UV rays are able to reach the earth's surface as a result of this. This can result in skin cancer, eye problems, and even plant damage.

- **Ammonia:** Emitted mainly by agricultural waste. Ammonia is a compound with the formula  $\text{NH}_3$ . It is normally encountered as a gas with a characteristic pungent odor. Ammonia contributes significantly to the nutritional needs of terrestrial organisms by serving as a precursor to foodstuffs and fertilizers. Ammonia, either directly or indirectly, is also a building block for the synthesis of many pharmaceuticals. Although in wide use, ammonia is both caustic and hazardous. In the atmosphere, ammonia reacts with oxides of nitrogen and sulfur to form secondary particles.
- **Odors:** Such as from garbage, sewage, and industrial processes.
- **Radioactive pollutants:** Produced by nuclear explosions, nuclear events, war explosives, and natural processes such as the radioactive decay of radon.
- **Polycyclic Aromatic Hydrocarbons (PAHs):** a group of aromatic compounds formed from the incomplete combustion of organic compounds including coal and oil and tobacco.

Secondary pollutants include:

- **Photochemical smog:** particles are formed from gaseous primary contaminants and chemicals. Smog is a type of pollution that occurs in the atmosphere. Smog is caused by a huge volume of coal being burned in a certain region, resulting in a mixture of smoke and sulphur dioxide. Modern smog is usually caused by automotive and



industrial emissions, which are acted on in the atmosphere by UV light from the sun to produce secondary pollutants, which then combine with the primary emissions to generate photochemical smog.

- **Ground level ozone (O<sub>3</sub>):** Ozone is created when NO<sub>x</sub> and VOCs mix. It is a significant part of the troposphere. It's also an important part of the ozone layer, which can be found in different sections of the stratosphere. Photochemical and chemical reactions involving it fuel many of the chemical activities that occur in the atmosphere during the day and night. It is a pollutant and a component of smog that is produced in large quantities as a result of human activities (mostly the combustion of fossil fuels).
- **Peroxyacetyl nitrate (C<sub>2</sub>H<sub>3</sub>NO<sub>5</sub>):** similarly formed from NO<sub>x</sub> and VOCs.

Minor air pollutants include:

- A large number of minor hazardous air pollutants. Some of these are regulated in USA under the Clean Air Act and in Europe under the Air Framework Directive.
- A variety of persistent organic pollutants, which can attach to particulates

Persistent organic pollutants are organic compounds that are resistant to environmental degradation due to chemical, biological, or photolytic processes (POPs). As a result, they've been discovered to survive in the environment, be capable of long-range transmission, bioaccumulate in human and animal tissue, biomagnify in food chains, and pose a major threat to human health and the ecosystem.

*Air pollution* refers to the release of pollutants into the air—pollutants which are detrimental to human health and the



planet as a whole. According to the World Health Organization (WHO), each year air pollution is responsible for nearly seven million deaths around the globe. Nine out of ten human beings currently breathe air that exceeds the WHO's guideline limits for pollutants, with those living in low- and middle-income countries suffering the most. In the United States, the Clean Air Act, established in 1970, authorizes the U.S. Environmental Protection Agency (EPA) to safeguard public health by regulating the emissions of these harmful air pollutants.

### What Causes Air Pollution?

"Most air pollution comes from energy use and production," says John Walke, director of the Clean Air Project, part of the Climate and Clean Energy program at NRDC. "Burning fossil fuels releases gases and chemicals into the air." And in an especially destructive feedback loop, air pollution not only contributes to climate change but is also exacerbated by it. "Air pollution in the form of carbon dioxide and methane raises the earth's temperature," Walke says. "Another type of air pollution, smog, is then worsened by that increased heat, forming when the weather is warmer and there's more ultraviolet radiation." Climate change also increases the production of allergenic air pollutants, including mold (thanks to damp conditions caused by extreme weather and increased flooding) and pollen (due to a longer pollen season).

"We've made progress over the last 50 years improving air quality in the United States thanks to the Clean Air Act," says Kim Knowlton, senior scientist and deputy director of the NRDC Science Center. "But climate change will make it harder in the future to meet pollution standards, which are designed to protect health."

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### Effects of Air Pollution

The effects of air pollution on the human body vary depending on the type of pollutant and the length and level of exposure—as well as other factors, including a person's individual health risks and the cumulative impacts of multiple pollutants or stressors.

### Smog and soot

These are the two most prevalent types of air pollution. Smog (sometimes referred to as ground-level ozone) occurs when emissions from combusting fossil fuels react with sunlight. Soot (also known as particulate matter) is made up of tiny particles of chemicals, soil, smoke, dust, or allergens—in the form of either gas or solids—that are carried in the air. The sources of smog and soot are similar. “Both come from cars and trucks, factories, power plants, incinerators, engines, generally anything that combusts fossil fuels such as coal, gas, or natural gas,” Walke says.

Smog can irritate the eyes and throat and also damage the lungs, especially those of children, senior citizens, and people who work or exercise outdoors. It's even worse for people who have asthma or allergies: these extra pollutants can intensify their symptoms and trigger asthma attacks. The tiniest airborne particles in soot, whether gaseous or solid, are especially dangerous because they can penetrate the lungs and bloodstream and worsen bronchitis, lead to heart attacks, and even hasten death. In 2020 a report from Harvard's T. H. Chan School of Public Health showed COVID-19 mortality



rates in areas with more soot pollution were higher than in areas with even slightly less, showing a correlation between the virus's deadliness and long-term exposure to fine particulate matter and illuminating an environmental justice issue.

Because highways and polluting facilities have historically been sited in or next to low-income neighborhoods and communities of color, the negative effects of this pollution have been disproportionately experienced by the people who live in these communities. In 2019 the Union of Concerned Scientists found that soot exposure was 34 percent higher for Asian Americans, on average, than for other Americans. For Black people, the exposure rate was 24 percent higher; for Latinos, 23 percent higher.

### **Hazardous air pollutants**

A number of air pollutants pose severe health risks and can sometimes be fatal even in small amounts. Almost 200 of them are regulated by law; some of the most common are mercury, lead, dioxins, and benzene. "These are also most often emitted during gas or coal combustion, incinerating, or—in the case of benzene—found in gasoline," Walke says. Benzene, classified as a carcinogen by the EPA, can cause eye, skin, and lung irritation in the short term and blood disorders in the long term. Dioxins, more typically found in food but also present in small amounts in the air, can affect the liver in the short term and harm the immune, nervous, and endocrine systems as well as reproductive functions. Mercury attacks the central nervous system. In large amounts, lead can damage children's brains and kidneys, and even minimal exposure can affect children's IQ and ability to learn.



Another category of toxic compounds, polycyclic aromatic hydrocarbons (PAHs), are by-products of traffic exhaust and wildfire smoke. In large amounts they have been linked to eye and lung irritation, blood and liver issues, and even cancer. In one study, the children of mothers exposed to PAHs during pregnancy showed slower brain-processing speeds and more pronounced symptoms of ADHD.

### Greenhouse gases

By trapping the earth's heat in the atmosphere, greenhouse gases lead to warmer temperatures, which in turn lead to the hallmarks of climate change: rising sea levels, more extreme weather, heat-related deaths, and the increased transmission of infectious diseases. In 2018 carbon dioxide accounted for 81 percent of the country's total greenhouse gas emissions, and methane made up 10 percent. "Carbon dioxide comes from combusting fossil fuels, and methane comes from natural and industrial sources, including large amounts that are released during oil and gas drilling," Walke says. "We emit far larger amounts of carbon dioxide, but methane is significantly more potent, so it's also very destructive." Another class of greenhouse gases, hydrofluorocarbons (HFCs), are thousands of times more powerful than carbon dioxide in their ability to trap heat. In October 2016 more than 140 countries reached an agreement to reduce the use of these chemicals—which are found in air conditioners and refrigerators—and develop greener alternatives over time. Though President Trump was unwilling to sign on to this agreement, a bipartisan group of senators overrode his objections in 2020 and set the United States on track to slash HFCs by 85 percent by 2035. According to David Doniger, senior strategic director of NRDC's Climate and Clean Energy program, "the agreed-to HFC phasedown will avoid



the equivalent of more than 80 billion tons of carbon dioxide over the next 35 years.”

### **Pollen and mold**

Mold and allergens from trees, weeds, and grass are also carried in the air, are exacerbated by climate change, and can be hazardous to health. Though they aren't regulated and are less directly connected to human actions, they can be considered a form of air pollution. “When homes, schools, or businesses get water damage, mold can grow and can produce allergenic airborne pollutants,” Knowlton says. “Mold exposure can precipitate asthma attacks or an allergic response, and some molds can even produce toxins that would be dangerous for anyone to inhale.”

Pollen allergies are worsening because of climate change. “Lab and field studies are showing that pollen-producing plants—especially ragweed—grow larger and produce more pollen when you increase the amount of carbon dioxide that they grow in,” Knowlton says. “Climate change also extends the pollen production season, and some studies are beginning to suggest that ragweed pollen itself might be becoming a more potent allergen.” If so, more people will suffer runny noses, fevers, itchy eyes, and other symptoms.

Air pollution is now the world's fourth-largest risk factor for early death. According to the most recent *State of Global Air* report—which summarizes the latest scientific understanding of air pollution around the world—4.5 million deaths were linked to outdoor air pollution exposures in 2019, and another 2.2 million deaths were caused by indoor air pollution. “Despite improvements in reducing global average mortality rates from air pollution, the world's most populous countries, India and China, continue to bear the highest burdens of disease,” says Vijay Lamaye, staff scientist at the NRDC



of people around the world do, and this puts them at a much higher risk for respiratory disease, cardiovascular disease, neurological damage, cancer, and death. In the United States, people of color are 1.5 times more likely than whites to live in areas with poor air quality, according to the ALA.

Historically, racist zoning policies and the discriminatory lending practices known as redlining have combined to keep polluting industries and car-choked highways away from white neighborhoods and have turned communities of color—especially poor and working-class communities of color—into sacrifice zones where residents are forced to breathe dirty air and suffer the many health problems associated with it. In addition to the increased health risks that come from living in such places, members of these communities experience economic harm in the form of missed workdays, higher medical costs, and local underinvestment.

Environmental racism isn't limited to cities and industrial areas. Outdoor laborers, including the estimated three million migrant and seasonal farmworkers in the United States, are among the most vulnerable to air pollution—and also among the least equipped, politically, to pressure employers and lawmakers to affirm their right to breathe clean air.

Recently, cumulative impact mapping, which uses data on environmental conditions and demographics, has been able to show how some communities are overburdened with layers of issues, like high levels of poverty, unemployment, and pollution. Tools like the Environmental Justice Screening Method and the EPA's EJSCREEN provide evidence of what many environmental justice communities have been explaining for decades: that we need land-use and public health reforms to ensure that vulnerable areas are not



driving, choose a car that gets better miles per gallon of gas, or choose an electric car.” You can also investigate your power provider options—you may be able to request that your electricity be supplied by wind or solar. Buying your food locally cuts down on the fossil fuels burned in trucking or flying food in from across the country. And most important, “Support leaders who push for clean air and water and responsible steps on climate change,” Walke says.

### **How to Protect Your Health**

- “When you see in the news or hear on the weather report that pollution levels are high, it may be useful to limit the time when children go outside or you go for a jog,” Walke says. Generally, ozone levels tend to be lower in the morning.
  - If you exercise outside, stay as far as you can from heavily trafficked roads. Then shower and wash your clothes to remove fine particles.
  - The air may look clear, but that doesn’t mean it’s pollution free. Utilize tools like the EPA’s air pollution monitor, Air Now, to get the latest conditions. If the air quality is bad, stay inside with windows closed.
  - If you live or work in an area prone to wildfires, stay away from the harmful smoke as much as you’re able. Consider keeping a small stock of masks to wear when conditions are poor.
- Wear sunscreen. When ultraviolet radiation comes through the weakened ozone layer, it can cause skin damage and skin cancer.



# Suggetion

Government should make such policies that employees will work from home. Go to office only one day a week. And now with the advent of information technology this is also possible. For example, 35% of people working in the US corporate sector go to the office only one day a week. Do the rest at home. Therefore, there is no cost of their commuting and air pollution is also not increased. The time spent in commuting is used by people for other activities.

1. Use more bicycles.
2. Use public transport.
3. Do not drive children to school, encourage them to take school transport.
4. Ask people in your household to form a carpool so that they can drive to the office in the same car. This will save fuel and reduce pollution.
5. Take proper care of plants and trees around your home
6. Do not use electricity unnecessarily.
7. Run a cooler fan or air conditioner in the room where it is needed, keep the rest off. 1.
8. If you have dry leaves in your garden, do not burn them, but make compost from them.
9. Check your car for pollution every three months.





10. Use only unleaded petrol. Indoors are less affected by pollution than outdoors, so go indoors when pollution is high.

Air pollution is deadly. It must be controlled, otherwise all traces of life on Earth will be wiped out. Unless we all think about reducing air pollution, air pollution cannot be reduced because our government cannot go to every lane and control air pollution, so we should come forward and make people aware about air pollution. We can control air pollution only if we explain air pollution Marathi information about it.

#### Air Pollution Control

Following are the measures one should adopt, to control air pollution:

#### Avoid Using Vehicles

People should avoid using vehicles for shorter distances. Rather, they should prefer public modes of transport to travel from one place to another. This not only prevents pollution, but also conserves energy.

#### Energy Conservation

A large number of fossil fuels are burnt to generate electricity. Therefore, do not forget to switch off the electrical appliances when not in use. Thus, you can save the environment at the individual level. Use of energy-efficient devices such as CFLs also controls pollution to a greater level.

#### Use of Clean Energy Resources

The use of solar, wind and geothermal energies reduce air pollution at a larger level. Various countries, including India, have implemented the use of these resources as a step towards a cleaner environment.





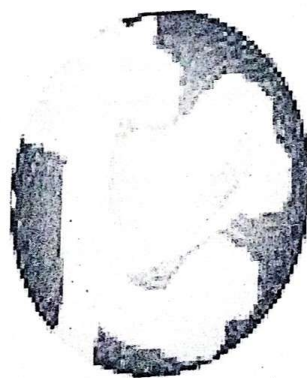
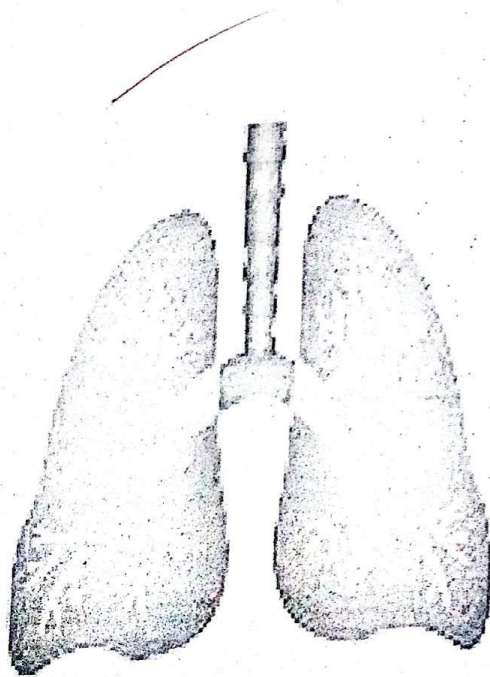
Other air pollution control measures include:

1. By minimising and reducing the use of fire and fire products.
2. Since industrial emissions are one of the major causes of air pollution, the pollutants can be controlled or treated at the source itself to reduce its effects. For example, if the reactions of a certain raw material yield a pollutant, then the raw materials can be substituted with other less polluting materials.
3. Fuel substitution is another way of controlling air pollution. In many parts of India, petrol and diesel are being replaced by CNG – Compressed Natural Gas fueled vehicles. These are mostly adopted by vehicles that aren't fully operating with ideal emission engines.
4. Although there are many practices in India, which focus on repairing the quality of air, most of them are either forgotten or not being enforced properly. There are still a lot of vehicles on roads which haven't been tested for vehicle emissions.
5. Another way of controlling air pollution caused by industries is to modify and maintain existing pieces of equipment so that the emission of pollutants is minimised.
6. Sometimes controlling pollutants at the source is not possible. In that case, we can have process control equipment to control the pollution.
7. A very effective way of controlling air pollution is by diluting the air pollutants.
8. The last and the best way of reducing the ill effects of air pollution is tree plantation. Plants and trees reduce a

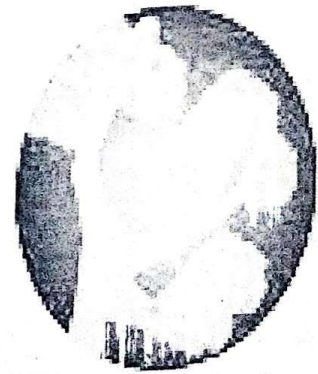


# Conclusion

- Learned about the concept of air pollution.
- Obtained and collected information about the effect of air pollution on the environment.
- It became possible to learn more about the measures taken to reduce the harmful effects of air pollution on the environment.
- Collected detailed information on air pollution, and factors that contribute to air pollution.
- Get to know the measures taken by the government to prevent air pollution



Good air quality  
The lungs have  
wide open pathways



Poor air quality  
Muscles contract, path  
ways for air are narrowed  
and breathing gets difficult



# Report

Environmental pollution is one of the biggest threats to mankind in today's era. Growing population, growing out of control industrial sector and growing cities and irresponsible use of natural resources lead to environmental pollution. Pollution has serious effects on the environment with harmful effects on the environment.

Today, it is seen that due to negligence of human activities, the surrounding environment can be adversely affected. Today, it is necessary for everyone to know detailed information about air pollution and take timely measures. Therefore, the topic of air pollution is very important in today's modern world.

I chose this subject to do a project on environment in the academic year **2022-23**. A survey interview method was adopted to get information about this topic. To get information about the increasing air pollution in the area ~~while~~ doing this project. To know the effect of air pollution on the environment.

Getting information about the impact on the surrounding environment. To know about the measures to be taken to avoid the impact on the environment. Keeping these objectives in mind, I gathered information for this project.

Through the medium of interview, the reactions of the people of the locality were known and based on the information obtained, the preservation of the project was



recorded. Analyzed the information obtained. Also concluded. It has been found that increasing air pollution has harmful effects on the surrounding area. In this way, this environmental project was completed.



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