ISSN: 2230-9926

*Available online at http://www.journalijdr.com*

IJDR

*International Journal of Development Research*
*Vol. 16, Issue, 08, pp.70889-70896, August, 2026*
**https://doi.org/10.37118/ijdr.31127.08.2026**


RESEARCH ARTICLE OPEN ACCESS

# POLLUTION: SILENTLY FORWARDING US DAY BY DAY TOWARDS DESTRUCTION OF CIVILIZATION

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## ARTICLE INFO

***Article History:***
Received 24th May, 2026
Received in revised form
20th June, 2026
Accepted 18th July, 2026
Published online 31st August, 2026

***Key Words:***
Pollution, typ Es, Causes, Sources, Effects, Solutions, Preventive measures, Govt. Initiatives, Considerations, Destroyer of Civilization, Awareness, Implementation.

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## ABSTRACT

India is one of the most polluted countries in the world, and pollution is a significant environmental and health issue. The country faces a wide range of pollution challenges, including air, water, soil, noise, plastic, and thermal pollution. Addressing pollution in India requires a comprehensive approach that involves policy changes, technological innovation, and public awareness campaigns. The government has implemented several measures to address pollution, including the National Clean Air Programme and the Swachh Bharat Abhiyan. However, more significant efforts are needed to tackle the pollution crisis and protect public health and the environment. Climate change and air pollution have been a matter of serious concern all over the world in the last few decades. The expanding urban areas with extreme climate events (high rainfall, extreme temperature, floods, and droughts) are posing human health risks. The intensified heat waves as a result of climate change have led to the elevation in temperature levels causing thermal discomfort and several health issues to urban residents. Pollution is a complex and pervasive problem in India that demands urgent and coordinated efforts from the government, industry, civil society, and individuals to mitigate its adverse effects on public health and the environment. By implementing effective policies, embracing clean technologies, raising public awareness, and fostering a culture of sustainability, India can work towards a cleaner and healthier future for its citizens. All stakeholders must take responsibility, actively reduce pollution, and ensure that the air we breathe is safe for us as well as for future generations. Active participation, innovative thinking, and sustained stakeholder commitment are crucial for achieving this goal.



***Citation: Hiralal Jana and Debabrata Basu. 2026.*** "Pollution: silently forwarding us day by day towards destruction of civilization. ". *International Journal of Development Research*, 16, (08), 70889-70896.

# INTRODUCTION

Pollution and climate change are major threats to rapidly growing cities in present times. The developing nations like India, which are switching from predominantly rural country to increasingly urban, have to face critical challenges in terms of climate action and sustainable development. India is projected to have 53% of the national population as urban population by addition of 416 million urban dwellers by the year 2050 (UNDESA, 2018). The change in land use land cover patterns in urban areas due to ongoing urbanization affects regional climate by altering the surface and boundary layer atmospheric properties. The regional climate changes are reflected by different meteorological conditions such as changes in temperature and precipitation. The anthropogenic emissions such as greenhouse gas (GHG) emissions trigger these local climate changes. In addition to the impact of urbanization on climate, the increasing urban population and vehicular traffic increases the pollutant emissions and aerosol load in the atmosphere. Thus, the climate change and air pollution remain one of the biggest threats to human health and well-being in cities. According to a report by World Health Organization (WHO) more than seven million people across the world lose their lives due to diseases linked with particulate matter$_{2.5}$($PM_{2.5}$) pollution (WHO, 2015). India, being a rapidly developing country with increasing population is suffering from severe air pollution; as among the world's 10 most polluted cities, nine of them lie in India [WHO Global Urban Ambient Air Pollution Database (Update 2016), 2016]. The increasing air pollution in most of the Indian megacities over last few decades and its consequential human health impacts (such as asthma and cardio-respiratory illness) have

drawn prominent attention in recent years. India's air pollution crisis is a direct consequence of its rapid economic expansion, urbanization, industrial growth, and energy dependency. With 63 of the world's 100 most polluted cities, the country faces a pressing dilemma: how to sustain economic growth while reducing pollution levels that cost 1. 36% of GDP annually and lead to 1. 67 million premature deaths per year. While reducing air pollution in India is possible, achieving significant progress by 2030 will require political will, economic restructuring, and systemic governance improvements. The country's population density and rapid urbanization have led to an increase in the use of automobiles and necessitated spikes in industrial activity. Urban sewage discharge, industrial effluents, and pesticides and fertilizers from farms have polluted water bodies such as lakes and rivers, leading to water toxicity and the loss of aquatic ecosystems. Certain agricultural practices and the use of landfills have had an impact on soil health on farmland and on ecosystems in urban areas. Although the government has pollution control boards and legislation in place to curb pollution from these sources, enforcement of regulations is challenging and has had limited impact.

**Types of pollution in India: -**India faces a variety of pollution challenges, and several factors contribute to its pollution. Some of the major types of pollution in India are:

- **Air Pollution**: Air pollution is a major issue in India, especially in cities.
- **Water Pollution**: Water pollution is also a significant issue in India.
- **Soil Pollution**: Soil pollution is another significant problem in India.
- **Noise Pollution**: Noise pollution is a growing concern in India, especially in urban areas.
- **Plastic Pollution**: India is one of the largest consumers of plastic in the world, and plastic pollution is a significant problem.
- **Thermal Pollution**: Thermal pollution is caused by the discharge of heated water from industries and power plants, and it can have significant impacts on aquatic life and ecosystems.

**CAUSES**

**Dust & Construction** contribute about 45% to the air pollution in India, which is followed by Waste Burning. Crafting activities are mostly in the urban areas while Waste Burning is in the rural areas (agriculture).

**Fuel and biomass burning: -**A rural aburo stove using biomass cakes, fuelwood and trash as Cooking on chulla cooking fuel. Surveys suggest over 100 million households in India use such stoves every day, 2–3 times a day. Clean burning fuels and electricity are unavailable in rural parts and small towns of India because of poor rural highways and energy infrastructure. Burning of rice residues after harvest, to quickly prepare the land for wheat planting, around Sangrur, Punjab, India

**Fuel adulteration:** Some Indian taxis and auto-rickshaws run on adulterated fuel blends. Adulteration of gasoline and diesel with lower-priced fuels is common in South Asia, including India. Some adulterants increase emissions of harmful pollutants from vehicles, worsening urban air pollution. As fuel prices rise, the public transport driver cuts costs by blending the cheaper hydrocarbon into highly taxed hydrocarbon.

**Traffic congestion: -**Traffic congestion is severe in India's cities and towns.

**Construction dust and debris: -**Construction dust and debris is one of the main contributors to particulate air pollution in India.

**Greenhouse gas emissions:-**India's emissions per person are lower than the other major emitters, but the national total is significant. CO2 emissions in India are significantly lower than those of China, but they are rising rapidly. quickly percentagewise.

**Industrial emissions: -**Industrial activity is a major contributor to pollution in India. According to some estimates, industrial pollution accounts for 51 percent of the country's air pollution.


**Factory Chimneys Releasing Smoke**


**Thermal power plant emission**

**Vehicle emissions: -**About 20–30 percent of urban air pollution in India comes from automobiles.

**Modern agricultural practices: -**Certain agricultural practices have also had a damaging impact on the environment. The overuse of synthetic fertilizers and pesticides in agriculture has led to lower soil fertility, and after irrigation the runoff of such chemicals from farmland pollutes groundwater reserves and other water bodies. Stubble burning,

the act of burning crop residue after harvest to clear farmland for the next cropping window, contributes significantly to the air pollution in the country.

**Stubble burning**

**Dust**:-Dust cover in cities is a significant factor contributing to pm 2. 5 levels in India.

**Waste management issues: -**Indian cities generate about 62 million tons of municipal solid waste annually. Less than three-fourths of this waste is collected, and only 12 million tons of waste end up being processed, which results in the disposal of about 31 million tons in landfills.

**Noise pollution** is an issue, especially in India's urban areas. It reduces quality of sleep, indirectly affecting mental health, and it can affect cardiovascular health, such as by causing heartbeat irregularities.

**Radiation pollution: -**Certain regions in the country also face serious local concerns regarding radiation pollution. In Jharkhand state the Jaduguda uranium mine, India's first such excavation, has caused health issues, including congenital abnormalities and fertility problems, in the surrounding area since the mine's establishment in 1967. Other uranium-mining cities in the vicinity, such as Narwapahar, have reported similar issues.

**Plastic:-**Plastic is a polymeric material—that is, a material whose molecules are very large, often resembling long chains made up of a seemingly endless series of interconnected links. Natural polymers such as rubber and silk exist in abundance, but nature's "plastics" have not been implicated in environmental pollution, because they do not persist in the environment.

Today, however, the average consumer comes into daily contact with all kinds of plastic materials that have been developed specifically to defeat natural decay processes—materials derived mainly from petroleum that can be molded, cast, spun, or applied as a coating. Since synthetic plastics are largely nonbiodegradable, they tend to persist in natural environments.

Moreover, many lightweight single-use plastic products and packaging materials, which account for approximately 50 percent of all plastics produced, are not deposited in containers for subsequent removal to landfills, recycling centers, or incinerators. Instead, they are improperly disposed of at or near the location where they end their usefulness to the consumer. Dropped on the ground, thrown out of a car window, heaped onto an already full trash bin, or inadvertently carried off by a gust of wind, they immediately begin to pollute the environment.

**Plastic bags and bottles littering a beach**

**Some of the Major Causes of Pollution in India:** Pollution is one of the major reasons behind the increase in Global Warming. Pollution can have many different sources, including natural and human activities. Here are some of the major causes of pollution:

- **Industrial activities**: Industries such as power plants, factories, and mining operations can release pollutants such as greenhouse gases, particulate matter, and toxic chemicals into the air and water.
- **Transportation**: Vehicles such as cars, trucks, and airplanes can emit pollutants such as carbon monoxide, nitrogen oxides, and particulate matter into the air.
- **Agricultural activities**: Agricultural practices such as the use of fertilizers and pesticides can contaminate soil and water with chemicals, while livestock farming can generate large amounts of greenhouse gases.
- **Waste disposal**: Improper waste disposal practices such as open burning, dumping in landfills, and littering can release pollutants into the air and water.
- **Construction activities**: Construction activities such as demolition, excavation, and road-building can release dust, particulate matter, and other pollutants into the air.
- **Natural sources**: Natural events such as wildfires, volcanic eruptions, and dust storms can release pollutants into the air.
- **Household activities**: Household activities such as burning of solid fuels, cooking on traditional stoves, and using chemical cleaning products can also contribute to pollution.

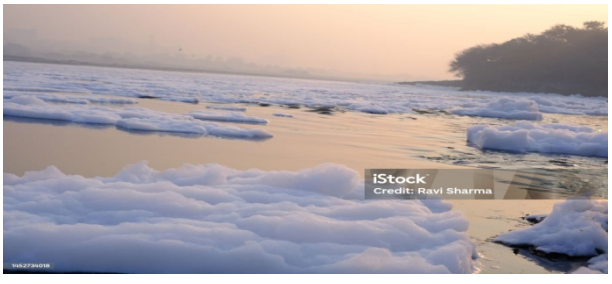
**Major sources of air pollution in Indian cities**

- Vehicular emissions (95%),
- Industries
- Fuel burning,
- Combustion of low-quality fuel in Indian cities.
- Crude oil wells
- Flared natural gas
- Open burning
- Landfill fires of municipal solid waste
- Open coal liming,
- Fluoride mining,
- Lime stone mining,
- Thermal power plant,
- Natural and domestic burning of coal,
- Cement industry
- Road dust
- Vegetation, and solid fuel burning
- Plastic industry,
- Domestic waste burning,
- Food processing factories
- Diesel generators,
- Coal based industrial emissions,

- Oil refinery emissions.
- Large- and small-scale industries are contributing to high air pollution levels.
- Greenhouse gases like SOx, NOx, and $O_3$.
- Emission of aerosols from deserts, oceans, forest fires, and volcanoes
- Increase in population,
- Urbanization, and
- Industrialization
- Household emissions,
- Power sector emissions, industrial activities,
- Transportation,
- Open burning of crops and waste, and dust, with household emissions
- High density of pollens and allergens.
- Residual effects from winter stubble burning and transboundary pollution from neighbouring regions also contribute.

**Soil pollution:** -Air pollutants can be natural or may be the result of various anthropogenic activities. Examples include production of brick kilns that use raw wood, agricultural waste or poor-quality coal used as a fuel, the roadside burning of organic and plastic waste, cooking that involves the burning of solid biomass or cow dung and the unintentional burning of municipal solid waste at landfills, and construction activities.

**Water pollution: -**Phosphates and other chemicals from untreated sewage cause froth to float on the surface of the Yamuna River, India. The demands placed by India's high population on its natural resources combine with pollution to lead to the severe degradation of its environment. High volumes of industrial effluents and chemical runoff from modern agricultural activities have a major impact on bodies of water in India, especially rivers. Rivers have much of their water siphoned off for agricultural use, leaving them with too little flow to assimilate the metallic and chemical waste from such activities. Pollution in the Ganges River, with its wide geographic spread, has an impact on many thousands of people, especially because of the river's centrality in the region's religious activities. More severe yet is the level of pollution in the Yamuna River running through Delhi, much of whose water is covered with foam from industrial effluents throughout the year, causing the water to have very low oxygen content and high toxicity.

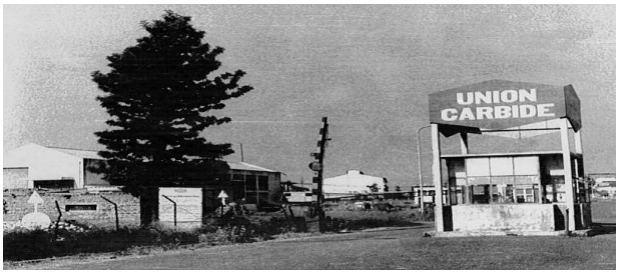



**Polluted Yamuna river**

**Plastic, nylon etc. effecting marine life**

**Effects (Health costs of pollution)**

- Asthma is the leading health problem faced by Indians. Not surprisingly, it accounts for more than 50% of the health problems caused by air pollution. Asthma is the most common health problem faced by Indians and it accounts for more than half of the health issues caused by air pollution.
- Over a million Indians die prematurely every year due to air pollution, according to the non-profit Health Effects Institute.
- Over two million children—half the children in Delhi—have abnormalities in their lung function, according to the Delhi Heart and Lung Institute.
- Air pollution is believed to be one of the key factors in accelerating the onset of Alzheimer's disease in India.
- Ambient air pollution in India is estimated to cause 670,000 deaths annually and particularly aggravates respiratory and cardiovascular conditions including chronic bronchitis, lung cancer and asthma.
- Air pollution in India causes two million premature deaths annually and respiratory diseases in urban populations.
- In Delhi pollution reduces life expectancy by up to 12 years.
- Water pollution causes waterborne diseases to develop in about 37. 7 million people in the country yearly.
- Much of India's 1. 4 billion people are exposed to unhealthy levels of ambient PM 2. 5 – the most harmful air pollutant to human health.
- In addition, air pollution related health problems reduce productivity. In cities, air pollution affects labour, making them less productive. It raises health costs for employers and households alike.
- It affects investment as investors may be hesitant to bear the additional economic cost of setting up industries in a polluted city.
- Extreme weather conditions have adverse health impacts that can also result in loss of lives.
- Furthermore, data from high-income countries shows that long-term exposure to air pollution increases the risks of developing lung cancer, heart disease, diabetes, stroke and dementia.
- Beyond its health impacts, air pollution has significant environmental consequences and economic implications, particularly in countries like India.
- With over 45 per cent of the population in 2022 engaged in agriculture, the detrimental effects on agricultural productivity are enormous.
- Air-borne pollutants can cause acid rain and smog formation, damaging ecosystems, including forests, water bodies and wildlife habitats.
- Poor air quality can discourage foreign investment and reduce tourism, hindering a country's overall economic development
- **CPCB: -**Ambient air pollution in India is estimated to cause 670,000 deaths annually and particularly aggravates respiratory and cardiovascular conditions including chronic bronchitis, lung cancer and asthma.




**Union carbide factory in Bhopal**

**Dead bodies due to Bhopal gas leak incident**

**The key findings of India's central pollution control board are**

- Most Indian cities continue to violate India's and world air quality PM10 targets. Respirable particulate matter pollution remains a key challenge for India. Despite the general non-attainment, some cities showed far more improvement than others. This improvement may be due to local measures taken to reduce Sulphur in diesel and stringent enforcement by the government.
- A decreasing trend has been observed in Sulphur dioxide levels in residential areas of many cities during last few years.
- A decreasing trend has been observed in nitrogen dioxide levels in residential areas of some cities during last few years.
- Most Indian cities greatly exceed acceptable levels of suspended particulate matter.
- India's air quality worsens in winter months, and improves with the onset of monsoon season.
- The average annual SOx and NOx emissions level and periodic violations in industrial areas of India were significantly and surprisingly lower than the emission and violations in residential areas of India
- Of the four major Indian cities, air pollution was consistently worse in Delhi, every year over 5-year period (2004–2018). Kolkata was a close second, followed by Mumbai. Chennai air pollution was least of the four.

**Solutions**

- The Central Pollution Control Board (CPCB) was established in 1974 to monitor pollution levels nationwide, set industrial emission standards, and regulate effluent treatment. Targeted programs represent another type of government intervention to combat pollution.
- The National Clean Air Programme, launched in 2019, set an initial target of reducing $PM_{10}$ levels by 20–30 percent by 2024, later revised to 40 percent by 2026.
- The Jawaharlal Nehru National Solar Mission, launched in 2010, promotes solar energy as an alternative to fossil fuels.
- Waste management has also seen notable initiatives.
- The Swachh Bharat Mission (Clean India Mission), launched by the government in 2014, has played a key role in constructing toilets to reduce open defecation in areas with poor sanitation infrastructure and in promoting scientific waste disposal across urban and rural areas.
- Remote sensing technology is an innovative way to measure vehicle emissions in real-time, rather than in laboratories.
- The **Real Urban Emissions (TRUE) Initiative**, with support from the ICCT, worked with authorities in Delhi and Gurugram to conduct emissions testing of on-road vehicles and provided recommendations to the city's government.
- The Confederation of Indian Industry developed a **Corporate Air Emissions Reporting Guide** to help businesses manage and report their air emissions.
- Their **India CEO Forum for Clean Air** is also growing, with over 130 members coming together to galvanise India's private sector to find solutions to poor air quality. Clean Air Fund has been instrumental in empowering healthcare professionals and amplifying the health voices in the clean air movement.
- The World Bank's India Air Quality Management (AQM) Program supports the country's shift from city-centric responses toward an airshed-based air quality management, combining institutional reforms, improved data systems, sectoral investments, and performance linked financing at state and regional levels. Air quality modelling is not only useful for forecasting but also for air quality management. However, for that, prior evaluation is necessary to have confidence in the application of the model. Having an established modelling framework helps in the assessing source contribution of different air pollutants. It also helps in investigating contribution of long-range transport of pollution. Air pollution forecast models also provide a framework for the evaluation of different mitigation options for pollution abatement.

**Preventive measures**

- The government in Delhi launched an Odd-Even Rule in November 2017. This meant that cars running with number plates ending in Odd digits could only be driven on certain days of the week, while the Even digit cars could be driven on the remaining days of the week.
- Local governments of various states also implemented measures such as tighter vehicle emissions' norms, higher penalties for burning rubbish and better control of road dust.
- The Indian government has committed to a 50% reduction in households using solid fuel for cooking
- Clean up the transportation sector by introducing electric public transport buses.
- Upgrade all fossil fuel combustion engine vehicles to BS6 emission standards
- Renewable energy in all power plants
- Provide farmers with a machine called a Happy Seeder which converts agricultural residue to fertilizer
- Encourage crop diversification to farmers and grow sustainable water-conserving crops such as coarse grains and pulses.
- Analyze health data and study the efficiency of different room filtration systems in areas where indoor air pollution is highest.
- Reduce Carbon Emissions: "According to Inter-governmental Panel on Climate Change, to limit warming well below 2 degree Celsius, CO2 emissions should decline by about 20 per cent by 2030 and reach net zero

around 2075; to limit warming below 1. 5 degree Celsius, CO2 emissions should decline by 50 per cent by 2030 and reach net zero by around 2050. . . "

- Improve air quality monitoring by deploying more stations and utilizing IoT-based mobile and drive-by sensing approaches.
- **Promoting clean energy**: The government must promote the use of clean energy sources such as solar, wind, and hydroelectric power to reduce the dependence on fossil fuels.
- **Improving public transportation**: Encouraging the use of public transportation such as buses and trains can help reduce the number of private vehicles on the road.
- **Implementing stringent emission standards**: The government must enforce stringent emission standards for industries, vehicles, and power plants to reduce pollution.
- **Encouraging green practices**: The government must encourage individuals and businesses to adopt eco-friendly practices such as recycling, composting, and rainwater harvesting.
- **Regulating waste disposal**: The government must regulate the disposal of hazardous waste and ensure that it is done in an environmentally friendly manner.
- **Planting trees**: The government must encourage the planting of trees in cities and urban areas to improve air quality.
- **Creating awareness**: The government must create awareness among the public about the harmful effects of pollution and how they can help reduce it.
- **Better research on sources of air pollution**:Central government must invest in better collection and dissemination of data and research on the sources of pollution.
- **State government must approve LEZs (Low emission zones)**
- **Focus on funding clean air in rural areas**: -Currently the National Clean Air Programme funds go only to urban local bodies, where the concerns are more about road dust, vehicular emissions etc. But when it comes to rural areas, these funds are not applicable.
- **Budget for climate at municipality levels**: -Cities must explore ways to tap into their existing municipal budget to start climate works.
- **Develop state-level schemes**: -States must come up with innovative mechanisms like the Majhi Vasundhara initiative in Maharashtra where the state has decentralised climate action.

**Govt. initiatives: -** The Indian government has initiated several measures to combat and reduce HAP (Household Air Pollution) and has developed some policies and regulations that are likely beneficial if implemented.

- The Government of India has formulated various policies and regulations including emission standards for industries and vehicles, restrictions on crop burning, and measures to promote cleaner fuels and renewable energy sources.
- In 2015, India launched the Air Quality Index (AQI) tool to communicate air quality levels to the public in an easily understandable format.
- Several technological advancements have enabled citizens and industries to find solutions to minimize air-borne pollutants.
- Several cities in India have successfully implemented initiatives to reduce air pollution, such as introducing cleaner fuel standards, promoting public transportation, and establishing air quality monitoring systems to track pollution levels and inform policy decisions.
- The Swachh Bharat Abhiyan encourages citizens to adopt cleanliness.
- The 'Smart Cities' initiative assures urban planning, building energy efficient housing and a good network of public transport, all of which are environment-friendly.
- LPG distribution list are appreciable steps to address household air pollution.
- The government has also constituted a multisectoral Steering Committee to address air pollution.
- Smoke-free legislation to reduce exposure to second-hand smoke is already in place in India viz. Cigarette and other Tobacco Products Act, 2003.
- Industrial emissions are regulated under the Environment Protection Act, 1986 which involves installation of pollution control equipment to meet the emission guidelines.
- Environmental clearance from Ministry of Environment and Forest (MoEF) has been made mandatory for establishment of development projects (29 categories).
- For reducing dust emissions from stone crushers, use of enclosed structures and water spraying system have been adopted.

**Considerations**

- **China like technology is need of the hour**: - China produces energy from waste materials. It has two benefits –one is energy availability; another is environmental cleanliness. Similar technology is need of the hour of our country.
- **Stop stubble burning: -** Stubble burning isan important cause of air pollution now-a-days. Engage machine to cut the stubbles into small pieces & incorporate in soil or apply chemical decomposer. Stubble burning cause air pollution by smoke, soil pollution by heating soil & killing soil organisms and microorganisms & depositing so much carbon on soil as well as stubble burning pollutes water bodies by deposition of ashes on nearby water bodies carried by smoke and air. Stubble burning is one of important causes of unsustainable agriculture. Hence, stop stubble burning immediately.
- **An earning opportunity of government:** - Rail stations, hospitals, busstands, airport etc. who is not keeping waste in dustbin & throw waste here and there, fine them Rs. 500. This is a good earning opportunity of government.
- **Making cleanliness first administrative work:** - Instruct panchayats, municipality councilors, head of offices, head of organizations, school headmasters, college principals, university vice-chancellors, BDO, DM, MLA, MP, CM of States, every chief of every place, even company owners-your first administrative work is cleanliness, next activities as usual you are doing. Cleaning your area is your duty.
- **Research on biodegradable plastic:** -Now-a-days without plastic life is not easy. Plastic is very helpful material. In many aspects of life, plastic is needed due to its light weight, water or rain protecting quality, beautifulness etc. So, we cannot stop using plastic. But plastic is bringing pollution in home, society &

environment. Hence, biodegradable plastic is the best reply. In this respect, scientists will emphasis on inventing bio-degradable plastic. Engage country's 100 top scientists of various field to invent bio-degradable plastic & provide sufficient fund for their work. It is a mission just like Moon mission, Mars mission, Solar mission etc.

- **Any kind of social or official programme is the worst spreader of pollution: -** In social or official programmes, arrangement of tiffin, lunch, dinner; plastic glass. Plastic plate, plastic packets, plastic containers are used lot. After the programme, those things are scattered here and there & make the place non-livable. Hence, proper disposal of these waste materials is urgent need and make the environment normal. For conducting any programme permission must be taken from gram panchayat for villages and municipality for city dwellers by depositing Rs. 5000 as security money. The condition is—the programme organizer after the programme will clean the programme place by proper disposal of wastage in place. Panchayat personnel or municipality personnel will visit one day after the programme completion date. If he sees that place is clean, the programme organizer will get back security money. If not clean Rs. 50000/- penalty charge will be imposed on programme organizer& the place will be clean up by panchayat or municipality by labourers.
- **Use plastic for road making:** - After cleaning the used plastic those can be incorporated with coal tar when metal road is in making. Melted plastic enhance the durability of road. It needs use of huge mass of plastics which is really a base of clean India.
- **Urgent need of population control:** -More population more pollution, population control is the need of the hour & in this respect Uniform Civil Code (UCC) is a milestone.
- **Industries must have their own waste disposal unit: -** If industrial waste is mixed with water bodies, impose heavy monetary punishment & repetition of it, cancel license. For your personal gain, you cannot be a civilization destructor.
- **Dependence on diesel, petrol, kerosene**, day by day **reduce**& enhance dependence on solar power, battery power, electric power, CNG etc.
- Include in **school syllabus**, environmental science as a basic subject.
- **Be a nature loving man: -** Most of us are home loving man, so, home is clean but environment is dirty. Instead, if most of us, become nature loving man, then along with home, environment will also be clean.
- There are many **social workers** who bring betterment in society & in country. Government provides fund to them, give award for encouraging them & supporting them. Similarly, develop another group of social workers, their name will be**Clean India Social Workers**, their motto will be how to make country pollution free, for that they will do work wholeheartedly & government will give them fund and award for their noble work.
- **Be a responsible & good citizen: -**Most of us Indians are citizens only & less number are responsible and good citizen. To make our country a developed country, citizens must be responsible & good who know where to throw plastic packets, materials, it obviously dustbin, not any other place. My home my responsibility, my country (a big home) is also my responsibility.
- **Recycling of plastic material:** - From used plastic materials, prepare another plastic material for use.
- **Make fuel from plastic:** - From used plastic if plastic oil is prepared, it will reduce fuel oil problem & solve micro-plastic problem in environment upto a certain extent.
- **Make brick from used plastic**& use it in road making, road will be comparatively durable.
- Some micro-organisms are now-a-days digesting certain types of plastics, it is really a hope of the future.
- Making rooftiles from plastic, a new technology.
- **Individual level plastic use reduction as far as possible:** - Keep a metal water bottle, a metal tiffin box, keep a jute bag for shopping/marketing, wear cotton clothes, cook at home instead of ordering from hotels or delivery boys, it invites lot of plastic in your home as well as lot of microplastic entering your body through delivered food items.

# CONCLUSION

Of the world's 30 cities with the worst air pollution, 17 are in India. The capital, New Delhi, has the poorest air quality among capital cities globally. Thermal power plants, pollution from vehicles, industrial emissions, burning of crop residue and the burning of wood and dirty fuels for cooking and heating are some of the main causes of air pollution in India. Poor information exchange on best practice in urban air quality management and the lack of harmonized air pollution policies in the region has contributed to the absence of regional co-operation in addressing urban air quality. There is a clear need for a well-coordinated, sponsored initiative to address the fundamental problem of urban air pollution and provide the basis for future regional co-operation leveraging on existing technical expertise, finances and seeking requisite international cooperation. As pollution and urban meteorology are interlinked, a framework for mitigation of urbanization-altered temperatures will go hand in hand with mitigation of pollution as well. These are some of the main sources of pollution in India, and combating them calls for a multifaceted strategy involving changes to the law, technological advances, and educational initiatives. Overall, reducing pollution in India requires a concerted effort from individuals, businesses, and the government. Learning from other countries that have effectively tackled air pollution through a combination of stringent regulations, technological innovations, public awareness campaigns, and international collaborations to address transboundary pollution issues, India can adopt a similar multi-faceted approach. Given India's vastness and diversity, one-size-fits-all solutions might be impractical; local solutions with active community participation are essential. India being a developing country is experiencing adverse human health impacts due to climate change. Indian cities are exposed to extreme weather events such as high precipitation, floods, droughts, heat waves with increased temperatures induced by climate change. The increase in health surveillance for heat waves, floods and for vector-borne diseases linked with climate change can help in combating severe human health impacts in near future in Indian cities. Also, the high population density with ongoing urbanization and industrialization are some of the primary factors to be considered to avoid negative health impacts associated with climate change in India. So, essential mitigation and adaptation

strategies are required for current and projected climate change impacts to avoid myriad human health effects in Indian cities because of climate change. So, while focusing on building smart cities in developing nations like India, proper urban planning and sustainable measures should be taken for sustainable urban environment to avoid adverse health impacts. Despite ambitious renewable energy targets and stricter vehicular norms, continued reliance on coal, industrial expansion, and urbanization could offset air quality gains. Additionally, state-level political conflicts, weak institutional coordination, and delayed policy execution further undermine the effectiveness of pollution control strategies. For India to achieve substantial air quality improvements, it must prioritize long-term, systemic policy implementation, significantly increase investment in green infrastructure, and strengthen governance mechanisms to ensure compliance at all levels. India's pollution crisis is deeply tied to economic priorities, governance challenges, and political will. Without consistent enforcement, better coordination among states, and serious investment in green infrastructure, pollution levels may remain unchanged or even worsen. Political will, industry compliance, and community engagement will determine the success of air pollution mitigation strategies. We know a proverb, "Cleanliness is next to godliness", but in recent days modified proverb is- "Cleanliness is not only next to godliness but also protector of civilization".

**Quotation**

"Pollution is nothing but the resources we are not harvesting. We allow them to disperse because we've been ignorant of their value. "— **R. Buckminster Fuller**

"We won't have a society if we destroy the environment. "-**Margaret Mead**

"Industrial pollution and the discarding of plastic waste must be tackled for the sake of all life in the ocean. "-**Sir David Attenborough**

"Love is in the air but the air is highly polluted" **— Amit Abraham**

**Slogans on Environmental Pollution**

- Kill pollution, or it will kill you.
- Go green; breathe clean.
- Wipe out pollution before it wipes you out.
- Keep the oceans blue, the planet green and the animals safe.
- We have got only one Earth. Save and protect it.
- You are the key to a cleaner and pollution-free air.
- Be a part of the solution, not part of the pollution.

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