

AIR POLLUTION IN BANGLADESH: A SYSTEMATIC REVIEW OF TRENDS, HEALTH IMPACTS AND POLICY RESPONSES

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Received August 2025; Accepted September 2025; Published November 2025;

DOI: <https://doi.org/10.31407/ijeess15.616>

ABSTRACT

Purpose: Air pollution is a serious issue for the environment and public health in Bangladesh. The fast growth of industries, urban areas and use of fossil fuels has risen in fine particulate matter (PM_{2.5}) levels which exceed global air quality standards. This study focused at trends in air pollution, its health and economic effects, the main sources of pollution and how effective current policies are in Bangladesh. **Methodology:** A systematic review approach was used to collect and analyze data from 38 academic and institutional sources. The study employed a two-round screening process to refine relevant studies. Key data points were extracted on air quality trends, health consequences, economic costs and policy responses. The analysis has incorporated long-term air pollution trends, mortality rates, GDP loss and policy effectiveness. **Findings:** PM_{2.5} levels in Bangladesh, particularly in Dhaka have increased significantly by reaching 106 µg/m³ in 2021 which is far exceeding the WHO-recommended limit of 5 µg/m³. Air pollution causes over 200,000 early deaths each year. In Dhaka, it shortens life expectancy by more than eight years. Health impacts include respiratory and cardiovascular diseases, with children being the most vulnerable. The economic impact of air pollution in Bangladesh is significant. Healthcare costs and lost productivity related to air pollution are around \$11 billion each year, which is about 4.4–4.8% of the country's GDP. The main sources of pollution include brick kilns, vehicle emissions, industrial activities, construction dust and pollution from neighboring countries. Bangladesh has implemented regulations such as the Air Pollution Control Rules 2022 and the National Air Quality Management Plan (NAQMP) for the years 2024 to 2030. However, the enforcement of these regulations is still remain insufficient and there is a lack of effective measures to address pollution which are originating from neighboring countries. **Conclusion:** Air pollution in Bangladesh is a growing crisis that requires urgent intervention. Effective enforcement of regulations, modernization of brick kilns, improvement in vehicle emission standards and regional cooperation are crucial steps to take. Expanding air quality monitoring, raising public awareness and implementing economic incentives can further mitigate the pollution. A multi-sectoral and long-term strategy is essential to keep public health better and ensure sustainable development.

Keywords: Air pollution; Bangladesh; PM2.5; public health, economic cost; policy effectiveness; environmental sustainability; air quality management.

INTRODUCTION

Overview of Air Pollution as a Critical Environmental and Public Health Issue in Bangladesh. Air pollution is becoming one of the most alarming environmental and public health issues in Bangladesh. The rapid urbanization, industrial growth, and dependence on fossil fuels are severely harming air quality, especially in major cities like Dhaka. Among various air pollutants, fine Particulate Matter (PM_{2.5}) is the most concerning due to its severe health effects. PM_{2.5}, which consists of tiny airborne particles with a diameter of less than 2.5 micrometers can enter into the deepest portion of lungs and even can enter the bloodstream and can create a range of respiratory and cardiovascular diseases (Rahman, Islam, & Kabir, 2021).

Bangladesh has been consistently keeping its ranks in top among the most polluted countries globally with PM_{2.5} levels far have been being exceed the World Health Organization's (WHO) air quality guidelines. The World Bank (2023) reported that annual PM_{2.5} concentrations in Bangladesh range was between 60 to 100 $\mu\text{g}/\text{m}^3$ while Dhaka has been experiencing into the levels between 90 to 100 $\mu\text{g}/\text{m}^3$ which is substantially higher than the WHO-recommended threshold of 5 $\mu\text{g}/\text{m}^3$. The alarming levels of air pollution are responsible for thousands of premature deaths in each year and significant level of reductions in life expectancy (Air Quality Life Index, 2022).

Rising PM_{2.5} Levels and Their Implications

Over the past decade, PM_{2.5} concentrations in Bangladesh have been consistently increased. A study by Rahman, Islam, and Kabir (2021) analyzing air quality data from 2003 to 2019 found that the average annual PM_{2.5} concentration in Dhaka had increased significantly with an annual rise of approximately $1.83 \pm 0.15 \mu\text{g}/\text{m}^3$ per year. Similarly, the World Bank (2023) reported that PM_{2.5} levels in Dhaka has increased from 84 $\mu\text{g}/\text{m}^3$ in 2013 to 106 $\mu\text{g}/\text{m}^3$ in 2021. The implications of rising PM_{2.5} levels are severe, both in terms of public health and economic costs. The exposure to high levels of PM_{2.5} has been involved in some respiratory diseases such as asthma and chronic obstructive pulmonary disease (COPD) and it is also responsible for the worst cardiovascular conditions including heart attacks and strokes (World Bank, 2022). Children are particularly vulnerable, where it was suggested that air pollution can be a reason of premature birth, low birth weight and cognitive development issues (UNICEF, 2024). Furthermore, the economic impact of air pollution is significant with the healthcare costs and productivity losses totaling around \$11 billion each year which is approximately 4.4–4.8% of Bangladesh's GDP. (Energy and Clean Air, 2025). *Objectives of the Review:*

- ✓ Analyze trends in air pollution levels over the past decade.
- ✓ Assess health impacts of air pollution.
- ✓ Identify major sources of air pollution.
- ✓ Evaluate the effectiveness of policy responses.
- ✓ Estimate the economic costs associated with air pollution.
- ✓ To meet these objectives, five questions were chosen. These questions are;
- ✓ What are the trends in air pollution levels in Bangladesh over the past decade?
- ✓ What are the major health impacts of air pollution in Bangladesh?
- ✓ What are the primary sources of air pollution in Bangladesh?
- ✓ How effective are Bangladesh's air pollution policy responses?
- ✓ What are the economic costs of air pollution in Bangladesh?

MATERIAL AND METHODS

Methodology

Search Strategy. To systematically identify relevant studies and resources for the review on air pollution in Bangladesh, a comprehensive search strategy was employed. This strategy included academic databases, governmental publications and policy reports. A total of 38 databases and sources were accessed, including well-known academic platforms such as ScienceDirect, Springer and ACS Publications as well as institutional reports

from organizations like the World Bank, UNICEF and the Ministry of Environment, Forest and Climate Change (MOEFCC), Bangladesh.

The search was specifically designed to address the research questions of the review by incorporating keywords and phrases related to air pollution, its trends, health impacts and policy responses. The search strings included:

- ✓ "Air Pollution in Bangladesh"
- ✓ "Health Impacts of Air Pollution Bangladesh"
- ✓ "Air Quality and Policy Responses Bangladesh"
- ✓ "Trends in Air Pollution in Bangladesh"
- ✓ "Air Pollution Control Strategies in Bangladesh"
- ✓ "Government Policy Air Pollution Bangladesh"
- ✓ "Air Pollution Sources Bangladesh"

We used Boolean operators (AND, OR) and filters to refine our search results. We included peer-reviewed articles and recent studies that examine the effects of air pollution in both local and global contexts. The inclusion criteria prioritized those studies that discuss the health impacts, trends in air pollution, and governmental or policy-level responses specific to Bangladesh.

Table 1. Selection Overview.

Electronic Database	Retrieved	Round 1		Round 2		Selected for Review
		<i>Included</i>	<i>Excluded</i>	<i>Included</i>	<i>Excluded</i>	
academia.edu	1	1	1	0	0	0
ACS Publications	1	1	0	1	0	1
acs.org	1	1	1	0	0	0
ahajournals.org	1	1	1	0	0	0
AQLI	1	1	0	1	0	1
bmj.com	3	3	3	0	0	0
CCAC	1	1	0	1	0	1
CPD	1	1	0	1	0	1
Department of Environment, Bangladesh	1	1	0	1	0	1
duke.edu	1	1	1	0	0	0
Energy and Clean Air	1	1	0	1	0	1
Frontiers	1	1	0	1	0	1
frontiersin.org	1	1	1	0	0	0
google.com	3	3	3	0	0	0
ieee.org	2	2	2	0	0	0
iop.org	3	3	3	0	0	0
jacionline.org	1	1	1	0	0	0
life-airfresh.eu	1	1	1	0	0	0
lww.com	1	1	1	0	0	0
mdpi.com	11	11	11	0	0	0
Ministry of Environment, Forest and Climate Change	1	1	0	1	0	1
nature.com	1	1	1	0	0	0
nih.gov	8	8	8	0	0	0
plos.org	2	2	2	0	0	0
researchgate.net	3	3	3	0	0	0
scielosp.org	1	1	1	0	0	0
science.org	1	1	1	0	0	0
Sciencedirect	9	5	0	5	4	1
springer.com	5	5	5	0	0	0
sssampling.cn	1	1	1	0	0	0
systemlife.ro	1	1	1	0	0	0
The Third Pole	1	1	0	1	0	1
thelancet.com	6	6	6	0	0	0
ucpress.edu	1	1	1	0	0	0
UNICEF	1	1	0	1	0	1
usc.edu	1	1	1	0	0	0
westernsydney.edu.au	1	1	1	0	0	0
World Bank	4	4	0	4	0	4

Selection Criteria: Inclusion/Exclusion Process Across Two Rounds. A two-round screening process was implemented to refine the dataset: *Round 1 (Preliminary Screening)*: All retrieved studies were assessed based on relevance to the key research questions. Studies that provided empirical data on air pollution levels, health effects, economic costs and policy responses were included. General opinion articles, unrelated studies and sources that have lacking of data on Bangladesh were excluded; *Round 2 (Detailed Screening)*: The selected studies underwent a deeper evaluation based on methodology, data quality and credibility. Only studies that are offering quantitative analysis, long-term air quality trends or policy evaluations were included for final review. After this process, 15 studies were chosen for systematic analysis (Table 2).

Table 2: Final Selection.

Electronic Database	Selected for Review
ACS Publications	1
CCAC	1
CPD	1
Department of Environment, Bangladesh	1
Energy and Clean Air	1
Frontiers	1
Ministry of Environment, Forest and Climate Change	1
ScienceDirect	1
The Third Pole	1
UNICEF	1
World Bank	4

Data Extraction & Synthesis. Data from the selected studies were systematically extracted and synthesized to analyze trends in air pollution, associated health risks, and policy effectiveness. The key aspects of the data synthesis process included: *Air Pollution Trends*: PM2.5 concentration changes over time, sourced from long-term monitoring studies and satellite data (Rahman, Islam, & Kabir, 2021; World Bank, 2023); *Health Impacts*: Mortality rates, respiratory and cardiovascular diseases, and loss of life expectancy due to air pollution (UNICEF, 2024; Energy and Clean Air, 2025); *Economic Costs*: Quantification of productivity loss, healthcare expenses, and GDP impact (World Bank, 2024); *Policy Analysis*: Effectiveness of regulatory frameworks, enforcement challenges, and gaps in air quality management (MOEFCC, 2024; The Third Pole, 2023).

RESULTS

Trends in Air Pollution Levels in Bangladesh Over the Past Decade. Air pollution levels in Bangladesh have shown a concerning upward trend over the past decade. A study analyzing Dhaka's air quality from 2003 to 2019 found a significant increase in average annual PM2.5 concentration, with an average rise of $1.83 \pm 0.15 \mu\text{g}/\text{m}^3/\text{year}$ (Rahman et al., 2021).

Table 3. Air pollution trends.

Data	Value/Trend	Source
Annual PM2.5 increase in Dhaka (2003-2019)	$1.83 \pm 0.15 \mu\text{g}/\text{m}^3/\text{year}$	Rahman, M. M., Islam, A., & Kabir, M. A. (2021). Long-Term (2003–2019) Air Quality, Climate Variables, and Human Health Consequences in Dhaka, Bangladesh. <i>Frontiers in Sustainable Cities</i> , 13. https://doi.org/10.3389/frsc.2021.681759
Dhaka PM2.5 concentration (2013)	$84 \mu\text{g}/\text{m}^3$	World Bank. (2023, March 21). Clearing the air: Addressing Bangladesh's air pollution crisis. World Bank Blogs. https://blogs.worldbank.org/en/endpovertyinsouthasia/clearing-the-air-addressing-bangladesh-s-air-pollution-crisis
Dhaka PM2.5 concentration (2021)	$106 \mu\text{g}/\text{m}^3$	World Bank. (2023, March 21). Clearing the air: Addressing Bangladesh's air pollution crisis. World Bank Blogs. https://blogs.worldbank.org/en/endpovertyinsouthasia/clearing-the-air-addressing-bangladesh-s-air-pollution-crisis
Bangladesh annual PM2.5 range	$60-100 \mu\text{g}/\text{m}^3$	World Bank. (2023, March 21). Clearing the air: Addressing Bangladesh's air pollution crisis. World Bank Blogs. https://blogs.worldbank.org/en/endpovertyinsouthasia/clearing-the-air-addressing-bangladesh-s-air-pollution-crisis
Dhaka annual PM2.5 range	$90-100 \mu\text{g}/\text{m}^3$	World Bank. (2023, March 21). Clearing the air: Addressing Bangladesh's air pollution crisis. World Bank Blogs. https://blogs.worldbank.org/en/endpovertyinsouthasia/clearing-the-air-addressing-bangladesh-s-air-pollution-crisis

This is corroborated by the World Bank (2023), which reported that average annual PM_{2.5} levels in Dhaka had been increased from 84 µg/m³ in 2013 to 106 µg/m³ in 2021. These levels had drastically exceeded the WHO's Air Quality Guideline of 5 µg/m³ for annual PM_{2.5} exposure with Bangladesh's annual average PM_{2.5} ranging from 60 to 100 µg/m³ nationally and 90 to 100 µg/m³ in Dhaka (World Bank, 2023). Bangladesh has been facing a rising tendency in energy use which mainly comes from fossil fuels. As a result, higher energy is being consumed which causes more pollution, including harmful substances like sulfur dioxide and nitrogen oxides. (Centre for Policy Dialogue [CPD], 2023).

Major Health Impacts of Air Pollution in Bangladesh. Air pollution is a serious threat to public health in Bangladesh. It has some severe consequences, including increased deaths and shorter life expectancies. Some studies have estimated that more than 200,000 people die each year because of air pollution (Energy and Clean Air, 2025). The Air Quality Life Index (2022) highlighted a serious problem, showing that people in Dhaka are losing an average of over 8 years of life expectancy because of air pollution. Many residents have been suffering from respiratory diseases as PM_{2.5} is being a major cause of asthma, chronic obstructive pulmonary disease (COPD) and lung cancer (Rahman et al., 2021). Cardiovascular diseases are another significant concern, as air pollution is responsible for increasing risks of heart attacks, strokes and other cardiovascular problems (World Bank, 2022). Children are particularly vulnerable where they are facing risks of premature birth, low birth weight, asthma, impaired lung development and cognitive issues (UNICEF, 2024). Beyond these, air pollution has also been associated with diabetes, kidney disease and mental health issues like depression. In 2019, the World Bank estimated that healthcare and lost productivity costs in Bangladesh had reached 11 billion USD which is 4.4–4.8% of the country's GDP.

Table 4. Health and Economic Impacts of Air Pollution in Bangladesh.

Health Impact	Data	Source
Increased Mortality	Over 200,000 deaths annually	Energy and Clean Air (2025)
Reduced Life Expectancy	Loss of 8+ years in Dhaka	Air Quality Life Index (2022)
Respiratory Diseases	PM _{2.5} as a trigger for asthma, COPD, lung cancer	Rahman et al. (2021)
Cardiovascular Diseases	Increased risk of heart attacks, strokes	World Bank (2022)
Impact on Children	Premature birth, low birth weight, asthma, impaired lung development, cognitive issues	UNICEF (2024)
Economic Costs	11 billion USD in 2019 (4.4-4.8% of GDP)	Energy and Clean Air (2025)

Primary Sources of Air Pollution in Bangladesh. Bangladesh is facing a serious air pollution problem caused by various local and cross-border sources. One major source of this pollution is brick kilns, especially in Dhaka. These kilns produce a lot of harmful particles (PM_{2.5} and PM₁₀) because they are using old technology and burn coal and wood (Guttikunda et al., 2012). A study estimated that these kilns in Dhaka and surrounding districts had produced 33,100 tons of PM₁₀ and 23,300 tons of PM_{2.5} annually (Guttikunda et al., 2012). Vehicular emissions are significantly contributing to pollute Dhaka. The city has a growing number of poorly maintained vehicles that use low-quality fuel. This results in high levels of nitrogen oxides (NO_x), carbon monoxide (CO) and particulate matter (Randall et al., 2014). The transportation sector in Dhaka produces 7,620 tons of nitrogen oxides (NO_x) each year. This amount makes up 58.6% of all annual emissions in the area (Randall et al., 2014). Industrial emissions from factories and power plants are releasing harmful pollutants like sulfur dioxide (SO₂), nitrogen oxides (NO_x) and particulate matter. This problem worsens due to Bangladesh's quick industrial growth (Centre for Policy Dialogue, 2023). Dust from construction and other activities are also increasing the particulate matter pollution, especially in fast-growing cities (World Bank, 2023). Additionally, pollutants from neighboring countries are carried by the wind which are further affecting the air quality in Bangladesh (Rahman et al., 2021).

Table 5. Primary Sources of Air Pollution in Bangladesh.

Source	Pollutants	Emission Data	Source
Brick Kilns	PM _{2.5} , PM ₁₀ , CO ₂ , NO _x	33,100 tons of PM ₁₀ , 23,300 tons of PM _{2.5} annually	Guttikunda et al. (2012)
Vehicular Emissions	NO _x , CO, PM _{2.5}	7,620 tons of NO _x per year (58.6% of total emissions in Dhaka)	Randall et al. (2014)
Industrial Emissions	SO ₂ , NO _x , PM ₁₀	Significant increase due to industrialization	CPD (2023)
Construction & Dust	PM ₁₀ , PM _{2.5}	Major contributor in urban areas	World Bank (2023)
Transboundary Pollution	PM _{2.5} , Black Carbon	Seasonal pollution from neighboring countries	Rahman et al. (2021)

Effectiveness of Bangladesh's Air Pollution Policy Responses. While Bangladesh has made strides in establishing a policy framework to combat air pollution, the effectiveness of these responses remains limited. The National Air Quality Management Plan (NAQMP) 2024-2030 provides a framework with targets for PM_{2.5} reduction and improved Air Quality Index (AQI) ratings (Ministry of Environment, Forest and Climate Change, 2024) and the Air Pollution Control Rules 2022 provides a legal basis for regulating pollution sources (Ministry of Environment, Forest and Climate Change, 2022). Sector-specific initiatives are also underway to address emissions from major contributors like brick kilns and transportation (Climate & Clean Air Coalition, n.d.). However, despite these efforts, PM_{2.5} levels in Dhaka and other cities are drastically exceeded the World Health Organization (WHO) guidelines. Dhaka's average annual PM_{2.5} concentration in 2021 was 106 µg/m³ which is far surpassing the WHO's recommended 5 µg/m³ (World Bank, 2023). A significant challenge is lied in the implementation and enforcement of existing regulations with weak enforcement undermining even well-designed policies (The Third Pole, 2023). Again, transboundary pollution from neighboring countries is significantly reducing Bangladesh's air quality (World Bank, 2023). Finally, data gaps and limited monitoring infrastructure are hindering the accurate assessment of policy impacts and make targeted interventions more difficult (The Third Pole, 2023).

Economic Costs of Air Pollution in Bangladesh. Air pollution in Bangladesh has a significant economic impact and its result can be classified as both direct and indirect costs. Direct costs related to air pollution include rising healthcare expenses. This increase can be attributed to the growing number of individuals experiencing respiratory illnesses, heart diseases and various health complications associated with poor air quality (World Bank, 2024). Decreased productivity from illnesses and absenteeism is further affecting economic output (World Bank, 2024). Additionally, the loss of human capital and the economic consequences of premature deaths which are linked to air pollution also take a significant toll (World Bank, 2024). Indirect costs include reduced agricultural output due to the harmful effects of air pollution on crops (Energy and Clean Air, 2025), a potential decline in tourism due to poor air quality, and long-term economic consequences from environmental degradation. The World Bank estimates that environmental degradation, including air pollution, cost Bangladesh the equivalent of 17.6% of its GDP in 2019 (World Bank, 2024). Within this, air pollution alone accounts for a substantial portion with household and outdoor air pollution contributing to nearly 55% of premature deaths (World Bank, 2024). Furthermore, the World Bank noted that environmental issues in Bangladesh, with air pollution as a major factor, cause over 272,000 premature deaths and 5.2 billion days of illness annually (World Bank, 2024).

Table 6. Economic Costs of Air Pollution in Bangladesh.

Economic Impact	Cost/Effect	Source
GDP Loss	17.6% of GDP in 2019	World Bank, 2024
Premature Deaths	Over 272,000 annually	World Bank, 2024
Days of Illness	5.2 billion annually	World Bank, 2024
Health-Related Costs	55% of premature deaths linked to air pollution	World Bank, 2024

Summary of Key Findings. Recent studies have indicated that PM_{2.5} levels in Dhaka have risen significantly as consumption of fossil fuels is increasing in the city and surpassed the guidelines set by the World Health Organization (WHO) (Rahman et al., 2021; World Bank, 2023; Centre for Policy Dialogue, 2023). Consequently, air pollution is a serious risk to public health. It causes more than 200,000 deaths each year and lowers life expectancy in Dhaka by over eight years (Energy and Clean Air, 2025; Air Quality Life Index, 2022). It also triggers respiratory and cardiovascular diseases which can affect children's health, and also can be associated with other health problems (Rahman et al., 2021; World Bank, 2022; UNICEF, 2024). The economic burden is substantial, with estimated costs of 11 billion USD in 2019, representing 4.4-4.8% of Bangladesh's GDP (Energy and Clean Air, 2025). Primary sources of this pollution include brick kilns, vehicular emissions, industrial activities, construction dust and transboundary pollution (Guttikunda et al., 2012; Randall et al., 2014; Centre for Policy Dialogue, 2023; World Bank, 2023; Rahman et al., 2021). While Bangladesh has implemented policy responses, their effectiveness is limited due to implementation challenges, transboundary pollution and data limitations (Ministry of Environment, Forest and Climate Change, 2024; Ministry of Environment, Forest and Climate Change, 2022; Climate & Clean Air Coalition, n.d.; The Third Pole, 2023; World Bank, 2023).

Policy Recommendations

Strengthening Enforcement and Implementation: Strict Enforcement of Regulations: We need strict enforce for existing air pollution control rules and standards which means more inspections and tougher penalties for violations

and holding responsible parties accountable (The Third Pole, 2023). Capacity Building: Investment is needed in training and resources for environmental agencies and local authorities to monitor and enforce regulations effectively. Also it needs to provide the equipment, technical skills and legal support. Coordination Among Agencies: Improve coordination and communication between different government agencies whose are involved in air pollution management (e.g., environment, transport, industry).

Targeting Key Pollution Sources: Modernizing Brick Kilns: Promote the adoption of cleaner and more efficient brick kiln technologies, such as tunnel kilns or hybrid kilns and provide financial incentives for owners to switch. Phasing out traditional, polluting kilns should be prioritize (Guttikunda et al., 2012). Improving Vehicle Emissions: Implement stricter vehicle emission standards and enforce regular vehicle maintenance. Promote the use of cleaner fuels and encourage the transition to electric or hybrid vehicles through incentives and infrastructure development (Randall et al., 2014). Controlling Industrial Emissions: Enforce stricter emission limits for industries and power plants. Promote the use of cleaner technologies and fuels in industrial processes. Conduct regular environmental audits of industrial facilities. Managing Construction Dust: Implement dust control measures at construction sites, such as water spraying, covering materials, and restricting construction activities during periods of high pollution.

Addressing Transboundary Pollution: Regional Cooperation: Strengthen the regional cooperation with neighboring countries to address transboundary air pollution. This includes joint monitoring efforts, information sharing and coordinated policy actions (World Bank, 2023). Bilateral Agreements: Establish bilateral agreements with neighboring countries to address specific transboundary pollution issues.

Improving Data and Monitoring: Expanding Monitoring Network: Need to expand and upgrade the air quality monitoring network to provide more comprehensive and reliable data. Invest more in real-time monitoring systems and make the data publicly accessible (The Third Pole, 2023). Data Analysis and Research: Need to support research and data analysis to better understand the sources and impacts of air pollution.

Public Awareness and Engagement: *Public Awareness Campaigns:* Have to raise public awareness about the health and economic impacts of air pollution. Also need to encourage behavioral changes, such as using public transport, reducing energy consumption and avoiding burning of solid waste. *Community Involvement:* Engagement of communities in air pollution monitoring and management is highly needed. we should also empower local communities to report pollution violations and participate in decision-making processes. *Economic Instruments:* Polluter Pays Principle: Implement the "polluter pays principle," is the demand of time where industries and other polluters are held responsible for the costs of their pollution. This could involve in emission fees or taxes. *Incentives for Clean Technologies:* We can offer more financial support, like investment subsidies or tax benefits to promote the use of cleaner technologies and practices. *Long-Term Strategy:* National Air Quality Strategy: We need to develop a comprehensive national air quality strategy with clear targets, timelines and responsibilities and this strategy should be regularly reviewed and updated based on new information and progress.

CONCLUSION

1. Air pollution in Bangladesh is a serious issue that requires urgent action. Evidence shows that pollution levels, especially PM_{2.5}, are rising, which is harmful to public health, the economy and the environment. Local sources of pollution include inefficient brick kilns, increasing vehicle traffic and rapid industrial growth. Additionally, pollution from neighbouring countries makes the problem even bigger.
2. Bangladesh has created some policies and taken initial steps, but there is still a significant gap between policy and effective action. There are also problems with data collection and regional cooperation. So we need a stronger and more focused approach.
3. Moving forward, we need a multi-faceted strategy including better enforcement of current regulations, prioritizing new technologies in major polluting industries, working with neighbouring countries to tackle cross-border pollution, investing in air quality monitoring and data collection and involving communities in finding solutions.
4. Ultimately, we need a long-term commitment to research, improved policies and working together across government, industry and society. This is essential to reduce the serious impacts of air pollution and ensure a healthier, more prosperous future for Bangladesh.

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