



## Air Quality in Dhaka City is a Growing Concern

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<p><b>Abstract:</b> One of the precious and necessary natural resources for all life is air. The levels of pollution in Dhaka far exceed those recommended by the World Health Organization (WHO). It is estimated that urban air pollution in South Asia results in more than 400,000 fatalities and billions of episodes of respiratory illness each year. According to WHO predictions for 2019, there are around 250,000 air pollution-related deaths per year in Bangladesh. Dhaka is one of the crowded cities on earth. City streets are jam-packed with push carts, rickshaw vans, three-wheeled auto-rickshaws with two-stroke engines, buses, trucks, and cars. As a result of the rapid industrialization and economic expansion, there will likely be an increase in the number of motor vehicles in the next days, which will make the issue worse. This essay tries to outline the current state of air pollution in Dhaka and offer some specific suggestions for lowering air pollution in order to improve the city's quality of life.</p>	<p><b>Short Communication</b></p>
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### INTRODUCTION

One of the most populated cities on earth is Dhaka. It has roughly 20 million people living in it. City streets are jam-packed with push carts, rickshaw vans, three-wheeled auto-rickshaws with two-stroke engines, buses, trucks, and cars. The fact that environmental calamities are currently on the rise throughout the world is, in many respects, due to human. It is a well-known fact that among the many man-made disasters that exist today, air pollution is one of the most worrisome and disturbing problems. There is no denying that the quality of the air is getting worse, and both human activity and natural occurrences are to blame. Vehicle emissions and industrial emissions are the two main sources of air pollution in Bangladesh [1]. The capital of Bangladesh and the center of the majority of its business activity, Dhaka, is profoundly affected by this issue. Due to its location in the middle of the nation, it is home to numerous industries, including those that produce ready-made clothing (RMG), as well as various mills, factories, and industries, as well as those related to chemicals, brickfields, and other things [2]. The ambient atmospheric conditions have been poorer due to an increase in motor vehicles, sporadic industrial expansion, and constant housing. The findings of this study will help policymakers develop national policies to reduce air pollution. The capital of Bangladesh, Dhaka, used to be

surrounded on one side by rivers and canals and on the other by lush rice fields. Numerous trees could be observed everywhere. However, the current state of affairs has altered environmental sustainability. The air of Dhaka city has been found to be highly polluted by emissions from nearly every sort of vehicle, including cars, jeeps, trucks, buses, minibuses, microbuses, and motor cycles.

#### What causes air contamination in Dhaka

Over population one of the major factor for air pollution in Dhaka city. There are nearly 20 million people live in Dhaka now, that amount is too much to live in such type of limited place. Dhaka is surrounded by river in every side so the waste produced by human are not properly managed. People throw their waste by the side of road most of the time. After drying these waste makes lot of dust and bad smell. The growing people cutting down trees continuously to manage their habitat, by this way the city losses its air purifying machine.

Brick field is one of the most discussed topics which are responsible for air pollution in Dhaka. There are more than 1500 brick fields around the Dhaka city [3]. In the process of burning over 2.3 million tons of coal, tons of PM, sulfur dioxide, carbon monoxide,

volatile organic compounds, and other harmful substances including furans and dioxin are produced.

From 1.5 million in 2010 to 4.44 million in 2020 and 5.11 million in February 2022, the number of motor vehicles in Bangladesh is growing quickly [4]. The majority of these vehicles are reconditioned or old and lack proper maintenance. Most of the local buses are unfit with old engine that emit huge amount of smoke to contaminate air. As a result, the city of Dhaka was the most polluted in the world, and its air had the highest concentration of lead (495 nanograms/m<sup>3</sup>).

Growing number of industry is another major concern facilitating air pollution in Dhaka city. Especially, tire industry, plastic industry, energy industry, coal industry and garments company create lot of poisonous smog containing sulfur dioxide, carbon monoxide, carbon dioxide, nitrogen oxide and lead that are extremely harmful for health.

Dust on the road in the Dhaka city is common scenario, as the authority was always indifferent about

this matter. In winter season quantity of dust increased and flow over the city, road, bus, pedestrian and other staff.

Less awareness among people is another cause of air pollution in Dhaka city. They do not care about the cleanliness and hygiene. They use too much time stoves and fuel without proper supervision for cooking sometime in case of nothing.

#### Dhaka air quality data

Particulate Matter (PM10 and PM2.5), Nitrogen Dioxide (NO<sub>2</sub>), Carbon Monoxide (CO), Sulphur Dioxide (SO<sub>2</sub>), and Ozone (O<sub>3</sub>) are the five pollutants that make up Bangladesh's air quality index (AQI). The Air Quality Index (AQI), which is based on the government-approved recommendations for these five pollutants, is based on the WHO guideline values that the Bangladeshi government has adopted. Bangladesh's air quality index (AQI) is rated as good (0–50), moderate (51–90), cautious (90–150), unhealthy (150–200), very unhealthy (200–300), and highly unhealthy (301–500).



Figure 1: Average AQI score for Dhaka in the month of January and February from 2017 to 2023

(Source: Center for atmospheric pollution study, Stamford University)



**Figure 2: Common scenario at some roads of Dhaka city**

### Related Health Issues

Air pollution mostly harms the respiratory system and can lead to cancer, high blood pressure, asthma, irritability, weariness, headaches, and fatigue. Lead contamination will weaken the mental capacities of Dhaka city's children and could harm their central nervous systems. It should be noted that city children's blood may contain too much lead, which could harm their kidneys and brain. Due to urban air pollution, which most severely affects children and elderly people, the Asian region includes Dhaka. According to a 2018 WHO estimate, Bangladesh experiences around 200000 air pollution-related fatalities annually. Moreover, according to a study report produced by the US-based Institute for Health and Evaluation as well as the Health Effects Institute, indoor and outdoor air pollution killed more than one lac persons in South Asia in 2017. According to a medical research, four of the top ten diseases in Bangladesh that cause death—stroke (5%), lung cancer (13%), chronic obstructive pulmonary disease (7%), chemical heart disease (6%), and lower respiratory tract infections (7%)—are directly linked to air pollution.

According to the Organization for Economic Co-operation and Development (OECD), by 2060, the market effects on labor productivity, healthcare costs, and agricultural crop yield loss caused by outdoor air pollution are expected to increase by 1% of the global GDP [5]. Farm Gate, Manik Mian Avenue, Mohakhali, Agaragaon, Rampura, Jatrabari, Gabtoli, Bosila, Hatkhola, Keraniganj, and Tejgaon Industrial Area are among the worst-affected areas in Dhaka [6].

### How to reduce air pollution in Dhaka city:

- Older vehicles create so much black smoke in particular that it has been highlighted as one of the best sources of air pollution, so it should be banned.
- The amount of oxygen in the air is decreasing dramatically as a result of present urbanization and deforestation. Consequently, there are more contaminants in the air. Afforestation is the only way to lower the amount of carbon dioxide that is

present in the atmosphere. More trees need to be planted in cities.

- Urban dwellers have a tendency to leave their trash anywhere, and the government also lacks the necessary administration to keep waste and garbage under control.
- A limited incentive system is already in place, but it might be expanded to include a variety of projects and activities, such as tax incentives for pollution reduction, subsidies for waste-treatment, rebate programs for trash disposal, etc.
- The Department of Environment will implement routine mobile courts and activities based on a specific strategy to lessen people's suffering and maintain regular monitoring in order to reduce air pollution.
- To eliminate all air pollution sources, public awareness must be raised to do so. Penalties should be given out to those responsible for air pollution, including individuals and organizations [7].
- The concept of green chemistry may aid in the creation of innovative, practical, and affordable methods for producing the intended product, which will ultimately help in the preservation of the environment and replacing plastic materials by using environment friendly organic materials [8, 9].
- There should be some technology or traditional way to remove dust from the roads safely.

### Summary

Bangladesh is on the top of the list of the countries that have the worst air quality in 2023. So, it becomes highly important to work on reducing the air pollution in the country. However, due to indiscriminately cutting down all types of trees and the world's ongoing population growth, the number of trees is falling. As a result, there aren't enough trees to completely absorb the CO<sub>2</sub> emissions. As a result, air pollution and CO<sub>2</sub> levels in the atmosphere are rising. The government ought to accelerate its efforts to enforce pollution regulations. The mass media campaign and social awareness are also necessary components of this process. It's also important to stop the city's new industry development. In addition to these long-term initiatives,

the city's tree planting program needs to be strengthened right away.

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