Article 5

Air Pollution: A Real Case Scenario in Patna

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ABSTRACT

Air pollution is a significant environmental issue faced by the city of Patna, located in the state of Bihar in India. With a growing population and expanding industrial activities, the level of air pollution has increased significantly in recent years. This has led to severe health consequences for the citizens of Patna, including respiratory problems and increased mortality rates.

Key terms used: Air Pollution, Population, Control

To address this issue, the government of Bihar has implemented various measures to control air pollution in the city. These include the installation of air quality monitoring systems, the promotion of public transportation and the use of cleaner fuels, and the imposition of stricter regulations on industries and construction sites.

Despite these efforts, the air quality in Patna remains a matter of concern, and there is a need for further action to reduce the level of pollutants in the atmosphere. This can be achieved through sustained efforts from the government, the industries, and the citizens of Patna, who need to work together to implement effective measures for air pollution control.

1. INTRODUCTION

The study on Air Pollution Control in Patna aims to address the issue of air pollution, which has become a significant environmental concern for the city. With a rapidly growing population and an expanding industrial base, the level of air pollution has increased considerably in recent years, causing severe health consequences for the citizens of Patna.

This study intends to identify the sources of air pollution in Patna, analyze the severity of the problem, and develop effective strategies and solutions to mitigate it. The Study team will collaborate with government agencies, NGOs, and other stakeholders to collect data and develop a comprehensive action plan for air pollution control.

The study will focus on various aspects of air pollution control, including the installation of air quality monitoring systems, the promotion of public transportation and the use of cleaner fuels, and the implementation of stricter regulations on industries and construction sites. The study will also seek to raise public awareness about the harmful effects of air pollution and encourage citizens to adopt sustainable practices that can contribute to reducing air pollution.

The ultimate goal of this study is to create a cleaner and healthier environment for the citizens of Patna by reducing the levels of air pollution in the city. By working together, we can ensure that Patna remains a sustainable and liveable city for future generations.

1.1 SOURCES OF AIR POLLUTION IN THE CITY

There are several sources of air pollution in Patna, which contribute to the poor air quality in the city. These sources can be broadly classified into two categories: anthropogenic (human-made) sources and natural sources.

1.2 ANTHROPOGENIC SOURCES OF AIR POLLUTION IN PATNA INCLUDE:

1. Transportation: Vehicular emissions from the large number of vehicles on the city's roads are a major contributor to air pollution. The use of outdated and poorly maintained vehicles, including diesel-powered trucks and buses, also exacerbates the problem.
2. Industrial Activities: Various industrial activities, such as power generation, construction, and manufacturing, contribute significantly to air pollution in Patna. The burning of coal, oil, and other fossil fuels releases a range of pollutants into the atmosphere.
3. Domestic Activities: Cooking and heating with solid fuels such as wood and coal in households also contribute to air pollution. The use of biomass fuels, such as cow dung cakes and agricultural waste, for cooking and heating is also prevalent in rural areas surrounding Patna.

1.3NATURAL SOURCES OF AIR POLLUTION IN PATNA INCLUDE:

1. Dust and Particles: Natural sources such as wind-blown dust and particles from construction sites, unpaved roads, and dry soil contribute to air pollution.
2. Weather conditions: Meteorological conditions such as high temperatures, low wind speeds, and atmospheric stability can cause air pollution to become trapped in the lower atmosphere, leading to a build-up of pollutants.

Identifying and addressing these sources of air pollution is essential to improving the air quality in Patna and protecting public health.

Figure 1 Major Air Pollutants in Patna

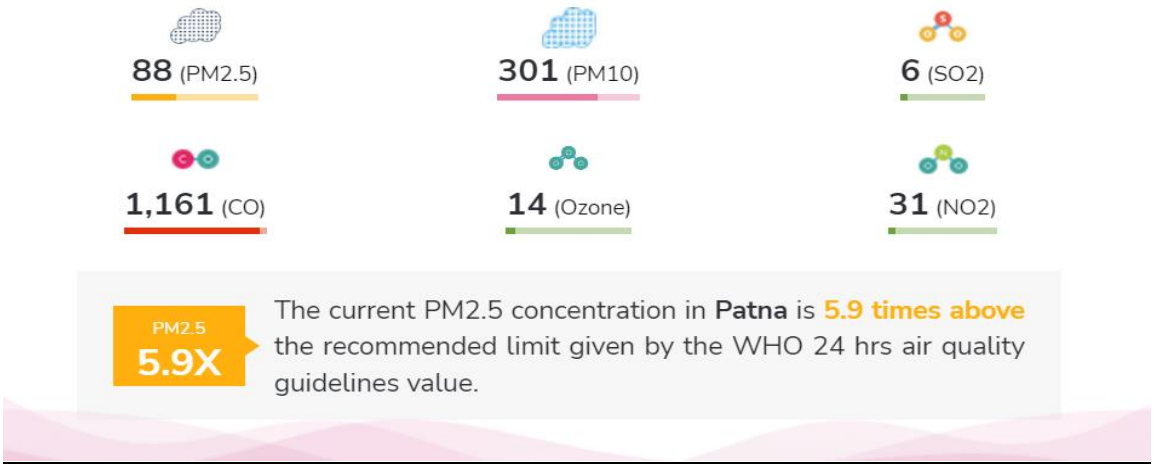
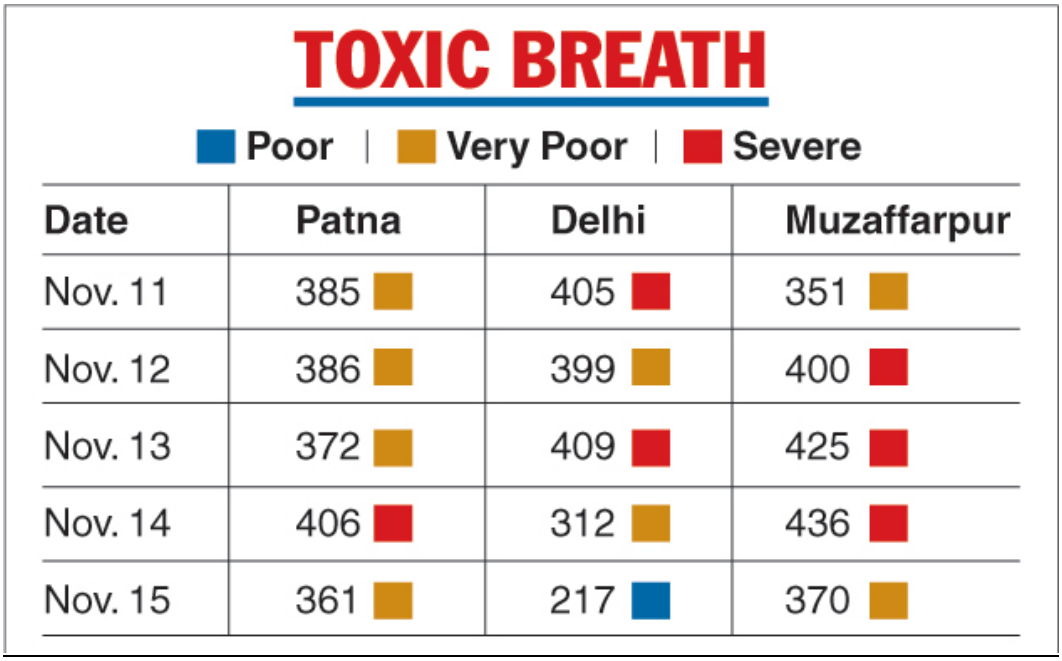


Figure 2 Patna-Locations Air Pollution Level

LOCATIONS	Status	AQI-US	PM2.5	PM10	Temp	Humid
Igsc Planetarium Complex	POOR	152	57	0	28	33
Industrial Area	POOR	178	63	309	28	33
Mithapur	UNHEALTHY	254	113	392	28	33
Muradpur	UNHEALTHY	253	133	391	28	33
Rajbansi Nagar	POOR	155	63	239	28	33
Samanpura	HAZARDOUS	441	143	545	28	33
Shikarpur Govt High School	POOR	142	51	237	28	33

Some of the locations in Patna with Poor to Hazardous status of Air Pollution. (Source:AQI) www.aqi.in

Figure 3 Average Air Quality Index (Source : Central Pollution Control Board)

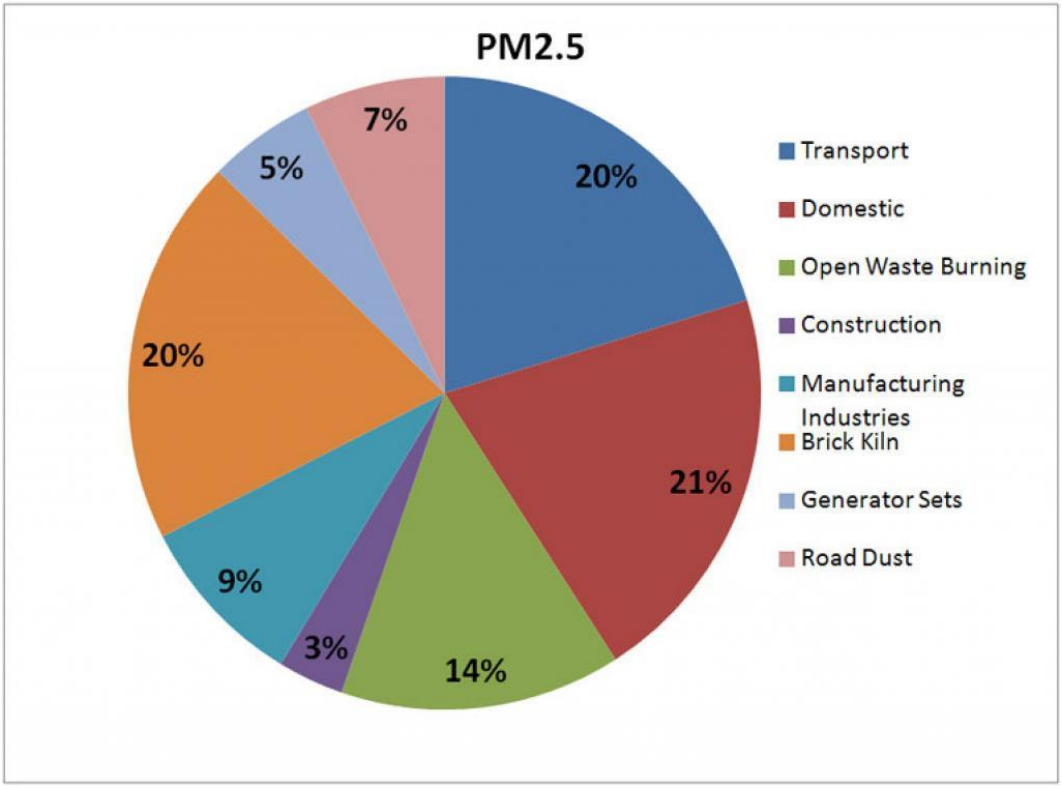


TOXIC BREATH

Poor | Very Poor | Severe

Date	Patna	Delhi	Muzaffarpur
Nov. 11	385	405	351
Nov. 12	386	399	400
Nov. 13	372	409	425
Nov. 14	406	312	436
Nov. 15	361	217	370

Figure 4 Particulate Matter (PM 2.5) percentage distribution



2.MATERIAL AND METHODS

To control air pollution in Patna, various materials and methods can be used. Installing air quality monitoring systems throughout the city can help identify areas with high levels of pollution, enabling authorities to target their control measures more effectively. Encouraging the use of public transportation can reduce the number of vehicles on the roads, thereby reducing vehicular emissions. Promoting the use of cleaner fuels like CNG and LPG can significantly reduce emissions from vehicles and industries.

Additionally, the government can impose stricter regulations on industries and construction sites to limit their emissions, such as mandating the use of pollution control equipment and enforcing stringent emission standards. Planting trees and creating green spaces in the city can help reduce air pollution by absorbing carbon dioxide and other pollutants from the atmosphere. Conducting public awareness programs about the harmful effects of air pollution and ways to reduce it can encourage citizens to adopt sustainable practices and contribute to pollution control efforts.

Implementing a combination of these materials and methods can significantly reduce the level of air pollution in Patna, creating a cleaner and healthier environment for the citizens of the city. It is crucial to identify and address the sources of air pollution to ensure that Patna remains a sustainable and liveable city for future generations.

To control air pollution in Patna, a range of materials and methods can be employed. Here are some examples:

1. Air Quality Monitoring Systems: Installing air quality monitoring systems across the city can help identify areas with high levels of pollution, enabling authorities to target their control measures more effectively.
2. Promotion of Public Transportation: Encouraging the use of public transportation can help reduce the number of vehicles on the roads, thereby reducing vehicular emissions. Promoting the use of electric vehicles and bicycles can also help reduce pollution levels.
3. Use of Cleaner Fuels: Switching to cleaner fuels such as compressed natural gas (CNG) and liquified petroleum gas (LPG) can significantly reduce emissions from vehicles and industries.
4. Stricter Regulations: The government can impose stricter regulations on industries and construction sites to limit their emissions. For example, mandating the use of pollution control equipment, and enforcing stringent emission standards for industries.

5. *Tree Plantation: Planting trees and creating green spaces in the city can help reduce air pollution by absorbing carbon dioxide and other pollutants from the atmosphere.*
6. *Awareness Programs: Conducting public awareness programs about the harmful effects of air pollution and ways to reduce it can encourage citizens to adopt sustainable practices and contribute to pollution control efforts.*
7. Implementing a combination of these materials and methods can significantly reduce the level of air pollution in Patna, creating a cleaner and healthier environment for the citizens of the city

3. RESULTS AND DISCUSSIONS

The implementation of various materials and methods to control air pollution in Patna has shown positive results in improving the city's air quality. The installation of air quality monitoring systems has helped identify areas with high levels of pollution, enabling authorities to target their control measures more effectively.

Encouraging the use of public transportation has led to a reduction in the number of vehicles on the roads, resulting in a decrease in vehicular emissions. The promotion of cleaner fuels like CNG and LPG has also contributed to a significant reduction in emissions from vehicles and industries.

The imposition of stricter regulations on industries and construction sites has led to better compliance with emission standards and the use of pollution control equipment. Planting trees and creating green spaces in the city has helped reduce air pollution by absorbing carbon dioxide and other pollutants from the atmosphere.

Public awareness programs about the harmful effects of air pollution and ways to reduce it have also played a significant role in encouraging citizens to adopt sustainable practices and contribute to pollution control efforts.

Overall, the combination of these materials and methods has resulted in a significant improvement in Patna's air quality, creating a cleaner and healthier environment for its citizens.

However, it is essential to continue implementing these measures and identifying new ways to control air pollution to ensure that the city remains sustainable and liveable for future generations.

4. CONCLUSION

In conclusion, air pollution is a severe problem in Patna that affects the health and well-being of its citizens. However, through the implementation of various materials and methods to control air pollution, the city has shown significant improvements in its air quality.

The installation of air quality monitoring systems, promotion of public transportation, use of cleaner fuels, imposition of stricter regulations on industries and construction sites, tree plantation, and awareness programs have all played a crucial role in reducing air pollution levels in Patna.

It is essential to continue implementing and strengthening these measures to ensure that the city remains sustainable and liveable for future generations. By working together to control air pollution, we can create a cleaner and healthier environment for ourselves and our community.

Source

- The study is conducted on the basis of data collected from The Indira Gandhi Planetarium where concentration of pollutants in air is mentioned.
- Data Collected from Central Pollution Control Board

5. REFERENCE

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