

# Ambient air sampling: A study of Ambient air quality at Mandvi gate, Vadodara

Jenish Desai, Rushikesh Joshi, Parth Purohit

Environmental Engineering department, BVM engineering college v.v. nagar, India

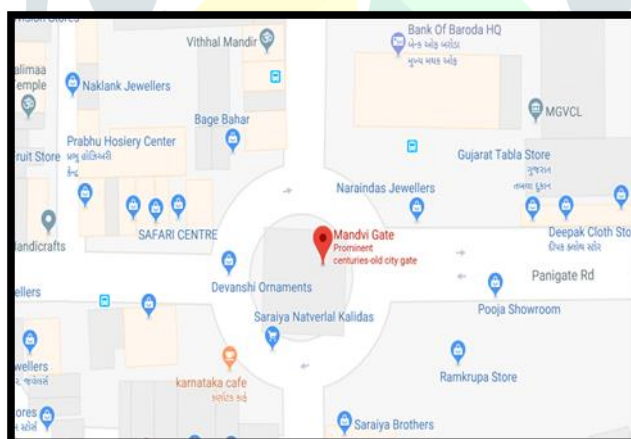
## Abstract

Mandvi Gate, often termed as the North gate of the Royal Enclosure, is one of the major landmarks in Vadodara city dating back to the Mughlai period. Now days Location Mandvi Gate is one of the main markets in Vadodara and commercial area where heavy traffic occur in peak hours. The effect of heavy transportation on the surrounding atmosphere and the residential societies around them were observed. Movement emanations are of specific worry in urban zones and their environment, since activity related poisons have been related with general mortality increment lung disease chance, and exacerbating of respiratory wellbeing. The sampling is done according to the standard methods and result of the analysis of sample were quite higher especially for nitrogen dioxide than the standards (National ambient air quality standards). Effective traffic control system and road planning can reduce the pollutants level in atmosphere.

**Keywords:** Ambient air sampling, PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>x</sub> and NO<sub>x</sub>

## INTRODUCTION

The location mandvi gate is the center of four gates surrounded by major buildings on the roads, temple, commercial buildings, residential societies and market streets. Because of the narrow streets and the higher vehicle transportation in that area traffic jamming is the severe problem in peak hours. Mandvi gate is also the street shopping areas in the evening so large quantity of people are in contact with the traffic and with the pollutants emitted from it. The expanding seriousness and length of movement blockage can possibly enormously increment toxin outflows and to corrupt air quality, especially close vast roadways. The significant emanation of nitrogen dioxide can respond to shape exhaust cloud and corrosive rain and being fundamental to the development of fine particles (PM) and ground level ozone, both of which are related with unfriendly wellbeing impacts. These outflows add to dangers of grimness and mortality for drivers, workers and people living close roadways. The standard methodology of testing of various air poisons (like PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>x</sub> and NO<sub>x</sub>) were finished. The sampling is done according to the standard methods mentioned in CPCB manual as per IS Specification mentioned in IS-5182 (part-4).



Study location i (mandvi gate)

## GUIDELINES AND RESULT

\*Calculations done as per IS-5182

\* Time Weighted Average – 24 hours

Pollutant	Industrial, Residential, Rural and other Areas	Outcome
SO <sub>2</sub> , µg/m <sup>3</sup>	80	40.51

<b>NO<sub>2</sub></b> , µg/m <sup>3</sup>	80	<b>1332.35</b>
<b>PM<sub>2.5</sub></b> , µg/m <sup>3</sup>	60	<b>28.25</b>
<b>PM<sub>10</sub></b> , µg/m <sup>3</sup>	100	<b>02.11</b>

## CONCLUSIONS

The traffic problems generated near the Mandvi gate can effect the environment as well as human health and it is the serious health threat too. The presence of nitrogen dioxide in the atmosphere is 25.6 times higher than the ambient air quality standards for residential area which can cause severe problems to the people exposed to them in future. The emission of nitrogen dioxide can have significant impacts on people with asthma. And increase the likelihood of respiratory problems. Proper roads constructions and traffic arrangements with proper parking facilities can helpful to reduce the vehicular pollution.

## REFERENCES

1. Air quality standards in India- “National Ambient Air quality standards”
2. Guidelines for the Measurement of Ambient Air Pollutants- As per “Central pollution control board manual (CPCB)”
3. News of fire in Jambuva landfill-site- “Times of India newspaper on dated 16th February, 2018”
- 4.”Indian specification code- 5182 (part-2,4,6)”

