

# Air Quality Analysis In TamilNadu

## Phase 2 Submission Document

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### Introduction

Air quality analysis in Tamil Nadu involves the assessment of the ambient air to determine the concentration of various pollutants, such as particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), ozone (O<sub>3</sub>), and others. This analysis is essential to evaluate the region's air quality, monitor pollution levels, and assess their impact on public health and the environment.

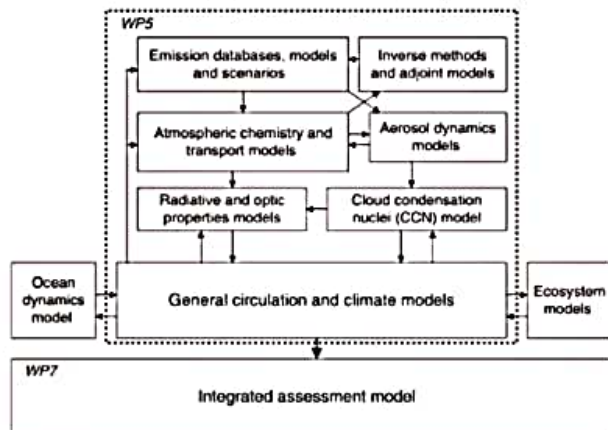
#### 1. Particulate Matter (PM) Analysis:

This measures the concentration of fine particulate matter in the air, typically PM<sub>2.5</sub> and PM<sub>10</sub>, which are tiny particles that can penetrate deep into the respiratory system.



#### 2. Gaseous Pollutant Analysis:

Monitoring of gases such as nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), and ozone (O<sub>3</sub>) to assess their levels and potential health impacts.



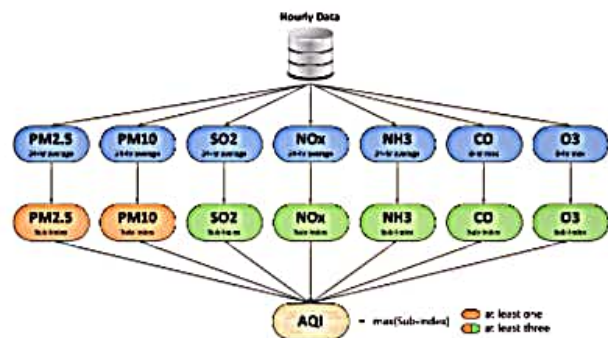
### 3. Volatile Organic Compounds (VOCs) Analysis:

Detection of volatile organic compounds in the air, which can contribute to the formation of ground-level ozone and other pollutants.



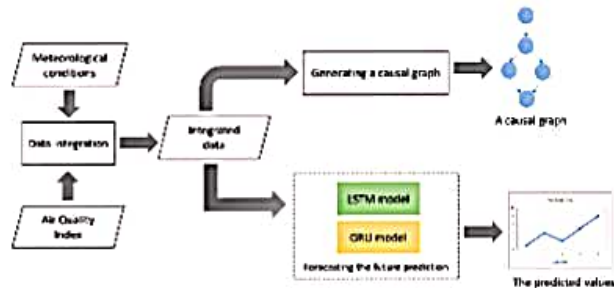
### 4. Air Quality Index (AQI) Calculation:

Combining data from various pollutants to calculate an AQI, providing a simplified and standardized way to communicate air quality to the public.

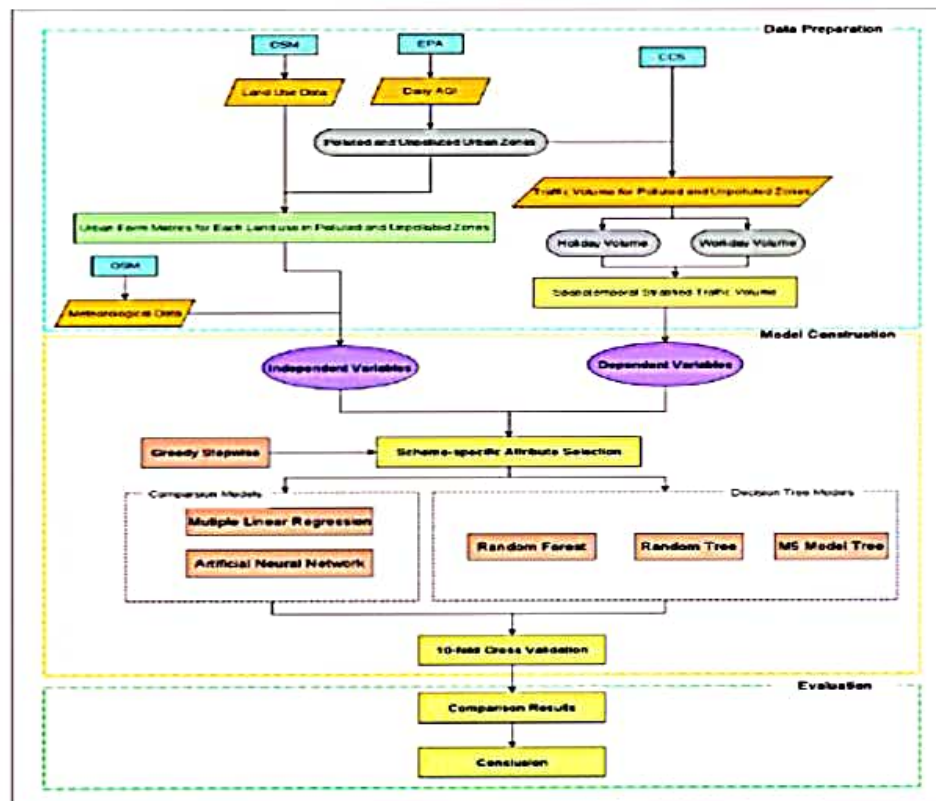


## 5. Meteorological Data Integration:

Factors like temperature, humidity, wind speed, and direction are considered to understand how weather conditions affect air quality.



## Flow chart representation



## Conclusion

Continuous monitoring, source apportionment studies, and meteorological data integration are essential components of this process. It allows authorities to identify pollution sources, track variations in air quality, and understand how weather conditions affect

pollution levels. Air quality analysis in Tamil Nadu is crucial for mitigating the harmful effects of air pollution, safeguarding the well-being of the population, and working towards a cleaner and healthier environment in the region. It plays a pivotal role in guiding policy decisions and promoting sustainable development while addressing the challenges posed by poor air quality.