# A Study on Air Quality Analysis and the Impact of Pollutants and Climatic Factors

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**Abstract:** *The study analyses how pollutants such as Particulate Matter, Sulphur dioxide, Nitrogen Oxides, Ozone, Benzene, Carbon Monoxide, Ammonia and weather conditions impact the Air Quality Index (AQI).Methods like Multiple Regression and Logistic Regression are used to examine the effects of pollutants (PM2.5, NO2, SO2) and weather factors (temperature, humidity) on AQI. The data type to be collected here will be secondary data from Kaggle.The sample size collected was 8000+, methodology used is descriptive research. The findings show that pollutants and climate factors significantly affect air quality, with recommendations for real-time monitoring, predictive modeling, and stricter regulations to improve air quality.*

**Keywords:** Pollutants, Particulate Matter, Sulphur dioxide, Nitrogen Oxides, Ozone, Benzene, Carbon Monoxide, Ammonia, Temperature, Humidity, Air Quality Index, Logistic Regression, Multiple regression analysis