**Abstract**

Air pollution is a primary concern all over the world. Delhi is the capital territory of India, and according to a survey done by WHO, it is one of the worst polluting city in the world among 1600 other cities. Particulate matters are more harmful concerning health concerns, because of their microscopic size they can easily be inhaled by human and can enter lungs which causes severe health problems. Anand Vihar area of east New Delhi has been continuous exposure of reduced standard level of PM10.

For proper monitoring and control of PM10, it is crucial to understand its historical trend. Weather is an essential factor for the impact of PM10 as it is the weather factors that decides the movement capacity of PM10. PM10 comes from different types of source such as road dust, industries, transportation, construction works, crop residue burning, and other unknown causes. Several government policies have been implemented to control pollution, and odd-even policy for the transport sector is one of them. In 2016, the odd-even system had been deployed to restrict pollutant exposure by limiting the number of vehicles running per day. Crop residue burning practices done by neighbouring states like Haryana, Punjab, Uttar Pradesh, and Rajasthan has a significant impact on the level of PM10 as smoke generated from these practices migrate from these places to Delhi due to wind condition.

This research work deals with the identification of trend in PM10 for Anand Vihar area of New Delhi for four years from 2015 to 2018 using time series modelling and also focuses on the study of the impact of vehicles from odd-even policy and effects of crop residue burning from neighbouring states of Delhi. The forecasting model is built from time series analysis that will predict the PM10 exposure in advance that will help in proper monitoring of PM10. A predictive model based on multiple linear regression and the artificial neural network has also been built along with a time series model for strong prediction of PM10 concerning meteorological parameters. Impact of road transport on PM10 has been studied through odd-even policy. Critical evaluation of crop burning residue from neighbouring states of Delhi has been studied and its impact on PM10 is critically evaluated using regression.

***Keywords: Time series analysis, Multiple linear regression, Artificial neural network, Odd-even policy, Crop residue burning***