AIR QUALITY MONITORING FROM DHAMORA TO AMBEDKAR PARK IN URBAN AREAS OF RAMPUR UTTAR PRADESH

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Abstract - Where pollutants has become a major problem around the world, air pollutants is the mostdangerous, surprising and intense pollutants amongst different pollutions e.g., water pollutants, soilpollution,noisepollutants,lightpollutants,thermalpollutant setc.Airpollutantsisthemajorcauseofdiseaseslikeasthma,cancer,bronchitis,birthdefectsand immunesystemlikediseases.

Human exposure to fine particles can have considerable dangerous effects on the respiration andcardiovascular system. To look into day by day publicity traits to PM2.5and PM10withambient concentrations in a arban areas environment, personal publicity measurements at the road,from Dhamora to Ambedkar park in urban areas of rampur ' withinside the Ramput city, India. In order to accountfor all of the reassets of particulate count publicity, measurements on numerous distinct daysin the course of July 2022 to have been completed Smile pressure Air Quality Pollution Monitor have been used todegree PM2.5and PM10concentration. The studies findings offer perception into possiblereassetsandtheir interactionwith human activitiesin modifyingthehumanpublicitylevels.

Airborne particulate count has now grow to be an problem withinside the global surroundings because of thefitnessproblemsandenvironmentaldegradationitcauses.This hasnecessitatedthatmostarbanregions attempt to set requirements for coarse and great debris because of their substantial influences at thesurroundings. This paper is a vital evaluation of ways PM2.5 and PM10 withinside the atmosphere affectsvisualairqualityandhumanfitness.Thechallengeinthispa peristodescribethecomprehensiveoutcomesofthePM2.5andP M10soastoidentifyitsminimizationintheenvironmentswiththe viewofarbanregionsitseffectivecontrolstrategiesforadequatea irqualitymanagement.

On the street web website online places are important source of air pollutants emitting pollutants like PM2.5and PM10, etc. which adversely have an effect on human fitness in particular the respiration system. Thepresent study aims at tracking of PM2.5 and PM10, fitness circumstance of people lives at thestreet side, withinside the area of street web website online places. In the existing examine relevant literature evaluationhas additionally been completed to examine and examine the effect of air pollutants on human fitness.Reconnaissance survey of 06 decided on places from Dhamora to Ambedkar Park in urban areas of rampur has been conducted for the duration July 2022. The common PM2.5 and PM10 levelofall of the siteshas beenestimated andcomparedwith theprescribed value.

Keywords: *Air Quality, Air Pollution, Road Site Locations, Human Health, Particulate Matter like PM$_{2.5}$ and PM$_{10}$.*

1. INTRODUCTION

Particulate matter (PM) is the term used for a mixture of solid particles and liquid droplets suspended withinside the air. These particles originate from a whole lot of sources, which encompass strength plants, business processes, and diesel trucks, and they are fashioned withinside the surroundings via way of way of transformation of gaseous emissions. Their chemical and bodily compositions counting on location, time of year, and weather. Particulate depend is composed of every coarse and superb particles. Based on duration alone, small airborne debris can emerge as lodged withinside the lungs or maybe input the bloodstream. Coarse debris (PM10) have an aerodynamic diameter amongst 2.5μ m and 10μ m. whereas, high-quality particles have an aerodynamic diameter lots much less than 2.5μm (PM2.5). They vary from PM10 in starting area and chemistry.Road traffic emissions are a primary supply of air pollution in city in urban areas with subsequent damaging human fitness results. Although improvements in vehicle era play a sizable function in lowering traffic emissions at the supply. The burning of fossil fueloline produces pollutants collectively with particulate depend specifically PM2.five and PM10, nitrogen oxides (NOx), carbon monoxide (CO), and hydrocarbons (HC), and SO2 are at once emitted thru manner of way of vehicles. Exposure to the ones air pollutants has each acute and persistent results on human health, affecting numerous distinctive structures and organs.

1.2 OUTDOOR AIR QUALITY

Outdoor air pollution particularly include NOx, SO2, O3, CO, HC, and particulate matters (PM) of different particle sizes. In urban areas, those pollution are particularly emitted from on-road and off-road vehicles, but there are also contributions from strength plants, industrial boilers, incinerators, petrochemical plants, aircrafts, ships and so on,

depending on the locations and prevailing winds. Comparatively, the contribution from cross border sources is much less significant in urban areas because of its increased distance from the pollution sources. However, urban air quality is highly affected by city design. Densely distributed and deep street canyons (buildings with large building height to road width ratios) can block and weaken the approaching wind thus reducing its air dispersion capability. On the other hand, good urban design can disperse air pollutants and alleviate the problems of air pollutant accumulation.

1.3 OBJECTIVES OF PRESENT STUDY

* Data collection (primary and secondary) through reconnaissance survey.

* Air quality monitoring for PM10, PM1 and PM2.5 at pre-selected location from Dhamora to Ambedkar Park in Urban Areas of Rampur Uttar Pradesh.

* Comparative assessment of air quality parameters.

2. METHODOLOGY

2.1 Site Selection

This chapter covers the details of different methods used for the measurement of particulate matter (PM1, PM2.5, PM10) site selection for the sampling including residential sites. It has highlights the monitoring of Instrumentation, monitoring Procedure and results.

For the present study, a segment of Rampur - Bareilly Road was selected. The research site stretches 15 Km longitudinally along of the road segment. The road segment extends from Dhamora to Ambedkar Park in Urban areas of Rampur Uttar Pradesh on Rampur – Bareilly road roadway futher this road connects to NH 24. Some portion of selected segment is under construction, due to which many trucks, trolley and tractors run over the selected site also buses, cars, autorickshaws and motor bikes run on the road. This area was selected for study because there was a need to know the concentration of traffic emission pollutants and to know about how pollutants are decreasing with distance from centre of the road. the location of study area is shown in figure.
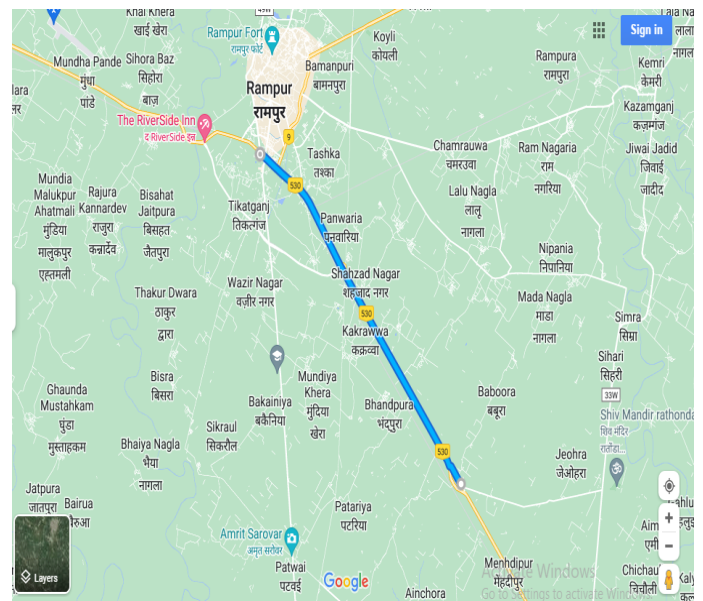

Fig- 1: Map of Selected Monitoring Site

2.3 MONITORING LOCATIONS

For the present study, open area is selected within the selected segment of Rampur – Bareilly Raod Roadway, which stretches 15 Km longitudinally along the length and spreads 2km laterally on either side of the road segment. Within the 15 Km location 6 monitoring location were selected for the study purpose. Monitoring location with their co-ordinates has been mentioned in table below

| SL.NO	LOCATION NAME
1	Dhamora
2	Shankarpur
3	Shazadnagar
4	Faizullahnagar
5	Panwaria
6	Ambedkar Park

2.4 MONITORING TIME PERIOD

Monitoring has been done for 6 days on the hourly basis from 09:30 Am to 11:30 Am and 03:00 Pm to 05:00 Pm.

3 RESULTS AND DISCUSSION

In this section, analysis will be done using siteferent land use categories i.e., different locations on the pre-selected site. After that, graphical analysis will be done using MS Excel.
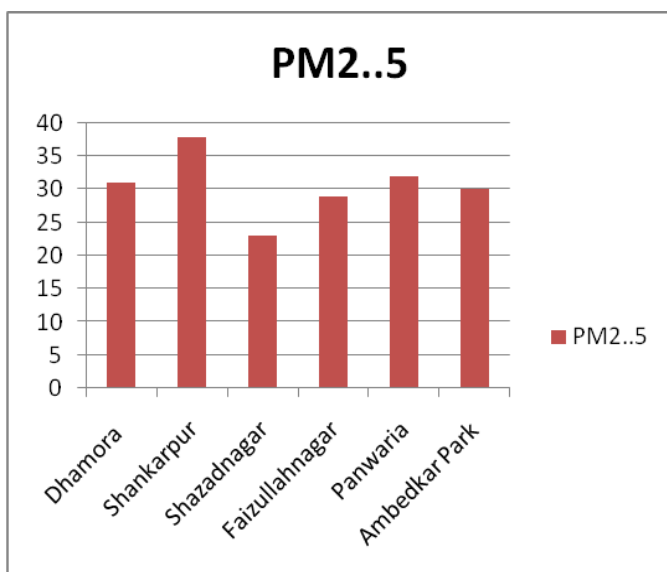
SL.NO	LOCATION NAME	PM_1	$PM_{2.5}$	PM_{10}
1	Dhamora	27	31	35
2	Shankarpur	28	38	43
3	Shazadnagar	17	23	26
4	Faizullahnagar	22	29	33
5	Panwaria	24	32	37
6	Ambedkar park	24	30	33

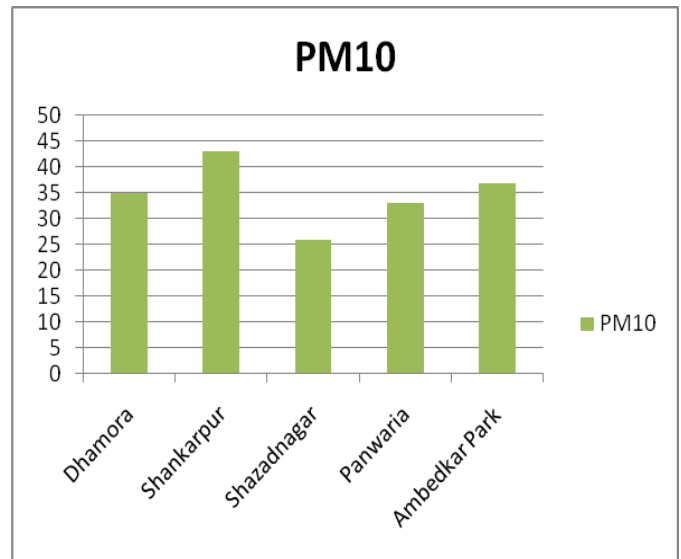**Total Average of PM for Selected Locations**
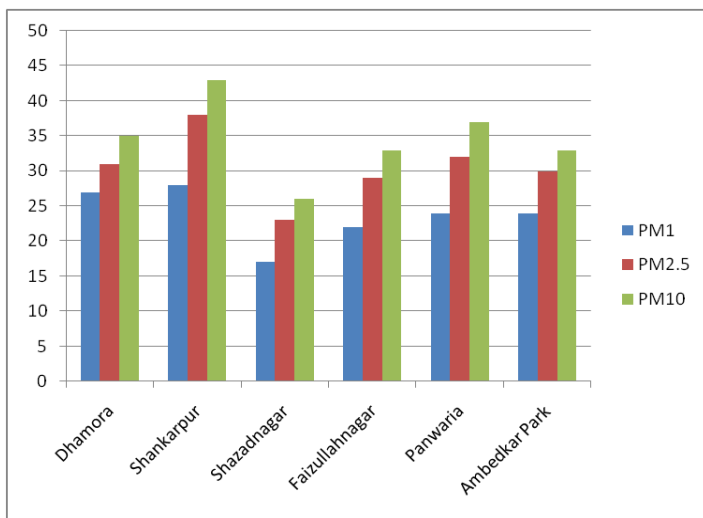
Monitoring in Days

Average of $PM_{2.5}$ for Selected Location

Average of PM_{10} for Selected Location

4 CONCLUSIONS

This chapter discussed the conclusions of the present study. This work can be divided in 3 major headings. The first section discussed the concluded results of variations for every area for PM2.5 and PM10 concentration. The second element demonstrates the result of correlation of PM2.5 and PM10 for every location of the site. The third part discussed the reduction of PM2.5 and PM10 concentration for pre-selected area. Particulate matter (PM) is strongly related to human morbidity and mortality. Traffic is one of the main sources of PM Outside urban areas. Especially inside semi-enclosed parking garages, high PM concentrations can occur. In this paper, PM2.5 and PM10 data and meteorological variables were accumulated from Dhamora To Ambedkar Park In Urban Areas of Rampur at some point of summer season, 2022.The observed reading at Dhamora, Shankarpur, Shazadnagar, Faizullahnagar, Panwaria, Ambedkar Park, are (PM2.5 , PM10) (31,35), (38,43), (23,26), (29,33), (32,37), (30,33) respectively. Among these maximam reading form PM2.5, PM10 are observed at the location Shankarpur.But the observed reading at Shankarpur is within the limit specified by CPCB. The observed readings of outdoor PM2.5 and PM10 concentration were highest for the Shankarpur rampur because of traffic congestion was very active near Shankarpur rampur and the some readings of outdoor PM2. 5 and PM10 concentration for all the locations do not match the WHO standards because lots of construction activities are going on in between Dhamora to Ambedkar Park in Urban Areas of Rampur and traffic congestion is also one of the factor for increasing the outdoor PM2. 5 and PM10 concentration for various land use categories in pre-selected site. The readings were taken in the top hours i.e., in the morning and in the night hours when the traffic congestion was very much.

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