BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION NO. 687/2023
WITH
ORIGINAL APPLICATION NO. 1228/2024
WITH
ORIGINAL APPLICATION NO. 646/2024

IN THE MATTER OF:

AIR QUALITY INDEX IN VARIOUS CITIES & ORS.

INDEX

S. NO.	PARTICULARS	PAGE NO.
1.	RESPONSE ON BEHALF OF RESPONDENT NO. 119- DISTRICT MAGISTRATE, SONBHADRA, UTTAR PRADESH IN COMPLIANCE WITH ORDER DATED 06.11.2025 BY HON'BLE TRIBUNAL	
2.	A COPY OF THE EMAIL COMMUNICATION DATED 17.03.2026 IS ANNEXED HEREWITH AND MARKED AS ANNEXURE-1	
3.	A COPY OF THE IIT REPORT IS ANNEXED HEREWITH AND MARKED AS ANNEXURE-2	

4.	A COPY OF THE ANNUAL ACTION PLAN FOR ANPARA, FY 2025–26 IS ANNEXED HEREWITH AND MARKED AS ANNEXURE-3	
5.	COPIES OF THE UTILIZATION CERTIFICATES FOR FY 2019–20 TO FY 2024–25 ARE ANNEXED HEREWITH AND COLLECTIVELY MARKED AS ANNEXURE-4	

THROUGH COUNSEL

BHANWAR PAL SINGH JADON
STANDING COUNSEL FOR THE STATE OF U.P.
EMAIL-bhanwar09jadon@gmail.com
PHONE NO.-7838248353

Place: Noida

Date: 12.05.2026

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION NO. 687/2023
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RESPONSE ON BEHALF OF RESPONDENT NO. 119- DISTRICT MAGISTRATE, SONBHADRA, UTTAR PRADESH IN COMPLIANCE WITH ORDER DATED 06.11.2025 BY HON'BLE TRIBUNAL

(P.N. SONEY)
Adv. NOTARY
Robertsganj-Sonbhadra

I, Charchit Gaur aged about 32 years, S/o Shri Krishan Kumar Gaur, posted as District Magistrate, Sonbhadra, Uttar Pradesh do hereby solemnly affirm and state as under:

1. That, I the Deponent in the above captioned matter, am fully conversant with the facts of the case and am competent and authorized to swear the present reply.

2. That, I state that the contents of this reply have been drafted by my counsel on my instructions, and the contents of the same are true to my knowledge and nothing material has been concealed therefrom.

BACKGROUND OF THE MATTER

3. That, the present Original Application was registered suo motu by the Hon'ble National Green Tribunal on the basis of Air Quality Bulletins published by the Central Pollution Control Board (CPCB) on its official website for the period from 20.10.2023 to 01.11.2023. The said bulletins reflected that the Air Quality Index (AQI) in various cities had deteriorated to the "Very Poor" and, in certain areas, even to the "Severe" category.

4. That, vide order dated **06.11.2025**, the Hon'ble Tribunal was pleased to implead several non-attainment cities, including Anpara, District-Sonbhadra, Uttar Pradesh and further directed as follows:

"…2. Learned Amicus Curiae is permitted to implead the above cities through their District Magistrates. Registry is directed to serve them. Let the cause title of the OA be amended. The newly added Respondents can file their response. Learned Amicus Curiae submits that a note along with the suggestions has been filed today. The Registry is directed to place it on

record. Respondents are directed to consider those suggestions and act upon them if there is no difficulty and file response to them at least three days before the next date of hearing…"

REPLY IS AS FOLLOWS

I. REGARDING SOURCE APPORTIONMENT STUDY, EMISSION INVENTORY AND CARRYING CAPACITY

5. That, in order to study the air quality status of Anpara City, District Sonbhadra, Uttar Pradesh, an MoU was executed between the Uttar Pradesh Pollution Control Board and Indian Institute of Technology, Kanpur, pursuant to which the study titled "***Comprehensive Source Apportionment, Emission Inventory and Carrying Capacity for the Anpara City***" is being conducted by IIT Kanpur. IIT Kanpur, vide e-mail communication dated **17.03.2026**, informed that the study has been completed and has presently been submitted before the Peer Review Committee for review and incorporation of suggestions/revisions, including analysis relating to emission inventory and air quality modelling, and that revision of the study is presently under progress and the final report is presently awaited.

   A copy of the email communication dated 17.03.2026 is annexed herewith and marked as ***Annexure-1.***

6. That, further, a study titled "***Rapid Study of Source Apportionment and Carrying Capacity of Anpara City, Uttar Pradesh***" has been conducted by the Department of Civil Engineering, Centre for Environmental Science and Engineering, Indian Institute of Technology, and the Final Report (April, 2023) thereof has been submitted to the Uttar Pradesh Pollution Control Board, Lucknow.

   A copy of the IIT report is annexed herewith and marked as ***Annexure-2***.

II. REGARDING CITY ACTION PLAN UNDER NCAP

7. That, under the National Clean Air Programme (NCAP), the City Action Plan for Anpara City was approved in the year **2019** and the **Annual Action Plan for the year 2025–26** was approved by the District/City Level Implementation Committee on **24.10.2025**. The said Annual Action Plan-cum-Micro Plan is being regularly updated and filed by Nagar Panchayat, Anpara, District Sonbhadra, on a quarterly basis through the "***Portal for Regulation of Air Pollution in Non-Attainment Cities***" (PRANA) i.e. the reporting portal developed by CPCB.

   A copy of the Annual Action Plan for Anpara, FY 2025–26 is annexed herewith and marked as ***Annexure-3***.

8. That, the major pollution control and mitigation measures undertaken and being implemented in Anpara City as per the action plan include the following:

   i. Installation and operation of air pollution control systems/devices by industries, such as Electrostatic Precipitators (ESP), Bag Filters, Cyclones, Flue Gas Desulphurization (FGD) systems, Wet Scrubbers and Selective Catalytic Reduction systems;

   ii. Establishment of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) in industries, all of which are connected to CPCB servers for monitoring of ambient air quality;

   iii. Installation of technologies such as FGD systems and Online Continuous Emission Monitoring Systems (OCEMS) by industries for monitoring stack emissions and ensuring compliance with prescribed emission norms;

   iv. Regular water sprinkling on roads by Thermal Power Plants (TPPs) to reduce fugitive dust emissions caused by vehicular movement, along with mechanized/manual road sweeping by TPPs and NCL Coal Mines;

   v. Development and maintenance of green belts by Thermal Power Plants, coal mines and other industries;

vi. Installation of water sprinkling systems at Coal Handling Plants (CHPs) to reduce dust emissions generated during handling and processing activities;

vii. Installation of Ash Water Recirculation Systems (AWRS) and Dust Extraction and Suppression Systems (DESS) in ash handling units;

viii. Installation of water sprinkling mechanisms in coal yards, including fog cannons and mist guns, as well as sprinkling systems in ash dyke areas;

ix. Regular water sprinkling by coal mines through truck-mounted mist spray guns and anti-smog guns;

x. Installation of wheel washing systems by NCLs to reduce dust concentration on roads caused by movement of vehicles;

xi. Regular mechanized vacuum sweeping and water sprinkling on major roads by Nagar Panchayat, Anpara;

xii. Paving of unpaved roads and maintenance of pothole-free roads;

xiii. Strict prohibition and monitoring against open burning of municipal solid waste, along with strengthening of door-to-door waste collection and scientific disposal mechanisms;

xiv. Enforcement of construction and demolition dust control measures, including wet suppression and covering of construction materials;

xv. Enforcement of vehicular emission norms, phasing out of old diesel vehicles, promotion of cleaner fuels and electric vehicles, and traffic decongestion/traffic management measures at major junctions; and

xvi. Promotion of LPG/PNG usage in the domestic sector and reduction in the use of biomass fuel.

III. REGARDING AMBIENT AIR QUALITY MONITORING

9. That, under the National Air Quality Monitoring Programme, two Manual Ambient Air Quality Monitoring Stations have been established and are operational in District Sonbhadra, namely at Anpara Colony, IIIrd-50, Anpara and Renusagar Colony, Sonbhadra, which are being operated and maintained by the Uttar Pradesh Pollution Control Board. Further, one Continuous Ambient Air Quality Monitoring System (CAAQMS) is also proposed to be installed at Obra, District Sonbhadra by the UPPCB.

10. That, the average ambient air quality data recorded at the Anpara Manual Monitoring Station for the period FY 2022–23 to FY 2025–26 reflects gradual improvement in the air quality parameters, including PM10 concentration and Air Quality Index (AQI), as detailed below:

Sr. No.	Year	PM10 Concentration ($\mu g/m^3$)	SO_2 Concentration ($\mu g/m^3$)	NO_2 Concentration ($\mu g/m^3$)	AQI

1.	2019–20 (Baseline Data)	169	-	-	-
2.	2022–23	162.79	17.97	24.84	142
3.	2023–24	165.58	17.02	24.09	144
4.	2024–25	156.55	19.79	23.41	138
5.	2025–26	138.97	15.48	19.29	126

IV. REGARDING NCAP FUND RECEIVED/ UTILIZED

11. That, as per the information/data available on the PRANA Portal, details regarding funds released, funds received, utilization thereof and submission of utilization certificates by Nagar Panchayat, Anpara, District Sonbhadra under the National Clean Air Programme (NCAP) are as follows:

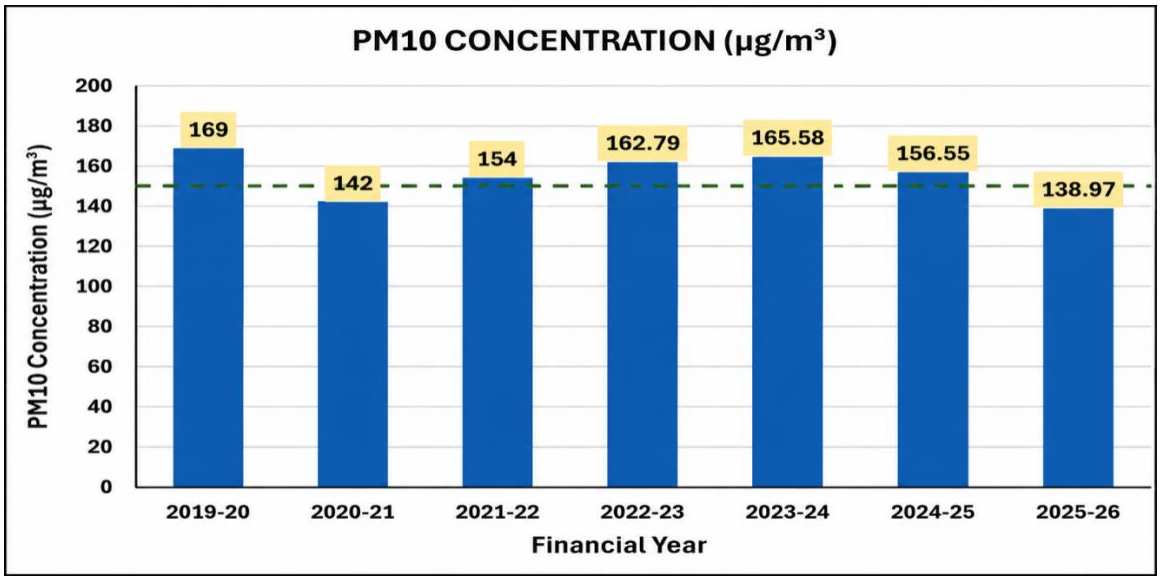
S. No.	Financial Year	Funds Released	Funds Received by City	Funds Utilized	Utilization Certificate
1.	2019–20	10,00,000	10,00,000	0	Submitted
2.	2020–21	1,14,00,000	1,14,00,000	80,000	Submitted
3.	2021–22	0	0	0	Submitted

4.	2022–23	72,00,000	72,00,000	79,21,074	Submitted
5.	2023–24	45,00,000	45,00,000	1,30,88,734	Submitted
6.	2024–25	0	0	16,14,367	Submitted
7.	2025–26	96,00,000	96,00,000	–	--

Copies of the utilization certificates for FY 2019–20 to FY 2024–25 are annexed herewith and collectively marked as ***Annexure-4***.

V. REGARDNING IMPACT UNDER NCAP

12. That, the measures undertaken under the National Clean Air Programme (NCAP) have resulted in a significant reduction in air pollution levels in Anpara City from the year 2019–20 till the present period. The PM10 concentration, which was recorded at 169 µg/m³ during the baseline year 2019–20, has reduced to an average concentration of 138.97 µg/m³ during the period 2025–26, owing to sustained implementation of various air pollution control and mitigation measures. The reduction data is reflected in the photograph hereinbelow:



13. That the deponent, in faithful compliance with the directions of the Hon'ble Tribunal, is filing the present affidavit and remains duty-bound to ensure compliance with the directions in their true letter and spirit.

14. Hence, this response is respectfully submitted for kind perusal of this Hon'ble Tribunal.

15. That everything stated above is true and correct to my knowledge, derived from official records, and nothing material has been concealed therefrom.

DEPONENT

VERIFICATION

Verified at Sonbhadra on this 12 day of May 2026, that the contents of the above affidavit from paragraphs 1 to 15 are true and correct to the best of my knowledge and belief. No part of it is false and nothing material has been concealed therefrom.

DEPONENT

NOTARY
GOVT. OF U.P. (INDIA)

Valid up to 21 Oct. 2028

been identified by Sh.......................................

appeared before me on.............at..............a.m./P.m.

certified that he/she understands and admits the truthness of facts mentioned in the affidavit/declaration and administered oath to him.

ANNEXURE-1

INDIAN INSTITUTE OF TECHNOLOGY KANPUR

DEPARTMENT OF CIVIL ENGINEERING

Dr Mukesh Sharma
Emeritus Professor

P.O. IIT Kanpur, 208016, India
e-mail: mukesh@iitk.ac.in
Phone: +91-512-2597759

Date: 17.3.2026

To
The Member Secretary
UP State Pollution Control Board
Lucknow

Dear Sir,

This is to inform you that the final reports of the project "Comprehensive Source Apportionment, Emission Inventory and Carrying Capacity for the Six Cities in U.P." for Anpara, Gajraula and Raebareli cities are currently under revision, and the final reports will be submitted by April 30, 2026.

The revisions are necessitated to address the suggestions given in the Peer Review Committee's (PRC) meeting held on February 6, 2026, at the UPPCB, Headquarters in Lucknow. Substantial additional revisions including some analysis, upgradation of emission inventory and air quality modelling for PM10 and inclusion of meteorological data are required in the final reports.

Under the circumstances, it is requested that permission is granted to submit the final reports by April 30, 2026.

Thanking you,

Sincerely,

Mukesh Sharma

ANNEXURE-2

Rapid Study of Source Apportionment and Carrying Capacity of Anpara city, Uttar Pradesh

Final Report

Submitted to

Uttar Pradesh Pollution Control Board, Lucknow

Mukesh Sharma; PhD

Department of Civil Engineering
Centre for Environmental Science and Engineering
Indian Institute of Technology
Kanpur: 208016

April 2023

Disclaimer

This document is intended as the official report by Indian Institute of Technology (IIT), Kanpur on "Rapid Study of Source Apportionment and Carrying Capacity of Anpara city, Uttar Pradesh, India" submitted to the U. P. Pollution Control Board, Lucknow. While every effort has been made to ensure the correctness of data/information used in this Report. IIT Kanpur does not accept any legal liability for the accuracy or inferences drawn from the material contained therein or for any consequences arising from the use of this material. No part of this report may be reproduced in any form (electronic or mechanical) without prior permission from or intimation to the authors. No part of this report can be used for any scientific publications in any journal, conferences, seminars, workshops, etc., without written permission from the authors.

The full Report should be referenced as follows:

Sharma M (2023) "Rapid Study of Source Apportionment and Carrying Capacity of Anpara city, Uttar Pradesh, India, 2023" IIT Kanpur Report Submitted to Uttar Pradesh Pollution Control Board, Lucknow.

Text from this Report can be quoted provided the source is acknowledged.

Table of contents

Contents

List of Figures

List of Tables

Acknowledgments

This project “Rapid Study of Source Apportionment and Carrying Capacity in Anpara City” was sponsored by Uttar Pradesh Pollution Control Board (UPPCB), Lucknow to the Indian Institute of Technology Kanpur (IITK). The project was quite vast in terms of activities, including field work, data collection, dispersion modeling, computational work and interpretation of results. Support of different institutions and individuals at all levels is gratefully acknowledged. Although it will be an endeavor to remember and acknowledge all those who assisted in the project, we seek pardon in anticipation, if we err.

We gratefully acknowledge the assistance and guidance received from Shri J.P.S Rathore, Chairman, Shri Ashish Tiwari, Former Member Secretary and Shri Ajay Sharma, Member Secretary, UPPCB, Lucknow. We are thankful to Shri Ram Gopal, Shri P.K. Agarwal and Shri Rakesh Tyagi Chief Environmental Officers who provided full support to this study at different times. We are also thankful to the regional office staff of the city for assisting in the project.

The analytical facilities of Centre for Environmental Science and Engineering, IIT Kanpur (created under MPLADS, Govt of India) are gratefully acknowledged.

Dr. Pavan Kr. Nagar (Post-Doctoral Fellow) and Brajesh Singh (Sr. Project Engineer), IIT Kanpur worked tirelessly for air quality modeling and preparation of the report; thanks to Pavan & Brajesh for their inestimable support. I also thank Shri Dhirendra Singh of Airshed Professionals for assisting in the preparation of the emission inventory for the city. Sincere thanks are also due to the IITK team, Sahir Azmi engaged in the project.

Rapid Study of Source Apportionment and Carrying Capacity in Anpara city

1. Background

The Uttar Pradesh Pollution Control Board (UPPCB), Lucknow being an observant institution and deeply concerned with air quality in the State, has taken a holistic view and has proposed comprehensive studies of air quality in nine cities (Noida, Khurja, Firozabad, Anpara, Gajraula, Jhansi, Moradabad, Raebareli and Bareilly Cities) in respect of PM_{10}, $PM_{2.5}$, SO_2, NO_x, and CO pollutants. UPPCB, through their letter number G32626UPPCB/CL/413/CC/2019, dated 28.04.2019, has desired that Indian Institute of Technology (IIT) Kanpur takes up the rapid emission inventory and dispersion modelling based carrying capacity (CC) study in the nine cities to address the air pollution issues by identifying the major air pollution sources, their emissions and contributions to ambient air pollution levels.

This document constitutes the final report for Anpara City comprising the scope of the work, methodology, emission inventory (EI), air quality modelling and CC-based an action plan.

1.1 Scope of the Work

The scope of the work is as per the following:

- Estimate the carrying capacity with respect to air quality in Anpara city.
- Develop GIS-based gridded (2 km × 2 km resolution) emission inventory for air pollutants PM_{10}, $PM_{2.5}$, SO_2, NO_x, and CO, for the base year, 2019.
- Estimate source contributions to ambient air pollution through air quality dispersion modeling .
- Prepare an action plan for air quality compliance .

1.2 Major Tasks

The following major tasks were undertaken:

- Detailed project planning
- Literature review and protocol for estimation of CC
- Survey for CC and sampling
- Preparation of thematic layers of land-use map of the study area
- Collection of emission activity data and compilation of emission inventory
- Meteorology data generation using WRF (weather research forecasting) model
- Dispersion modeling for collective emission (all sources)
- Dispersion modeling for source-wise contribution
- Dispersion modeling for best control scenario
- CC assessment

2. Digital Data Generation and Land-use Map

The land-use map of the study area is prepared in terms of agriculture, vegetation, industrial, water bodies, road network, settlements, and open areas. (Figure 1 to Figure 9).

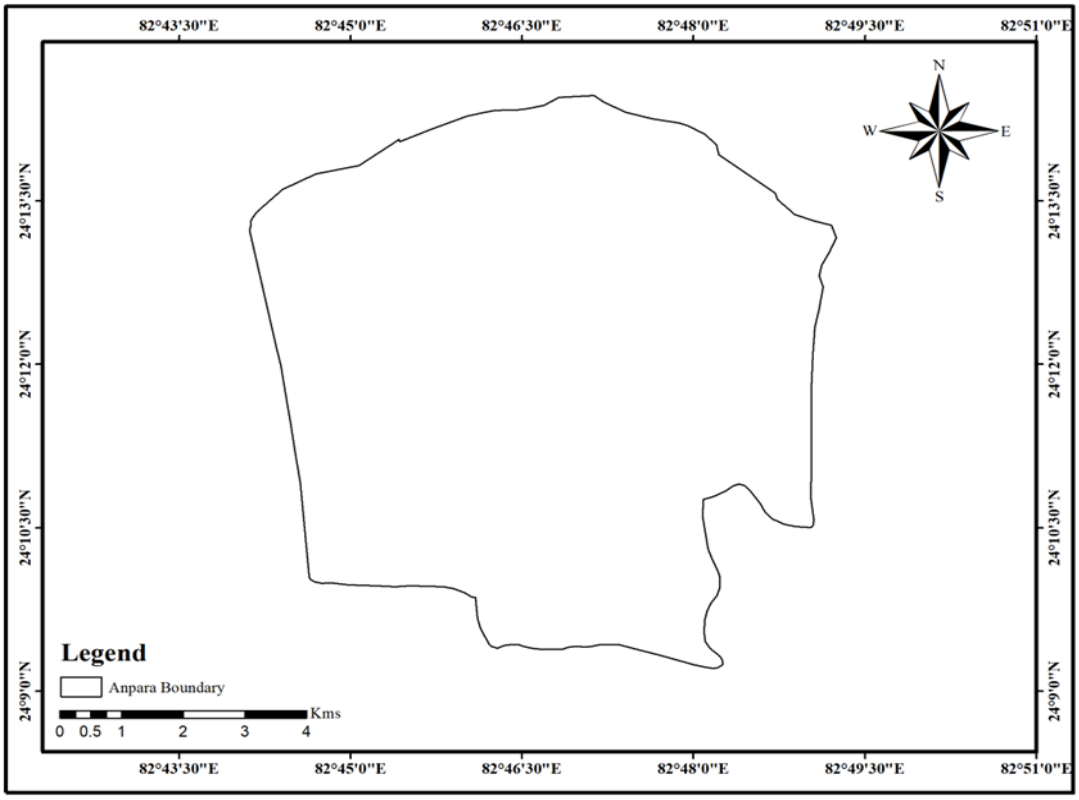


Figure 1: Anpara wards and city boundary

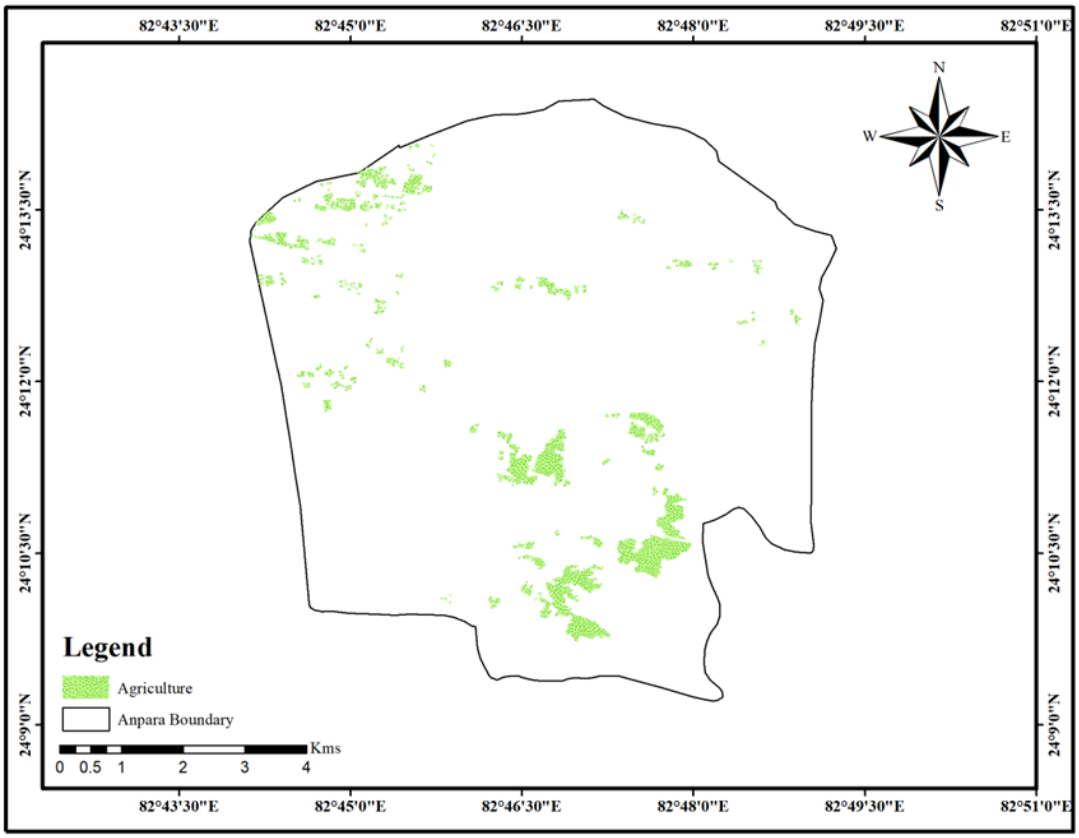


Figure 2: Agricultural area map

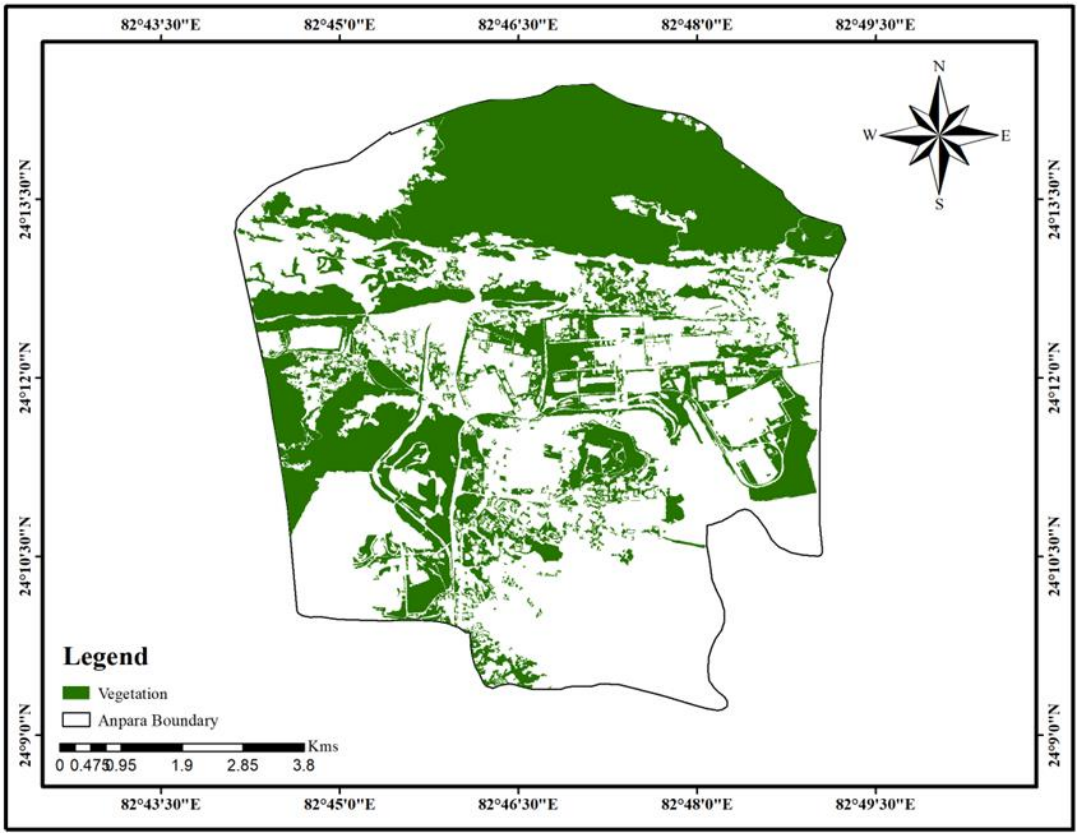


Figure 3: Vegetation map

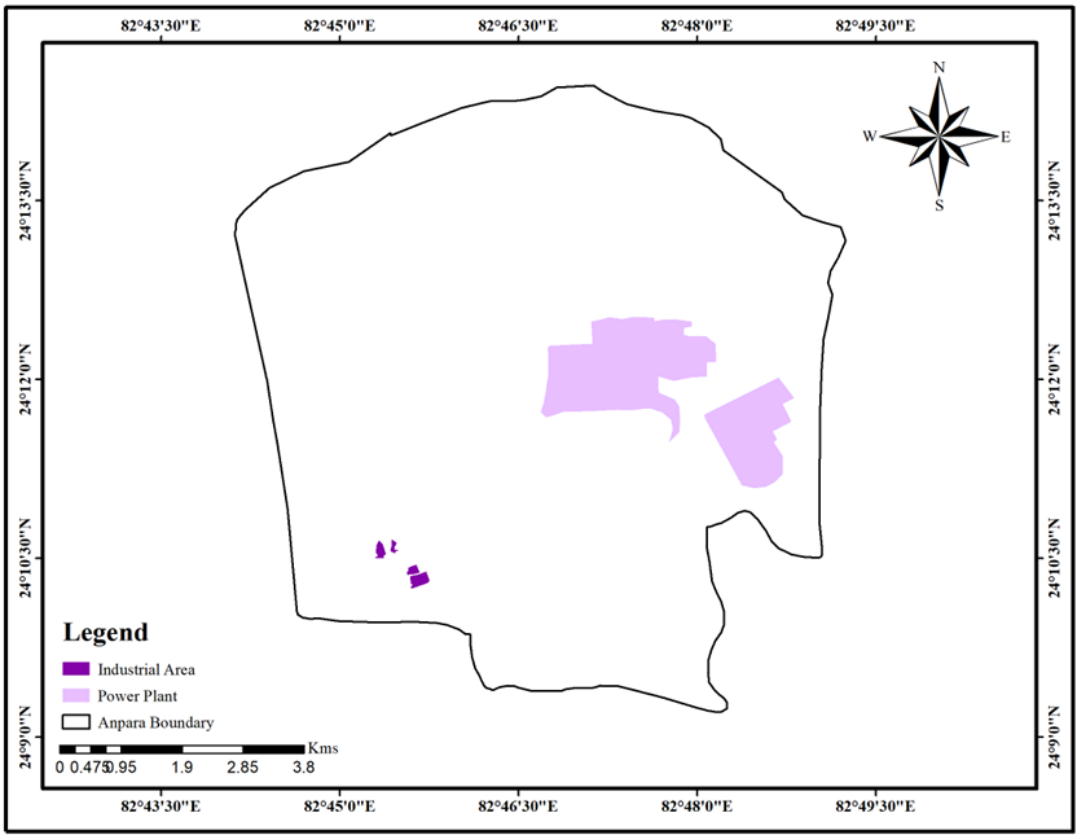


Figure 4: Industrial and Power plant area map

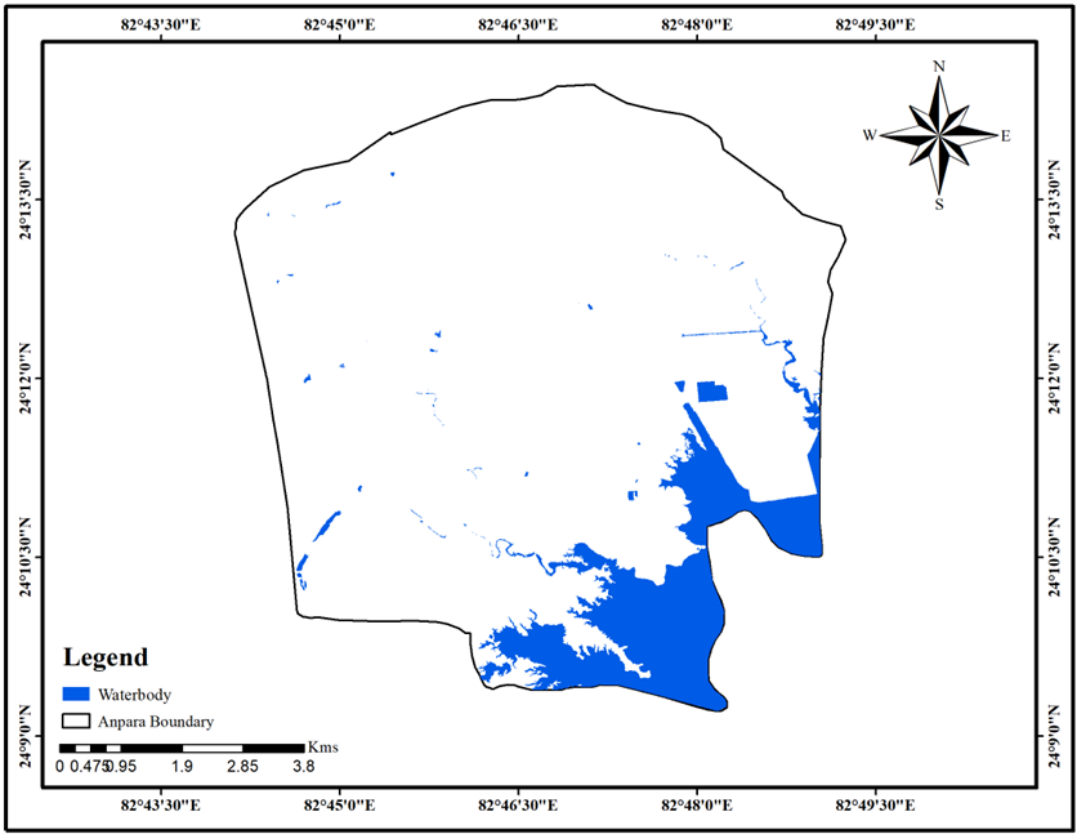


Figure 5: Water bodies area map

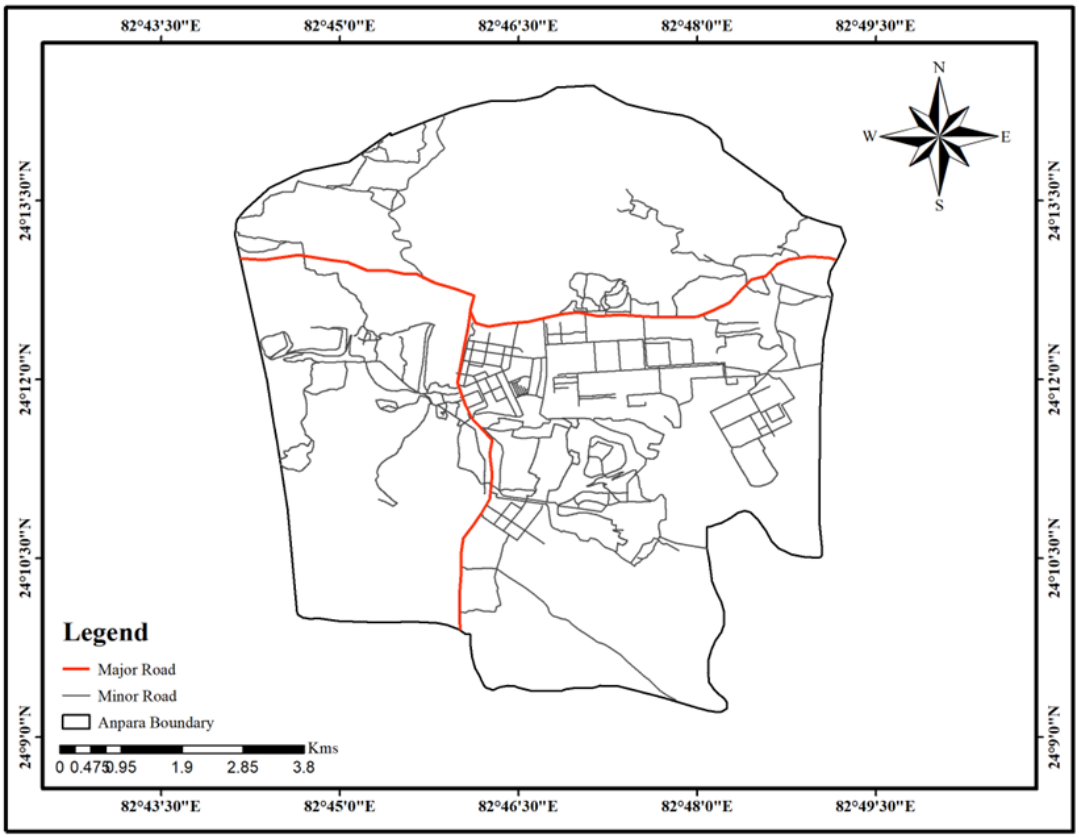


Figure 6: Road network map

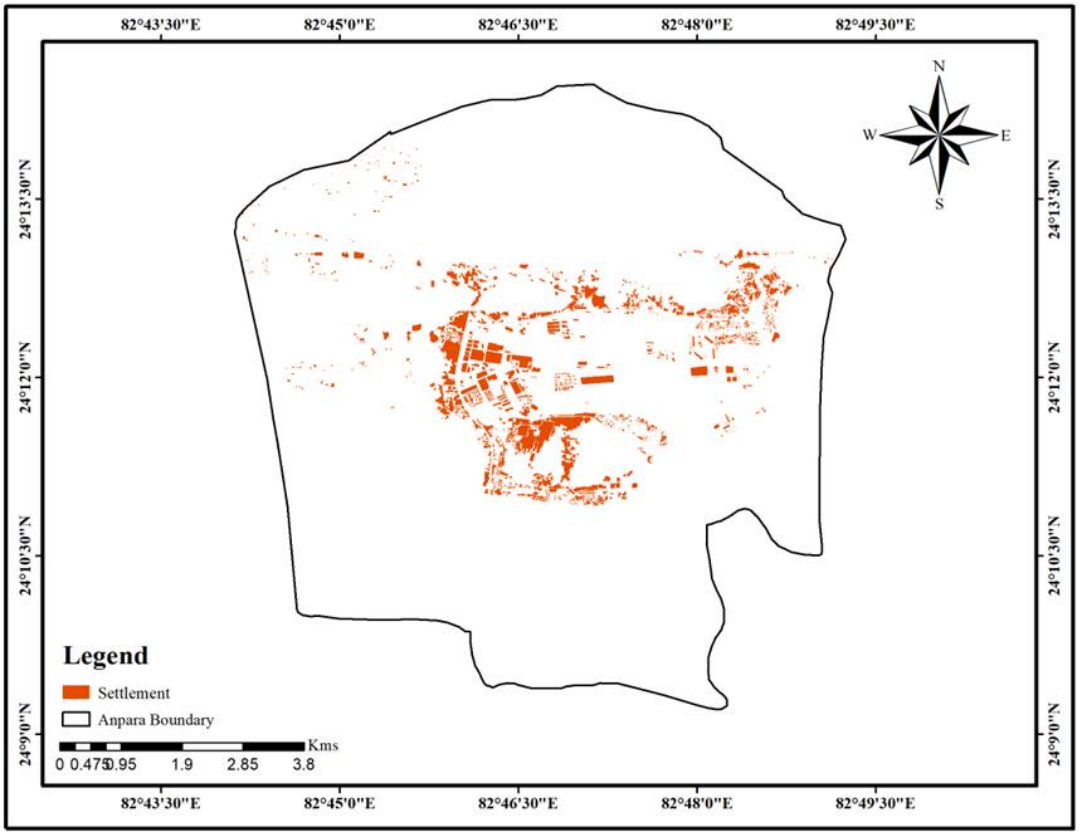


Figure 7: Settlement area map

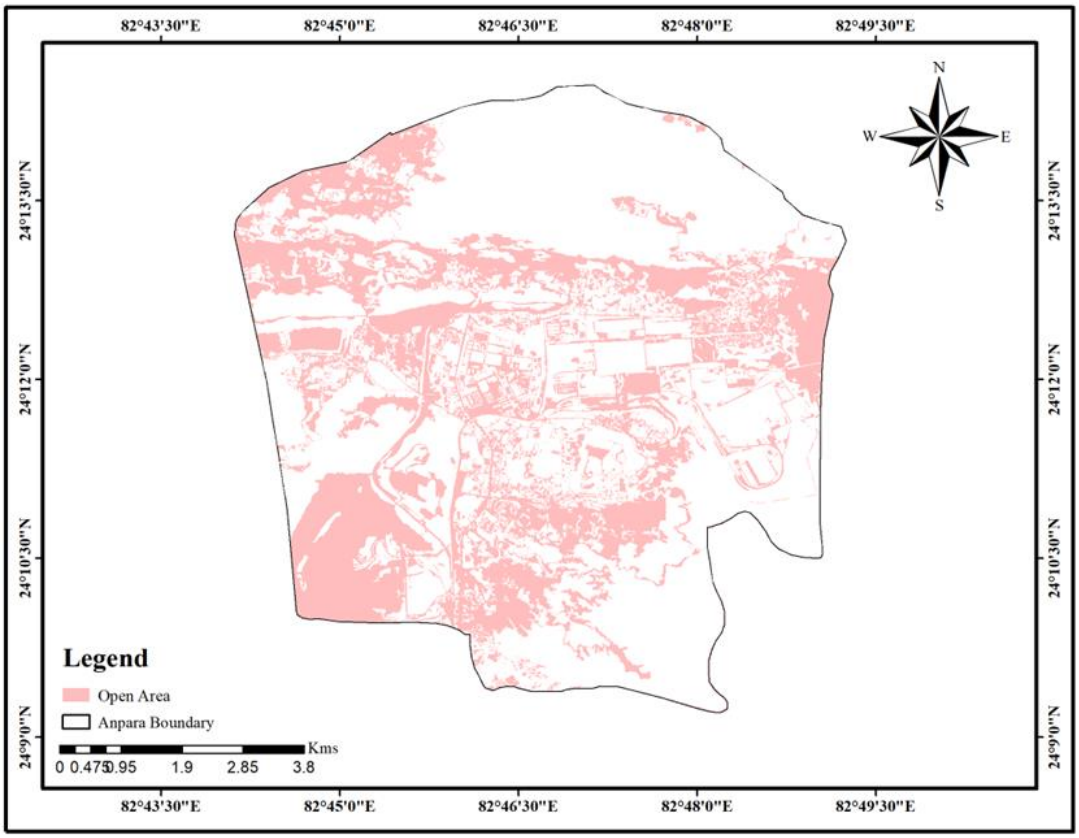


Figure 8: Open area map

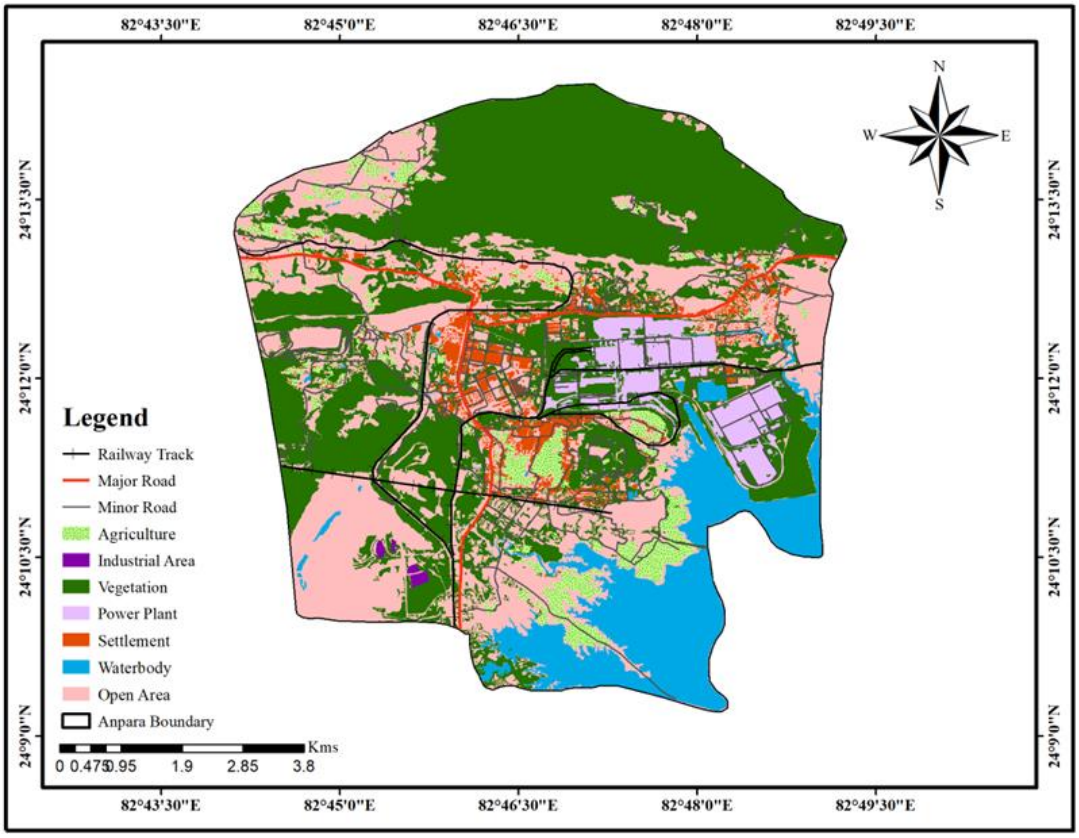


Figure 9: Land use map of Anpara city

At the time of the development of the emission inventory, a suitable coding system was adopted to avoid confusion and misrepresentation of results and interpretation. The emissions have been calculated for Anpara city. The grid map of Anpara with grid identity numbers is shown in Figure 10. The study area was divided into grids of 2 × 2 km^2.

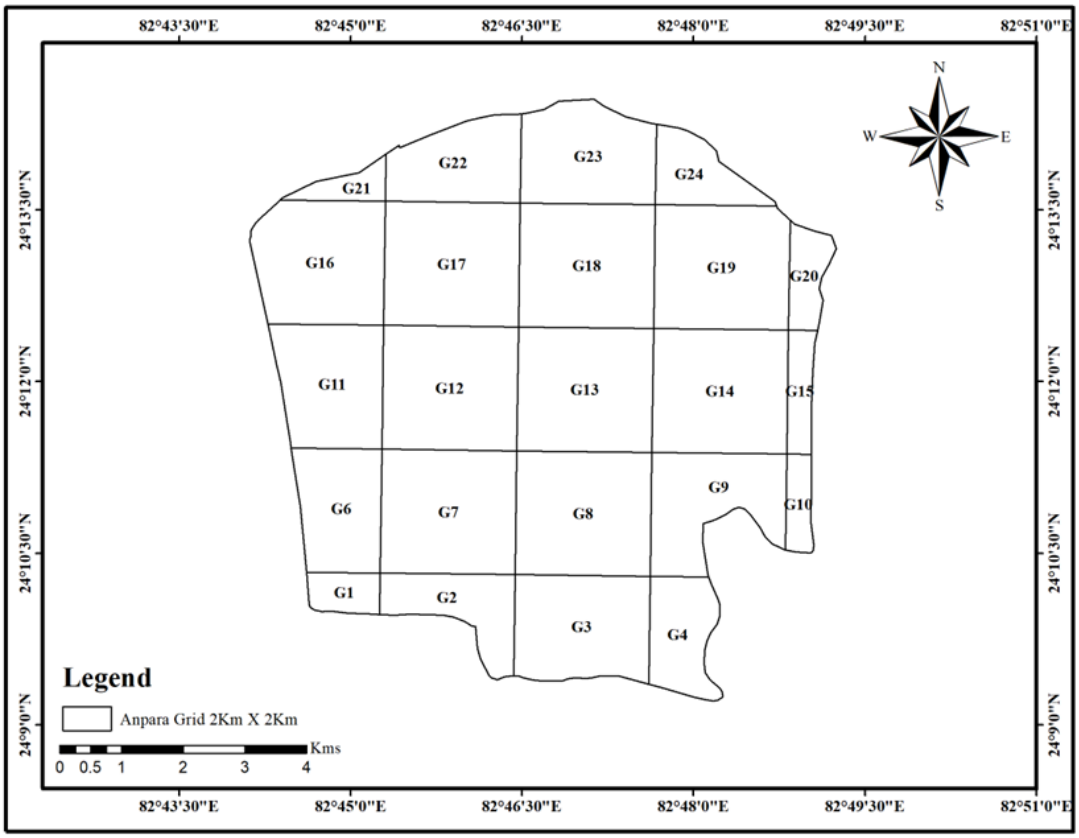


Figure 10: Grid map of Anpara city showing grid identity numbers

3. Emission Inventory

3.1 Introduction

Emission inventory (EI) is a basic necessity for planning air pollution control activities and it provides a reliable estimate of total emissions of different pollutants and their spatial and temporal distribution and identification and characterization of primary sources. This information on EI is an essential input to air quality models for developing strategies and policies. In this chapter, the emission inventory of the study area for the year 2019 is presented.

3.2 Methodology

The stepwise methodology adopted for this study is presented in Figure 11.

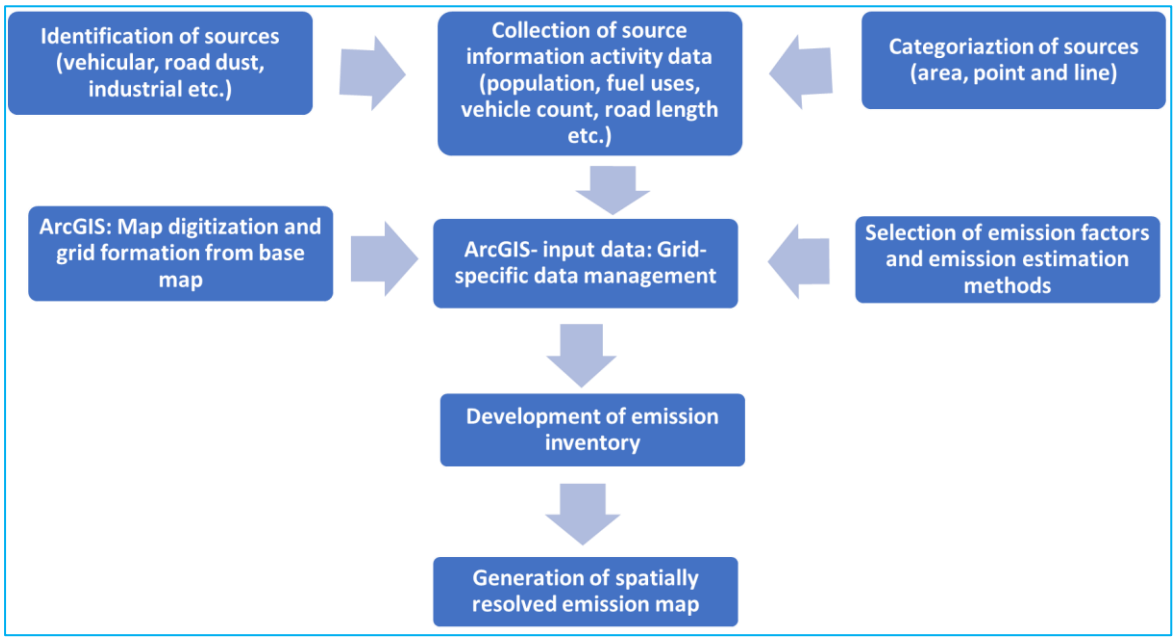


Figure 11: Stepwise methodology and major tasks

3.2.1 Categorization of Sources

The air quality of a region is affected by emissions from different sources. Depending upon the emissions from sources, their contribution to air quality varies. It is important to identify and quantify these sources to control the emission and thereby improve the air quality. Air pollution sources are widely categorized as area (domestic and fugitive combustion type emission sources), industrial (point and area) sources and vehicular (line) sources. The source category and type of sources are shown in Figure 12.

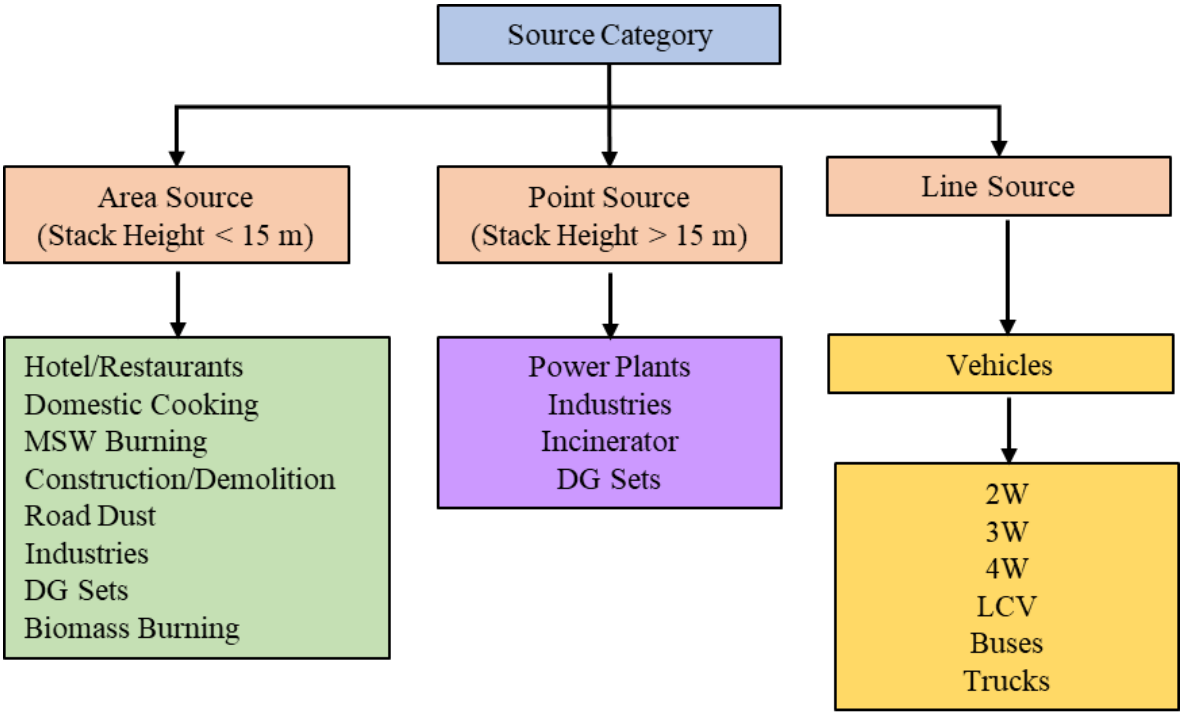


Figure 12: Source category and type of sources

3.2.2 Data Collection

The IITK team collected the primary and secondary activity data. Domestic surveys, vehicular traffic count, parking lane surveys, road dust, etc., were physically done in the study area for primary data generation. The main sources of secondary data collection are from UPPCB, the Census of India, and CPCB website, the Transport Department, and toll plazas. The information has also been collected through the Internet by visiting various websites. Although all possible efforts have been made to collect the data, some information/data could be missing.

3.2.3 Emission Factor

An emission factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with releasing that pollutant. These factors are usually expressed as the mass of pollutant per unit mass of raw material, volume, distance traveled, or duration of the activity (e.g., grams of particulate emitted per kilogram of coal burnt). Such factors facilitate the estimation of emissions from various sources of air pollution. In most cases, these factors are simply averaging of all available data of acceptable quality. They are generally assumed to be representative of long-term averages for all facilities in the source category.

The general equation for emissions estimation is:

$$E = A \times EF \times (1 - ER/100) \quad \text{..... Equation 1}$$

Where:

E = Emissions rate;

A = Activity rate;

EF = Emission factor, and

ER = Overall emission reduction efficiency, %

3.2.4 Domestic Sector

The interior boundaries in the map (Figure 1) show the administrative boundaries of wards in Anpara city. The projected population of Anpara city for the year 2019 is approximately 21100. The emission from the domestic sector for the city is calculated. The population-wise fuel consumption pattern shows LPG (85%) consumption (CEEW Report, 2019), Wood (8%), Coal (5%), Crop Residue (1%), Kerosene (0.8%) and Dung (0.1%). During the field survey, it was observed that most economically weaker/ slum areas use wood and dung as fuel for cooking, although they have been given LPG cylinders.

The area of wards was calculated using GIS, and the emission density for each ward is calculated for different pollutants (PM_{10}, $PM_{2.5}$, SO_2, NO_x, and CO). The emission factors given by CPCB (2011) and AP-42 (USEPA, 2000) were used for each fuel type.

After obtaining the area of wards, the emission density (e.g., PM_{10} per sq. km) for each ward was calculated for different pollutants (PM_{10}, $PM_{2.5}$, SO_2, NO_x, and CO). The emission density in terms of kg/d/m^2 in each ward was calculated based on the population and area of the ward.

Emission Density (kg/d/ m^2) = Emission of Ward (kg/d) / Ward Area (m^2).....**Equation 2**

For calculating emissions in a grid that may contain more than one ward, the fraction of the area of each ward falling inside that grid was calculated, and with the help of the emission density of the ward and its faction in the grid (Pathak et. al. 2020), the emissions in the grid were calculated

$$Grid\ Emissions = \sum_{i=1}^{N} (area\ of\ fraction\ ward\ i\ in\ grid \times emission\ density\ of\ ward, i)$$ ..... **Equation 3**

Where

N= no. of wards in the grid

$i = i^{th}$ ward in the grid

The emissions from the domestic sector in Anpara city are given in Figure 13. The emission contributions in this sector from different fuel types and different pollutants are shown in Figure 14 to Figure 18. The spatial distribution of different pollutants is shown in Figure 19 to Figure 23.

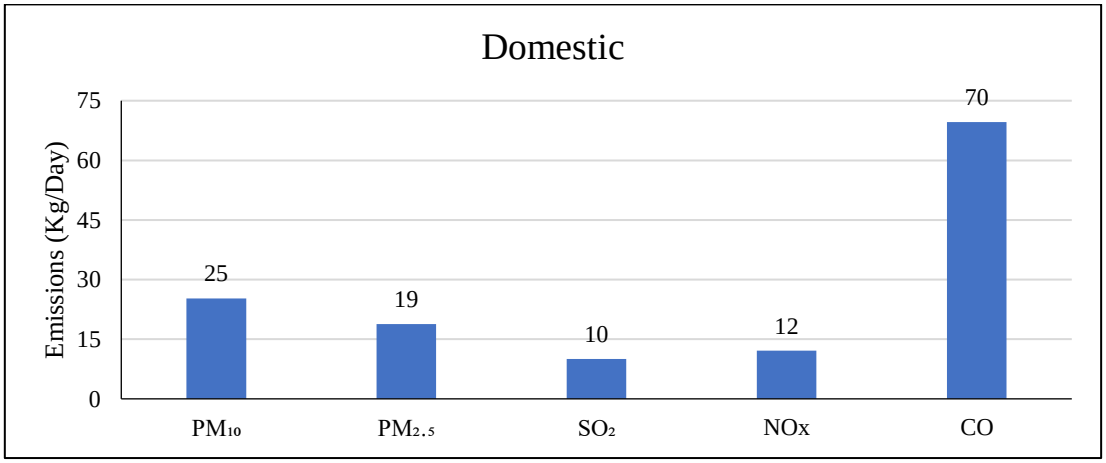


Figure 13: Emission load from domestic sector (kg/d)

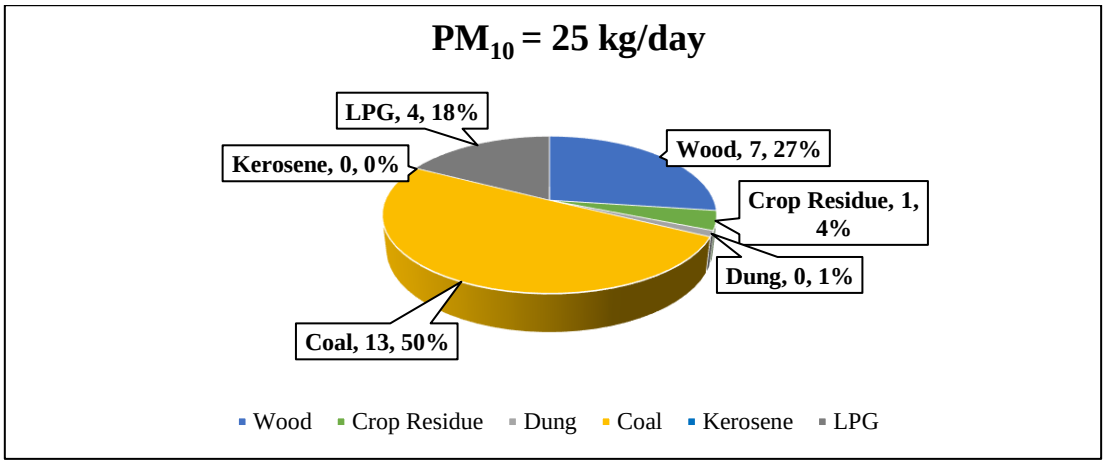


Figure 14: PM_{10} Emission load from domestic sector (kg/d, %)

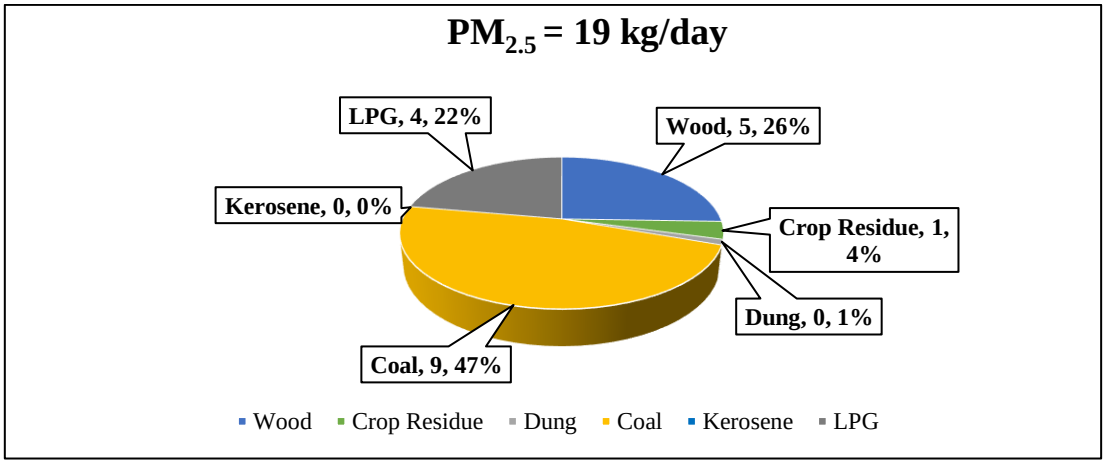


Figure 15: $PM_{2.5}$ Emission load from domestic sector (kg/d, %)

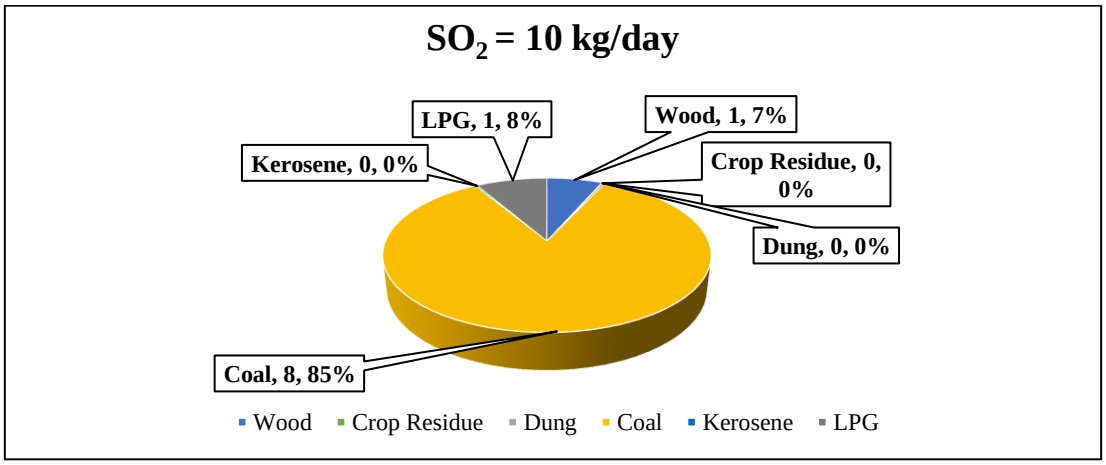


Figure 16: SO_2 Emission load from domestic sector (kg/d, %)

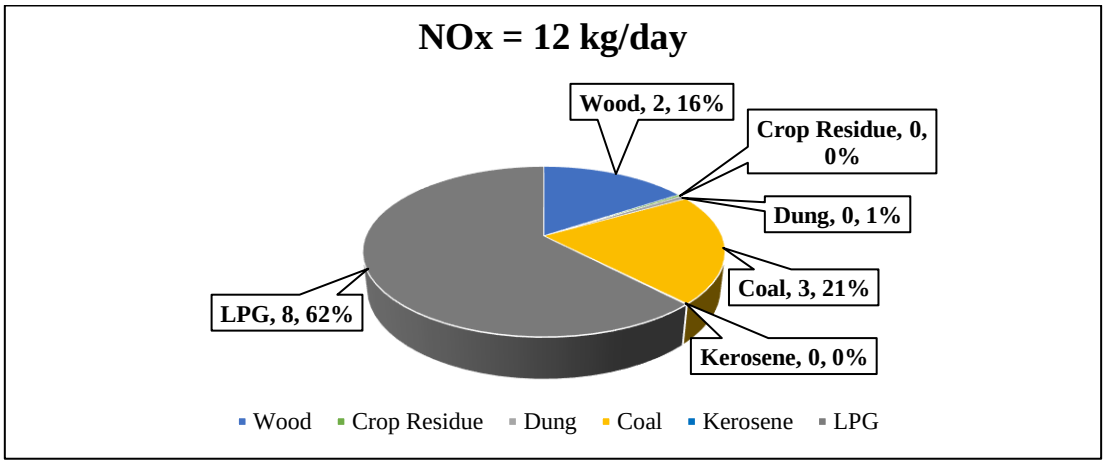


Figure 17: NO_x Emission load from domestic sector (kg/d, %)

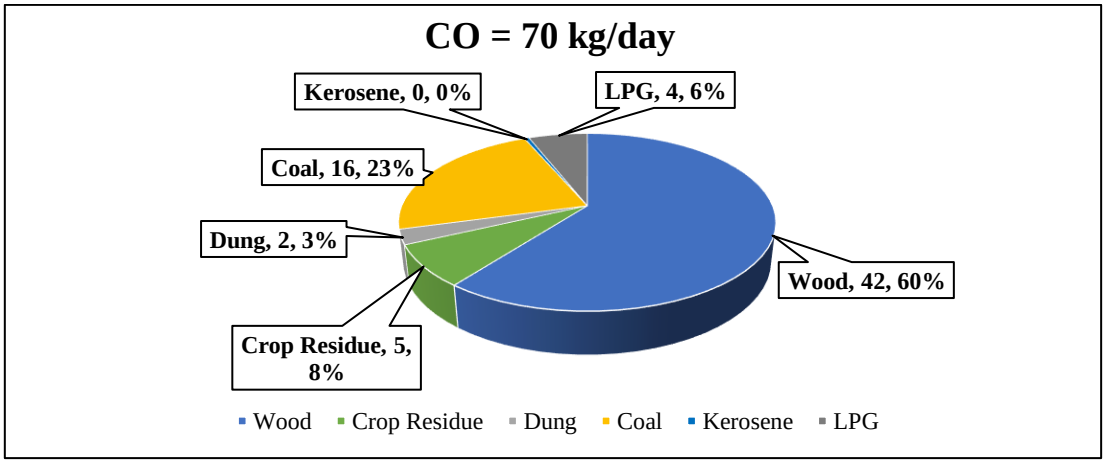


Figure 18: CO Emission load from domestic sector (kg/d, %)

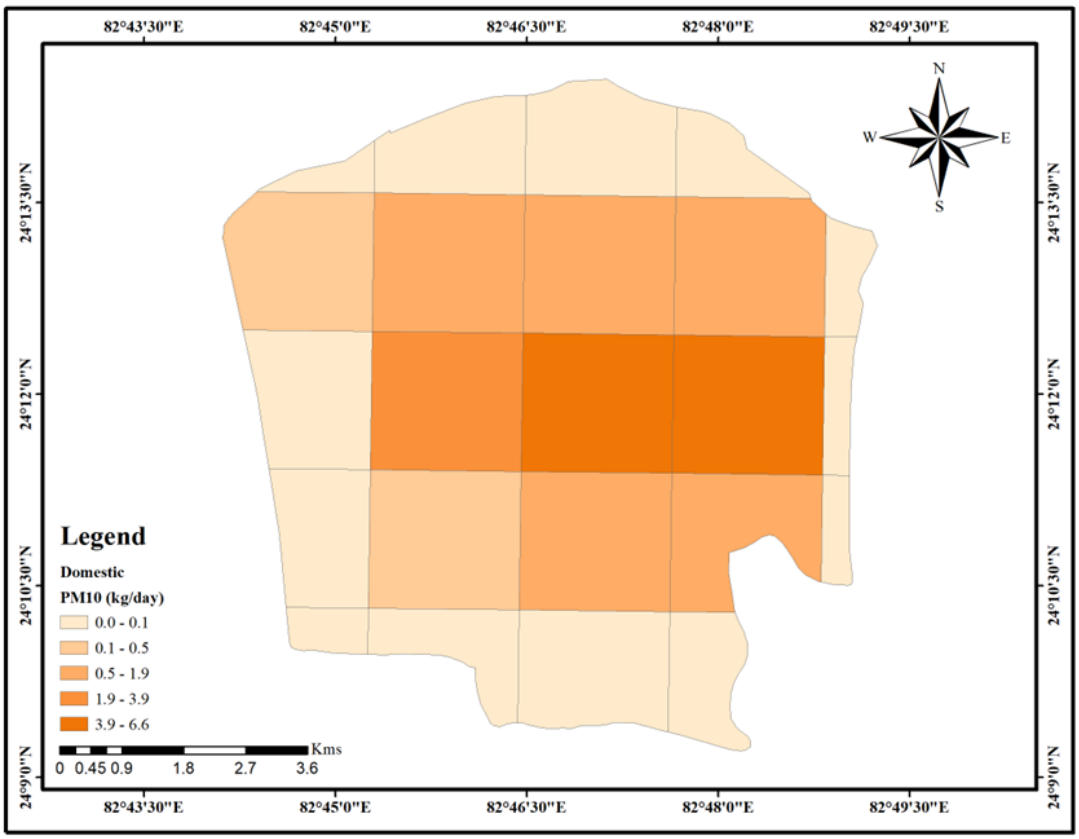


Figure 19: Spatial distribution of PM_{10} Emissions from domestic sector

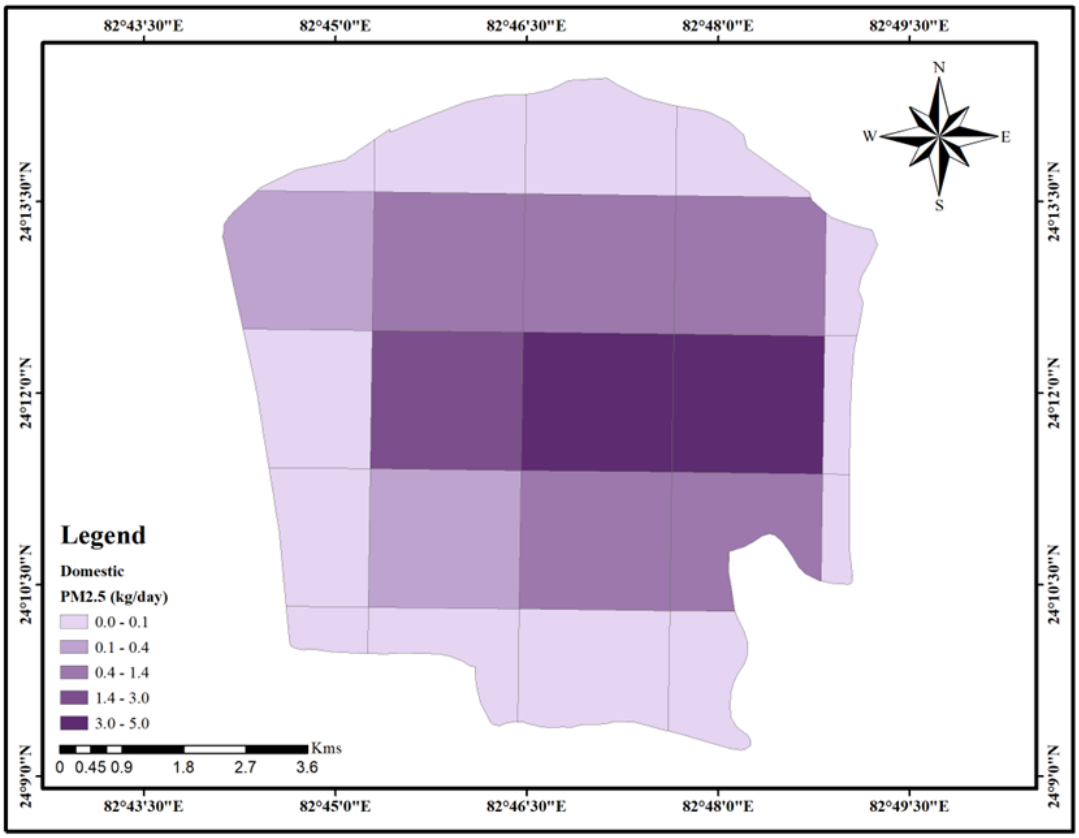


Figure 20: Spatial distribution of $PM_{2.5}$ emissions from domestic sector

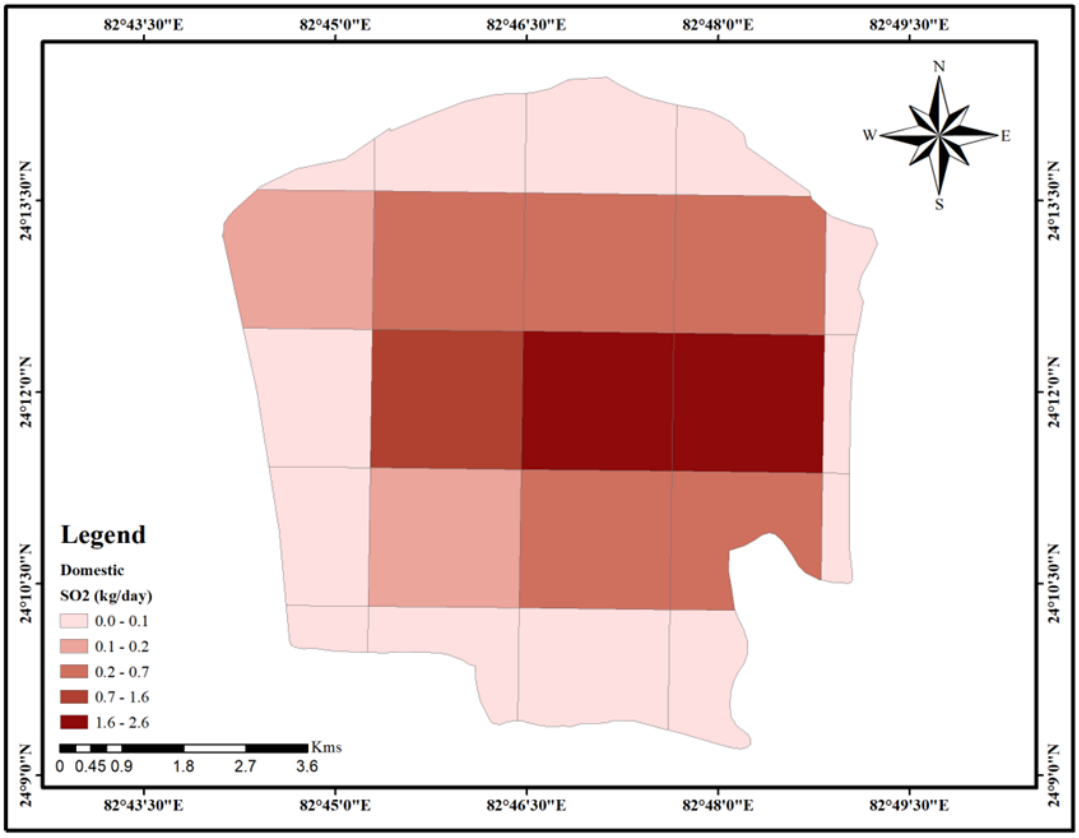


Figure 21: Spatial distribution of SO_2 emissions from domestic sector

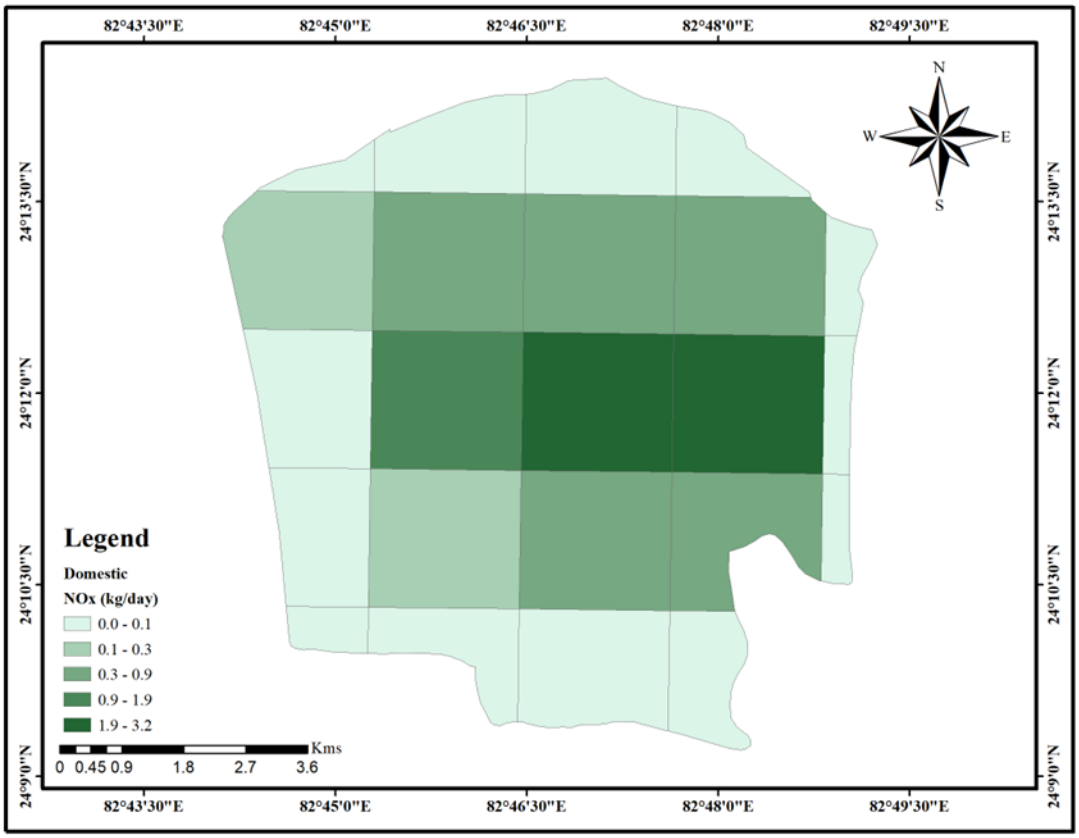


Figure 22: Spatial distribution of NO_x emissions from domestic sector

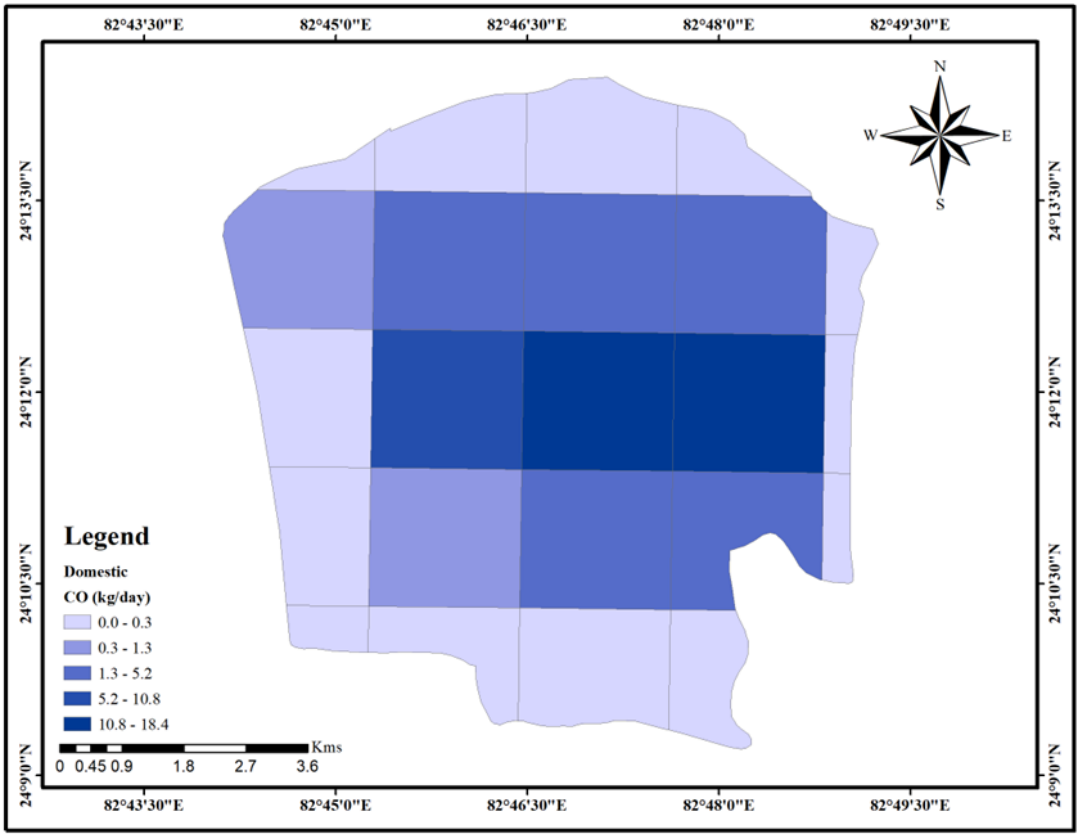


Figure 23: Spatial distribution of CO emissions from domestic sector

3.2.5 Construction and Demolition

A detailed survey was undertaken to assess construction and demolition activities. The major construction activities include large constructions (residential, commercial, roads, and industrial). Information about construction was obtained from Sonbhadra Nagar Palika Parishad, PWD, CPWD, and a detailed survey was done. The satellite imagery was also used to validate the construction activities. Nearly at all construction sites, the construction material and debris (lying in the open, without cover) are stored outside the construction premises, mainly near the road. The areas under construction activities were calculated based on survey data and GIS-based calculations. The location of construction and demolition sites in Anpara city is given in Figure 24.

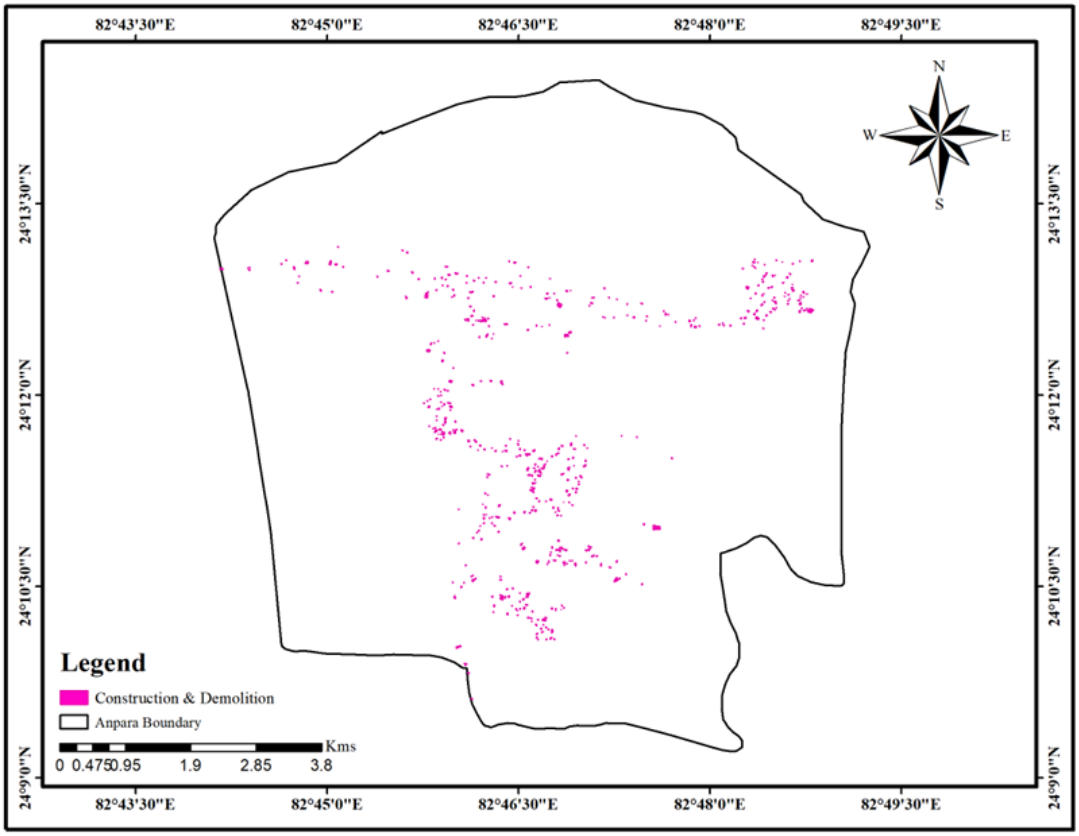


Figure 24: Location of construction and demolition sites at Anpara city

The Emission load of PM_{10} and $PM_{2.5}$ from construction and demolition is 161 kg/d and 37 kg/d (Figure 25). The construction sites and debris associated with generating particulate emissions are shown in Figure 26. The spatially resolved emission map of construction and demolition activities is shown in Figure 27 and Figure 28.

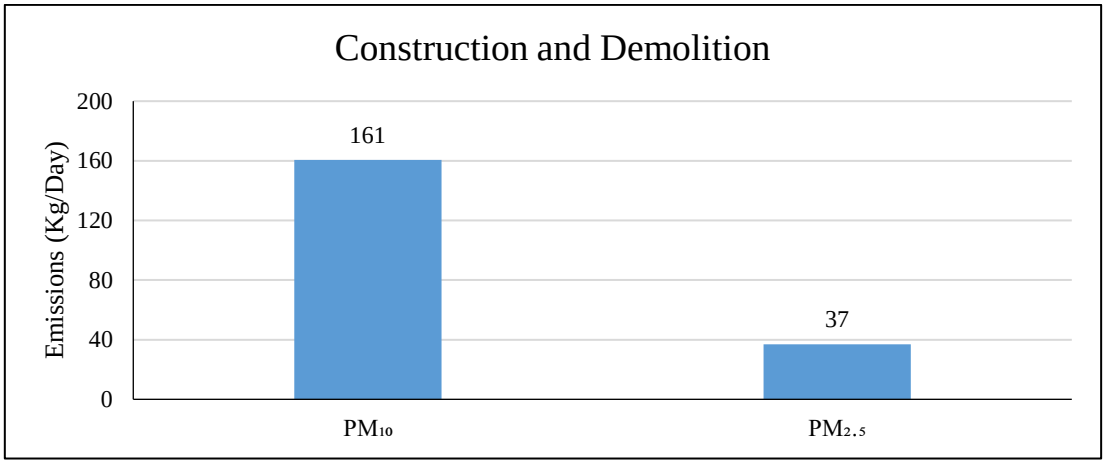


Figure 25: Emissions from construction and demolition (kg/d)

Figure 26: Construction material and debris near construction sites

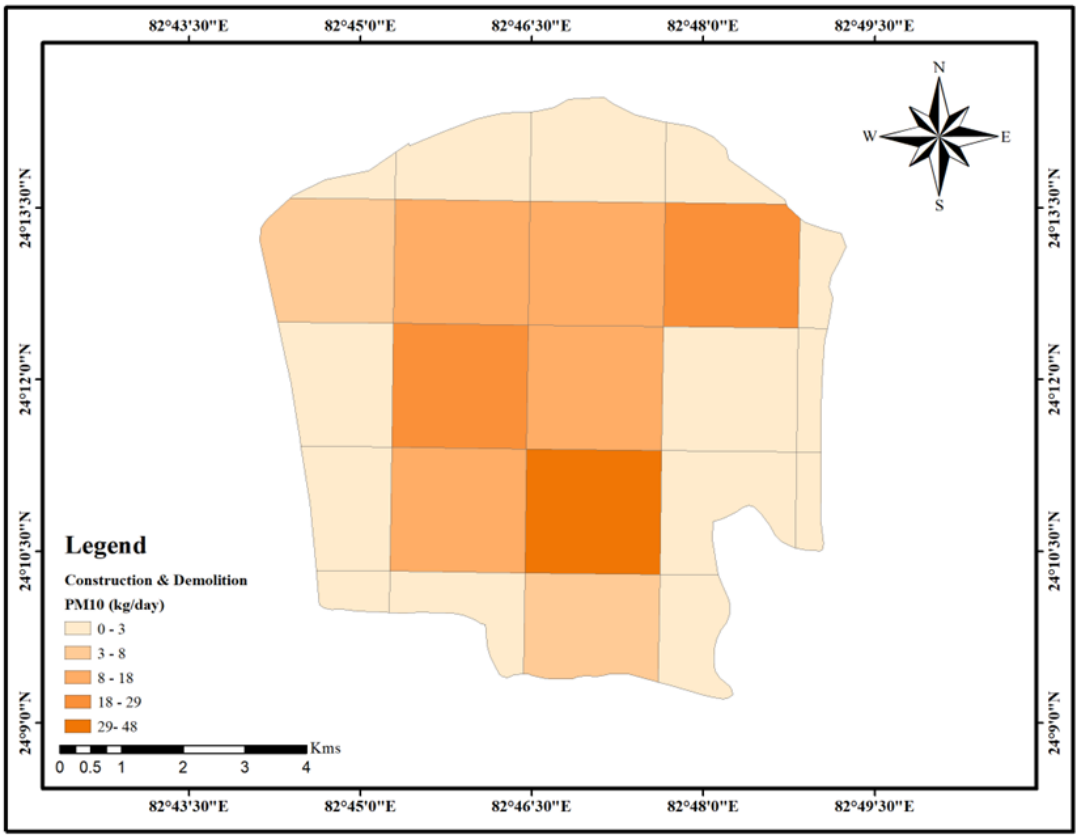


Figure 27: Spatial distribution of PM_{10} emissions from construction/demolition

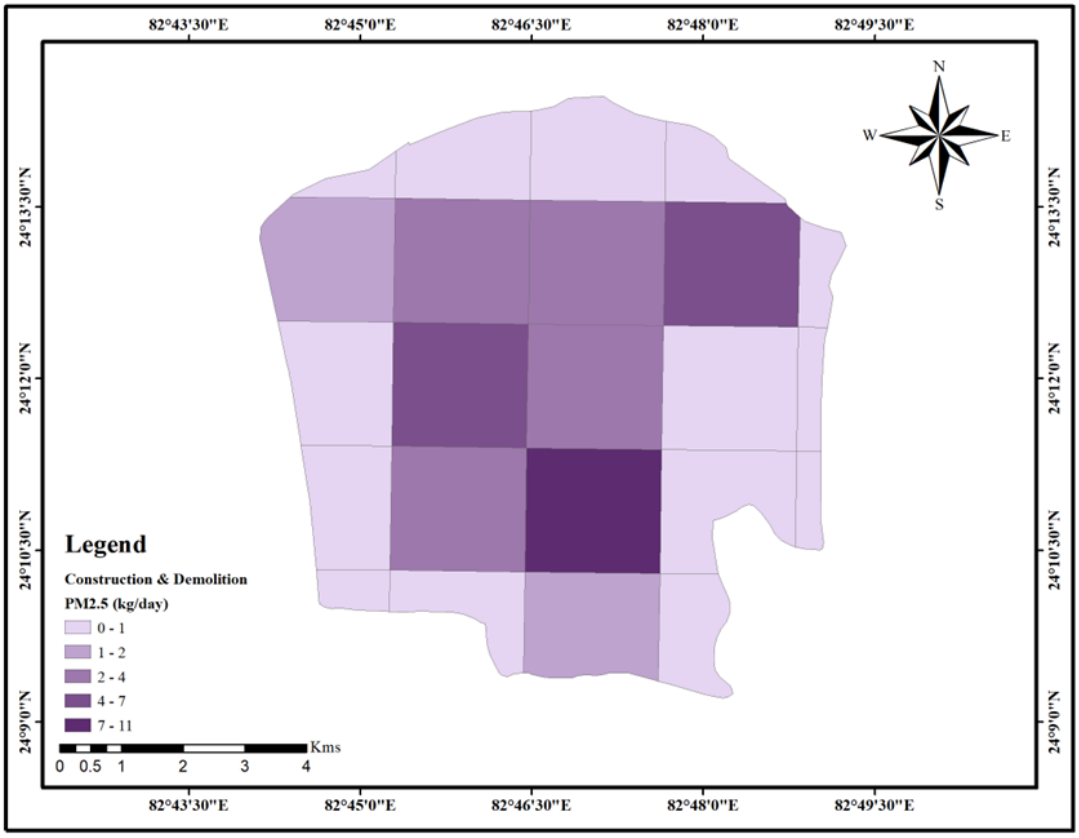


Figure 28: Spatial distribution of $PM_{2.5}$ Emissions from construction/demolition

3.2.6 Hotels, Restaurants, Guest Houses (GHs), and Banquet Halls (BHs)

The IITK team conducted the primary survey to identify the hotels and restaurants with more than a sitting capacity of ten persons and other eating joints.

During the field survey, it was observed that hotels, restaurants, etc. use coal as fuel in tandoors. The common fuel other than wood is LPG. The total number of Hotels, Restaurants, Guest Houses (GHs), and Banquet Halls (BHs) are approximately 29 (Figure 29). The average consumption of wood/coal in each establishment is estimated to be 80 kg per day based on a primary survey. The fuel consumption for each fuel type was estimated for each grid. The emissions of various pollutants such as PM_{10}, $PM_{2.5}$, SO_2, NO_x, and CO were estimated from the activity data from each fuel type and then summed up in each grid. The overall emission from this area source (Hotels, Restaurants, GHs, and BHs) is shown in Figure 30. The spatial distribution of emissions is shown in Figure 31 to Figure 35.

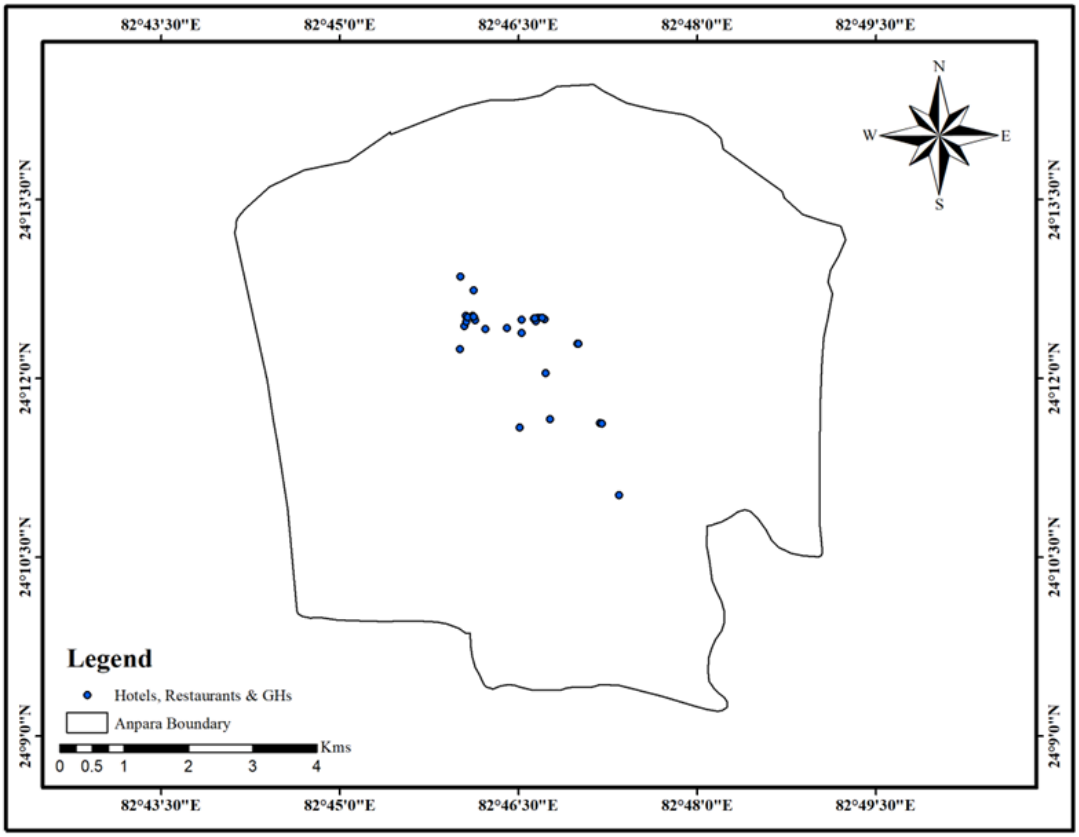


Figure 29: Location of hotels, restaurants, GHs & BHs

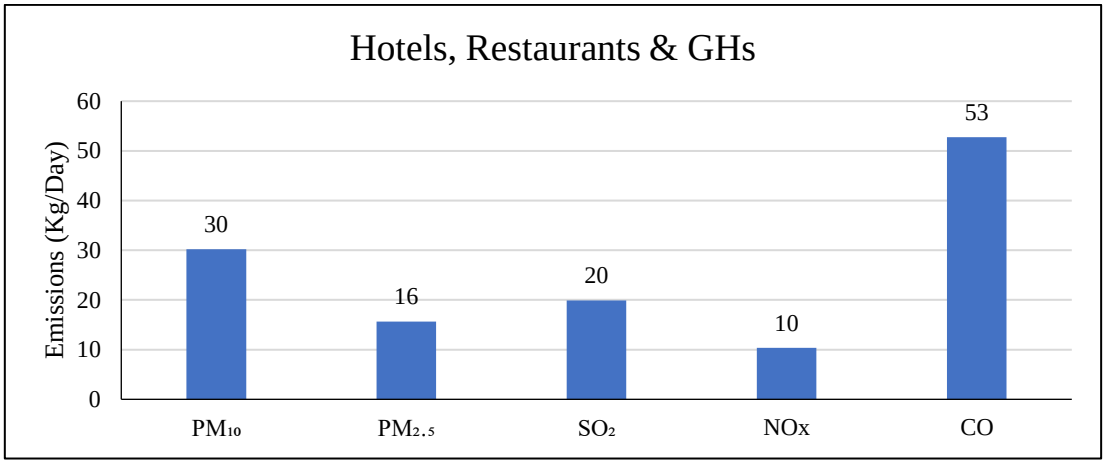


Figure 30: Emission load from hotels, bakeries, and restaurants (kg/d)

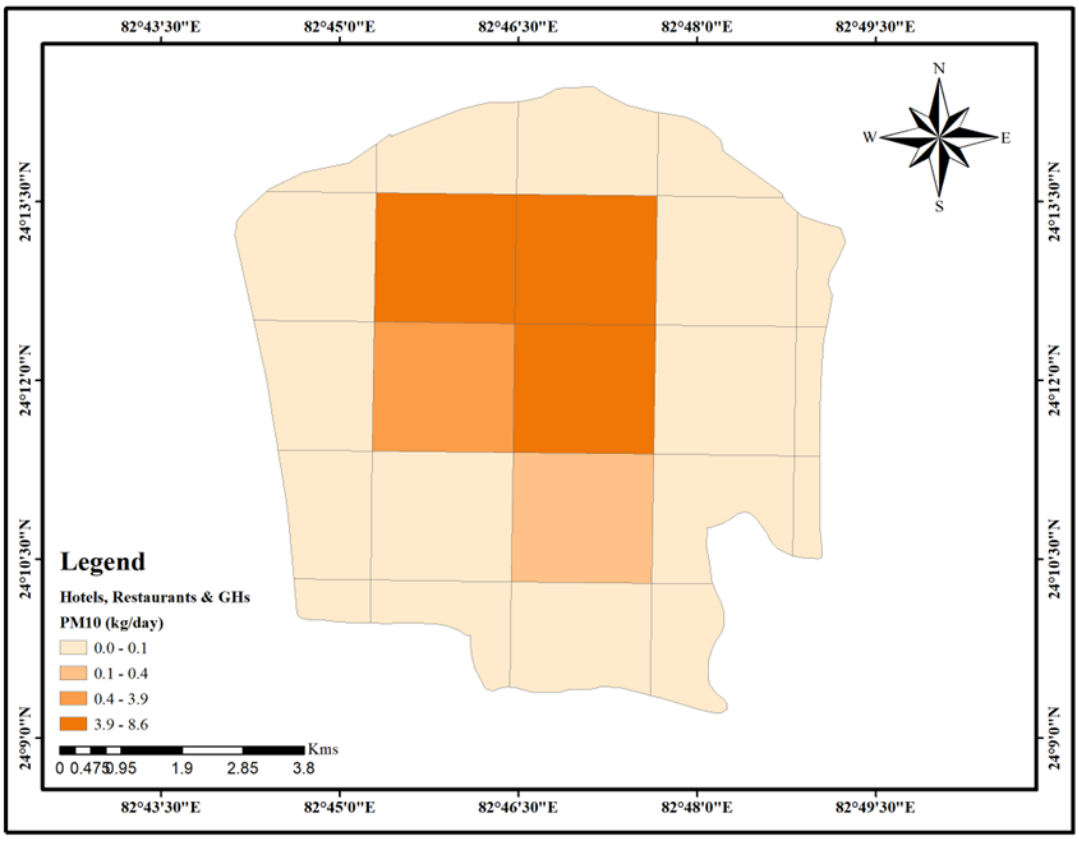


Figure 31: Spatial distribution of PM_{10} emissions from hotels, restaurants, GHs and BHs

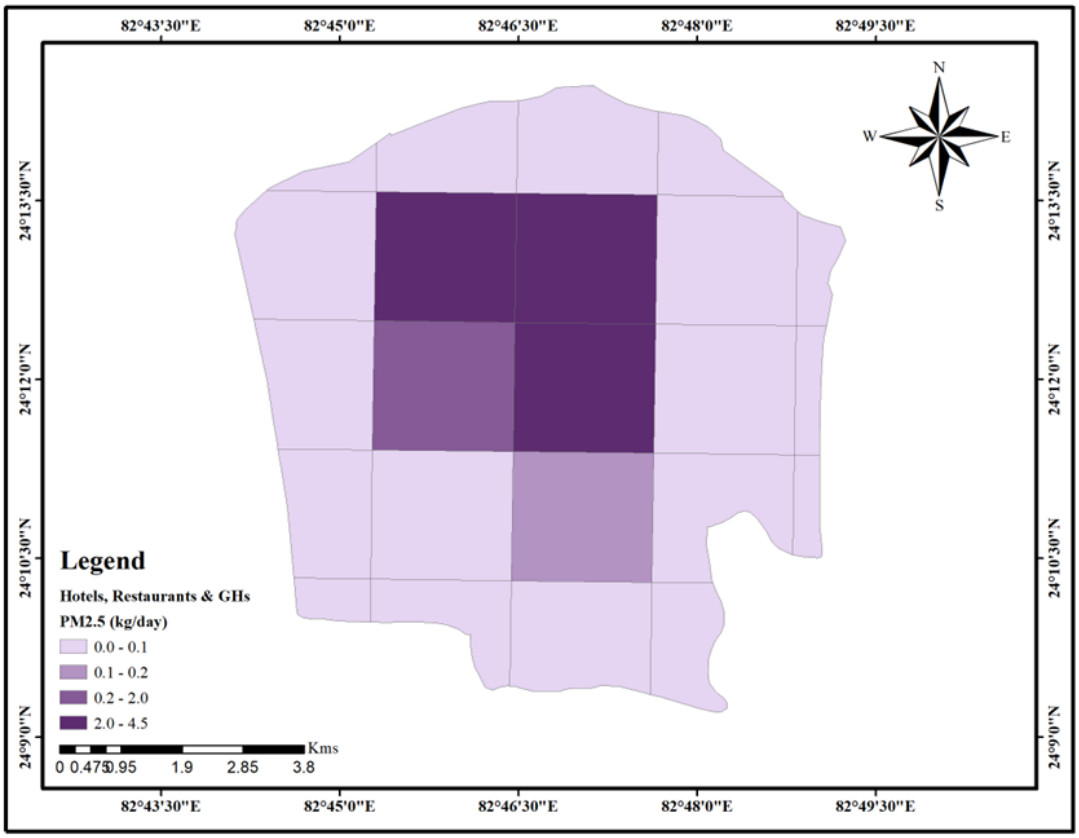


Figure 32: Spatial distribution of $PM_{2.5}$ emissions from hotels, restaurants, GHs and BHs

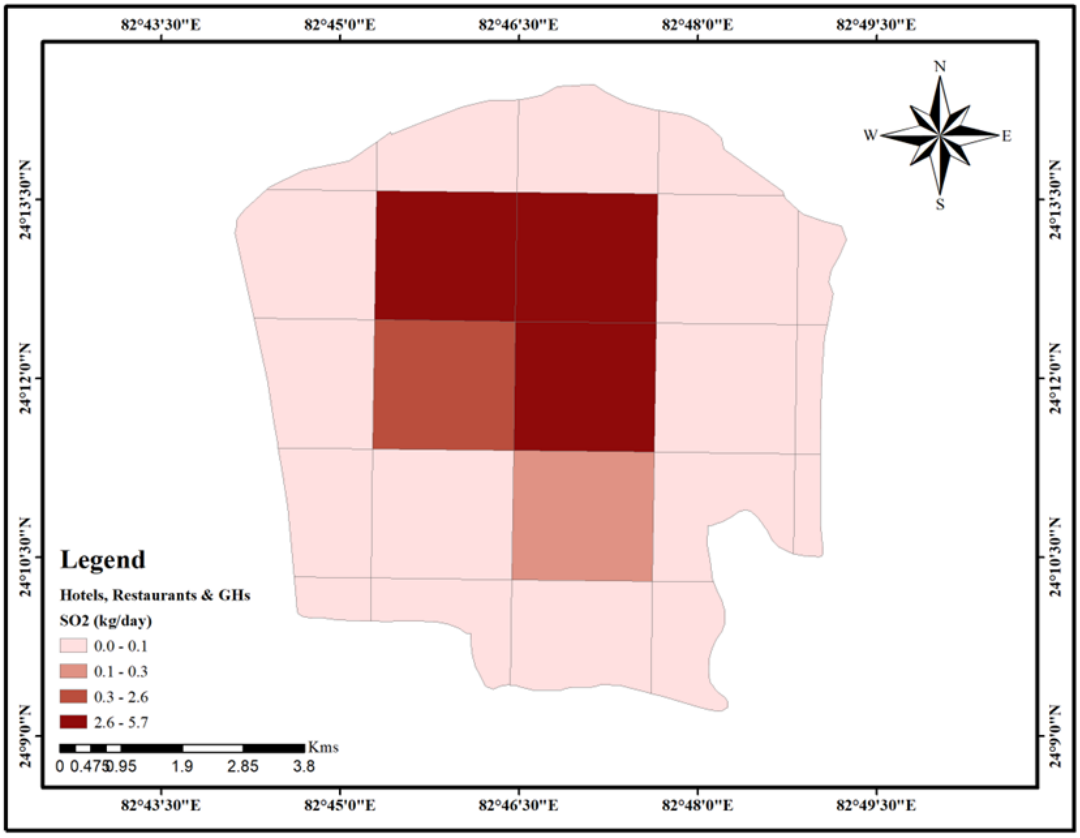


Figure 33: Spatial distribution of SO_2 emissions from hotels, restaurants, GHs and BHs

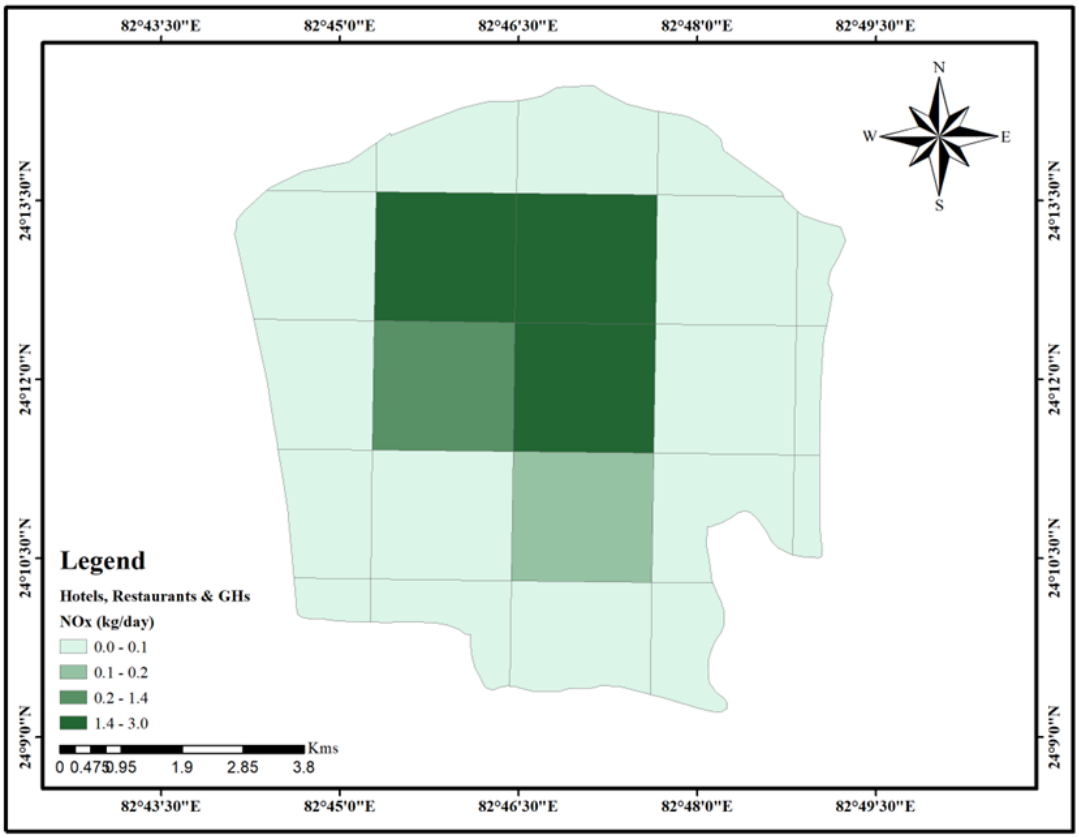


Figure 34: Spatial distribution of NO_x emissions from hotels, restaurants, GHs and BHs

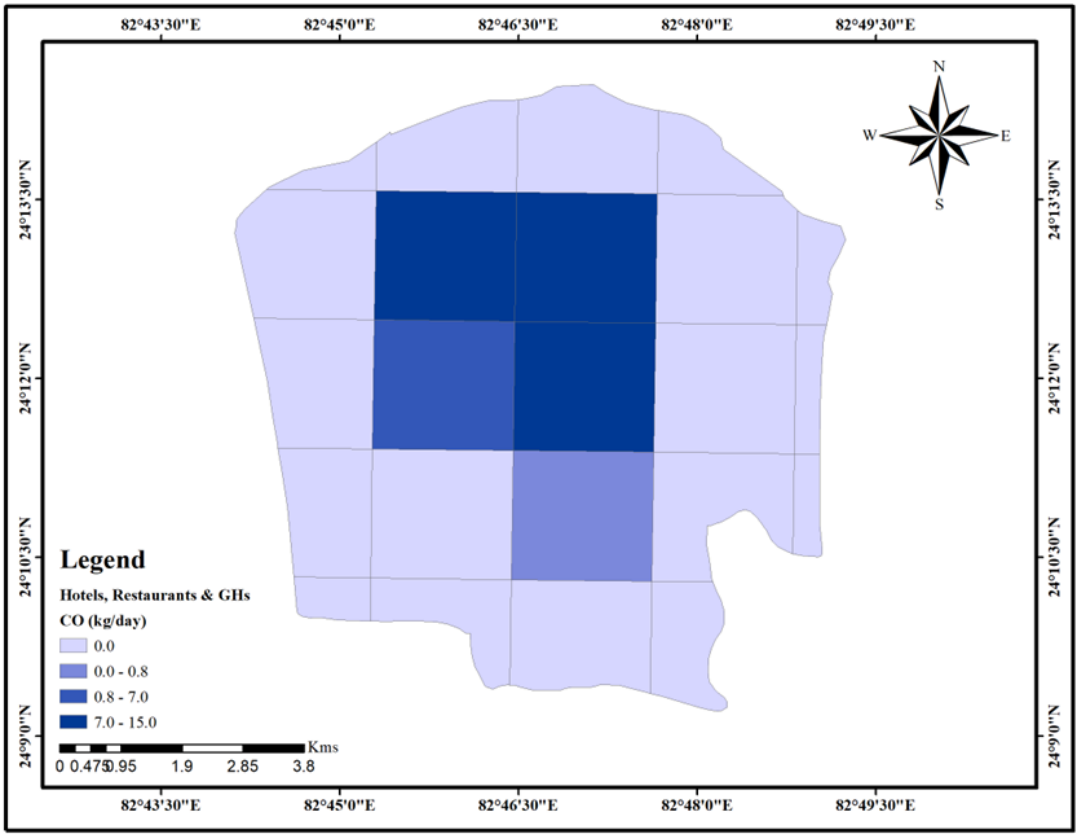


Figure 35: Spatial distribution of CO emissions from hotels, restaurants, GHs and BHs

3.2.7 Municipal Solid Waste Burning

Open-burning activities are broadly classified into refuse and biomass burning. The refuse or municipal solid waste (MSW) burning depends on solid waste generation and the extent of disposal and infrastructure for collection. The Solid waste generation is around 7.4 MT/day and the waste collected is approximately 7.1 MT/day. The MSW collection efficiency is 96.5% in Anpara city (UPPCB SWM Annual Report 2019-20), and several events of MSW burning have been observed during the city survey. The survey was conducted on weekdays and weekends and the frequency of MSW burning events is calculated in the low, middle: and higher-income areas. The MSW burning at different locations in Anpara city is shown in Figure 36.

Figure 36: MSW burning in Anpara city

The emission factors given by CPCB (2011) and AP-42 (USEPA, 2000) were used for estimating the emission from MSW burning using the same procedure of emission density in a ward or village. The emissions from MSW burning are presented in Figure 37 and spatial distribution in Figure 38 to Figure 42.

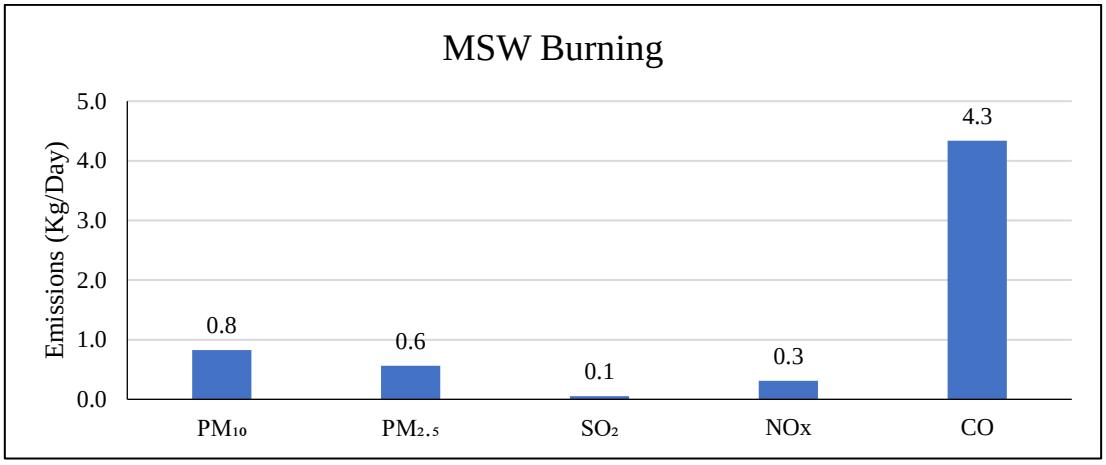


Figure 37: Emission load from MSW burning (kg/d)

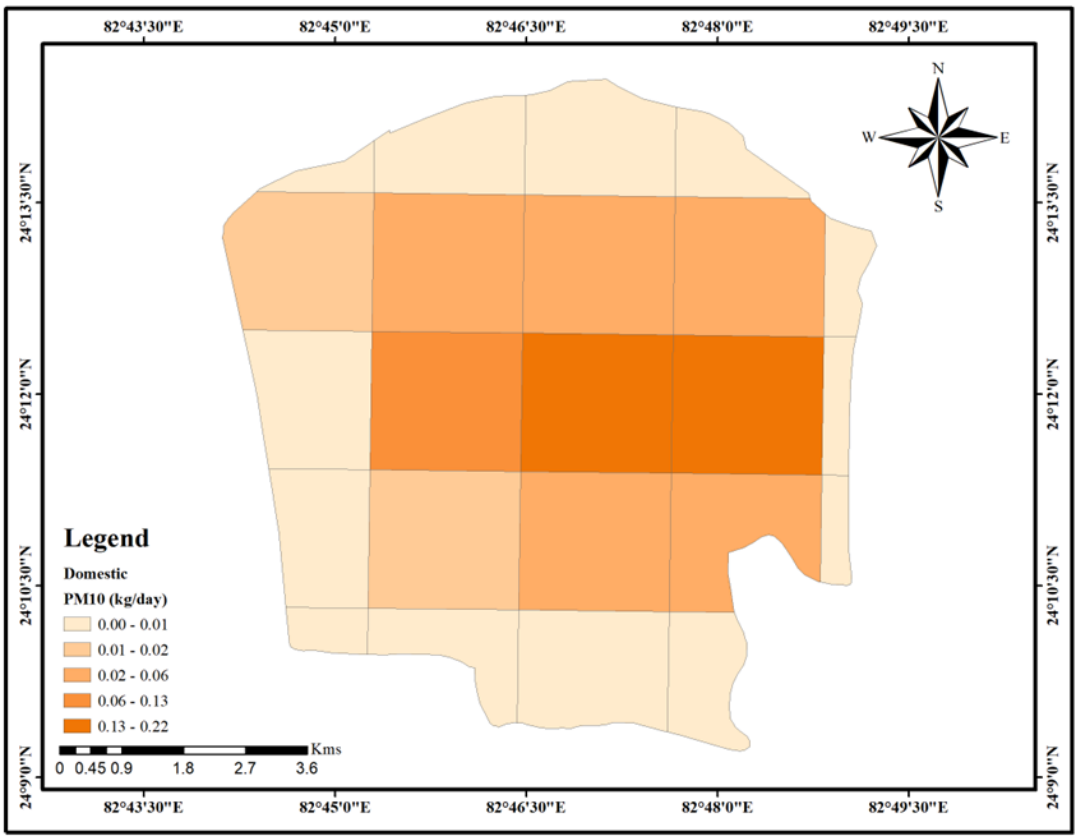


Figure 38: Spatial distribution of PM_{10} emissions from MSW burning

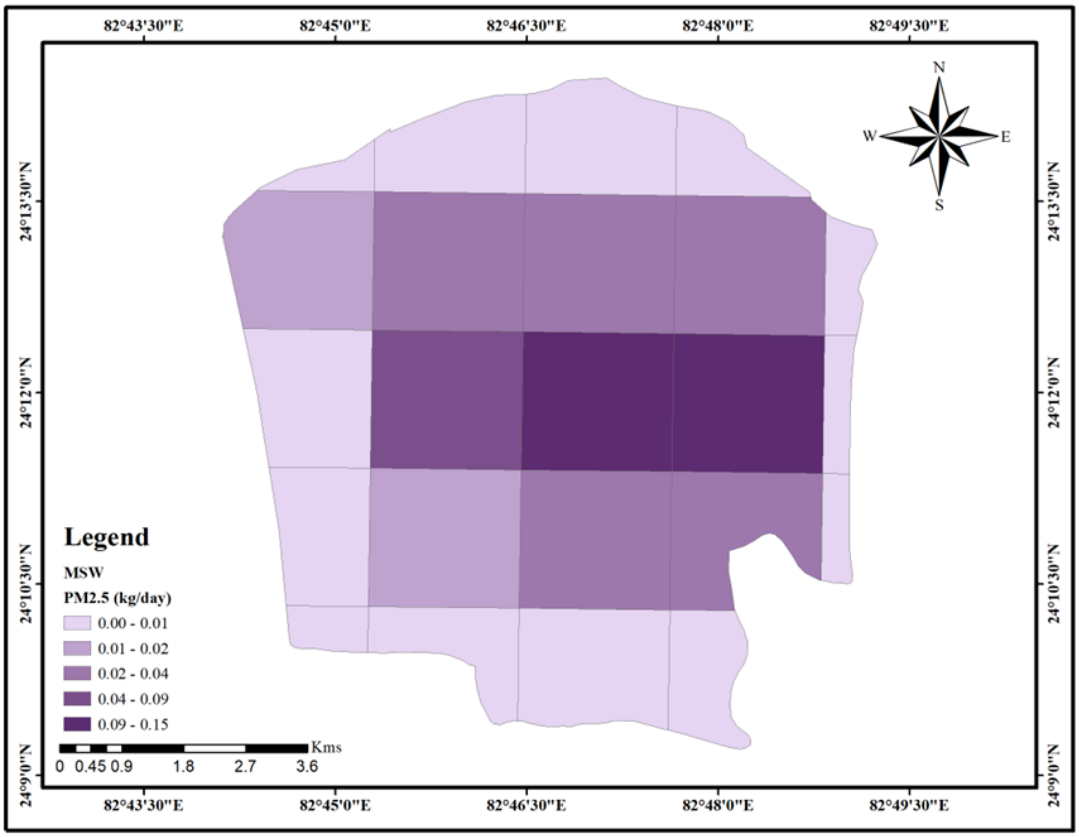


Figure 39: Spatial distribution of $PM_{2.5}$ emissions from MSW burning

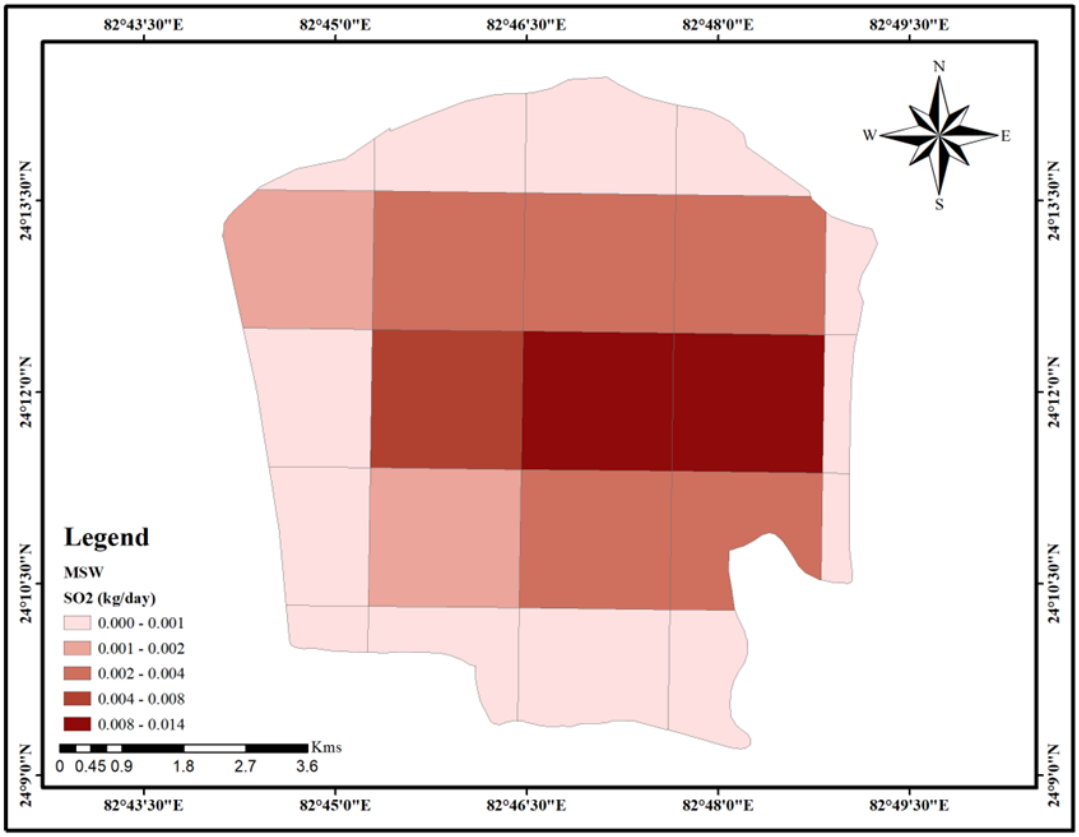


Figure 40: Spatial distribution of SO_2 emissions from MSW burning

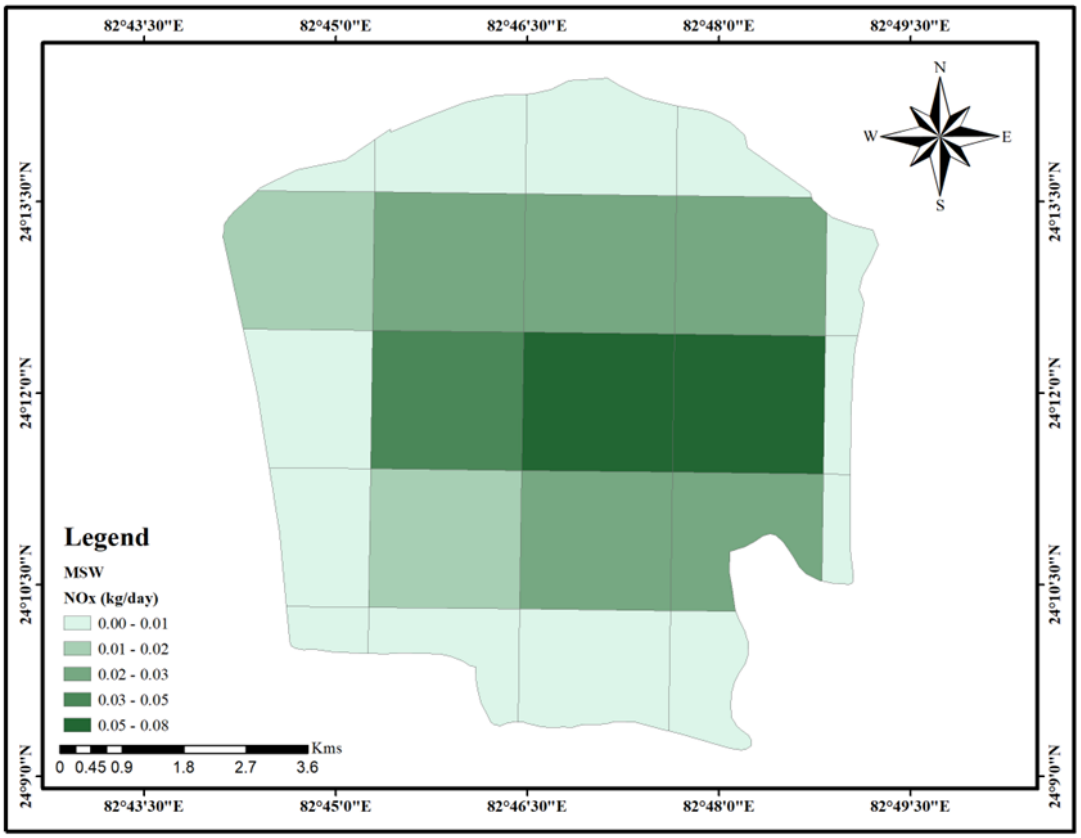


Figure 41: Spatial distribution of NO_x emissions from MSW burning

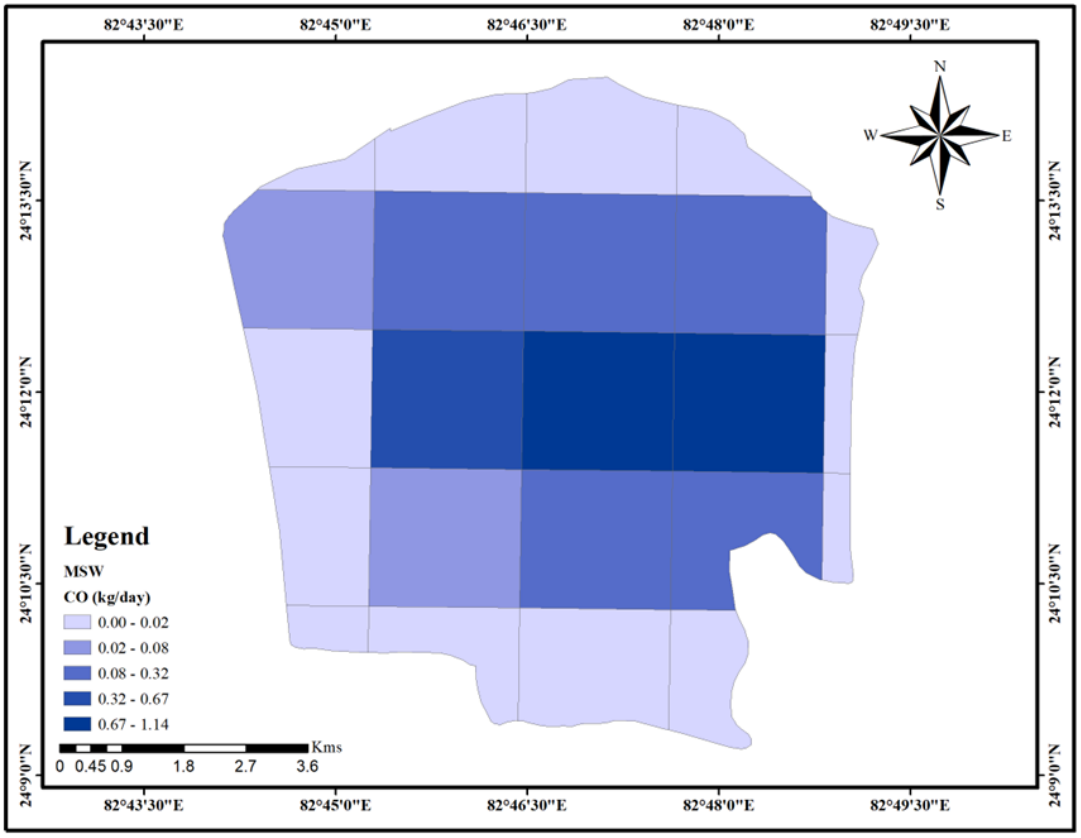


Figure 42: Spatial distribution of CO emissions from MSW burning

3.2.8 Hospitals

A detailed survey was undertaken to estimate the emission from hospitals in Anpara city. There are 7 hospitals in the city (Figure 43). The overall emissions from hospitals along with their average DG set capacity of 62.5 KVA and running two hours in a day are presented in Table **1**. The emission load from hospitals is given in Figure 44. The Spatial distribution of emissions from Hospitals is given in Figure 45 to Figure 49.

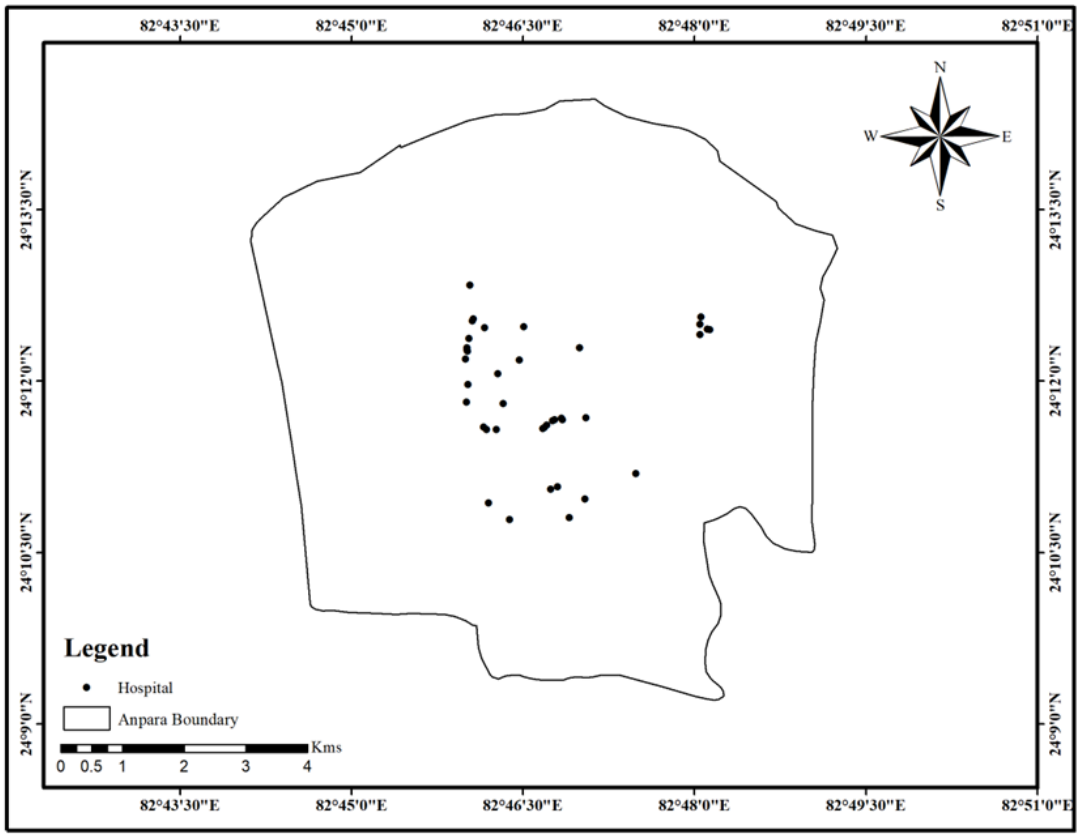


Figure 43: Locations of hospitals in Anpara city

Table 1: Hospitals details in Anpara city (emissions in kg/d)

No. of Hospitals	DG set Average Capacity		PM_{10}	$PM_{2.5}$	SO_2	NOx	CO
	KVA	Running Hour	(kg/d)	(kg/d)	(kg/d)	(kg/d)	(kg/d)
7	62.5	4	0.04	0.03	0.03	0.53	0.11

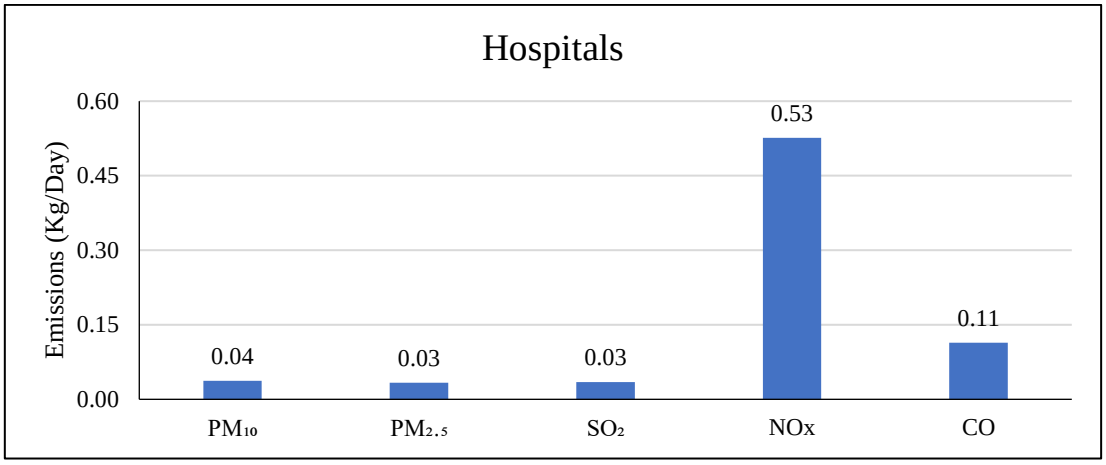


Figure 44: Emission load from hospitals (kg/d)

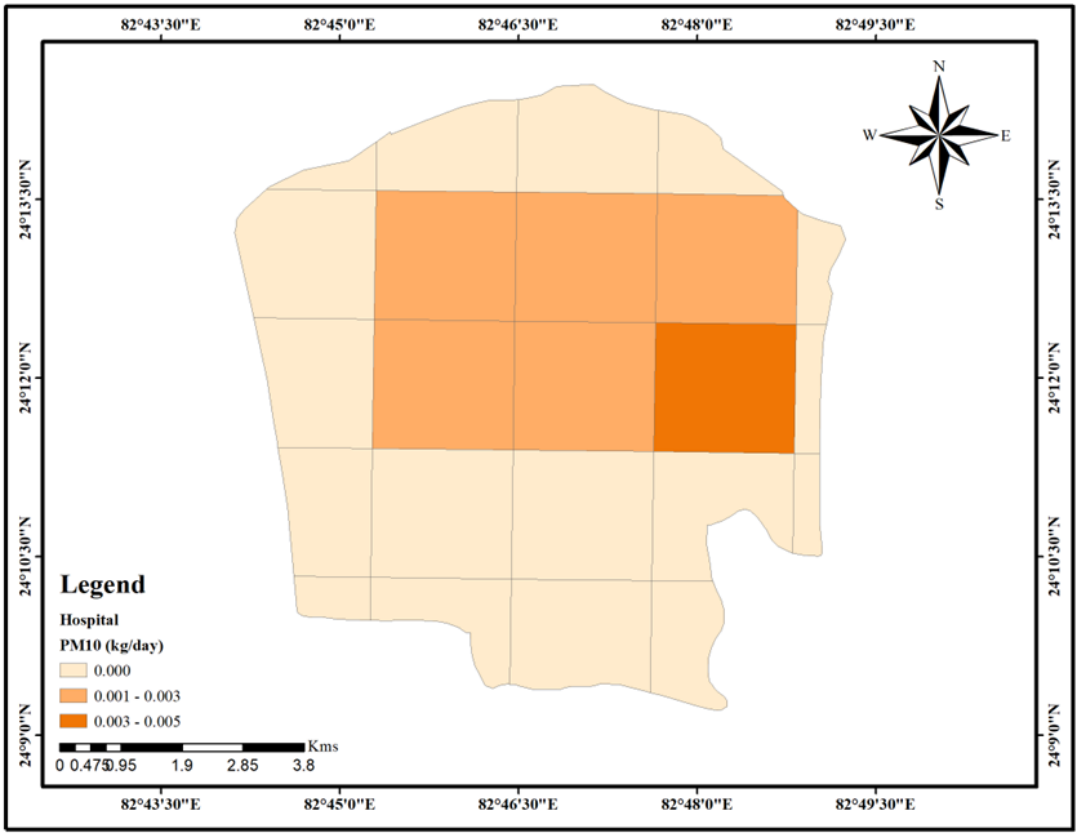


Figure 45: Spatial distribution of PM_{10} emissions from hospitals

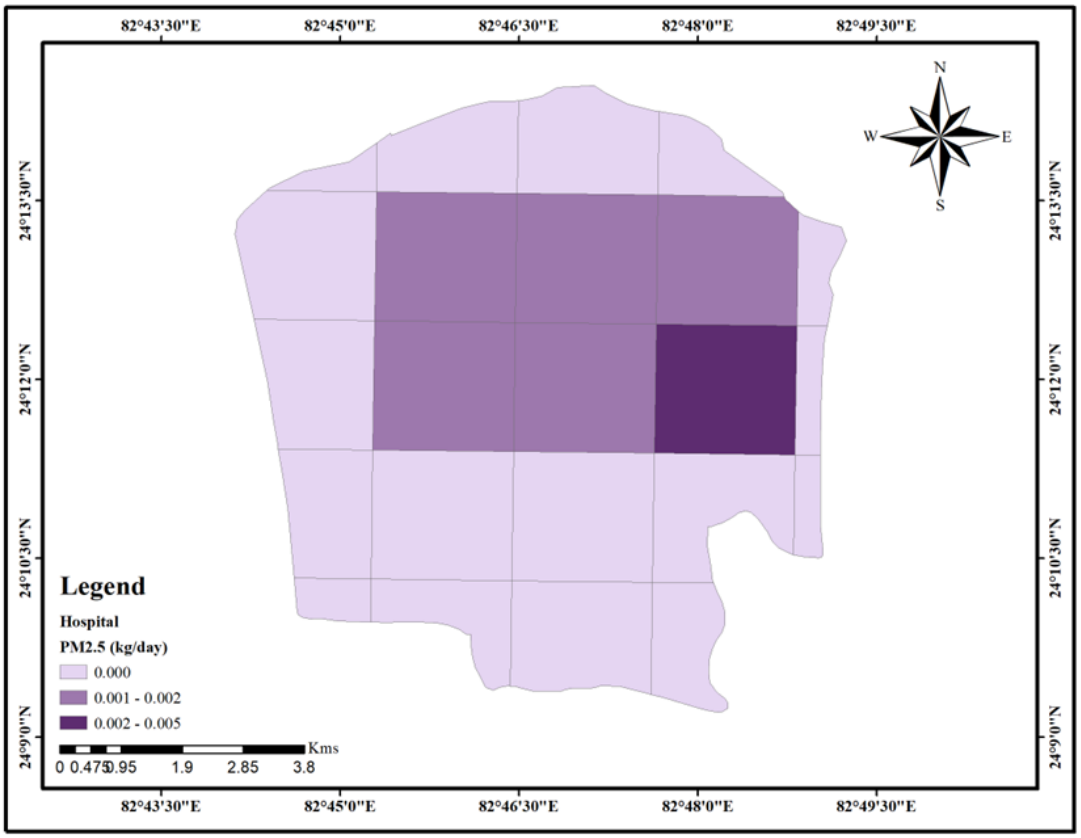


Figure 46: Spatial distribution of $PM_{2.5}$ emissions from hospitals

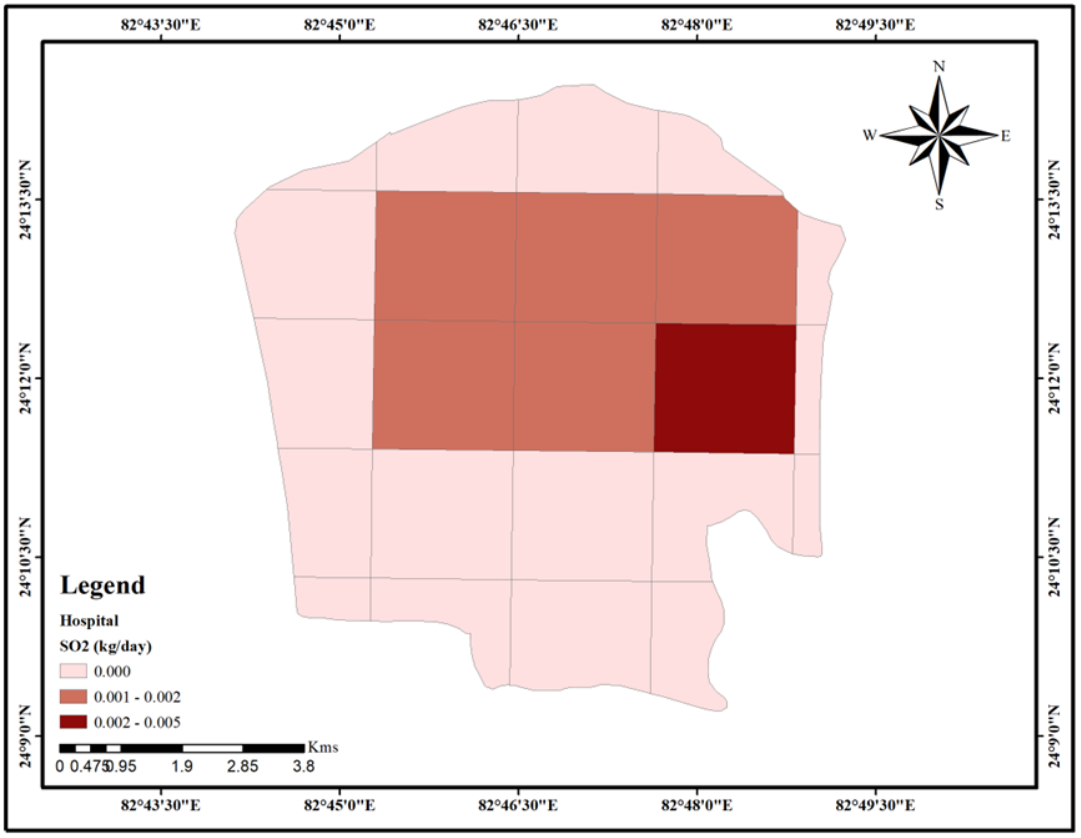


Figure 47: Spatial distribution of SO_2 emissions from hospitals

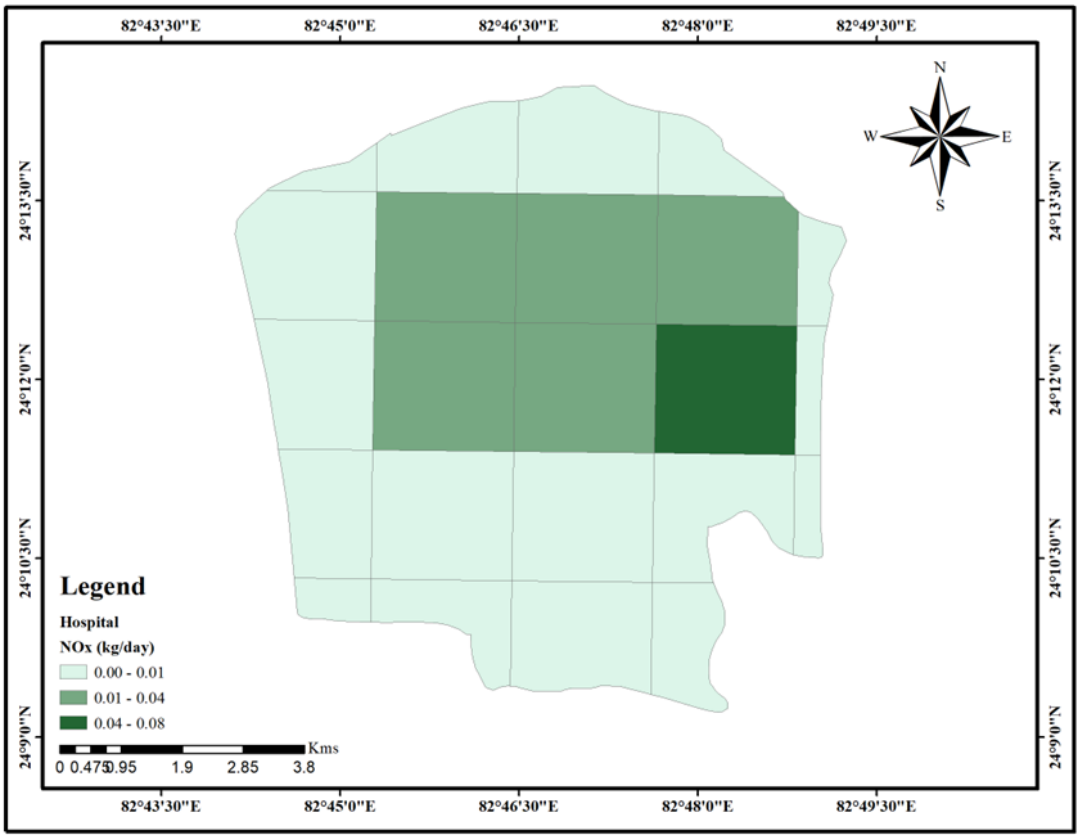


Figure 48: Spatial distribution of NO_x emissions from hospitals

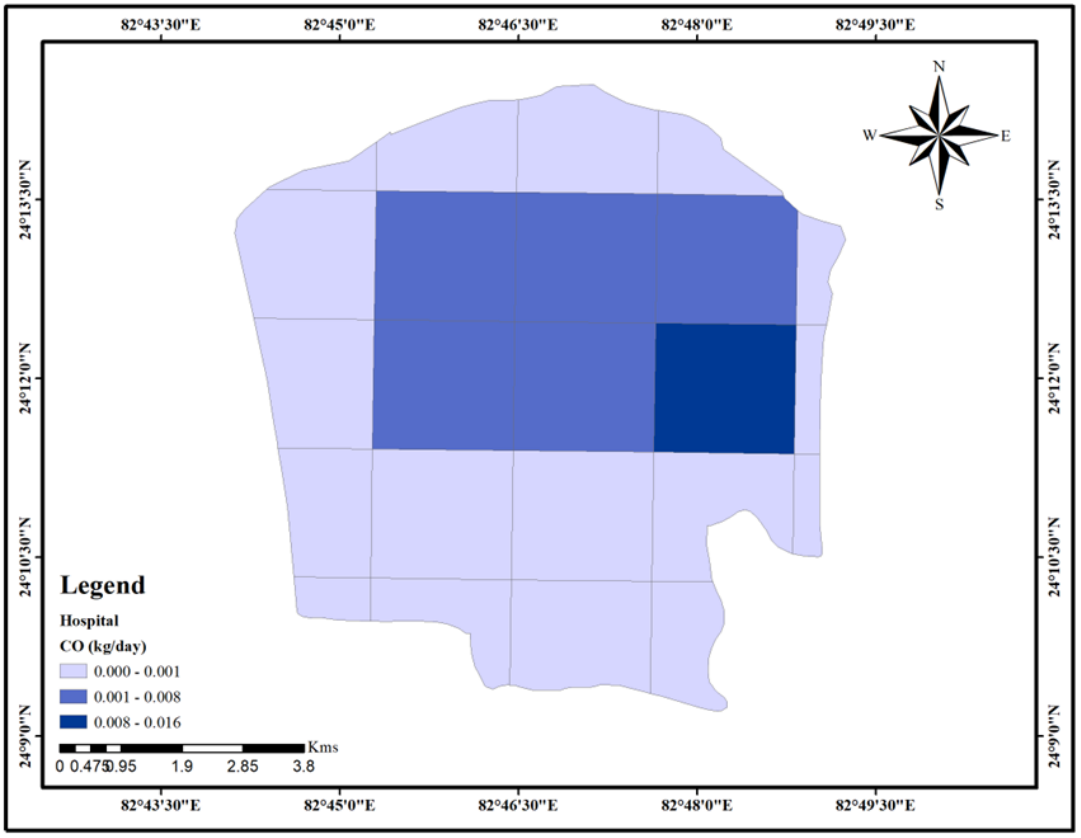


Figure 49: Spatial distribution of CO emissions from hospitals

3.2.9 Industries

There are approximately 6 industrial units with boilers and furnaces (electric and melting furnaces) that contribute to particulate and gaseous emissions. Major fuels that contribute to emissions are HSD, Wood, Coal, Rice Husk, and LPG. The industrial locations are given in Figure 50. The information on stacks, fuel, and their consumption was obtained from UPPCB. AP-42 (USEPA, 2000) emission factors were used to calculate the emissions. For further analysis, the industries are categorized based on stack height as an area source (stack height < 15 m) and as a point source (stack height > 15 m).

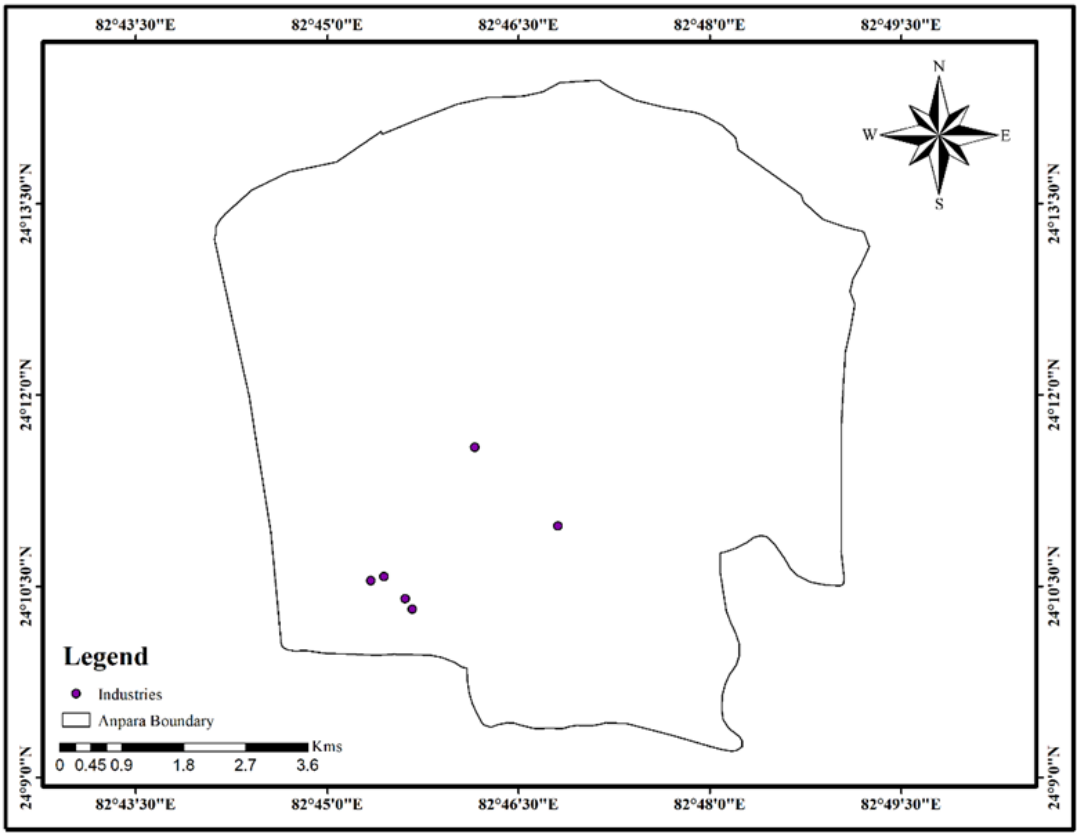


Figure 50: Locations of industries in Anpara city

3.2.10 Brick Kilns

Brick kilns are one of the air-polluting sources. It is important to cover this sector in terms of emissions. Most of the brick kilns lie outside the city boundary apart from five brick kilns. These brick kiln (Figure 51) affects the local air quality of the city. A detailed survey was conducted by the IITK team and activity data were collected. This kiln uses wood and coal as fuel. The emissions of various parameters such as PM_{10},

$PM_{2.5}$, SO_2, NOx, and CO were estimated from the activity data from each fuel type and then summed up in each grid cell. The emission factors given by CPCB (2011) were used. The overall emission from brick kilns is shown in Figure 52. The Spatial distribution of emissions from Brick Kilns is given in Figure 53 to Figure 57.

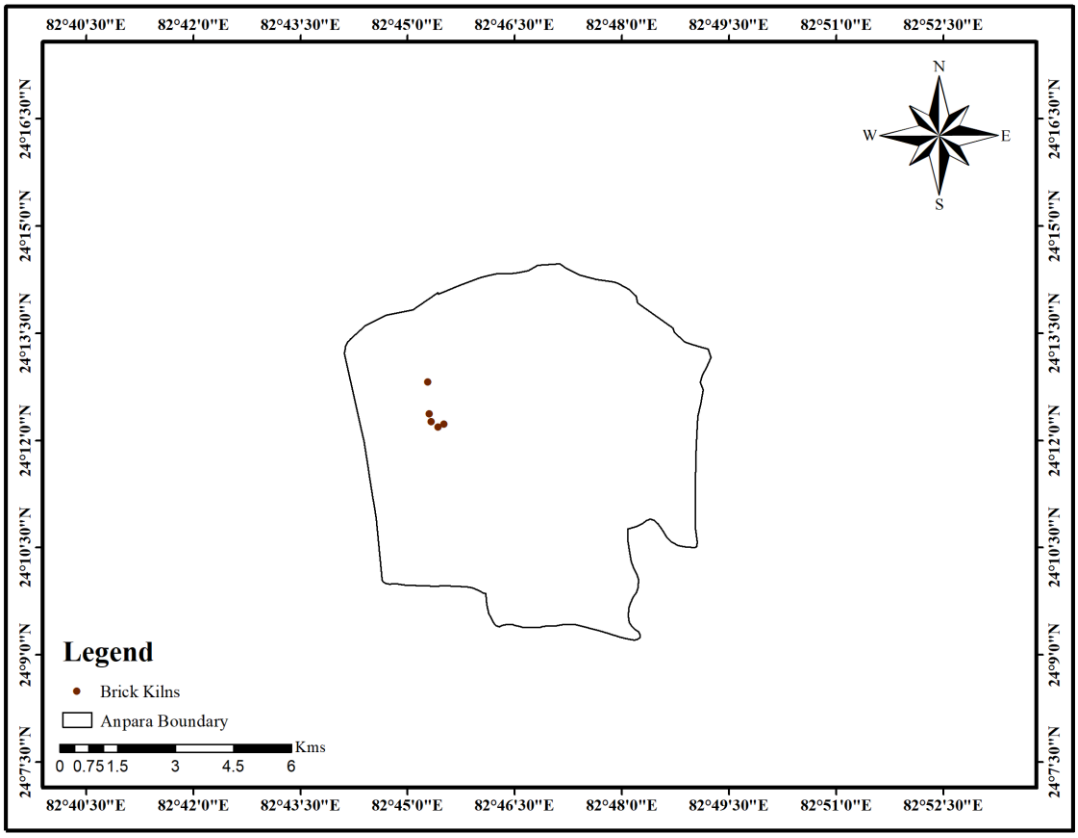


Figure 51 : Location of Brick kilns in Anpara

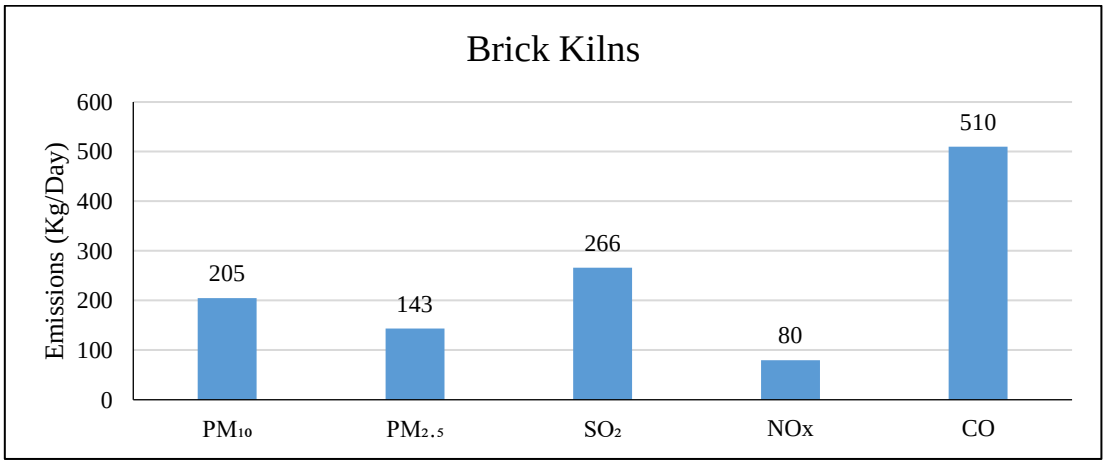


Figure 52 : Emission Load from Brick kilns (kg/day)

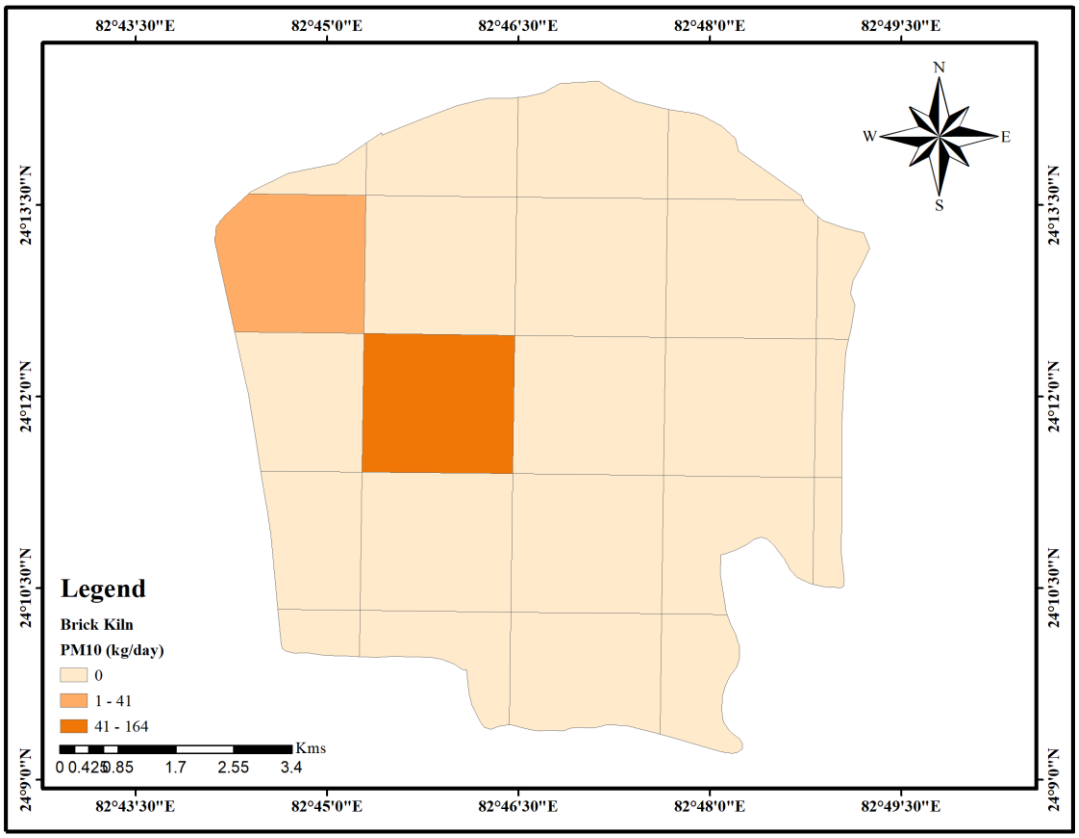


Figure 53 : Spatial Distribution of PM10 Emissions from Brick Kilns

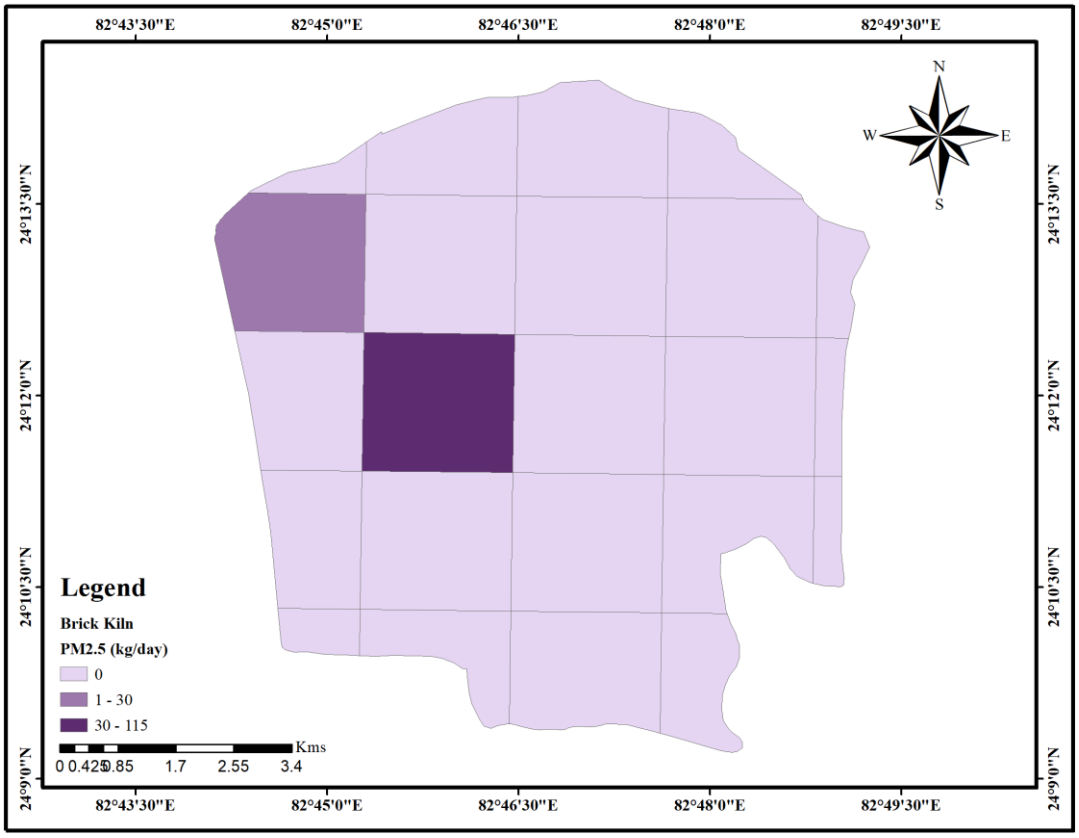


Figure 54 : Spatial Distribution of PM2.5 Emissions from Brick Kilns

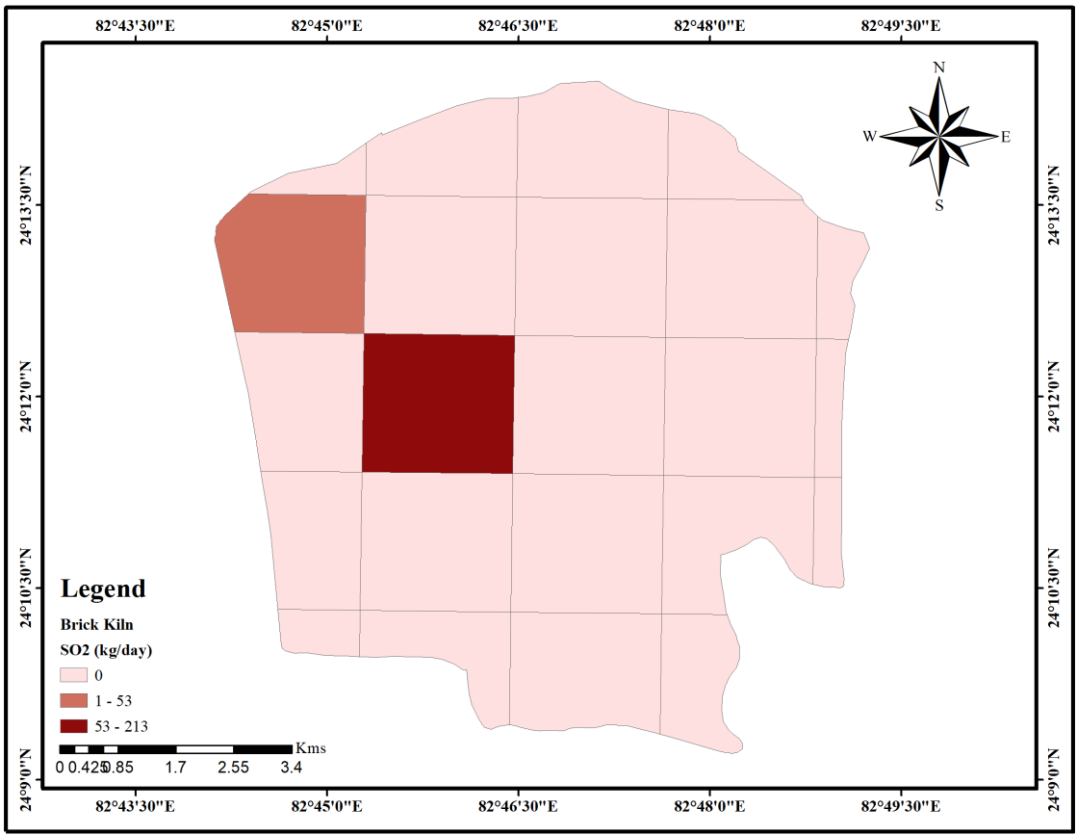


Figure 55 : Spatial Distribution of SO2 Emissions from Brick Kilns

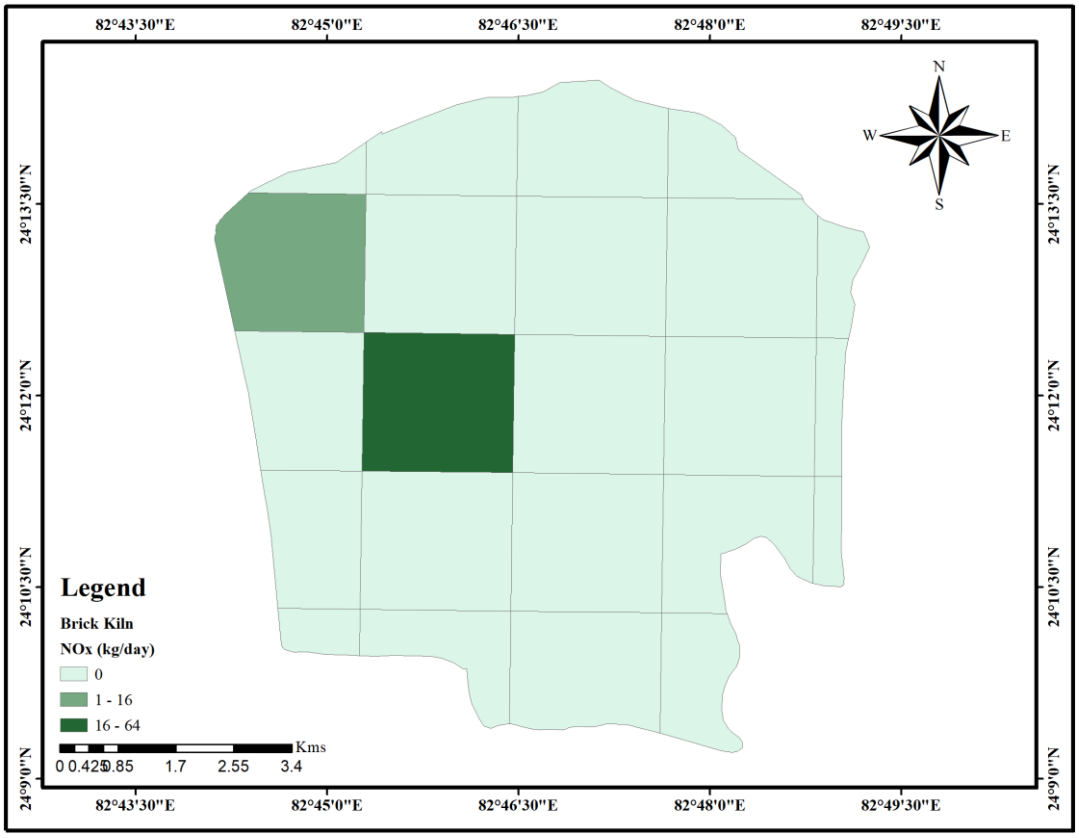


Figure 56 : Spatial Distribution of NOx Emissions from Brick Kilns

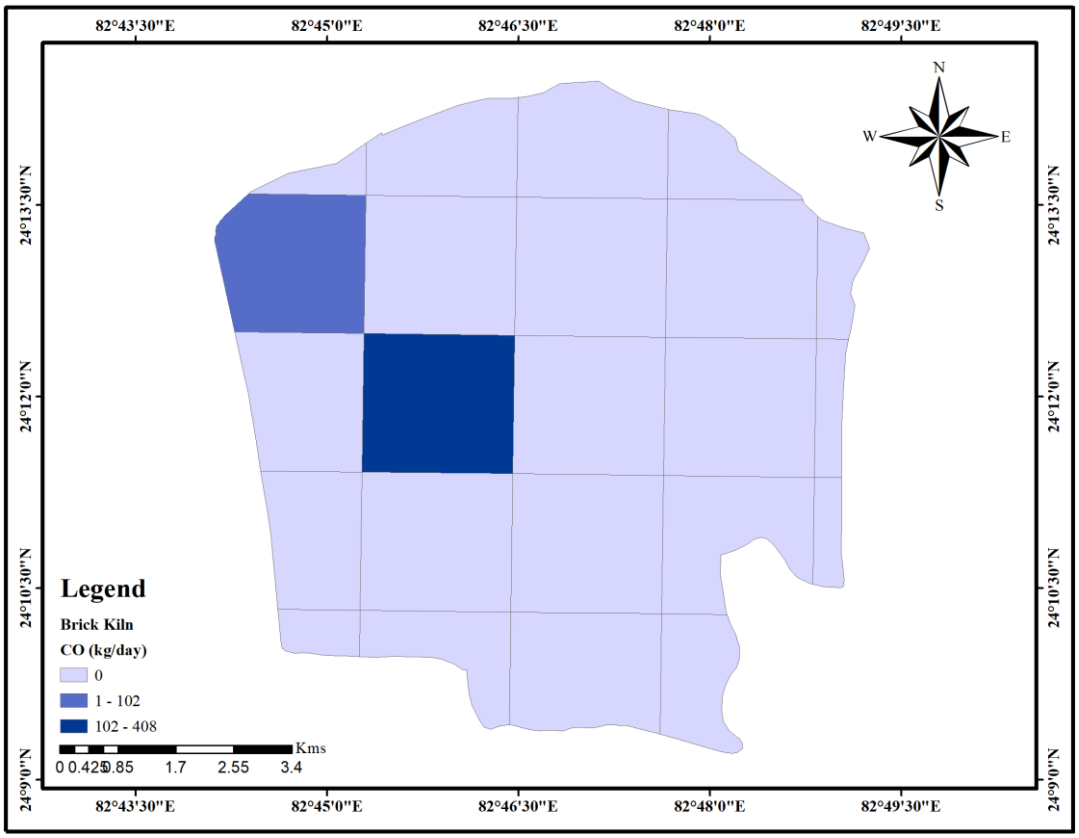


Figure 57 : Spatial Distribution of CO Emissions from Brick Kilns

3.2.11 Powerplant

The three units of Anpara powerplants (A, B, and D) are situated inside the city boundary Figure 58. Hence it is considered under the city-level emission inventory. Coal is the major fuel that contributes to emissions from the powerplant. The AP-42 (USEPA, 2000) emission factors were used to calculate the emission. The emission of pollutants from the powerplant (consent data) is shown in Figure 59 . The pollutant-wise spatial distribution from the powerplant is given Figure 60 to Figure 64.

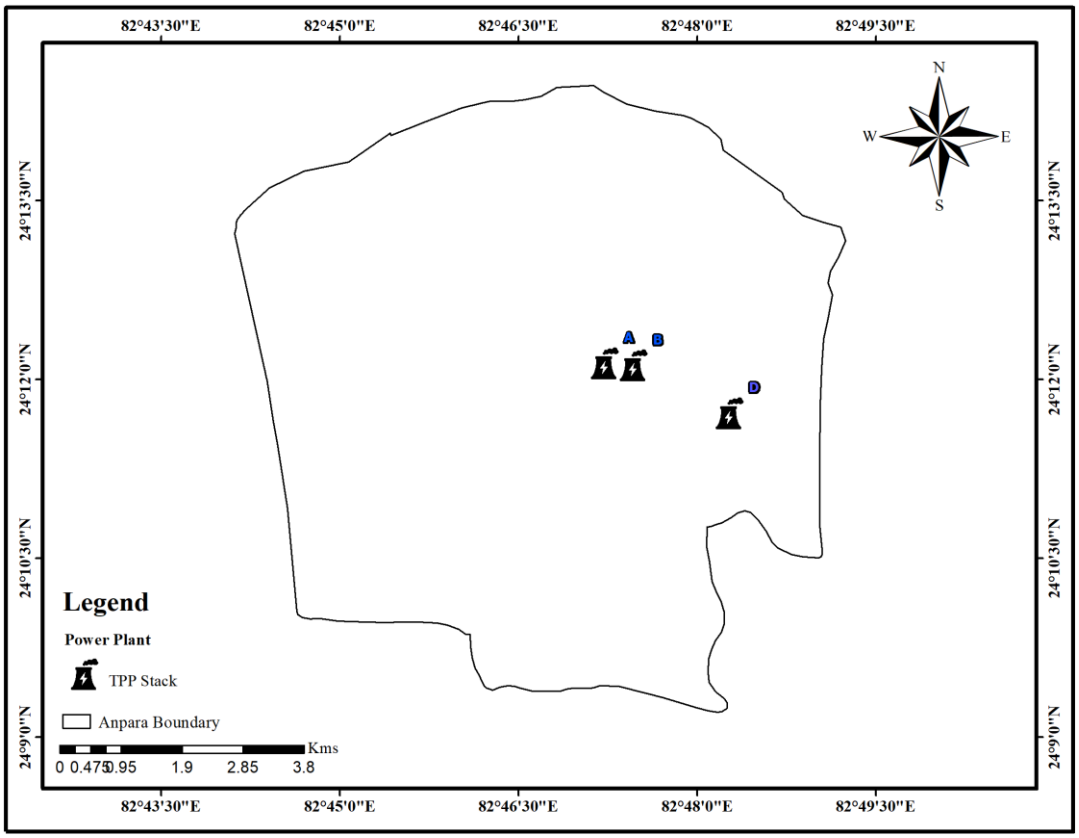


Figure 58 : Location of Powerplant with respect to Anpara Boundary

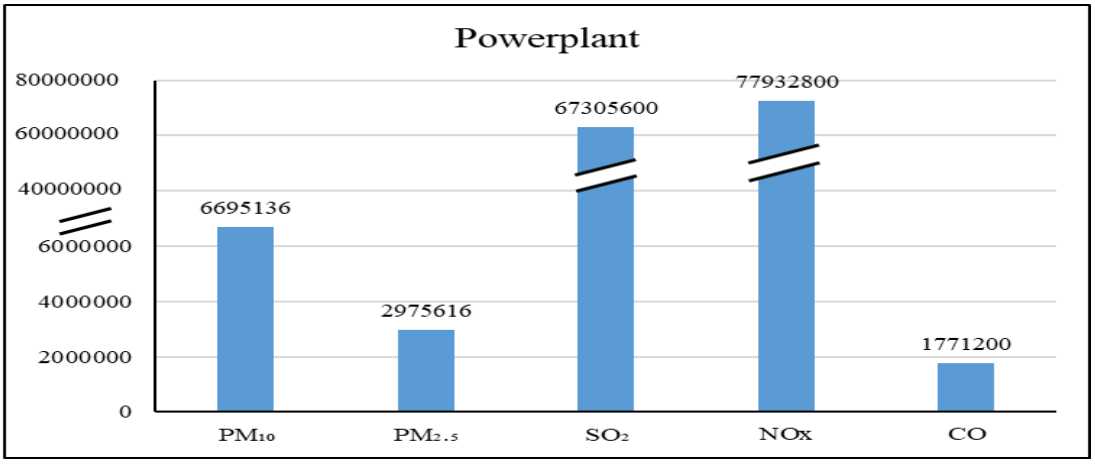


Figure 59 : Emission Load from Powerplant

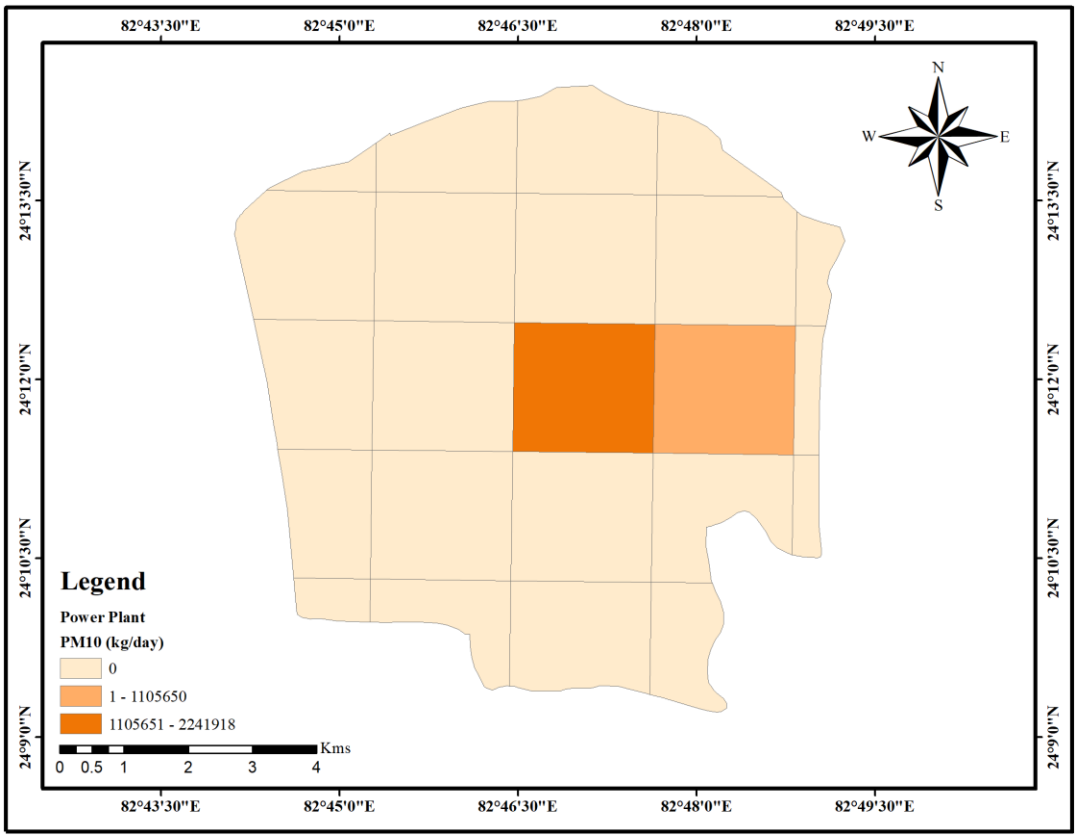


Figure 60 : Spatial Distribution of PM10 Emissions from Powerplant

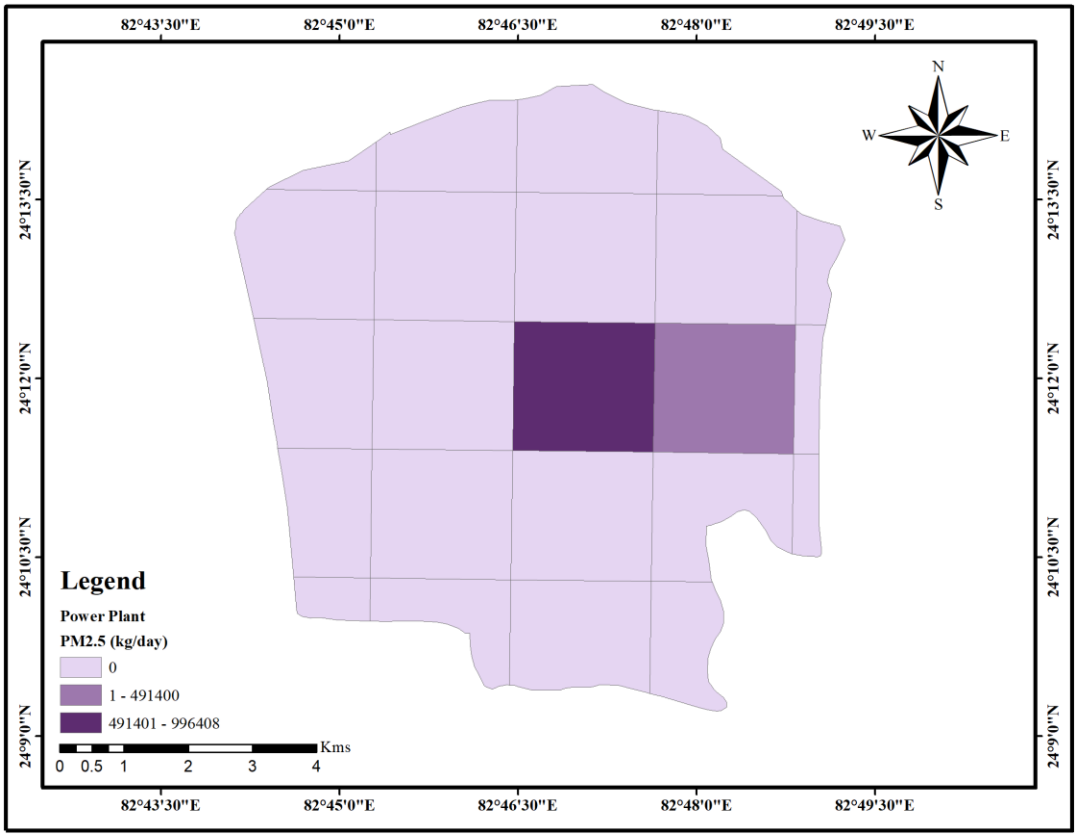


Figure 61 : Spatial Distribution of PM2.5 Emissions from Powerplant

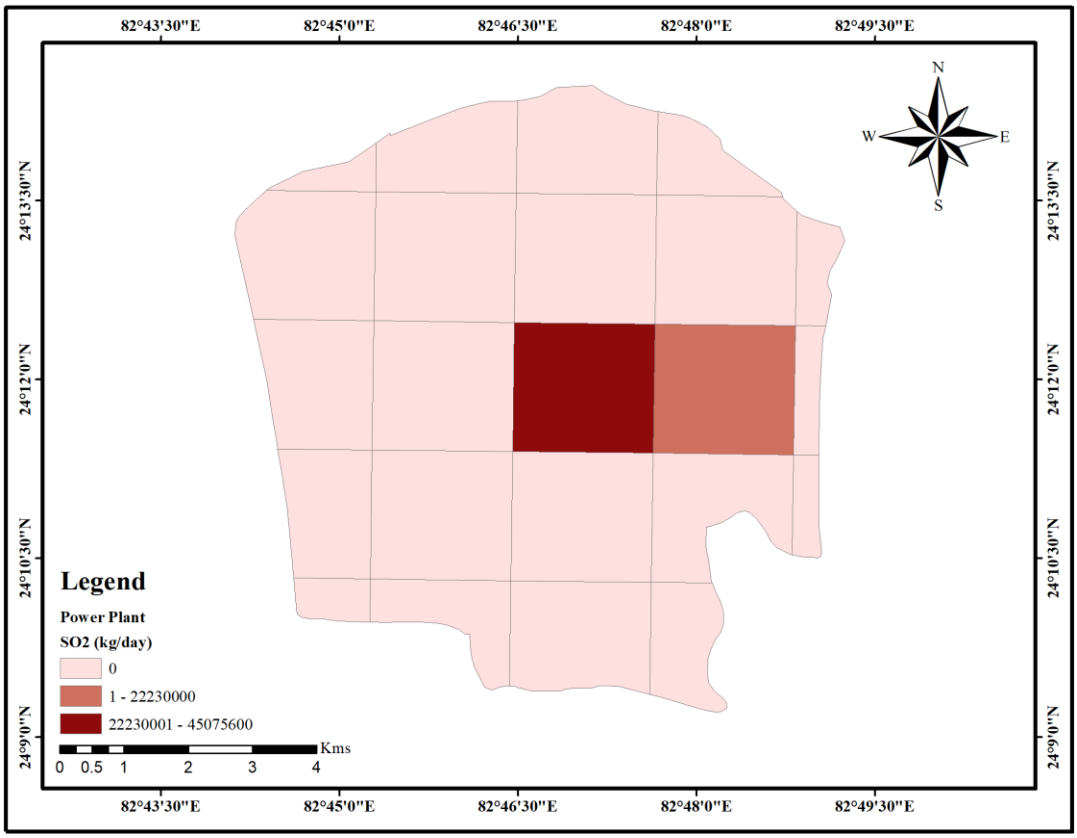


Figure 62 : Spatial Distribution of SO2 Emissions from Powerplant

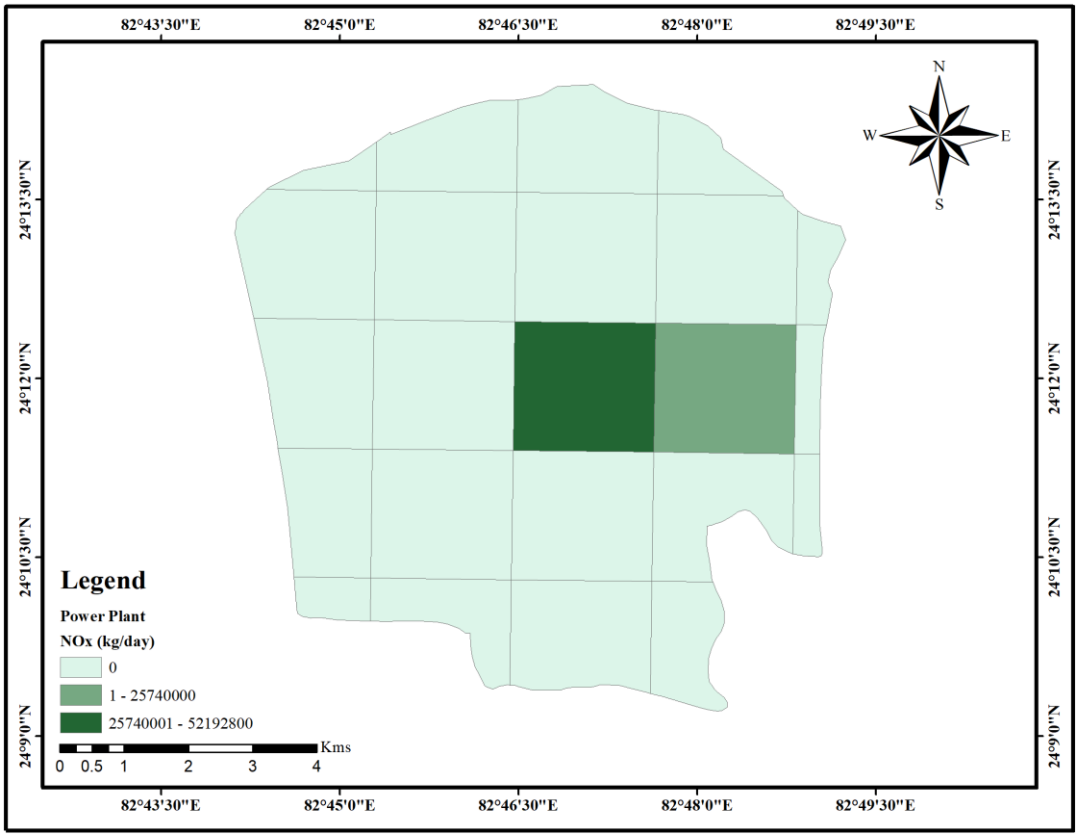


Figure 63 : Spatial Distribution of NOx Emissions from Powerplant

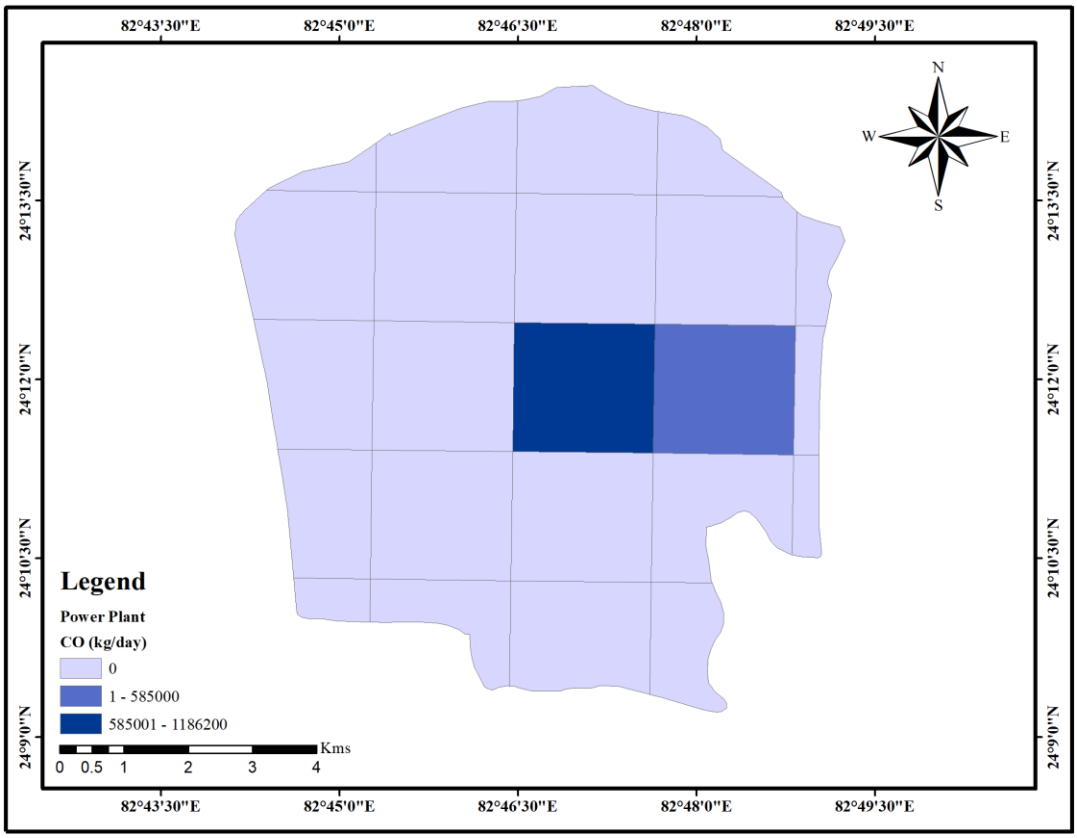


Figure 64 : Spatial Distribution of CO Emissions from Powerplant

3.2.12 Parking Lot Survey

To obtain the prevalence of vehicle technology types operating in the city and fuel use, parking lot questionnaire surveys (engine technology and capacity, vehicle age, fuel use, etc.) were done at two locations (Nehru Chowk and Anpara Market). ARAI (2011) and CPCB (2011) emission factors were used to calculate vehicle emissions. Figure 65 to Figure 67 present parking lane survey results for 2Ws, 3Ws, and 4Ws in terms of engine size and year of manufacturing. This information is vital in calculating the emission from vehicles on the road. The emission factors vary considerably for engine size, fuel use, and age of the vehicles.

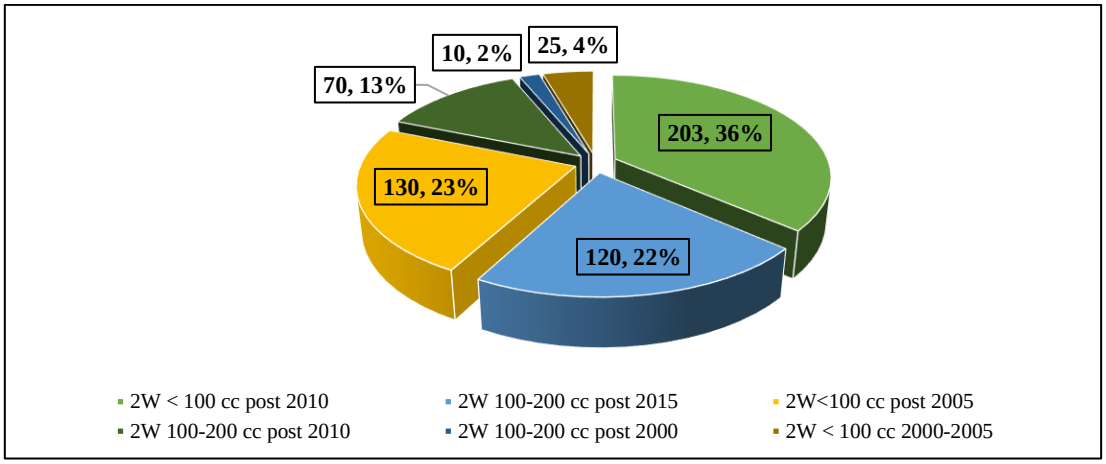


Figure 65: Distribution of 2-Ws in the study area (parking lot survey)

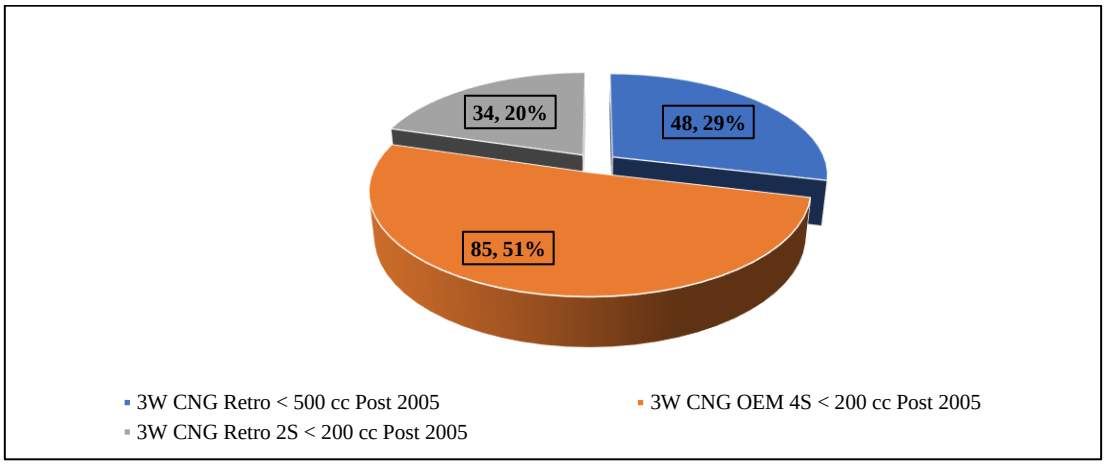


Figure 66: Distribution of 3-Ws in the study area (parking lot survey)

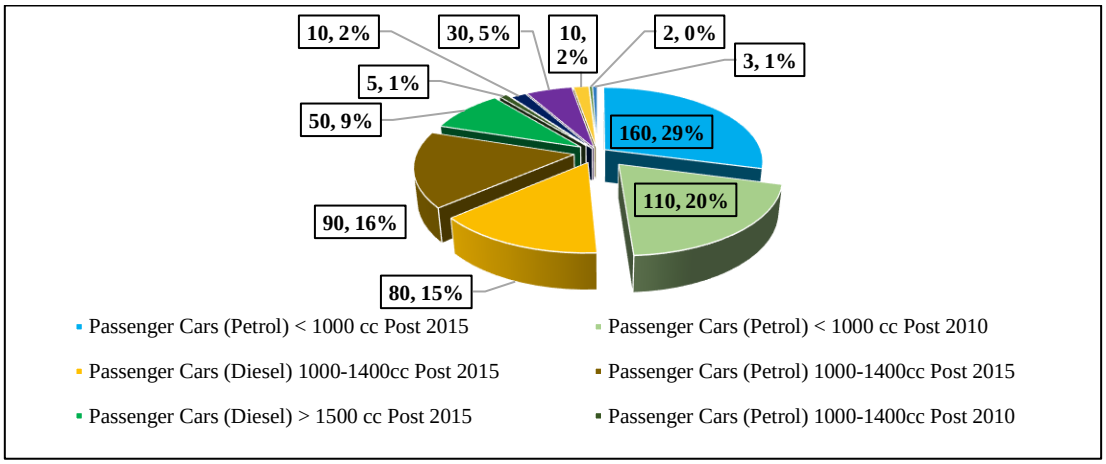


Figure 67: Distribution of 4-Ws in the study area (parking lot survey)

3.2.13 Vehicular-Line Sources

The average daily flow of vehicles in each hour for 2Ws, 3Ws, 4Ws, LCVs, buses, and trucks at seven locations was obtained by video recording (Figure 68). From these seven

traffic locations, the traffic data were extrapolated for the remaining grids. Road lengths in each grid for major and minor roads were calculated from the digitized maps using the ArcGIS tool, ArcMap, and extracted into the grids. The traffic counts were translated into the vehicles (and their types) on the roads in each grid (Nagar et. al. 2019). Wherever it was feasible, either traffic flow was taken directly from the traffic data. For interior grids, traffic from medium roads going the highways was taken to flow in the interior part of the city. The emissions from each vehicle category for each grid are estimated and summed up.

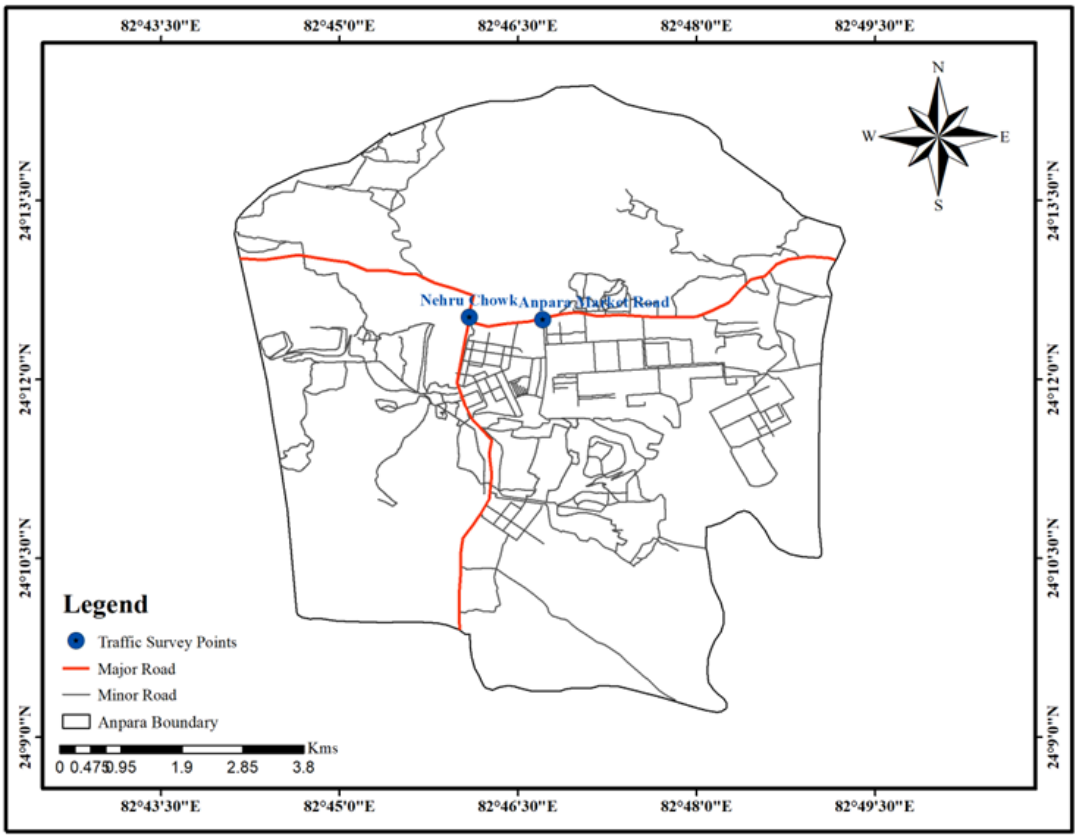


Figure 68: Location of traffic survey points in Anpara city

The emissions from railway locomotives are not taken into consideration, as the emissions are negligible in comparison with the vehicles and other sources. The emission from vehicles is shown in Figure 69.

The emission contribution of each vehicle type in Anpara is presented in Figure 70 to Figure 74. The spatial distribution of emissions from vehicles is presented in Figure 75 to Figure 79.

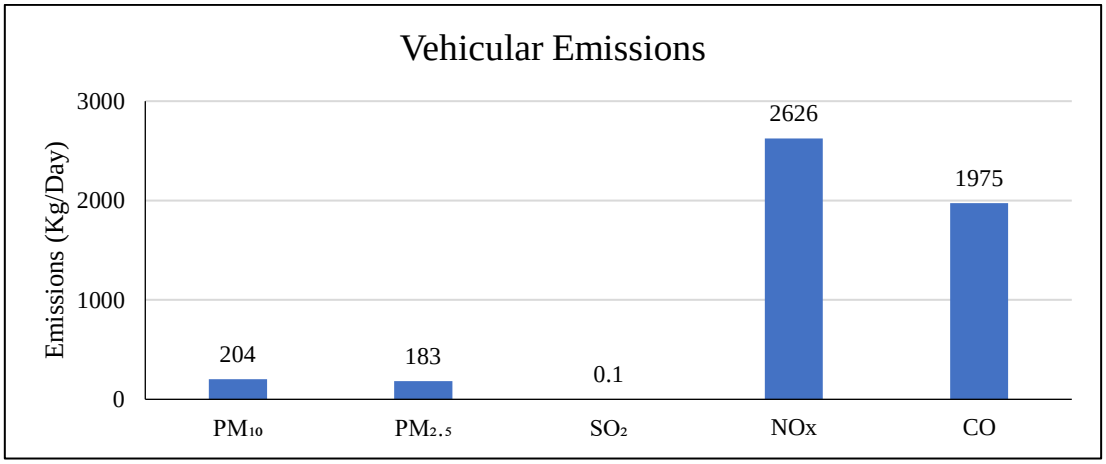


Figure 69: Emission load from vehicles (kg/d)

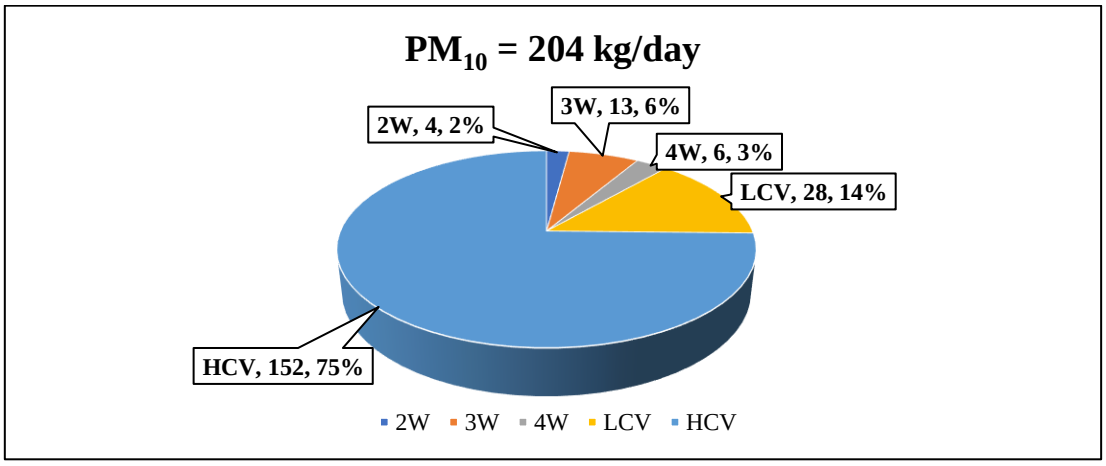


Figure 70: PM_{10} Emission load contribution of each vehicle type (kg/d)

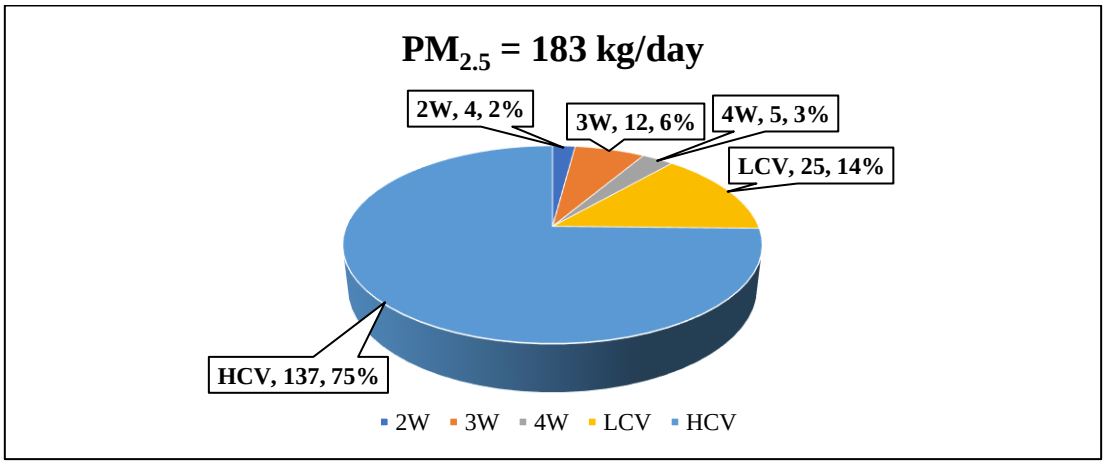


Figure 71: $PM_{2.5}$ Emission Load contribution of each vehicle type (kg/d)

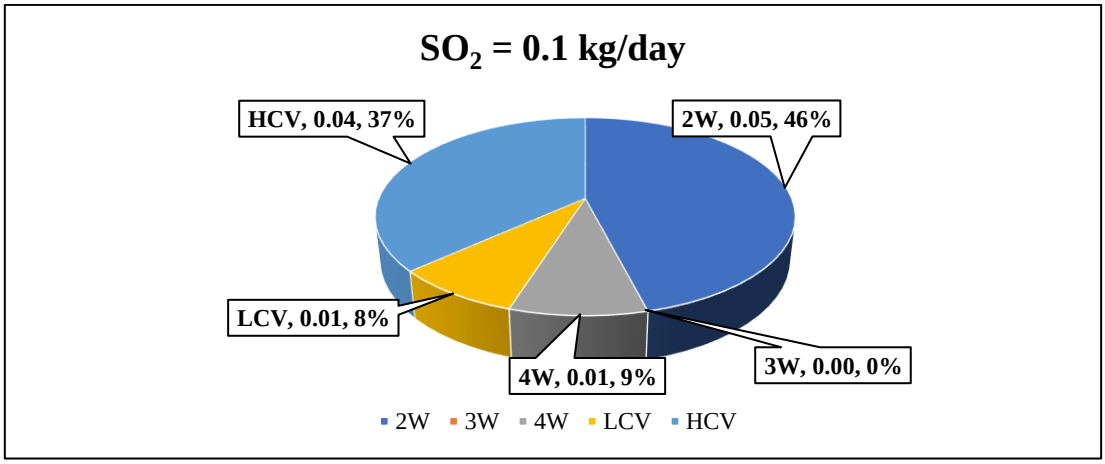


Figure 72: SO_2 Emission load contribution of each vehicle type (kg/d)

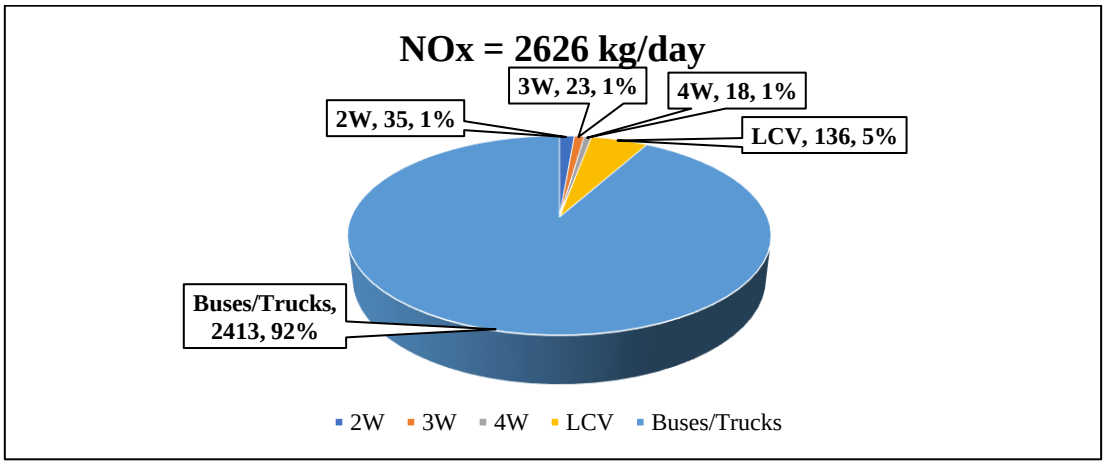


Figure 73: NO_x Emission load contribution of each vehicle type (kg/d)

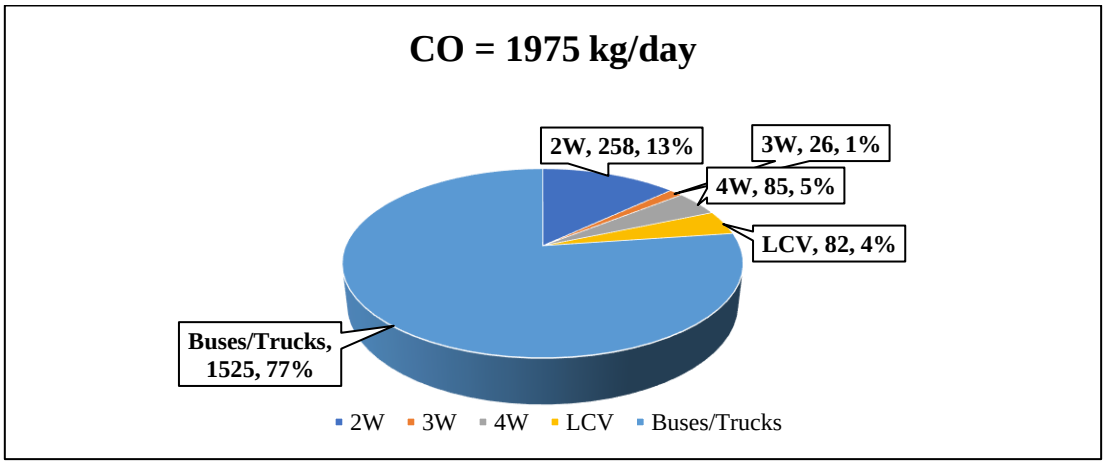


Figure 74: CO Emission load contribution of each vehicle type (kg/d)

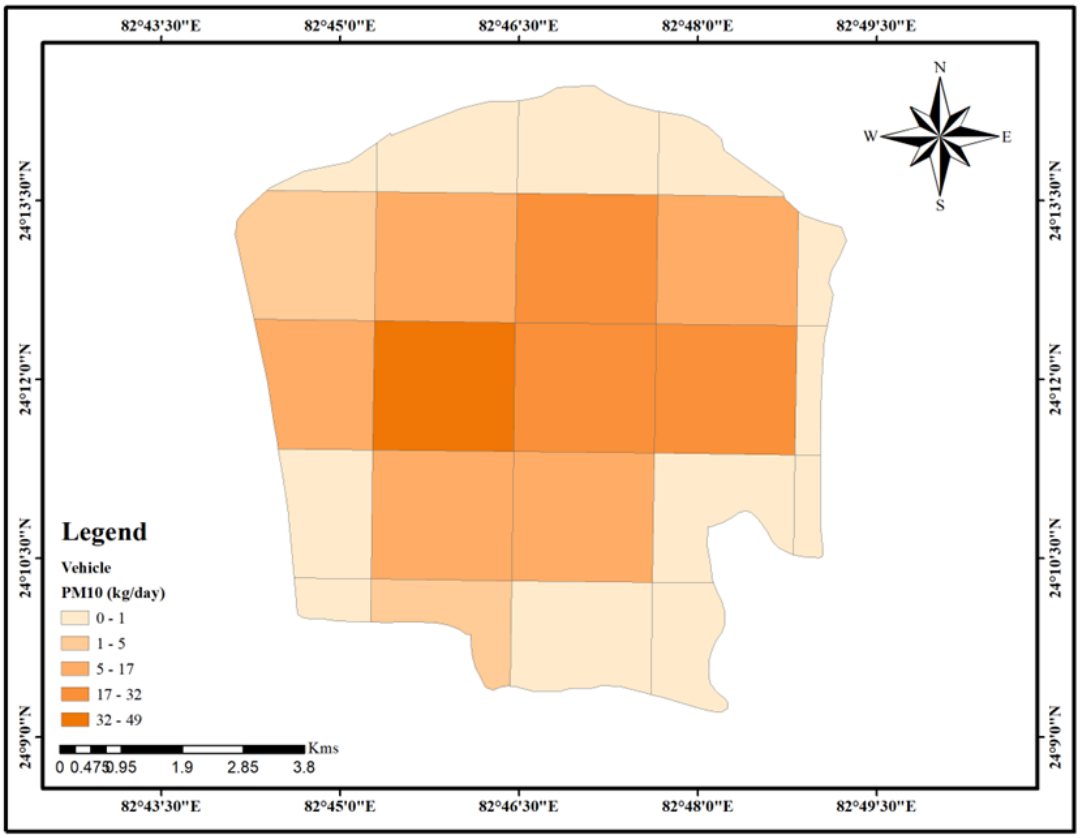


Figure 75: Spatial distribution of PM_{10} emissions from vehicles

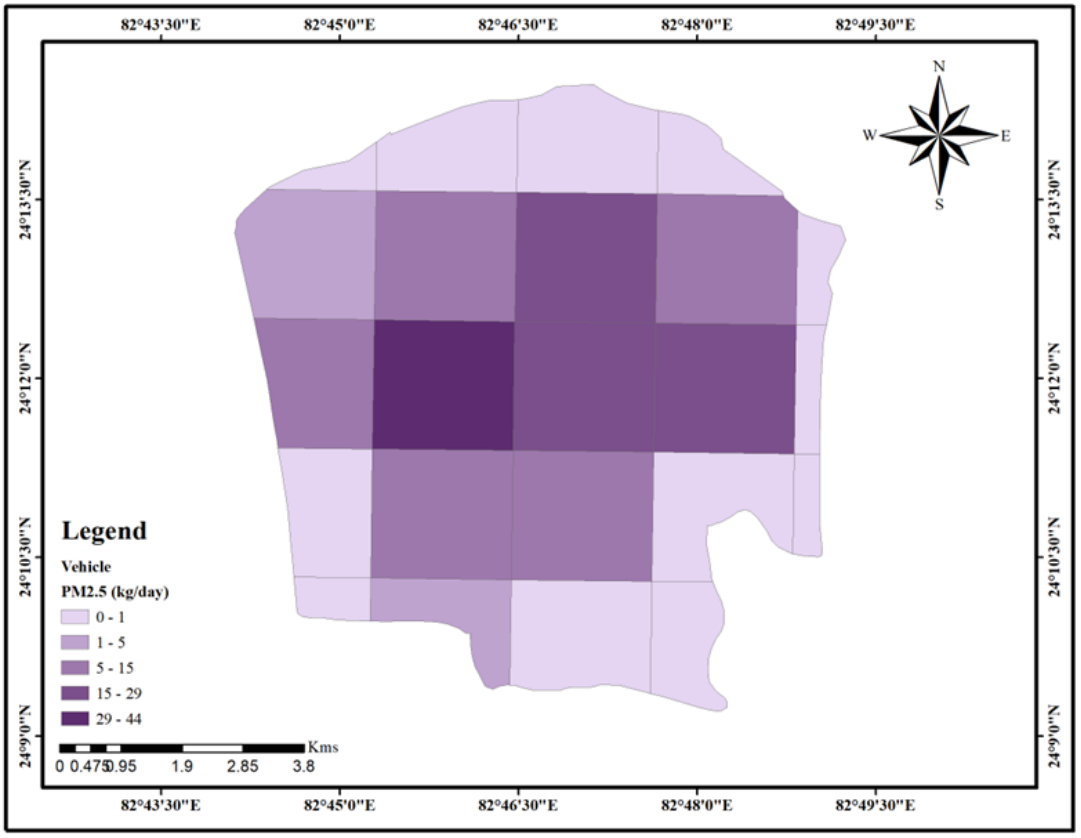


Figure 76: Spatial distribution of $PM_{2.5}$ emissions from vehicles

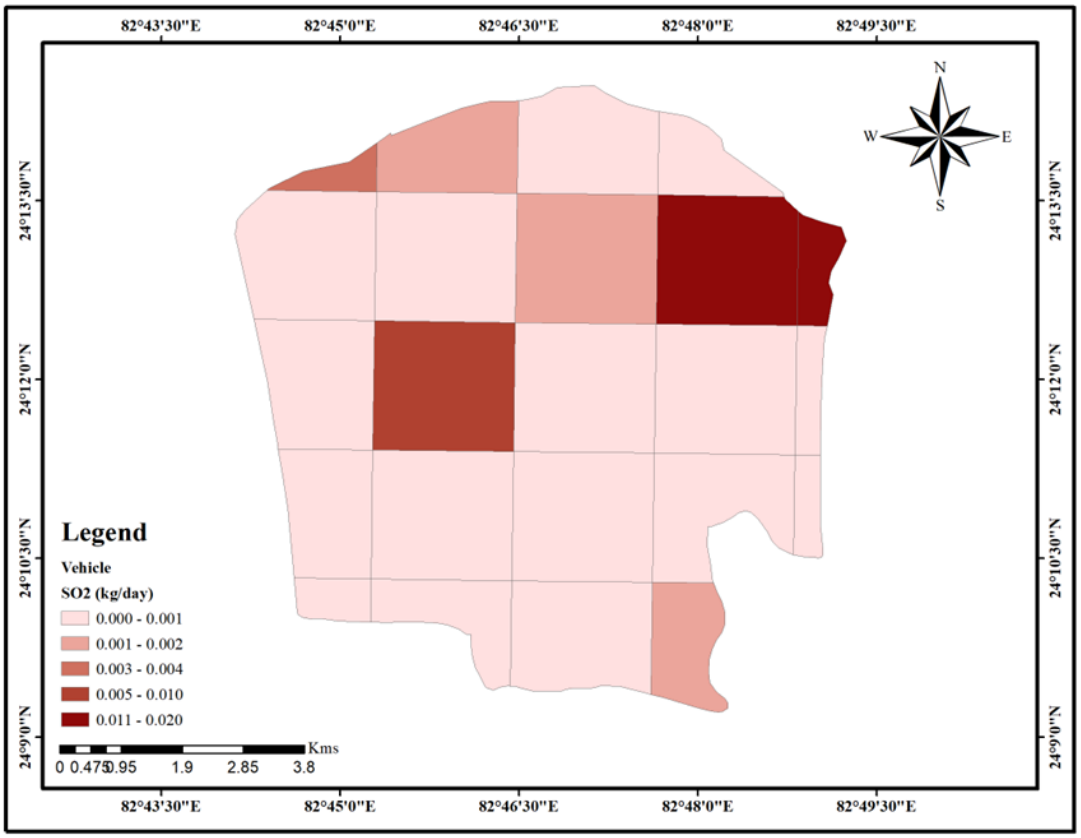


Figure 77: Spatial distribution of SO_2 emissions from vehicles

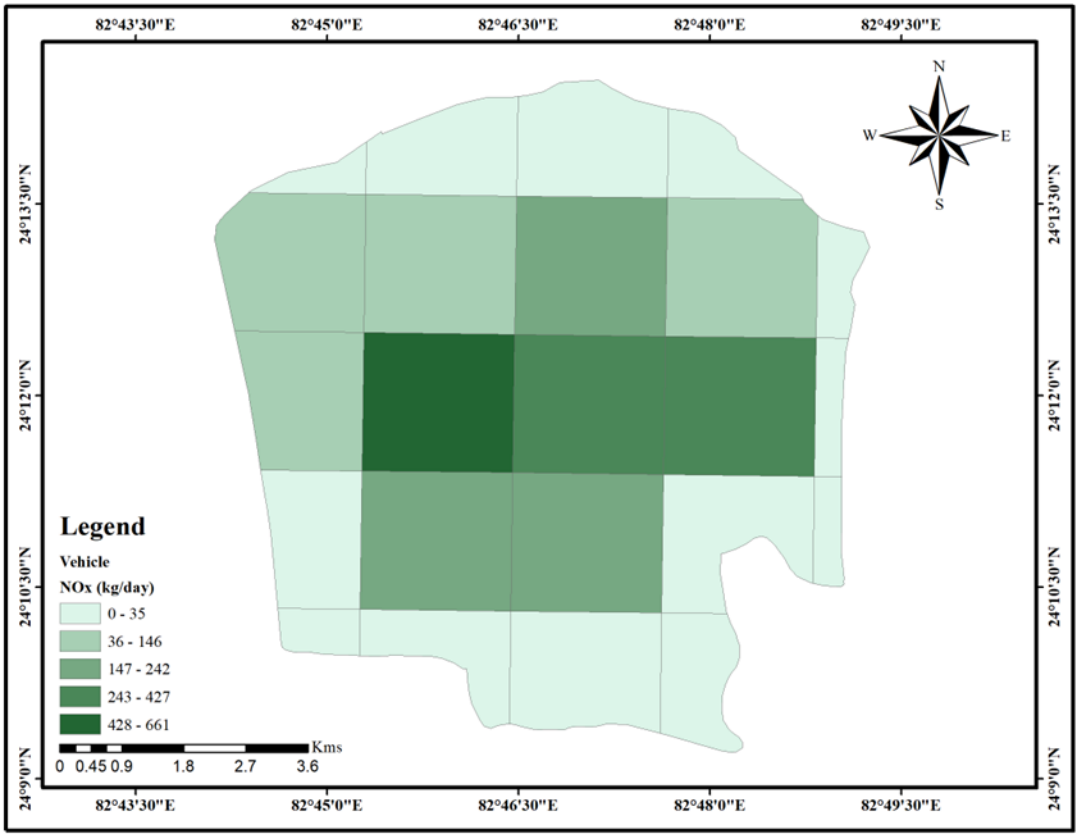


Figure 78: Spatial distribution of NO_x emissions from vehicles

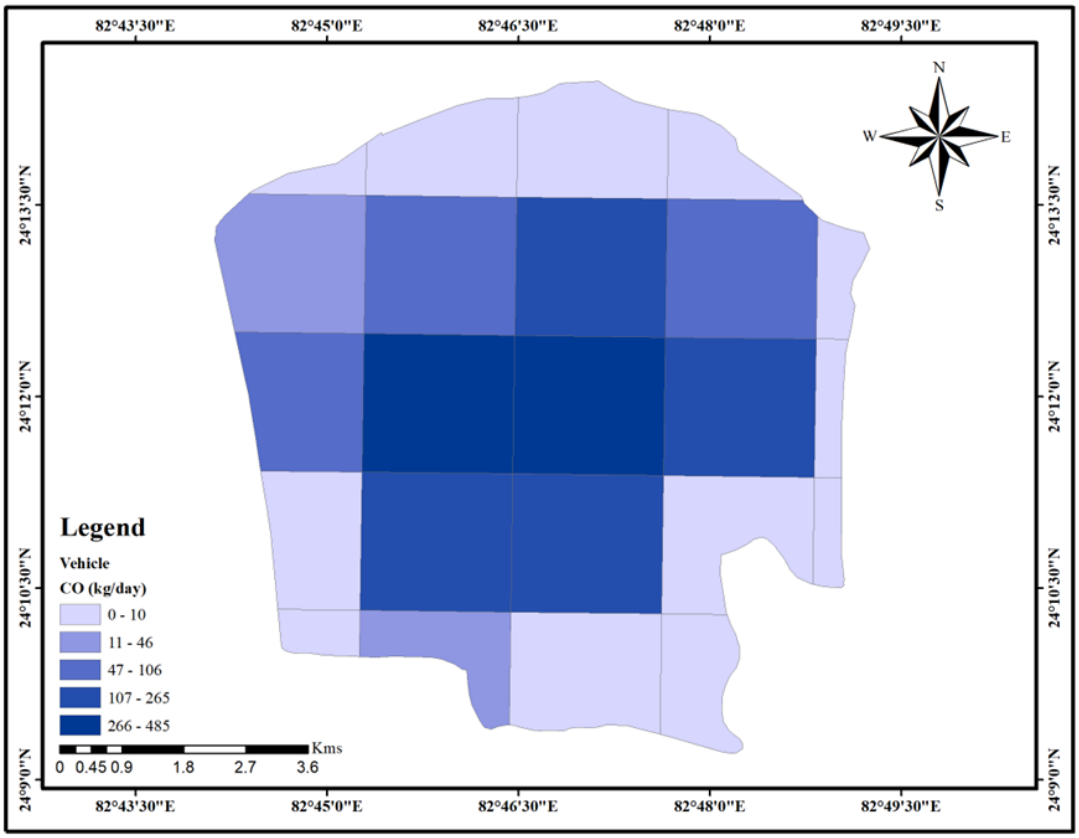


Figure 79: Spatial distribution of CO emissions from vehicles

3.2.14 Traffic Congestion

Transportation infrastructure within Anpara, however, has lagged behind the city's rapid population growth, and traffic jams have become common. Taxis, auto-rickshaws, e-rickshaws, private vehicles, and suburban bus and rail services provide local transport. Anpara is facing the problem of regulating inter-city traffic and city traffic, including encroachment on city and major highways. Due to the heterogeneous composition of Autos, Tempos, Rickshaws, Cycles, two-wheelers, cars, and other small goods vehicles, traffic movement is very slow.

The typical Traffic conditions at different locations in Anpara are given in Figure 80. The figure depicts the traffic report of Anpara for seven traffic hotspots of the city for the 7 days of the week. The colour coding used here is Red, Orange, and Green, indicating the slow traffic to fast traffic movement. are Nehru Chowk and Anpara Market Road of the major bottleneck points in the city.

Table 2: Major traffic bottleneck points

Nehru Chowk	Anpara Market Road

S_NO	Days	Nehru Chowk	Anpara Market Road
1	Sunday	8am-10am	8am-10am
		10am-12pm	10am-12pm
		12pm-2pm	12pm-2pm
		2pm-4pm	2pm-4pm
		4pm-6pm	4pm-6pm
		6pm-8pm	6pm-8pm
2	Monday	8am-10am	8am-10am
		10am-12pm	10am-12pm
		12pm-2pm	12pm-2pm
		2pm-4pm	2pm-4pm
		4pm-6pm	4pm-6pm
		6pm-8pm	6pm-8pm
3	Tuesday	8am-10am	8am-10am
		10am-12pm	10am-12pm
		12pm-2pm	12pm-2pm
		2pm-4pm	2pm-4pm
		4pm-6pm	4pm-6pm
		6pm-8pm	6pm-8pm
4	Wednesday	8am-10am	8am-10am
		10am-12pm	10am-12pm
		12pm-2pm	12pm-2pm
		2pm-4pm	2pm-4pm
		4pm-6pm	4pm-6pm
		6pm-8pm	6pm-8pm
5	Thursday	8am-10am	8am-10am
		10am-12pm	10am-12pm
		12pm-2pm	12pm-2pm
		2pm-4pm	2pm-4pm
		4pm-6pm	4pm-6pm
		6pm-8pm	6pm-8pm
6	Friday	8am-10am	8am-10am
		10am-12pm	10am-12pm
		12pm-2pm	12pm-2pm
		2pm-4pm	2pm-4pm
		4pm-6pm	4pm-6pm
		6pm-8pm	6pm-8pm
7	Saturday	8am-10am	8am-10am
		10am-12pm	10am-12pm
		12pm-2pm	12pm-2pm
		2pm-4pm	2pm-4pm
		4pm-6pm	4pm-6pm
		6pm-8pm	6pm-8pm

Figure 80: Typical traffic conditions at different locations in Anpara city

Green = smooth traffic

Orange = slow-moving traffic

Red = Heavy traffic with congestion

3.2.15 Paved and Unpaved Road Dust

Dust emissions from paved and unpaved roads have been found that vary with the 'silt loading' present on the road surface and the average weight of vehicles traveling on the road. Silt loading (sL) refers to the mass of the silt-size material (equal to or less than 75 μm in physical diameter) per unit area of the travel surface. The quantity of dust emissions from the movement of vehicles on a paved or unpaved road can be estimated using the following empirical expression:

$$E = \frac{\left[k\left(\frac{sL}{2}\right)^{0.65} \times \left(\frac{W}{3}\right)^{1.5} \times VKT\right]}{1000} \quad \text{..... Equation 4}$$

Where;

E = emission from road dust (kg/d)

VKT = vehicle kilometer travel

sL = road surface silt loading (grams per square meter) (g/m^2), and

W = average weight (tons) of the vehicles travelling the road.

k = constant (a function of particle size) in g VKT^{-1} (vehicle kilometer travel)

The road dust sampling was carried out at seven locations (

Figure 81). The silt loads (sL) sampling as an example, is shown for two locations (

Figure 82). Then mean weight of the vehicle fleet (W) was estimated by giving the weightage to the percentage of vehicles of all types with their weight, then the emission rate (g VKT^{-1}) was calculated. The emission loads from paved and unpaved roads were calculated using equation 4 and shown in

Figure 83. The spatial distribution of Emissions from Road Dust Re-suspension is presented in Figure 84 and Figure 85.

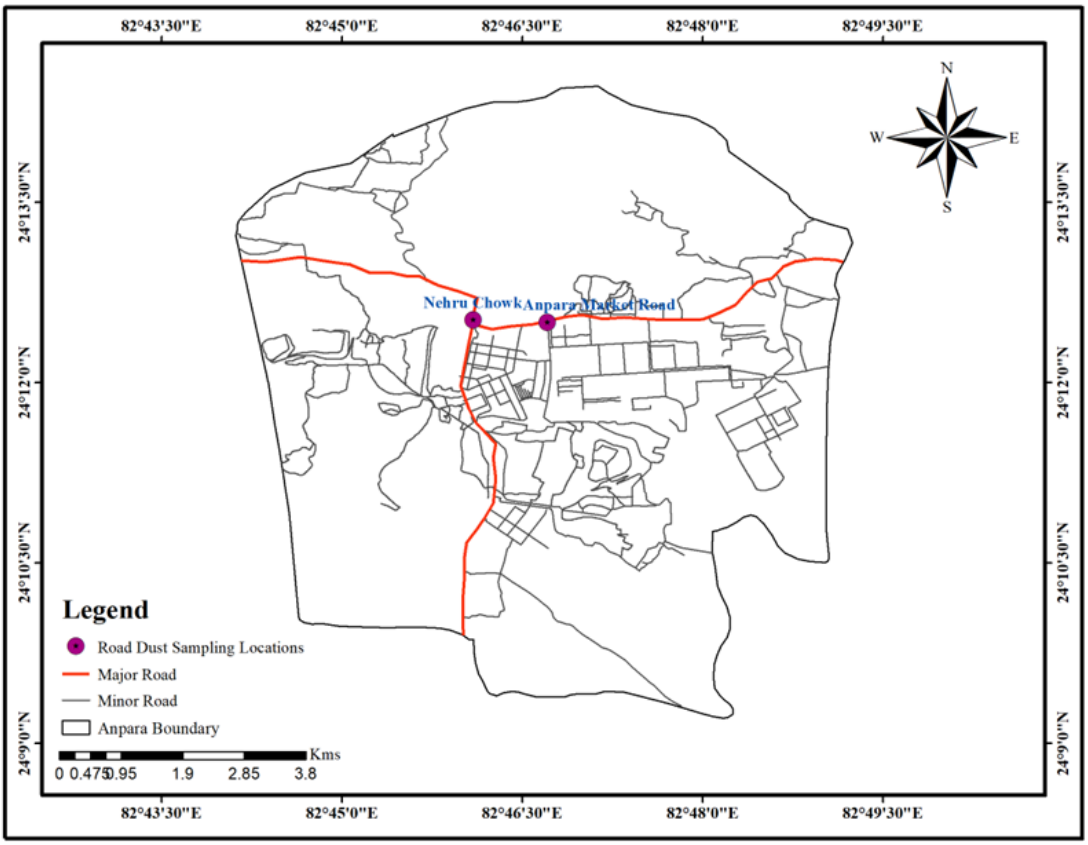


Figure 81: Road dust sampling locations

Figure 82: Road dust sampling in the city of Anpara

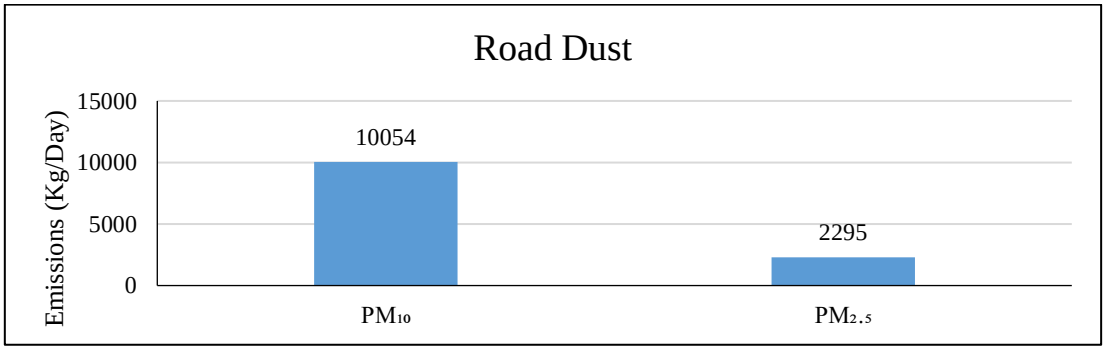


Figure 83: Emissions from road dust in Anpara (Kg/d)

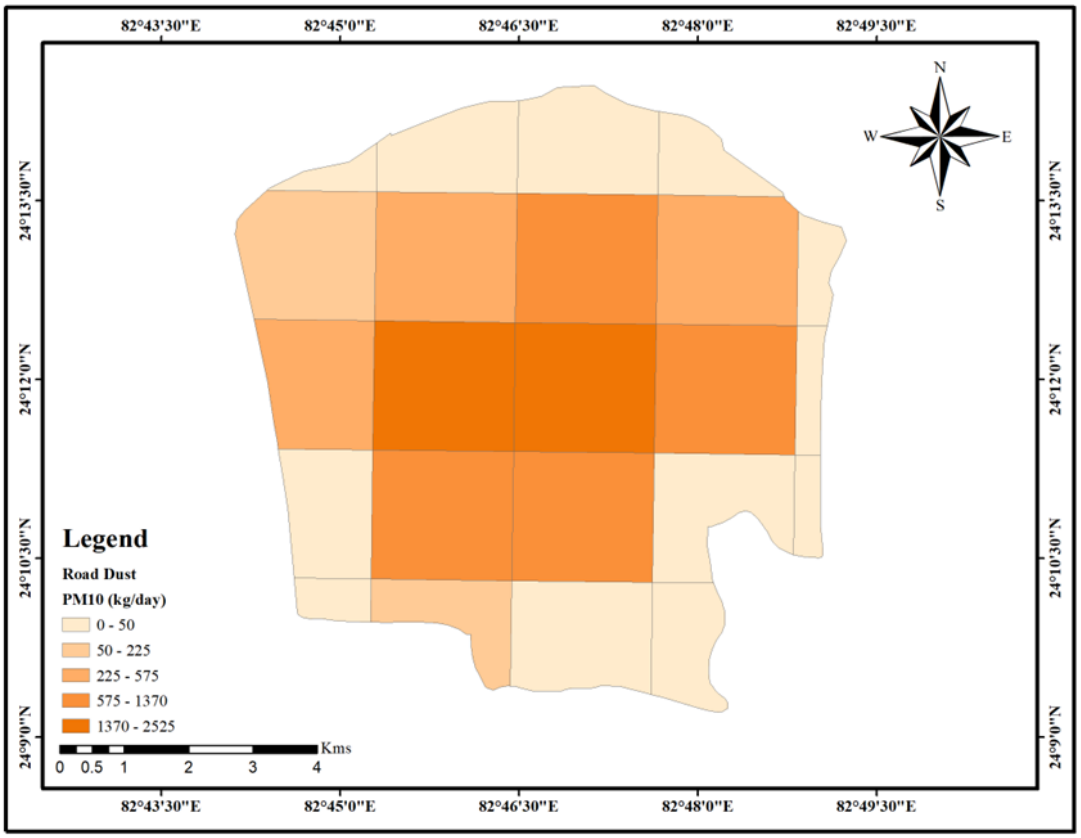


Figure 84: Spatial distribution of PM_{10} emissions from road dust re-suspension

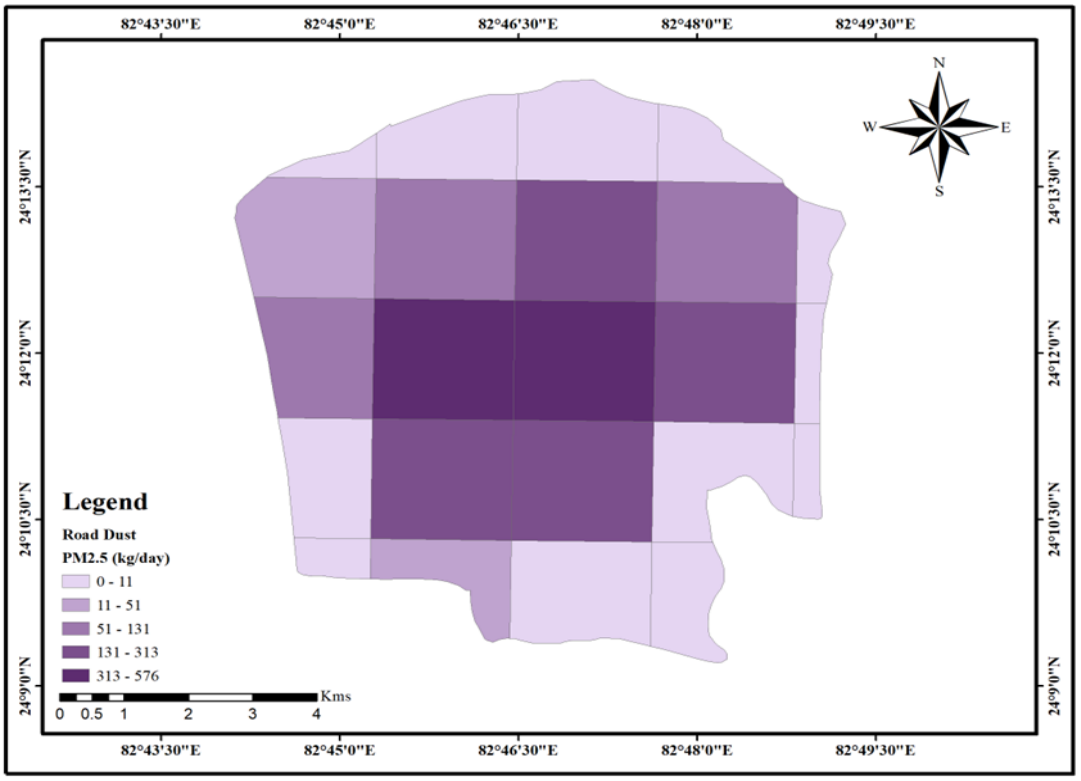


Figure 85: Spatial distribution of $PM_{2.5}$ emissions from road dust re-suspension

3.3 City-Level Emission Inventory

The overall baseline emission inventory for the entire Anpara is presented in Table 3. The pollutant-wise contribution is shown in Figure 86 to Figure 90. The spatial distribution of pollutant emissions from all sources is illustrated in Figure 91 to Figure 95. The pollutant-wise gridded emissions are provided in Annexure 2.

Table 3: Anpara city-level inventory (kg/d)

Sources	PM_{10}	$PM_{2.5}$	SO_2	NOx	CO
Brick Kilns	205	143	266	80	510
Domestic	25	19	10	12	70
MSW Burning	0.8	0.6	0.1	0.3	4.3
Hotels, Restaurants, GHs and BHs	30	16	20	10	53
Construction and Demolition	161	37			
Hospitals	0.04	0.03	0.03	0.53	0.11
Vehicle	204	183	0.1	2626	1975
Road Dust	10054	2295			
Sub-Total	**10680**	**2694**	**296**	**2729**	**2612**
Power Plant*	6695136	2975616	67305600	77932800	1771200
Total	**6705816**	**2978310**	**67305896**	**77935529**	**1773812**

Since the majority of emissions are from the powerplant. The contribution of sources except for the powerplant with respect to each pollutant is elaborated below.

The total PM_{10} emission load in the city is estimated to be 10680 kg/day. The top four contributors to PM_{10} emissions are Road Dust (94%), Brick Kiln (2%), Vehicles (2%), and Construction and Demolition (2%); these are based on annual emissions. Seasonal and daily emissions could be highly variable. The estimated emission suggests that there are many important sources and a composite emission abatement including most of the sources will be required to obtain the desired air quality.

$PM_{2.5}$ emission load in the city is estimated to be 2694 kg/day. The top four contributors to $PM_{2.5}$ emissions are Road Dust (85%), Vehicle (7%), Brick Kiln (5%), and Construction and Demolition (1%); these are based on annual emissions. Seasonal and daily emissions could be highly variable.

SO_2 emission load in the city is estimated to be 296 kg/day. Brick Kiln (90%), Hotels, Restaurants, and GHs (7%), and Domestic (3%) emissions are the major contributor to SO_2 emissions.

NOx emissions load in the city is estimated to be 2729 kg/day. The majority of total emissions are attributed to vehicles (96%), Brick Kilns (3%) and Domestic (1%). Vehicular emissions occur at ground level, probably making it the most important emission. NOx apart from being a pollutant itself is an important component in the formation of secondary particles (nitrates) and ozone. NOx from vehicles is a potential source of controlling NOx emissions.

The estimated CO emission is about 2612 kg/day. The major contributors to CO emissions are Vehicle (76%), Brick Kiln (19%), and Domestic (3%). Vehicles and Brick Kiln could be the main target for controlling CO for improving air quality concerning CO.

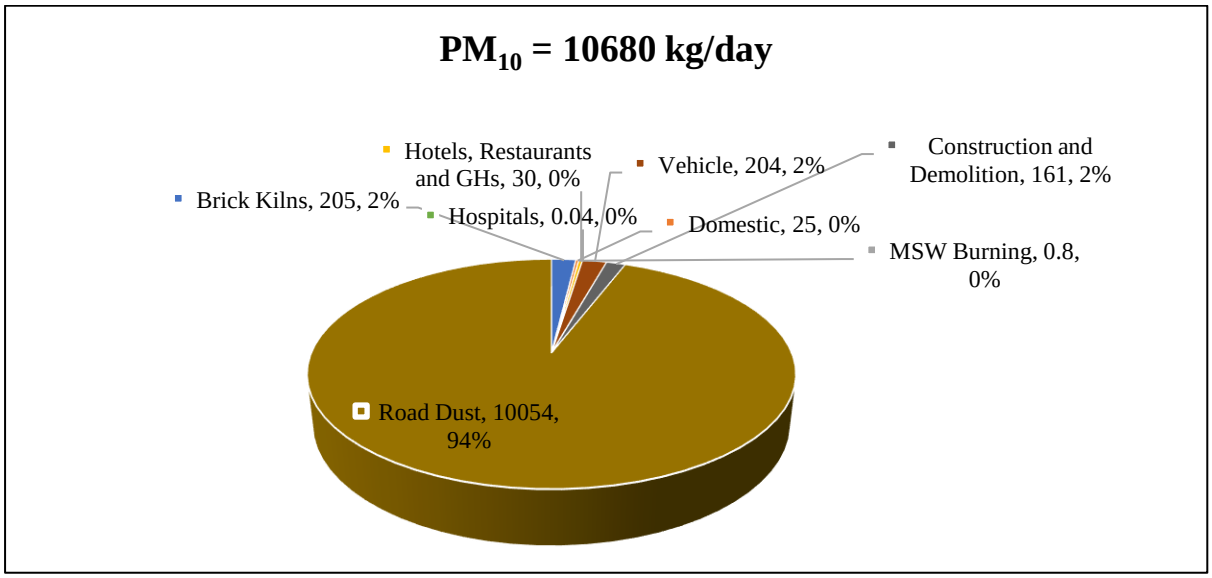


Figure 86: PM_{10} Emission load contribution of different sources

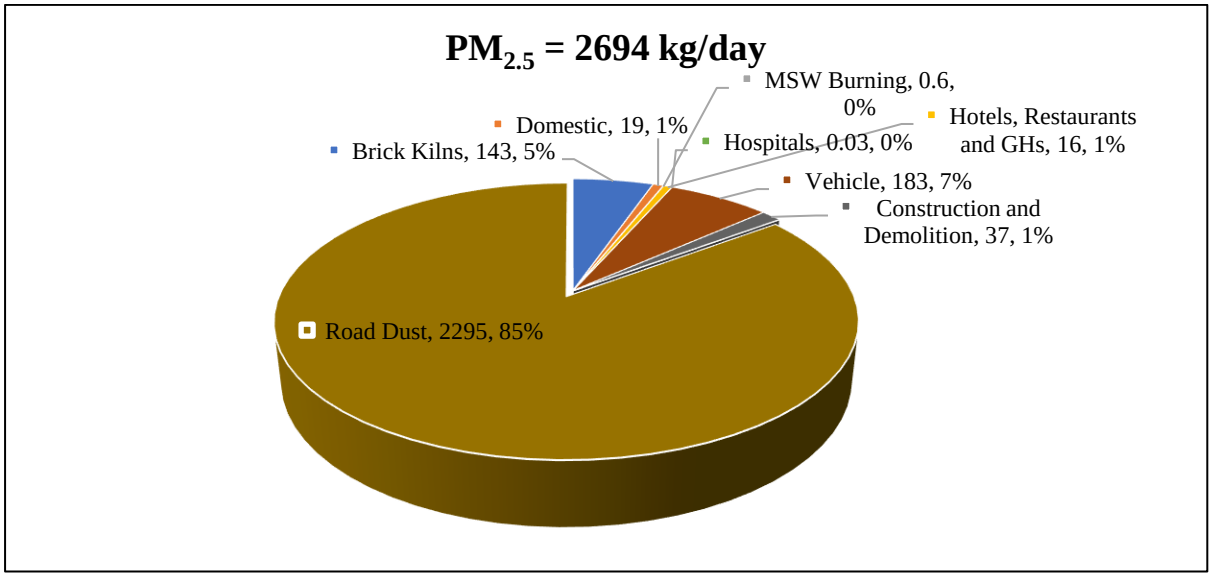


Figure 87: $PM_{2.5}$ Emission load contribution of different sources

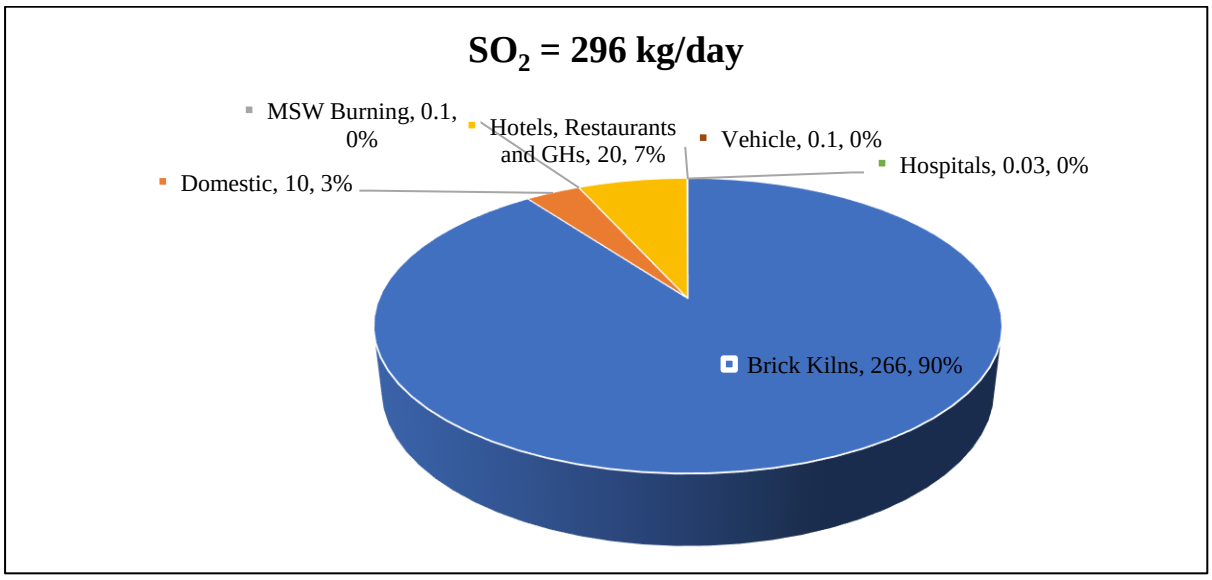


Figure 88: SO_2 Emission load contribution of different sources

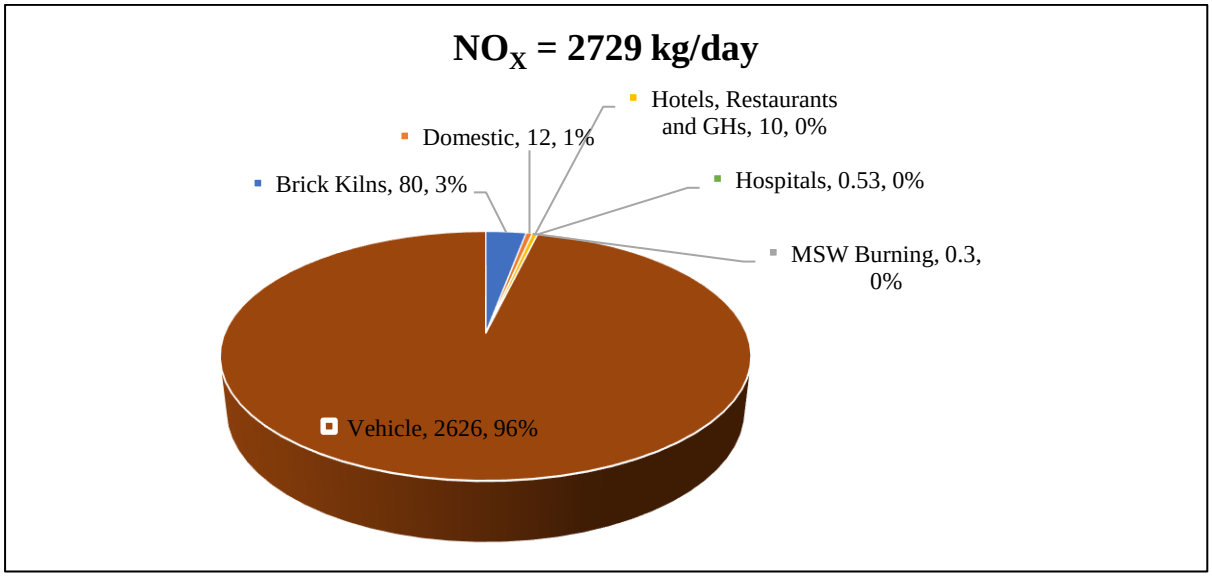


Figure 89: NO_x Emission load contribution of different sources

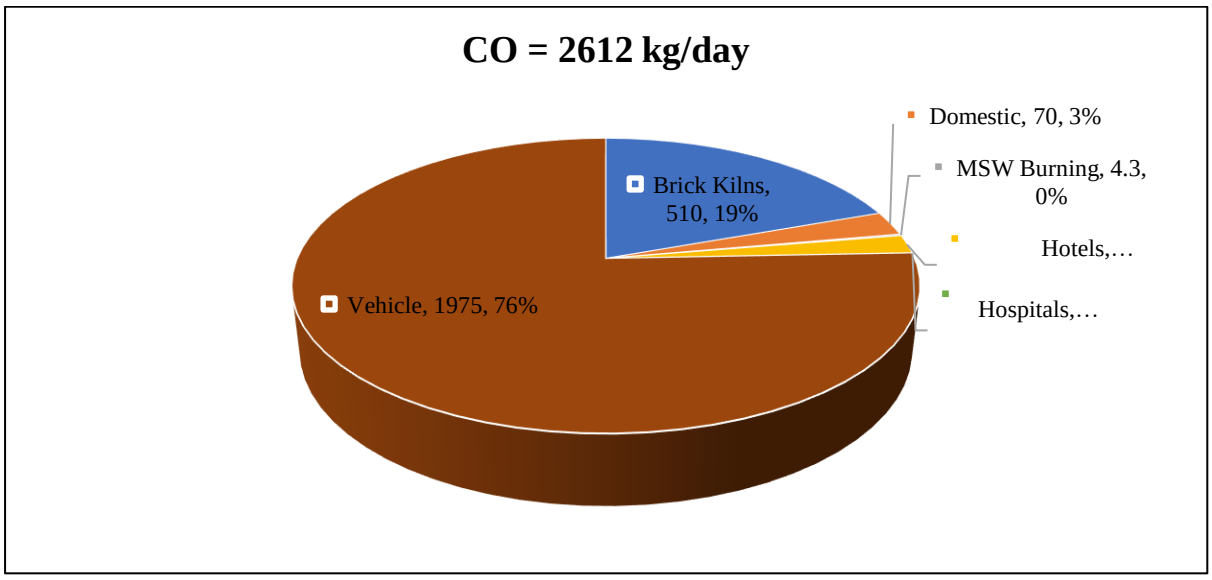


Figure 90: CO Emission load contribution of different sources

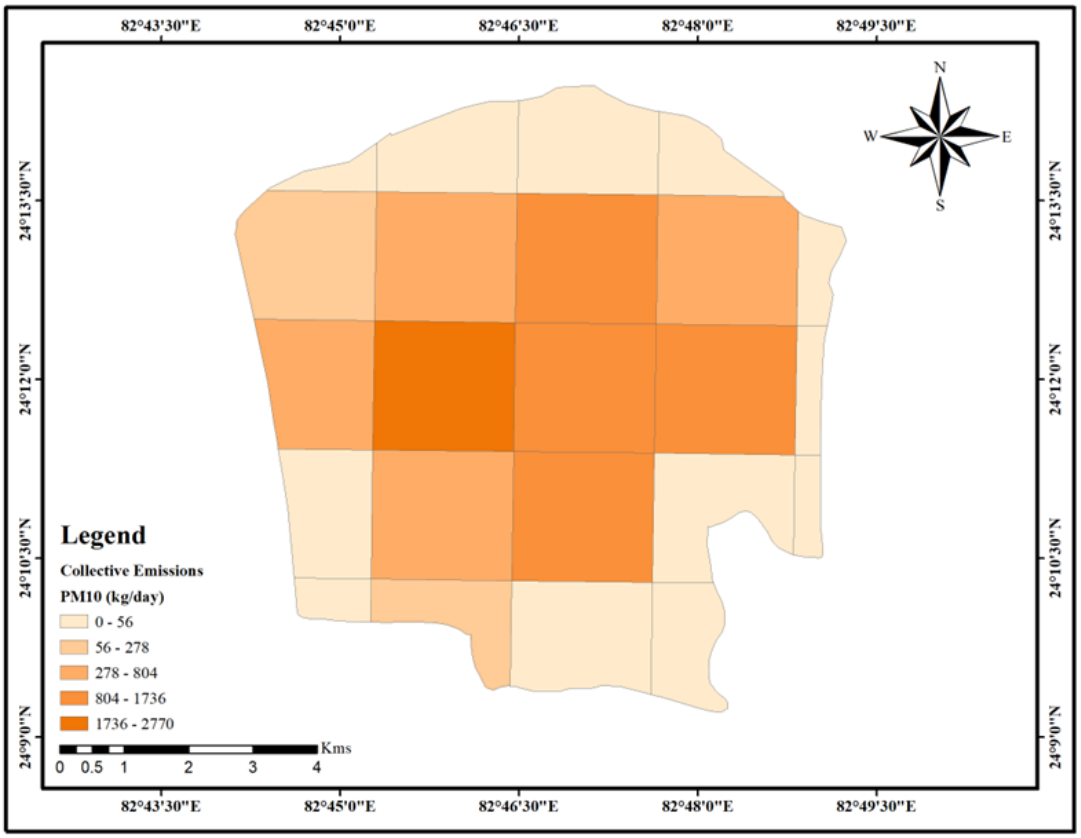


Figure 91: Spatial distribution of PM_{10} emissions in Anpara

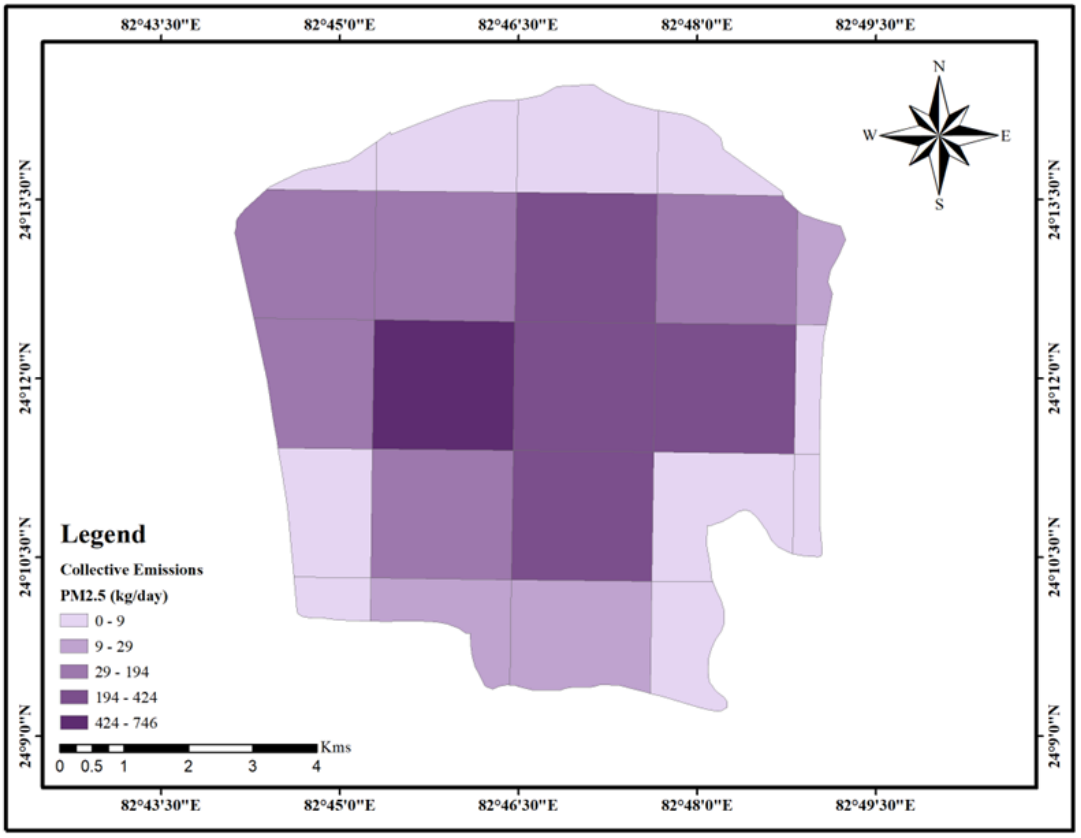


Figure 92: Spatial distribution of $PM_{2.5}$ emissions in Anpara

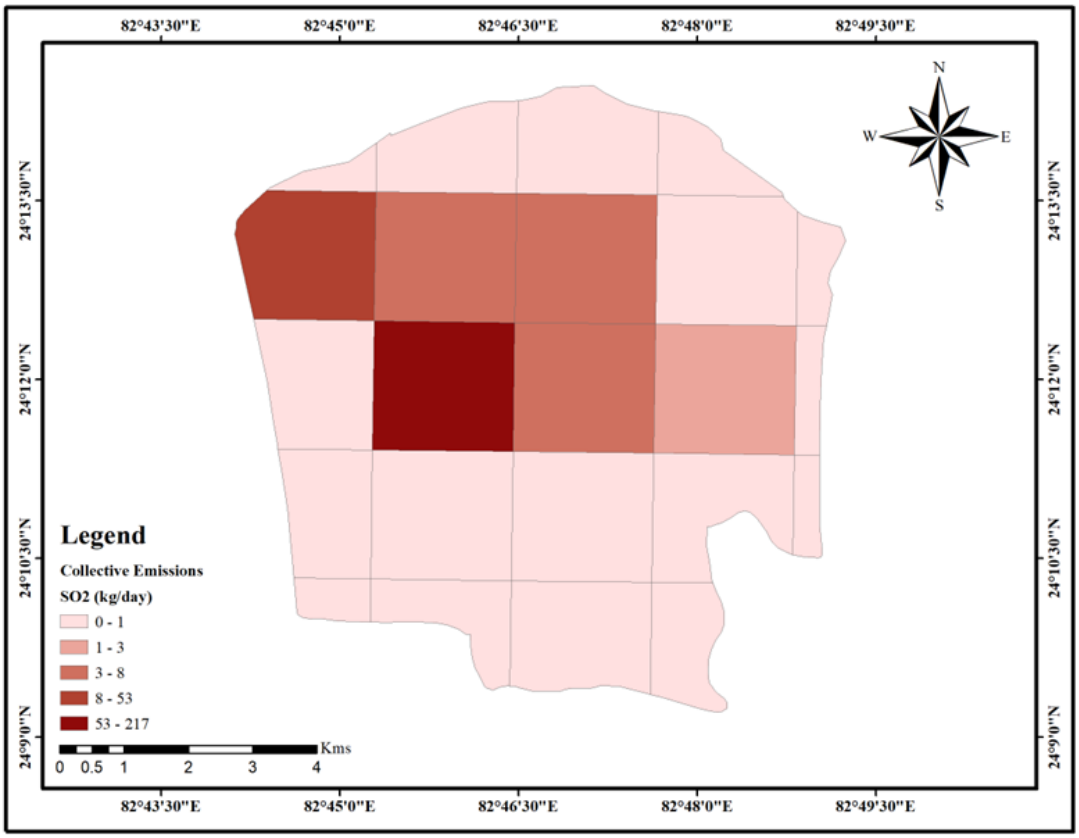


Figure 93: Spatial distribution of SO_2 emissions in Anpara

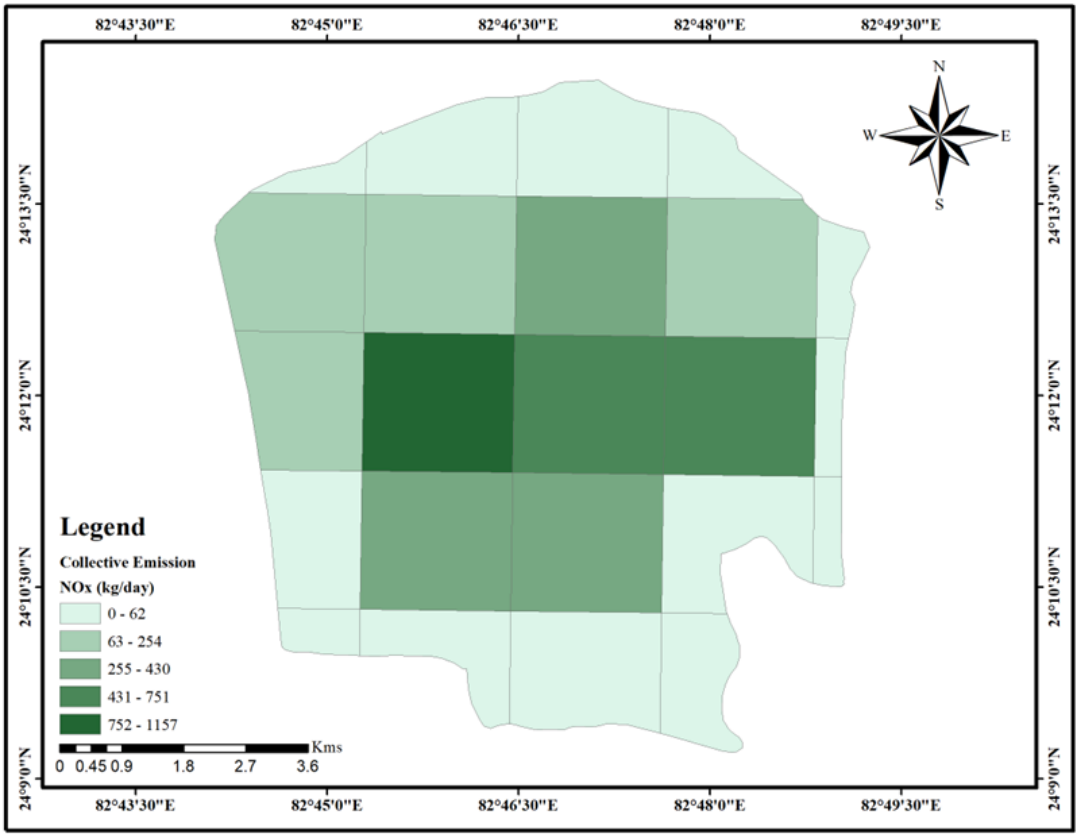


Figure 94: Spatial distribution of NO_x emissions in Anpara

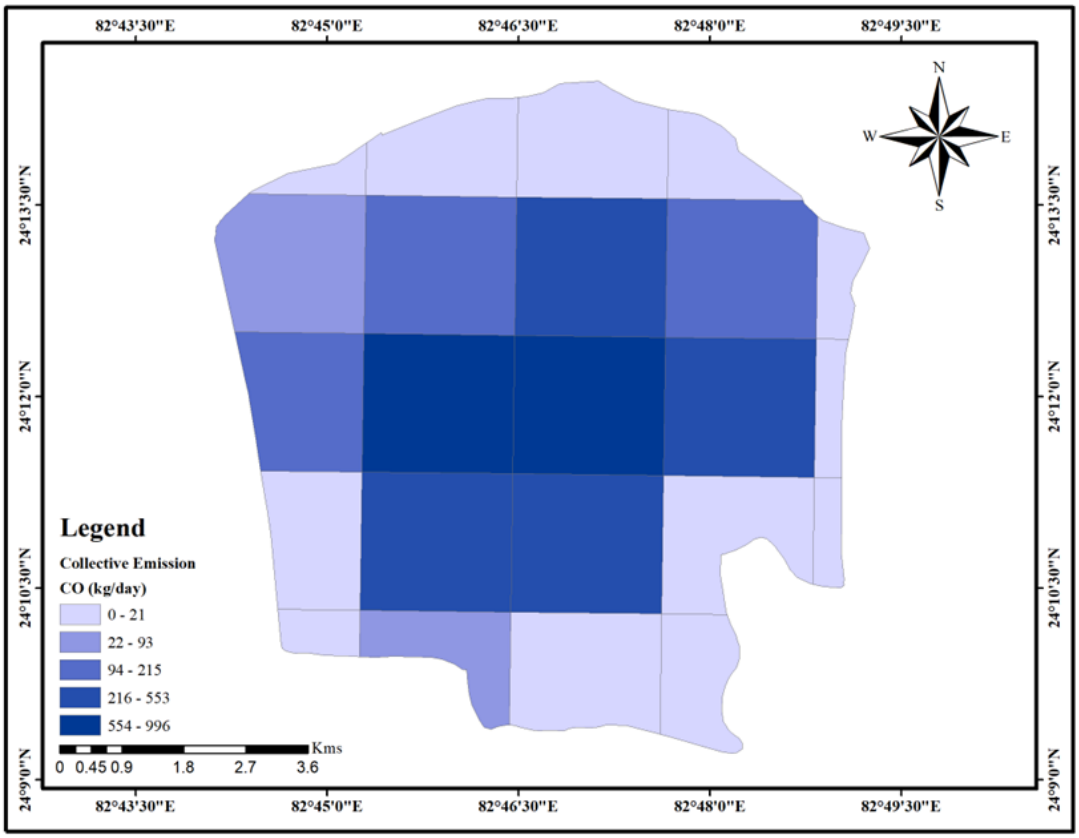


Figure 95: Spatial distribution of CO emissions in Anpara

4. Carrying Capacity

The concept of carrying capacity is defined as the ability of a region's environment and resources to support the threshold of human activities for a specific period (Peng and Linyu 2012). Therefore, it is an effective spatial and environment planning and management tool. The carrying capacity theory has been widely applied in environmental planning and management and has played an important role in city resources, environmental management, and territorial spatial planning. For example, based on the regional water resource carrying capacity evaluation results, Wang (2013) and Yang (2014) pointed out that rapid population growth could aggravate water resource crises and limit regional economic growth. They also suggested that restrictive classification of water resources was required to guide rational regional development. Similarly, evaluations of the forest resource carrying capacity and eco-environment carrying capacity also revealed that environmental pollution and resource shortages restrict regional economic development (Specht, 1993). All these studies have provided a theoretical basis for territorial spatial planning and sustainable development of the regional social economy.

Most existing studies in this field have focused on evaluating the carrying capacity of a single factor. However, as a system, a region requires comprehensive and balanced development of the economy, society, environment, and resources (Ng and Obbard, 2005). Therefore, a comprehensive evaluation of the regional resource and environmental carrying capacity (RECC) is necessary to investigate the interactive mechanisms between social and economic factors, and resource and environmental factors (Liu and Borthwick, 2011). The evaluation indices, multiple aspects such as resource size, economy and society, and ecological environment, should be considered (Tang et. Al, 2016) . The framework of carrying capacity is shown in Figure 96.

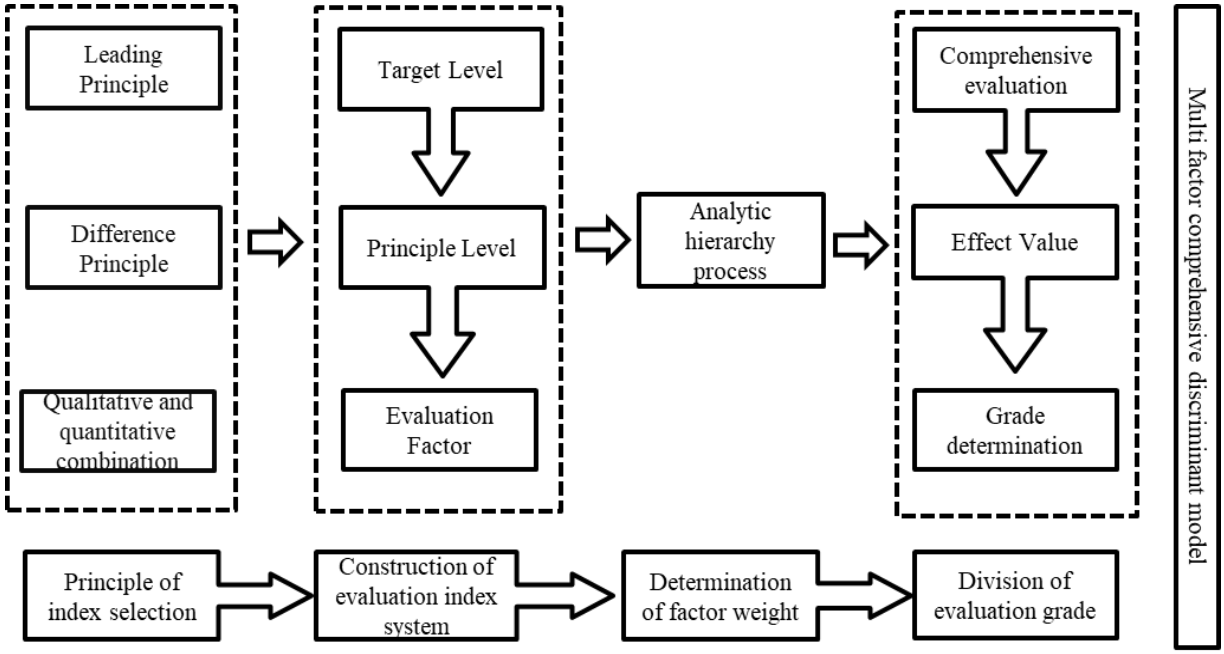


Figure 96: The multi-index multi-factor synthetic discriminant model for the evaluation of the RECC (Kaiyuan Li, 2019)

4.1 Approach for Quantifying Carrying Capacity

As shown in EI section, following emission sources were inventorized:

- **a)** Domestic fuel uses (LPG, dung, biomass coal etc.) and emission
- **b)** Coal-based tandoors in the hotels, restaurants and dhabas and other areas
- **c)** Fuel and processes used in the industries in the boilers, furnaces and heating purposes.
- **d)** Municipal waste burning incinerators, biomedical incinerators and hazardous waste incinerators
- **e)** Vehicle emissions
- **f)** Construction activities in the region.
- **g)** Soil and road dust and from paved and unpaved roads.

4.1.1 Assessment of Carrying Capacity

Atmospheric Assimilation Capacity

Various approaches are described in the literature for estimating the atmospheric assimilative capacity of a region. Goyal et al. (2006) proposed two approaches, one based on a ventilation coefficient, the other through pollution potential. Here we are

discussing the atmospheric assimilative capacity using a simple Box Model.

A simple box model based on mass balance and assuming that all pollutants in the box are uniformly mixed (Figure 97). It is a simple model and has several limitations; however, to demonstrate the framework and preliminary analysis, the model may provide broad estimates of carrying capacity. Mathematically, the model can be described as below:

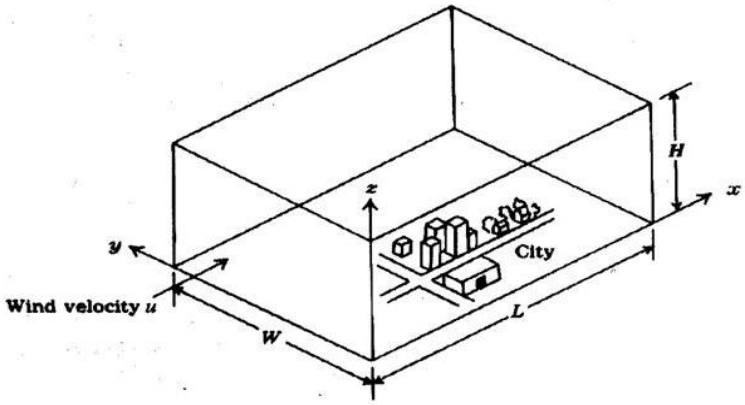


Figure 97: Schematic of box model (De Nevers, 1995)

Mathematically,

$$V\frac{dc}{dt} = qC_{in} - qC_{out} + S - K_{dd}\,CLW - K_{cr}\,C_{out}V \text{..... } \textbf{Equation 5}$$

where, q = volumetric flow rate (m^3/sec)

C_{in} = influent concentration of a pollutant (g/m^3)

C_{out} = effluent concentration of a pollutant (g/m^3)

K_{dd} = dry deposition velocity (m /sec)

K_{cr} = First order chemical reaction constant (1/sec)

S = source emission rate(g/sec)

$K_{dd.}$C.L.W = the amount of pollutants removed by dry deposition (g/sec)

$K_{cr.}$C.V = the amount of pollutants converted by chemical reaction (g/sec)

u = wind speed (m/sec)

In the equation, V=L×W×H volume of City m^3 (L: length (m), W; Width (m), H; height (m))

The model is further simplified with the following assumptions:

- Steady-state condition (i.e. concentration is time-invariant); dc/dt = 0
- Pollutant is not subjected to deposition in the box; $k_{dd} = 0$
- Pollutant does not undergo any chemical transformation: $K_{cr} = 0$

One can estimate the carrying capacity, Q_{cc} as per the following equation:

$$Q_{cc} = (C\text{-}Co) \times u.W.H \quad \text{.....} \quad \textbf{Equation 6}$$

In this calculation,

Area (A) of the system boundary, Width (W) of the System boundary, mixing height (H) (average for winter and summer) within the system boundary, Wind Speed (s) within the system boundary are required.

Background concentration (C_0) into the system boundary is also required; in this case it was assumed negligible.

Alternatively, the multi-source simulation model may be used to estimate atmospheric assimilative capacity based on air quality modeling, which considers region-specific meteorological conditions, terrain characteristics, and emission loads from different sources. Following Goyal and Chalapati Rao (2007), the discharge emission load at which the maximum allowable concentration is reached under predefined critical conditions is taken to be the assimilative capacity of the region. Prediction of ground-level concentrations of pollutants is carried out using the US EPA-approved ISCST-3 simulation model (EPA, 1995a, 1995b). It should be noted that the atmospheric assimilative capacity has a range of values, depending on the variation of emission characteristics with given meteorological and topographical conditions. We have used the advanced US EPA model American Environmental Protection Agency Regulatory Model (AERMOD, 2006) in place of ISCST-3.

The overall methodology for estimating the carrying capacity of the city and major tasks are given in Figure 98.

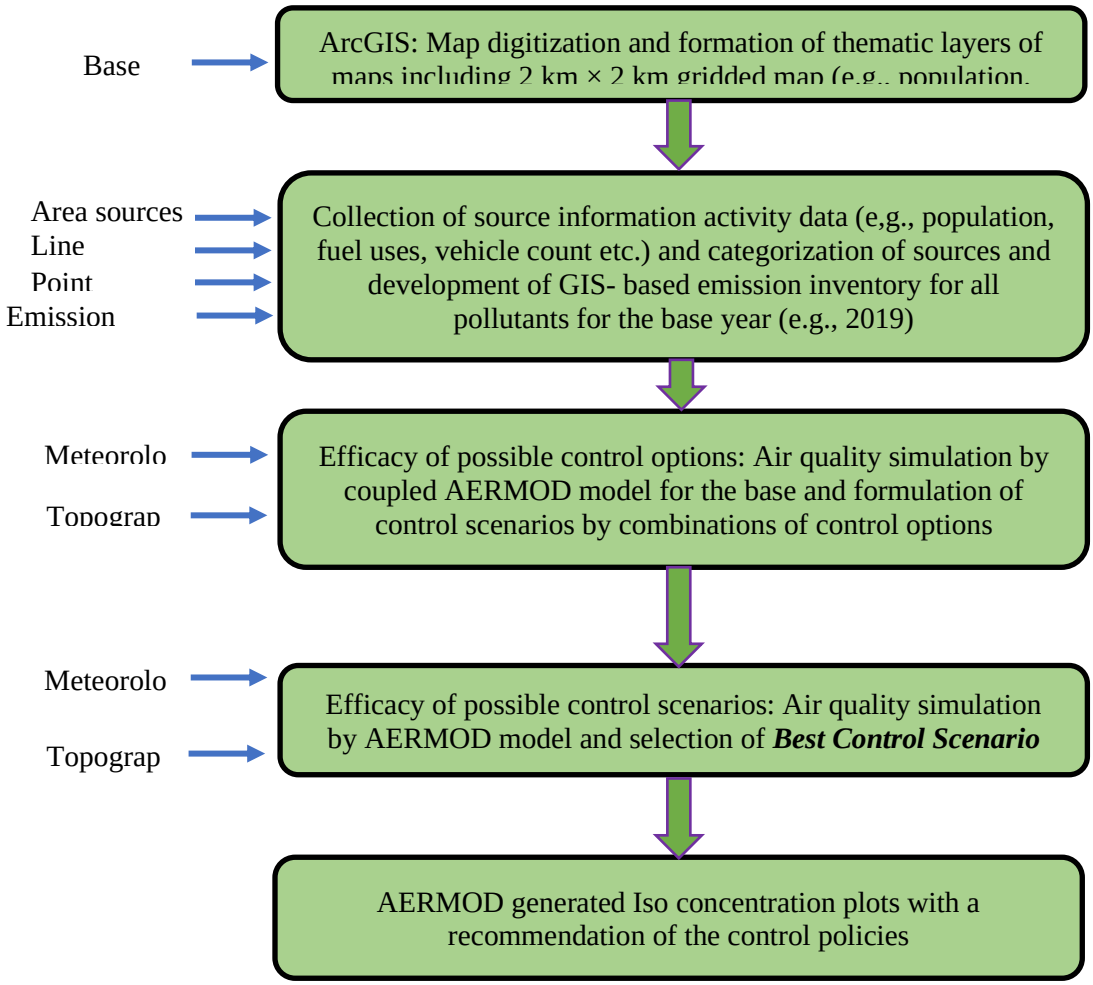


Figure 98: Methodology for the source apportionment study and major tasks

4.2 Application of Dispersion Modeling

Dispersion modeling in the study area was undertaken for source apportionment and to evaluate the efficacies of various control options in improving air quality. The meteorological data generated continuously at sampling sites or IMD (India Meteorology Department)/WRF (Weather Research Forecast) model was utilized in dispersion modeling. The emission quantities coupled with meteorological data of the area were used in the dispersion model in estimating the concentration of various pollutants (as per the scope of work) and examining the contribution of each of the sources. Attempts were made to validate the model as measured concurrent concentrations at some air quality stations were available. The USEPA regulatory model AERMOD (2006) was used that considers topographical features like water bodies and terrain elevations. It may be noted that the model performance was tested with comprehensive statistical analyses by comparing the observed and predicted pollutant concentrations for other cities Kanpur (Sharma M. 2021) and Agra in the state (IIT Kanpur and UPPCB (2021).

5. Dispersion Modeling

5.1 Introduction

The current state-of-the-science, comprehensive meteorological and regulatory air dispersion modeling systems have been used in the study to conduct the dispersion modeling. The American Meteorological Society / Environmental Protection Agency Regulatory Model (AERMOD) has been used to assess the impact of short-range transport (< 50 km) of $PM_{2.5}$ emissions from various sources within Anpara city, Uttar Pradesh.

5.1.1 AERMOD

AERMOD is a dispersion model that can characterize the planetary boundary layer (PBL) through surface and mixed layer scaling. This model is a complete and powerful air dispersion modeling package that seamlessly incorporates the following the US EPA air dispersion models into one integrated interface:

- AERMOD
- ISCST3
- ISC-PRIME

The AERMOD modeling system consists of one main program (AERMOD) and two pre-processors (AERMET and AERMAP). AERMOD uses terrain, boundary layer, and source data to model pollutant transport and dispersion for calculating temporally averaged air pollution concentrations.

The approach for modeling using AERMOD is shown in Figure 99. Onsite hourly meteorological data was generated by the WRF model. The model run was performed for a defined study period (the year 2019). The output of the WRF model was fed as input to AERMOD in the pre-processor RAMMET and AERMET of the model.

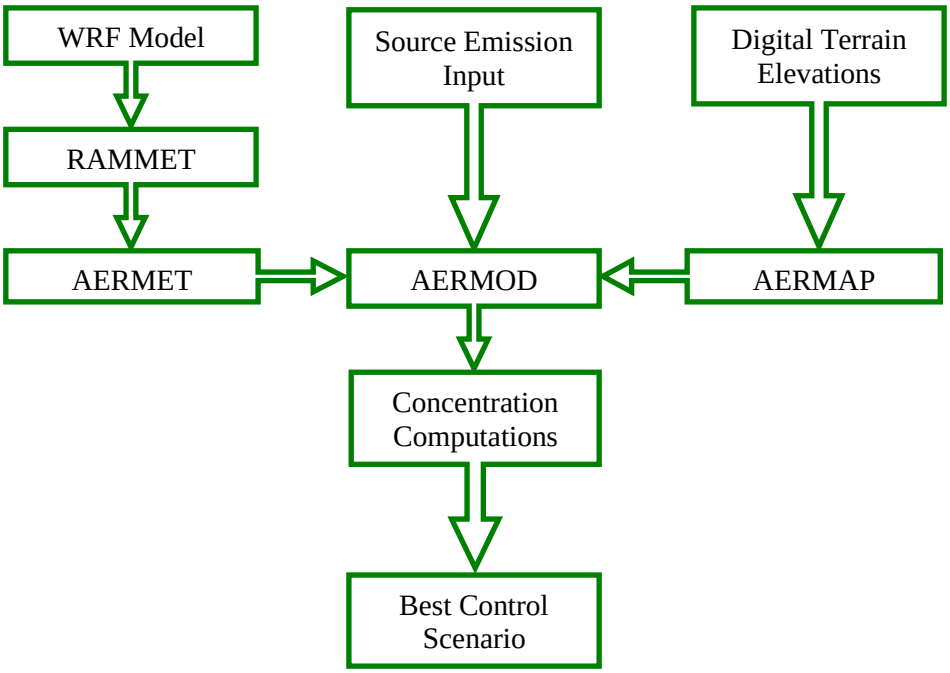


Figure 99: Approach for dispersion modeling using AERMOD

The meteorological parameters from the WRF model (wind speed, wind direction, rainfall, temperature, humidity, pressure, ceiling height, global horizontal radiation, and cloud cover) with one-hour resolution were organized in a spreadsheet. This spreadsheet was processed in AERMET, which is the meteorological pre-processor of AERMOD. The terrain data at 90 m resolution was generated from Shuttle Radar Topography Mission (SRTM) of AERMAP. The AERMAP provides a physical relationship between terrain features (e.g., altitude) and the behavior of air pollution plumes at any receptor. AERMOD was further used to model air quality in the study for the prediction of pollutants concentration from different sources within Anpara city.

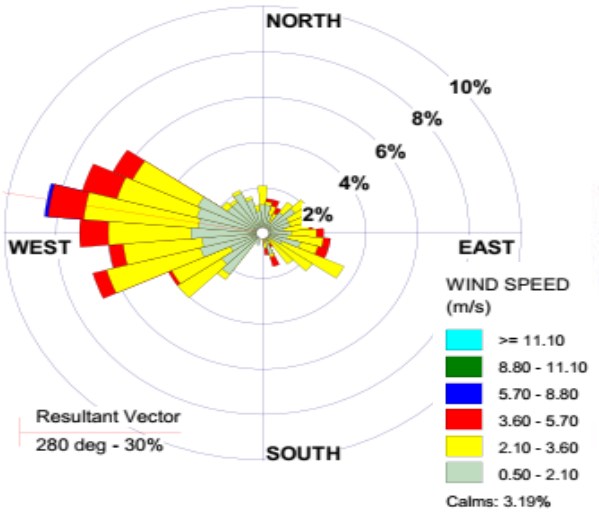
5.2 Meteorological Data

In evaluating the emission dispersion using the AERMOD, the meteorological dataset was generated using the WRF model from January 01, 2019 to December 31, 2019. The frequency distribution and frequency data were obtained by processing the hourly surface file in AERMET. The AERMET program is a meteorological pre-processor that prepares hourly surface data and upper-air data for use in the USEPA air quality dispersion model, AERMOD.

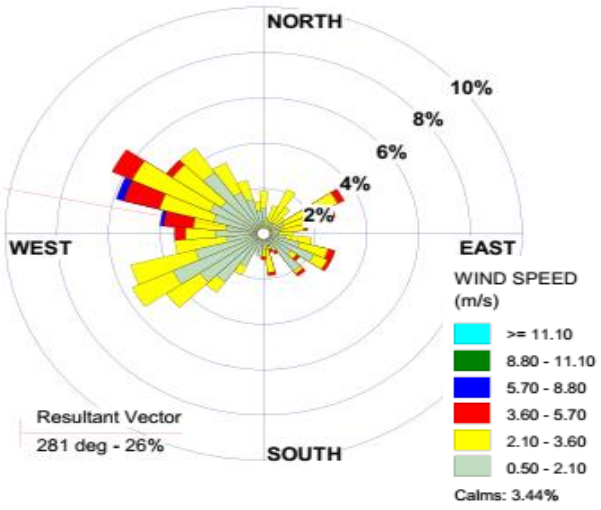
The wind rose plots for all months of 2019 are shown in Figure 100. The predominant wind blowing direction was observed to be northwest and southwest in most of the months and southeast in some of the months. Also, a relatively high wind speed was

observed in the summer season.

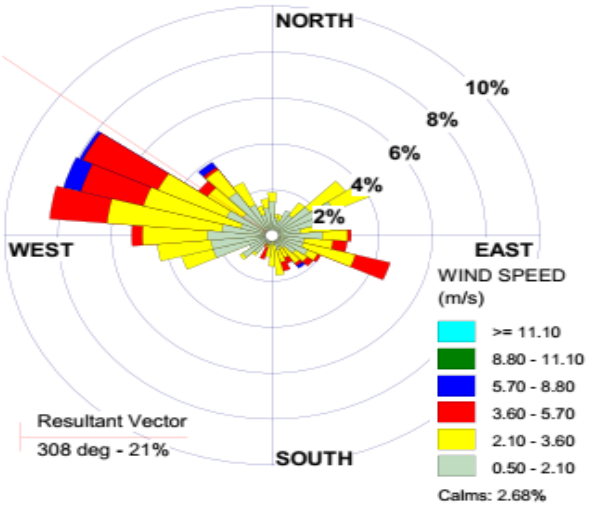
Anpara Jan 19



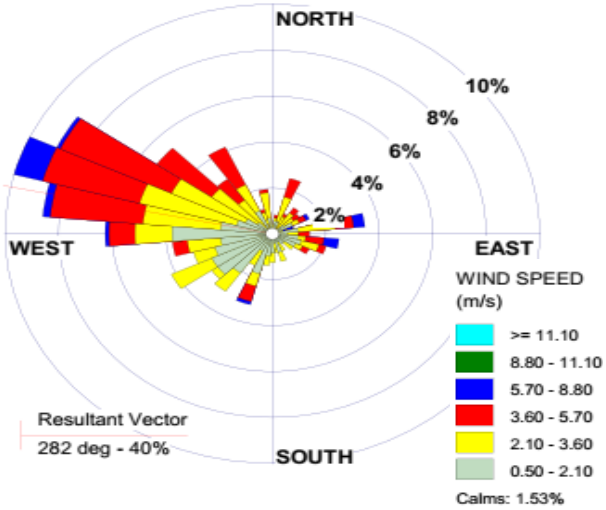
Anpara Feb 19



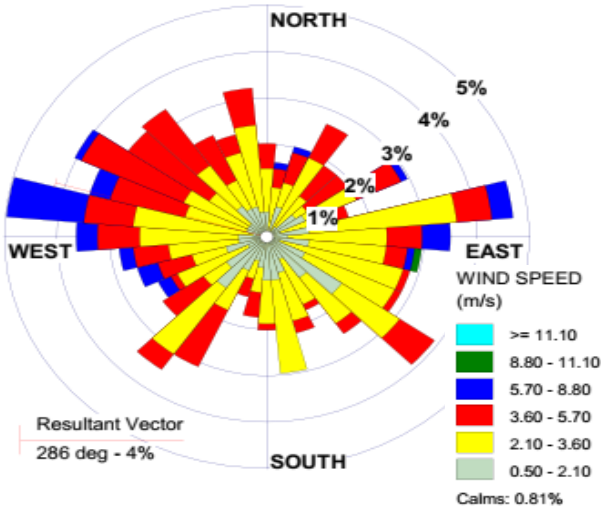
Anpara Mar 19



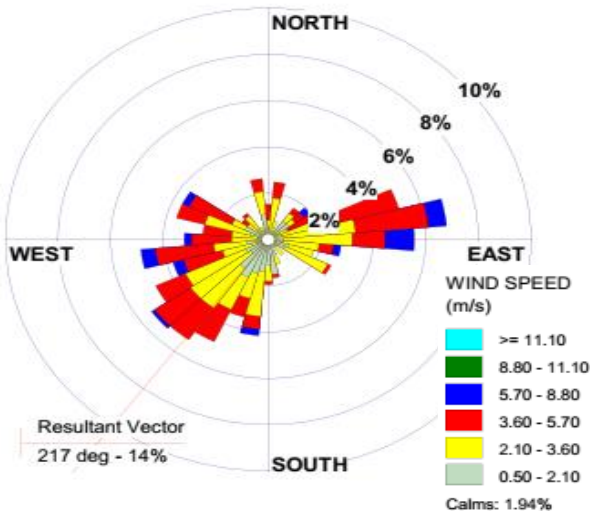
Anpara Apr 19



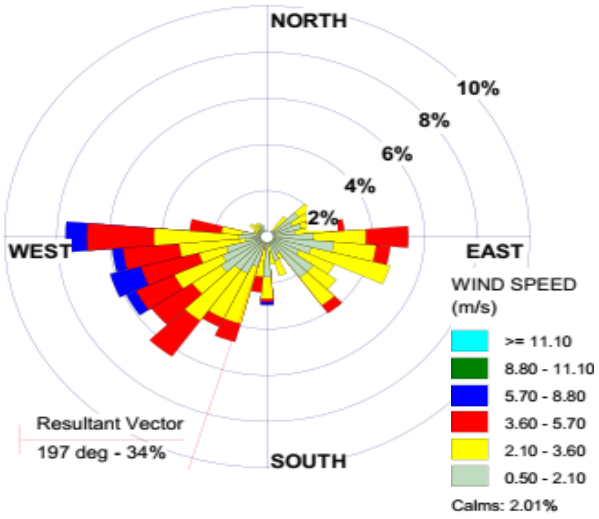
Anpara May 19



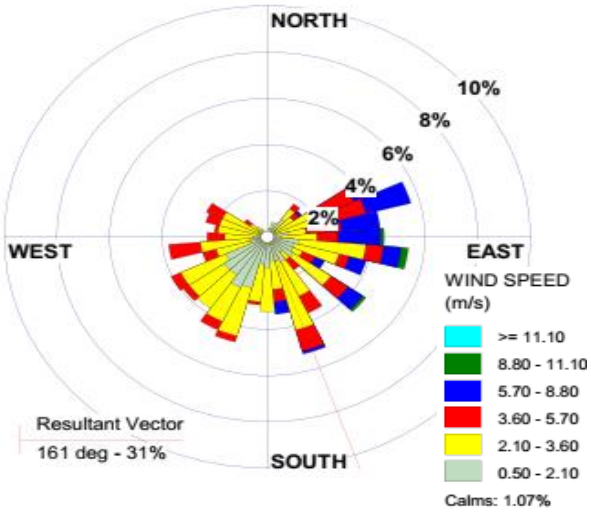
Anpara Jun 19



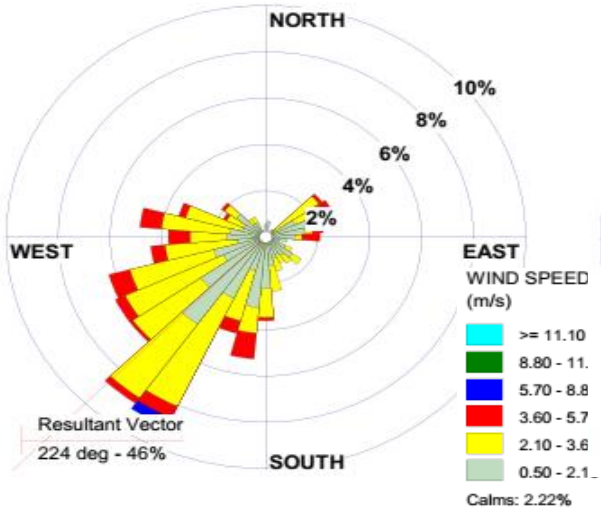
Anpara Jul 19



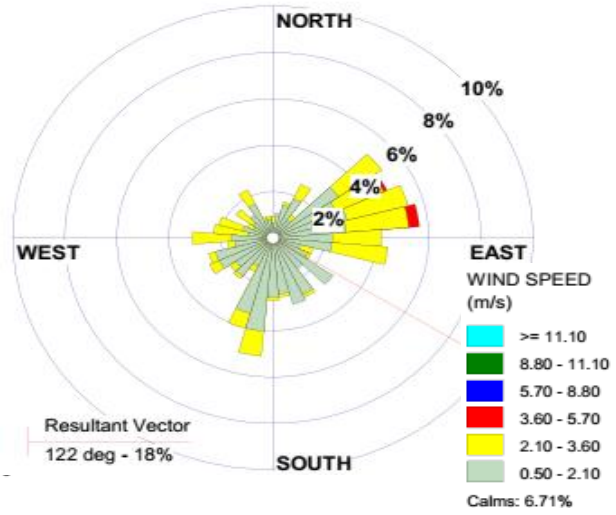
Anpara Aug 19



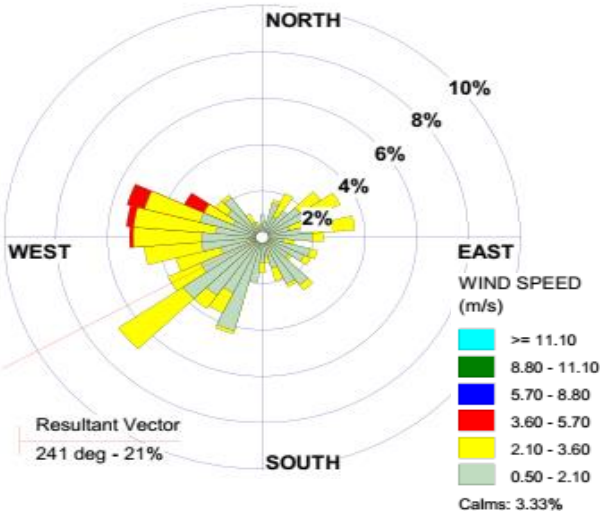
Anpara Sep 19



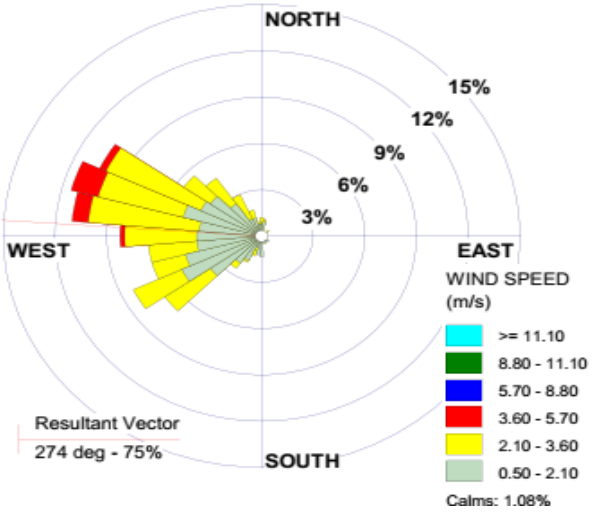
Anpara Oct 19



Anpara Nov 19



Anpara Dec 19



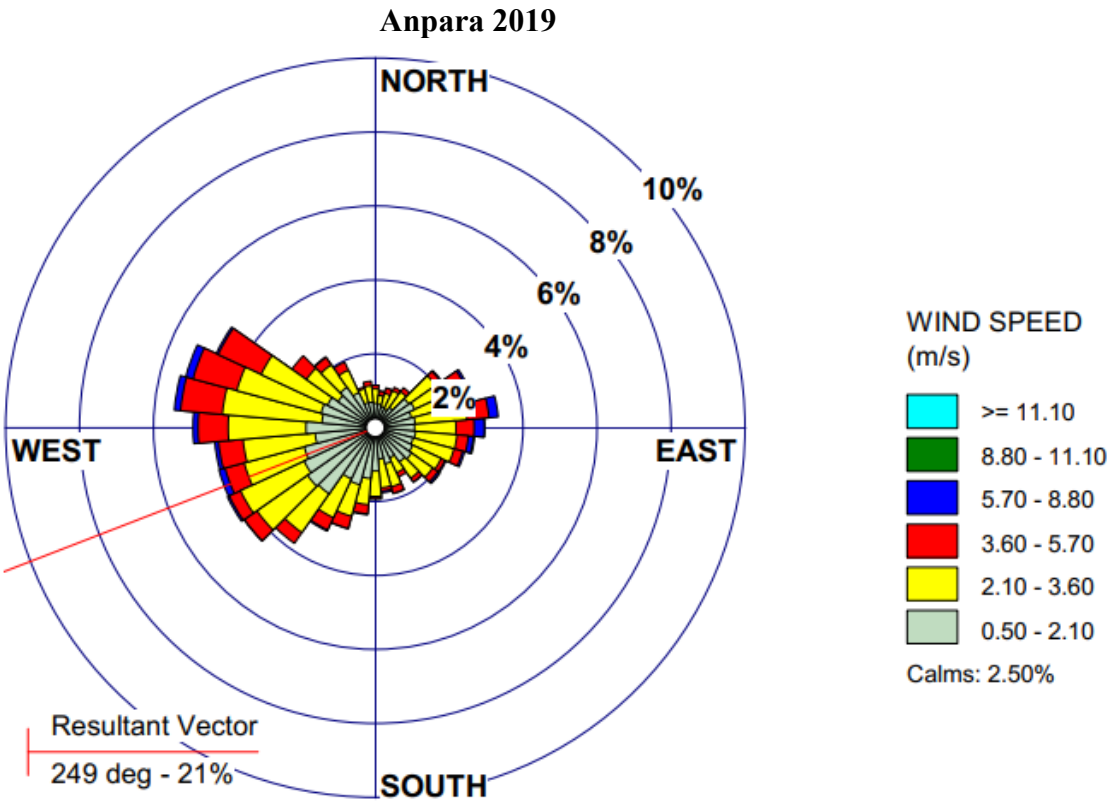


Figure 100: Wind rose plots for months of 2019 and year 2019

5.3 Digital Elevation Model (DEM) and Receptor Grid Network

The Digital Terrain Elevation Model (DEM) is the most critical information required for complex terrain. The terrain affects the dispersion significantly. DEM is required to predict wind flow patterns and dispersion. AERMOD processes DEM data and creates an elevation and height scale (the terrain height and location that has the greatest influence on dispersion) for each receptor in the domain. The terrain is the vertical dimension of the land surface. Gridded terrain elevations for the proposed modeling domain were derived from 3 arc-second digital elevation models (DEMs) produced by the United States Geological Survey (USGS). The processed terrain elevation data is shown in Figure 101. Receptor locations can be defined using a set of uniform cartesian grid networks, uniform polar grid networks, and discrete cartesian grid networks. A total of 441 receptors (Figure 102) were defined to analyze ground-level $PM_{2.5}$ concentrations.

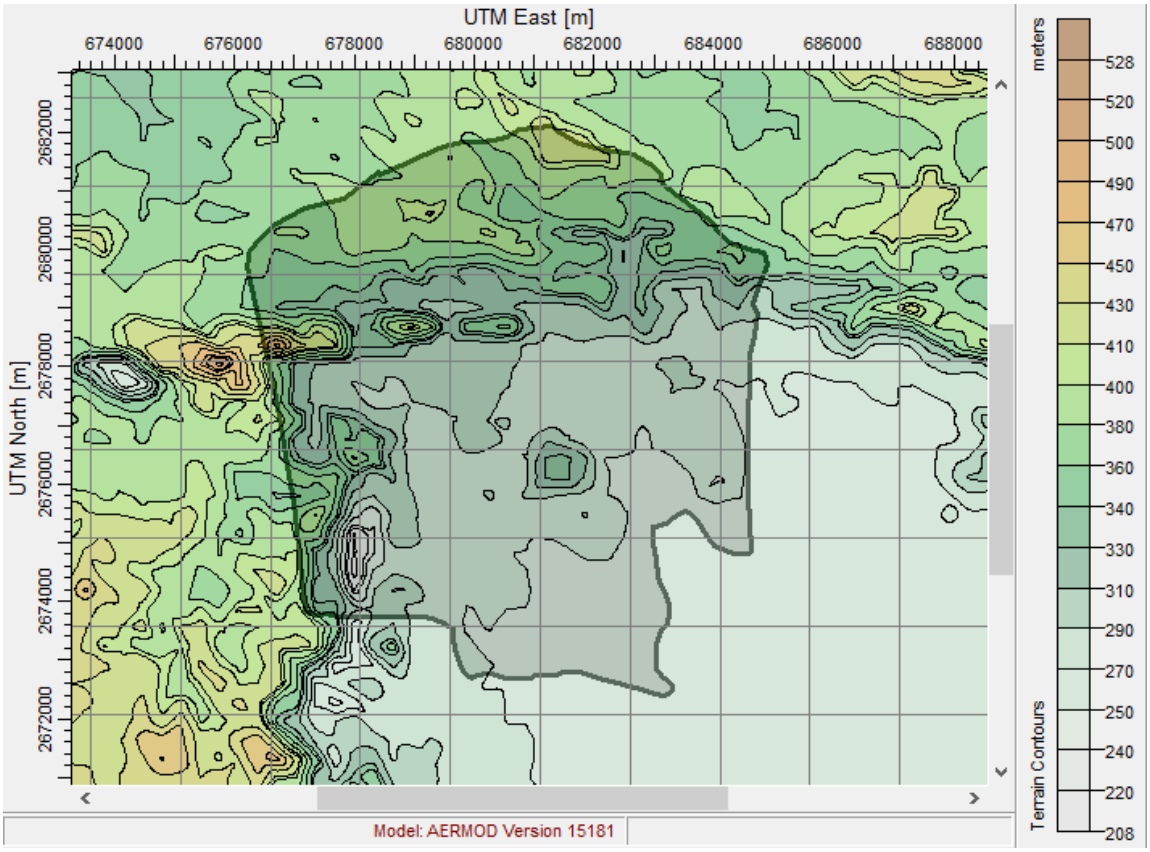


Figure 101: Terrain contour map of the Anpara city

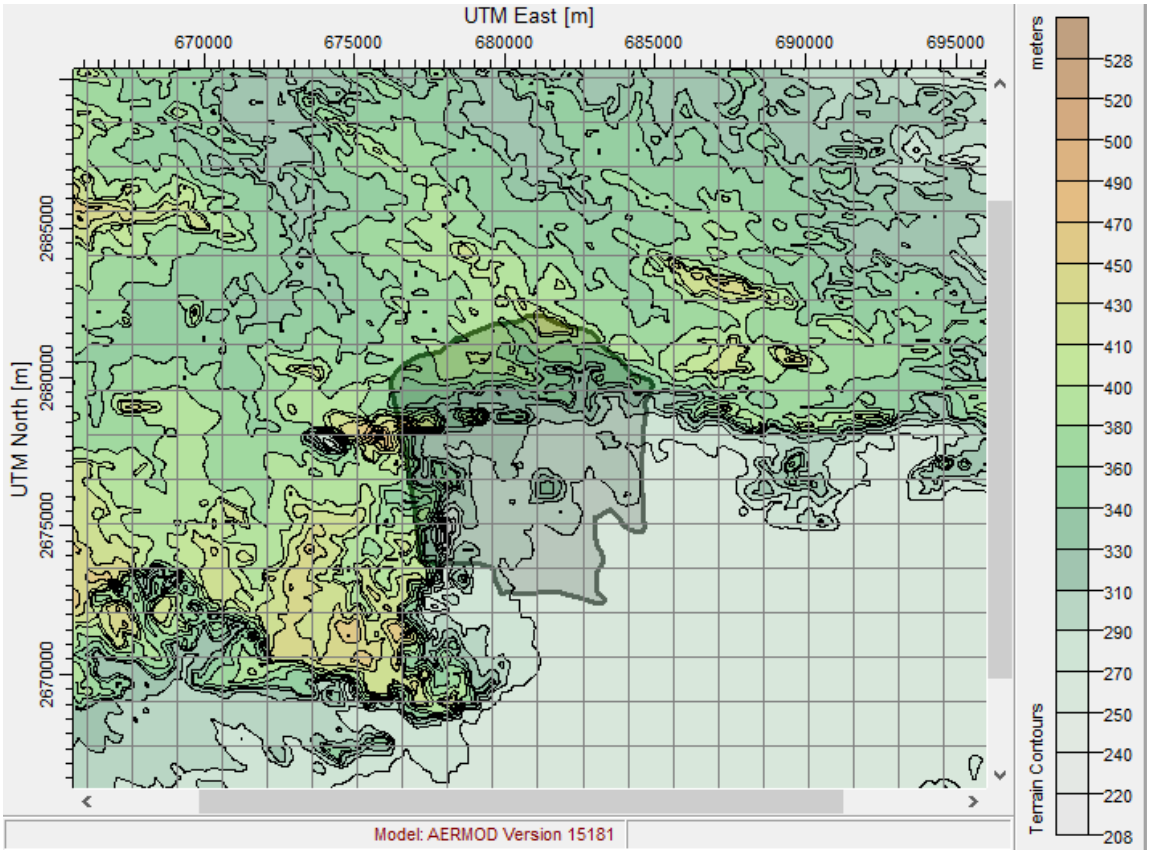


Figure 102: Uniform cartesian grid receptor network

5.4 Evaluation of Dispersion Modelling Results

The air dispersion modeling was done with complex terrain (using the elevation heights in Anpara city). By this approach, all the elevations of terrain were accounted for, and the air dispersion reflected more accurate results as compared to flat terrain. The model was run considering only the sources within Anpara city. Dispersion modeling was carried out using state-of-the-art models to apportion the contribution of collective sources and sector-wise; domestic, construction, hotels, MSW, hospitals, vehicles, road dust, etc. for the city.

5.4.1 The Combined Impact of All the Sources

The highest 24-hour average, monthly average, and annual average $PM_{2.5}$ concentration plots for all sources in the Anpara city are given in Figure 103 to Figure 105. The first highest values of $PM_{2.5}$ concentration was obtained for 24-hour (day maximum), month's maximum and annual average in the year 2019. In Anpara city, highest 24-hour average was 104 µg/m^3 (6th October 2019), monthly average $PM_{2.5}$ levels for the critical month (November) was 62.7 µg/m^3 and the annual average was 47.6 µg/m^3. The dispersion modeling was performed on the area of 30×30 km^2 to cover the city. The emissions were considered from the grids of 2 km × 2 km. Both 24-hour and annual air quality standards for $PM_{2.5}$ exceed in the city.

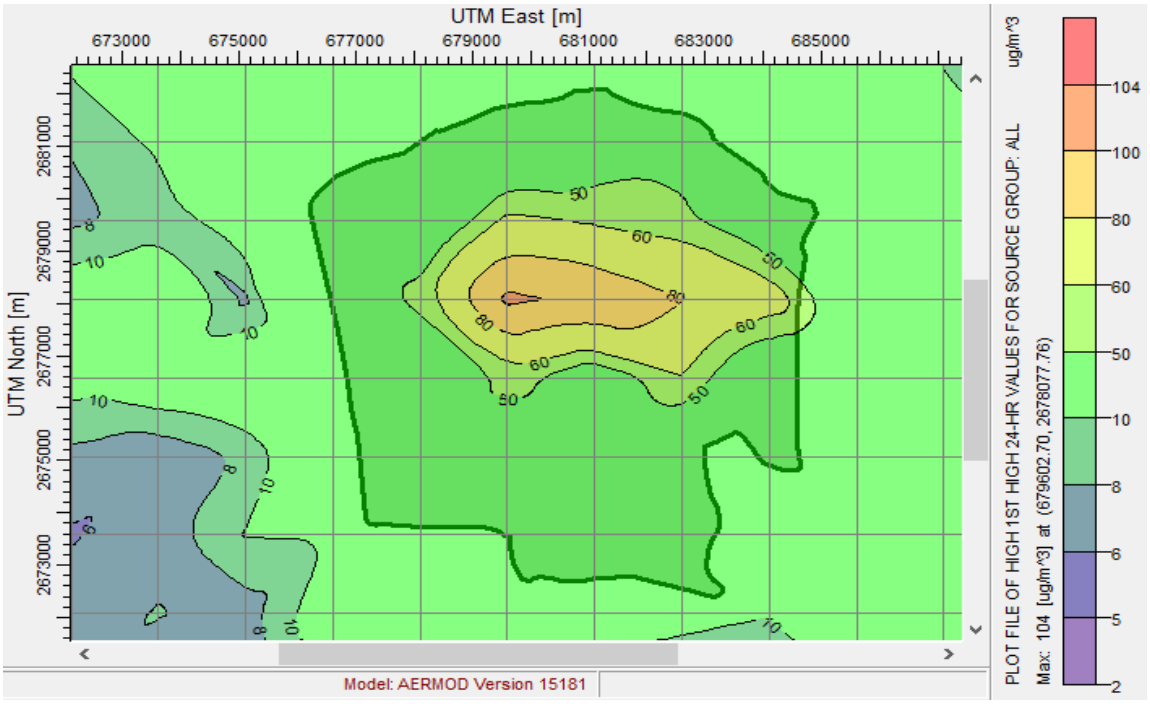


Figure 103: Iso-Concentration plot of highest 24-hour $PM_{2.5}$ levels

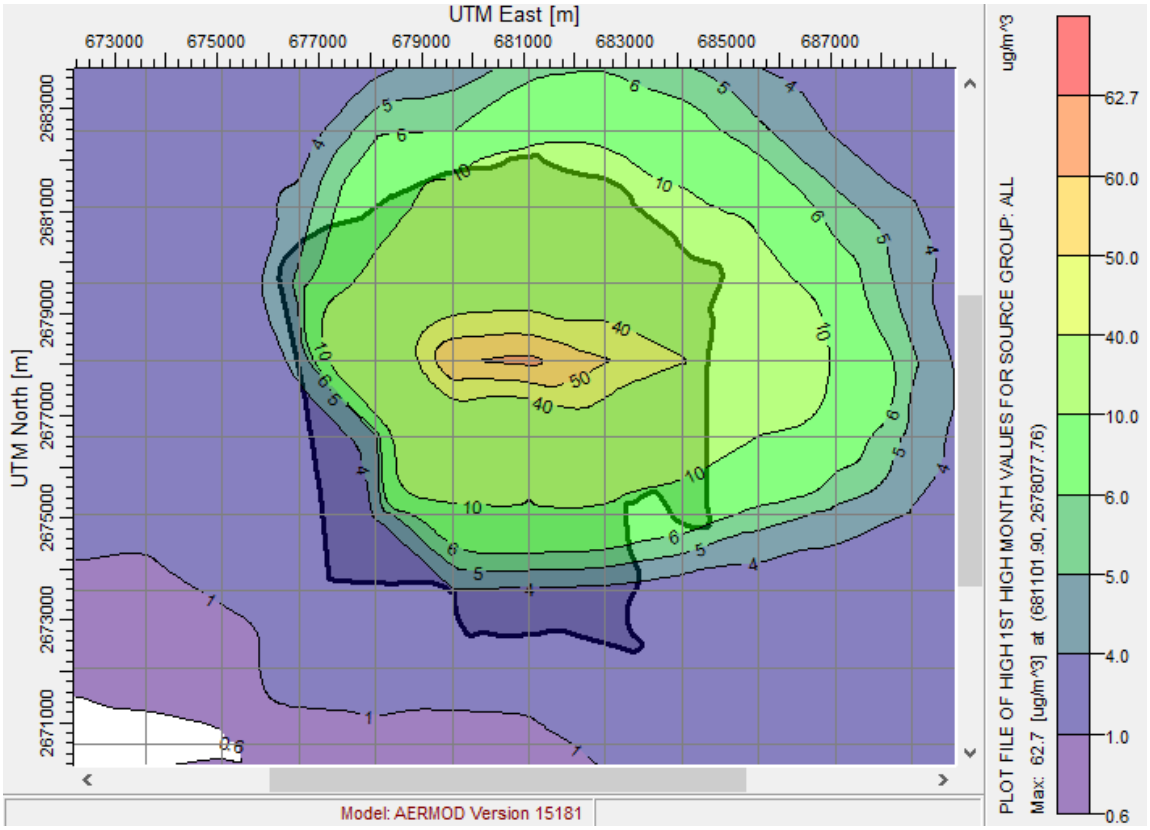


Figure 104: Iso-Concentration plot of monthly average $PM_{2.5}$ levels

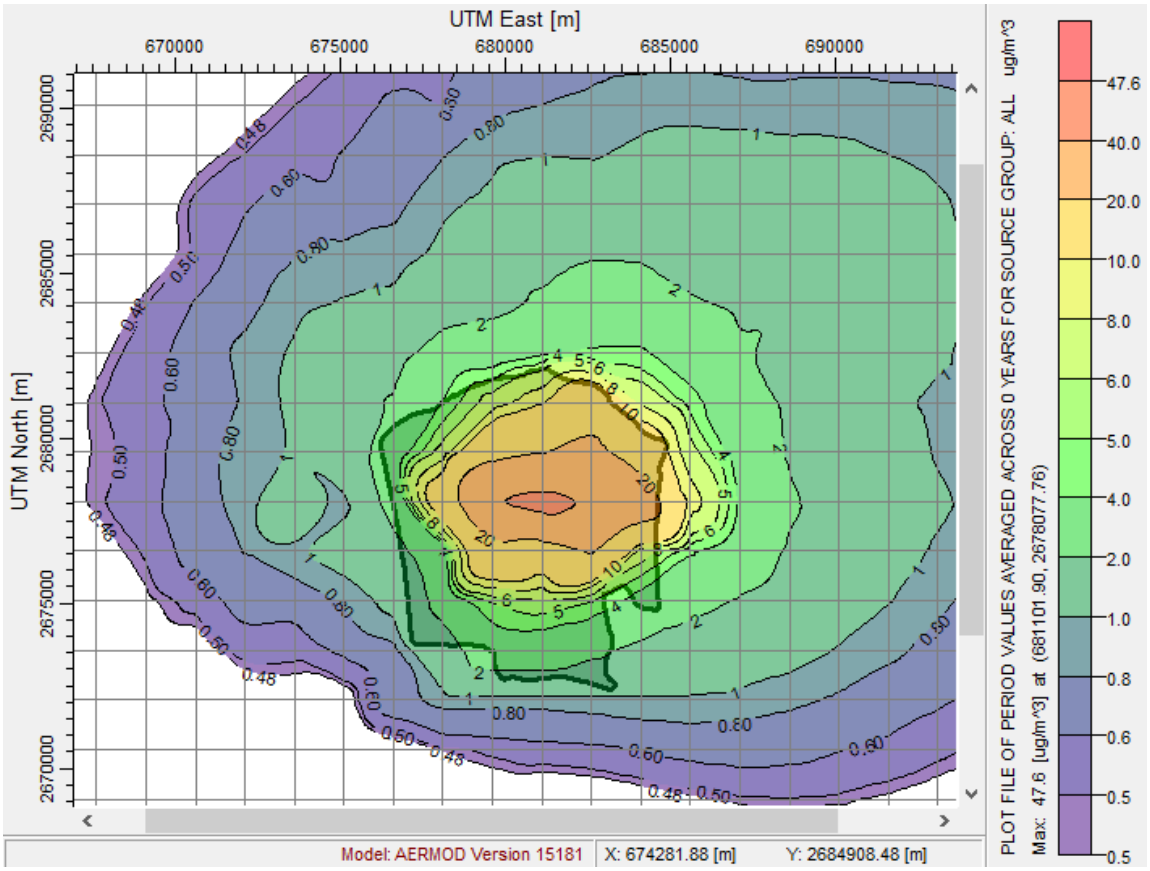


Figure 105: Iso-Concentration plot of annual average $PM_{2.5}$ levels

The highest 24-hour average $PM_{2.5}$ concentrations were observed during the winters (October and December), while the lowest was during the peak summer month (May and Jun). The highest 24-hour average $PM_{2.5}$ level (among all receptors) from all sources in different months is shown in Figure 106 and the highest monthly average in Figure 107.

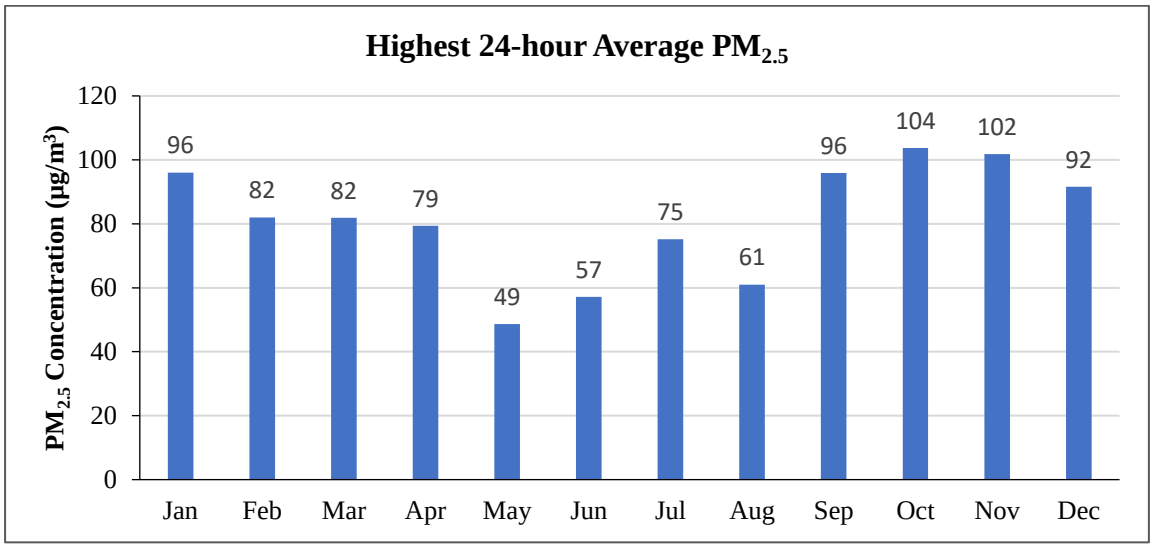


Figure 106: Highest 24-hour average $PM_{2.5}$ levels from all sources in 2019

It was observed that the $PM_{2.5}$ concentration in the ambient air increases as the winter season approaches. During peak summer and monsoon seasons, the $PM_{2.5}$ concentration was the minimum and increased steadily with the fall in temperature, which promoted stable atmospheric conditions and reduced dispersion of pollutants. From the annual average plot, the $PM_{2.5}$ concentration was seen to be elongated along the prevailing wind direction (N-E).

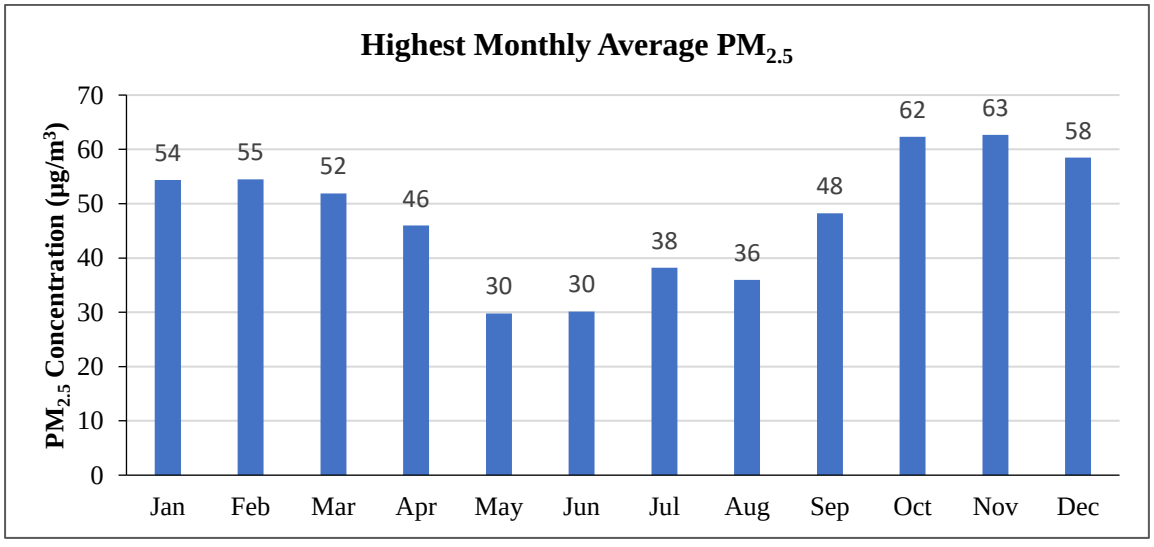


Figure 107: Monthly highest average $PM_{2.5}$ levels from all sources in 2019

5.4.2 Sector-wise Impact of All the Sources

The AERMOD dispersion modeling was performed sector-wise to observe the impact of each source separately. The source-wise peak concentration based on daily, monthly, and yearly (periods average-2019) is shown in Table 4. The table presents the maximum contribution of $PM_{2.5}$ from Road dust, Vehicle and Domestic sources.

Table 4: Maximum $PM_{2.5}$ levels (different time averages) from all sources

Source	Maximum $PM_{2.5}$ levels ($\mu g/m^3$)		
	24-hour average	Monthly average	Annual average
Road dust	89.6	54.1	41.1
Vehicle	6.89	4.15	3.16
Brick Kiln	5.40	3.25	2.47
Construction	1.40	0.90	0.68
Domestic	0.77	0.50	0.38
Hotel	0.73	0.40	0.30
MSW burning	0.02	0.02	0.01
Hospital	0.001	0.0007	0.0006

5.5 Summary of the Dispersion Modeling and Interpretations

The major findings from the dispersion modeling are summarized below:

The highest 24-hour average was 104 $\mu g/m^3$ (6^{th} October 2019), the monthly average $PM_{2.5}$ levels for the critical month (November) was 62.7 $\mu g/m^3$ and the annual average was 47.6 $\mu g/m^3$.

From the annual average plots, it is seen that $PM_{2.5}$ envelops a large area that gets elongated along the prevailing downwind direction (N-E) within Anpara city. The annual standard for $PM_{2.5}$ concentration (40 $\mu g/m^3$) is exceeded in the area.

The city's highest contributing source for the critical day (6^{th} October 2019) is road dust followed by vehicular emissions and brick kiln. Domestic sources are where the residential population is concentrated. The rank of different sources based on their $PM_{2.5}$ contribution to the city is given in Table 5.

Table 5: Rank sources in different regions based on their contribution to $PM_{2.5}$

Rank	1	2	3	4	5	6	7	8
Sources	Road dust	Vehicle	Brick Kiln	Construction	Domestic	Hotel	MSW burning	Hospital

Overall, the top contributors to $PM_{2.5}$ were road dust (85 %), vehicles (7 %) and brick kilns (5 %) shown in Figure 108.

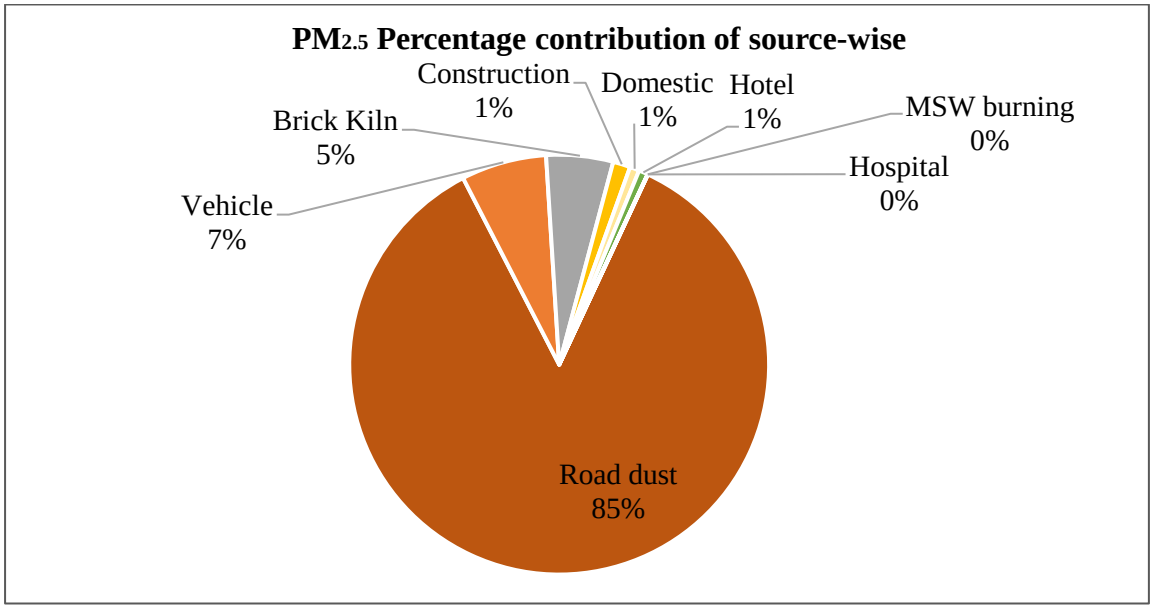


Figure 108: $PM_{2.5}$ Percentage contribution of source-wise

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7. Annexure 1

Table showing the Emission Factors (EF) used while estimating the emissions (Source: CPCB 2011).

Source		**Units of Emission factor**	**PM_{10}**	$PM_{2.5}$	**SO_2**	NO_x	**CO**
Domestic	Wood	g/kg	5.04	4.54	0.48	1.4	31
	Crop residue	g/kg	11	9.90	0.12	0.49	58
	Dung	g/kg	5.04	4.54	0.48	1.4	31
	Coal	g/kg	20	18	13.3	3.99	24.92
	Kerosene	g/lit	0.61	0.55	4	2.5	62
	LPG	g/lit and kg/10^6 M^3	2.1	1.89	0.4	1.8	0.25
DG Set		g/kwh	0.0266	0.024	0.0248	0.376	0.0812
MSW Burning		g/kg	8	5.44	0.5	3	42
Brick Kiln	wood	g/kg	15.3	13.7	0.2	1.4	115.4
	coal	g/kg	10.15	7.10	13.3	3.99	24.92
Industrial	LDO	g/lit	2.37	2.13	18.84S	6.6	0.6
	HSD	g/lit	1.49	1.34	18.84S	6.6	0.6
	Rice Husk	g/kg	11	9.9	0.12	0.49	58
	Wood	g/kg	17.3	15.57	0.2	1.3	126.3
	Natural gas	kg/$(10)^6$ m^3 (SCM)	121.6	109.4	9.6	2240	1344
	Coal	g/kg	10.15	9.14	19S	11	0.25
	Diesel	g/lit	0.0266	0.024	0.0248	0.376	0.0812
Vehicle	2 wheelers	g/vkt	0.035	0.03	0	0.29	2.12
	3 wheelers	g/vkt	0.27	0.24	*	0.5	0.54
	4 wheelers	g/vkt	0.06	0.05	*	0.25	1
	LCV	g/vkt	0.64	0.58	*	3.1	1.86
	Bus	g/vkt	1.24	0.74	*	9.46	8.4
	Truck	g/vkt	1.24	0.74	*	9.46	8.4
Construction		kg/d/m^2	0.0021	0.0005	-	-	-

* Average kilometre run per litre of diesel is taken as: 10 km (for 3W); 15km (for 4W); 7 km (for LCV and 5 km (for Buses/Trucks). Sulfur content in diesel is taken as =500 ppm (wt/wt).

8. Annexure 2

Gridded Emissions for Anpara city are represented below.

Grid ID	PM_{10}	$PM_{2.5}$	SO_2	NO_X	CO
G1	0.00	0.00	0.00	0.00	0.00
G2	123.96	31.84	0.00	61.60	53.59
G3	56.79	14.20	0.00	21.48	18.10
G4	9.17	2.32	0.00	3.91	3.30
G5	0.00	0.00	0.00	0.00	0.00
G6	2.61	0.85	0.00	4.53	3.82
G7	820.12	208.64	0.19	370.31	317.80
G8	993.63	250.80	0.93	403.31	344.52
G9	28.22	7.64	0.39	12.13	13.08
G10	0.00	0.00	0.00	0.00	0.00
G11	596.00	150.60	0.05	254.26	214.56
G12	2655.00	675.14	4.18	1157.01	996.48
G13	1767.85	452.88	8.32	751.34	688.04
G14	1430.04	365.33	2.65	612.68	553.41
G15	2.15	0.54	0.00	0.92	0.81
G16	242.83	62.67	0.12	104.84	93.41
G17	431.22	114.68	6.06	196.25	192.94
G18	983.58	256.48	6.31	429.63	402.79
G19	440.62	113.92	0.79	183.85	170.34
G20	49.18	12.79	0.05	23.02	21.02
G21	36.59	9.35	0.02	14.56	12.74
G22	25.32	6.49	0.03	10.08	8.93
G23	0.12	0.03	0.00	0.05	0.04
G24	0.00	0.00	0.00	0.00	0.00
G25	0.00	0.00	0.00	0.00	0.00

ANNEXURE-3

PRANA - Portal for Regulation of Air Pollution in Non Attainment Cities.
(MOEFCC - CPCB)
City Air Action Report
City : Anpara State : Uttar Pradesh FY: 2025_26 Generated On: 05-May-2026 01:14 PM

Thematic Area	Action Point	Sub Point	Annual
Strengthen Infrastructure, Monitoring Network and Source Apportionment	CB1. Installation & Commissioning of air quality Monitoring Stations	CB1.1. CAAQMS	Approved
		CB1.1.1. Number of CAAQMS operational	0
		CB1.1.2. Overall Target: Total no. of CAAQMS (including existing ones) required as per network design criteria	1
		CB1.1.3. Annual Target - No. of additional CAAQMS planned for which Order need to be placed	0
		CB1.1.4. Annual Target - No. of additional CAAQMS planned to be Procured & installed	
		CB1.1.5. Annual Target - No. of existing CAAQMS planned to be Connected to CCR	
		CB1.1.6. Annual Target - No. of new CAAQMS planned to be Connected to CCR	0
		CB1.1.7. Implementation Authority	Regional Office, UPPCB, Sonbhadra
		CB1.1.8. Remarks	Funds have not been allocated, the overall target is one and no annual target is taken in this FY.
		CB1.2. Manual Stations	Approved
		CB1.2.1. No. of existing Manual stations operational	2
		CB1.2.2 Overall Target: Total no. of Manual stations (including existing ones) required as per network design criteria	3
		CB1.2.3 Annual Target - No. of new Manual station for which order to be placed	0
		CB1.2.4 Annual Target - No. of new Manual station planned to be procured & installed	
		CB1.2.5 Annual Target - No. of new manual station whose data is planned to be sent to CPCB	0
		CB1.2.6 Annual Target - No. of existing manual station whose data is planned to be sent to CPCB	
		CB1.2.7. Implementation Authority	Regional Office, UPPCB, Sonbhadra
		CB1.2.8. Remarks	Funds not allocated. Two manual stations are operational, and data is being transmitted to CPCB. One manual station to be established in the upcoming years.
	CB2. Air Quality Forecasting	CB2.1. Whether Air quality forecasting system is working	
		CB2.2. Annual Target- Air quality forecasting system to be activated	
		CB2.3. Implementation Authority	
		CB2.4. Remarks	
		Funds-NCAP	
	CB3. Emission Inventory and Source Apportionment Study	CB3.1. Emission Inventory	Approved
		CB3.1.1. Current status	Study Completed
		CB3.1.2. Annual Target	Study Completed
		CB3.1.3. Implementation Authority	Regional Office, UPPCB, Sonbhadra
		CB3.1.4. Remarks	The Emission Inventory is currently in progress and is being conducted by IIT Kanpur.
		CB3.2. Emission tracking system	
		CB3.2.1. Current Status	
		CB3.2.2. Annual Target	
		CB3.2.3. Implementation Authority	
		CB3.2.4. Remarks	
		Funds-NCAP	
		CB3.3. Source Apportionment Study	Approved
		CB3.3.1. Current Status	Baseline data collection
		CB3.3.2. Annual Target	Interim Report submission
		CB3.3.3. Implementation Authority	Regional Office, UPPCB, Sonbhadra
		CB3.3.4. Remarks	The Source Apportionment Study is currently in progress and is being conducted by IIT Kanpur.
		CB4.1. Training & skill development of public officals	Approved
		CB4.1.1.Total no. of Officials	5
		CB4.1.2. Total no. of officials already trained	5
		CB4.1.3. Annual Target- No. of Officials planned to be trained	0
		CB4.1.4. Implementation Authority	UPPCB/ULB ANPARA
		CB4.1.5. Remarks	Official has been already trained.
		CB4.2. Infrastructure development (Laboratory/ AQM Cell)	Approved

	CB4. Training & Strengthen Infrastructure	CB4.2.1. Current Status: Laboratory	Exist	
		CB4.2.2. Current Status: AQM Cell	Exist & functional	
		CB4.2.3. Annual Target: Laboratory	Already Functional	
		CB4.2.4 Annual Target: AQM Cell	Already Functional	
		CB4.2.5. Implementation Authority	Regional Office, UPPCB, Sonbhadra	
		CB4.2.6. Remarks	The Laboratory is already functional	
		CB4.3. Enforcement Units	Approved	
		CB4.3.1. Current Status: No. of existing mobile vans for enforcement use	2	
		CB4.3.2. Current Status: No. of members in the enforcement/monitoring team	10	
		CB4.3.3. Annual Target - Order to be placed for new mobile vans for enforcement purpose	0	
		CB4.3.4. Annual Target - No. of members deployed for monitoring/enforcement	0	
		CB4.3.5. Implementation Authority	ULB ANPARA/UPPCB	
		CB4.3.6. Remarks	Currently, the monitoring department has two mobile van and a ten-member team.	
	CB5. Emergency Response Plan	CB5.1. Current Status- Plan Notified	Yes	
		CB5.2. Annual Target	Plan Already notified	
		CB5.3. Implementation Authority	UPPCB/ULB ANPARA	
		CB5.4. Remarks	The Emergency Response Plan has already been notified by the Uttar Pradesh Pollution Control Board (UPPCB)	
Public Outreach	PO1. Public Outreach	PO1.1. Daily Air Quality Public Information Dissemination System	Approved	
		PO1.1.1. No. of existing dissemination system for displaying air quality daily data in public domain as on 1st April of FY	1	
		PO1.1.2. Annual Target: No. of new dissemination system procurement and installation planned	0	
		PO1.1.3. Implementation Authority	ULB ANPARA/UPPCB	
		PO1.1.4. Remarks	Swacch Vayu Portal has been developed for monthly AQI Bulletin displayed on UPPCB Portal	
		PO1.2 Social Media Platforms		
		PO1.2.1. Facebook		
		PO1.2.2 Instagram		
		PO1.2.3 Twitter		
		PO1.2.4 Others		
		PO1.3. Creation of public awareness on pollution source and control measures	Approved	
		PO1.3.1. No. of public awareness events conducted on air pollution sources and control measures in previous FY	10	
		PO1.3.2. Annual Target: No. of awareness event planned	25	
		PO1.3.3. Annual Target: No. of people targeted to be made aware on pollution source and control measures	25000	
		PO1.3.4. Implementation Authority	ULB	
		PO1.3.5. Remarks	25 awareness programs are planned for this FY, with the goal of educating 25000 individuals about pollution sources and control measures.	
		Funds-NCAP		
	PO2. Public Greivance Redressal System	PO2.1. Public Grievances Redressal System (IT enabled) - App	Approved	
		PO2.1.1. No. of air pollution related complaints received in previous FY	22	
		PO2.1.2. No. of air pollution related complaints resolved	22	
		PO2.1.3. Annual Target: PGRS (IT enabled)-App	Developed and deployed	
		PO2.1.4. Implementation Authority	ULB ANPARA/ UPPCB	
		PO2.1.5. Remarks	Integrated Monitoring System Portal developed by UPPCB for disposal of complain & IGRS portal of up government	
		PO2.2. Helpline Number	Approved	
		PO2.2.1. Whether helpline is Operational and Regular monitoring is being done	Yes	
		PO2.2.2.Annual Target	Already operational	
		PO2.2.3. No. of air pollutions related complaints received on helpline	0	
		PO2.2.4. No. of air pollution related complaints resolved	0	
		PO2.2.5. Annual Target: No. of person to be deployed for handling helpline	0	
		PO2.2.6. Implementation Authority	ULB	

		PO2.2.7. Remarks	Helpline Number- 8189078522, No air pollution-related complaints were received through the helpline number in FY 2024-25.	
	RD1. Road dust	RD1.1. Immediate lifting of solid waste generated from disilting and cleaning of municipal drains for its disposal	Approved	
		RD1.1.1. Total no. of municipal drains within the ULB	60	
		RD1.1.2. Annual Target- Total no. of municipal drains to be disilted and cleaned	30	
		RD1.1.3. Implementation Authority	ULB	
		RD1.1.4. Remarks	Total 30 no. of municipal drains to be disilted and cleaned in this FY.	
		Funds-State Govt. Fund		
		RD1.2. End-to-end paving of roads along with black-topping and maintaining potholes free roads	Approved	
		RD1.2.1. Overall Target	100% paving of road	
		RD1.2.2. Total road length within ULB limit (in km)	206	
		RD1.2.3. Total existing paved road length (in km)	162	
		RD1.2.4. Annual Target- Total additional road length to be paved/repaired (in km)	5	
		RD1.2.5. Implementation Authority	ULB	
		RD1.2.6. Remarks	2 km Road will be constructed through NCAP and 3 Km Road will be constructed through SFC Fund	
		Funds-NCAP		
		Funds-State Govt. Fund		
		RD1.3. Regular cleaning of street surfaces and spraying of water to suppress dust.	Approved	
		RD1.3.1. Total no. of existing water sprinklers used for spraying water to suppress road dust	3	
		RD1.3.2. Overall Target-Number of water sprinklers required (Including Existing)	3	
		RD1.3.3 Total km of road length requiring water sprinkling	30	
		RD1.3.4 Total km of road length already being water sprinkled	30	
		RD1.3.5 Annual Target- Additional road length to be water sprinkled	0	
		RD1.3.6 Annual Target- Additional no. of water sprinklers to be procured and used	0	
		RD1.3.7. Implementation Authority	ULB	
		RD1.3.8. Remarks	Fund not allocated, Regular activity. Water sprinklers are used to spray water and suppress road dust, covering approximately 30 km per day.	
		RD1.4. Remove road dust/silt regularly by using mechanical sweepers	Approved	
		RD1.4.1. Existing Number of mechanical sweepers operational	1	
		RD1.4.2. Road length already being covered by MRS (in kms)	20	
		RD1.4.3. Overall Target- Total no. of MRS to be procured and deployed	1	
		RD1.4.4 - Annual Target- Number of additional mechanical sweepers to be procured	0	
		RD1.4.5. Annual Target-Additional Road length to be covered in km	0	
		RD1.4.6. Implementation Authority	ULB	
		RD1.4.7. Remarks	Fund not allocated, Road dust and silt are removed regularly with mechanical sweepers. 20 km covered by mechanical road sweepers (MRS) The remaining stretch of the road network is maintained through manual sweeping.	
		RD1.5. Introduce water fountain at major traffic intersection	Approved	
		RD1.5.1. Existing Number of water fountains	0	
		RD1.5.2. Annual Target - Additional Number of water fountains to be installed	0	
		RD1.5.3. Implementation Authority	ULB	
		RD1.5.3. Remarks		
		RD1.6. Widening of Roads	Approved	
		RD1.6.1. Annual Target - Additional Kms of roads to be widened to avoid traffic congestion (in km)	0	
		RD1.6.2 Implementation Authority	0	
		RD1.6.3. Remarks	No target is set for roads to be widened to avoid traffic congestion in this FY	
		RD1.7. Identify road stretches with high dust generation	Approved	

Road Dust and Construction & Demolition		RD1.7.1. Annual Target - Road stretches with high dust generation identified (Yes/No)	No	
		RD1.7.2. Annual Target - Action plan for identified road stretches with high dust generation prepared	No	
		RD1.7.3. Implementation Authority	ULB/UPPCB	
		RD1.7.4. Remarks	3 km of road is identified ward no 6 Nehru Chowk to ward no 5 Kakari via ward 3	
		RD1.7.5. Annual Plan Link uploaded in ULB URL	Will be provided when available.	
		RD1.8. Create Proper Pedestrian Infrastructure	Not Applicable	
		RD1.8.1. Existing pedestrian infrastructure(ex.: footpath) (in km)		
		RD1.8.2 Annual Target- Additional pedestrian infrastructure to be built (in km)		
		RD1.8.3. Implementation Authority		
		RD1.8.4. Remarks		
		Funds-NCAP		
		RD1.9. All the canals/nullah's side roads should be brick lined. Proper plantation also carried out.	Approved	
		RD1.9.1. Number of canals/ nullah's side road alread brick lined	125	
		RD1.9.2. Overall Target	100 % canals/nullah's side roads should be brick lined.	
		RD1.9.3 Length of existing canals/ nullah's side road brick lined (in km)	20	
		RD1.9.4. Annual Target- Additional number of canals/ nullah's side road to be brick lined	0	
		RD1.9.5. Annual Target- Additional length of canals/ nullah's side road to be brick lined (in km)	0	
		RD1.9.6. Implementation Authority	ULB	
		RD1.9.7. Remarks	The number of canals/nullah's side roads already brick-lined is 125, and the total length of the existing brick-lined canals/nullah's side roads is 20 km.	
	RD2. Creation of green cover	RD2.1. Greening of traffic corridors, open areas, gardens, community places, schools and housing societies	Approved	
		RD2.1.1. Total area of the city (in sq km)	40.15	
		RD2.1.2. Total area of traffic corridor within the city (in sq km)	5	
		RD2.1.3. Existing area having green cover in the city (in sq km)	25	
		RD2.1.4. Existing area of traffic corridors with green cover (in sq km)	5	
		RD2.1.5. Annual Target - Additional area planned under green cover in the city (in sq km)	0.000625	
		RD2.1.6. Annual Target - Additional area of traffic corridors planned with green cover (in sq km)	0	
		RD2.1.7. Implementation Authority	ULB	
		RD2.1.8. Remarks	By using NCAP fund, Plantation will be done 0.000625 sqkm.	
		Funds-NCAP		
		RD2.2. Urban Greening with vertical garden		
		RD2.2.1. Total no. of existing urban vertical garden		
		RD2.2.2. Annual Target- Additional no. of urban vertical garden planned		
		RD2.2.3. Implementation Authority		
		RD2.2.4. Remarks		
		Funds-NCAP		
	RD3. Installation of WAYU (Wind Augmentation and Purifying Units) at urban traffic intersection.	RD3.1. Total no. of existing WAYU at traffic intersection		
		RD3.2. Annual Target- Additional no. of WAYU at traffic intersection planned		
		RD3.3. Implementation Authority		
		RD3.4. Remarks		
		Funds-NCAP		
		C&D1.1. To create multiple separate space/zones to handle C&D waste in the city and specify waste collection capacity in TPD)	Approved	
		C&D1.1.1. Total C&D waste generated in the city in TPD as on 1st April of FY (in TPD)	0.5	
		C&D1.1.2. Total C&D waste already collected in the city in TPD as on 1st April of FY (in TPD)	0.5	
		C&D1.1.3. Total number of existing C&D waste collection centres in the city as on 1st April of FY	1	
		C&D1.1.4 Total capacity of existing C&D waste collection centres in the city in TPD as on 1st April of FY (in TPD)	1	
		C&D1.1.5. Overall Target-Number of C&D waste collection centres required (including existing ones)	2	
		C&D1.1.6. Overall Target-Total C&D waste to be generated in the city (including existing ones) in TPD	4	
		C&D1.1.7. Overall Target-Required Capacity of C&D waste collection (including existing ones) in TPD	5	
		C&D1.1.8. Annual Target: Additional new C&D waste expected to be generated in the city in TPD	0	

	C&D1. Construction Activities	C&D1.1.9. Annual Target-Additional C&D waste planned to be collected in the city in TPD		
		C&D1.1.10. Annual Target-Additional No. of new C&D waste collection centre planned to be established in the city	0	
		C&D1.1.11. Annual Target-Capacity of Additional C&D waste collection centre planned to be established in the city in TPD	0	
		C&D1.1.12. Implementation Authority	ULB	
		C&D1.1.13. Remarks	The total capacity of existing C&D waste collection centers in the city is 1 TPD, and currently, there is only 1 collection center.	
		C&D1.2. Frame and implement policy for segregation of construction and demolition (C&D) waste and provide a network of decentralized C&D waste segregation and collection sites across the city.	Approved	
		C&D1.2.1. Number of C&D waste processing facilities existing as on 1st April of FY	0	
		C&D1.2.2. Existing Capacity of C&D waste processed in TPD	0	
		C&D1.2.3. Overall Target-Number of C&D waste processing facilities required (including existing ones)	1	
		C&D1.2.4. Overall Target-Required Capacity of C&D waste to be processed (including existing ones) in TPD	5	
		C&D1.2.5. Annual Target-Number of new C&D waste processing facilities planned	0	
		C&D1.2.6. Annual Target-Capacity of extra C&D waste to be processed in TPD	0	
		C&D1.2.7. Implementation Authority	ULB	
		C&D1.2.8. Remarks	There is no C&D waste processing facilities existing in the city and all the C&D waste is being directly disposed of in low-lying areas. City based policy is not yet framed. Centre C&D policy is used.	
		C&D1.2.9. Upload plan link	https://cpcb.nic.in/displaypdf.php?id=d2FzdGUvQyZEX3J1bGVzXzIwMTYucGRm	
		C&D1.3. Promote recycling of construction and demolition waste	Approved	
		C&D1.3.1. Generated C&D waste converted to recycled product in TPD as on 1st April of FY	0	
		C&D1.3.2. Offtake of processed C&D waste in TPD as on 1st April of FY	00	
		C&D1.3.3. Overall Target-% of generated C&D waste to be converted to recycled product (including existing ones)	90	
		C&D1.3.4. Overall Target-% offtake of processed waste (including existing ones)	100	
		C&D1.3.5. Annual Target- Generated additional C&D waste to be converted to recycled product in TPD	0	
		C&D1.3.6. Annual Target-Additional offtake of processed waste in TPD	0	
		C&D1.3.7. Implementation Authority	ULB	
		C&D1.3.8. Remarks	The generated waste is being directly disposed of in low-lying areas.	
	VE1. Improve and strengthen PUC programme	VE1.1. Number of PUC Centres	Approved	
		VE1.1.1. Existing Number of PUC Centres as on 1st April of FY	58	
		VE1.1.2. Overall Target: Total no. of PUC required (including existing ones) by Mar'26	58	
		VE1.1.3. Annual Target - Number of new PUC Centres planned	0	
		VE1.1.4. Implementation Authority	RTO	
		VE1.1.5. Remarks	The existing number of PUC centers is 58. No additional fund is required	
		VE1.2. Number of registered vehicles with PUC certificates	Approved	
		VE1.2.1. Existing total no. of registered vehicles	185600	
		VE1.2.2. Annual Target - Number of vehicles to be provided new PUC certificates	158610	
		VE1.2.3. Implementation Authority	RTO	
		VE1.2.4. Remarks	No fund is required, Out of the 185600 registered vehicles, the annual target is to issue new PUC certificates to 158610 vehicles.	
		VE1.3. Linking of PUC centres with remote server and elimination of manual intervention in PUC testing.	Approved	
		VE1.3.1. No. of PUC centres already linked with remote server	58	

	VE1.3.2. Overall Target	100 % Linking of PUC centres with remote server and elimination of manual intervention in PUC testing.	
	VE1.3.3. Annual Target- Additional no. of PUC centres to be linked with remote server	0	
	VE1.3.4. Implementation Authority	RTO	
	VE1.3.5. Remarks	Currently, 100% of PUC centers are linked with a remote server	
VE2. Vehicle labelling or sticker programme	VE2.1. Total no. of registered vehicles already covered under labelling/sticker programme		
	VE2.2 Overall Target	100 % Vehicle labelling or sticker programme	
	VE2.3. Annual Target- Additional no. of registered vehicles to be covered under labelling/sticker programme		
	VE2.4. Implementation Authority		
	VE2.5. Remarks		
	Funds-NCAP		
VE3. Freight transport	VE3.1. Use of off-peak passenger travel time to move freight and restrict entry of heavy vehicles into cities during the day	Approved	
	VE3.1.1. Total no. of locations identified for restricting entry of heavy vehicles	3	
	VE3.1.2. Annual Target - No. of locations to be monitored for restricting entry of heavy vehicles into the city during restricted timings	3	
	VE3.1.3. Implementation Authority	RTO	
	VE3.1.4. Remarks	Fund not required. The total number of locations identified for restricting the entry of heavy vehicles is 3, and all 3 locations will be monitored to enforce these restrictions during designated timings.	
	VE3.2. Check overloading of trucks	Approved	
	VE3.2.1. Total no. of entry points with WIM (Weigh in motion) in the city for trucks	4	
	VE3.2.2. Annual Target - Total number of entry points to city to be monitored	4	
	VE3.2.3. Annual Target - Number of entry points to be provided with WIM	0	
	VE3.2.4. Implementation Authority	RTO	
	VE3.2.5. Remarks	Fund not required. The total number of entry points for trucks with Weigh-in-Motion (WIM) in the city is 4, and all 4 entry points are monitored regularly for effective management.	
VE4. Clean Fuel & Fuel Quality	VE4.1. Whether - Clean fuel policy notified	Yes	
	VE4.2. Existing Number of Compressed Natural Gas (CNG) Outlets	0	
	VE4.3. Existing number of Liquefied Petroleum Gas (LPG) Outlets	4	
	VE4.4. Existing Number of Blended fuel Outlets	0	
	VE4.5. Existing Number of Ethanol Outlets	0	
	VE4.6. Annual Target - Number of new Compressed Natural Gas (CNG) Outlets to be established		
	VE4.7. Annual Target - Number of new Liquefied Petroleum Gas (LPG) Outlets to be established		
	VE4.8. Annual Target - Number of new biodiesel Outlets to be established		
	VE4.9. Annual Target - Number of new Blended fuel Outlets to be established		
	VE4.10. Annual Target - Number of new Ethanol Outlets to be established		
	VE4.11. Annual Target- No. of field inspections planned to check fuel quality	0	
	VE4.12. Implementation Authority	DSO/ULB	
	VE4.13. Remarks	There are no CNG, blended fuel, or ethanol outlets, and only four LPG outlets within the ULB limits.	
	VE4.14. Upload policy link	https://drive.google.com/file/d/1KReHkQNNdaOTJT6YDHgqtQKeiSTy_03E/view	
VE5. Parking Management	VE5.1. Prevent parking of vehicles in the non-designated areas		
	VE5.1.1. Whether Parking Policy notified		
	VE5.1.2. Annual Target- No. of location notified as no-parking zone		
	VE5.1.3. Annual Target		
	VE5.1.4. Implementation Authority		
	VE5.1.5. Remarks		
	VE5.1.6. Link of parking policy		
	Funds-NCAP		
	VE5.2. Development of Multi-layer parking	Not Applicable	

		VE5.2.1 Existing Number of multi layer parking operational		
		VE5.2.2. Overall Target: Total no. of Multilater parking required (including existing ones) by Mar'26		
		VE5.2.3. Annual Target - Additional Number of multi layer parking to be made operational		
		VE5.2.4. Implementation Authority		
		VE5.2.5. Remarks		
		Funds-NCAP		
Vehicles	VE6. Strengthening of Public Transportation	VE6.1. Assess and introduce a city bus system of appropriate fleet size of small buses and desirable bus type. ETVMs for fare collection and Passenger Information Systems.	Approved	
		VE6.1.1. Total number of existing buses	313	
		VE6.1.2. Total number of existing buses with GPS tracking	0	
		VE6.1.3. Total Number of existing buses with ETVM fare collection		
		VE6.1.4. Total Number of existing buses with Passenger Information System operational		
		VE6.1.5. Overall Target: Total no. of public bus required within city (including existing ones) by Mar'26	313	
		VE6.1.6. Annual Target - Additional Number of buses to be enabled with GPS tracking	0	
		VE6.1.7. Annual Target - Additional Number of buses to be enabled with ETVM fare collection		
		VE6.1.8. Annual Target - Additional Number of buses to be enabled with Passenger Information System		
		VE6.1.9. Implementation Authority	RTO	
		VE6.1.10. Remarks	Currently 313 buses and none are equipped with GPS tracking	
		VE6.2. Introduction of new electric buses (with proper infrastructure facilities such as charging stations) and CNG buses for public transport which will reduce plying of private vehicles on road and help to curb tail-pipe emissions.	Approved	
		VE6.2.1. Total Number of electric buses existing	0	
		VE6.2.2. Total no. of CNG buses existing	0	
		VE6.2.3. Annual Target - Additional Number of new electric buses to be procured and deployed	0	
		VE6.2.4. Annual Target - Additional Number of new CNG buses to be procured and deployed	0	
		VE6.2.5. Implementation Authority	RTO	
		VE6.2.6.Remarks	The total number of electric buses and CNG buses existing is 0.	
		VE6.3. CNG infrastructure for auto gas supply in the city and transition of public transport vehicles to CNG mode	Not Applicable	
		VE6.3.1 Existing City gas distribution network in Km		
		VE6.3.2 Number of existing CNG stations		
		VE6.3.3 Annual Target - Additional City gas distribution network to be established in Km		
		VE6.3.4 Annual Target - Number of CNG stations to be established		
		VE6.3.5. Implementation Authority		
		VE6.3.6. Remarks		
		Funds-NCAP		
		VE6.4. Steps for promoting battery operated vehicles like Erickshaw/ECart	Approved	
		VE6.4.1 Total no. of existing vehicles for which Incentives have already been provided	1230	
		VE6.4.2. Number of Erickshaw/Ecarts sold/operational	1230	
		VE6.4.3. No. of electric vehicles in IPT fleet	0	
		VE6.4.4. Annual Target - Total no. of vehicles for which Incentives is being planned	0	
		VE6.4.5. Annual Target - Number of E-rickshaw/E-carts to be sold	0	
		VE6.4.6. Implementation Authority	RTO/ULB	
		VE6.4.7. Remarks	Incentives have already been provided for a total of 1230 existing vehicles, which includes 1230 Erickshaws/Ecarts sold/operational.	
		VE6.5. Charging infrastructure for E-vehicles	Approved	
		VE6.5.1 Number of charging stations existing in the city	0	
		VE6.5.2 Whether charging stations is included in building bye laws	Yes	
		VE6.5.3 Overall target: Inclusion of charging infrastructure in building bye-laws	Included	
		VE6.5.4 Overall Target: Total no. of E-charging infrastructure required within the city as per guidelines (one per 3*3 sqkm)	5	
		VE6.5.5 Annual Target - Number of additional charging stations to be installed in the city	0	
		VE6.5.6. Implementation Authority	ULB	

		VE6.5.7. Remarks	Currently, there are no charging stations in the city,	
	VE7. Traffic Congestion	VE7.1. Synchronize traffic movements/Introduce intelligent traffic system (ITS) for lane-driving	Approved	
		VE7.1.1. Existing Number of traffic intersection where ITS needs to be installed	0	
		VE7.1.2. Existing Number of ITS installed	0	
		VE7.1.3. Annual Target - Number of new ITS to be installed	0	
		VE7.1.4. Implementation Authority	Traffic Department	
		VE7.1.5. Remarks	There is no synchronization of traffic movements or introduction of an intelligent traffic system (ITS) for lane-driving.	
		VE7.2. Prepare plan for improvement of infrastructure for decongestion of road.	Approved	
		VE7.2.1. Number of traffic congestion points identified	2	
		VE7.2.2. Whether Plan notified for decongestion	No	
		VE7.2.3. Overall Target:Notification of decongestion plan	To be notified	
		VE7.2.4. Annual Target - Number of identified traffic congestion points for intervention	0	
		VE7.2.5. Implementation Authority	ULB/Traffic/RTO	
		VE7.2.6. Remarks	To reduce road congestion, an improvement plan will be prepared, identifying two specific points of traffic congestion.	
		VE7.2.7. Decongestion plan Link	Link will be provided after the plan is prepared. The plan is to be developed in the upcoming years.	
	VE8. Phase out old vehicles and vehicle scrappage policy	VE8.1. Phase out old vehicles and vehicle scrappage policy	Approved	
		VE8.1.1. Total no. of Existing petrol and diesel vehicles	185600	
		VE8.1.2. Whether Scrappage policy notified	Yes	
		VE8.1.3. No. of Automated Testing Stations (ATS) existing within the city	2	
		VE8.1.4. Total number of vehicles (of any kind) to be scrapped	0	
		VE8.1.5. Existing Number of scrapping facilities	0	
		VE8.1.6. No. of vehicles already scrapped	0	
		VE8.1.7. Overall Target	Vehicle scrappage policy to be notified	
		VE8.1.8. Annual Target- Number of new ATS planned to be established	0	
		VE8.1.9. Annual Target - Number of scrapping facilities to be set up	1	
		VE8.1.10. Annual Target - Number of vehicles to be deregistered/ scrapped	0	
		VE8.1.11. Implementation Authority	RTO	
		VE8.1.12. Remarks	Fund not required. Currently, two Automated Testing Station (ATS) is operational within the city; however, no Registered Vehicle Scrapping Facility (RVSF) exists within the city.	
		VE8.1.13. Upload scrapping policy	https://morth.nic.in/sites/default/files/circulars_document/2-GSR%20212(E)%20dated%2015.03.2024%20-%20Motor%20Vehicles%20(Registration%20and%20Functions%20of%20Vehicle%20Scrapping%20Facility)%20Amendment%20Rules,%202024.pdf	
	VE9. NMT	VE9.1. Prepare and implement zonal plans to develop an NMT network		
		VE9.1.1. Total length of existing cycle tracks (in km)	0	
		VE9.1.2. Overall Target: Preparation of zonal plan to develop an NMT network	Plan to be prepared	
		VE9.1.3. Annual Target - New cycle track to be established (in km)	0	
		VE9.1.4. Implementation Authority	ULB	
		VE9.1.5. Remarks	No planning for develop an NMT network	
		VE9.1.6. Upload NMT plan link	NA	
		IP1.1. To intensify monitoring of industries to reduce of emission by the industries	Approved	
		IP1.1.1 - Total No. of industries within ULB limit	9	
		IP1.1.2 - Total Number of red category industries existing	3	
		IP1.1.3 - Total Number of orange category industries existing	6	
		IP1.1.4 - Total Number of green category industries existing	0	

	IP1. Industrial air pollution control	IP1.1.5 - Annual Target - Number of red category industries to be inspected	3	
		IP1.1.6 - Annual Target - Number of orange category industries to be inspected	6	
		IP1.1.7 - Annual Target - Number of green category industries to be inspected		
		IP1.1.8. Implementation Authority	REGIONAL OFFICER, UPPCB, SONBHADRA	
		IP1.1.9. Remarks	No funds have been allocated, and in the ULB area, there are 9 industries—3 in the red category and 6 in the orange category. Inspections will take place for all 3 red category industries and all 6 orange category industries.	
		IP1.2. Assess the number of industrial units that are non-compliant and prepare unit/plant wise action plan for time bound compliance or be shut down	Approved	
		IP1.2.1 - Number of non-complying Red category industries identified	0	
		IP1.2.2 - Number of non-complying Orange category industries identified	1	
		IP1.2.3 - Number of non-complying Green category industries identified	0	
		IP1.2.4 - Number of industries issued show cause notices in previous FY	1	
		IP1.2.5 - Number of industries issued closure notices in previous FY	1	
		IP1.2.6 - Annual Target: No. of industries to be followed up for updated compliance status based on show cause notices	1	
		IP1.2.7 - Annual Target: No. of industries to be followed up for updated compliance status on closure notices	1	
		IP1.2.8. Implementation Authority	REGIONAL OFFICER, UPPCB, SONBHADRA	
		IP1.2.9. Remarks	Closure Order has been issued to Non-Complying Unit	
		IP1.3. Shifting of polluting industries	Not Part Of Approved City Action Plan	
		IP1.3.1 - Number of Red category industries operating in residential or non-designated areas	0	
		IP1.3.2 - Number of Orange category industries operating in residential or non-designated areas	0	
		IP1.3.3 - Number of Green category industries operating in residential or non-designated areas	0	
		IP1.3.4 - Annual Target - Number of Red category industries to be shifted from residential/non-designated areas to industrial/designated areas	0	
		IP1.3.5 - Annual Target - Number of Orange category industries to be shifted from residential/non-designated areas to industrial/designated areas	0	
		IP1.3.6 - Annual Target - Number of Green category industries to be shifted from residential/non-designated areas to industrial/designated areas	0	
		IP1.3.7. Implementation Authority	REGIONAL OFFICER, UPPCB, SONBHADRA	
		IP1.3.8. Remarks	No such industries required for shifting	
		IP1.4. Carry out pollution load estimation from industrial sector to enable setting of target for emission		
		IP1.4.1 - Whether pollution load estimation from industrial sector is done		
		IP1.4.2 - Whether emission targets for industries has been set		
		IP1.4.3 - Annual Target		
		IP1.4.4. Implementation Authority		
		IP1.4.5. Remarks		
		Funds-NCAP		
Industries	IP2. OCEMS in Industries	IP2.1. Implement Continuous Emission Monitoring System (CEMS) across all targeted and applicable polluting industry	Approved	
		IP2.1.1 - Number of industries mandated to install CEMS	3	
		IP2.1.2 - No. of industries already having CEMS	3	
		IP2.1.3 - Annual Target: No. of industries targeted to install CEMS	0	
		IP2.1.4. Implementation Authority	REGIONAL OFFICER, UPPCB, SONBHADRA	
		IP2.1.5. Remarks	Monitoring of industrial emissions is conducted through OCEMS	
		IP3.1. Conversion to CNG/PNG from pet coke / wood / coal / Furnace oil.	Approved	
		IP3.1.1 - Number of industries already using CNG/PNG	0	
		IP3.1.2 - Overall Target		

	IP3. Clean fuel in industries	IP3.1.3 - Annual Target: No. of industries targeted to convert to CNG/PNG	0	
		IP3.1.4. Implementation Authority	REGIONAL OFFICER, UPPCB, SONBHADRA	
		IP3.1.5. Remarks	Currently, there are no industries using CNG or PNG as clean fuel.	
		IP3.2. Strict enforcement against illegal use of dirty industrial fuels with high sulfur and heavy metals fuels, including fuels that do not have specifications laid down or are included in the acceptable fuels as mandated by state pollution control boards		
		IP3.2.1 - No. of industries illegally using dirty industrial fuels including fuels that do not have specifications laid down		
		IP3.2.2 - No. of such industries to whom showcase/closure notice had been issued in previous FY		
		IP3.2.3 - Annual Target - No. of industries targeted to be inspected		
		IP3.2.4 - Annual Target: No. of industries to be shifted into using approved fuels		
		IP3.2.5. Implementation Authority		
		IP3.2.6. Remarks		
		Funds-NCAP		
	IP4. Control of air pollution from Brick kilns	IP4.1 - Total number of existing Brick Kilns within ULB limits	5	
		IP4.2 - No. of existing brick kilns within ULB limit already switched to clean technologies or fuel	4	
		IP4.3 - Overall Target	100% of brick kilns switched to clean technologies or fuel	
		IP4.4 - Annual Target - Number of brick kilns to be converted to cleaner technology	1	
		IP4.5 - Annual Target - No. of Brick Klin inspection planned	5	
		IP4.6 - Annual Target - Number of brick kilns to be converted to cleaner fuel	1	
		IP4.7. Implementation Authority	REGIONAL OFFICER, UPPCB, SONBHADRA	
		IP4.8. Remarks	Fund not required. Out of 5 existing brick kilns within ULB limits, 4 are already converted to clean technology/fuel. The annual target is to convert 1 more kiln to cleaner technology/fuel and conduct 5 inspections	
	IP5. Control of air pollution from Thermal Power Plants and coal handling units	IP5.1. Ash disposed of by utilization or sale	Approved	
		IP5.1.1 - No. of industries generating dry ash	3	
		IP5.1.2 - No. of industries able to use 100% of the dry ash generated	1	
		IP5.1.3 - Annual Target: No. of industries targeted to ensure 100% utilization of dry ash	2	
		IP5.1.4. Implementation Authority	REGIONAL OFFICER, UPPCB, SONBHADRA	
		IP5.1.5. Remarks	Fund not required. Out of 3 industries generating dry ash, only 1 currently achieves 100% utilization. The annual target is to ensure 100% dry ash utilization in 2 industries.	
	IP6. Control of air pollution from generator sets	IP6.1. Allow only DG sets meeting emission and design of chimney/ exhaust, acoustic enclosures standards to operate		
		IP6.1.1 - Total no. of DG sets greater than 1MVA existing within ULB		
		IP6.1.2 - No. of existing DG sets greater than 1MVA meeting emission criteria		
		IP6.1.3 - Annual Target: No. of DG sets greater than 1MVA not meeting emission criteria and planned to be retrofitted		
		IP6.1.4. Implementation Authority		
		IP6.1.5. Remarks		
		Funds-NCAP		
		BB1.1. Regular check and control of burning of municipal solid wastes	Approved	
		BB1.1.1. Total no. of burning of municipal solid wastes reported in previous FY	0	
		BB1.1.2. Annual Target - Number of inspections squad planned for checking and controlling burning of municipal solid wastes.	24	
		BB1.1.3. Implementation Authority	ULB	
		BB1.1.4. Remarks	Regular inspections and controls on the burning of municipal solid waste are conducted by designated squads responsible for monitoring and managing these activities.	

Waste and Biomass - Dumping and Burning	BB1. Biomass Burning	BB1.1.5. No. of inspections done		
		BB1.1.6. No. of challans issued		
		BB1.2. Providing organic waste compost machines, decentralization of processing of waste, dry waste collection centers	Not Applicable	
		BB1.2.1 Existing Number of organic waste composters functional		
		BB1.2.2 Existing Number of dry waste collection centres		
		BB1.2.3. Existing No. of decentrilized MSW processing plants		
		BB1.2.4. Existing decentrilized MSW processing plants capacity in TPD		
		BB1.2.5. Overall Target: Capacity of organic waste composters(including existing ones) required (in TPD)		
		BB1.2.6. Overall Target: Capacity of dry waste collection centres(including existing ones) required in TPD		
		BB1.2.7. Overall Target: Capacity of decentralised MSW processing plants (including existing ones) required in TPD		
		BB1.2.8. Annual Target-Number of new organic waste composters to be provided		
		BB1.2.9 Annual Target- Number of new dry waste collection centres to be established		
		BB1.2.10 Annual Target-No. of new decentrilized MSW processing plants to be established		
		BB1.2.11. Annual Target-Capacity of new decentrilized MSW processing plants to be established (in TPD)		
		BB1.2.12. Implementation Authority		
		BB1.2.13. Remarks		
		Funds-NCAP		
		BB1.3. Dead bodies of Animals should be disposed through proper treatment facility like rendering plant etc	Approved	
		BB1.3.1. Existing no. of treatment facility such as rendering plants, etc for proper disposal of dead animals	0	
		BB1.3.2. Capacity of existing treatment facility such as rendering plants, etc for proper disposal of dead animals (in TPD)	0	
		BB1.3.3. Annual Target-No. of new treatment facility such as rendering plants, etc for proper disposal of dead animals to be established	0	
		BB1.3.4. Annual Target-Capacity of new treatment facility such as rendering plants, etc for proper disposal of dead animals to be established (in TPD)	0	
		BB1.3.5. Implementation Authority	ULB	
		BB1.3.6. Remarks	Currently, there are no treatment facilities available for the proper disposal of dead animals.	
	BB2. Regular collection, segregation and scientific disposal of waste	BB2.1. Total no. of households within the ULB limits	8530	
		BB2.2. No. of households covered under solid waste management services	8530	
		BB2.3. Total waste already generated (TPD) as on 1st April of current FY	13.01	
		BB2.4. Total waste already collected (TPD) as on 1st April of current FY	13.01	
		BB2.5.Quantity of waste already being segregated (TPD) as on 1st April of current FY	13.01	
		BB2.6. Quantity of waste already being processed/treated (TPD) as on 1st April of current FY	13.01	
		BB2.7. Exisitng Number of local Material Recovery Facilities for segregation and recycling	1	
		BB2.8. Annual Target-Additional Quantity of waste to be processed using composting (TPD)	0	
		BB2.9. Annual Target-Additional Number of new composting units to be installed	0	
		BB2.10.Annual Target-Additional Quantity of waste to be processed using Biomethanation (TPD)	0	
		BB2.11.Annual Target-Additional Number of new Biomethanation units required	0	
		BB2.12.Annual Target-Additional Quantity of waste to be processed as Waste to Energy (TPD)	0	
		BB2.13.Annual Target-Additional Number of new Waste to Energy plants to be installed	0	
		BB2.14.Annual Target-Additional Quantity of solid waste to be disposed through Landfills (TPD)	0	
		BB2.15.Annual Target-Additional Number of new Sanitary Landfills to be installed	0	
		BB2.16.Annual Target-Additional Quantity of Legacy Waste dumpsites to be remediated	0	
		BB2.17.Annual Target-Number of Legacy Waste dumpsites to be remediated	0	
		BB2.18. Implementation Authority	ULB	

	BB2.19. Remarks	The total waste generation consists of 5.2 TPD of wet waste, 6.5 TPD of dry waste, and 1.3 TPD of hazardous waste. Dry waste, including plastics and cardboard, is sold for recycling, while wet waste is converted into manure. Hazardous waste is handed over to a third party for treatment and disposal. No additional funds are required	
BB3. Ambient air quality monitoring of municipal dumping sites and parks	BB3.1 Ambient air quality monitoring of operational dumping sites & Landfill		
	BB3.2 Number of existing monitoring stations at municipal dumping sites (Landfill)		
	BB3.3. Frequency of Ambient air quality monitoring of operational dumping sites & Landfill		
	BB3.4. Annual Target: Number of new monitoring stations at operational dumping sites & Landfill to be established		
	BB3.5. Implementation Authority		
	BB3.6. Remarks		
	Funds-NCAP		
BB4. Check/stop on stubble burning	BB4.1 Number of stubble burning incidents reported in previous year		
	BB4.2 No. of existing Schemes for insitu/exsitu stubble management		
	BB4.3 Annual Target-Number of inspection team for reporting/preventing stubble burning incidents		
	BB4.4. Annual Target - No. of schemes planned to be granted incentives for insitu/exsitu stubble management		
	BB4.5. Implementation Authority		
	BB4.6. Remarks		
	Funds-NCAP		
BB5. Human Cremation	BB5.1. Total no. of existing cremation sites		
	BB5.2. Total no. of existing cremation sites using electric		
	BB5.3. Total no. of existing cremation sites using PNG		
	BB5.4. Annual Target- No. of new cremation sites using PNG to be establised		
	BB5.5. Annual Target- No. of new cremation sites using electric to be establised		
	BB5.6 Annual Target- No. of old cremation sites using other fuel to be converted to PNG		
	BB5.7. Annual Target- No. of old cremation sites using other fuel to be converted to electric		
	BB5.8. Implementation Authority		
	BB5.9. Remarks		
	Funds-NCAP		
BB6. Landfill fire	BB6.1. Proper management of landfill sites to prevent spontaneous fire	Approved	
	BB6.1.1 Whether Landfill fire control plan	No	
	BB6.1.2. No. of landfire incidents reported last FY	0	
	BB6.1.3. No. of existing disposal/dumping yard	0	
	BB6.1.4. Annual Target-No. of landfill sites to be remediated	0	
	BB6.1.5. Implementation Authority	ULB	
	BB6.1.6. Remarks	Landfill fire control plan will be developed and implemented in the upcoming years to address this issue effectively.	
	BB6.1.7. Landfill fire control plan link	Will be provided when available.	
BB7. Policy for fire crackers - community shows using green crackers, strict enforcement of regulations.	BB7.1 Whether policy for fire cracker-community shows using green crackers exist (Yes/No)		
	BB7.2 Annual Target: No. of community show using green fire cracker being planned		
	BB7.3. Implementation Authority		
	BB7.4. Remarks		
	Funds-NCAP		
DF1. Domestic Fuel	DF1.1. Ensure easy availability of affordable cleaner cooking fuels (LPG/ PNG/biogas) for all	Approved	
	DF1.1.1 No. of households using LPG	8530	
	DF1.1.2 Number of households with PNG connections	0	
	DF1.1.3 Active no. of commercial LPG connections	700	
	DF1.1.4 Number of existing commercial establishments	700	
	DF1.1.5 No. of commercial establishments using cleaner fuel (i.e. LPG) instead of coal fired chulas or fire-woods in the hotels and open spaces	700	
	DF1.1.6 Annual Target- Number of new commercial PNG connections to be provided	50	
	DF1.1.7 Annual Target-Number of new households to be provided with LPG/PNG	50	
	DF1.1.8 Annual Target- No. of new LPG connection under Ujwala to be provided	50	
	DF1.1.9 Annual Target-No. of new LPG households	50	

		DF1.1.10. Implementation Authority	DSO	
		DF1.1.11. Remarks	As of now, there are a total of 8,530 households utilizing LPG, with no PNG connections reported. Additionally, there are 700 commercial LPG connections in the area. The annual target for providing new LPG or PNG connections, particularly under the Ujjwala Yojana, is set at 50.	

ANNEXURE-4

FORM GFR 12A

GENERAL FINANCIAL RULES 2017
Ministry of Finance
Department of Expenditure

GFR 12 – A

[(See Rule 238 (1)]

FORM OF UTILIZATION CERTIFICATE FOR AUTONOMOUS BODIES OF THE GRANTEE ORGANIZATION

UTILIZATION CERTIFICATE FOR THE YEAR **2019-2020** in respect
of recurring/non-recurring
GRANTS-IN-AID/SALARIES/CREATION OF CAPITAL ASSETS

1. Name of the Scheme – **NATIONAL CLEAN AIR PROGRAMME (NCAP) FOR ANPARA CITY**
2. Whether recurring or non-recurring grants - Recurring grants
3. Grants position at the beginning of the Financial year
   (i) Cash inHand/Bank – **NIL**
   (ii) Unadjusted advances - **NIL**
   (iii) Total - **NIL**
4. Details of grants received, expenditure incurred and closing balances: (Actuals, Rs in Lacs)

Unspent Balances of Grants received years [figure as at Sl. No. 3 (iii)]	Interest Earned thereon	Interest deposited back to the Government	Grant received during the year			Total Available funds (1+2-3+4)	Expenditure incurred	Closing Balances (5-6)
1	2	3	4			5	6	7
			Sanction No. (i)	Date (ii)	Amount (iii)			
			Q-16017/41/2019-CPA	05.08.2019	6	10	0	10
			Q-16017/41/2019-CPA	27.03.2020	4			

Component wise utilization of grants:

Grant-in-aid–General	Grant-in-aid–Salary	Grant-in-aid–creation of capital assets	Total

Details of grants position at the end of the year

(i) Cash inHand/Bank : **Rs. 10 Lacs**
(ii) Unadjusted Advances **NIL**
(iii) Total : **Rs. 10 Lacs**

Kaushik
(पंकज कौशिक)
लेखा–प्रभारी

FORM GFR 12A

GENERAL FINANCE RULES 2017
Ministry of Finance
Department of Expenditure

Certified that I have satisfied myself that the conditions on which grants were sanctioned have been duly fulfilled/are being fulfilled and that I have exercised following checks to see that the money has been actually utilized for the purpose for which it was sanctioned:

(i) The main accounts and other subsidiary accounts and registers (including assets registers) are maintained as prescribed in the relevant Act/Rules/Standing instructions (mention the Act/Rules) and have been duly audited by designated auditors. The figures depicted above tally with the audited figures mentioned in financial statements/accounts.

(ii) There exist internal controls for safeguarding public funds/assets, watching outcomes and achievements of physical targets against the financial inputs, ensuring quality in asset creation etc. & the periodic evaluation of internal controls is exercised to ensure their effectiveness.

(iii) To the best of our knowledge and belief, no transactions have been entered that are in violation of relevant Act/Rules/standing instructions and scheme guidelines.

(iv) The responsibilities among the key functionaries for execution of the scheme have been assigned in clear terms and are not general in nature.

(v) The benefits were extended to the intended beneficiaries and only such areas/districts were covered where the scheme was intended to operate.

(vi) The expenditure on various components of the scheme was in the proportions authorized as per the scheme guidelines and terms and conditions of the grants-in-aid.

(vii) It has been ensured that the physical and financial performance under **National Clean Air Program for Anpara city** has been according to the requirements, as prescribed in the guidelines issued by Govt. of India and the performance/targets achieved statement for the year to which the utilization of the fund resulted in outcomes given at Annexure – I duly enclosed.

(viii) The utilization of the fund resulted in outcomes given at Annexure – II duly enclosed (to be formulated by the Ministry/Department concerned as per their requirements/specifications.)

(ix) Details of various schemes executed by the agency through grants-in-aid received from the same Ministry or from other Ministries is enclosed at Annexure–II (to be formulated by the Ministry/Department concerned as per their requirements/specifications).

Date:
Place: Lucknow

(Pankaj Kaushik)
Incharge Accounts

(Ajay Kumar Sharma)
Member Secretary
Uttar Pradesh Pollution Control Board

GFR 12 – A

[(See Rule 238 (1)]

FORM OF UTILIZATION CERTIFICATE FOR AUTONOMOUS BODIES OF THE GRANTEE ORGANIZATION

UTILIZATION CERTIFICATE FOR THE YEAR **2020-2021** in respect
of recurring/non-recurring
GRANTS-IN-AID/SALARIES/CREATION OF CAPITAL ASSETS

1. Name of the Scheme – **NATIONAL CLEAN AIR PROGRAMME (NCAP) FOR ANPARA CITY**
2. Whether recurring or non-recurring grants - Recurring grants
3. Grants position at the beginning of the Financial year
   (i) Cash inHand/Bank – **Rs. 10 Lacs**
   (ii) Unadjusted advances - **NIL**
   (iii) Total - **Rs. 10 Lacs**
4. Details of grants received, expenditure incurred and closing balances: (Actuals, Rs in Lacs)

Unspent Balances of Grants received years [figure as at Sl. No. 3 (iii)]	Interest Earned thereon	Interest deposited back to the Government	Grant received during the year			Total Available funds (1+2-3+4)	Expenditure incurred	Closing Balances (5-6)
1	2	3	4			5	6	7
			Sanction No. (i)	Date (ii)	Amount (iii)			
10	-	-	Q-16017/41/2019-CPA	25.03.2021	114	124	0.8	123.20

Component wise utilization of grants:

Grant-in-aid–General	Grant-in-aid–Salary	Grant-in-aid–creation of capital assets	Total

Details of grants position at the end of the year

(i) Cash inHand/Bank : **Rs. 123.20 Lacs**
(ii) Unadjusted Advances **NIL**
(iii) Total : **Rs. 123.20 Lacs**

Kaushik

FORM GFR 12A

GENERAL FINANCE RULES 2017
Ministry of Finance
Department of Expenditure

Certified that I have satisfied myself that the conditions on which grants were sanctioned have been duly fulfilled/are being fulfilled and that I have exercised following checks to see that the money has been actually utilized for the purpose for which it was sanctioned:

(i) The main accounts and other subsidiary accounts and registers (including assets registers) are maintained as prescribed in the relevant Act/Rules/Standing instructions (mention the Act/Rules) and have been duly audited by designated auditors. The figures depicted above tally with the audited figures mentioned in financial statements/accounts.

(ii) There exist internal controls for safeguarding public funds/assets, watching outcomes and achievements of physical targets against the financial inputs, ensuring quality in asset creation etc. & the periodic evaluation of internal controls is exercised to ensure their effectiveness.

(iii) To the best of our knowledge and belief, no transactions have been entered that are in violation of relevant Act/Rules/standing instructions and scheme guidelines.

(iv) The responsibilities among the key functionaries for execution of the scheme have been assigned in clear terms and are not general in nature.

(v) The benefits were extended to the intended beneficiaries and only such areas/districts were covered where the scheme was intended to operate.

(vi) The expenditure on various components of the scheme was in the proportions authorized as per the scheme guidelines and terms and conditions of the grants-in-aid.

(vii) It has been ensured that the physical and financial performance under **National Clean Air Program for Anpara City** has been according to the requirements, as prescribed in the guidelines issued by Govt. of India and the performance/targets achieved statement for the year to which the utilization of the fund resulted in outcomes given at Annexure – I duly enclosed.

(viii) The utilization of the fund resulted in outcomes given at Annexure – II duly enclosed (to be formulated by the Ministry/Department concerned as per their requirements/specifications.)

(ix) Details of various schemes executed by the agency through grants-in-aid received from the same Ministry or from other Ministries is enclosed at Annexure–II (to be formulated by the Ministry/Department concerned as per their requirements/specifications).

Date:
Place: Lucknow

(Pankaj Kaushik)
Incharge Accounts

(Ajay Kumar Sharma)
Member Secretary
Uttar Pradesh Pollution Control Board

GENERAL FINANCIAL RULES 2017
Ministry of Finance
Department of Expenditure

GFR 12 – A

[(See Rule 238 (1)]

FORM OF UTILIZATION CERTIFICATE
FOR AUTONOMOUS BODIES OF THE GRANTEE ORGANIZATION

UTILIZATION CERTIFICATE FOR THE FINANCIAL YEAR **2021-2022** in respect of recurring/non-recurring GRANTS-IN-AID/SALARIES/CREATION OF CAPITAL ASSETS

1. Name of the Scheme – **NATIONAL CLEAN AIR PROGRAMME (NCAP) FOR ANPARA CITY**
2. Whether recurring or non-recurring grants - Recurring grants
3. Grants position at the beginning of the Financial year
   (i) Cash inHand/Bank – **Rs. 123.20 Lacs**
   (ii) Unadjusted advances - NIL
   (iii) Total - **Rs123.20 Lacs**
4. Details of grants received, expenditure incurred and closing balances: (Actuals Rs in Lakh)

Unspent Balances of Grants received years [figure as at Sl. No. 3 (iii)]	**Interest Earned thereon**	**Interest deposited back to the Government**	**Grant received during the year**			**Total Available funds (1+2-3+4)**	**Expenditure incurred**	**Closing Balances (5-6)**
1	**2**	**3**	**4**			**5**	**6**	**7**
			Sanction No. (i)	Date (ii)	Amount (iii)			
123.20	0.60250	0.00				123.80250	0.00	123.80250

Component wise utilization of grants:

Grant-in-aid–General	Grant-in-aid–Salary	Grant-in-aid–creation of capital assets	Total
0	0	0	0

Details of grants position at the end of the year

(i) Cash inHand/Bank :**Rs 123.80250 Lacs**
(ii) Unadjusted Advances NIL
(iii) Total : **Rs 123.80250 Lacs**

Certified that I have satisfied myself that the conditions on which grants sanctioned have been duly fulfilled/are being fulfilled and that I have exercised following checks to see that the money has been actually utilized for the purpose for which it was sanctioned:

(i) The main accounts and other subsidiary accounts and registers (including assets registers) are maintained as prescribed in the relevant Act/Rules/Standing instructions (mention the Act/Rules) and have been duly audited by designated auditors. The figures depicted above tally with the audited figures mentioned in financial statements/accounts.

(ii) There exist internal controls for safeguarding public funds/assets, watching outcomes and achievements of physical targets against the financial inputs, ensuring quality in asset creation etc. & the periodic evaluation of internal controls is exercised to ensure their effectiveness.

(iii) To the best of our knowledge and belief, no transactions have been entered that are in violation of relevant Act/Rules/standing instructions and scheme guidelines.

(iv) The responsibilities among the key functionaries for execution of the scheme have been assigned in clear terms and are not general in nature.

(v) The benefits were extended to the intended beneficiaries and only such areas/districts were covered where the scheme was intended to operate.

(vi) The expenditure on various components of the scheme was in the proportions authorized as per the scheme guidelines and terms and conditions of the grants-in-aid.

(vii) It has been ensured that the physical and financial performance under **National Clean Air Program for ANPARA City** has been according to the requirements, as prescribed in the guidelines issued by Govt. of India and the performance/targets achieved statement for the year to which the utilization of the fund resulted in outcomes given at Annexure – I duly enclosed.

(viii) The utilization of the fund resulted in outcomes given at Annexure – II duly enclosed (to be formulated by the Ministry/Department concerned as per their requirements/specifications.)

(ix) Details of various schemes executed by the agency through grants-in-aid received from the same Ministry or from other Ministries is enclosed at Annexure–II (to be formulated by the Ministry/Department concerned as per their requirements/specifications).

Date:

Place:

01/01/24

Signature

Head of Department

8720

FORM GFR 12 - A

[See Rule 238(1)]

FORM OF UTILIZATION CERTIFICATE

FOR AUTONOMOUS BODIES OF THE GRANTEE ORGANIZATION

Name of the Grantee Organization:Anpara City

UTILIZATION CERTIFICATE FOR THE PERIOD FROM 2022-04-01 TO 2023-03-31

respect

of recurring/non-recurring

GRANTS-IN-AID/SALARIES/CREATION OF CAPITAL ASSETS

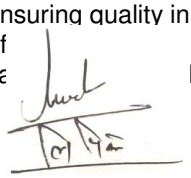
1. Name of the Scheme: National Clean Air Programme (NCAP)
2. Whether recurring or non-recurring grants: Non-Recurring
3. Grants position at the beginning of the financial year, 2022_23
   i. Cash in Hand/Bank:12320000
   ii. Unadjusted advances:0
   iii. Total: 12320000
4. Details of grants received, expenditure incurred and closing balances: (Actuals)

Unspent Balances of Grants received years 2021-22	Interest Earned thereon	Interest deposited back to the Govt	Grant received during the year 2022_23			Total Available funds	Expenditure incurred	Closing Balances
			Sanction No.	Date	Amount			
1	2	3	4			5	6	7
			i	ii	iii			
12320000	125141.00	0	Q-16017/144/2021-CPA	2022-09-30 00:00:00	6600000	19645141	7921074	11724067
			Q-16017/135/2021-CPA	2023-03-27 00:00:00	600000			

5. Component wise utilization of grants:

	Grant-in-aid-General (Rs. in crores)	Grant-in-aid-Salary (Rs. in crores)	Grant-in-aid-creation of capital assets (Rs. incrores)	Total (Rs. in crores)
Grant Received	7200000	0	0	7200000
Carried forward from Prev. F.Y	12320000	0	0	12320000
Less: Utilised	7921074	0	0	7921074
Balance	11598926	0	0	11598926

Details of grants position at the end of the year
   i. Cash in Hand/Bank:11724067
   ii. Unadjusted advances:0
   iii. Total:11724067
6. Certified that I have satisfied myself that the conditions on which grants were sanctioned have been duly fulfilled/are being fulfilled and that I have exercised following checks to see that the money has been actually utilized for the purpose for which it was sanctioned:
   i. The main accounts and other subsidiary accounts and registers (including assets registers) are maintained as prescribed in the relevant Act/Rules/Standing instructions (mention the Act/Rules) and have been duly audited by designated auditors. The figures depicted above tally with the audited figures mentioned in financial statements/accounts.
   ii. There exist internal controls for safeguarding public funds/assets, watching outcomes and achievements of physical targets against the financial inputs, ensuring quality in asset creation etc. & the periodic evaluation of internal controls is exercised to ensure their ef
   iii. To the best of our knowledge and belief, no tra been entered that are in violation of relevant



Act/Rules/standing instructions and scheme guidelines.

iv. The responsibilities among the key functionaries for execution of the scheme have been assigned in clear terms and are not general in nature.

v. The benefits were extended to the intended beneficiaries and only such areas/districts were covered where the scheme was intended to operate.

vi. The expenditure on various components of the scheme was in the proportions authorized as per the scheme guidelines and terms and conditions of the grants-in-aid.

vii. It has been ensured that the physical and financial performance under National Clean Air Programme (NCAP) has been according to the requirements, as prescribed in the guidelines issued by Govt. of India and the performance/targets achieved statement for the year to which the utilization of the fund resulted in outcomes given at Annexure - I duly enclosed.

viii. The utilization of the fund resulted in outcomes given at Annexure - II duly enclosed (to be formulated by the Ministry/ Department concerned as per their requirements/ specifiCations.)

ix. Details of various schemes executed by the agency through grants-in-aid received from the same Ministry or from other Ministries is enclosed at Annexure - I (to be formulated by the Ministry/Department concerned as per their requirements/ specifications).

Name : Ganesh kumar tiwari

Designation : Clerk
Date :18-Jun-2024

Place : Anpara

8722

FORM GFR 12 - A

[See Rule 238(1)]

FORM OF UTILIZATION CERTIFICATE

FOR AUTONOMOUS BODIES OF THE GRANTEE ORGANIZATION

Name of the Grantee Organization:Anpara City

UTILIZATION CERTIFICATE FOR THE PERIOD FROM 2023-04-01 TO 2024-03-31

respect

of recurring/non-recurring

GRANTS-IN-AID/SALARIES/CREATION OF CAPITAL ASSETS

1. Name of the Scheme: National Clean Air Programme (NCAP)
2. Whether recurring or non-recurring grants: Recurring
3. Grants position at the beginning of the financial year, 2023_24
   i. Cash in Hand/Bank:11724067
   ii. Unadjusted advances:0
   iii. Total: 11724067
4. Details of grants received, expenditure incurred and closing balances: (Actuals)

Unspent Balances of Grants received years 2022-23	**Interest Earned thereon**	**Interest deposited back to the Govt**	**Grant received during the year 2023_24**			**Total Available funds**	**Expenditure incurred**	**Closing Balances**
			Sanction No.	**Date**	**Amount**			
1	**2**	**3**	**4**			**5**	**6**	**7**
			i	**ii**	**iii**			
11724067	228225.00	318697.00	CPW-G027(17)/2/2023-CP	2023-09-18 00:00:00	4500000	16133595	13088734	3044861

5. Component wise utilization of grants:

	Grant-in-aid-General (Rs. in crores)	**Grant-in-aid-Salary (Rs. in crores)**	**Grant-in-aid-creation of capital assets (Rs. incrores)**	**Total (Rs. in crores)**
Grant Received	4500000	0	0	4500000
Carried forward from Prev. F.Y	11633595	0	0	11633595
Less: Utilised	13088734	0	0	13088734
Balance	3044861	0	0	3044861

Details of grants position at the end of the year
   i. Cash in Hand/Bank:3044861
   ii. Unadjusted advances:0
   iii. Total:3044861
6. Certified that I have satisfied myself that the conditions on which grants were sanctioned have been duly fulfilled/are being fulfilled and that I have exercised following checks to see that the money has been actually utilized for the purpose for which it was sanctioned:
   i. The main accounts and other subsidiary accounts and registers (including assets registers) are maintained as prescribed in the relevant Act/Rules/Standing instructions (mention the Act/Rules) and have been duly audited by designated auditors. The figures depicted above tally with the audited figures mentioned in financial statements/accounts.
   ii. There exist internal controls for safeguarding public funds/assets, watching outcomes and achievements of physical targets against the financial inputs, ensuring quality in asset creation etc. & the periodic evaluation of internal controls is exercised to ensure their effectiveness.
   iii. To the best of our knowledge and belief, no transactions have been entered that are in violation of relevant Act/Rules/standing instructions and scheme guidelines.
   iv. The responsibilities among the key functionaries for execution of the scheme have been assigned in clear terms and are not general in nature.
   v. The benefits were extended to the inter uch areas/districts were covered where the scheme was intended to operate.

Signed by Anpara
Date: 2025.07.15 13:40:09

vi. The expenditure on various components of the scheme was in the proportions authorized as per the scheme guidelines and terms and conditions of the grants-in-aid.
vii. It has been ensured that the physical and financial performance under National Clean Air Programme (NCAP) has been according to the requirements, as prescribed in the guidelines issued by Govt. of India and the performance/targets achieved statement for the year to which the utilization of the fund resulted in outcomes given at Annexure - I duly enclosed.
viii. The utilization of the fund resulted in outcomes given at Annexure - II duly enclosed (to be formulated by the Ministry/ Department concerned as per their requirements/ specifiCations.)
ix. Details of various schemes executed by the agency through grants-in-aid received from the same Ministry or from other Ministries is enclosed at Annexure - I (to be formulated by the Ministry/Department concerned as per their requirements/ specifications).

Name : Ganesh kumar tiwari

Designation : Clerk
Date :15-Jul-2025

Place : Anpara

Signed by Anpara
Date: 2025.07.15 13:40:09

8724

FORM GFR 12 - A

[See Rule 238(1)]

FORM OF UTILIZATION CERTIFICATE

FOR AUTONOMOUS BODIES OF THE GRANTEE ORGANIZATION

Name of the Grantee Organization:Anpara City

UTILIZATION CERTIFICATE FOR THE PERIOD FROM 2024-04-01 TO 2025-03-31

respect

of recurring/non-recurring

GRANTS-IN-AID/SALARIES/CREATION OF CAPITAL ASSETS

1. Name of the Scheme: National Clean Air Programme (NCAP)
2. Whether recurring or non-recurring grants: Recurring
3. Grants position at the beginning of the financial year, 2024_25
   i. Cash in Hand/Bank:3044861
   ii. Unadjusted advances:0
   iii. Total: 3044861
4. Details of grants received, expenditure incurred and closing balances: (Actuals)

Unspent Balances of Grants received years 2023-24	Interest Earned thereon	Interest deposited back to the Govt	Grant received during the year 2024_25			Total Available funds	Expenditure incurred	Closing Balances
			Sanction No.	Date	Amount			
1	2	3	4			5	6	7
			i	ii	iii			
3044861	28141.00	0	NA	00:00:0000	0	3073002	1614367	1458635

5. Component wise utilization of grants:

	Grant-in-aid-General (Rs. in crores)	Grant-in-aid-Salary (Rs. in crores)	Grant-in-aid-creation of capital assets (Rs. incrores)	Total (Rs. in crores)
Grant Received	0	0	0	0
Carried forward from Prev. F.Y	3073002	0	0	3073002
Less: Utilised	1614367	0	0	1614367
Balance	1458635	0	0	1458635

Details of grants position at the end of the year
   i. Cash in Hand/Bank:1458635
   ii. Unadjusted advances:0
   iii. Total:1458635
6. Certified that I have satisfied myself that the conditions on which grants were sanctioned have been duly fulfilled/are being fulfilled and that I have exercised following checks to see that the money has been actually utilized for the purpose for which it was sanctioned:
   i. The main accounts and other subsidiary accounts and registers (including assets registers) are maintained as prescribed in the relevant Act/Rules/Standing instructions (mention the Act/Rules) and have been duly audited by designated auditors. The figures depicted above tally with the audited figures mentioned in financial statements/accounts.
   ii. There exist internal controls for safeguarding public funds/assets, watching outcomes and achievements of physical targets against the financial inputs, ensuring quality in asset creation etc. & the periodic evaluation of internal controls is exercised to ensure their effectiveness.
   iii. To the best of our knowledge and belief, no transactions have been entered that are in violation of relevant Act/Rules/standing instructions and scheme guidelines.
   iv. The responsibilities among the key functionaries for execution of the scheme have been assigned in clear terms and are not general in nature.
   v. The benefits were extended to the inte such areas/districts were covered where the scheme was intended to operate.
   vi. The expenditure on various componen proportions authorized as per the scheme

Signed by Anpara
Date: 2025.07.15 13:55:39

guidelines and terms and conditions of the grants-in-aid.

vii. It has been ensured that the physical and financial performance under National Clean Air Programme (NCAP) has been according to the requirements, as prescribed in the guidelines issued by Govt. of India and the performance/targets achieved statement for the year to which the utilization of the fund resulted in outcomes given at Annexure - I duly enclosed.

viii. The utilization of the fund resulted in outcomes given at Annexure - II duly enclosed (to be formulated by the Ministry/ Department concerned as per their requirements/ specifiCations.)

ix. Details of various schemes executed by the agency through grants-in-aid received from the same Ministry or from other Ministries is enclosed at Annexure - I (to be formulated by the Ministry/Department concerned as per their requirements/ specifications).

Name : Ganesh kumar tiwari

Designation : Clerk

Date :15-Jul-2025

Place : Anpara

Signed by Anpara
Date: 2025.07.15 13:55:39

8726

FORM GFR 12 - A

[See Rule 238(1)]

FORM OF UTILIZATION CERTIFICATE

FOR AUTONOMOUS BODIES OF THE GRANTEE ORGANIZATION

Name of the Grantee Organization:Anpara City

UTILIZATION CERTIFICATE FOR THE PERIOD FROM 2025-04-01 TO 2026-03-31

respect

of recurring/non-recurring

GRANTS-IN-AID/SALARIES/CREATION OF CAPITAL ASSETS

1. Name of the Scheme: National Clean Air Programme (NCAP)
2. Whether recurring or non-recurring grants: Recurring
3. Grants position at the beginning of the financial year, 2025_26
   i. Cash in Hand/Bank:1458635
   ii. Unadjusted advances:0
   iii. Total: 1458635
4. Details of grants received, expenditure incurred and closing balances: (Actuals)

Unspent Balances of Grants received years 2024-25	Interest Earned thereon	Interest deposited back to the Govt	Grant received during the year 2025_26			Total Available funds	Expenditure incurred	Closing Balances
			Sanction No.	Date	Amount			
1	2	3	4			5	6	7
			i	ii	iii			
1458635	103957.00	0	CPW-G027(17)/2/2023-CP	2025-10-10 00:00:00	5300000	11162592	0	11162592
			Q-16017/144/2021-CPA	2026-03-12 00:00:00	4300000			

5. Component wise utilization of grants:

	Grant-in-aid-General (Rs. in crores)	Grant-in-aid-Salary (Rs. in crores)	Grant-in-aid-creation of capital assets (Rs. incrores)	Total (Rs. in crores)
Grant Received	9600000	0	0	9600000
Carried forward from Prev. F.Y	1562592	0	0	1562592
Less: Utilised	0	0	0	0
Balance	11162592	0	0	11162592

Details of grants position at the end of the year
   i. Cash in Hand/Bank:11162592
   ii. Unadjusted advances:0
   iii. Total:11162592
6. Certified that I have satisfied myself that the conditions on which grants were sanctioned have been duly fulfilled/are being fulfilled and that I have exercised following checks to see that the money has been actually utilized for the purpose for which it was sanctioned:
   i. The main accounts and other subsidiary accounts and registers (including assets registers) are maintained as prescribed in the relevant Act/Rules/Standing instructions (mention the Act/Rules) and have been duly audited by designated auditors. The figures depicted above tally with the audited figures mentioned in financial statements/accounts.
   ii. There exist internal controls for safeguarding public funds/assets, watching outcomes and achievements of physical targets against the financial inputs, e[illegible]sset creation etc. & the periodic evaluation of internal controls is exercised to ensure their e[illegible]
   iii. To the best of our knowledge and belief, no transactions have been entered that are in violation of relevant

Signed by: Anpara
Date : 05-05-2026
13:28:18

Act/Rules/standing instructions and scheme guidelines.

iv. The responsibilities among the key functionaries for execution of the scheme have been assigned in clear terms and are not general in nature.

v. The benefits were extended to the intended beneficiaries and only such areas/districts were covered where the scheme was intended to operate.

vi. The expenditure on various components of the scheme was in the proportions authorized as per the scheme guidelines and terms and conditions of the grants-in-aid.

vii. It has been ensured that the physical and financial performance under National Clean Air Programme (NCAP) has been according to the requirements, as prescribed in the guidelines issued by Govt. of India and the performance/targets achieved statement for the year to which the utilization of the fund resulted in outcomes given at Annexure - I duly enclosed.

viii. The utilization of the fund resulted in outcomes given at Annexure - II duly enclosed (to be formulated by the Ministry/ Department concerned as per their requirements/ specifiCations.)

ix. Details of various schemes executed by the agency through grants-in-aid received from the same Ministry or from other Ministries is enclosed at Annexure - I (to be formulated by the Ministry/Department concerned as per their requirements/ specifications).

Name : Ganesh kumar tiwari

Designation : Clerk
Date :05-May-2026

Place : Anpara

Signed by : Anpara
Date : 05-05-2026
13:28:18