MONITORING, SAMPLING AND ANALYSIS FOR AMBIENT AIR QUALITY, SURFACE WATER QUALITY AND GROUND WATER QUALITY IN CRITICALLY/SEVERELY/OTHER POLLUTED AREAS

CHHATRAPATI SAMBHAJI NAGAR

Pre-Monsoon (April 2025 – June 2025)

MAHARASHTRA POLLUTION CONTROL BOARD

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

Index

ABBREVIATIONS

APHA	American Public Health Association
ASTM	American Society for Testing and Materials
BIS	Bureau of Indian Standards
BLQ	Below the Limit of Quantification
CAAQMS	Continuous Ambient Air Quality Monitoring Station
CEMS	Continuous Emission Monitoring System
CEPI	Comprehensive Environmental Pollution Index
CETP	Common Effluent Treatment Plant
CPA	Critically Polluted Area
CPCB	Central Pollution Control Board
EPA	Environmental Protection Act, 1986
GDP	Gross Domestic Product
MIDC	Maharashtra Industrial Development Corporation
MPCB	Maharashtra Pollution Control Board
NAAQS	National Ambient Air Quality Standard
NWMP	National Water Quality Monitoring Program
SPA	Severely Polluted Area
VOCs	Volatile Organic Compounds
WHO	World Health Organisation
ZLD	Zero Liquid Discharge

1. Executive Summary

Chhatrapati Sambhaji nagar CEPI area includes four Maharashtra Industrial development Corporations (MIDCs) namely, MIDC Shendra, MIDC Chikalthana, MIDC Waluj and MIDC Paithan were monitored for Ambient Air Quality, Ground and Surface Water quality. Based on the data collected by monitoring, a Comprehensive Environmental Pollution Index (CEPI) Score [as per latest directions 120 of Letter No. B-29012/ESS (CPA)/2015-16 dated 26th April 2016 of Central Pollution Control Board (CPCB)] was calculated. Maharashtra Pollution Control Board (MPCB) has carried out monitoring at CPCB locations with the additional locations of sampling for ambient air, surface and ground water in consideration with the previous CEPI monitoring and covering the entire CEPI Impact Zone. The Pre-monsoon monitoring was carried out during the period of April to June 2025 to assess the ambient air quality, surface water quality and ground water quality.

The Ambient Air Quality stations were identified considering the upwind and cross wind direction in the CEPI impact area. Ambient Air Quality was monitored at sixteen locations. The concentration of all ambient air parameters was found well within the limits prescribed by NAAQS. Twenty-four locations for surface water and twelve for ground water were monitored for the study. Concentration values of BOD, Total Phosphate (TP) and Total Kjeldahl Nitrogen (TKN) were found above the standard limits in few of the surface water samples. Land index is represented by groundwater in the CEPI. Most of the groundwater parameters were found to be within the permissible limits when compared with IS 10500:2012 drinking water standards.

Based on the study conducted by CPCB during the period January 2018, the CEPI score of Chhatrapati Sambhaji nagar region as per the revised guidelines of CEPI (2016) was 69.85 (Air Index–45, Water Index-65.38 and Land Index–28.75). However, the present study reports aggregated CEPI score of Chhatrapati Sambhaji nagar region of Pre-monsoon season (March 2025). Based on the study, the present CEPI score is 62.2 (Air Index–23.4, Water Index-58.9 and Land Index–34.0). The CEPI score is the combination of A, B, C and D factors. Here, C factor represents the health data and D factor represents the initiatives taken by MPCB in the past few years to mitigate the pollution. The regional office of MPCB has taken various initiatives like installation of CAAQMS, CETPs, online VOC analysers etc. in the past few years to control and mitigate the air and water pollutants. This has contributed to the factor D, hence reducing the CEPI score of the region over the years.

The analysis of the aggregated CEPI score shows that the pollution in Chhatrapati Sambhaji nagar industrial clusters has reduced in the last three years. In conclusion, a notable decrease in CEPI score is observed from 69.85 in 2018 to 62.2 in 2025.

2. Introduction

The industrial sector remains a cornerstone of national economic development, playing a vital role in enhancing production, attracting fixed investments, boosting exports, generating employment, and improving capacity utilization. As engines of economic progress, industries significantly contribute to government revenue, international trade, social infrastructure, and job creation. The growth trajectory of this sector has a direct bearing on a nation's overall economic performance. India, as per the World GDP Ranking 2024, has emerged as the fifth-largest economy globally. Sustainable Development Goals (SDGs) such as Goal 8 (Decent Work and Economic Growth) and Goal 9 (Industry, Innovation, and Infrastructure) underscore the importance of industrial growth in advancing sustainable development.

However, alongside these economic advantages, industrial activities exert a considerable negative impact on the environment. Industrial discharge of untreated wastewater pollutes vital water resources, compromising drinking water quality and endangering human, animal, and aquatic health. Air emissions from factories contribute to severe air pollution, which is linked to respiratory and cardiovascular diseases. Children are particularly vulnerable, with rising cases of infant mortality and chronic illnesses in adulthood. According to the World Health Organization (WHO), environmental pollution causes approximately 9 million premature deaths annually, with over 90% of the global population exposed to air pollution levels that exceed WHO guidelines. Additionally, nearly 2 billion people rely on drinking water contaminated with faecal matter, resulting in the spread of infectious diseases such as cholera and dysentery.

The ecological toll is equally severe. Industrial pollution leads to habitat degradation, biodiversity loss, and the disruption of natural ecosystems. Exposure to toxic pollutants can cause genetic damage, reproductive issues, and behavioural changes in wildlife, pushing many species toward extinction. Vegetation affected by polluted air and water often shows stunted growth, reduced photosynthetic activity, and heightened vulnerability to disease—consequences that jeopardize food security and ecosystem resilience.

Addressing these environmental challenges requires the implementation of robust and adaptive environmental policies. These policies should establish clear regulations for industries, supported by strong enforcement mechanisms through governmental oversight. Critical measures include real-time pollution monitoring, strict penalties for non-compliance, and mandatory environmental impact assessments (EIA) for proposed projects. Biodiversity conservation strategies must be integrated into industrial planning to safeguard natural habitats. Furthermore, continuous policy evaluation, international cooperation, adoption of cutting-edge monitoring technologies, and a collective commitment to sustainable industrial practices are essential to preserve environmental integrity and ensure long-term sustainability.

Simultaneously, the Comprehensive Environmental Pollution Index (CEPI) has emerged as a beacon of assessment and action in India's environmental landscape. Introduced as a standardized methodology for evaluating and addressing pollution in industrial clusters across the nation, the CEPI represents a significant step towards achieving the delicate balance between economic growth and environmental sustainability. Developed through collaborative efforts between environmental scientists, regulatory authorities, and community stakeholders, the CEPI serves as a vital instrument for identifying, prioritizing, and mitigating pollution in industrial areas. By systematically monitoring, sampling, and analysing pollution parameters such as ambient air quality, surface water quality, and groundwater quality, the CEPI empowers policymakers and regulators to make informed decisions and allocate resources effectively.

In Maharashtra, where industrial activities drive economic growth and employment opportunities, the importance of the CEPI cannot be overstated. Through strategic monitoring, sampling, and analysis efforts, the CEPI aims to provide a comprehensive assessment of pollution levels and their impacts on environmental health in critically, severely, and other polluted industrial areas across the state.

Moreover, the application of the CEPI extends beyond mere assessment, serving as a catalyst for targeted interventions and regulatory enforcement in polluted industrial areas. By identifying pollution hotspots and vulnerable communities, the CEPI enables authorities to implement remedial measures, enforce pollution control norms, and monitor progress towards environmental sustainability.

Environmental pollution in industrial areas is a growing concern, requiring systematic assessment and intervention. This report examines the findings of the Comprehensive Environmental Pollution Index (CEPI) assessment and the Monitoring, Sampling, and Analysis of Ambient Air Quality, Surface Water Quality, and Groundwater Quality in the polluted industrial areas of Chembur (Mumbai) and Chhatrapati Sambhaji nagar (Maharashtra).

The CEPI study for Chhatrapati Sambhaji Nagar holds particular significance due to the city's historical and geographical importance. Located on the ancient Silk Route and serving as the Divisional Headquarters of the Marathwada Region, Chhatrapati Sambhaji Nagar represents the broader landscape and climatic conditions of Marathwada. The city is situated along the Kham River**,** a tributary of the Godavari River, and is surrounded by the Vindhya hill ranges. Chhatrapati Sambhaji nagar hosts four Maharashtra Industrial Development Corporation (MIDC) zones, with a substantial presence of industries across various sectors. These include 1045 red-category industries, 596 orange-category industries, and 3058 green-category industries, engaged in manufacturing chemicals, dyes, pharmaceuticals, textiles, pesticides, petrochemicals, iron and steel, and engineering products. In addition to industrial emissions, pollution in the region is also influenced by transportation and construction activities.

This report follows the revised CEPI version of 2016, which evaluates the environmental quality of an area based on air, water, and land pollution. The CEPI framework employs a structured methodology

using source, pathway, and receptor analysis to quantify pollution levels. The insights derived from the CEPI assessment serve as a crucial tool for regulatory enforcement, pollution mitigation strategies, and community awareness programs. Despite the environmental challenges, ongoing initiatives under the CEPI action plan provide a structured approach toward pollution control and sustainable development. The findings presented in this report aim to support data-driven interventions that will help improve environmental quality and safeguard public health in Chhatrapati Sambhaji Nagar and Chembur.

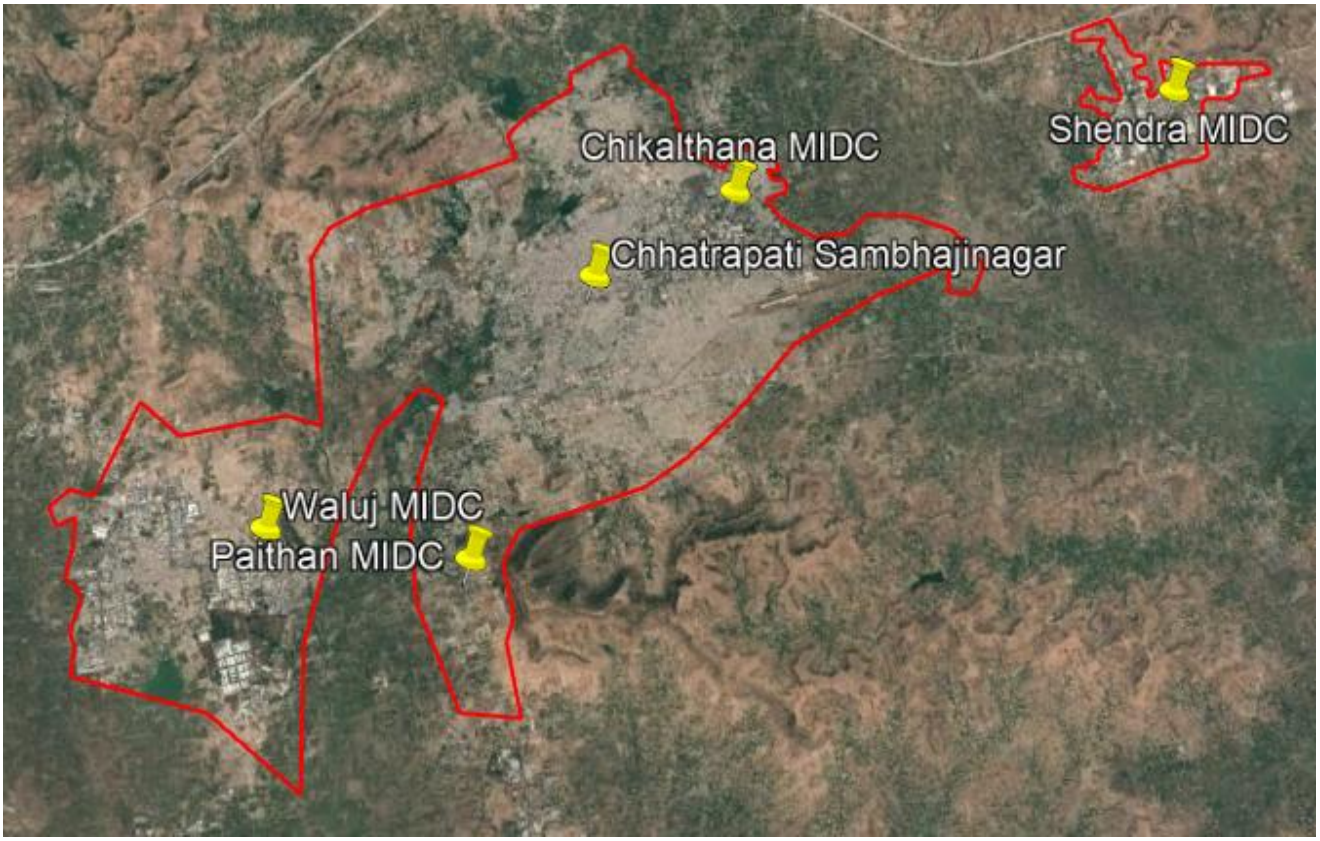


Fig: Chhatrapati Sambhajinagar region CEPI monitoring zone

3. Scope of Work

The major scope of work includes:

I. The scope of the present study is to perform three (3) rounds of "Monitoring, Sampling and Analysis for Ambient Air Quality, VOCs in Ambient Air, Surface Water Quality & Ground Water Quality in the selected Pollution Industrial Areas (PIAs) of Chhatrapati Sambhaji Nagar, Maharashtra" with a gap of one or two days. The analysis of the collected samples was carried out by the standard methods (CPCB, BIS, APHA, USEPA).

II. To Collect health-related data in the CEPI region.

III. To calculate the Comprehensive Environmental Pollution Index (CEPI) Score as per Revised CEPI-2016 issued by Central Pollution Control Board (CPCB).

The sampling details and frequency of sampling in Ambient Air, VOCs, Surface Water and Ground Water are given in Table 3.1 and Table 3.2 respectively.

Table 3.1 Sampling Details of Chhatrapati Sambhaji nagar

Sampling Criteria	Number of sites	Total Sites	Monitoring Parameters
Ambient Air Quality	MIDC Shendra-04 MIDC Chikalthana -04 MIDC Waluj - 04 MIDC Paithan Road - 04	**16**	PM_{10}, $PM_{2.5}$, SO_2, NO_2, NH_3, O_3, C_6H_6, CO, BAP, Pb, Ni, As
Volatile Organic Compounds (VOCs)	MIDC Shendra-02 MIDC Chikalthana -02 MIDC Waluj - 02 MIDC Paithan Road - 02	**08**	Dichloromethane, Chloroform, Carbon Tetrachloride, Trichloroethylene, Bromodichloromethane, 1,3-Dichloropropane, 1,4-Dichlorobenzene, 1,3-Dichlorobenzene, 1,2-Dichlorobenzene, 1,2-Dibromo-3-Chloropropane, Naphthalene, Bromobenzene,1,2,4-Trimethylbenzene,2-Chlorotoluene, Tert-Butylbenzene, SEC-Butylbenzene, P-Isopropyl toluene, M-Xylene, P-Xylene, Styrene, Cumene 1,2,3-Trichloropropane,N-Propylbenzene, Dibromochloromethane, 1,2-Dibromoethane, Chlorobenzene, 1,1,1,2-Tetrachloroethane, Ethylbenzene, 1,1-Dichloropropylene, 1,2-Dichloroethane, 1,2-Dichloropropane, Trans-1,3-Dichloropropene, CIS 1,3-Dichloropropene, 1,1,2-Trichloroethane, Tetrachloroethylene, 1,3,5-Trimethylbenzene, N-Butylbenzene,1,2,3-

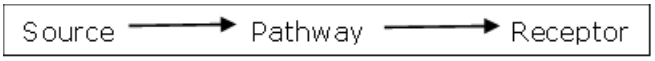
Sampling Criteria	Number of sites	Total Sites	Monitoring Parameters
			Trichlorobenzene, Hexachlorobutadiene, 1,2,4-Trichlorobenzene, 2,2-Dichloropropane, Dibromoethane, Toluene, O-Xylene, Bromoform, 1,1,2,2-Tetrachloroethane, 4-Chlorotoluene, 1,1-Dichloroethylene, Trans-1,2-Dichloroethylene, 1,1-Dichloroethane, CIS-1,2-Dichloroethylene, Bromochloromethane, 1,1,1-Trichloroethane, Dichloromethane
Water Quality Monitoring	**Surface water** MIDC Shendra-06 MIDC Chikalthana -06 MIDC Waluj - 06 MIDC Paithan Road - 06	**24**	**(i) Simple Parameters** Sanitary Survey, General Appearance, Colour, Smell, Transparency and Ecological **(ii) Regular Monitoring Parameters** pH, O & G, Suspended Solids, DO, COD, BOD, TDS, Electrical Conductivity, Total Dissolved Solids, Nitrite–Nitrogen, Nitrate-Nitrogen, (NO_2+NO_3) total nitrogen, Free Ammonia, Total Residual Chlorine, Cyanide, Fluoride, Chloride, Sulphate, Sulphides, Total Hardness, Dissolved Phosphates, SAR, Total Coliforms, Faecal Coliform **(iii) Special Parameters** Total Phosphorous, TKN, Total Ammonia (NH_4+NH_3)-Nitrogen, Phenols, Surface Active Agents, Anionic detergents, Organo-Chlorine Pesticides, PAH, PCB, Zinc, Nickel, Copper, Hexa-valent Chromium, Chromium (Total), Arsenic (Total), Lead, Cadmium, Mercury, Manganese, Iron, Vanadium, Selenium, Boron **(iv) Bio-assay (zebra Fish)** Test – For specified samples only.
	Ground water MIDC Shendra-03 MIDC Chikalthana -03 MIDC Waluj - 03 MIDC Paithan Road - 03	**12**	

Table 3.2 Frequency of Sampling

	Parameter	Round of Sampling	Frequency in Each Round
A	**Ambient Air Quality Monitoring**		
1.	Particulate Matter (size less than 10 µm) or PM_{10}	03	3 Shifts of 8 hrs each
2.	Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$	03	1 Shift of 24 hrs
3.	Sulphur Dioxide (SO_2)	03	6 Shifts of 4 hrs each
4.	Nitrogen Dioxide (NO_2)	03	6 Shifts of 4 hrs each
5.	Ammonia (NH_3)	03	6 Shifts of 4 hrs each
6.	Ozone (O_3)	03	24 Shifts of 1 hr each
7.	Benzene (C_6H_6)	03	1 Shifts of 24 hrs
8.	Carbon Monoxide (CO)	03	24 Shifts of 1 hr each
9.	Benzo (a) Pyrene (BaP) – particulate phase only	03	3 Shifts of 8 hrs each
10.	Lead (Pb)	03	3 Shifts of 8 hrs each
11.	Arsenic (As)	03	3 Shifts of 8 hrs each
12.	Nickel (Ni)	03	3 Shifts of 8 hrs each
B	**Volatile Organic Compounds (VOCs)**		
	As mentioned in Table 3.1	03	3 Shifts of 24 hrs each
C	**Ground Water**		
	As mentioned in Table 3.1	03	01 sample at each round
D	**Surface Water**		
	As mentioned in Table 3.1	03	01 sample at each round

4. Methodology

The present report is based on the revised Comprehensive Environmental Pollution Index (CEPI) version 2016. The index captures the various dimensions of the environment including air, water and land. Comprehensive Environmental Pollution Index (CEPI) is a rational number, which is used to characterize the environmental quality at a given location. It is three-step process based on the algorithm of Source, pathway and Receptor.



Ambient air stations, Surface water locations and Ground water locations were decided by the respective regional officers. The sampling was done in 3 rounds with an interval of one or two days at each location. Sampling has been done at the potential polluted areas so as to arrive at the CEPI. This will further help the authorities to monitor the areas in order to improve the current status of their environmental components such as air and water quality data, ecological damage and visual environmental conditions.

Methodology for sampling, preservation and analysis have been done according to the CPCB/ EPA/ APHA/ IS/ ASTM standard methods for the samples.

AIR ENVIRONMENT

5. Air Environment

For studying the Air Environment of Chhatrapati Sambhaji nagar area, monitoring stations were identified considering the upwind and cross wind direction and all 12 parameters as per the notification of National Ambient Air Quality Standards (NAAQS) were carried out.

**Kindly note: Volatile Organic Compounds (VOCs) concentration is not detected in most of the Air samples collected; hence it is not shown in the graphs here.*

1. **MIDC Shendra:** In MIDC Shendra, four locations have been monitored to check the Ambient Air Quality (AAQ) in triplicate from 12th May to 16th May 2025. All the 12 AAQ parameters were monitored as per National Ambient Air Quality Standards (NAAQS, 2009). Results of analysis show that the concentration of most the parameters at all studied locations is observed well within the limits. VOCs were monitored at 2 locations namely Radico NV Distillery and Glenmark Pharmaceuticals Ltd.

Table 5.1 MIDC Shendra - Details of Sampling Location of Ambient Air Quality Monitoring

S. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Skoda Auto	19.872399N	75.489716E	12.05.2025	14.05.2025	16.05.2025
2.	Outside of Radico NV Distillery	19.883445N	75.50208E	12.05.2025	14.05.2025	16.05.2025
3.	Outside of Glenmark Pharmaceuticals Ltd.	19.872569N	75.502669E	12.05.2025	14.05.2025	16.05.2025
4.	Outside of Wockhardt Biotech Ltd.	19.873337N	75.491827E	12.05.2025	14.05.2025	16.05.2025

Table 5.2 MIDC Shendra - Details of Sampling Location of VOCs Monitoring

S.No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Outside of Radico NV Distillery	19.883445N	75.50208E	12.05.2025	14.05.2025	16.05.2025
2.	Outside of Glenmark Pharmaceuticals Ltd.	19.872569N	75.502669E	12.05.2025	14.05.2025	16.05.2025

Fig: Geographical Locations of Ambient Air Quality Monitoring MIDC Shendra

Fig: Geographical Locations of VOCs Monitoring MIDC Shendra

Table 5.3 MIDC Shendra - Ambient Air Quality Monitoring Results

Parameters	Unit	Results			
		Skoda Auto	Outside of Radico NV Distillery	Outside of Glenmark Pharmaceuticals Ltd.	Outside of Wockhardt Biotech Ltd.
Sulphur Dioxide (SO_2)	µg/m^3	BLQ	BLQ	BLQ	BLQ
Nitrogen Dioxide (NO_2)	µg/m^3	42	38	42	34
Particulate Matter (size less than 10 µm) or PM_{10}	µg/m^3	49	52	44	49
Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$	µg/m^3	13	14	13	13
Ozone (O_3)	µg/m^3	33	23	28	34
Lead (Pb)	µg/m^3	BLQ	BLQ	BLQ	BLQ
Carbon Monoxide (1 h)	mg/m^3	1.3	1.2	1.3	1.5
Carbon Monoxide (8 h)	mg/m^3	1.5	1.6	1.6	1.8
Ammonia (NH_3)	µg/m^3	28	34	26	26
Benzene (C_6H_6)	µg/m^3	1.8	1.7	1.6	1.8
Benzo (a) Pyrene (BaP) – particulate phase only	ng/m^3	BLQ	BLQ	BLQ	BLQ
Arsenic (As)	ng/m^3	BLQ	BLQ	BLQ	0.40
Nickel (Ni)	ng/m^3	BLQ	BLQ	BLQ	BLQ

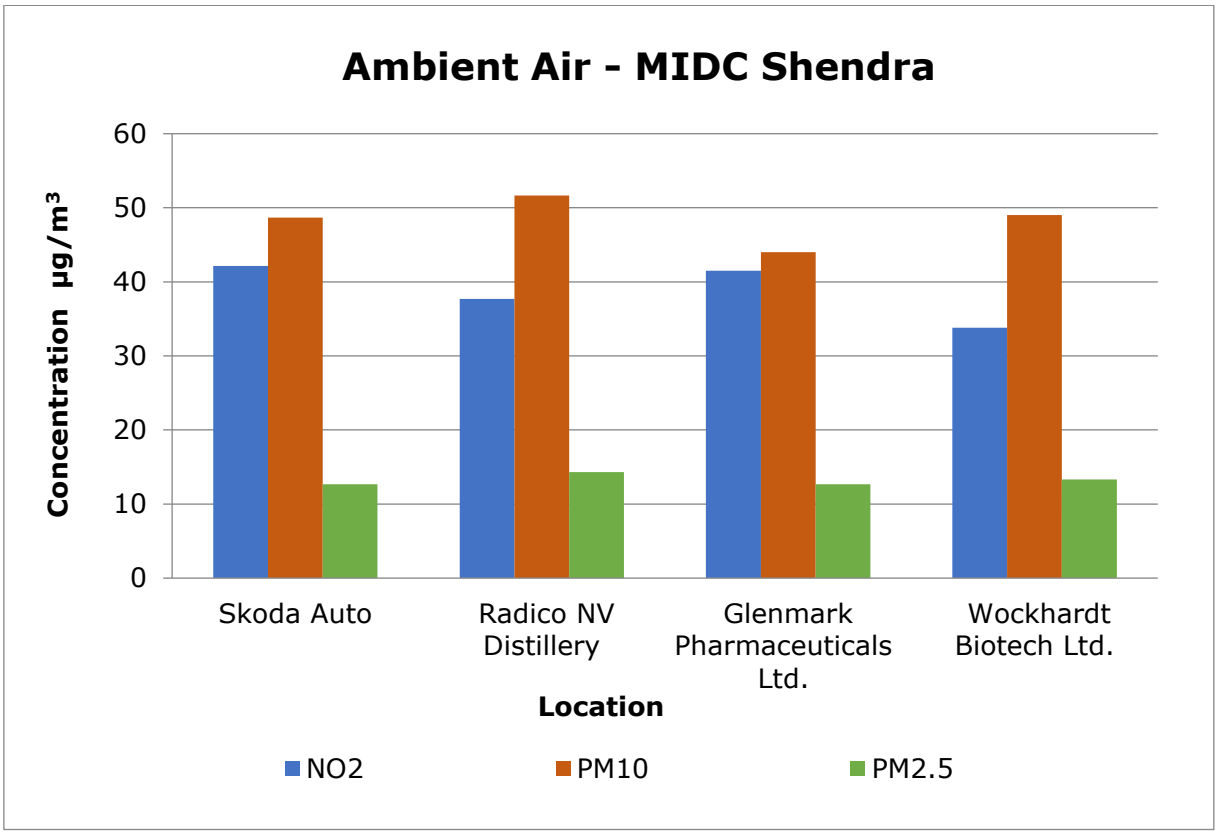
Table 5.4 MIDC Shendra - Volatile Organic Compounds (VOCs) in Ambient Air Results

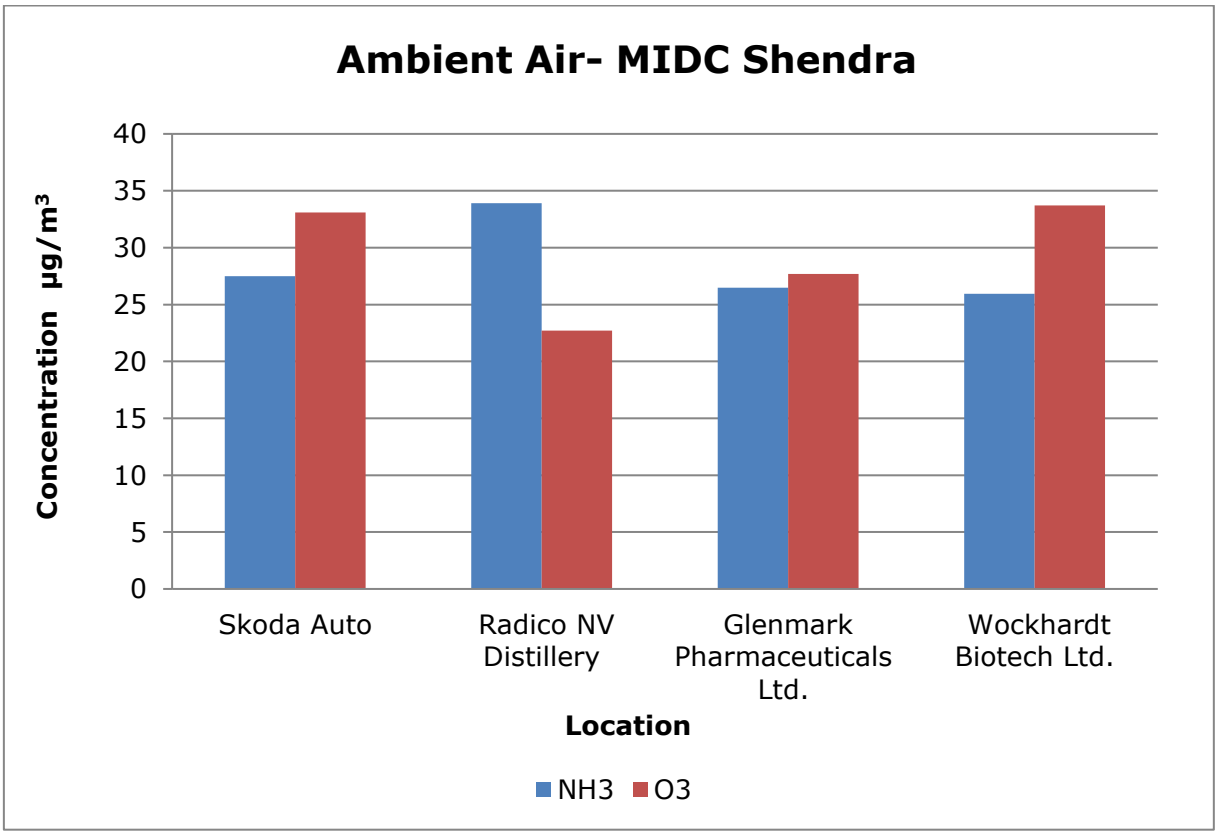
Parameters	Unit	Results	
		Outside of Radico NV Distillery	Outside of Glenmark Pharmaceuticals Ltd.
Dichloromethane	µg/m³	BLQ	BLQ
Chloroform	µg/m³	BLQ	BLQ
Carbon Tetrachloride	µg/m³	BLQ	BLQ
Trichloroethylene	µg/m³	BLQ	BLQ
Bromodichloromethane	µg/m³	BLQ	BLQ
1,3-Dichloropropane	µg/m³	BLQ	BLQ
1,4-Dichlorobenzene	µg/m³	BLQ	BLQ
1,3-Dichlorobenzene	µg/m³	BLQ	BLQ
1,2-Dichlorobenzene	µg/m³	BLQ	BLQ
1,2-Dibromo-3-Chloropropane	µg/m³	BLQ	BLQ
Naphthalene	µg/m³	BLQ	BLQ
Bromobenzene	µg/m³	BLQ	0.78
1,2,4-Trimethylbenzene	µg/m³	BLQ	BLQ

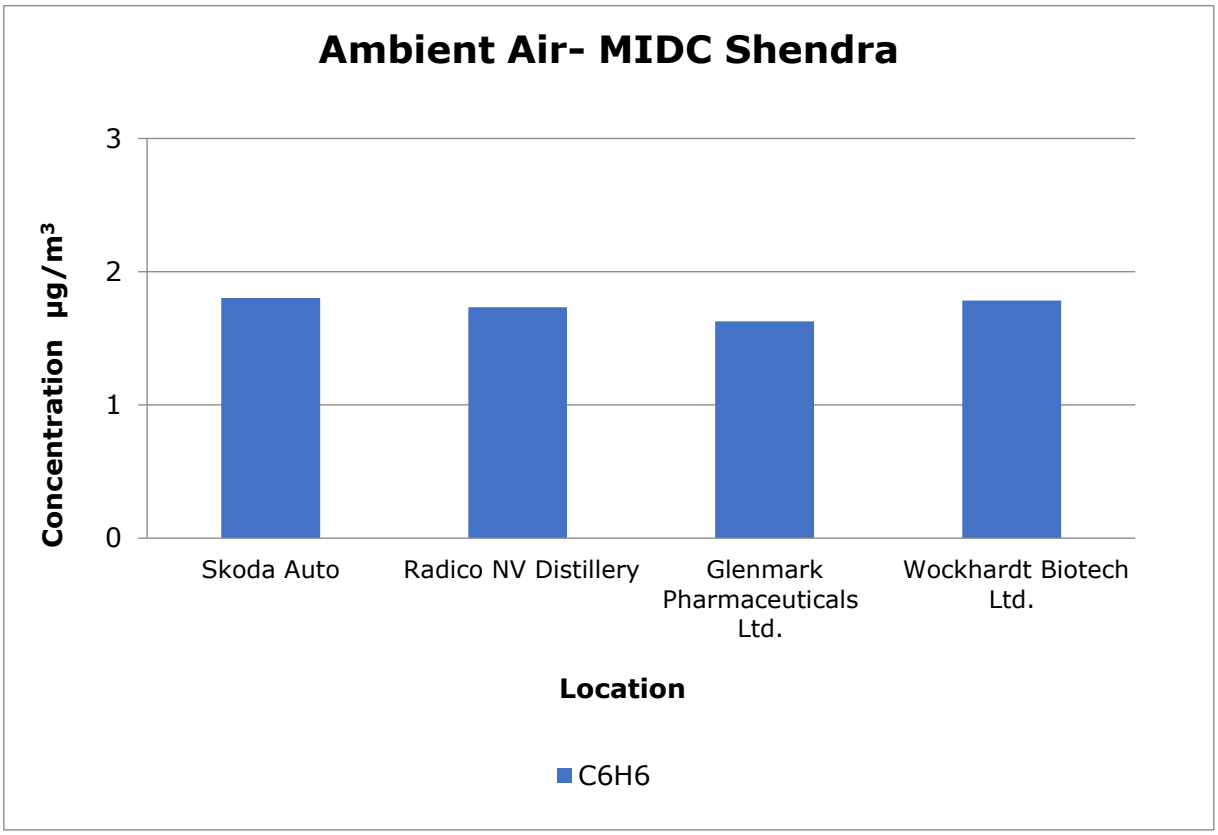
Parameters	Unit	Results	
		Outside of Radico NV Distillery	Outside of Glenmark Pharmaceuticals Ltd.
2-Chlorotoluene	µg/m³	BLQ	BLQ
Tert-Butylbenzene	µg/m³	BLQ	BLQ
SEC-Butylbenzene	µg/m³	BLQ	BLQ
P-Isopropyl toluene	µg/m³	BLQ	BLQ
M-Xylene	µg/m³	BLQ	BLQ
P-Xylene	µg/m³	0.58	BLQ
Styrene	µg/m³	BLQ	3.45
Cumene	µg/m³	BLQ	BLQ
1,2,3-Trichloropropane	µg/m³	BLQ	BLQ
N-Propyl benzene	µg/m³	BLQ	BLQ
Dibromochloromethane	µg/m³	BLQ	BLQ
1,2-Dibromoethane	µg/m³	BLQ	BLQ
Chlorobenzene	µg/m³	BLQ	BLQ
1,1,1,2-Tetrachloroethane	µg/m³	BLQ	BLQ
Ethylbenzene	µg/m³	BLQ	BLQ
1,1-Dichloropropylene	µg/m³	BLQ	BLQ
1,2-Dichloroethane	µg/m³	BLQ	BLQ
1,2-Dichloropropane	µg/m³	BLQ	BLQ
Trans-1,3-Dichloropropene	µg/m³	BLQ	BLQ
CIS 1,3-Dichloropropene	µg/m³	BLQ	BLQ
1,1,2-Trichloroethane	µg/m³	BLQ	BLQ
Tetrachloroethylene	µg/m³	BLQ	BLQ
1,3,5-Trimethylbenzene	µg/m³	BLQ	BLQ
N-Butylbenzene	µg/m³	BLQ	BLQ
1,2,3-Trichlorobenzene	µg/m³	BLQ	BLQ
Hexachlorobutadiene	µg/m³	BLQ	BLQ
1,2,4-Trichlorobenzene	µg/m³	BLQ	BLQ
2,2-Dichloropropane	µg/m³	BLQ	BLQ
Dibromomethane	µg/m³	BLQ	BLQ
Toluene	µg/m³	0.95	0.93

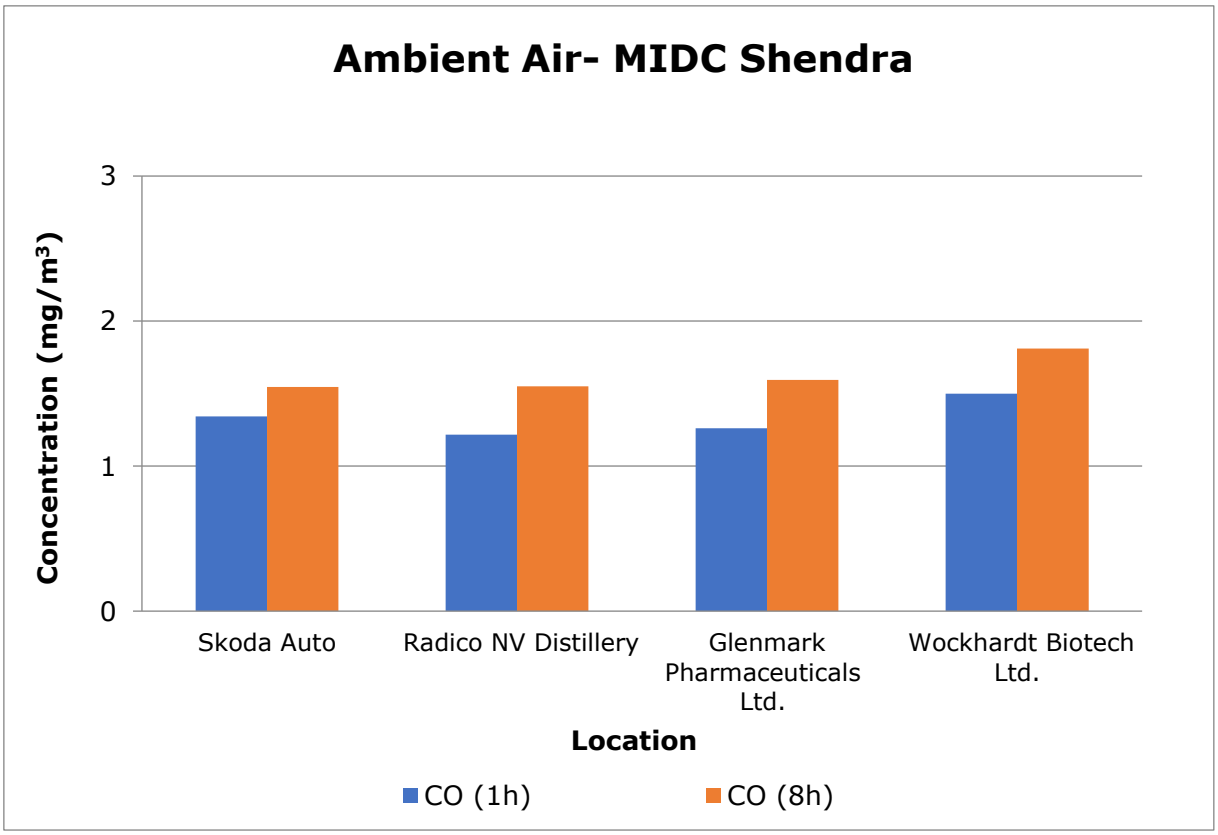
Parameters	Unit	Results	
		Outside of Radico NV Distillery	Outside of Glenmark Pharmaceuticals Ltd.
O-Xylene	µg/m³	BLQ	BLQ
Bromoform	µg/m³	BLQ	BLQ
1,1,2,2-Tetrachloroethane	µg/m³	BLQ	BLQ
4-Chlorotoluene	µg/m³	BLQ	BLQ
1,1-Dichloroethylene	µg/m³	BLQ	BLQ
Trans-1,2-Dichloroethylene	µg/m³	BLQ	BLQ
1,1-Dichloroethane	µg/m³	BLQ	BLQ
CIS-1,2-Dichloroethylene	µg/m³	BLQ	BLQ
Bromochloromethane	µg/m³	BLQ	BLQ
1,1,1-Trichloroethane	µg/m³	BLQ	BLQ
Dichloromethane	µg/m³	BLQ	BLQ

Graphs - Ambient Air Quality Monitoring - MIDC Shendra






Ambient Air- MIDC Shendra
Concentration µg/m³
3
2
1
0
Skoda Auto
Radico NV Distillery
Glenmark Pharmaceuticals Ltd.
Wockhardt Biotech Ltd.
Location
C6H6


Ambient Air- MIDC Shendra
Concentration (mg/m³)
3
2
1
0
Skoda Auto
Radico NV Distillery
Glenmark Pharmaceuticals Ltd.
Wockhardt Biotech Ltd.
Location
CO (1h)
CO (8h)

2. MIDC Chikalthana: In MIDC Chikalthana, 4 locations were monitored from 13th May to 17th May 2025 to check the Ambient Air Quality (AAQ) as per the NAAQS, 2009. Concentration of all the parameters at all studied locations is observed well within the limits.

Table 5.5 MIDC Chikalthana - Details of Sampling Location of Ambient Air Quality Monitoring

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Wockhardt Biotech Ltd. (R&D)	19.87897N	75.375939E	13.05.2025	15.05.2025	17.05.2025
2.	Harman Finochem Ltd.	19.878049N	75.383274E	13.05.2025	15.05.2025	17.05.2025
3.	ABD Distillery	19.87303N	75.388615E	13.05.2025	15.05.2025	17.05.2025
4.	Jolly Board Ltd.	19.895644N	75.378374E	13.05.2025	15.05.2025	17.05.2025

Table 5.6 MIDC Chikalthana - Details of Sampling Location of VOCs Monitoring

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
5.	Concept Pharma	19.875211N	75.376632E	13.05.2025	15.05.2025	17.05.2025
6.	ABD Distillery	19.87303N	75.388615E	13.05.2025	15.05.2025	17.05.2025

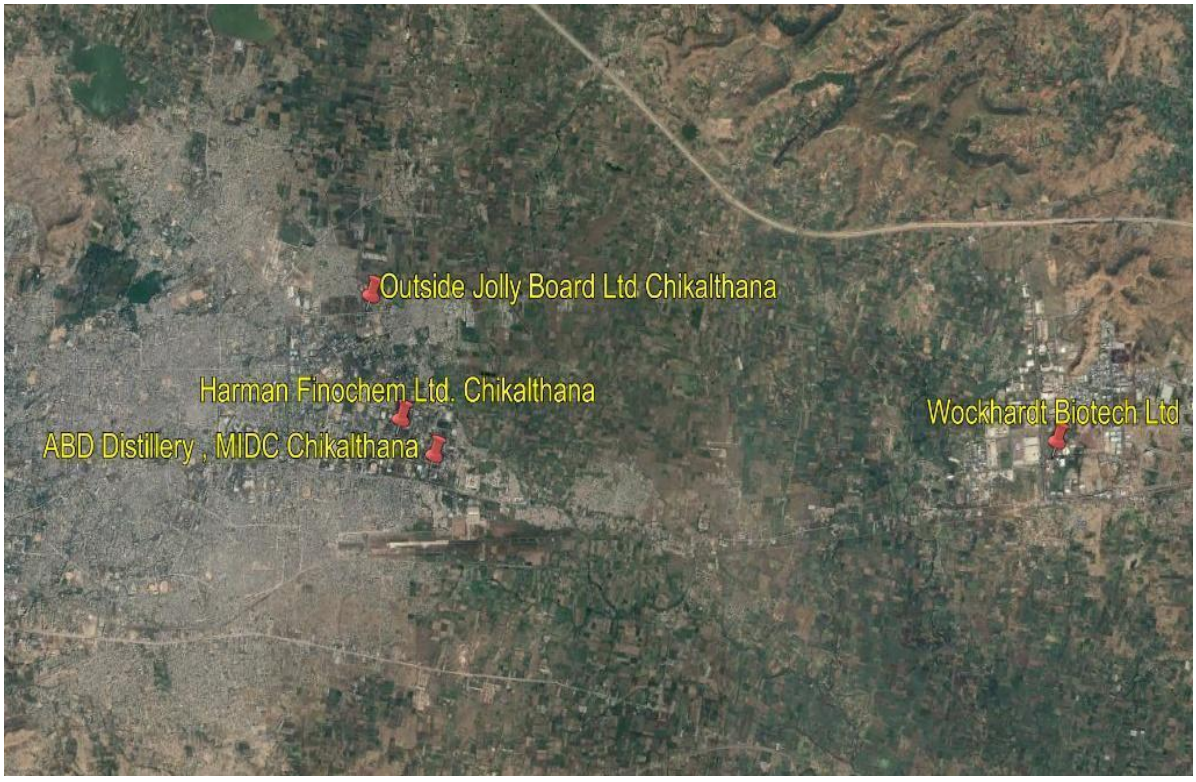


Fig: Geographical Locations of Ambient Air Quality Monitoring MIDC Chikalthana

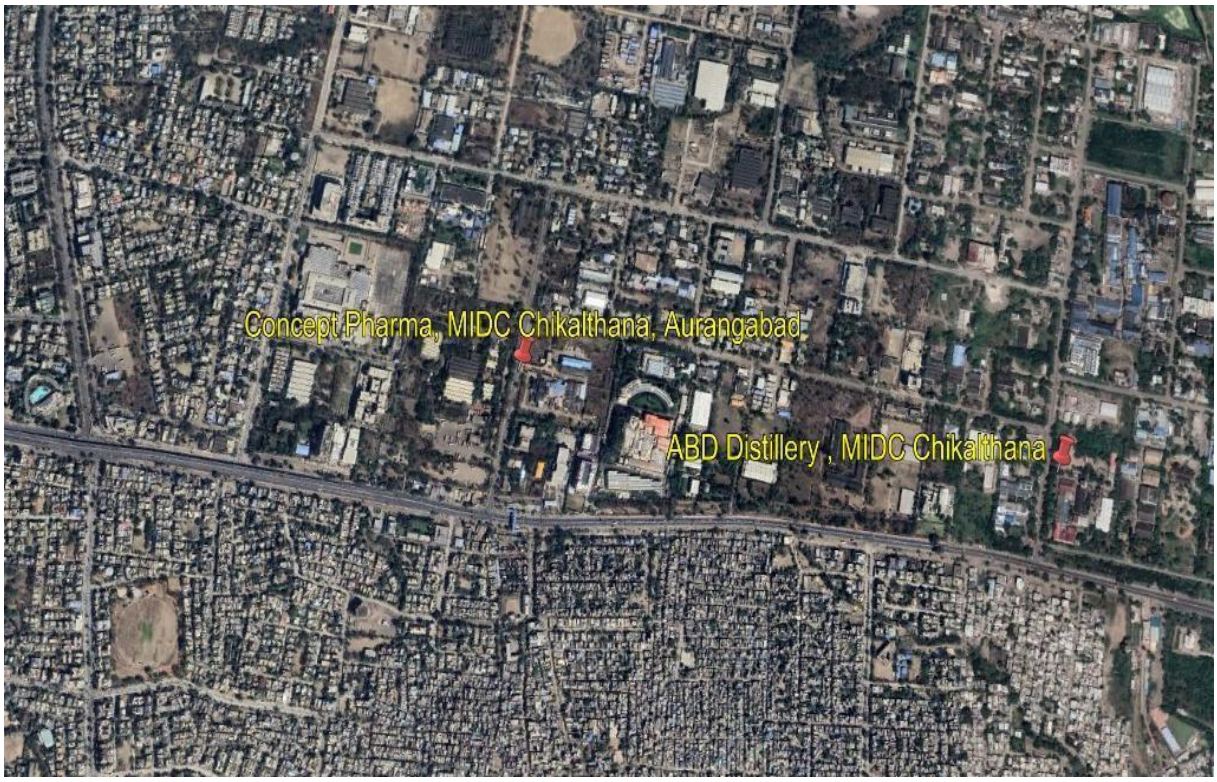


Fig: Geographical Locations of VOCs Monitoring MIDC Chikalthana

Table 5.7 MIDC Chikalthana - Ambient Air Quality Monitoring Results

Parameters	Unit	Results			
		Wockhardt Biotech Research Division (R& D)	ABD Distillery , MIDC Chikalthana	Outside Jolly Board Ltd Chikalthana	Outside Harman Finochem Ltd, MIDC Chikalthana
Sulphur Dioxide (SO_2)	µg/m^3	BLQ	BLQ	BLQ	BLQ
Nitrogen Dioxide (NO_2)	µg/m^3	40	33	31	31
Particulate Matter (size less than 10 µm) or PM_{10}	µg/m^3	58	55	49	52
Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$	µg/m^3	16	15	13	14
Ozone (O_3)	µg/m^3	21	30	28	21
Lead (Pb)	µg/m^3	BLQ	BLQ	BLQ	BLQ
Carbon Monoxide (CO) (1h)	mg/m^3	1.4	1.3	1.2	1.4
Carbon Monoxide (CO) (8h)	mg/m^3	1.6	1.6	1.5	1.6
Ammonia (NH_3)	µg/m^3	24	27	24	30
Benzene (C_6H_6)	µg/m^3	1.7	1.7	1.8	1.6
Benzo (a) Pyrene (BaP) – particulate phase only	ng/m^3	BLQ	BLQ	BLQ	BLQ
Arsenic (As)	ng/m^3	0.32	BLQ	0.42	BLQ
Nickel (Ni)	ng/m^3	BLQ	BLQ	3.11	3.33

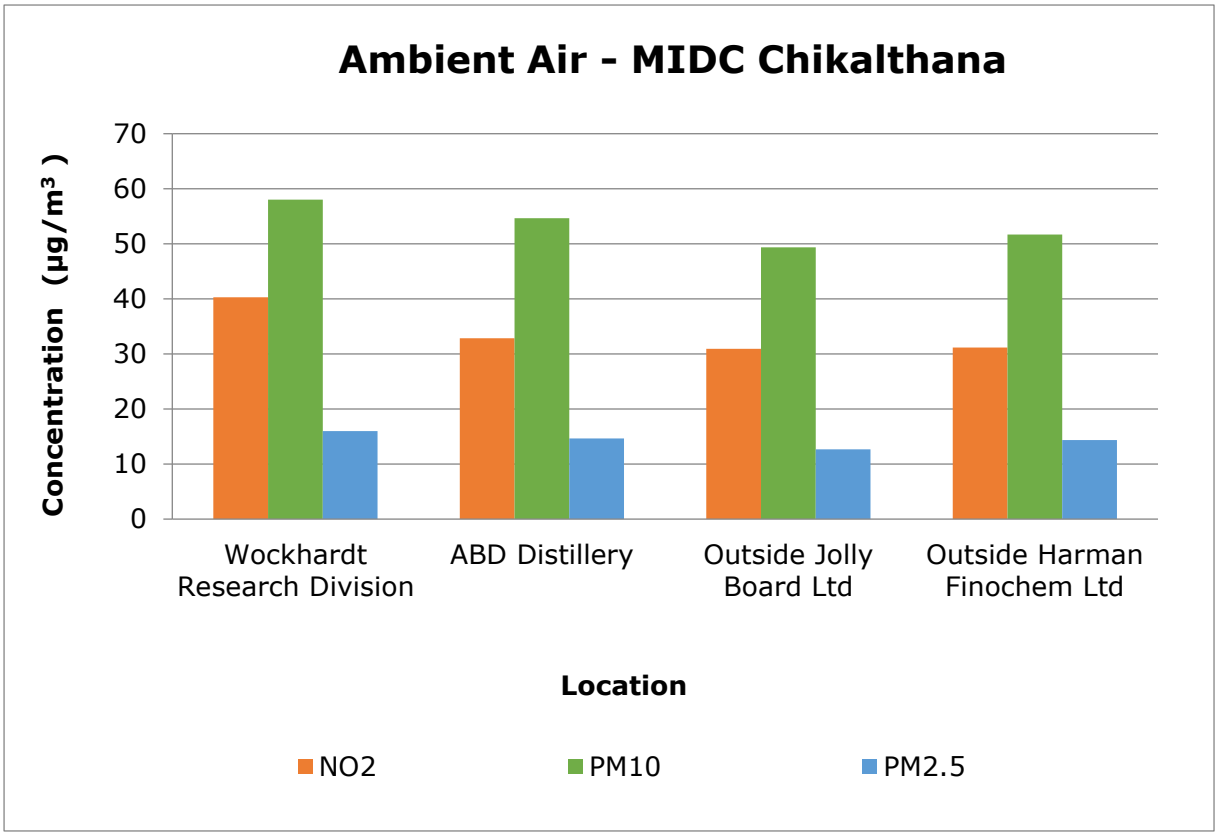
Table 5.8 MIDC Chikalthana - Volatile Organic Compounds (VOCs) in Ambient Air Results

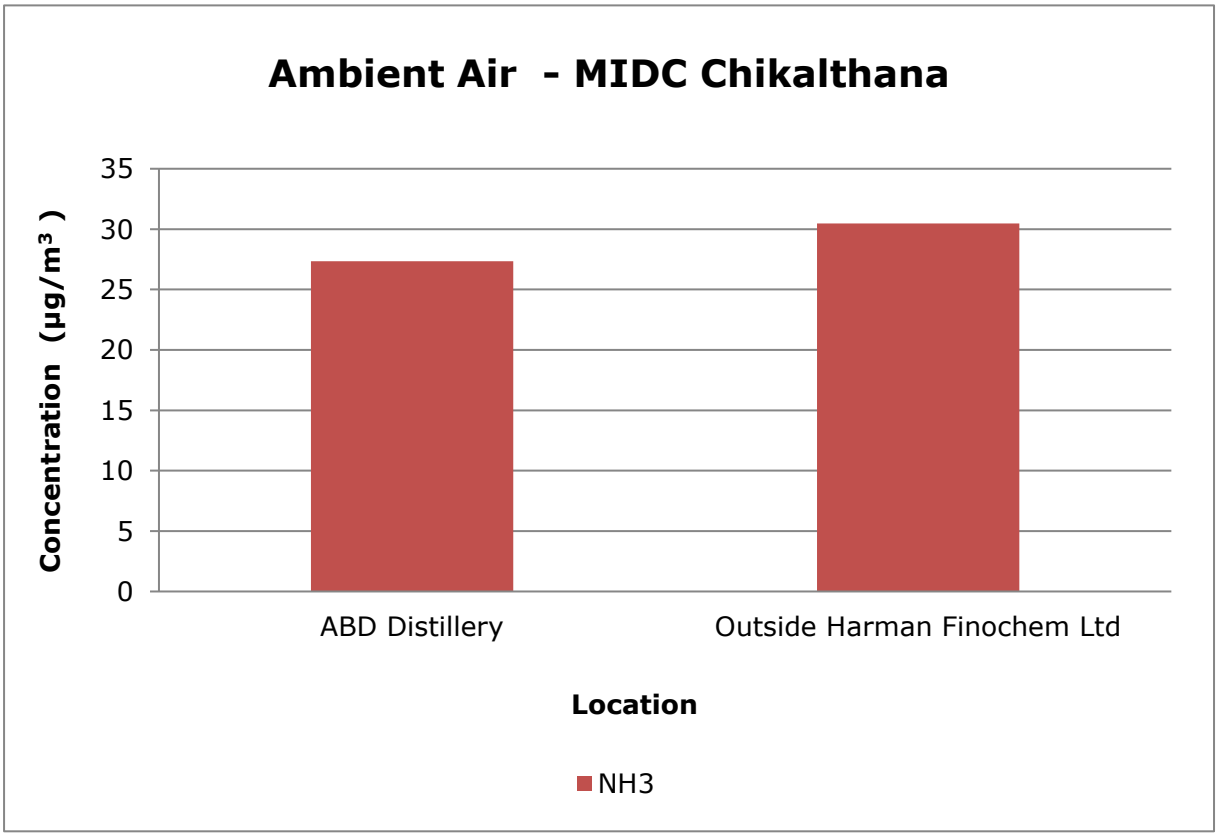
Parameters	Unit	Results	
		ABD Distillery	Outside Concept Pharma
Dichloromethane	µg/m³	BLQ	BLQ
Chloroform	µg/m³	BLQ	BLQ
Carbon Tetrachloride	µg/m³	BLQ	BLQ
Trichloroethylene	µg/m³	BLQ	BLQ
Bromodichloromethane	µg/m³	BLQ	BLQ
1,3-Dichloropropane	µg/m³	BLQ	BLQ
1,4-Dichlorobenzene	µg/m³	BLQ	BLQ
1,3-Dichlorobenzene	µg/m³	BLQ	0.70
1,2-Dichlorobenzene	µg/m³	BLQ	BLQ
1,2-Dibromo-3-Chloropropane	µg/m³	BLQ	BLQ
Naphthalene	µg/m³	BLQ	BLQ

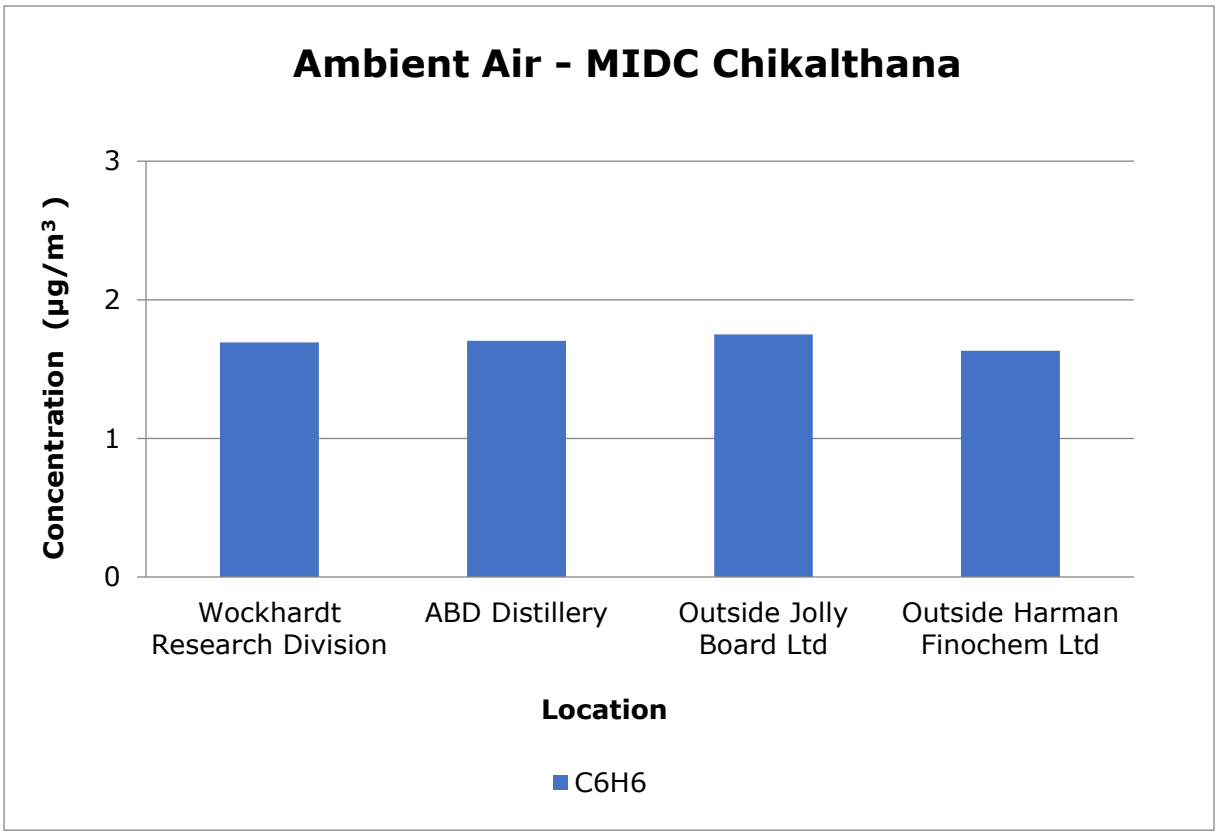
Parameters	Unit	Results	
		ABD Distillery	Outside Concept Pharma
Bromobenzene	µg/m³	0.74	2.46
1,2,4-Trimethylbenzene	µg/m³	BLQ	BLQ
2-Chlorotoluene	µg/m³	BLQ	BLQ
Tert-Butylbenzene	µg/m³	BLQ	BLQ
SEC-Butylbenzene	µg/m³	BLQ	BLQ
P-Isopropyl toluene	µg/m³	BLQ	BLQ
M-Xylene	µg/m³	BLQ	BLQ
P-Xylene	µg/m³	0.54	BLQ
Styrene	µg/m³	0.87	BLQ
Cumene	µg/m³	BLQ	BLQ
1,2,3-Trichloropropane	µg/m³	BLQ	BLQ
N-Propyl benzene	µg/m³	BLQ	BLQ
Dibromochloromethane	µg/m³	BLQ	BLQ
1,2-Dibromoethane	µg/m³	BLQ	BLQ
Chlorobenzene	µg/m³	BLQ	BLQ
1,1,1,2-Tetrachloroethane	µg/m³	BLQ	BLQ
Ethylbenzene	µg/m³	BLQ	BLQ
1,1-Dichloropropylene	µg/m³	BLQ	BLQ
1,2-Dichloroethane	µg/m³	BLQ	BLQ
1,2-Dichloropropane	µg/m³	BLQ	BLQ
Trans-1,3-Dichloropropene	µg/m³	BLQ	BLQ
CIS 1,3-Dichloropropene	µg/m³	BLQ	BLQ
1,1,2-Trichloroethane	µg/m³	BLQ	BLQ
Tetrachloroethylene	µg/m³	BLQ	BLQ
1,3,5-Trimethylbenzene	µg/m³	BLQ	BLQ
N-Butylbenzene	µg/m³	BLQ	BLQ
1,2,3-Trichlorobenzene	µg/m³	BLQ	BLQ
Hexachlorobutadiene	µg/m³	BLQ	BLQ
1,2,4-Trichlorobenzene	µg/m³	BLQ	BLQ
2,2-Dichloropropane	µg/m³	BLQ	BLQ
Dibromo methane	µg/m³	BLQ	BLQ

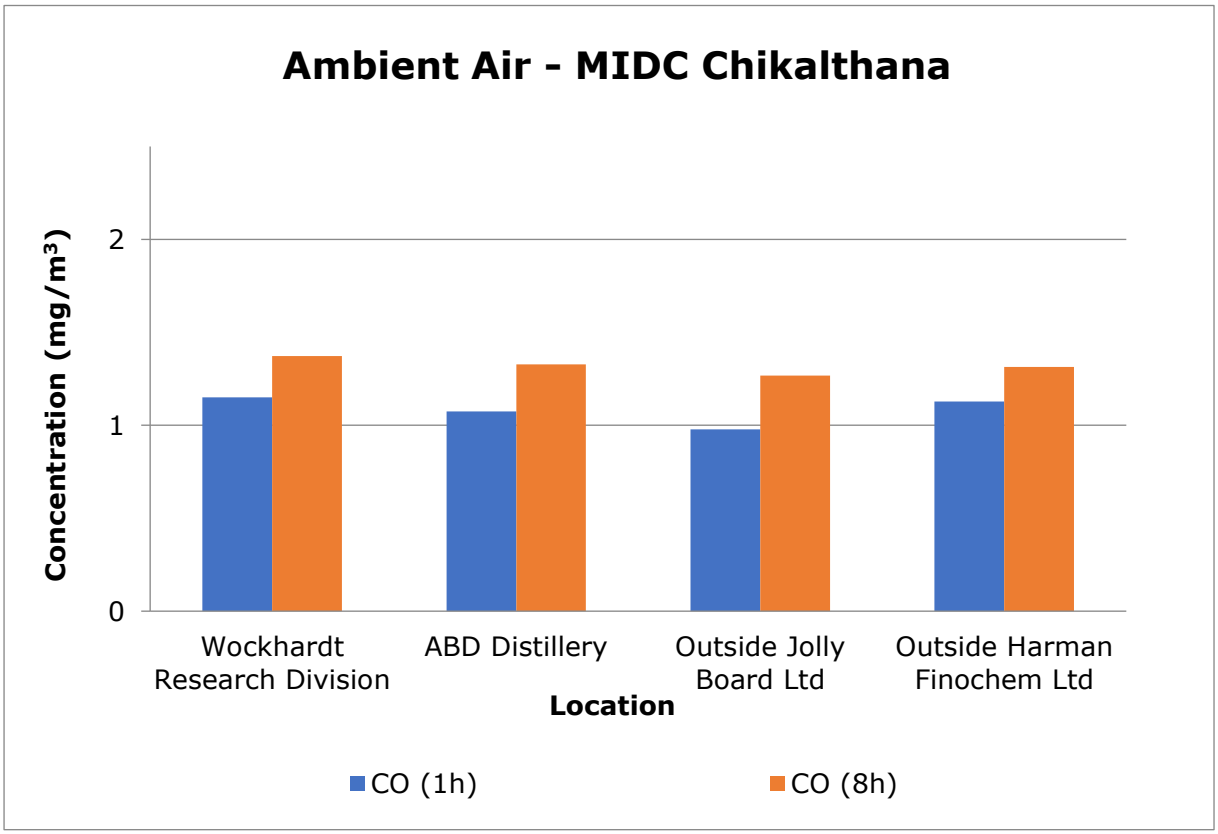
Parameters	Unit	Results	
		ABD Distillery	Outside Concept Pharma
Benzene		BLQ	BLQ
Toluene	µg/m³	1.05	1.27
O-Xylene	µg/m³	BLQ	BLQ
Bromoform	µg/m³	BLQ	BLQ
1,1,2,2-Tetrachloroethane	µg/m³	BLQ	BLQ
4-Chlorotoluene	µg/m³	BLQ	BLQ
1,1-Dichloroethylene	µg/m³	BLQ	BLQ
Trans-1,2-Dichloroethylene	µg/m³	BLQ	BLQ
1,1-Dichloroethane	µg/m³	BLQ	BLQ
CIS-1,2-Dichloroethylene	µg/m³	BLQ	BLQ
Bromochloromethane	µg/m³	BLQ	BLQ
1,1,1-Trichloroethane	µg/m³	BLQ	BLQ
Dichloromethane	µg/m³	BLQ	BLQ

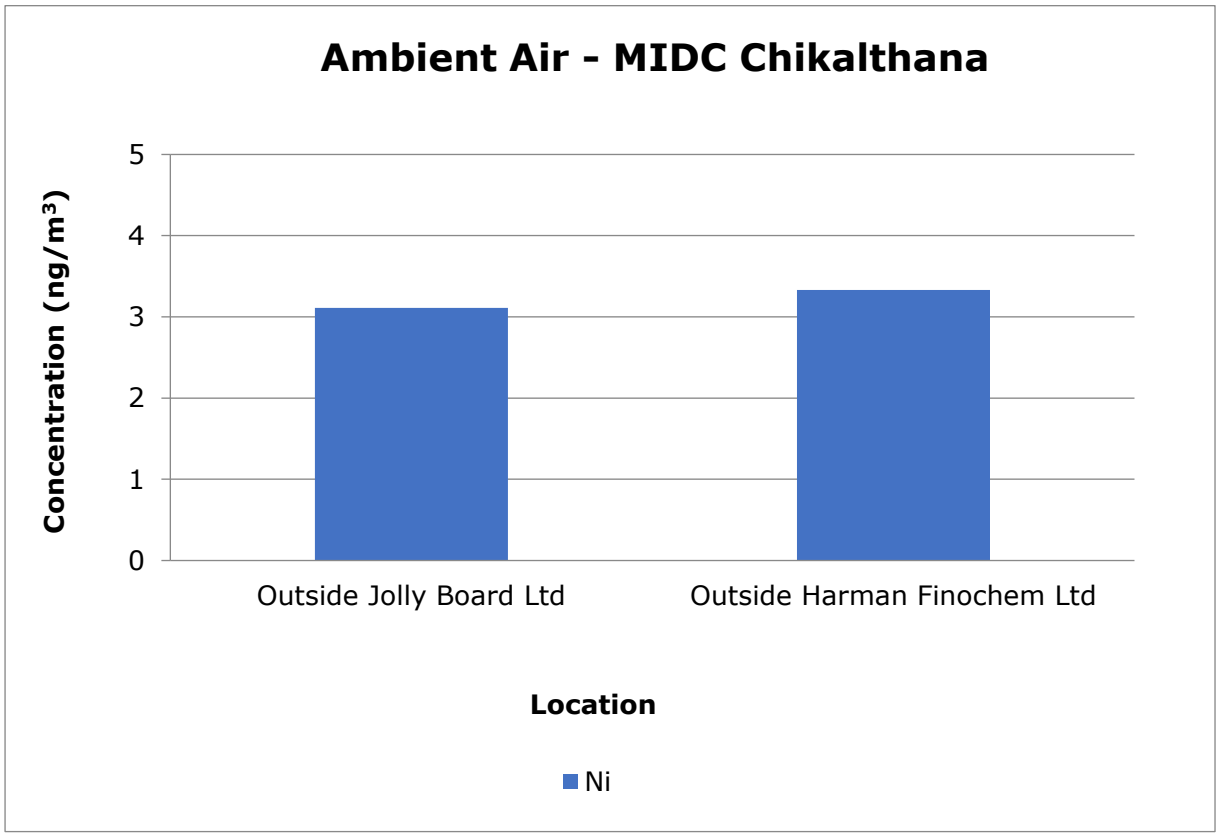
Graphs - Ambient Air Quality Monitoring - MIDC Chikalthana






Ambient Air - MIDC Chikalthana
Concentration (µg/m³)
3
2
1
0
Wockhardt Research Division
ABD Distillery
Outside Jolly Board Ltd
Outside Harman Finochem Ltd
Location
C6H6


Ambient Air - MIDC Chikalthana
Concentration (mg/m³)
2
1
0
Wockhardt Research Division
ABD Distillery
Outside Jolly Board Ltd
Outside Harman Finochem Ltd
Location
CO (1h)
CO (8h)


Ambient Air - MIDC Chikalthana
Concentration (ng/m³)
5
4
3
2
1
0
Outside Jolly Board Ltd
Outside Harman Finochem Ltd
Location
Ni

3. **<u>MIDC Waluj</u>:** In MIDC Waluj, at all 4 locations monitored, the concentration of all the ambient air parameters was found within the limits of NAAQS, 2009. The monitoring of was carried out from 19th May to 23rd May 2025. All the samples were collected in triplicate on an interval of one day.

Table 5.9 MIDC Waluj - Details of Sampling Location of Ambient Air Quality Monitoring

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Goodyear South Asia tyres	19.85596N	75.207793E	19.05.2025	21.05.2025	23.05.2025
2.	DIPL	19.857228N	75.227627E	19.05.2025	21.05.2025	23.05.2025
3.	Varroc Plant VIII, Jogeshwari	19.83132N	75.201047E	19.05.2025	21.05.2025	23.05.2025
4.	Lilasons Breweries, Waluj	19.859262N	75.218188E	19.05.2025	21.05.2025	23.05.2025

Table 5.10 MIDC Waluj - Details of Sampling Location of VOCs Monitoring

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Outside of Endurance Tech.	19.85222N	75.205886E	19.05.2025	21.05.2025	23.05.2025
2.	DIPL	19.857228N	75.227627E	19.05.2025	21.05.2025	23.05.2025

Fig: Geographical Locations of Ambient Air Quality Monitoring MIDC Waluj

Fig: Geographical Locations of VOCs Monitoring MIDC Waluj

Table 5.11 MIDC Waluj - Ambient Air Quality Monitoring Results

Parameters	Unit	Results			
		Goodyear South Asia Tyres	DIPL	Varroc Plant VIII, Jogeshwari	Lilasons Breweries, Waluj
Sulphur Dioxide (SO_2)	µg/m³	BLQ	BLQ	BLQ	BLQ
Nitrogen Dioxide (NO_2)	µg/m³	33	16	25	25
Particulate Matter (size less than 10 µm) or PM_{10}	µg/m³	50	48	50	51
Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$	µg/m³	14	13	14	13
Ozone (O_3)	µg/m³	27	30	22	25
Lead (Pb)	µg/m³	BLQ	BLQ	0.111	0.112
Carbon Monoxide (CO) (1 h)	mg/m³	1.2	1.2	1.4	1.5
Carbon Monoxide (CO) (8 h)	mg/m³	1.5	1.5	1.6	1.6
Ammonia (NH_3)	µg/m³	BLQ	BLQ	BLQ	BLQ
Benzene (C_6H_6)	µg/m³	1.79	1.59	1.66	1.64
Benzo (a) Pyrene (BaP) – particulate phase only	ng/m³	BLQ	BLQ	BLQ	BLQ
Arsenic (As)	ng/m³	BLQ	BLQ	BLQ	BLQ
Nickel (Ni)	ng/m³	BLQ	BLQ	BLQ	BLQ

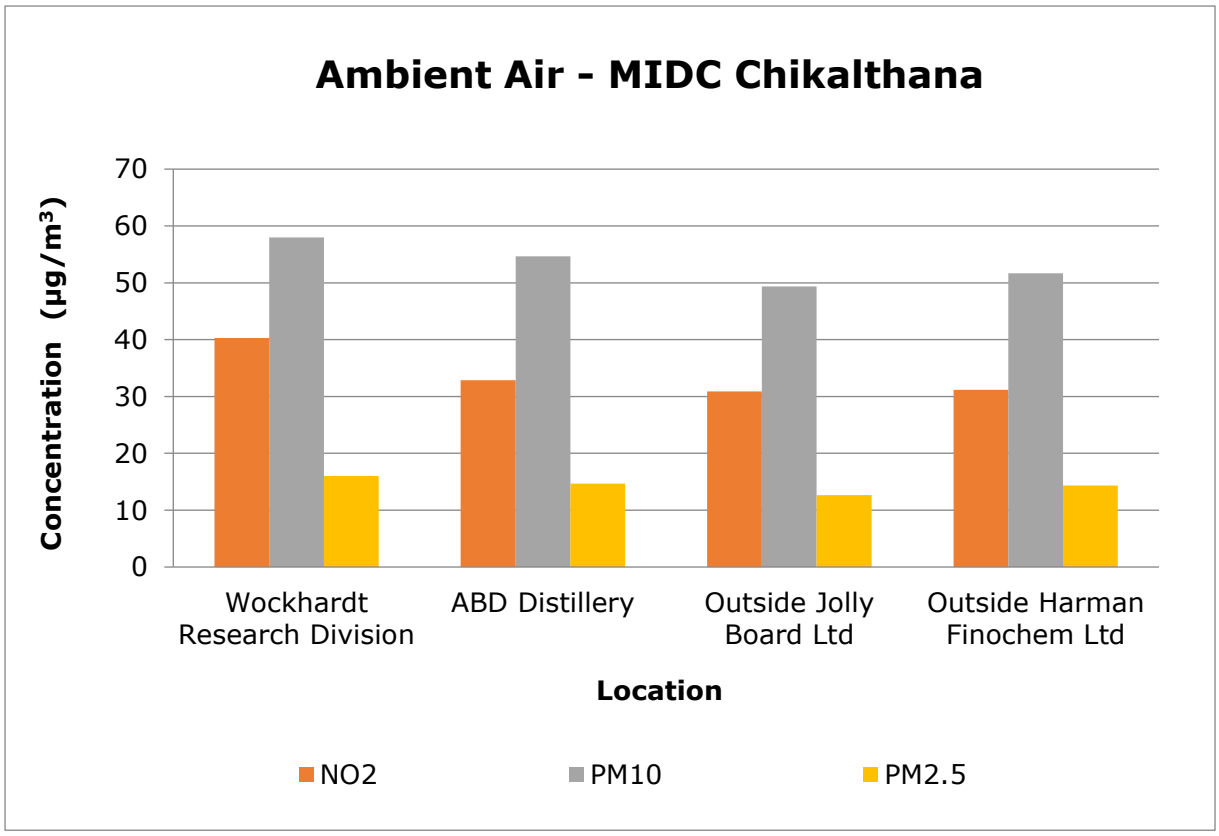
Table 5.12 MIDC Waluj - Volatile Organic Compounds (VOCs) in Ambient Air Results

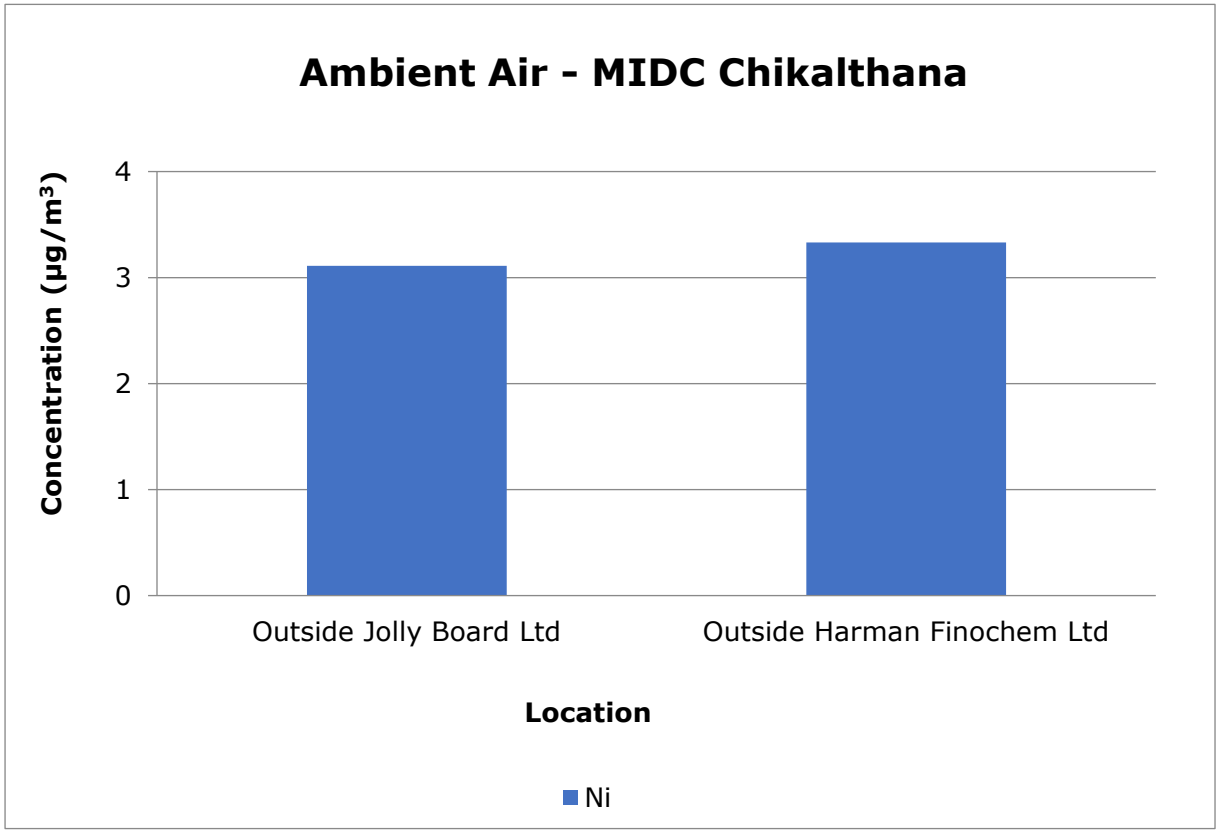
Parameters	Unit	Results	
		DIPL	Endurance Tech, K-120
Dichloromethane	µg/m³	BLQ	BLQ
Chloroform	µg/m³	0.77	0.81
Carbon Tetrachloride	µg/m³	BLQ	0.683
Trichloroethylene	µg/m³	BLQ	BLQ
Bromodichloromethane	µg/m³	BLQ	BLQ
1,3-Dichloropropane	µg/m³	BLQ	BLQ
1,4-Dichlorobenzene	µg/m³	BLQ	BLQ
1,3-Dichlorobenzene	µg/m³	BLQ	BLQ
1,2-Dichlorobenzene	µg/m³	BLQ	BLQ
1,2-Dibromo-3-Chloropropane	µg/m³	BLQ	BLQ
Naphthalene	µg/m³	BLQ	BLQ
Bromobenzene	µg/m³	BLQ	BLQ
1,2,4-Trimethylbenzene	µg/m³	BLQ	BLQ
2-Chlorotoluene	µg/m³	BLQ	BLQ

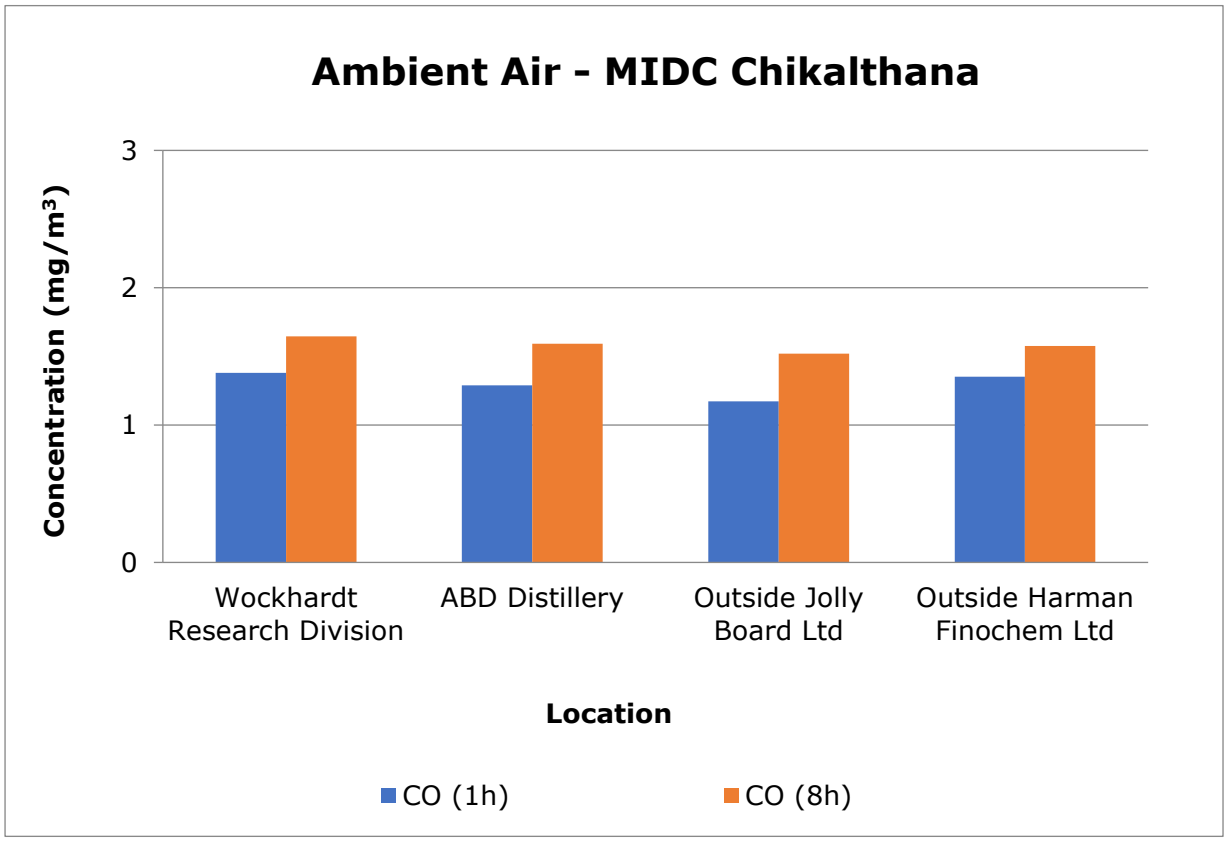
Parameters	Unit	Results	
		DIPL	Endurance Tech, K-120
Tert-Butylbenzene	µg/m³	BLQ	BLQ
SEC-Butylbenzene	µg/m³	BLQ	BLQ
P-Isopropyltoluene	µg/m³	BLQ	BLQ
M-Xylene	µg/m³	BLQ	BLQ
P-Xylene	µg/m³	1.35	BLQ
Styrene	µg/m³	2.57	BLQ
Cumene	µg/m³	BLQ	BLQ
1,2,3-Trichloropropane	µg/m³	BLQ	BLQ
N-Propylbenzene	µg/m³	BLQ	BLQ
Dibromochloromethane	µg/m³	BLQ	BLQ
1,2-Dibromoethane	µg/m³	BLQ	BLQ
Chlorobenzene	µg/m³	BLQ	BLQ
1,1,1,2-Tetrachloroethane	µg/m³	BLQ	BLQ
Ethylbenzene	µg/m³	BLQ	BLQ
1,1-Dichloropropylene	µg/m³	BLQ	BLQ
1,2-Dichloroethane	µg/m³	BLQ	0.63
1,2-Dichloropropane	µg/m³	BLQ	BLQ
Trans-1,3-Dichloropropene	µg/m³	BLQ	BLQ
CIS 1,3-Dichloropropene	µg/m³	BLQ	BLQ
1,1,2-Trichloroethane	µg/m³	BLQ	BLQ
Tetrachloroethylene	µg/m³	BLQ	BLQ
1,3,5-Trimethylbenzene	µg/m³	BLQ	BLQ
N-Butylbenzene	µg/m³	BLQ	BLQ
1,2,3-Trichlorobenzene	µg/m³	BLQ	BLQ
Hexachlorobutadiene	µg/m³	BLQ	BLQ
1,2,4-Trichlorobenzene	µg/m³	BLQ	BLQ
2,2-Dichloropropane	µg/m³	BLQ	BLQ
Dibromoethane	µg/m³	BLQ	BLQ
Toluene	µg/m³	0.67	0.63
O-Xylene	µg/m³	BLQ	BLQ
Bromoform	µg/m³	BLQ	BLQ

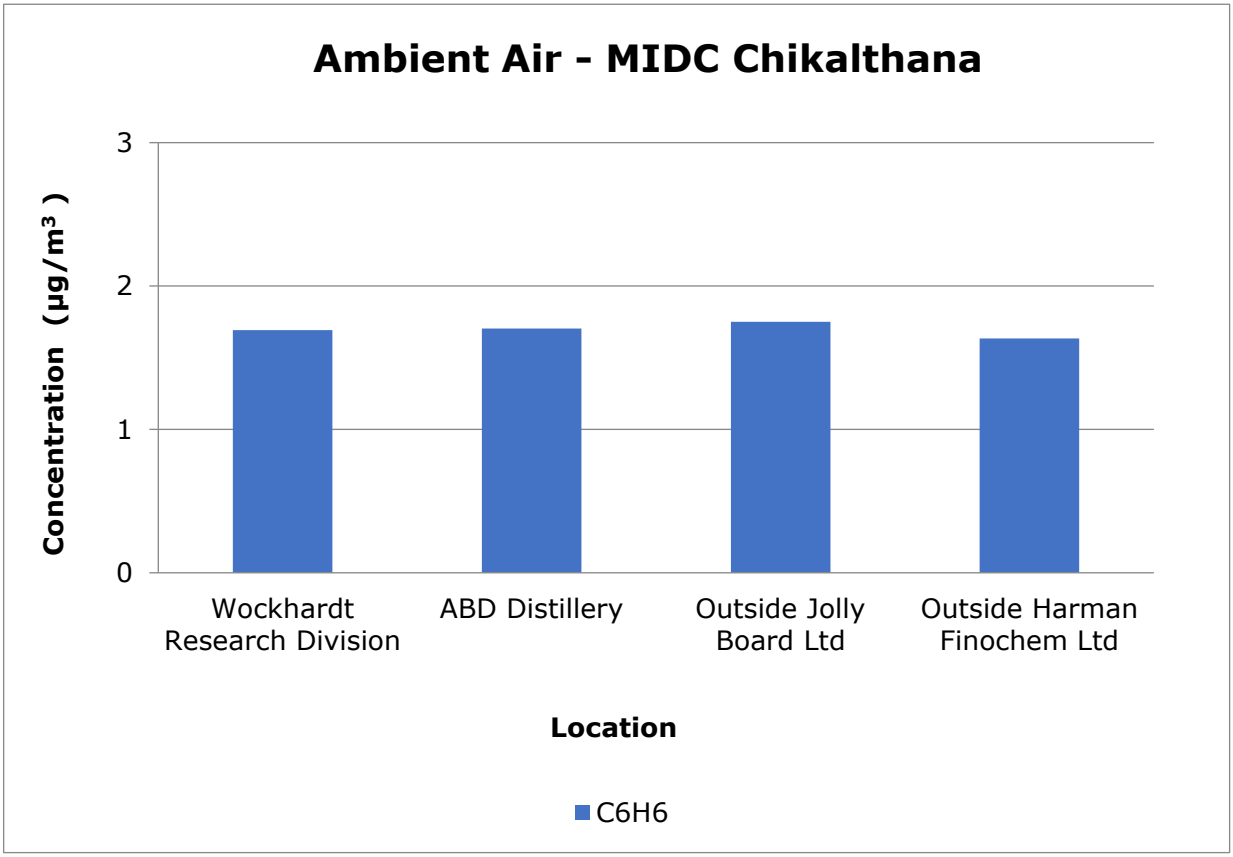
Parameters	Unit	Results	
		DIPL	Endurance Tech, K-120
1,1,2,2-Tetrachloroethane	µg/m³	BLQ	BLQ
4-Chlorotoluene	µg/m³	BLQ	BLQ
1,1-Dichloroethylene	µg/m³	BLQ	BLQ
Trans-1,2-Dichloroethylene	µg/m³	BLQ	BLQ
1,1-Dichloroethane	µg/m³	BLQ	BLQ
CIS-1,2-Dichloroethylene	µg/m³	BLQ	BLQ
Bromochloromethane	µg/m³	BLQ	BLQ
1,1,1-Trichloroethane	µg/m³	BLQ	BLQ
Dichloromethane	µg/m³	BLQ	BLQ

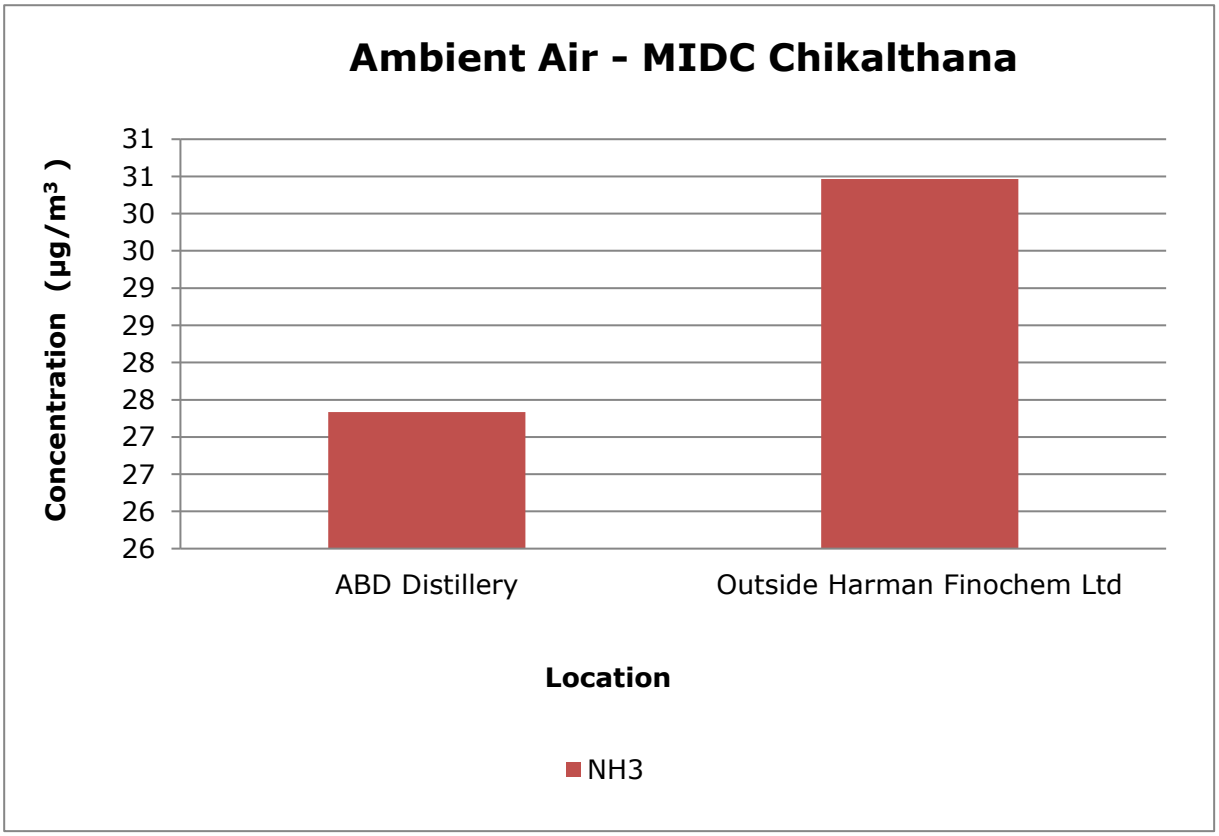
Graphs - Ambient Air Quality Monitoring - MIDC Waluj






Ambient Air - MIDC Chikalthana
Concentration (mg/m³)
3
2
1
0
Wockhardt Research Division
ABD Distillery
Outside Jolly Board Ltd
Outside Harman Finochem Ltd
Location
CO (1h)
CO (8h)


Ambient Air - MIDC Chikalthana
Concentration (µg/m³)
3
2
1
0
Wockhardt Research Division
ABD Distillery
Outside Jolly Board Ltd
Outside Harman Finochem Ltd
Location
C6H6


Ambient Air - MIDC Chikalthana
Concentration (µg/m³)
31
31
30
30
29
29
28
28
27
27
26
26
ABD Distillery
Outside Harman Finochem Ltd
Location
NH3

4. **MIDC Paithan:** In MIDC Paithan, at all the 4 locations monitored, the concentration of all the ambient air parameters was found within the permissible limits of NAAQS.

Table 5.13 MIDC Paithan - Details of Sampling Location of Ambient Air Quality Monitoring

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Belrise Industries Ltd (old name Badv engineering), vill khandewadi,	19.787247N	75.290013E	20.05.2025	22.05.2025	24.05.2025
2.	Jay Laxmi Casting, Farola, Paithan Road, Chatrapati Sambhajinagar	19.75526N	75.29769E	20.05.2025	22.05.2025	24.05.2025
3.	Allana Frigarifico	19.775425N	75.29085E	20.05.2025	22.05.2025	24.05.2025
4.	Outside of Machhar Packaging	19.74184N	75.295073E	20.05.2025	22.05.2025	24.05.2025

Table 5.14 MIDC Paithan - Details of Sampling Location of VOCs Monitoring

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Belrise Industries Outside of Badve Engineering	19.787247N	75.290013E	20.05.2025	22.05.2025	24.05.2025
2.	Jay Laxmi Casting, Farola, Paithan Road, Chatrapati Sambhajinagar	19.75526N	75.29769E	20.05.2025	22.05.2025	24.05.2025

Fig: Geographical Locations of Ambient Air Quality Monitoring MIDC Paithan

Fig: Geographical Locations of VOCs Monitoring MIDC Paithan

Table 5.15 MIDC Paithan- Ambient Air Quality Monitoring Results

Parameters	Unit	Results			
		Belrise Industries Ltd	Jay Laxmi Casting, Farola	Allana Frigarifico	Outside of Machhar Packaging
Sulphur Dioxide (SO_2)	$\mu g/m^3$	BLQ	BLQ	BLQ	BLQ
Nitrogen Dioxide (NO_2)	$\mu g/m^3$	17	30	27	28
Particulate Matter (size less than 10 µm) or PM_{10}	$\mu g/m^3$	41	54	51	53
Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$	$\mu g/m^3$	11	14	13	14
Ozone (O_3)	$\mu g/m^3$	21	49	49	43
Lead (Pb)	$\mu g/m^3$	0.023	BLQ	BLQ	BLQ
Carbon Monoxide (CO) (1 h)	mg/m^3	1.3	1.3	1.4	1.4
Carbon Monoxide (CO) (8 h)	mg/m^3	1.5	1.5	1.6	1.5
Ammonia (NH_3)	$\mu g/m^3$	BLQ	BLQ	BLQ	BLQ
Benzene (C_6H_6)	$\mu g/m^3$	1.75	1.65	1.70	1.75
Benzo (a) Pyrene (BaP) – particulate phase only	ng/m^3	BLQ	BLQ	BLQ	BLQ
Arsenic (As)	ng/m^3	BLQ	BLQ	BLQ	BLQ
Nickel (Ni)	ng/m^3	BLQ	BLQ	BLQ	3.05

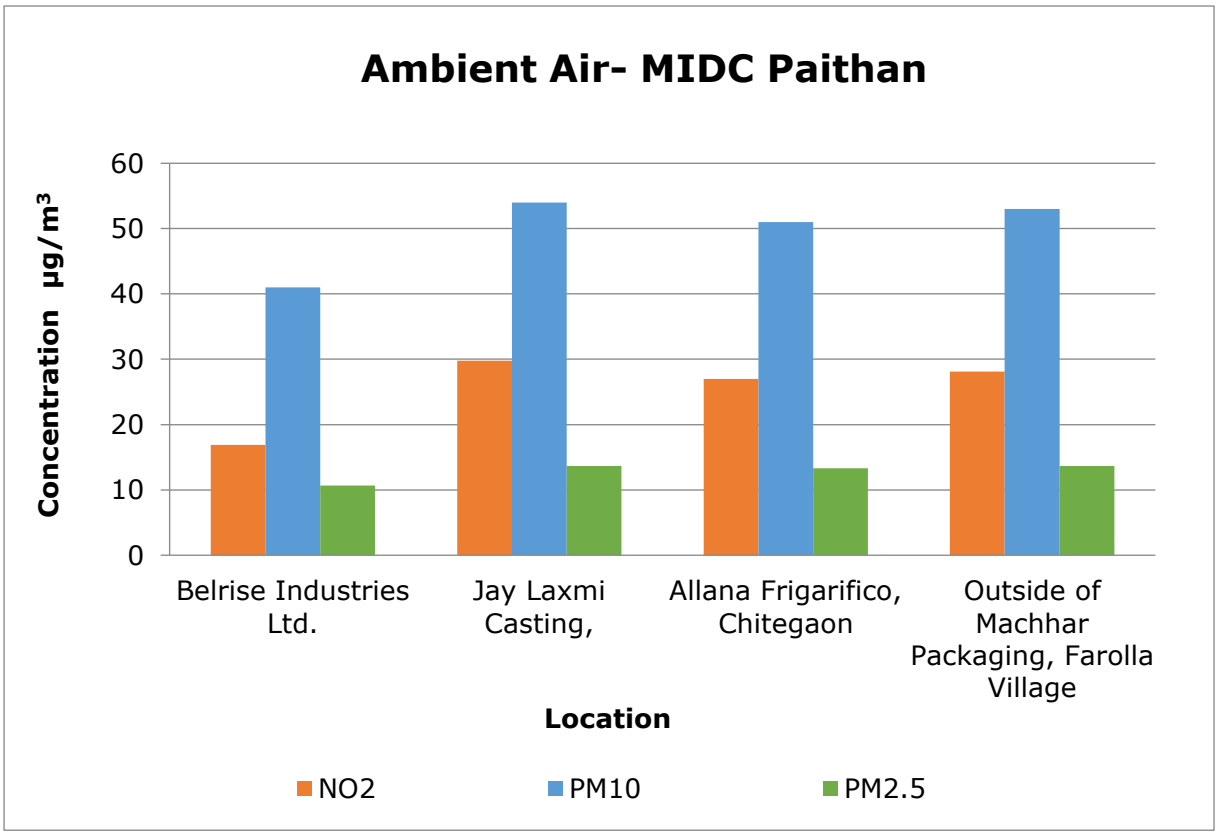
Table 5.16 MIDC Paithan- Volatile Organic Compounds (VOCs) in Ambient Air Results

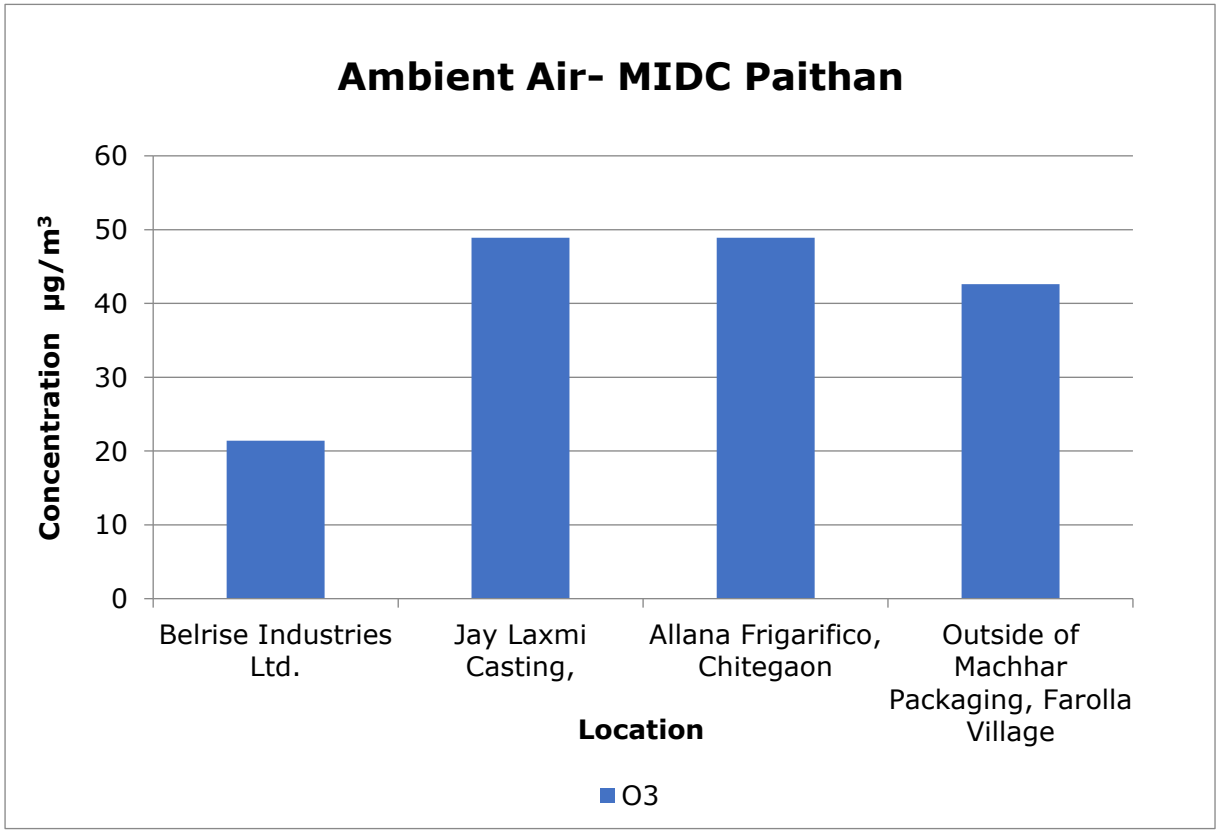
Parameters	Unit	Results	
		Belrise Industries Ltd	Jay Laxmi Casting, Farola
Dichloromethane	µg/m³	BLQ	BLQ
Chloroform	µg/m³	BLQ	BLQ
Carbon Tetrachloride	µg/m³	BLQ	0.54
Trichloroethylene	µg/m³	BLQ	BLQ
Bromodichloromethane	µg/m³	BLQ	BLQ
1,3-Dichloropropane	µg/m³	BLQ	BLQ
1,4-Dichlorobenzene	µg/m³	BLQ	BLQ
1,3-Dichlorobenzene	µg/m³	BLQ	BLQ
1,2-Dichlorobenzene	µg/m³	BLQ	BLQ
1,2-Dibromo-3-Chloropropane	µg/m³	BLQ	BLQ
Naphthalene	µg/m³	BLQ	BLQ
Bromobenzene	µg/m³	BLQ	BLQ

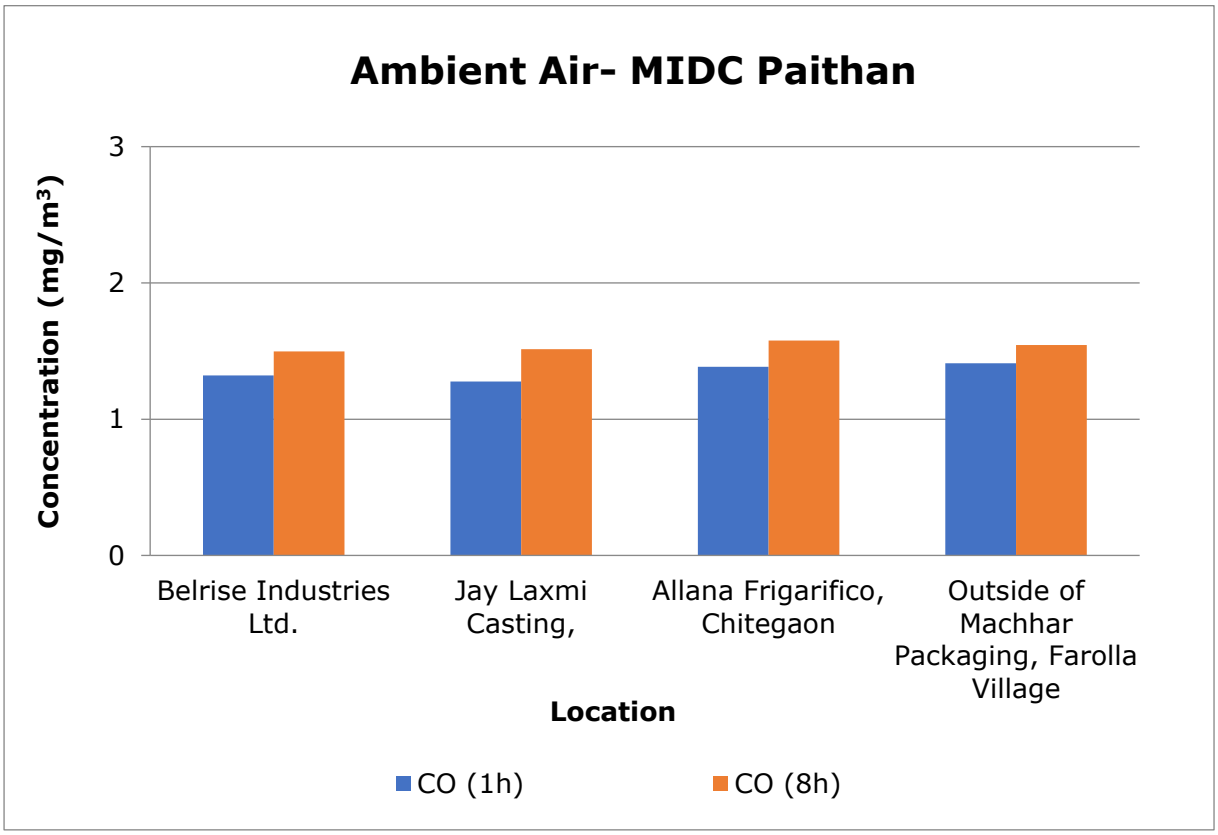
Parameters	Unit	Results	
		Belrise Industries Ltd	Jay Laxmi Casting, Farola
1,2,4-Trimethylbenzene	µg/m³	BLQ	BLQ
2-Chlorotoluene	µg/m³	BLQ	BLQ
Tert-Butylbenzene	µg/m³	BLQ	BLQ
SEC-Butylbenzene	µg/m³	BLQ	BLQ
P-Isopropyl toluene	µg/m³	BLQ	BLQ
M-Xylene	µg/m³	BLQ	BLQ
P-Xylene	µg/m³	BLQ	0.82
Styrene	µg/m³	BLQ	BLQ
Cumene	µg/m³	BLQ	BLQ
1,2,3-Trichloropropane	µg/m³	BLQ	BLQ
N-Propyl benzene	µg/m³	BLQ	BLQ
Dibromochloromethane	µg/m³	BLQ	BLQ
1,2-Dibromoethane	µg/m³	BLQ	BLQ
Chlorobenzene	µg/m³	BLQ	BLQ
1,1,1,2-Tetrachloroethane	µg/m³	BLQ	BLQ
Ethylbenzene	µg/m³	BLQ	BLQ
1,1-Dichloropropylene	µg/m³	BLQ	BLQ
1,2-Dichloroethane	µg/m³	BLQ	BLQ
1,2-Dichloropropane	µg/m³	BLQ	BLQ
Trans-1,3-Dichloropropene	µg/m³	BLQ	BLQ
CIS 1,3-Dichloropropene	µg/m³	BLQ	BLQ
1,1,2-Trichloroethane	µg/m³	BLQ	BLQ
Tetrachloroethylene	µg/m³	BLQ	BLQ
1,3,5-Trimethylbenzene	µg/m³	BLQ	BLQ
N-Butylbenzene	µg/m³	BLQ	BLQ
1,2,3-Trichlorobenzene	µg/m³	BLQ	BLQ
Hexachlorobutadiene	µg/m³	BLQ	BLQ
1,2,4-Trichlorobenzene	µg/m³	BLQ	BLQ
2,2-Dichloropropane	µg/m³	BLQ	BLQ
Dibromoethane	µg/m³	BLQ	BLQ

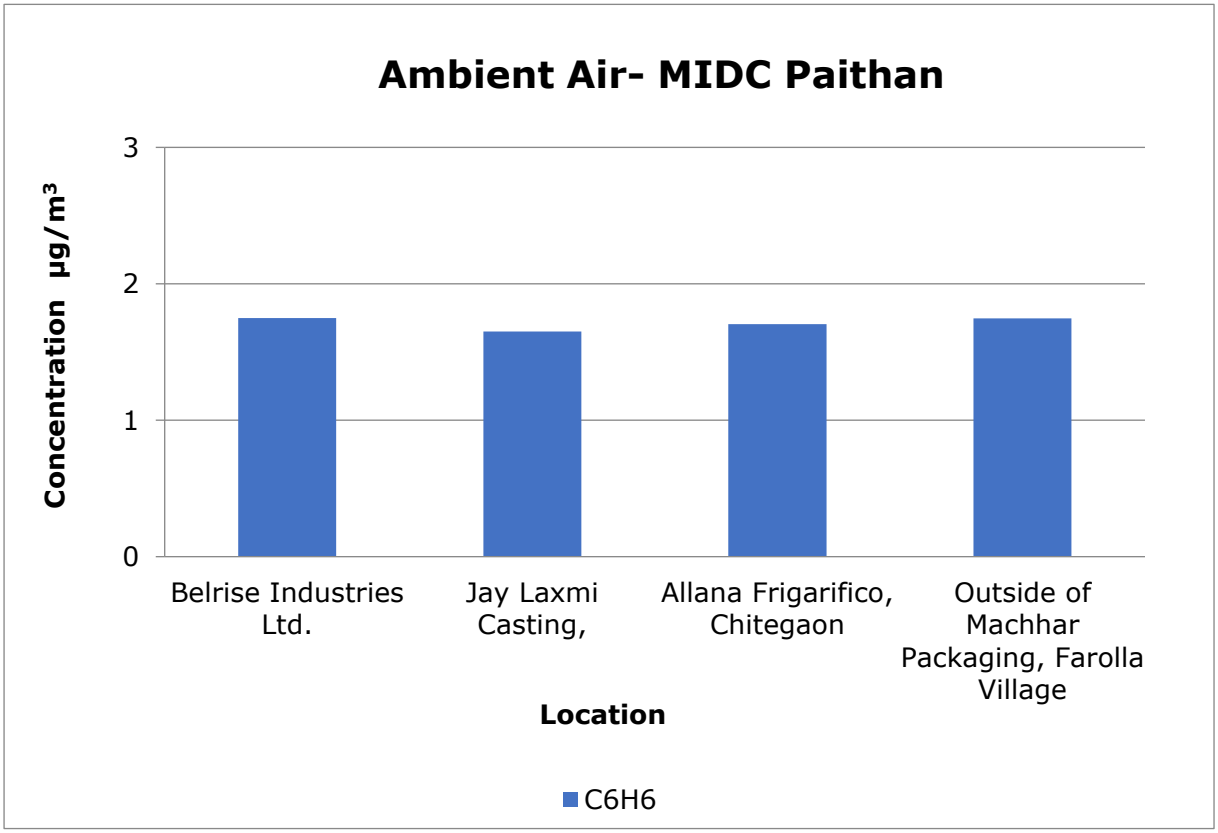
Parameters	Unit	Results	
		Belrise Industries Ltd	Jay Laxmi Casting, Farola
Toluene	µg/m³	BLQ	BLQ
O-Xylene	µg/m³	BLQ	BLQ
Bromoform	µg/m³	BLQ	BLQ
1,1,2,2-Tetrachloroethane	µg/m³	BLQ	BLQ
4-Chlorotoluene	µg/m³	BLQ	BLQ
1,1-Dichloroethylene	µg/m³	BLQ	BLQ
Trans-1,2-Dichloroethylene	µg/m³	BLQ	BLQ
1,1-Dichloroethane	µg/m³	BLQ	BLQ
CIS-1,2-Dichloroethylene	µg/m³	BLQ	BLQ
Bromochloromethane	µg/m³	BLQ	BLQ
1,1,1-Trichloroethane	µg/m³	BLQ	BLQ
Dichloromethane	µg/m³	BLQ	BLQ

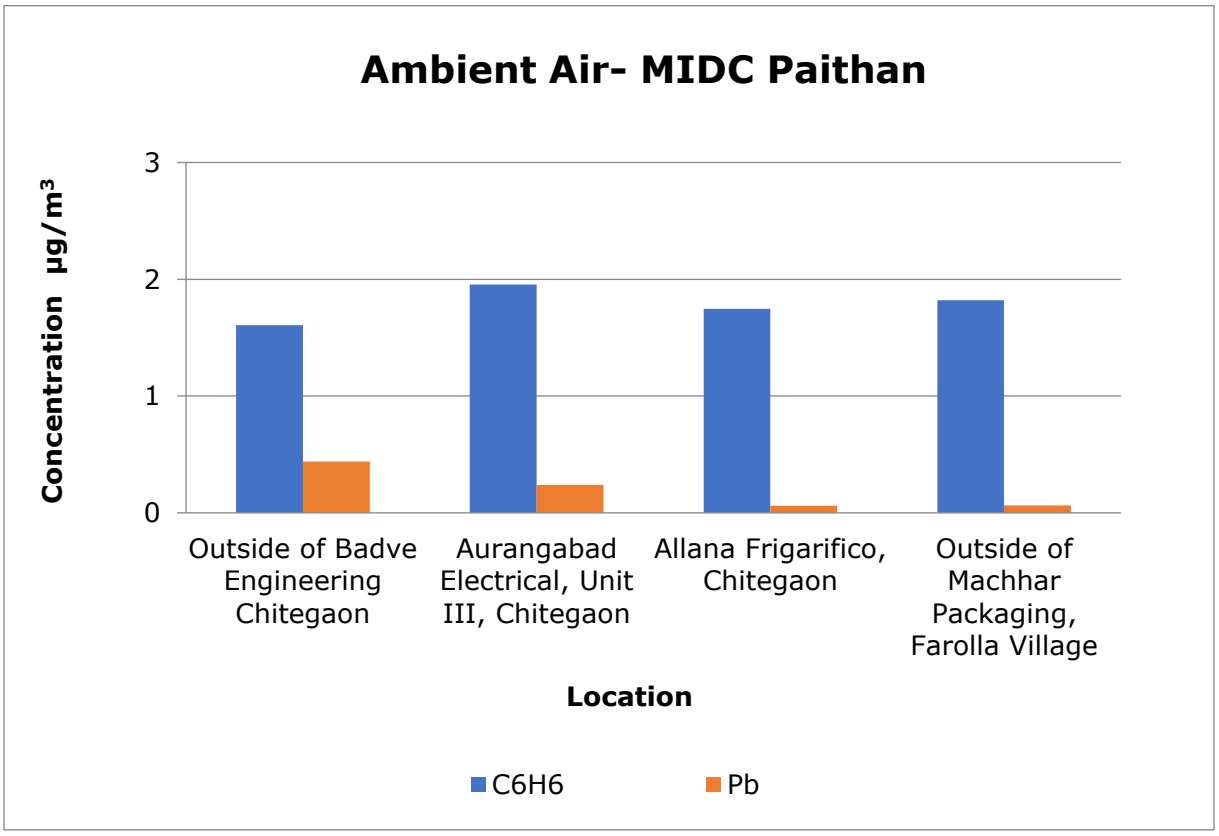
Graphs - Ambient Air Quality Monitoring of MIDC Paithan






Ambient Air- MIDC Paithan
Concentration (mg/m³)
3
2
1
0
Belrise Industries Ltd.
Jay Laxmi Casting,
Allana Frigarifico, Chitegaon
Outside of Machhar Packaging, Farolla Village
Location
CO (1h)
CO (8h)


Ambient Air- MIDC Paithan
Concentration µg/m³
3
2
1
0
Belrise Industries Ltd.
Jay Laxmi Casting,
Allana Frigarifico, Chitegaon
Outside of Machhar Packaging, Farolla Village
Location
C6H6


Ambient Air- MIDC Paithan
Concentration µg/m³
3
2
1
0
Outside of Badve Engineering Chitegaon
Aurangabad Electrical, Unit III, Chitegaon
Allana Frigarifico, Chitegaon
Outside of Machhar Packaging, Farolla Village
Location
C6H6
Pb

WATER ENVIRONMENT

6. Water Environment

For studying the water environment of Chhatrapati Sambhaji nagar area, six samples of surface water were collected from Nallah, Lake and River. A total of 23 samples were collected from all four MIDCs i.e. six samples from each MIDC except Chikalthana, from where five samples were collected. In comparison to the Pre-monsoon season study, few of the water sources were found dried, hence those were replaced with another nearby source.

1. MIDC Shendra:

Six surface water samples were collected from the MIDC Shendra region.

- pH is observed as 8.0 in all samples
- TDS is found more than the acceptable limit in the water sample of Shendra MIDC Lake Water, Behind Hamdard Laboratory.
- Electrical conductivity is observed highest in Shendra MIDC Lake Water, behind Hamdard Laboratory as 4457 µmho/cm.
- Concentration of Biological Oxygen Demand (BOD) was observed to exceed the permissible limit at all locations. The highest concentration of BOD (212 mg/L) is observed in Shendra MIDC Lake Water, behind Hamdard Laboratory.
- In fish bioassay, lowest fish survival 17 % was observed in the water sample of Shendra MIDC Lake Water.
- All metals like Arsenic, Nickel, Copper, Iron, Hexavalent Chromium (Cr^{6+}) etc. are also observed either below the limit of quantification (BLQ) or below their standard limits.
- Parameters like Total Residual Chlorine, Nitrogen, Cyanide, Sulphide, Dissolved Phosphate, Total Ammonical Nitrogen and Phenolic compounds also meet the criteria as prescribed by CPCB in all the samples except in lake water near Radico Distillery.
- Organo Chlorine Pesticides, Polynuclear aromatic hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB) are also observed below the limit of quantification in all the studied samples.

Table 6.1 MIDC Shendra - Details of Sampling Location of Surface Water

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Lake Water Ladgaon Lake, MIDC	19.861202N	75.528740E	12.05.2025	14.05.2025	16.05.2025
2.	Auric City CETP outlet	19.8728N	75.522658E	12.05.2025	14.05.2025	16.05.2025

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
3.	Nallah Water Near Jyoti Industry	19.879578N	75.494647E	12.05.2025	14.05.2025	16.05.2025
4.	Nallah Water Back side Perkins Shendra	19.8805082N	75.513443E	12.05.2025	14.05.2025	16.05.2025
5.	Shendra MIDC Lake Water, Behind Hamdard Laboratory	19.87515N	75.507939E	12.05.2025	14.05.2025	16.05.2025
6.	Nallah Water Behind Inox Air Product	19.875448N	75.524596E	12.05.2025	14.05.2025	16.05.2025

Fig: Geographical Locations of Surface Water Sampling MIDC Shendra

Table 6.2 MIDC Shendra – Results of Surface Water

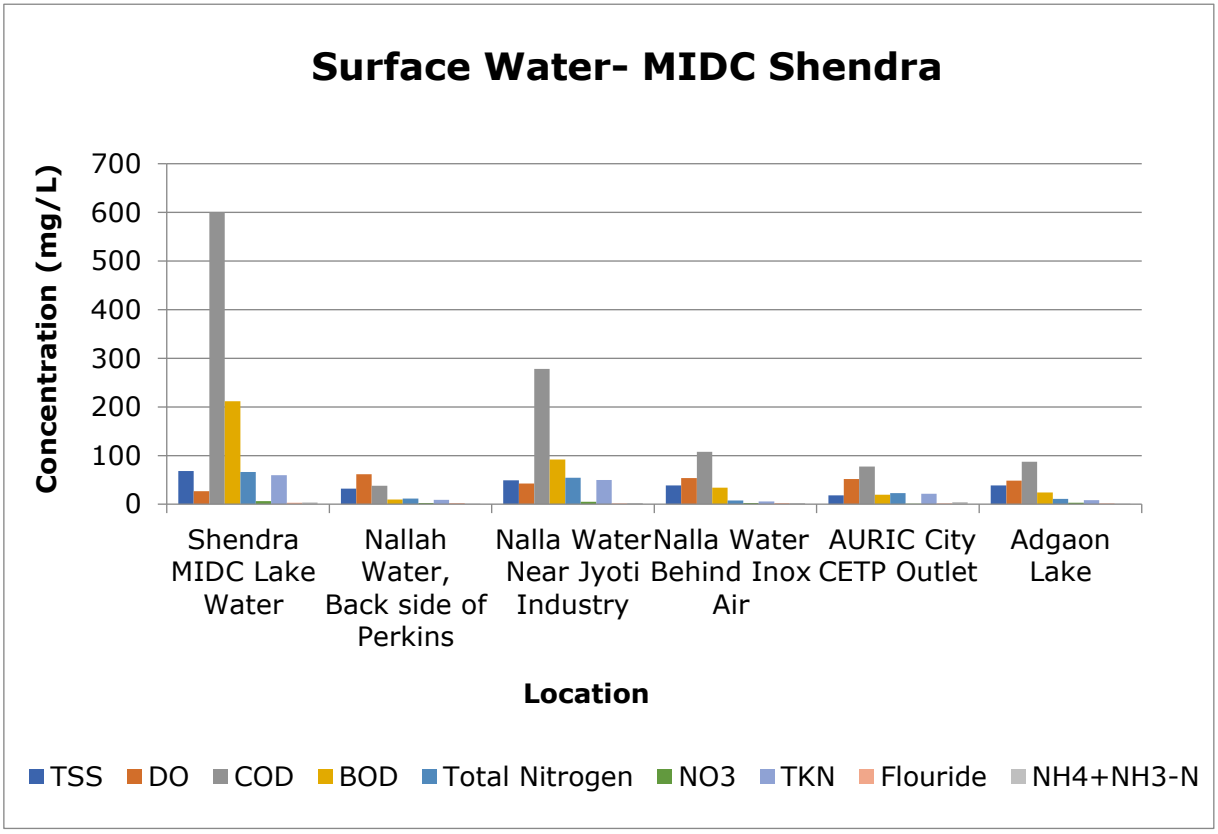
Parameters	Unit	Results					
		Shendra MIDC Lake Water, Behind Hamdard Laboratory	Nallah Water, Back side of Perkins India Pvt Ltd	Nalla Water Near Jyoti Industry	Nalla Water Behind Inox Air Product	CETP Outlet Auric City	Ladgaon Lake, MIDC
Sanitary Survey	-	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood

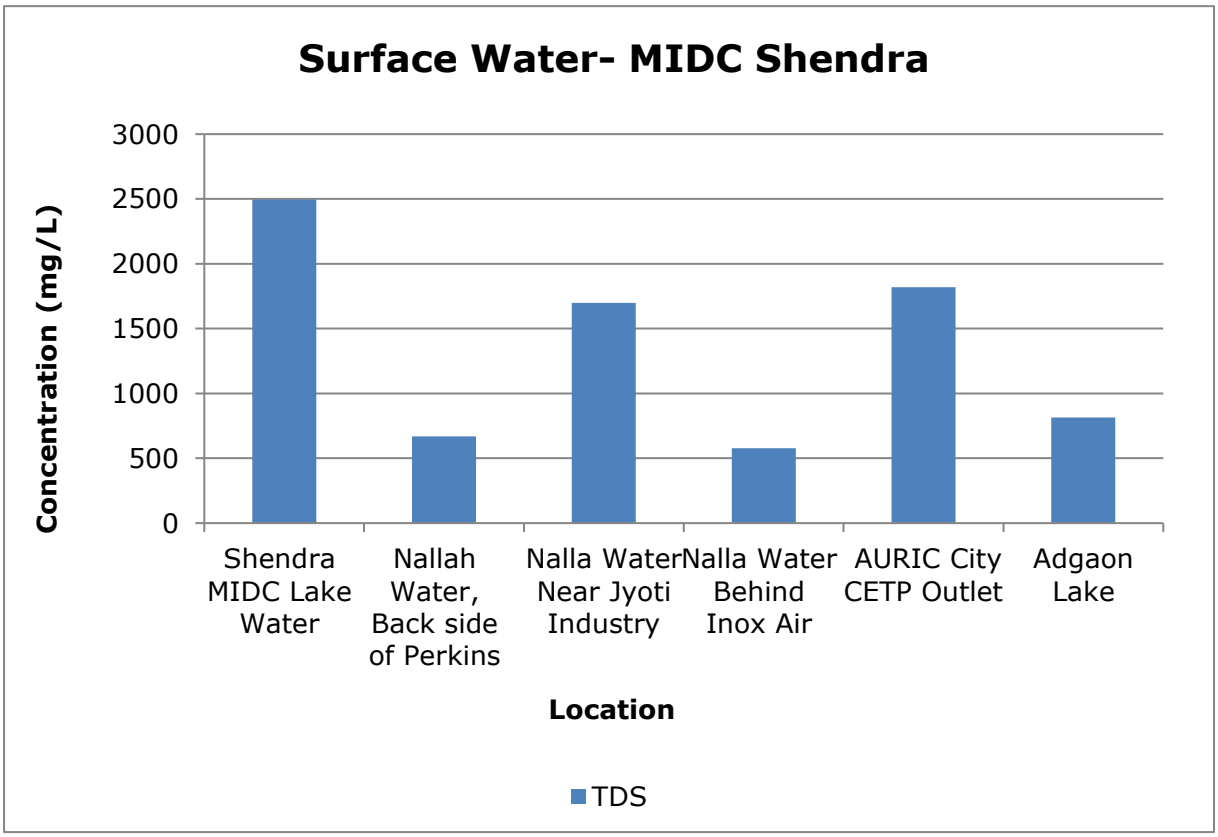
Parameters	Unit	Results					
		Shendra MIDC Lake Water, Behind Hamdard Laboratory	**Nallah Water, Back side of Perkins India Pvt Ltd**	**Nalla Water Near Jyoti Industry**	**Nalla Water Behind Inox Air Product**	**CETP Outlet Auric City**	**Ladgaon Lake, MIDC**
General Appearance	-	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident
Transparency	m	0.4	0.6	0.6	0.4	0.9	0.4
Temperature	°C	27	28	27	28	27	27
Colour	Hazen	170	13	39	18	2	61
Smell	-	Not Agreeable	Not Agreeable	Not Agreeable	Not Agreeable	Not Agreeable	Not Agreeable
pH	-	8.0	8.0	7.7	8.2	8.2	7.9
Oil & Grease	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Suspended Solids	mg/L	68	32	49	39	18	39
Total Dissolved Solids	mg/L	2495	669	1698	578	1821	815
Dissolved Oxygen (% Saturation)	%	27	62	42	54	52	48
Chemical Oxygen Demand	mg/L	600	38	278	108	77	87
Biochemical Oxygen Demand (3 days,27°C)	mg/L	212	9	92	34	19	24
Electrical Conductivity (at 25 °C)	µmho /cm	4457	1196	3033	1034	3253	1457
Nitrite Nitrogen (as NO_2)	mg/L	0.36	0.15	0.09	0.14	0.11	0.34
Nitrate Nitrogen (as NO_3)	mg/L	6	2.6	4.7	2.1	1.3	2.7
(NO_2 + NO_3)-Nitrogen	mg/L	6.36	2.7	4.8	2.3	1.3	3.02
Free Ammonia (as NH_3-N)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Total Residual Chlorine	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Fluoride (as F)	mg/L	2.8	2.6	1.5	2.1	2.0	1.7
Sulphide (as H_2S)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	1.1	0.1	0.6	0.3	0.6	0.2

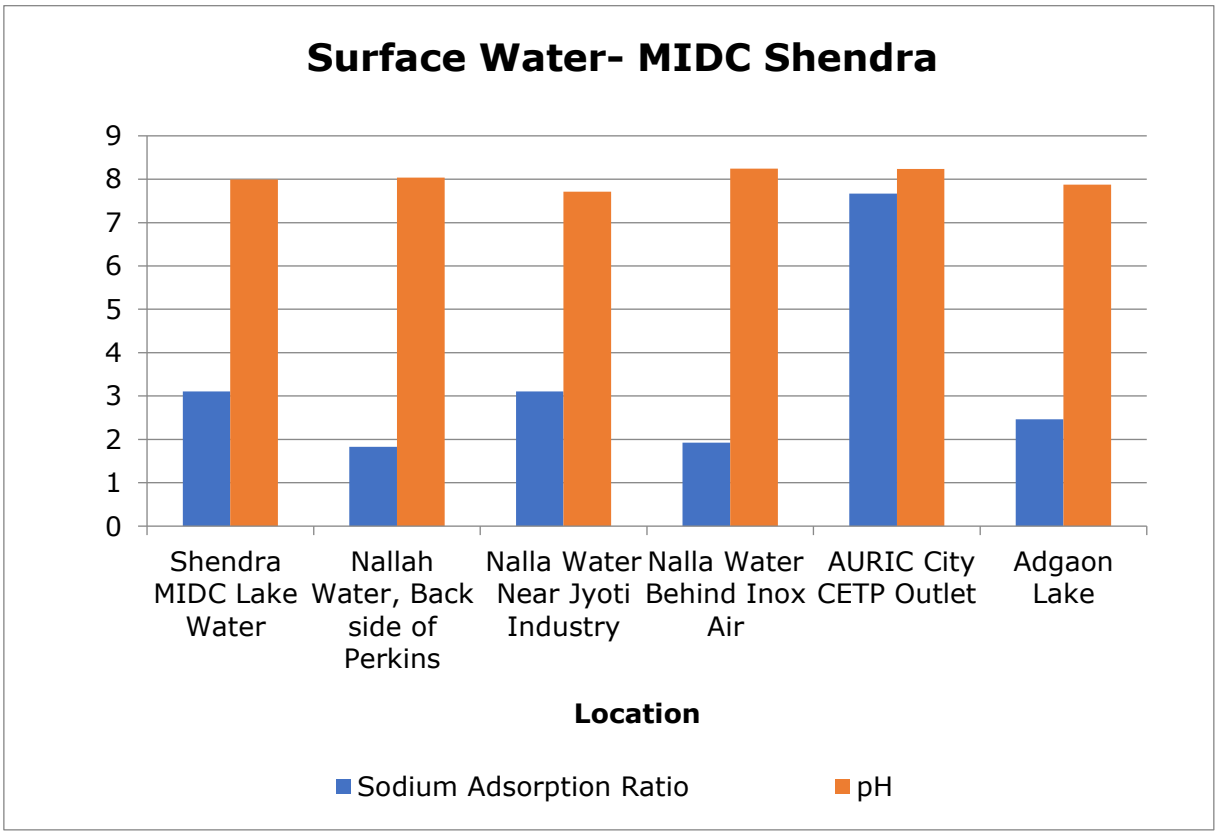
Parameters	Unit	Results					
		Shendra MIDC Lake Water, Behind Hamdard Laboratory	Nallah Water, Back side of Perkins India Pvt Ltd	Nalla Water Near Jyoti Industry	Nalla Water Behind Inox Air Product	CETP Outlet Auric City	Ladgaon Lake, MIDC
Sodium Adsorption Ratio	-	3	2	3	2	8	2
Total Coliforms	MPN Index / 100 ml	920	770	920	1373	15	588
Faecal Coliforms	MPN Index / 100 ml	25	20	67	30	15	12
Total Phosphate (as P)	mg/L	2.2	0.4	1.6	0.6	1.8	0.6
Total Kjeldahl Nitrogen (as N)	mg/L	60	9	50	6	21	8
Total Ammonia (NH_4+NH_3)-Nitrogen	mg/L	4	1	2	2	4	1
Total Nitrogen	mg/L	66	11	55	8	23	11
Phenols (as C_6H_5OH)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Anionic Detergents (as MBAS Calculated as LAS, mol.wt.288.38)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Organo Chlorine Pesticides	µg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Polynuclear aromatic hydrocarbons (as PAH)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	1.2	BLQ	0.24	BLQ	BLQ	0.07
Nickel (as Ni)	mg/L	0.04	0.02	0.09	0.02	0.02	0.02
Copper (as Cu)	mg/L	0.04	0.03	0.15	0.22	0.03	0.04
Hexavalent Chromium (as Cr^{6+})	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	0.07	0.05	0.09	0.06	0.05	0.06

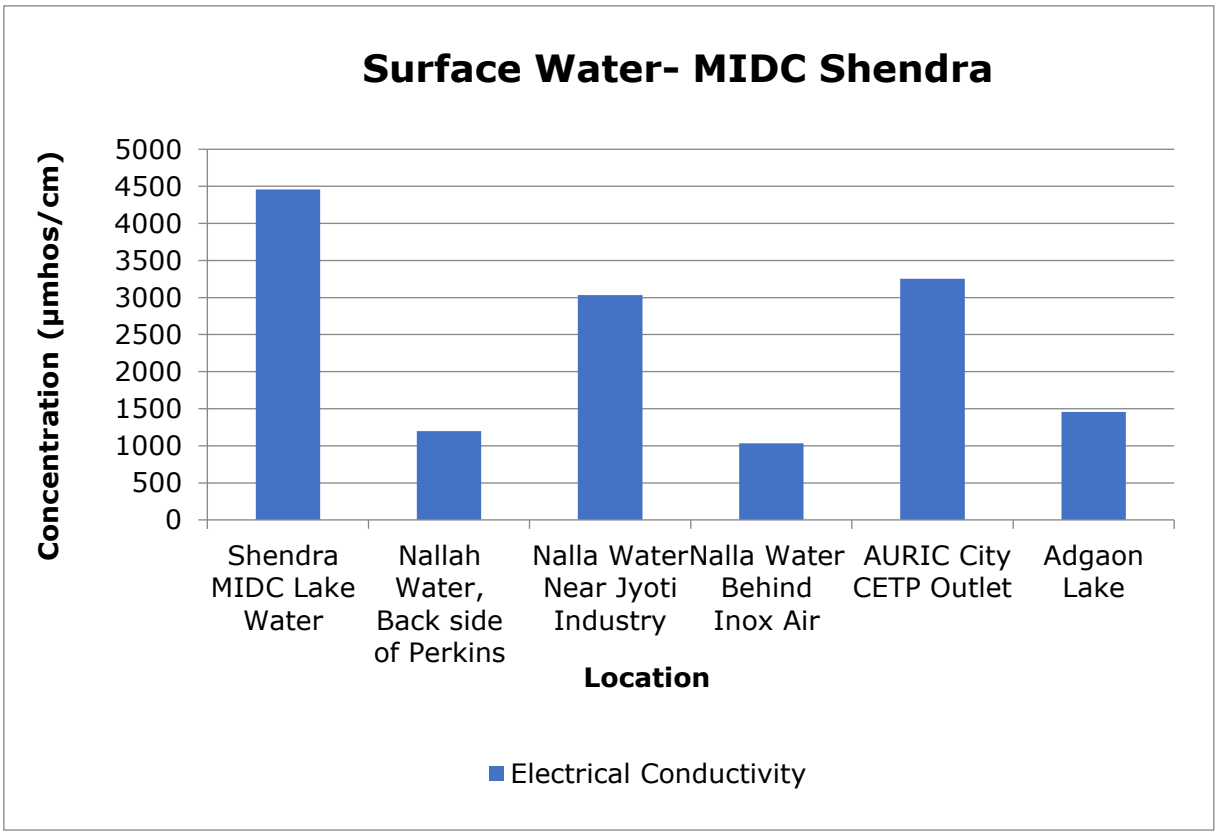
Parameters	Unit	Results					
		Shendra MIDC Lake Water, Behind Hamdard Laboratory	**Nallah Water, Back side of Perkins India Pvt Ltd**	**Nalla Water Near Jyoti Industry**	**Nalla Water Behind Inox Air Product**	**CETP Outlet Auric City**	**Ladgaon Lake, MIDC**
Total Arsenic (as As)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Lead (as Pb)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Cadmium (as Cd)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mercury (as Hg)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Manganese (as Mn)	mg/L	0.61	0.19	1.46	0.15	0.07	0.26
Iron (as Fe)	mg/L	1.10	0.67	19.61	4.06	0.20	0.48
Vanadium (as V)	mg/L	0.02	0.07	0.09	0.06	0.05	0.03
Selenium (as Se)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Boron (as B)	mg/L	0.20	0.31	0.24	0.12	0.18	0.18
Bioassay Test on fish	% survival	17	83	53	70	73	73

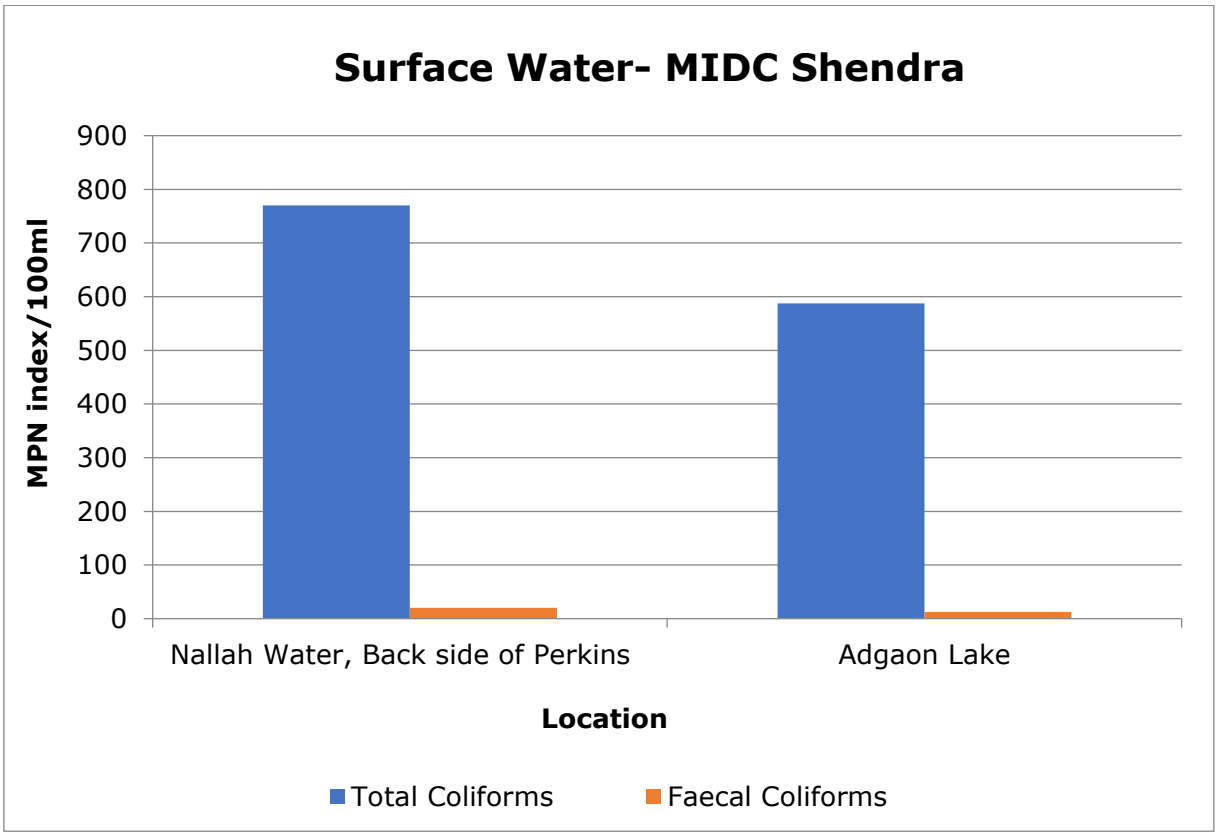
Graphs - Surface water of MIDC Shendra

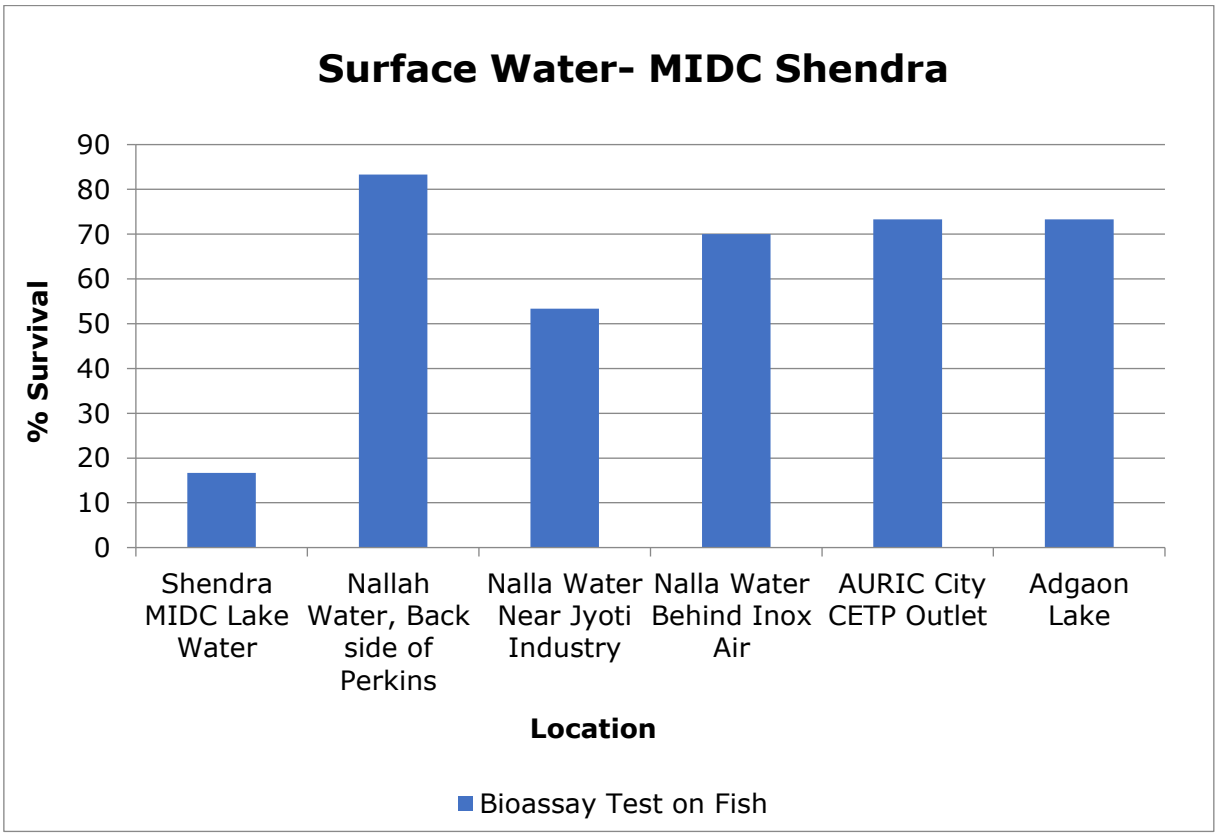





Surface Water- MIDC Shendra
9
8
7
6
5
4
3
2
1
0
Shendra MIDC Lake Water
Nallah Water, Back side of Perkins
Nalla Water Near Jyoti Industry
Nalla Water Behind Inox Air
AURIC City CETP Outlet
Adgaon Lake
Location
Sodium Adsorption Ratio
pH


Surface Water- MIDC Shendra
Concentration (µmhos/cm)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Shendra MIDC Lake Water
Nallah Water, Back side of Perkins
Nalla Water Near Jyoti Industry
Nalla Water Behind Inox Air
AURIC City CETP Outlet
Adgaon Lake
Location
Electrical Conductivity


Surface Water- MIDC Shendra
MPN index/100ml
900
800
700
600
500
400
300
200
100
0
Nallah Water, Back side of Perkins
Adgaon Lake
Location
Total Coliforms
Faecal Coliforms


Surface Water- MIDC Shendra
% Survival
90
80
70
60
50
40
30
20
10
0
Shendra MIDC Lake Water
Nallah Water, Back side of Perkins
Nalla Water Near Jyoti Industry
Nalla Water Behind Inox Air
AURIC City CETP Outlet
Adgaon Lake
Location
Bioassay Test on Fish

2. **MIDC Chikalthana:** From MIDC Chikalthana also, Six surface water samples were collected.

- All the water samples collected were found acceptable in general appearance.
- pH is observed in the range of 8-9 in all the water samples.
- Electrical conductivity is observed highest as 2677 µmho/cm in water sample of Sukana dam.
- Concentration of Biological Oxygen Demand (BOD) is found to exceed in all the water samples and highest is observed in water sample of Sukna i.e. 112mg/L.
- In fish bioassay, 13 % lowest survival of fishes was achieved in water sample of Sukna Dam.
- Metals such as Arsenic, Nickel, Copper, Hexavalent Chromium (Cr^{6+}) etc. were also observed either below the limit of quantification or below their standard limits.
- Parameters like Total Residual Chlorine, Nitrogen, Cyanide, Sulphide, Dissolved Phosphate, Total Ammonical Nitrogen and Phenolic compounds also meet the criteria as prescribed by CPCB.
- Organo Chlorine Pesticides, Polynuclear aromatic hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB) are also observed below the limit of quantification in all the studied samples.

Table 6.3 MIDC Chikalthana - Details of Sampling Location of Surface Water

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Sukna Dam	19.815305N	75.520218E	13.05.2025	15.05.2025	17.05.2025
2.	Harsul lake	19.923229N	75.335446E	13.05.2025	15.05.2025	17.05.2025
3.	STP Outlet Zalta phata	19.853173N	75.418691E	13.05.2025	15.05.2025	17.05.2025
4.	Sawnagi Lake, Chikalthana,	19.938665N	19.938665 N	13.05.2025	15.05.2025	17.05.2025
5.	Nalla Water, Behind Gurukul School, Chikalthana,	19.897594N	75.370750E	13.05.2025	15.05.2025	17.05.2025
6.	Lake Water, Salim Ali Sarovar	19.898799N	75.33897E	13.05.2025	15.05.2025	17.05.2025

Fig: Geographical Locations of Surface Water Sampling MIDC Chikalthana

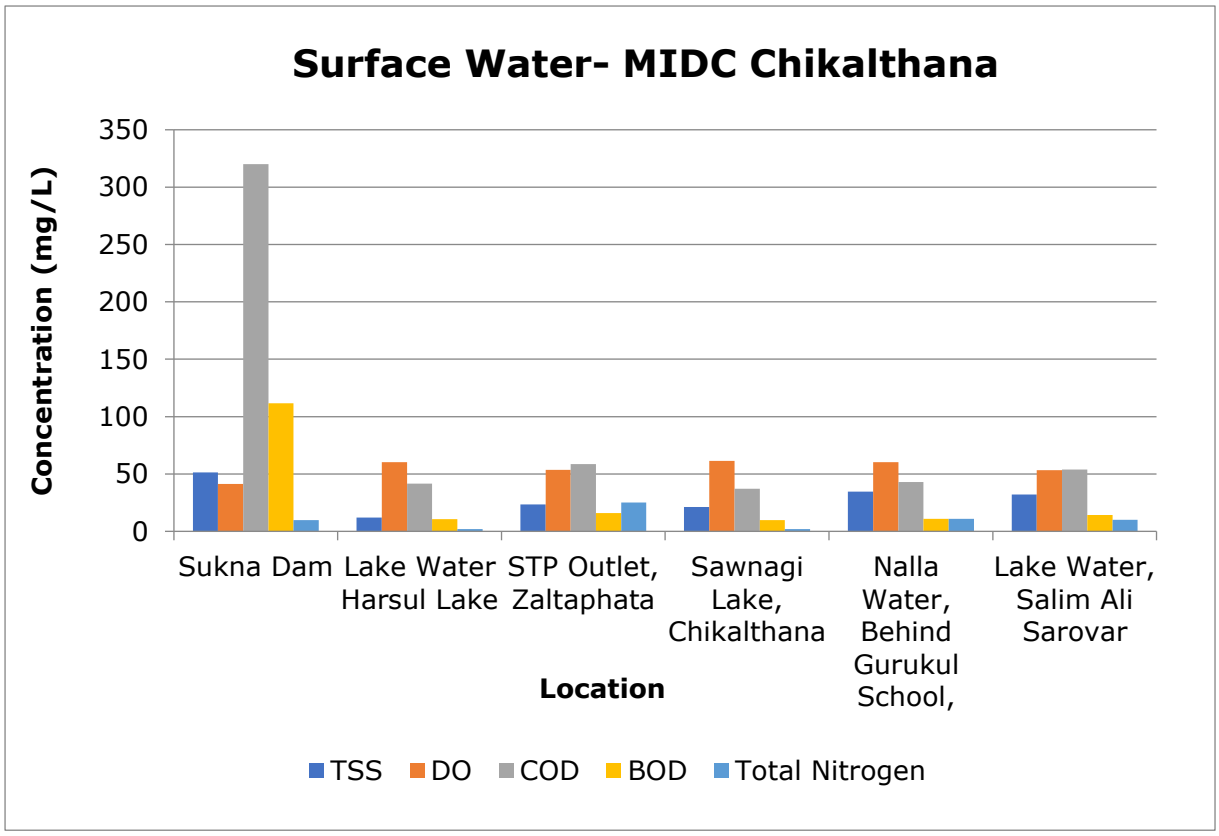
Table 6.4 MIDC Chikalthana - Results of Surface Water

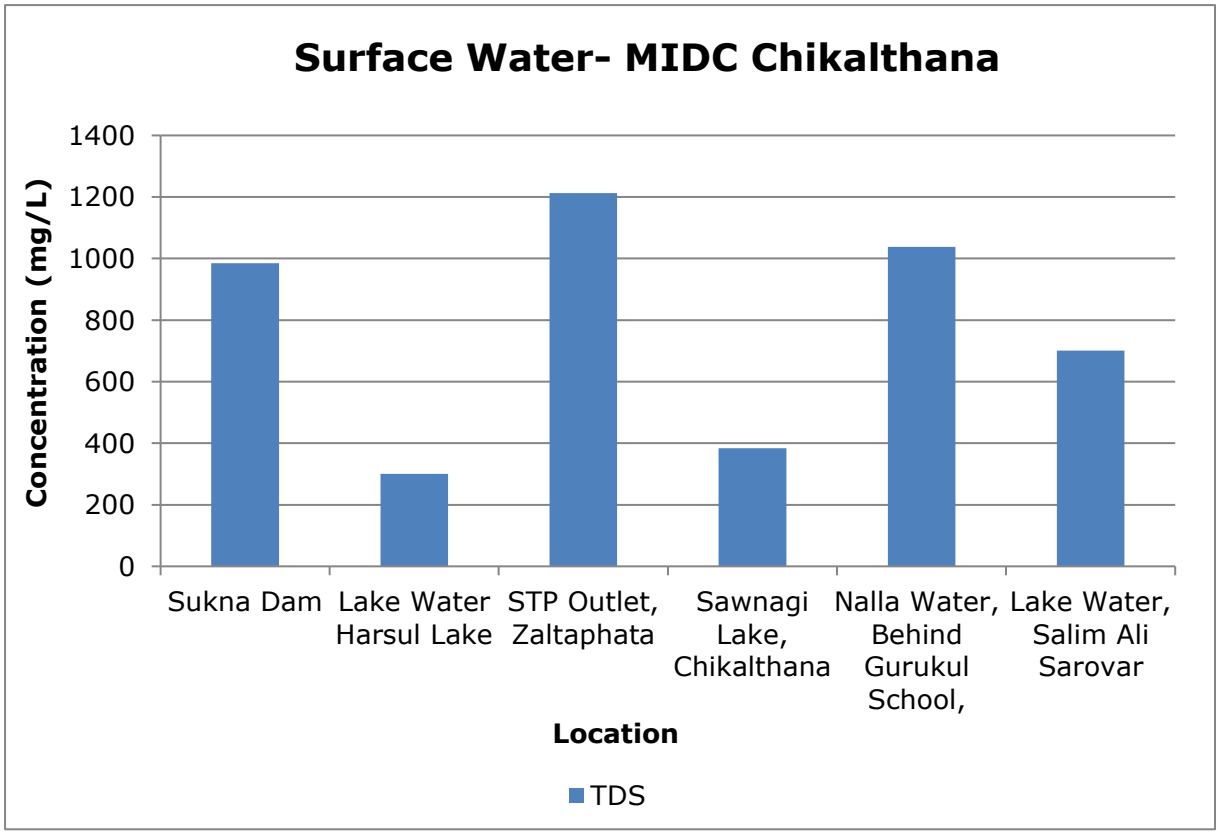
Parameters	Unit	Results					
		Sukna Dam	**Lake Water Harsul Lake**	**STP Outlet Zalta Phata**	**Sawnagi Lake, Chikalthana**	**Nalla Water, Behind Gurukul School**	**Lake Water, Salim Ali Sarovar**
Sanitary Survey	-	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood
General Appearance	-	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident
Transparency	m	0.4	0.3	0.3	0.3	0.2	0.3
Temperature	^{o}C	27	26	26	27	27	26
Colour	Hazen	4	2	4	1	1	2
Smell	-	Not Agreeable	Not Agreeable	Not Agreeable	Not Agreeable	Not Agreeable	Not Agreeable
pH	-	7.9	8.7	8.1	8.6	8.6	8.4
Oil & Grease	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Suspended Solids	mg/L	51	12	23	21	35	32
Total Dissolved Solids	mg/L	985	300	1213	383	1038	701

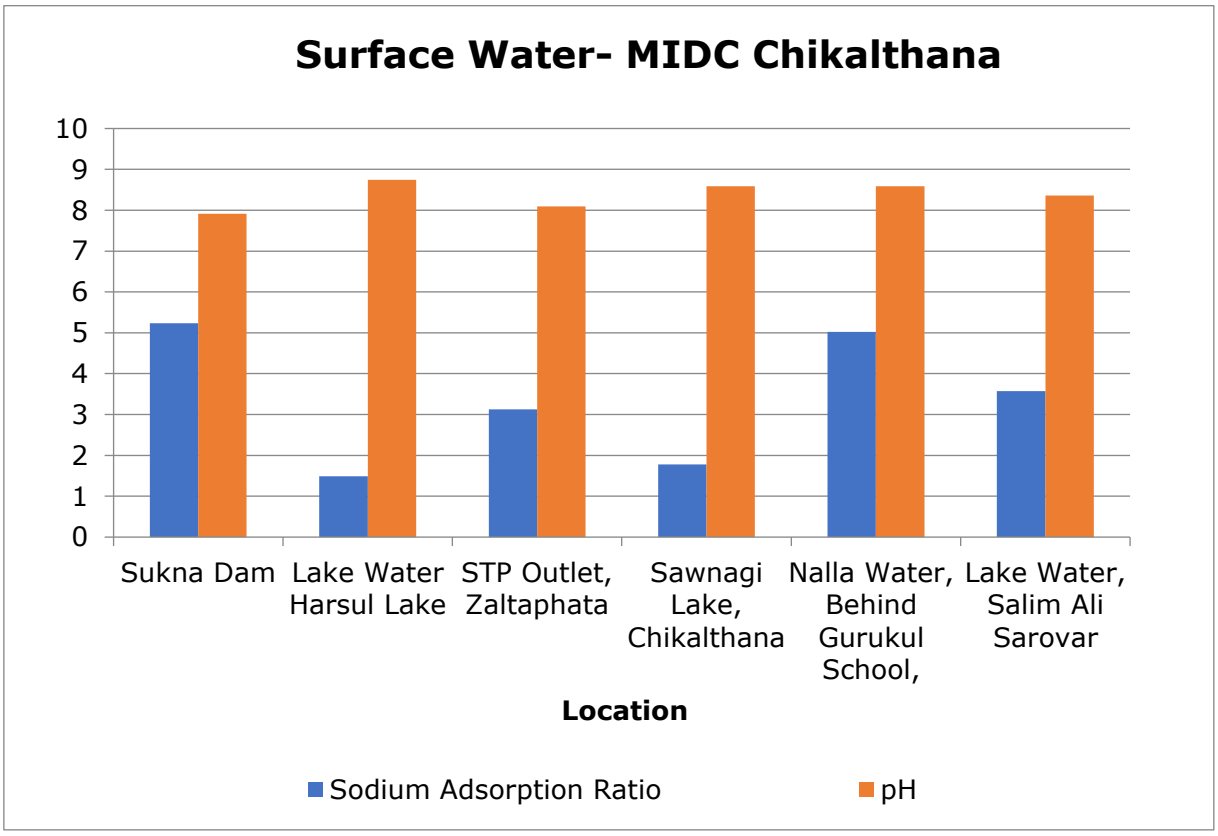
Parameters	Unit	Results					
		Sukna Dam	Lake Water Harsul Lake	STP Outlet Zalta Phata	Sawnagi Lake, Chikalthana	Nalla Water, Behind Gurukul School	Lake Water, Salim Ali Sarovar
Dissolved Oxygen (% Saturation)	%	41	60	54	61	60	53
Chemical Oxygen Demand	mg/L	320	42	59	37	43	54
Biochemical Oxygen Demand (3 days,27°C)	mg/L	112	11	16	10	11	14
Electrical Conductivity (at 25 °C)	µmho/ cm	2677	536	2167	685	1855	1253
Nitrite Nitrogen (as NO_2)	mg/L	0.10	BLQ	0.89	BLQ	0.55	0.05
Nitrate Nitrogen (as NO_3)	mg/L	5.7	0.7	5.7	0.68	3.02	3.06
(NO_2 + NO_3)-Nitrogen	mg/L	5.81	0.73	6.59	0.68	3.57	3.11
Free Ammonia (as NH_3-N)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Total Residual Chlorine	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Fluoride (as F)	mg/L	1.3	0.9	1.21	1.06	2.32	2
Sulphide (as H_2S)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	0.5	0.1	0.6	0.15	0.19	0.16
Sodium Adsorption Ratio	-	5	1	3	1.78	5.02	4
Total Coliforms	MPN Index/ 100 ml	114	323	596	400	395	241
Faecal Coliforms	MPN Index/ 100 ml	105	156	554	228	91	24
Total Phosphate (as P)	mg/L	1.3	0.2	0.9	0.2	0.4	0.41
Total Kjeldahl Nitrogen (as N)	mg/L	4	1	19	1	7	7
Total Ammonia (NH_4+NH_3)-Nitrogen	mg/L	1	0.2	0.4	0.5	0.49	2.9

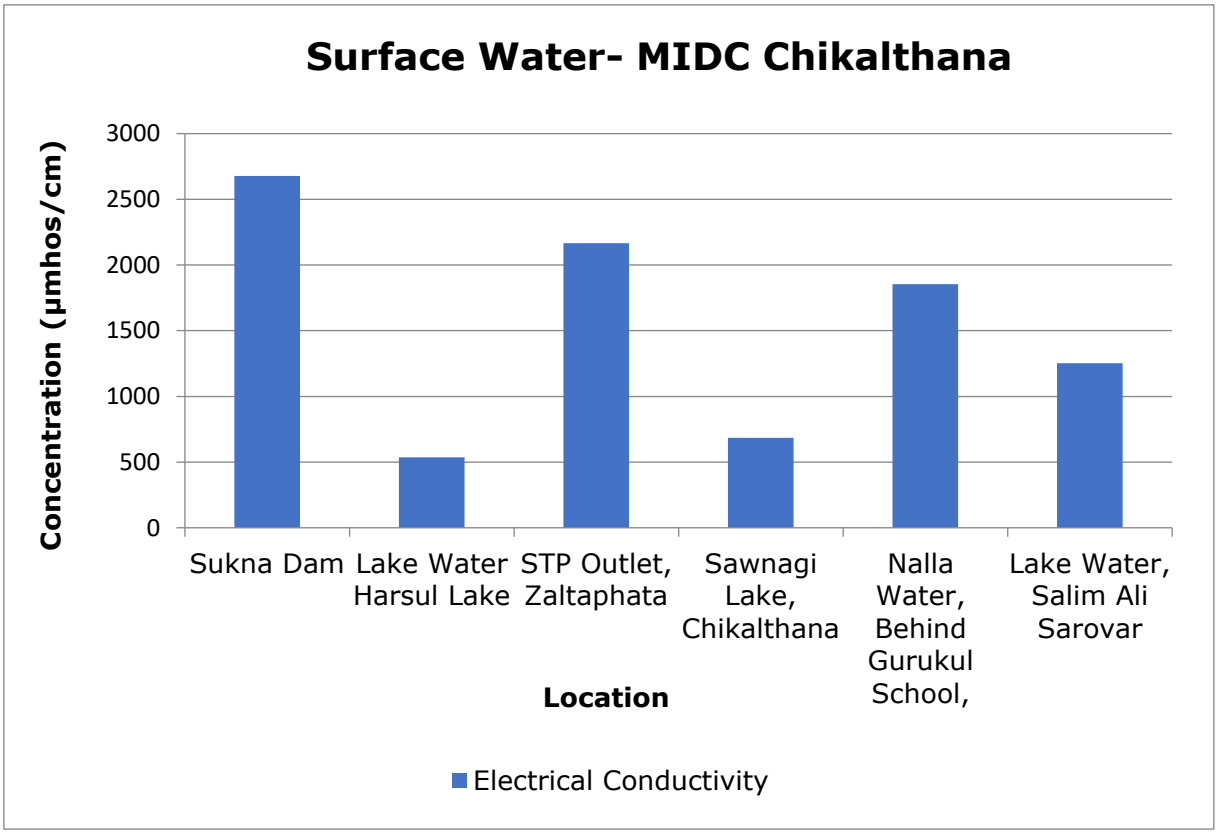
Parameters	Unit	Results					
		Sukna Dam	Lake Water Harsul Lake	STP Outlet Zalta Phata	Sawnagi Lake, Chikalthana	Nalla Water, Behind Gurukul School	Lake Water, Salim Ali Sarovar
Total Nitrogen	mg/L	10	2	25	2	11	10
Phenols (as C_6H_5OH)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Anionic Detergents (as MBAS Calculated as LAS, mol.wt.288.38)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Organo Chlorine Pesticides	µg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Polynuclear aromatic hydrocarbons (as PAH)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	BLQ	0.10	0.07	0.10	0.08	0.09
Nickel (as Ni)	mg/L	0.02	0.02	0.02	0.03	0.02	0.03
Copper (as Cu)	mg/L	0.03	0.04	0.04	0.05	0.07	0.04
Hexavalent Chromium (as Cr^{6+})	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	0.05	0.04	0.06	0.05	0.05	0.07
Total Arsenic (as As)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Lead (as Pb)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Cadmium (as Cd)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mercury (as Hg)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Manganese (as Mn)	mg/L	0.09	0.04	0.05	0.03	0.02	0.11
Iron (as Fe)	mg/L	0.44	0.21	0.23	0.27	0.21	1.02
Vanadium (as V)	mg/L	0.03	0.08	0.12	0.09	0.22	0.05
Selenium (as Se)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Boron (as B)	mg/L	0.53	BLQ	0.42	0.23	0.24	0.19
Bioassay Test on fish	% survival	13	93	77	100	90	63

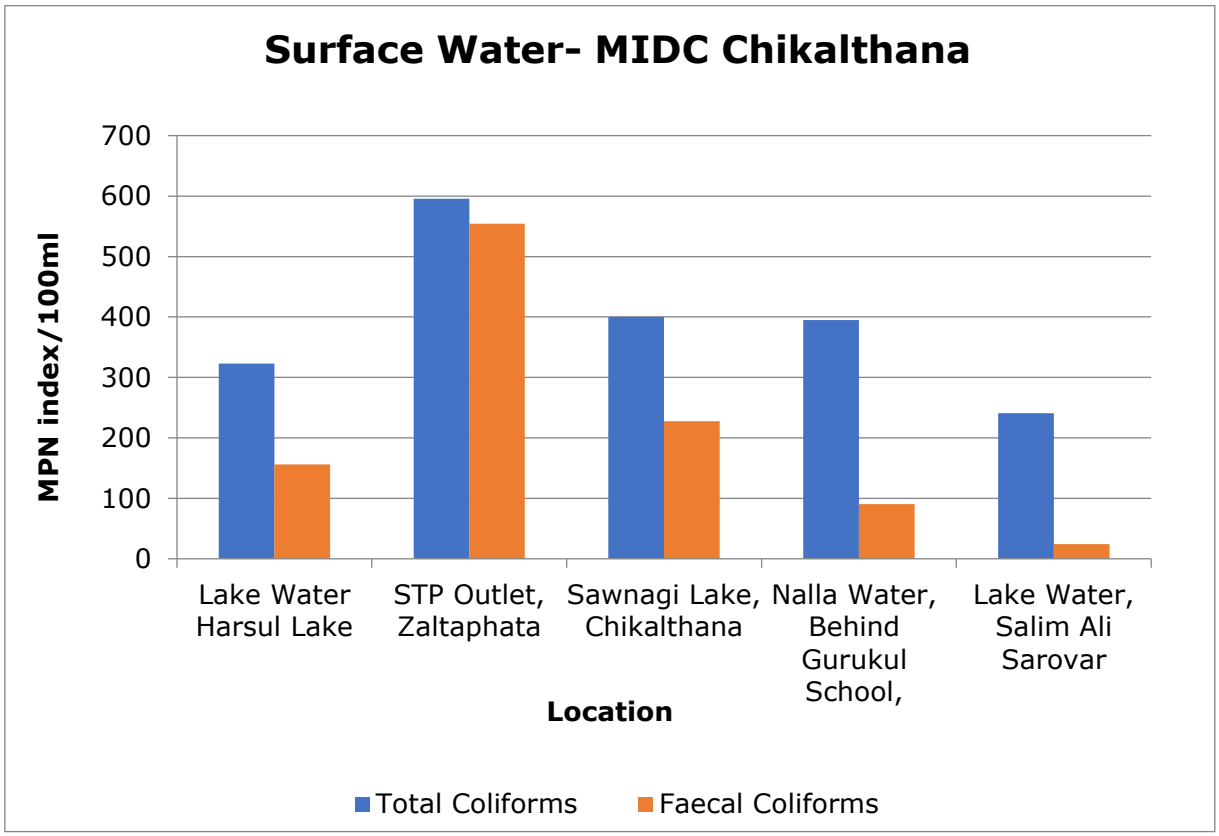
Graphs - Surface water of MIDC Chikalthana

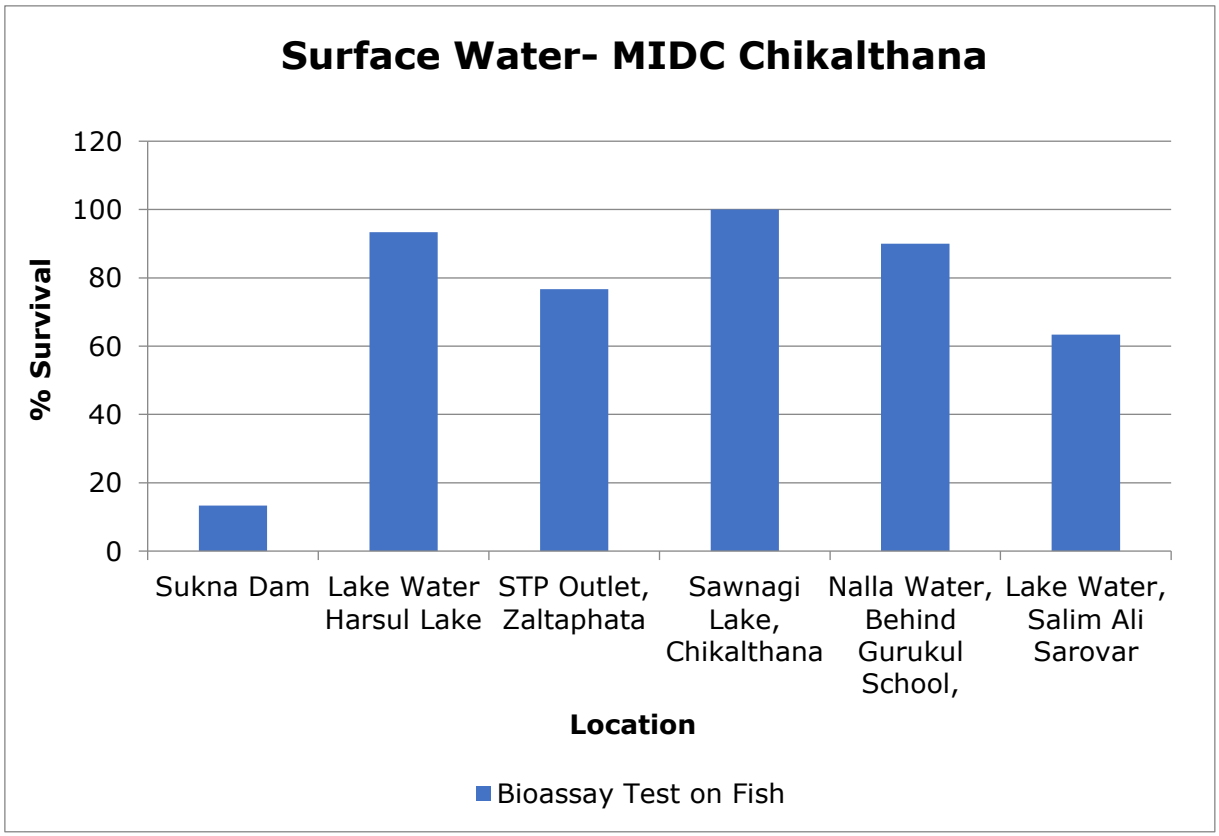





Surface Water- MIDC Chikalthana
10
9
8
7
6
5
4
3
2
1
0
Sukna Dam
Lake Water Harsul Lake
STP Outlet, Zaltaphata
Sawnagi Lake, Chikalthana
Nalla Water, Behind Gurukul School,
Lake Water, Salim Ali Sarovar
Location
Sodium Adsorption Ratio
pH


Surface Water- MIDC Chikalthana
Concentration (µmhos/cm)
3000
2500
2000
1500
1000
500
0
Sukna Dam
Lake Water Harsul Lake
STP Outlet, Zaltaphata
Sawnagi Lake, Chikalthana
Nalla Water, Behind Gurukul School,
Lake Water, Salim Ali Sarovar
Location
Electrical Conductivity


Surface Water- MIDC Chikalthana
MPN index/100ml
700
600
500
400
300
200
100
0
Lake Water Harsul Lake
STP Outlet, Zaltaphata
Sawnagi Lake, Chikalthana
Nalla Water, Behind Gurukul School,
Lake Water, Salim Ali Sarovar
Location
Total Coliforms
Faecal Coliforms


Surface Water- MIDC Chikalthana
% Survival
120
100
80
60
40
20
0
Sukna Dam
Lake Water Harsul Lake
STP Outlet, Zaltaphata
Sawnagi Lake, Chikalthana
Nalla Water, Behind Gurukul School,
Lake Water, Salim Ali Sarovar
Location
Bioassay Test on Fish

3. **MIDC Waluj:** Six surface water samples were collected from MIDC Waluj.

- All the water samples collected were found acceptable in general appearance
- pH of all the water samples is observed between 8.0-9.0
- Electrical conductivity is observed highest (2390 µmho/cm) at SMS CETP Waluj Pvt Ltd.
- Concentration of Biological Oxygen Demand (BOD), and Total Kjeldahl Nitrogen (TKN) was found to exceed Within the standard limits at all the studied locations.
- Metals like Arsenic, lead, cadmium and mercury were also observed either below limit of quantification or below their standard limits.
- Parameters like Total Residual Chlorine, Nitrogen, Cyanide, Sulphide, Dissolved Phosphate, Total Ammonical Nitrogen and Phenolic compounds, also met the criteria as prescribed by CPCB.
- Organo Chlorine Pesticides, Polynuclear aromatic hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB) were also observed below the limit of quantification in all the studied samples.

Table 6.5 MIDC Waluj - Details of Sampling Location of Surface Water

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Upstream Kham River Water	19.811217N	75.24969E	19.05.2025	21.05.2025	23.05.2025
2.	CETP Discharge Point	19.828454N	75.239718E	19.05.2025	21.05.2025	23.05.2025
3.	Lake Water, Behind K Sector	19.852431N	75.217922E	19.05.2025	21.05.2025	23.05.2025
4.	Lake Water, Jogeshwari	19.822524N	75.210661E	19.05.2025	21.05.2025	23.05.2025
5.	Pond Water, SMS CETP Waluj Pvt Ltd.	19.82869N	75.238967E	19.05.2025	21.05.2025	23.05.2025
6.	Lake Water Ghanegoan	19.865948N	75.212711E	19.05.2025	21.05.2025	23.05.2025

Fig: Geographical Locations of Surface Water Sampling MIDC Waluj

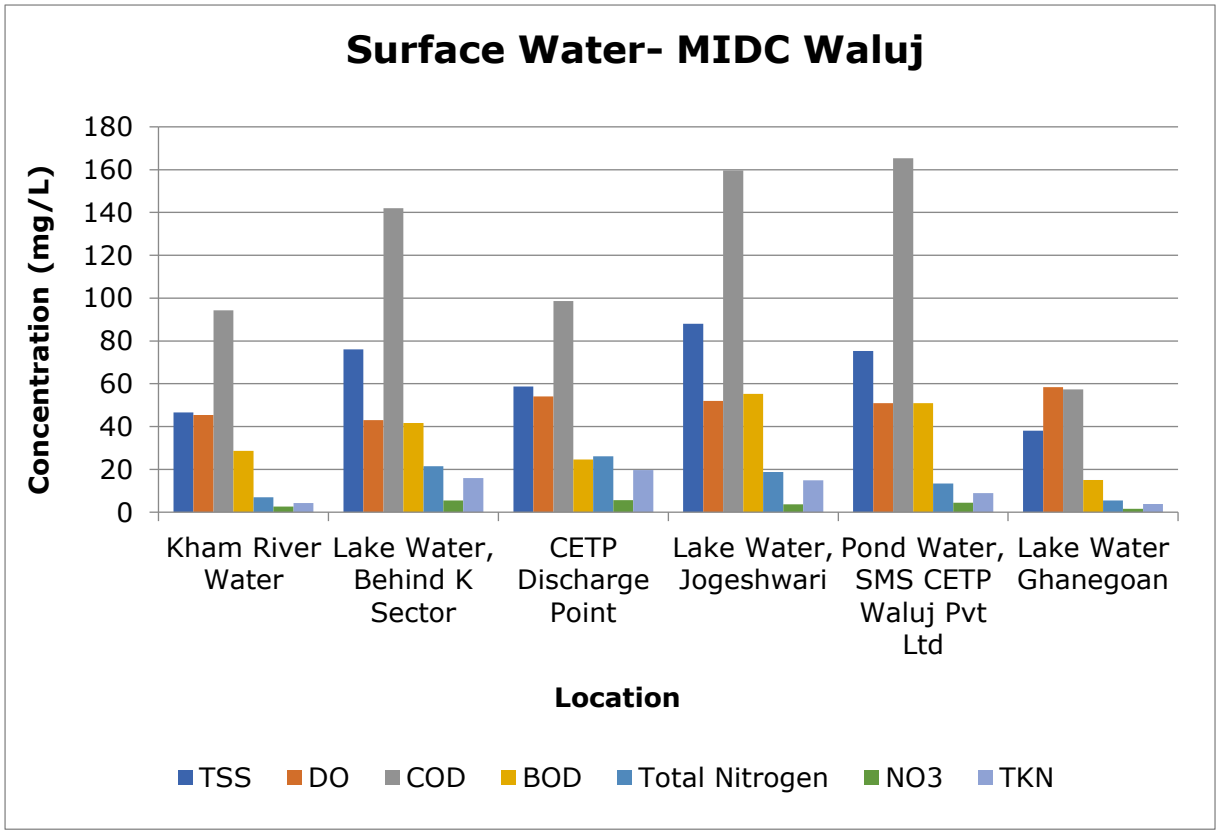
Table 6.6 MIDC Waluj - Results of Surface Water

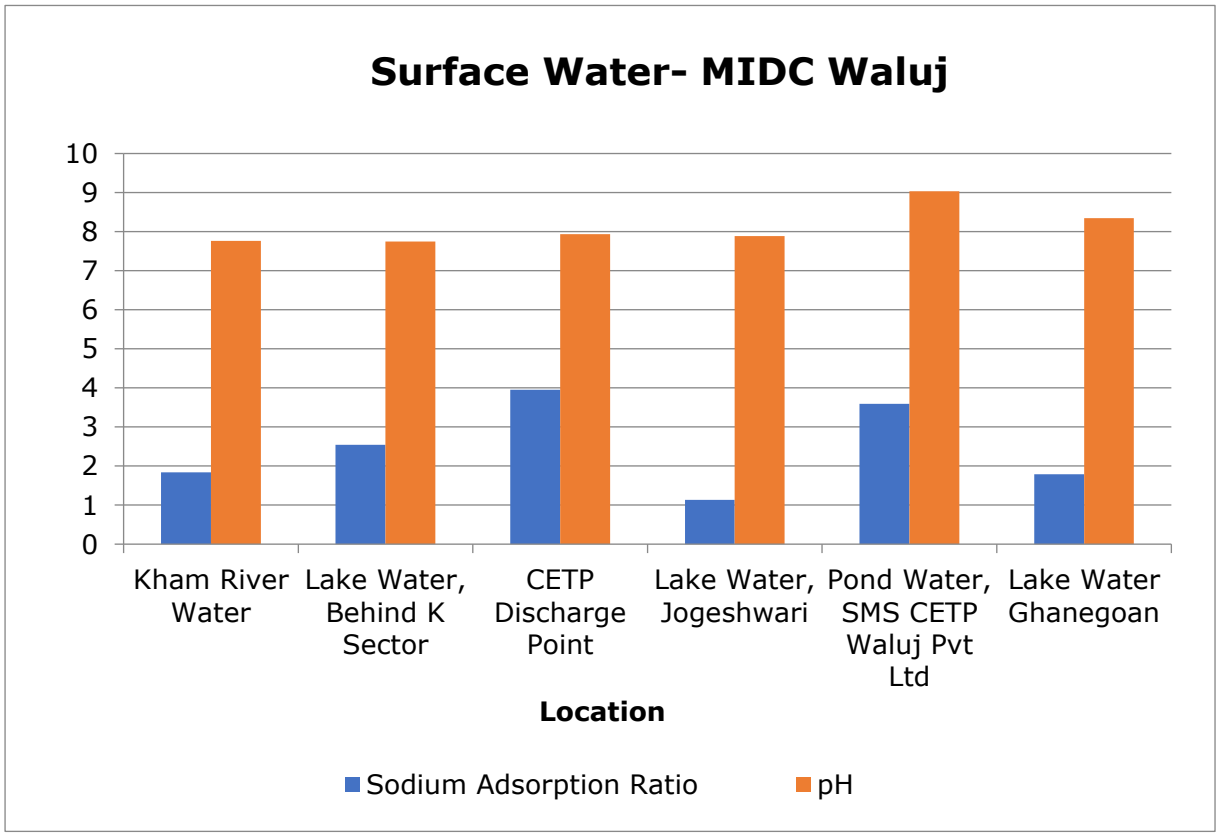
Parameters	Unit	Results					
		Kham River Water	**Lake Water, Behind K Sector**	**CETP Discharge Point**	**Lake Water, Jogeshwari**	**Pond Water, SMS CETP Waluj Pvt Ltd**	**Lake Water Ghanegoan**
Sanitary Survey	-	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood
General Appearance	-	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident
Transparency	m	0.1	0.1	0.2	0.1	0.1	0.2
Temperature	°C	26	26	27	27	28	26
Colour	Hazen	2	42	26	110	20	8
Smell	-	Not Agreeable	Not Agreeable	Not Agreeable	Not Agreeable	Not Agreeable	Not Agreeable
pH	-	8	8	8	8	9	8
Oil & Grease	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Suspended Solids	mg/L	47	76	59	88	75	38
Total Dissolved Solids	mg/L	573	986	1130	550	1337	423

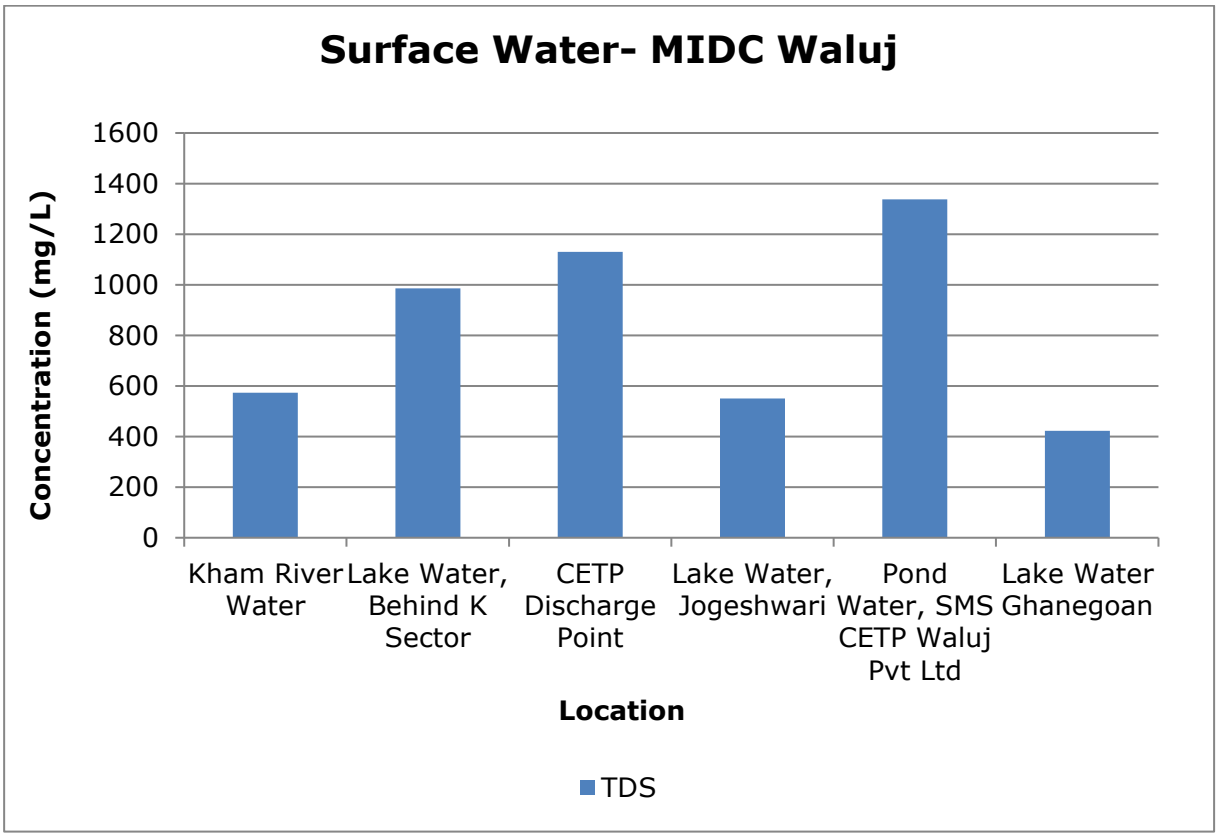
Parameters	Unit	Results					
		Kham River Water	Lake Water, Behind K Sector	CETP Discharge Point	Lake Water, Jogeshwari	Pond Water, SMS CETP Waluj Pvt Ltd	Lake Water Ghanegoan
Dissolved Oxygen (% Saturation)	%	45	43	54	52	51	58
Chemical Oxygen Demand	mg/L	94	142	99	160	165	57
Biochemical Oxygen Demand (3 days,27°C)	mg/L	29	42	25	55	51	15
Electrical Conductivity (at 25 °C)	µmho/ cm	1024	1762	2017	983	2390	783
Nitrite Nitrogen (as NO_2)	mg/L	0.02	0.08	0.84	0.41	0.04	0.03
Nitrate Nitrogen (as NO_3)	mg/L	2.7	5.5	5.7	3.7	4.5	1.5
(NO_2 + NO_3)-Nitrogen	mg/L	3	6	7	4	5	2
Free Ammonia (as NH_3-N)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Total Residual Chlorine	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Fluoride (as F)	mg/L	1.22	0.79	2.44	1.38	0.83	1.22
Sulphide (as H_2S)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Sodium Adsorption Ratio	-	1.8	2.5	4.0	1.1	3.6	1.8
Total Coliforms	MPN Index/ 100 ml	1140	2000	49	3647	22	770
Faecal Coliforms	MPN Index/ 100 ml	545	266	8	338	7	364
Total Phosphate (as P)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Total Kjeldahl Nitrogen (as N)	mg/L	4	16	20	15	9	4
Total Ammonia (NH_4+NH_3)-Nitrogen	mg/L	1.2	2.3	1.1	2.8	2.3	0.8
Total Nitrogen	mg/L	7.0	21.5	26.2	18.8	13.4	5.4
Phenols (as C_6H_5OH)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Anionic Detergents (as MBAS Calculated as LAS, mol.wt.288.38)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ

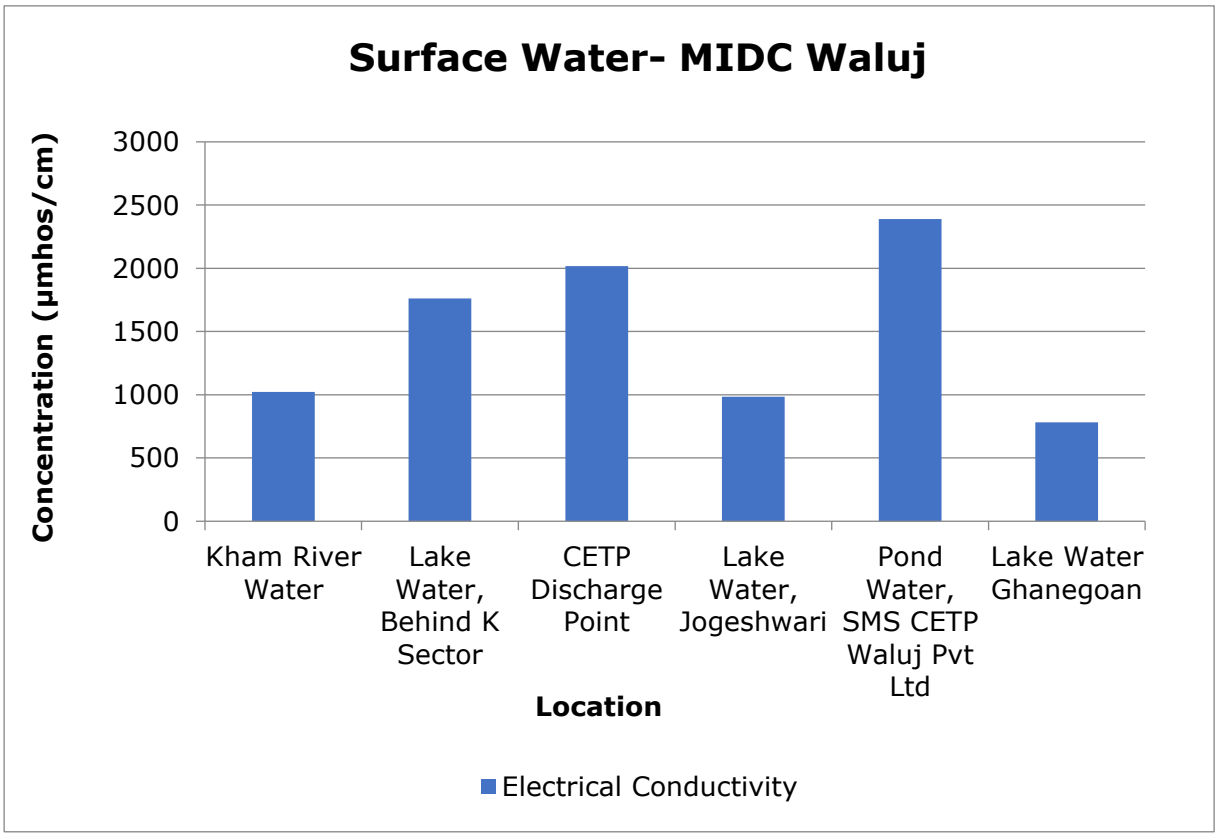
Parameters	Unit	Results					
		Kham River Water	Lake Water, Behind K Sector	CETP Discharge Point	Lake Water, Jogeshwari	Pond Water, SMS CETP Waluj Pvt Ltd	Lake Water Ghanegoan
Organo Chlorine Pesticides	µg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Polynuclear aromatic hydrocarbons (as PAH)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Nickel (as Ni)	mg/L	0.03	0.05	0.14	0.05	0.07	0.02
Copper (as Cu)	mg/L	0.04	0.03	0.02	0.03	0.03	0.03
Hexavalent Chromium (as Cr^{6+})	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	0.07	0.06	0.06	0.07	0.05	0.05
Total Arsenic (as As)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Lead (as Pb)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Cadmium (as Cd)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mercury (as Hg)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Manganese (as Mn)	mg/L	0.14	0.20	0.11	0.47	0.19	0.10
Iron (as Fe)	mg/L	0.52	0.70	0.31	0.82	0.22	1.98
Vanadium (as V)	mg/L	0.02	0.02	BLQ	0.03	0.01	0.05
Selenium (as Se)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Boron (as B)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Bioassay Test on fish	% survival	70	43	70	43	40	87

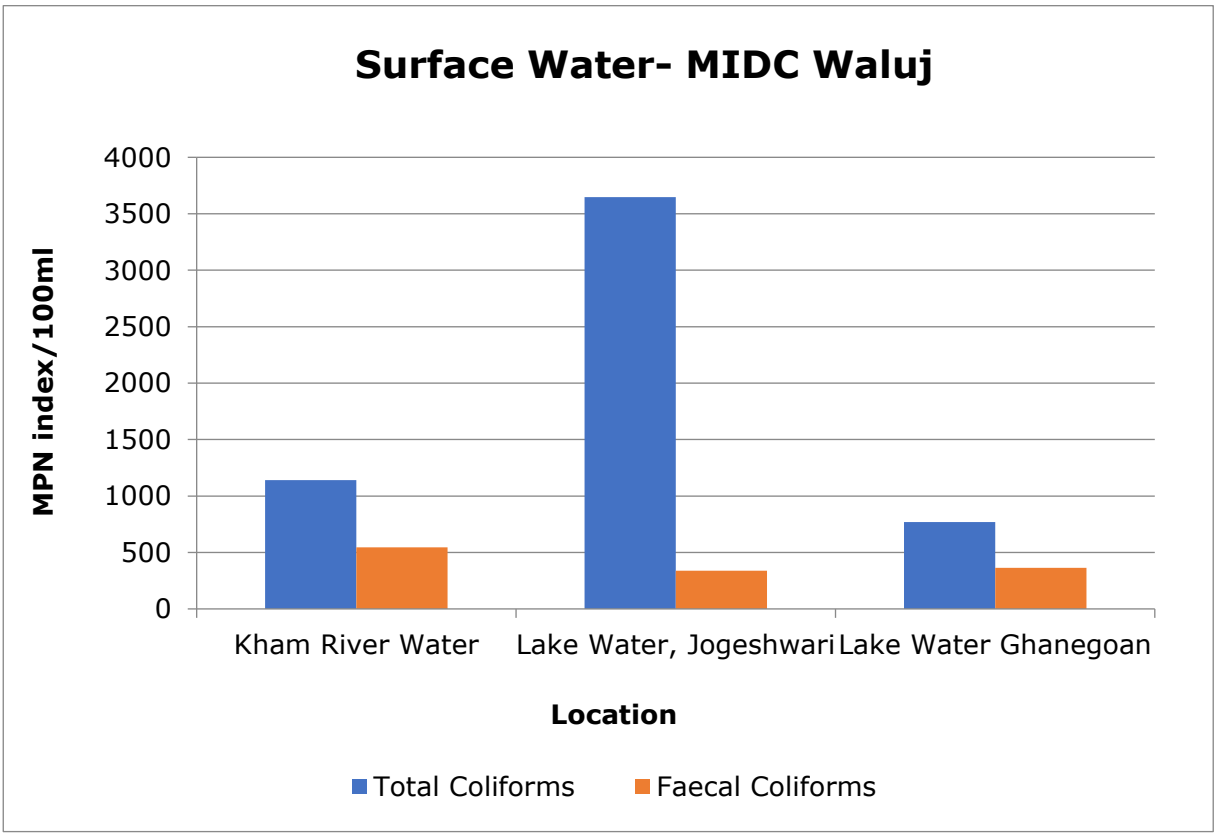
Graphs - Surface water of MIDC Waluj

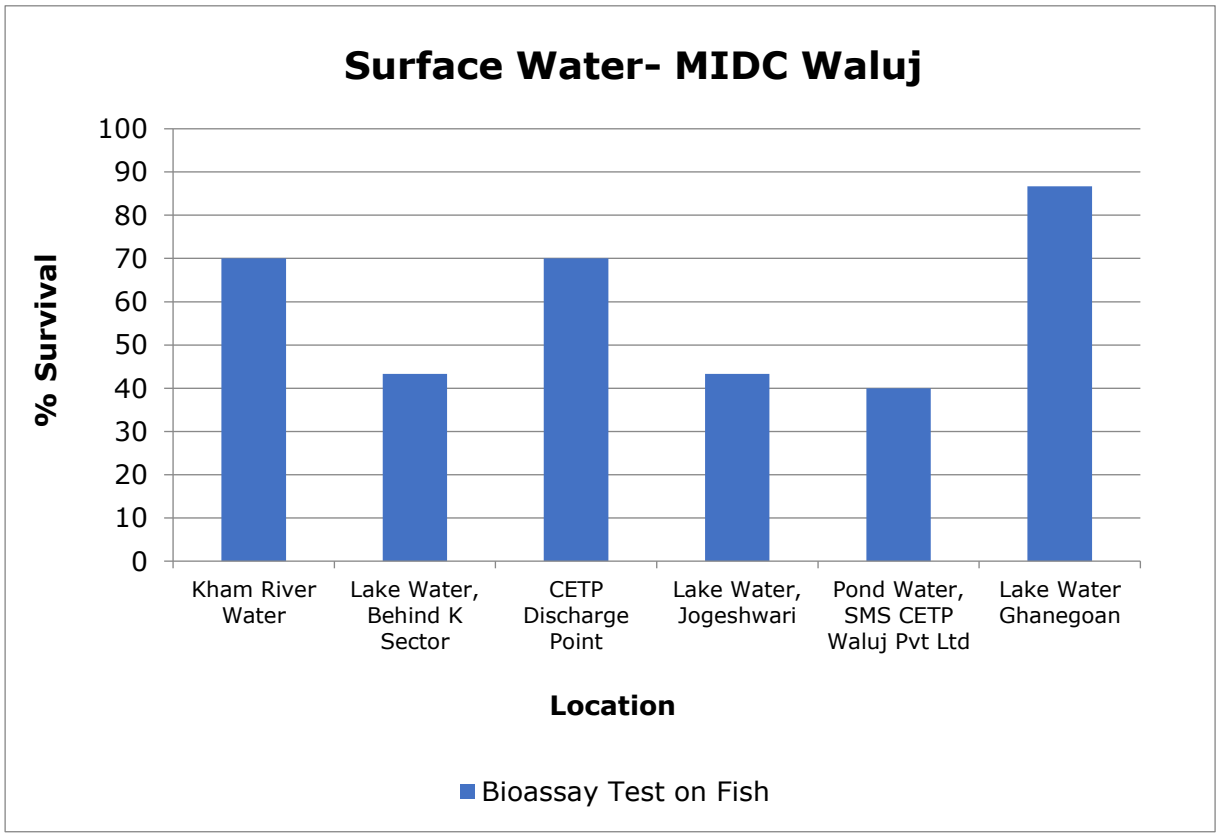





Surface Water- MIDC Waluj
Concentration (mg/L)
1600
1400
1200
1000
800
600
400
200
0
Kham River Water
Lake Water, Behind K Sector
CETP Discharge Point
Lake Water, Jogeshwari
Pond Water, SMS CETP Waluj Pvt Ltd
Lake Water Ghanegoan
Location
TDS


Surface Water- MIDC Waluj
Concentration (µmhos/cm)
3000
2500
2000
1500
1000
500
0
Kham River Water
Lake Water, Behind K Sector
CETP Discharge Point
Lake Water, Jogeshwari
Pond Water, SMS CETP Waluj Pvt Ltd
Lake Water Ghanegoan
Location
Electrical Conductivity


Surface Water- MIDC Waluj
MPN index/100ml
4000
3500
3000
2500
2000
1500
1000
500
0
Kham River Water
Lake Water, Jogeshwari
Lake Water Ghanegoan
Location
Total Coliforms
Faecal Coliforms


Surface Water- MIDC Waluj
% Survival
100
90
80
70
60
50
40
30
20
10
0
Kham River Water
Lake Water, Behind K Sector
CETP Discharge Point
Lake Water, Jogeshwari
Pond Water, SMS CETP Waluj Pvt Ltd
Lake Water Ghanegoan
Location
Bioassay Test on Fish

4. **MIDC Paithan:** Six surface water samples were collected from MIDC Paithan.

- All of six water samples, were found acceptable in general appearance, colour and smell.
- Electrical conductivity is observed highest as 1353 µmho/cm in water collected from nallah near R. L. Steel.
- The concentration of Biological Oxygen Demand (BOD) is found to exceed the standard limits at all the studied locations.
- Fish survival was observed in the range of 83%-100% during the test.
- Metals like Arsenic, lead, cadmium, Hexavalent Chromium (Cr^{6+}) etc. were also observed either below the limit of quantification or below their standard limits.
- Parameters like Total Residual Chlorine, Nitrogen, Cyanide, Sulphide, Dissolved Phosphate, Total Ammonical Nitrogen and Phenolic compounds also met the criteria as prescribed by CPCB.
- Organo Chlorine Pesticides, Polynuclear aromatic hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB) were also observed below the limit of quantification in all the studied samples.

Table 6.7 MIDC Paithan - Details of Sampling Location of Surface Water

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Dam Water Back Side of WTP, Farolla Village, Paithan road	19.755413N	75.307286E	20.05.2025	22.05.2025	24.05.2025
2.	Patil Lake Water, Near Walmi	19.832217N	75.315335E	20.05.2025	22.05.2025	24.05.2025
3.	Nalla Water Farolla Village, Paithan Road MIDC, ABD	19.727627N	75.295933E	20.05.2025	22.05.2025	24.05.2025
4.	Pond Water Backside of Essem Electricals, MIDC Paithan Road ABD	19.785012N	75.273579E	20.05.2025	22.05.2025	24.05.2025
5.	Nalla water, Near R. L. Steel, Chittegaon, Paithan road, ABD	19.742664N	75.293525E	20.05.2025	22.05.2025	24.05.2025
6.	Nalla Water, Near Itkheda, Station MIDC Paithan	19.846289N	75.299079E	20.05.2025	22.05.2025	24.05.2025

Fig: Geographical Locations of Surface Water Sampling MIDC Paithan

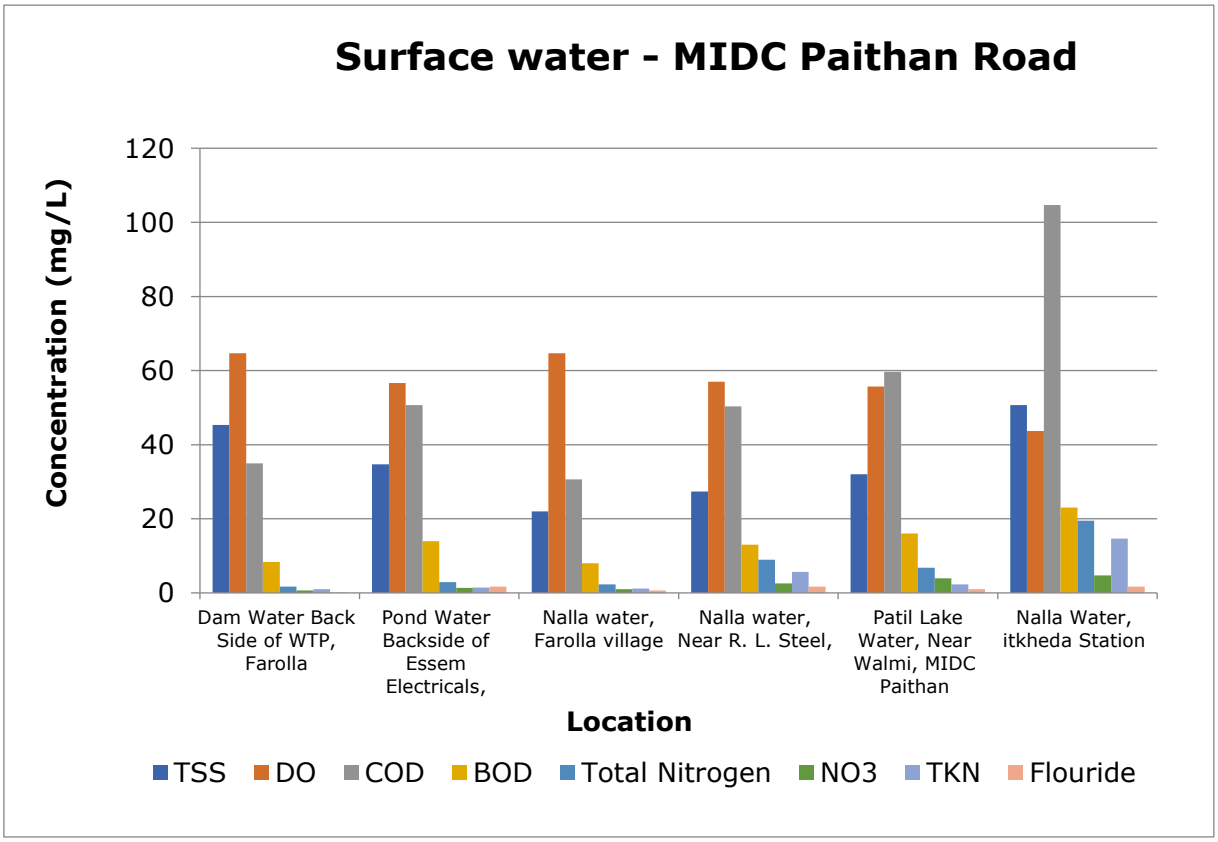
Table 6.8 MIDC Paithan - Results of Surface Water

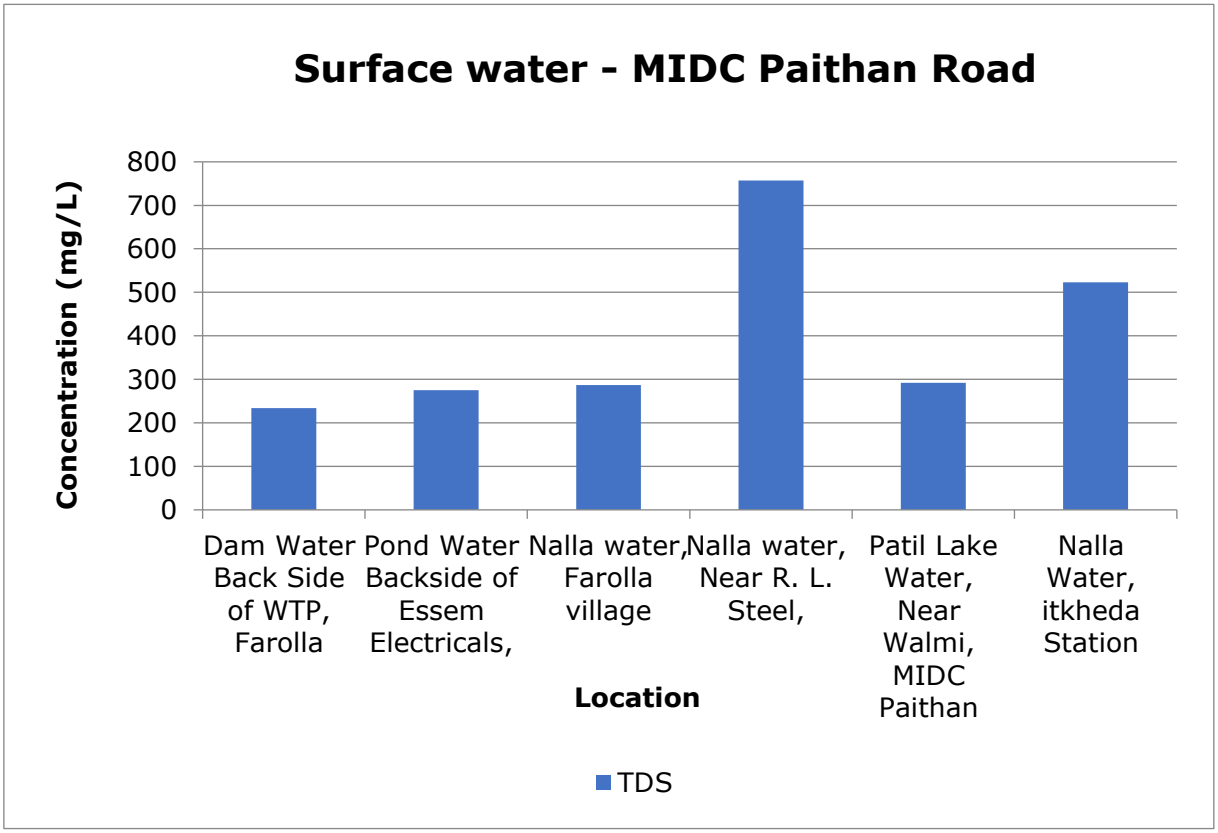
Parameters	Unit	Results					
		Dam Water Back Side of WTP	**Pond Water Backside of Essem Electrical**	**Nallah water, Farolla village**	**Nallah water, Near R. L. Steel**	**Patil Lake Water, Near Walmi**	**Nallah Water, itkheda Station MIDC**
Sanitary Survey	-	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood
General Appearance	-	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident
Transparency	m	0.2	0.2	0.1	0.2	0.2	0.1
Temperature	°C	27	26	26	26	27	26
Colour	Hazen	1	1	1	3	6	4
Smell	-	Not Agreeable	Not Agreeable	Not Agreeable	Not Agreeable	Not Agreeable	Not Agreeable
pH	-	8	8	8	8	8	8
Oil & Grease	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Suspended Solids	mg/L	45	35	22	27	32	51
Total Dissolved Solids	mg/L	234	275	287	757	292	523

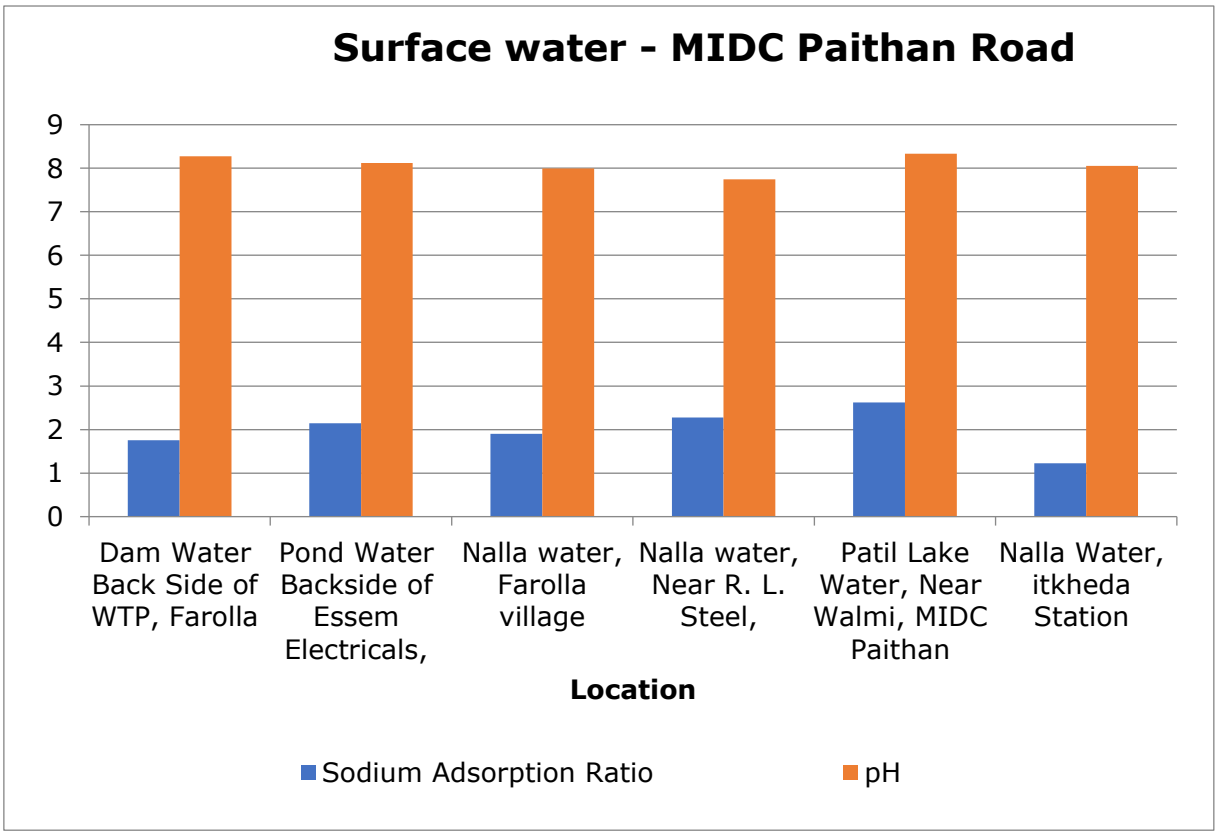
Parameters	Unit	Results					
		Dam Water Back Side of WTP	Pond Water Backside of Essem Electrical	Nallah water, Farolla village	Nallah water, Near R. L. Steel	Patil Lake Water, Near Walmi	Nallah Water, itkheda Station MIDC
Dissolved Oxygen (% Saturation)	%	65	57	65	57	56	44
Chemical Oxygen Demand	mg/L	35	51	31	50	60	105
Biochemical Oxygen Demand (3 days,27°C)	mg/L	8	14	8	13	16	23
Electrical Conductivity (at 25 °C)	µmho/ cm	419	493	513	1353	522	935
Nitrite Nitrogen (as NO_2)	mg/L	0.0	0.1	0.1	0.7	0.6	0.1
Nitrate Nitrogen (as NO_3)	mg/L	0.7	1.4	1.0	2.6	3.9	4.7
(NO_2 + NO_3)-Nitrogen	mg/L	0.7	1.4	1.1	3.3	4.6	4.82
Free Ammonia (as NH_3-N)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Total Residual Chlorine	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Fluoride (as F)	mg/L	0.15	1.73	0.71	1.69	0.99	1.7
Sulphide (as H_2S)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Sodium Adsorption Ratio	-	2	2	2	2	3	1.2
Total Coliforms	MPN Index/ 100 ml	55	1373	866	1793	303	164
Faecal Coliforms	MPN Index/ 100 ml	54	793	496	122	240	81
Total Phosphate (as P)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Total Kjeldahl Nitrogen (as N)	mg/L	1	1	1	6	2.27	15

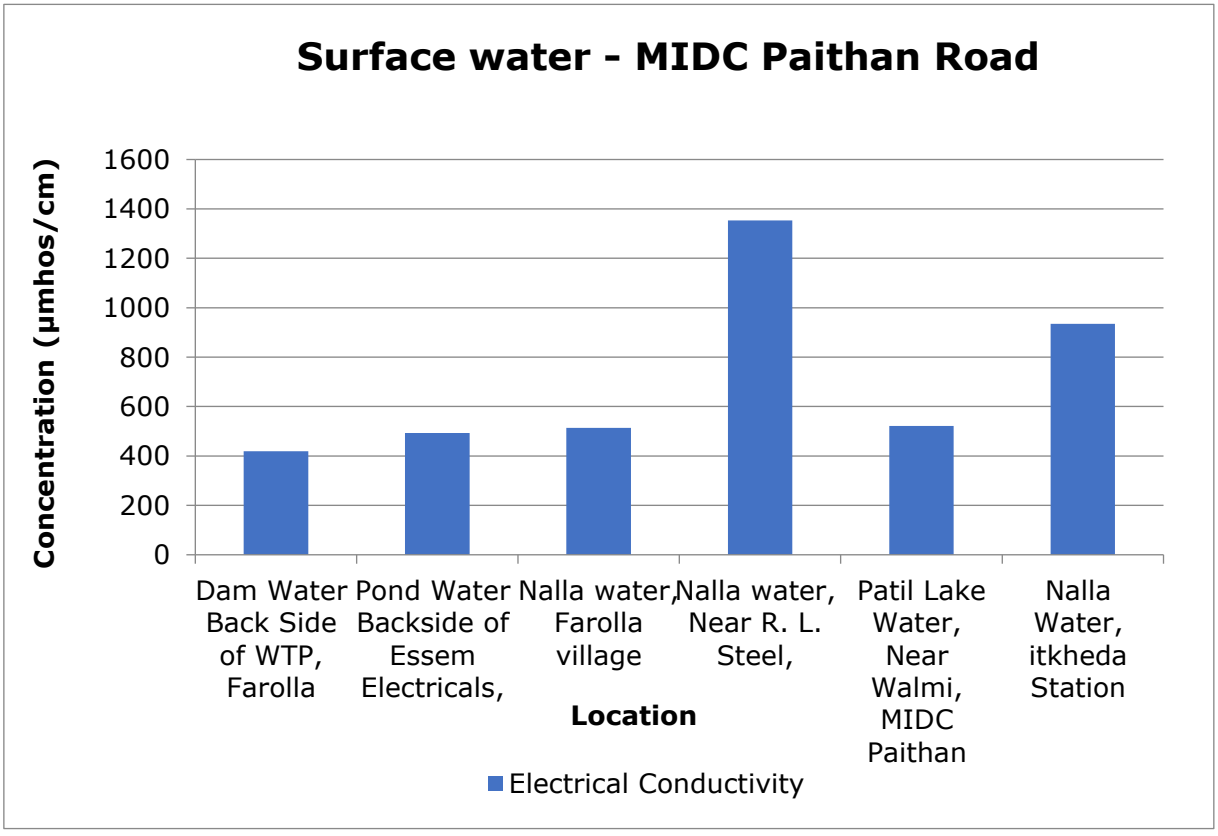
Parameters	Unit	Results					
		Dam Water Back Side of WTP	Pond Water Backside of Essem Electrical	Nallah water, Farolla village	Nallah water, Near R. L. Steel	Patil Lake Water, Near Walmi	Nallah Water, itkheda Station MIDC
Total Ammonia (NH_4+NH_3)-Nitrogen	mg/L	2.5	0.2	0.1	0.1	0.4	1.0
Total Nitrogen	mg/L	1.70	2.89	2.28	8.98	6.82	19.5
Phenols (as C_6H_5OH)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Anionic Detergents (as MBAS Calculated as LAS, mol.wt.288.38)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Organo Chlorine Pesticides	µg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Polynuclear aromatic hydrocarbons (as PAH)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Nickel (as Ni)	mg/L	0.01	0.02	0.02	0.03	0.03	0.03
Copper (as Cu)	mg/L	BLQ	BLQ	0.02	0.03	0.05	0.05
Hexavalent Chromium (as Cr^{6+})	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	0.03	0.06	0.06	0.05	0.07	0.06
Total Arsenic (as As)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Lead (as Pb)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Cadmium (as Cd)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mercury (as Hg)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Manganese (as Mn)	mg/L	0.07	0.08	0.07	0.13	0.078	0.66
Iron (as Fe)	mg/L	0.47	0.41	0.94	0.46	5.64	4.23
Vanadium (as V)	mg/L	0.04	0.02	0.05	0.07	0.06	0.05
Selenium (as Se)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Boron (as B)	mg/L	BLQ	0.13	0.11	0.87	BLQ	BLQ
Bioassay Test on fish	% survival	97	93	100	97	83	87

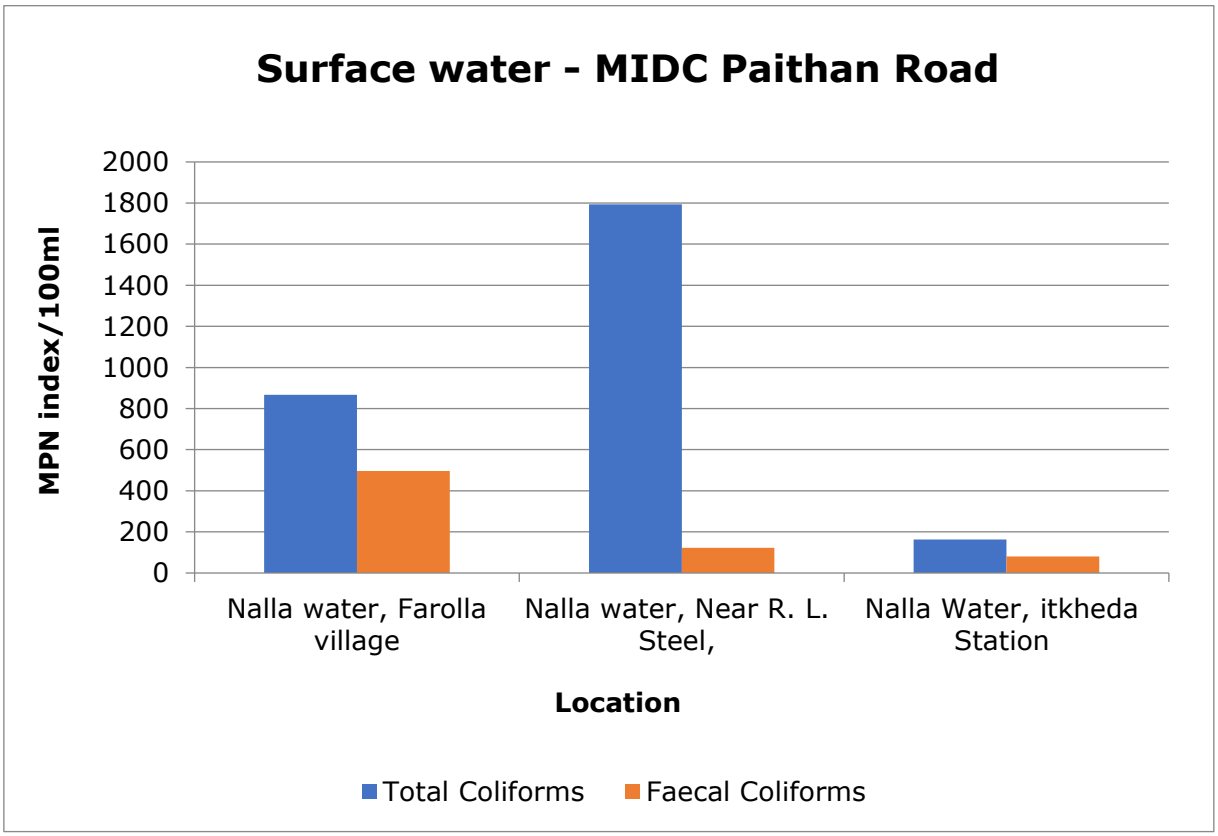
Graphs - Surface water of MIDC Paithan Road

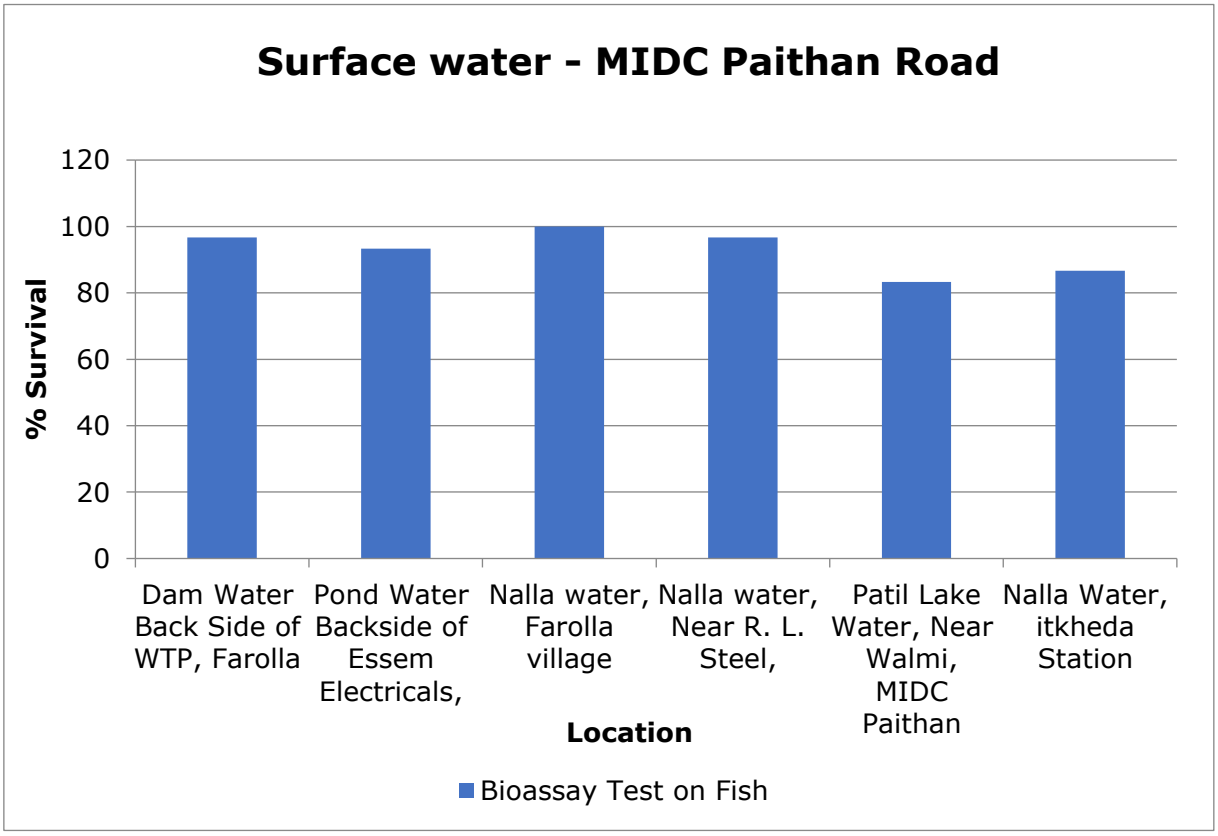





Surface water - MIDC Paithan Road
9
8
7
6
5
4
3
2
1
0
Dam Water Back Side of WTP, Farolla
Pond Water Backside of Essem Electricals,
Nalla water, Farolla village
Nalla water, Near R. L. Steel,
Patil Lake Water, Near Walmi, MIDC Paithan
Nalla Water, itkheda Station
Location
Sodium Adsorption Ratio
pH


Surface water - MIDC Paithan Road
Concentration (µmhos/cm)
1600
1400
1200
1000
800
600
400
200
0
Dam Water Back Side of WTP, Farolla
Pond Water Backside of Essem Electricals,
Nalla water, Farolla village
Nalla water, Near R. L. Steel,
Patil Lake Water, Near Walmi, MIDC Paithan
Nalla Water, itkheda Station
Location
Electrical Conductivity


Surface water - MIDC Paithan Road
MPN index/100ml
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Nalla water, Farolla village
Nalla water, Near R. L. Steel,
Nalla Water, itkheda Station
Location
Total Coliforms
Faecal Coliforms


Surface water - MIDC Paithan Road
% Survival
120
100
80
60
40
20
0
Dam Water Back Side of WTP, Farolla
Pond Water Backside of Essem Electricals,
Nalla water, Farolla village
Nalla water, Near R. L. Steel,
Patil Lake Water, Near Walmi, MIDC Paithan
Nalla Water, itkheda Station
Location
Bioassay Test on Fish

6. Land Environment

For studying the land Environment of Chhatrapati Sambhaji nagar area, ground water was collected from Bore well. Dug well, and Hand Pump. A total of 12 samples were collected from MIDC Shendra, MIDC Chikalthana, MIDC Paithan and MIDC Waluj.

1. **MIDC Shendra:** Three groundwater samples were collected from the MIDC Chhatrapati Sambhaji nagar region.

- All three water samples collected were found acceptable in general appearance, colour, smell and transparency.
- pH is observed in the range of 7.6-8.0.
- Electrical conductivity of Hand Pump Near Grampanchayat Kumbhephal is observed highest with 2590 µmhos/cm.
- Fish survival was achieved in the range of 70% to 98% in the water samples during the Fish Bioassay.
- All metals like Arsenic, lead, cadmium, and Hexavalent Chromium (Cr6+) etc. were observed either below the limit of quantification or below their standard limits.
- Parameters like Total Residual Chlorine, Cyanide, Sulphide, Dissolved Phosphate, Total Ammonical Nitrogen and Phenolic compounds also met the criteria as prescribed by CPCB.
- Polynuclear aromatic hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB) were determined below the limit of quantification in all 3 samples collected.
- Organo Chlorine Pesticides were also observed below the limit of quantification in all 3 samples collected.

Table 7.1 MIDC Shendra - Details of Sampling Location of Ground Water

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Open Well Wockhardt Shendra	19.874387	75.49215	13.05.2025	15.05.2025	17.05.2025
2.	Hand Pump, Near Grampanchayat, Kumbhephal Village	19.861724	75.493492	13.05.2025	15.05.2025	17.05.2025
3.	Hand Pump, Near Hanuman Temple, Shendra Village	19.872872	75.470608	13.05.2025	15.05.2025	17.05.2025

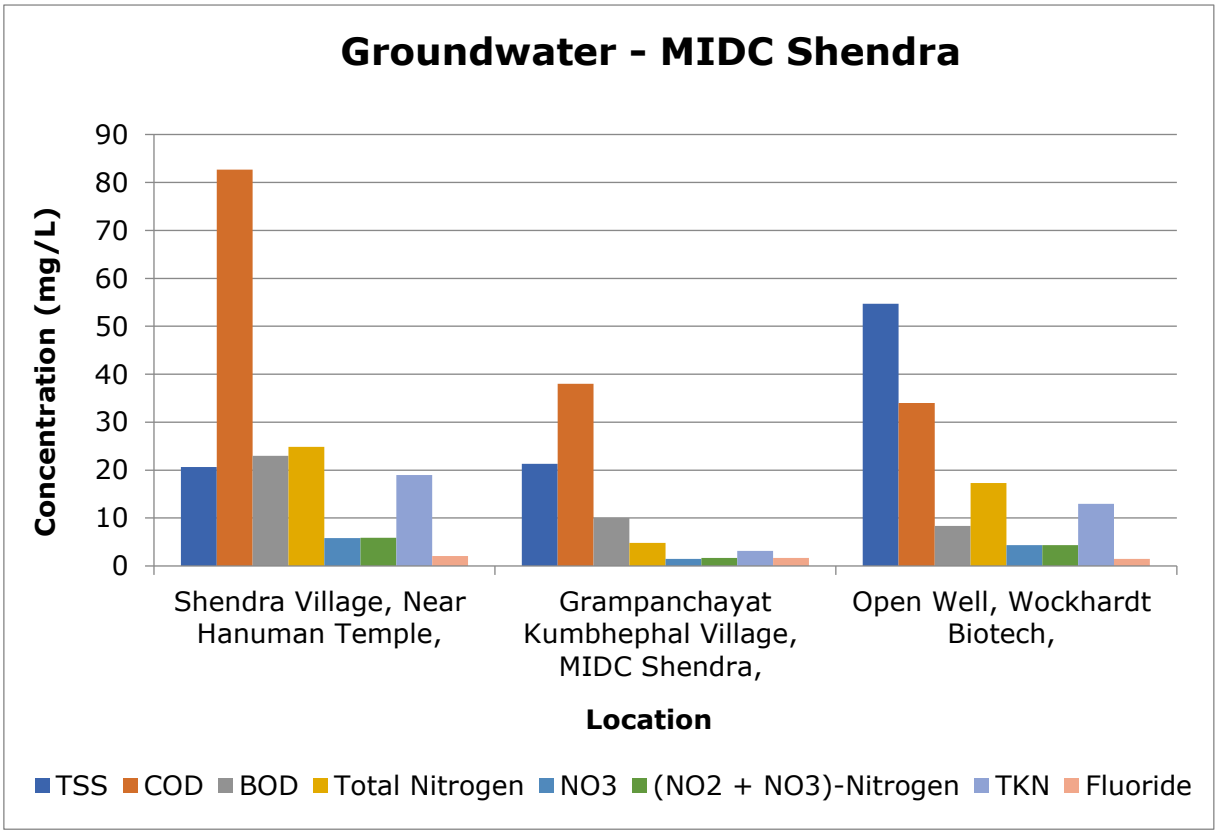
Fig: Geographical Locations of Ground Water Sampling MIDC Shendra

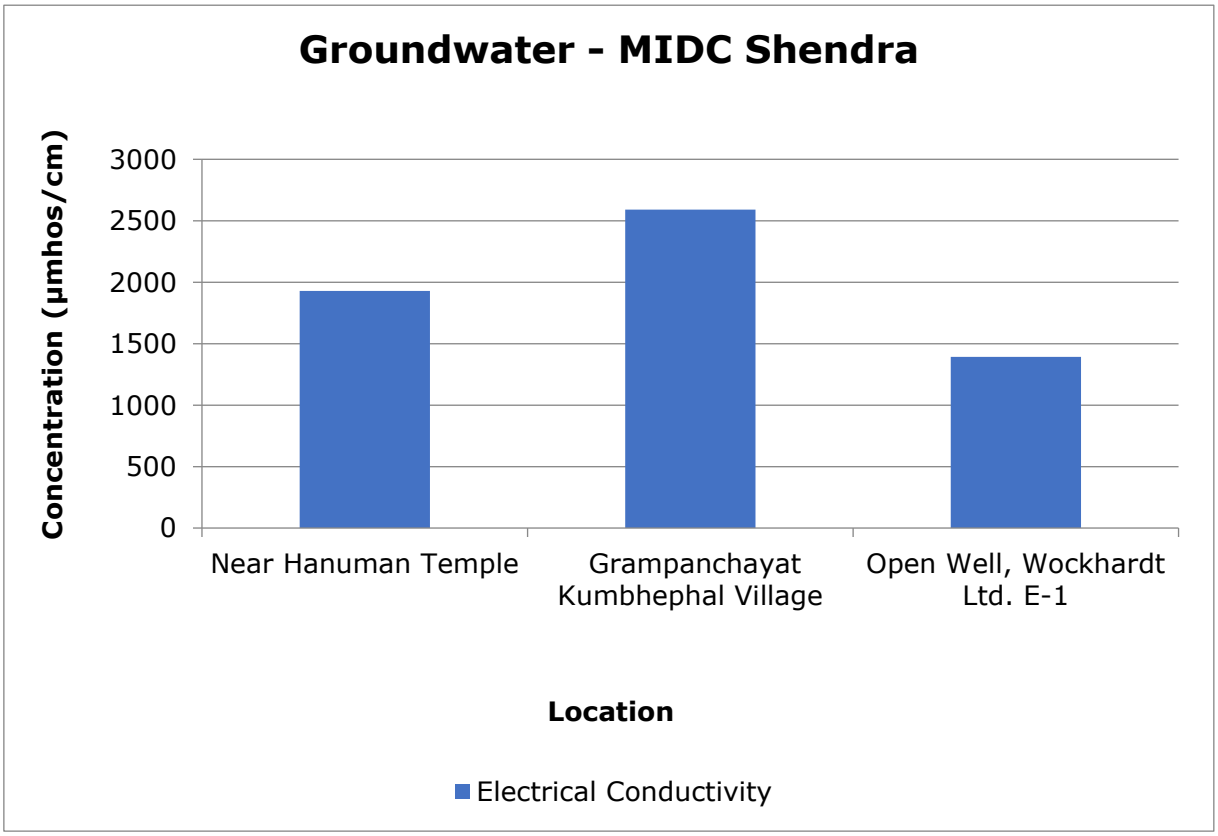
Table 7.2 MIDC Shendra - Results of Ground Water

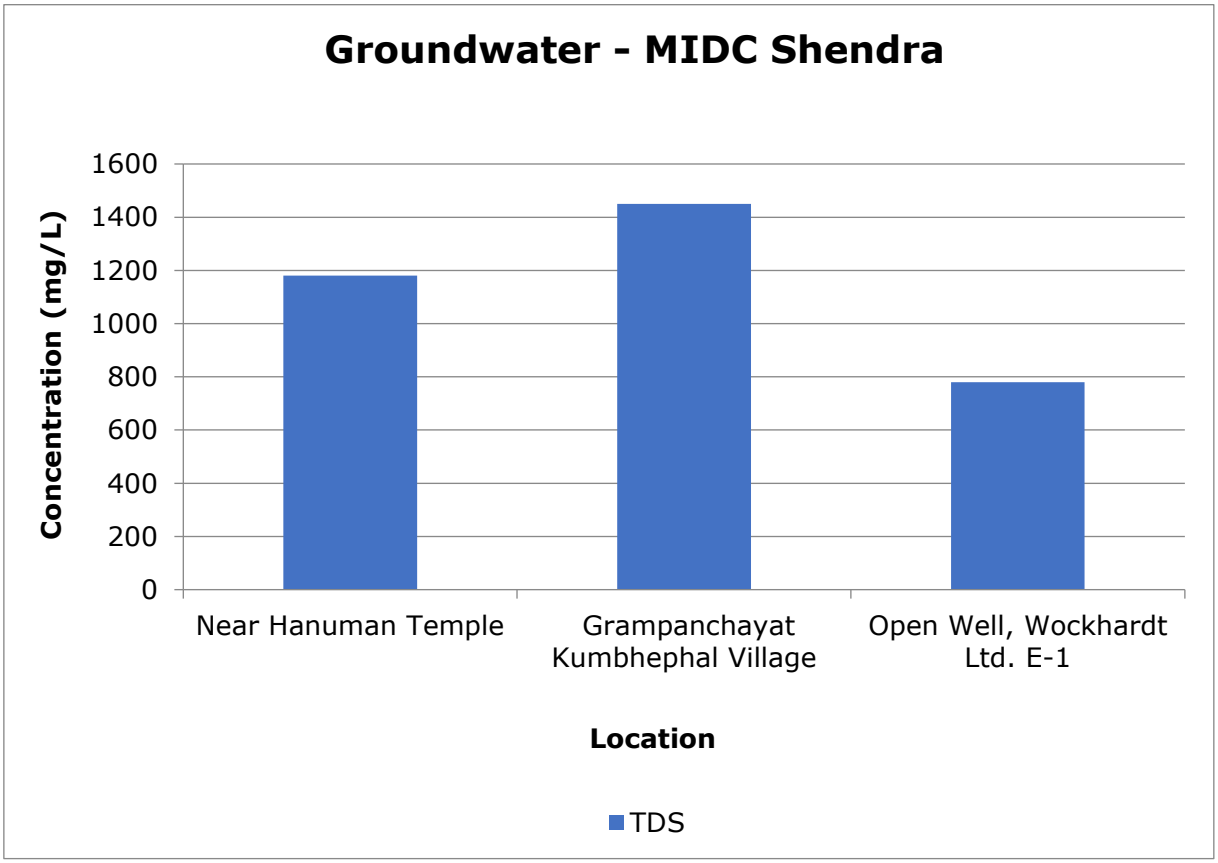
Parameters	Unit	Results		
		Hanuman Temple Shendra Village	Hand Pump Near Grampanchayat Kumbhephal Village	Open Well, Wockhardt Ltd. E-1, MIDC Area
Sanitary Survey	-	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood
General Appearance	-	No floating matter	No floating matter	No Floating matter
Transparency	m	0	0	0
Temperature	Hazen	24	23	24
Colour	°C	1	1	1
Smell	-	Agreeable	Agreeable	Agreeable
pH	-	7.8	7.6	8.0
Oil & Grease	mg/L	BLQ	BLQ	BLQ
Total Suspended Solids	mg/L	21	21	55
Total Dissolved Solids	mg/L	1181	1450	779
Chemical Oxygen Demand	mg/L	83	38	34
Biochemical Oxygen Demand (3 days,27°C)	mg/L	23	10	8
Electrical Conductivity (at 25°C)	µmho/cm	1930	2590	1393
Nitrite Nitrogen (as NO_2)	mg/L	0.08	0.18	0.03
Nitrate Nitrogen (as NO_3)	mg/L	5.79	1.50	4.34
(NO_2 + NO_3)-Nitrogen	mg/L	5.87	1.68	4.35
Free Ammonia (as NH_3-N)	mg/L	BLQ	BLQ	BLQ

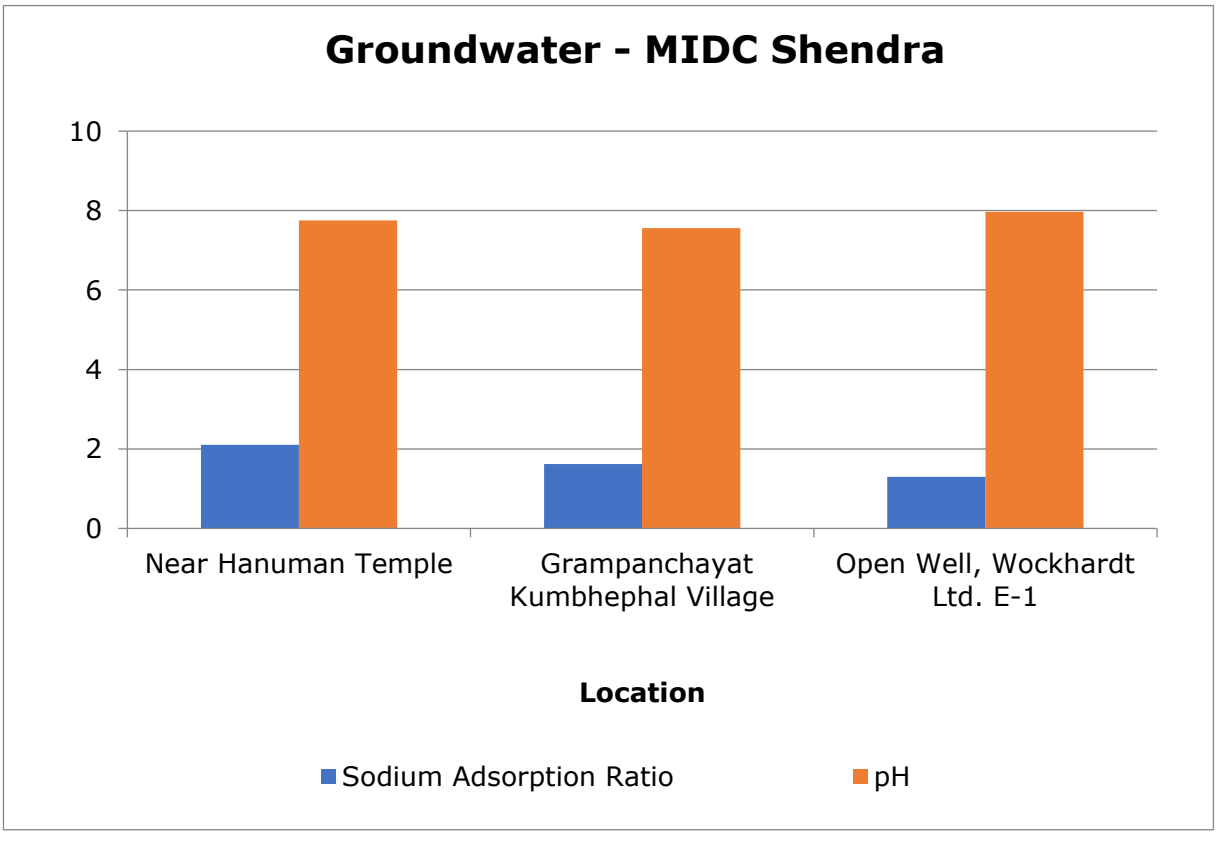
Parameters	Unit	Results		
		Hanuman Temple Shendra Village	Hand Pump Near Grampanchayat Kumbhephal Village	Open Well, Wockhardt Ltd. E-1, MIDC Area
Total Residual Chlorine	mg/L	BLQ	BLQ	BLQ
Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ
Fluoride (as F)	mg/L	2.09	1.66	1.50
Sulphide (as H_2S)	mg/L	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	0.31	0.43	0.30
Sodium Adsorption Ratio	-	2.11	1.62	1.30
Total Coliforms	MPN Index /100 mL	23	9	21
Faecal Coliforms	MPN Index /100 mL	13	8	11
Total Phosphate (as P)	mg/L	0.7	1.0	0.5
Total Kjeldahl Nitrogen (as N)	mg/L	19	3	13
Total Ammonia (NH4+NH3)-Nitrogen)	mg/L	0	2	2
Total Nitrogen	mg/L	25	5	17
Phenols (as C_6H_5OH)	mg/L	BLQ	BLQ	BLQ
Anionic Detergents (as MBAS)	mg/L	BLQ	BLQ	BLQ
Organo Chlorine Pesticides	µg/L	BLQ	BLQ	BLQ
Polynuclear aromatic hydrocarbons (PAH)	mg/L	BLQ	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	0.08	BLQ	BLQ
Nickel (as Ni)	mg/L	0.02	BLQ	BLQ
Copper (as Cu)	mg/L	0.47	0.462	BLQ
Hexavalent Chromium (as Cr^{6+})	mg/L	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	0.05	BLQ	BLQ
Total Arsenic (as As)	mg/L	BLQ	BLQ	BLQ
Lead (as Pb)	mg/L	BLQ	BLQ	BLQ
Cadmium (as Cd)	mg/L	BLQ	BLQ	BLQ
Mercury (as Hg)	mg/L	BLQ	BLQ	BLQ
Manganese (as Mn)	mg/L	0.03	BLQ	BLQ
Iron (as Fe)	mg/L	0.58	0.38	BLQ
Vanadium (as V)	mg/L	0.03	0.02	BLQ
Selenium (as Se)	mg/L	BLQ	BLQ	BLQ
Boron (as B)	mg/L	0.13	BLQ	BLQ
Bioassay Test on fish	% survival	73	93	97

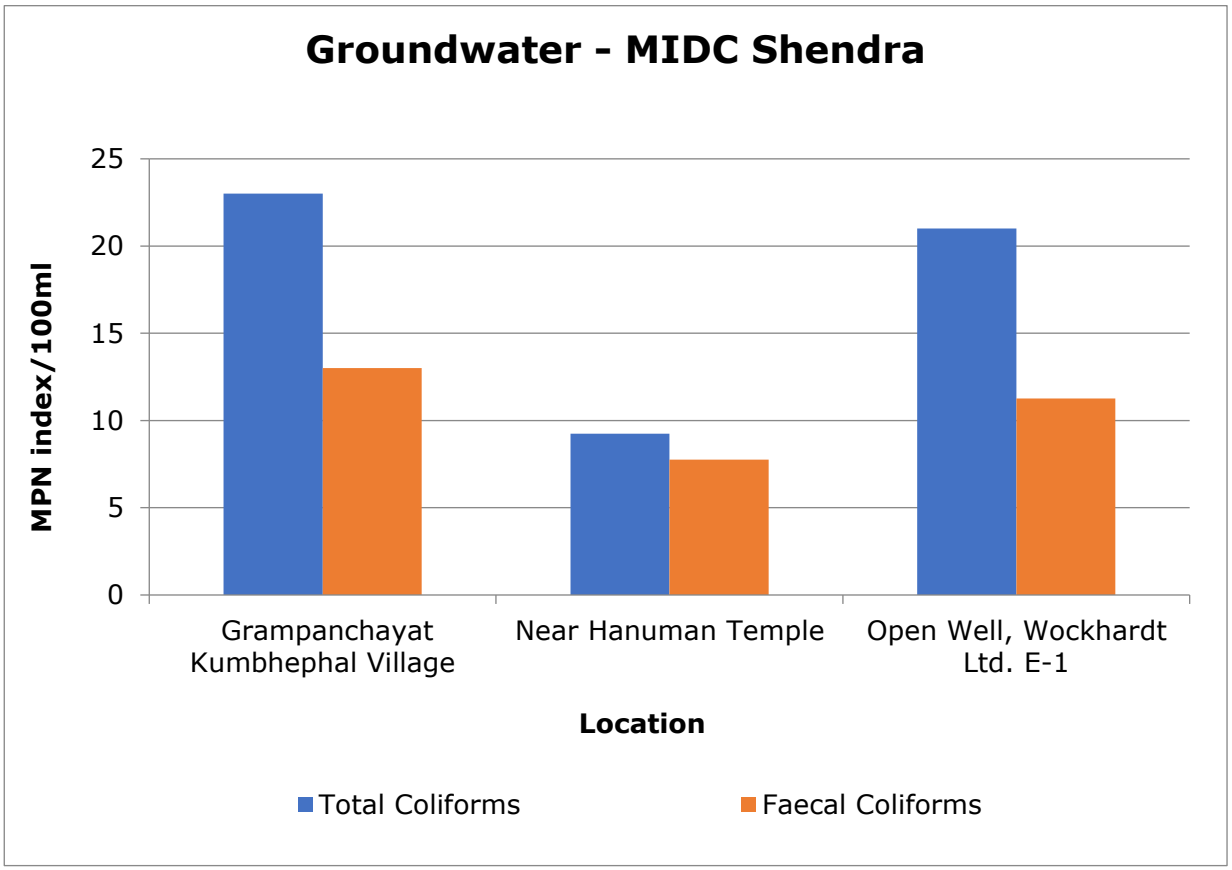
Graphs - Ground Water of MIDC Shendra

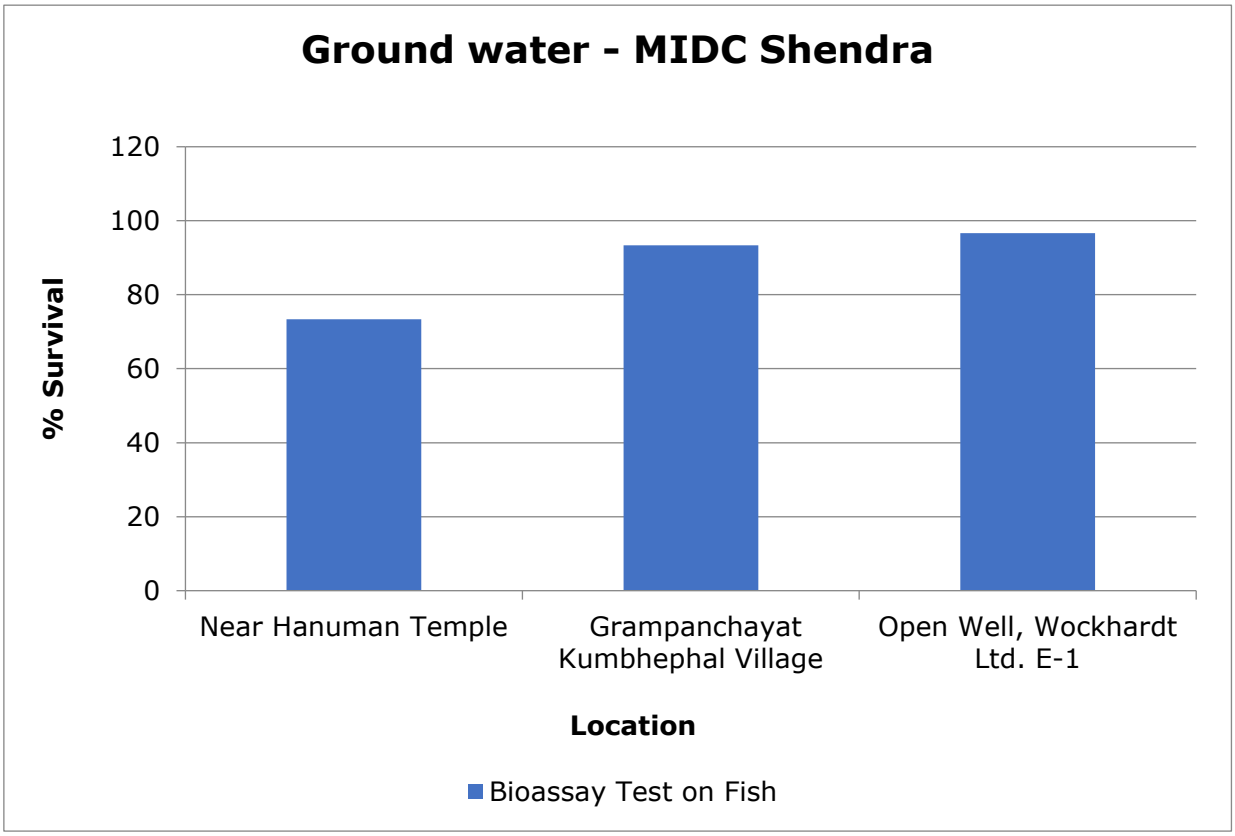





Groundwater - MIDC Shendra
Concentration (mg/L)
1600
1400
1200
1000
800
600
400
200
0
Near Hanuman Temple
Grampanchayat Kumbhephal Village
Open Well, Wockhardt Ltd. E-1
Location
TDS


Groundwater - MIDC Shendra
10
8
6
4
2
0
Near Hanuman Temple
Grampanchayat Kumbhephal Village
Open Well, Wockhardt Ltd. E-1
Location
Sodium Adsorption Ratio
pH


Groundwater - MIDC Shendra
MPN index/100ml
25
20
15
10
5
0
Grampanchayat Kumbhephal Village
Near Hanuman Temple
Open Well, Wockhardt Ltd. E-1
Location
Total Coliforms
Faecal Coliforms


Ground water - MIDC Shendra
% Survival
120
100
80
60
40
20
0
Near Hanuman Temple
Grampanchayat Kumbhephal Village
Open Well, Wockhardt Ltd. E-1
Location
Bioassay Test on Fish

2. **MIDC Chikalthana:** From MIDC Chikalthana also, three ground water samples were collected.

- All three water samples collected were found acceptable in colour, smell and transparency.
- pH is observed in the range of 6.9-7.9.
- Electrical conductivity of water collected from borewell at B.B Solunke Manik Nagar is observed highest as 1940 µmho/cm.
- Concentration of Fluoride is also observed below the permissible limit in all three samples of water.
- 90-100% survival was achieved in all three water samples during the Fish Bioassay.
- Metals like Arsenic, Nickel, Copper, Hexavalent Chromium (Cr^{6+}) etc. were also observed either below the limit of quantification (BLQ) or below their standard limits.
- Parameters like Total Residual Chlorine, Cyanide, Sulphide, Total Ammonical Nitrogen and Phenolic compounds also met the criteria as prescribed by CPCB.
- Polynuclear aromatic hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB) were below the limit of quantification (BLQ) in all 3 samples collected.
- Organo Chlorine Pesticides were also below the limit of quantification in all 3 samples collected.
-

Table 7.3 MIDC Chikalthana - Details of Sampling Location of Ground Water

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Borewell at RD Bhalerao HADCO Corner	19.896011	75.364386	13.05.2025	15.05.2025	17.05.2025
2.	Dahihande Wasti, MIDC Chikhalthana	19.894554	75.383331	13.05.2025	15.05.2025	17.05.2025
3.	Bore Well, B B Solanke, Manik nagar, Naregaon, Chikalthana	19.911462	75.349547	13.05.2025	15.05.2025	17.05.2025

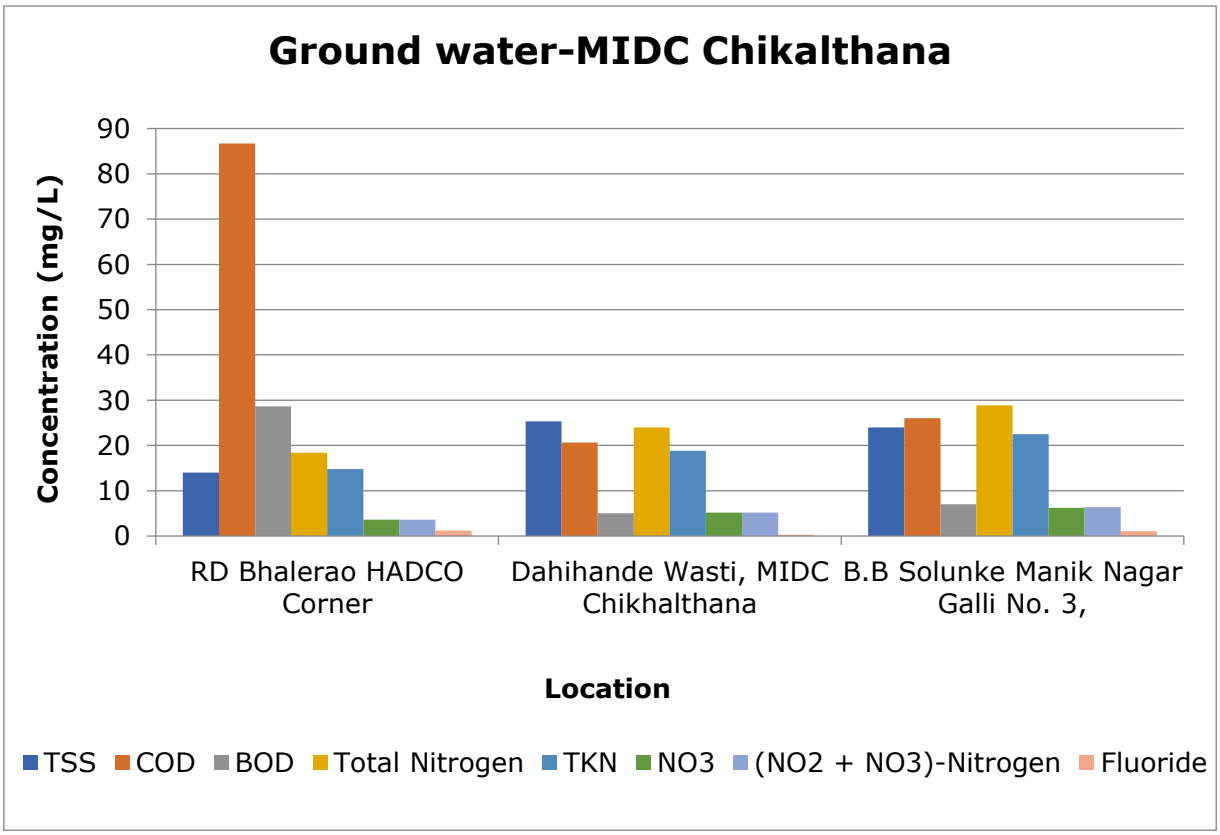
Fig: Geographical Locations of Ground Water Sampling MIDC Chikalthana

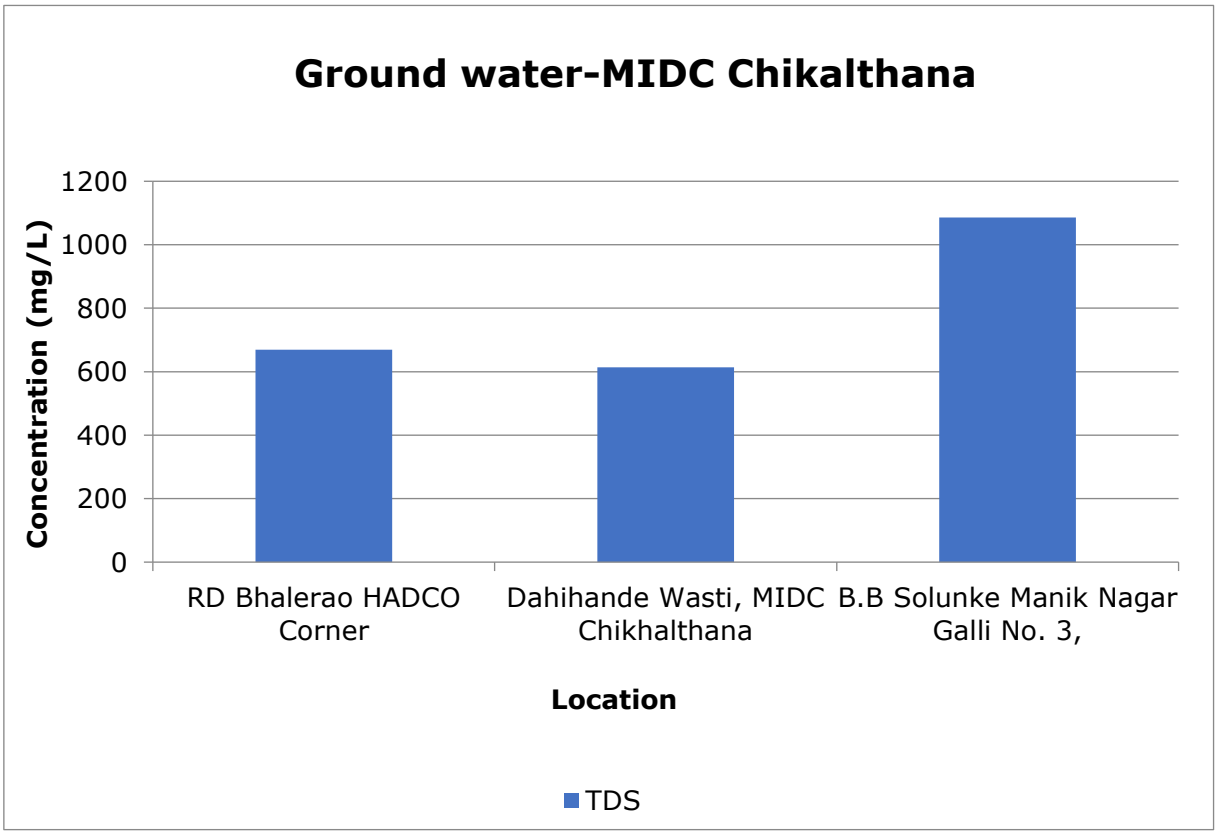
Table 7.4 MIDC Chikalthana - Results of Ground Water

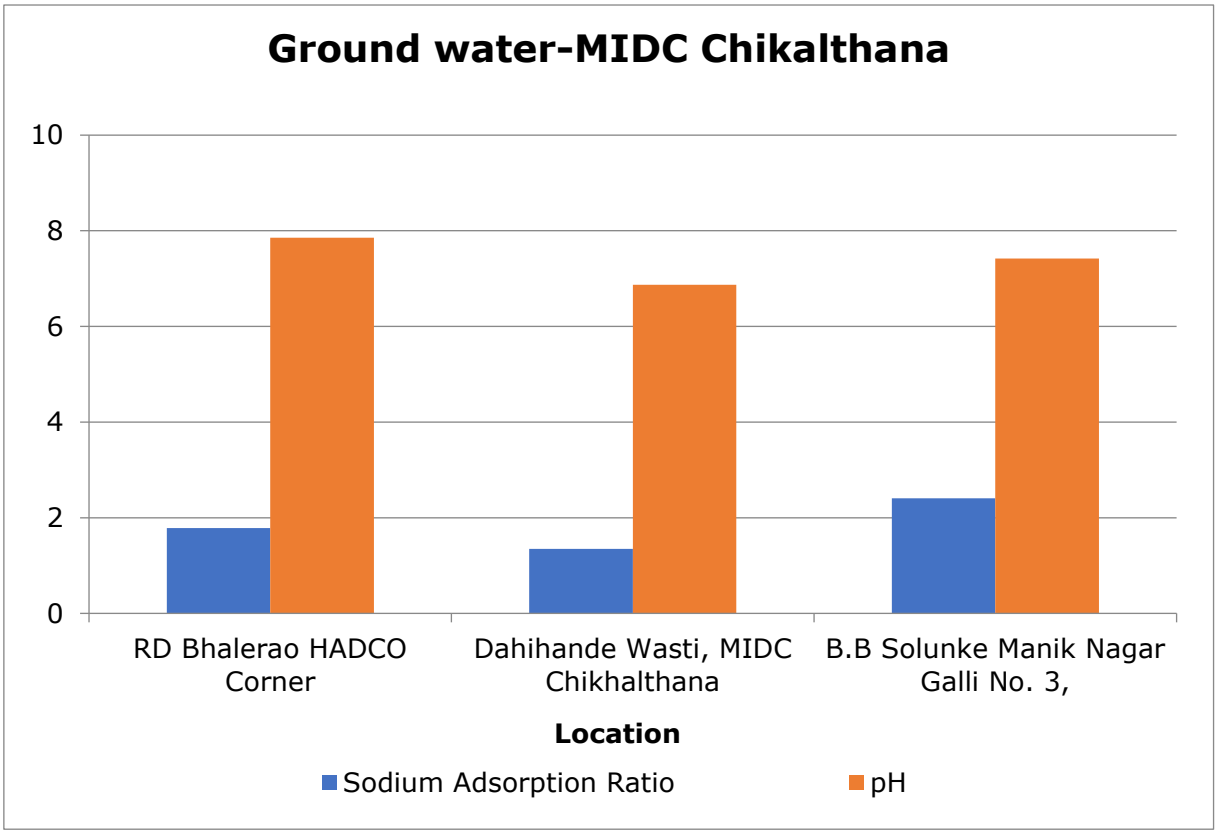
Parameters	Unit	Results		
		RD Bhalerao HADCO Corner	Dahihande Wasti, MIDC Chikhalthana	B.B Solunke Manik Nagar Galli No. 3, Naregaon Chikaltahna
Sanitary Survey	-	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood
General Appearance	-	No Floating matter	No Floating matter	No Floating matter
Transparency	m	0	0	0
Temperature	Hazen	21	22	22
Colour	^{o}C	1	1	1
Smell	-	Agreeable	Agreeable	Agreeable
pH	-	7.9	6.9	7.4
Oil & Grease	mg/L	BLQ	BLQ	BLQ
Total Suspended Solids	mg/L	14	25	24
Total Dissolved Solids	mg/L	669	613	1086
Chemical Oxygen Demand	mg/L	87	21	26
Biochemical Oxygen Demand (3 days,27^{o}C)	mg/L	29	5	7
Electrical Conductivity (at 25^{o}C)	µmho/cm	1196	1097	1940
Nitrite Nitrogen (as NO_2)	mg/L	0.02	BLQ	BLQ
Nitrate Nitrogen (as NO_3)	mg/L	3.61	5.16	6.20

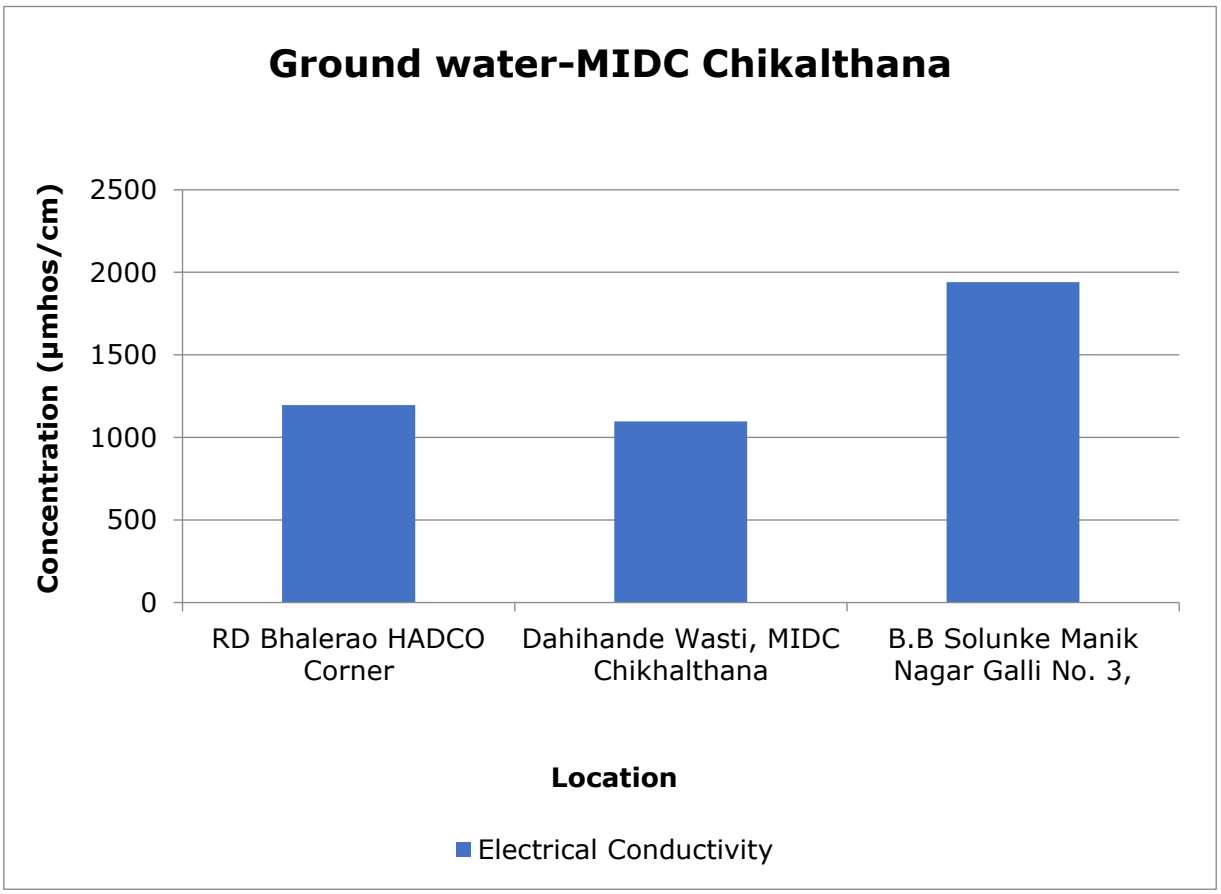
Parameters	Unit	Results		
		RD Bhalerao HADCO Corner	Dahihande Wasti, MIDC Chikhalthana	B.B Solunke Manik Nagar Galli No. 3, Naregaon Chikaltahna
(NO_2 + NO_3)-Nitrogen	mg/L	3.62	5.16	6.35
Free Ammonia (as NH_3-N)	mg/L	BLQ	BLQ	BLQ
Total Residual Chlorine	mg/L	BLQ	BLQ	BLQ
Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ
Fluoride (as F)	mg/L	1.23	0.33	1.05
Sulphide (as H_2S)	mg/L	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	0.24	0.14	0.38
Sodium Adsorption Ratio	-	1.78	1.35	2.41
Total Coliforms	MPN Index /100 mL	<1.8	<1.8	<1.8
Faecal Coliforms	MPN Index /100 mL	<1.8	<1.8	<1.8
Total Phosphate (as P)	mg/L	0.5	0.3	0.8
Total Kjeldahl Nitrogen (as N)	mg/L	15	19	23
Total Ammonia (NH4+NH3)-Nitrogen)	mg/L	0	1	0
Total Nitrogen	mg/L	18	24	29
Phenols (as C_6H_5OH)	mg/L	BLQ	BLQ	BLQ
Anionic Detergents (as MBAS)	mg/L	BLQ	BLQ	BLQ
Organo Chlorine Pesticides	µg/L	BLQ	BLQ	BLQ
Polynuclear aromatic hydrocarbons (PAH)	mg/L	BLQ	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	BLQ	BLQ	BLQ
Nickel (as Ni)	mg/L	BLQ	BLQ	BLQ
Copper (as Cu)	mg/L	BLQ	BLQ	BLQ
Hexavalent Chromium (as Cr^{6+})	mg/L	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	BLQ	BLQ	BLQ
Total Arsenic (as As)	mg/L	BLQ	BLQ	BLQ
Lead (as Pb)	mg/L	BLQ	BLQ	BLQ
Cadmium (as Cd)	mg/L	BLQ	BLQ	BLQ
Mercury (as Hg)	mg/L	BLQ	BLQ	BLQ
Manganese (as Mn)	mg/L	BLQ	BLQ	BLQ
Iron (as Fe)	mg/L	BLQ	BLQ	BLQ
Vanadium (as V)	mg/L	BLQ	BLQ	BLQ
Selenium (as Se)	mg/L	BLQ	BLQ	BLQ
Boron (as B)	mg/L	BLQ	BLQ	BLQ
Bioassay Test on fish	% survival	90	100	100

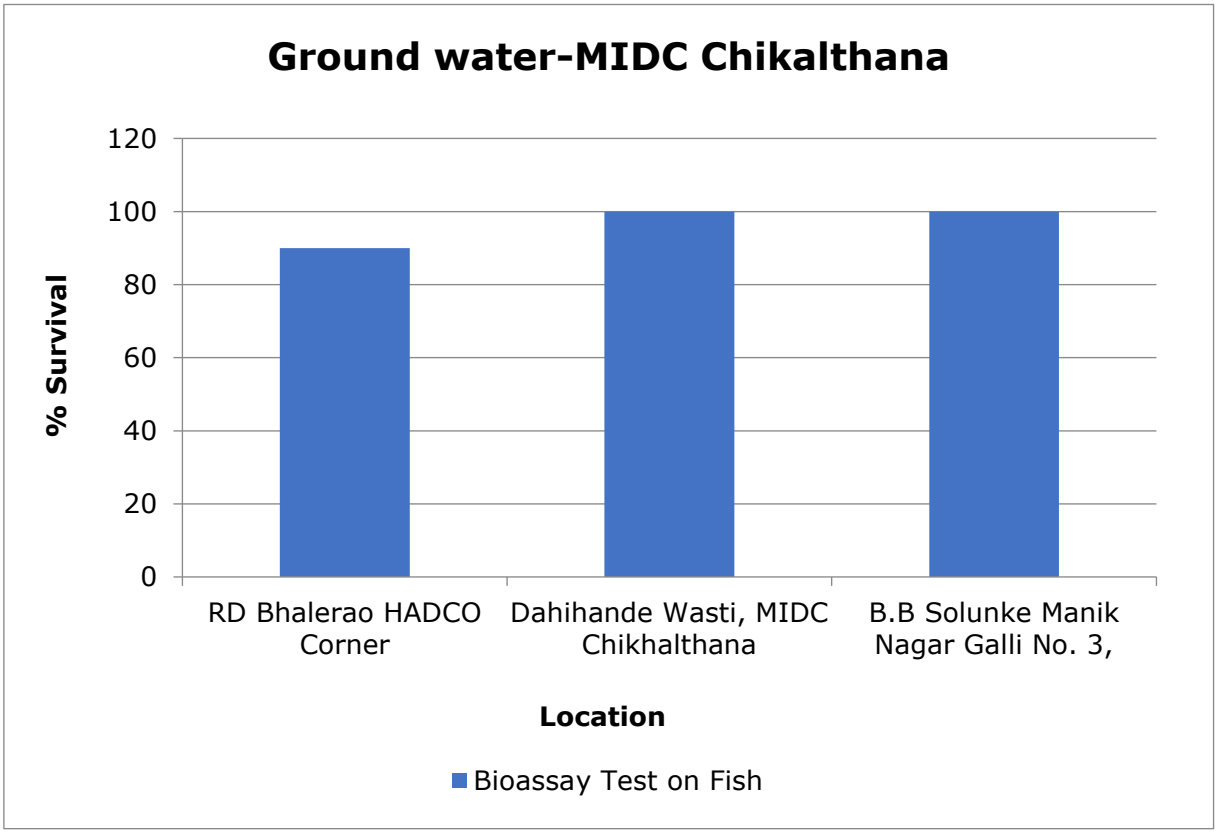
Graphs - Ground Water of MIDC Chikalthana






Ground water-MIDC Chikalthana
10
8
6
4
2
0
RD Bhalerao HADCO Corner
Dahihande Wasti, MIDC Chikhalthana
B.B Solunke Manik Nagar Galli No. 3,
Location
Sodium Adsorption Ratio
pH


Ground water-MIDC Chikalthana
Concentration (µmhos/cm)
2500
2000
1500
1000
500
0
RD Bhalerao HADCO Corner
Dahihande Wasti, MIDC Chikhalthana
B.B Solunke Manik Nagar Galli No. 3,
Location
Electrical Conductivity


Ground water-MIDC Chikalthana
120
100
80
60
40
20
0
% Survival
RD Bhalerao HADCO Corner
Dahihande Wasti, MIDC Chikhalthana
B.B Solunke Manik Nagar Galli No. 3,
Location
Bioassay Test on Fish

3. **MIDC Waluj:** Three ground water samples were collected from MIDC Waluj.

- All three water samples collected were found acceptable in colour, smell and transparency.
- pH is observed in the range of 7.6-7.9.
- Electrical conductivity of water collected from borewell at Pravin Ghule, Ghulevasti, Patoda Road is observed highest as 1688 µmho/cm.
- Concentration of Fluoride is also observed below the permissible limit in all three samples of water.
- Metals like Arsenic, Nickel, Copper, Hexavalent Chromium etc. were observed either below the limit of quantification (BLQ) or below their standard limits.
- Parameters like Total Residual Chlorine, Cyanide, Sulphide, Dissolved Phosphate, Total Ammonical Nitrogen and Phenolic compounds, also met the criteria as prescribed by CPCB
- Polynuclear aromatic hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB) were either below the limit of quantification (BLQ) or below their standard limits in all 3 samples collected.
- Organo Chlorine Pesticides were also below the limit of quantification in all 3 samples collected.

Table 7.5 MIDC Waluj - Details of Sampling Location of Groundwater

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Open Well Mr. Prabhakar Mahalkar, Near Behind Siemens, MIDC Waluj	19.852737	75.218755	19.05.2025	21.05.2025	23.05.2025
2.	Bore Well Pravin Ghule, Ghulevasti, Patoda Road MIDC Waluj	19.815424	75.248908	19.05.2025	21.05.2025	23.05.2025
3.	Bore Well Near Hanuman Temple, Jogeshwari, MIDC Waluj	19.82633	75.205309	19.05.2025	21.05.2025	23.05.2025

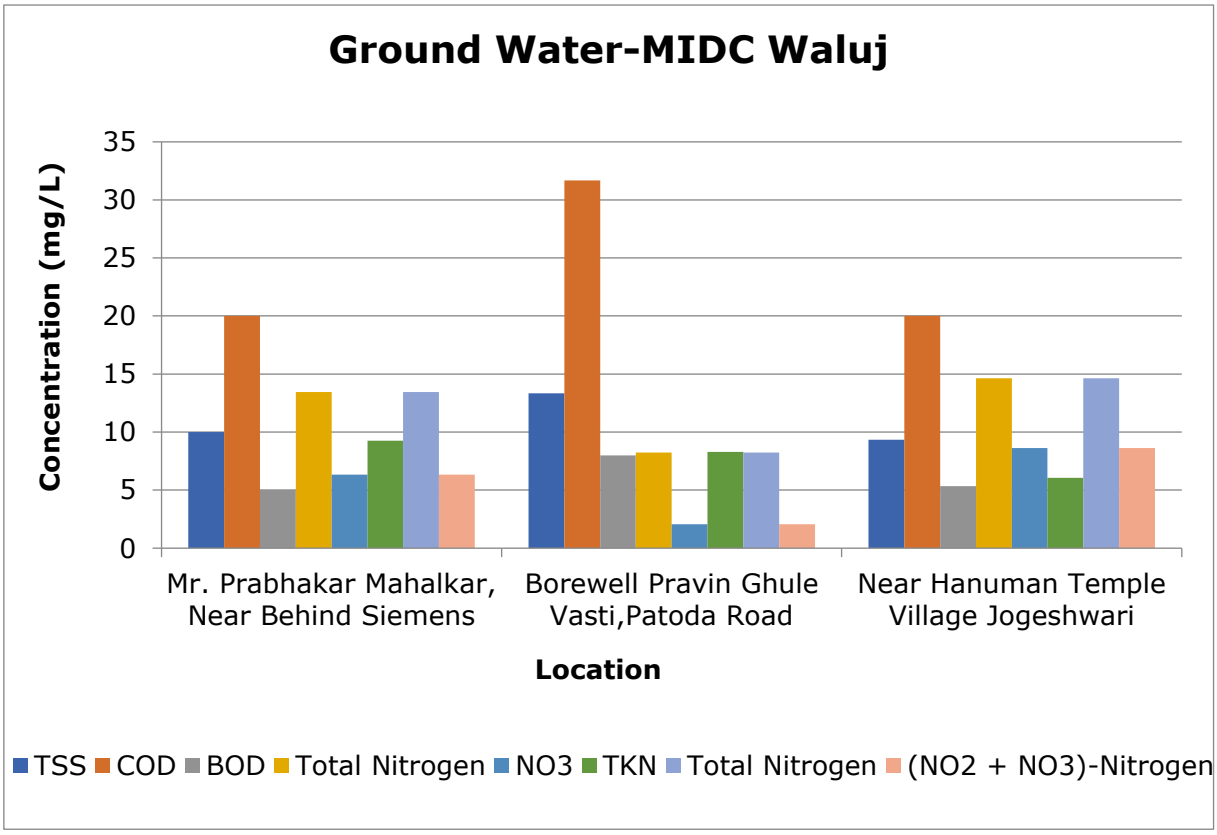
Fig: Geographical Locations of Ground Water Sampling MIDC Waluj

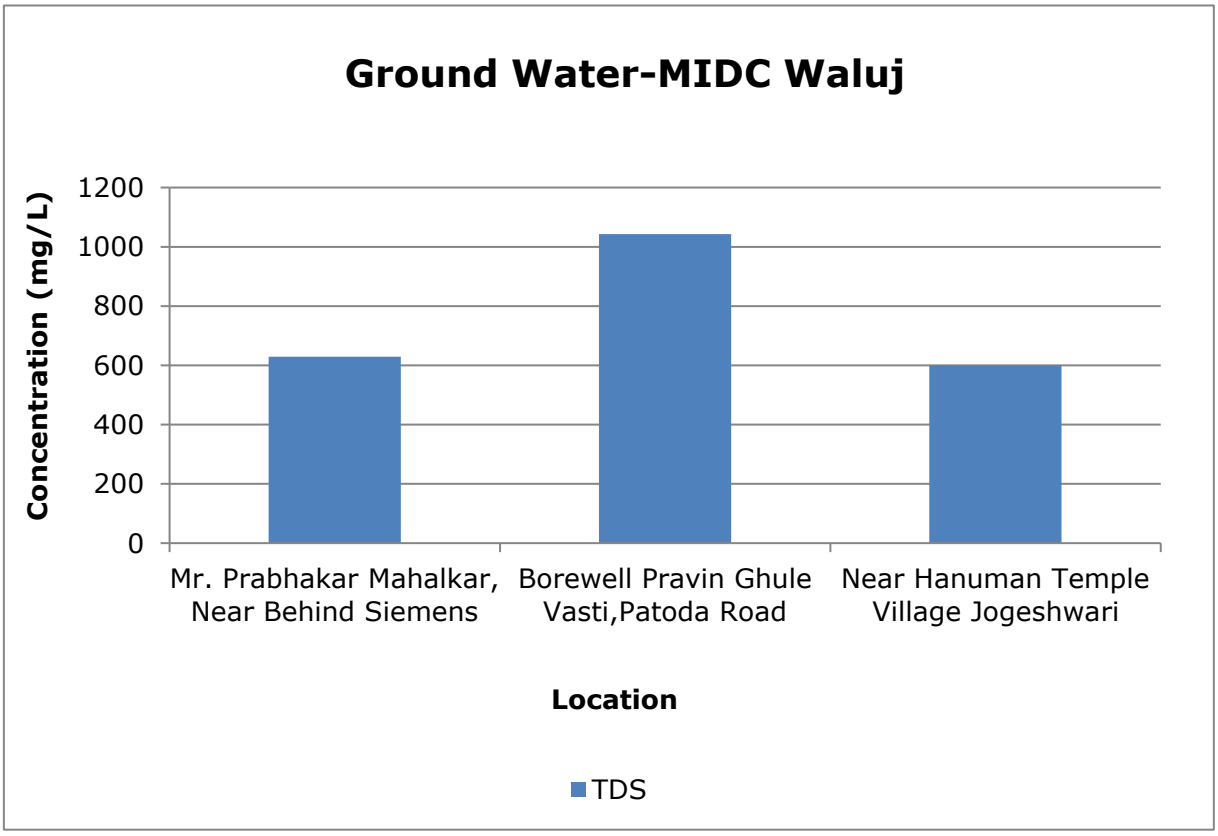
Table 7.6 MIDC Waluj - Results of Ground Water

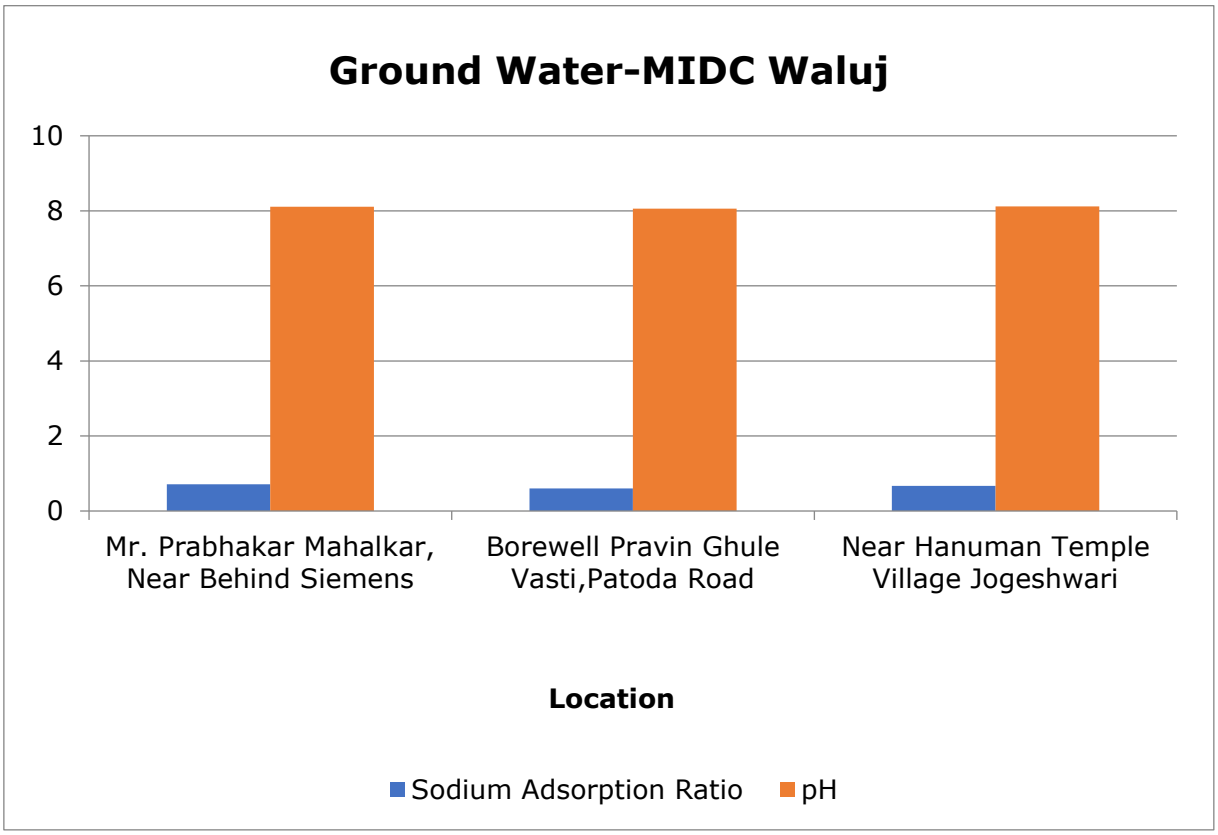
Parameters	Unit	Results		
		Mr. Prabhakar Mahalkar, Near Behind Siemens, MIDC Waluj, Chhatrapati Sambhaji nagar	**Borewell Pravin Ghule Vasti,Patoda Road, MIDC Waluj, Chhatrapati Sambhaji nagar**	**Near Hanuman Temple Village Jogeshwari, MIDC Waluj, Chhatrapati Sambhaji nagar**
Sanitary Survey	-	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood
General Appearance	-	No Floating matter	No Floating matter	No Floating matter
Transparency	m	0	0	0
Temperature	Hazen	26	27	27
Colour	^{o}C	1	1	1
Smell	-	Agreeable	Agreeable	Agreeable
pH	-	7.6	7.6	7.9
Oil & Grease	mg/L	BLQ	BLQ	BLQ
Total Suspended Solids	mg/L	33	35	35
Total Dissolved Solids	mg/L	738	933	521
Chemical Oxygen Demand	mg/L	64	38	38
Biochemical Oxygen Demand (3 days,27^{o}C)	mg/L	19	10	9

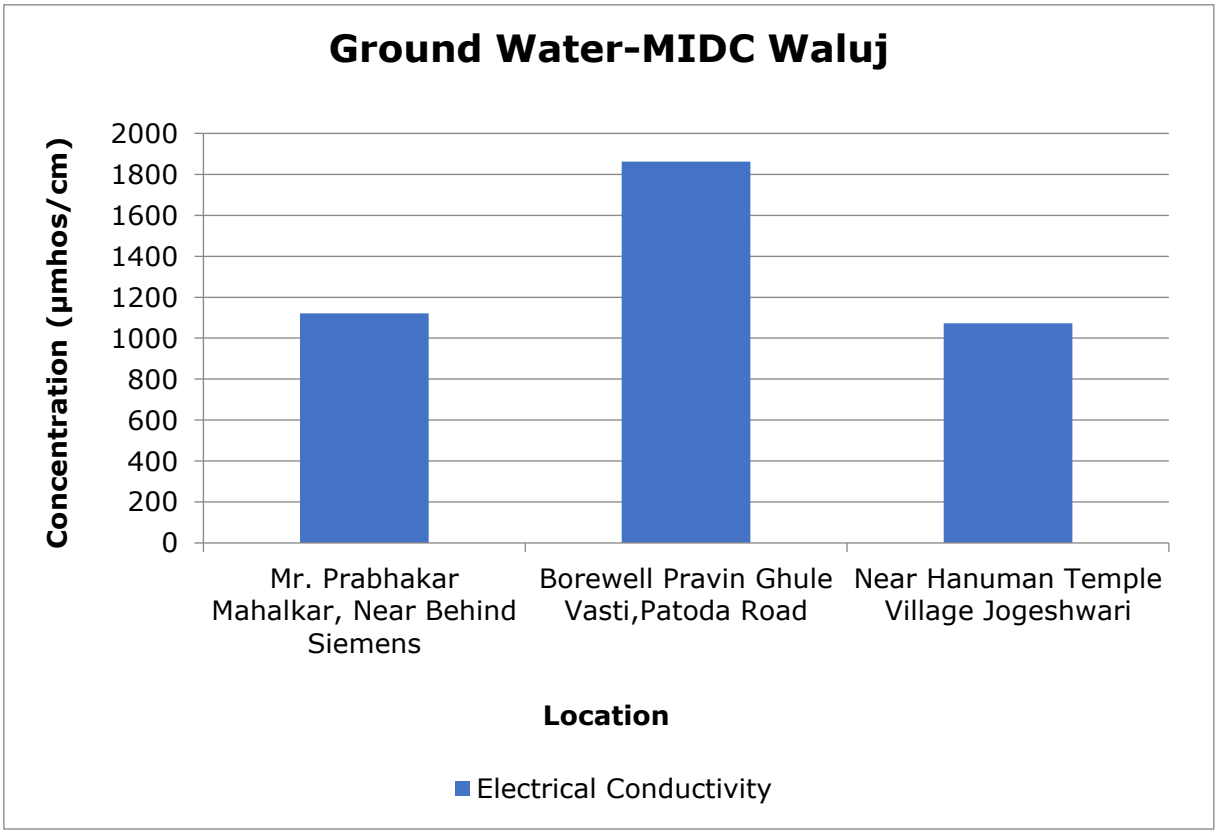
Parameters	Unit	Results		
		Mr. Prabhakar Mahalkar, Near Behind Siemens, MIDC Waluj, Chhatrapati Sambhaji nagar	Borewell Pravin Ghule Vasti,Patoda Road, MIDC Waluj, Chhatrapati Sambhaji nagar	Near Hanuman Temple Village Jogeshwari, MIDC Waluj, Chhatrapati Sambhaji nagar
Electrical Conductivity (at 25°C)	µmho/cm	1319	1668	933
Nitrite Nitrogen (as NO_2)	mg/L	BLQ	BLQ	BLQ
Nitrate Nitrogen (as NO_3)	mg/L	5.40	1.87	4.68
(NO_2 + NO_3)-Nitrogen	mg/L	6.08	1.87	4.68
Free Ammonia (as NH_3-N)	mg/L	BLQ	BLQ	BLQ
Total Residual Chlorine	mg/L	BLQ	BLQ	BLQ
Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ
Fluoride (as F)	mg/L	0.76	1.49	0.96
Sulphide (as H_2S)	mg/L	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	0.43	0.30	0.32
Sodium Adsorption Ratio	-	1.02	1.61	1.23
Total Coliforms	MPN Index /100 mL	<1.8	<1.8	<1.8
Faecal Coliforms	MPN Index /100 mL	<1.8	<1.8	<1.8
Total Phosphate (as P)	mg/L	0.5	0.5	0.6
Total Kjeldahl Nitrogen (as N)	mg/L	16	4	14
Total Ammonia (NH_4+NH_3)-Nitrogen)	mg/L	1	0	0
Total Nitrogen	mg/L	22	6	18
Phenols (as C_6H_5OH)	mg/L	BLQ	BLQ	BLQ
Anionic Detergents (as MBAS)	mg/L	BLQ	BLQ	BLQ
Organo Chlorine Pesticides	µg/L	BLQ	BLQ	BLQ
Polynuclear aromatic hydrocarbons (PAH)	mg/L	BLQ	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	BLQ	BLQ	BLQ
Nickel (as Ni)	mg/L	BLQ	BLQ	BLQ
Copper (as Cu)	mg/L	BLQ	BLQ	BLQ
Hexavalent Chromium (as Cr^{6+})	mg/L	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	BLQ	BLQ	BLQ
Total Arsenic (as As)	mg/L	BLQ	BLQ	BLQ
Lead (as Pb)	mg/L	BLQ	BLQ	BLQ
Cadmium (as Cd)	mg/L	BLQ	BLQ	BLQ
Mercury (as Hg)	mg/L	BLQ	BLQ	BLQ
Manganese (as Mn)	mg/L	BLQ	BLQ	BLQ
Iron (as Fe)	mg/L	BLQ	BLQ	BLQ
Vanadium (as V)	mg/L	BLQ	BLQ	BLQ
Selenium (as Se)	mg/L	BLQ	BLQ	BLQ
Boron (as B)	mg/L	BLQ	BLQ	BLQ
Bioassay Test on fish	% survival	90	100	100

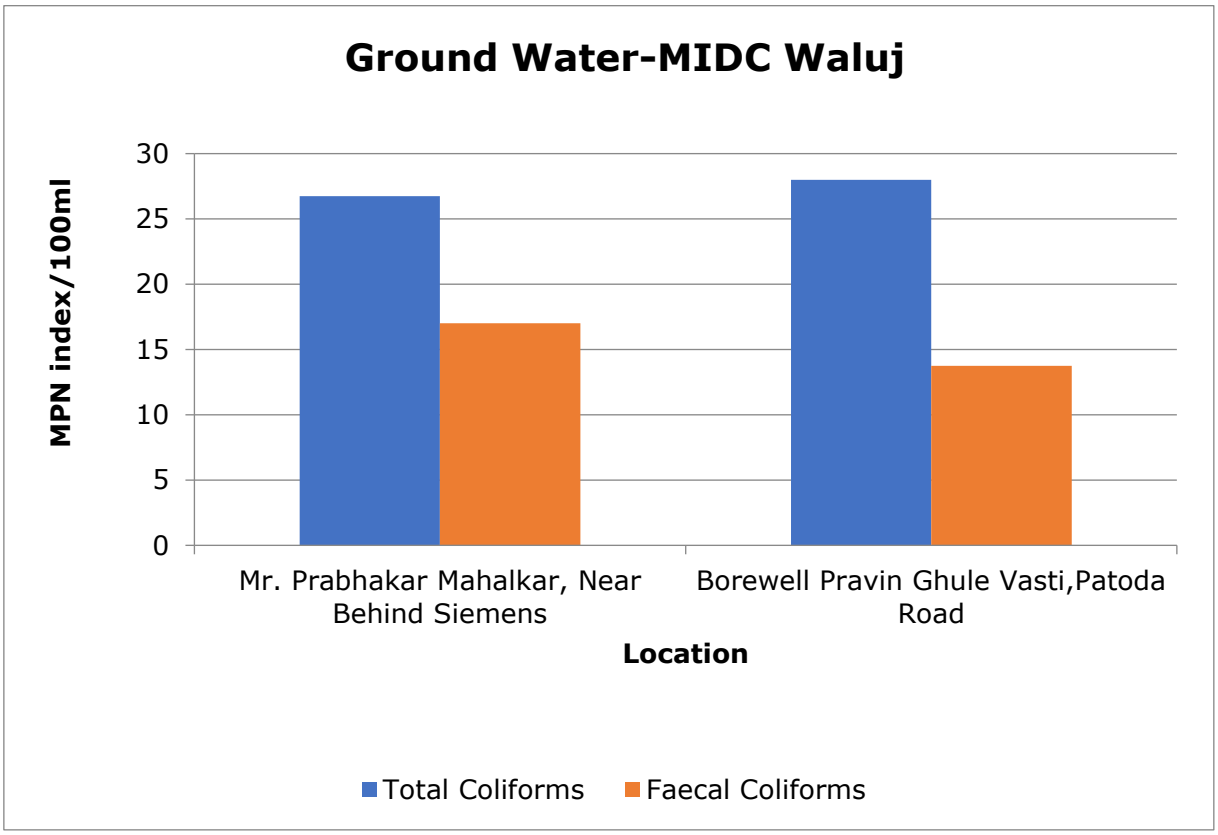
Graphs - Ground Water-MIDC Waluj

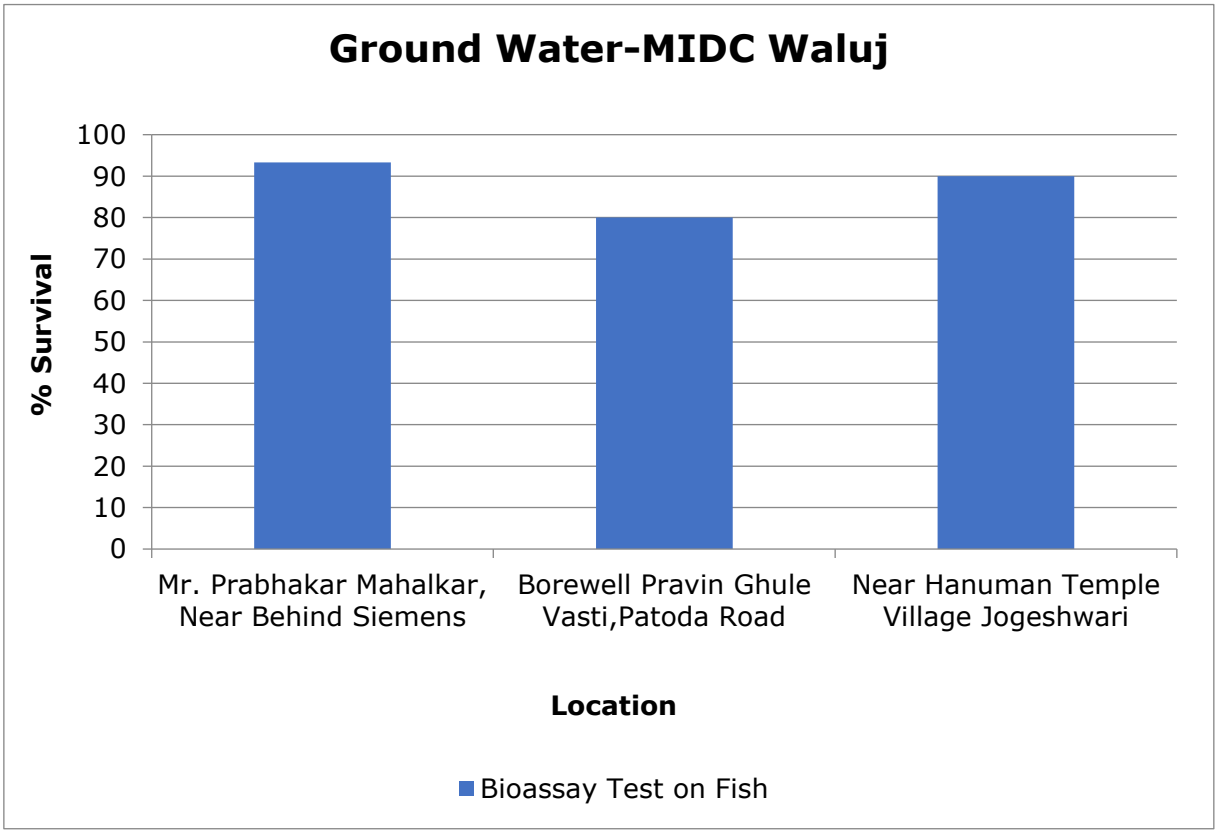





Ground Water-MIDC Waluj
10
8
6
4
2
0
Mr. Prabhakar Mahalkar, Near Behind Siemens
Borewell Pravin Ghule Vasti,Patoda Road
Near Hanuman Temple Village Jogeshwari
Location
Sodium Adsorption Ratio
pH


Ground Water-MIDC Waluj
Concentration (µmhos/cm)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Mr. Prabhakar Mahalkar, Near Behind Siemens
Borewell Pravin Ghule Vasti,Patoda Road
Near Hanuman Temple Village Jogeshwari
Location
Electrical Conductivity


Ground Water-MIDC Waluj
MPN index/100ml
30
25
20
15
10
5
0
Mr. Prabhakar Mahalkar, Near Behind Siemens
Borewell Pravin Ghule Vasti,Patoda Road
Location
Total Coliforms
Faecal Coliforms


Ground Water-MIDC Waluj
% Survival
100
90
80
70
60
50
40
30
20
10
0
Mr. Prabhakar Mahalkar, Near Behind Siemens
Borewell Pravin Ghule Vasti,Patoda Road
Near Hanuman Temple Village Jogeshwari
Location
Bioassay Test on Fish

4. **MIDC Paithan:** Three ground water samples are collected from MIDC Paithan.

- All three water samples collected were found acceptable in colour, smell and transparency.
- pH is observed in the range of 7.7-7.8.
- Electrical conductivity of water collected from borewell at Matoshri Aashram is observed highest as 805 µmho/cm.
- Concentration of Fluoride is also observed below the permissible limit in two samples of water, however sample collected from Borewell from Mr. Shivaji Mule Farolla Village, is found to exceed the permissible limit.
- Fish survival was achieved as 97-100% during Fish Bioassay in all three samples of water.
- Metals like Arsenic, Nickel, Copper, Hexavalent Chromium etc. are observed either below the limit of quantification (BLQ) or below their standard limits.
- Parameters like Total Residual Chlorine, Cyanide, Sulphide, Dissolved Phosphate, Total Ammonical Nitrogen and Phenolic compounds also met the criteria as prescribed by CPCB.
- Polynuclear aromatic hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB) were found below the limit of quantification (BLQ) in all 3 samples collected.
- Organo Chlorine Pesticides were also below the detectable limit in all 3 samples collected.

Table 7.7 MIDC Paithan - Details of Sampling Location of Ground Water

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Bore Well Matoshri Aashram	19.821123	75.289182	20.05.2025	22.05.2025	24.05.2025
2.	Borewell Mr. Shivaji Mule Farolla Village	19.755413	75.307286	20.05.2025	22.05.2025	24.05.2025
3.	Open Well, Allana Frigarifico, Paithan Road, Chhatrapati Sambhajinagar	19.780822	75.288762	20.05.2025	22.05.2025	24.05.2025

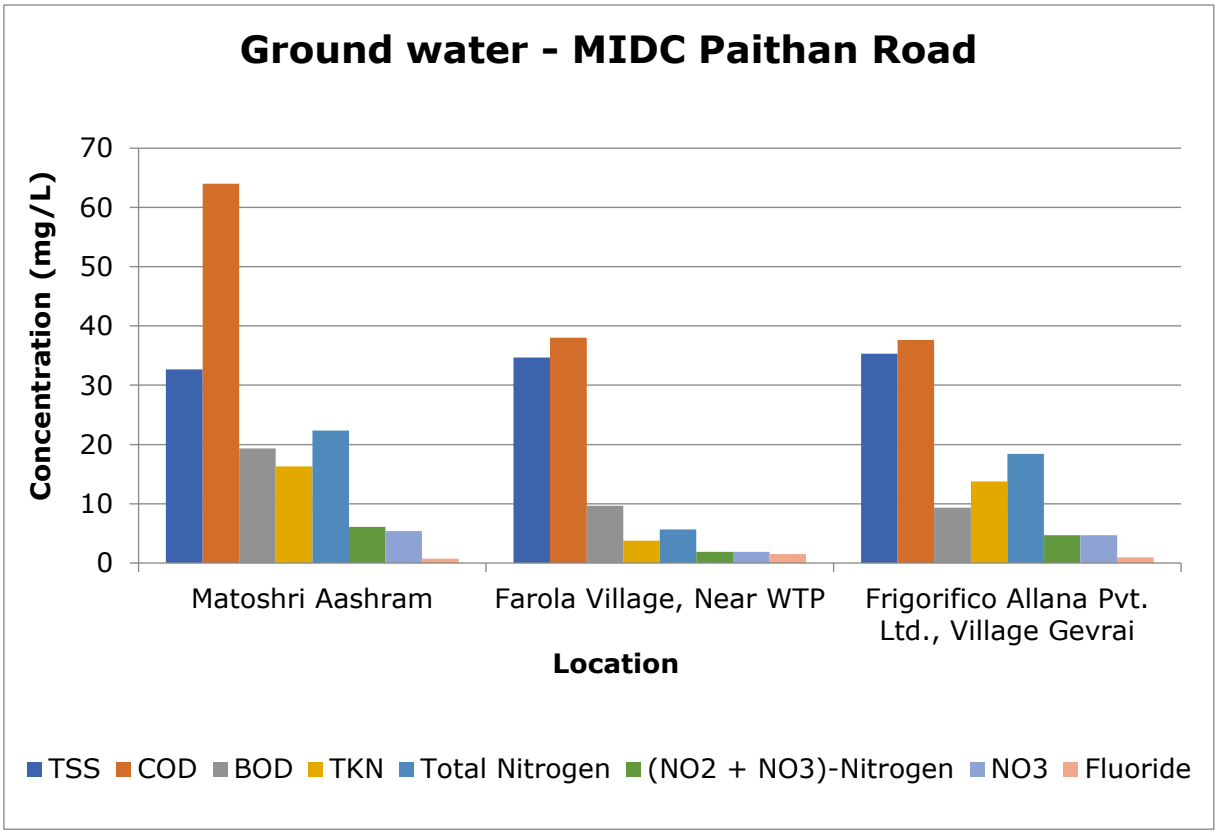
Fig: Geographical Locations of Ground Water Sampling MIDC Paithan

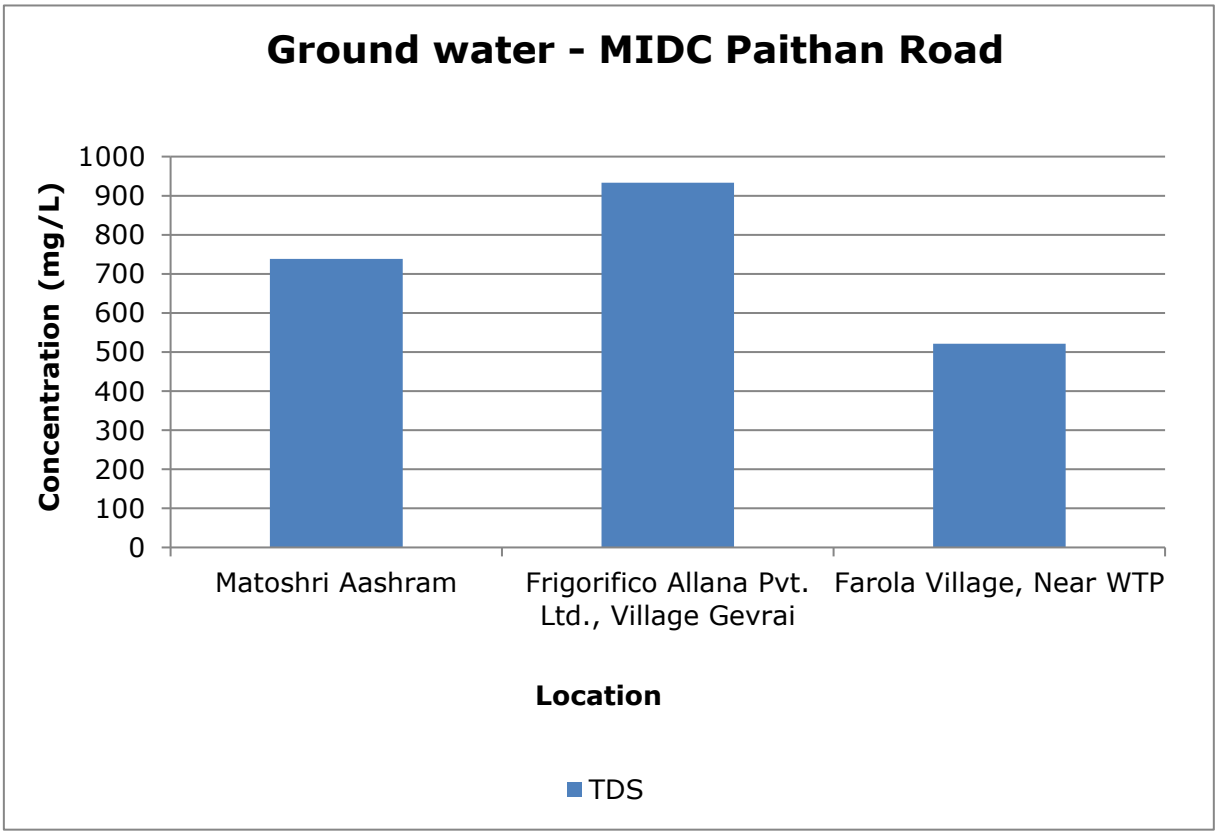
Table 7.8 MIDC Paithan - Results of Ground Water

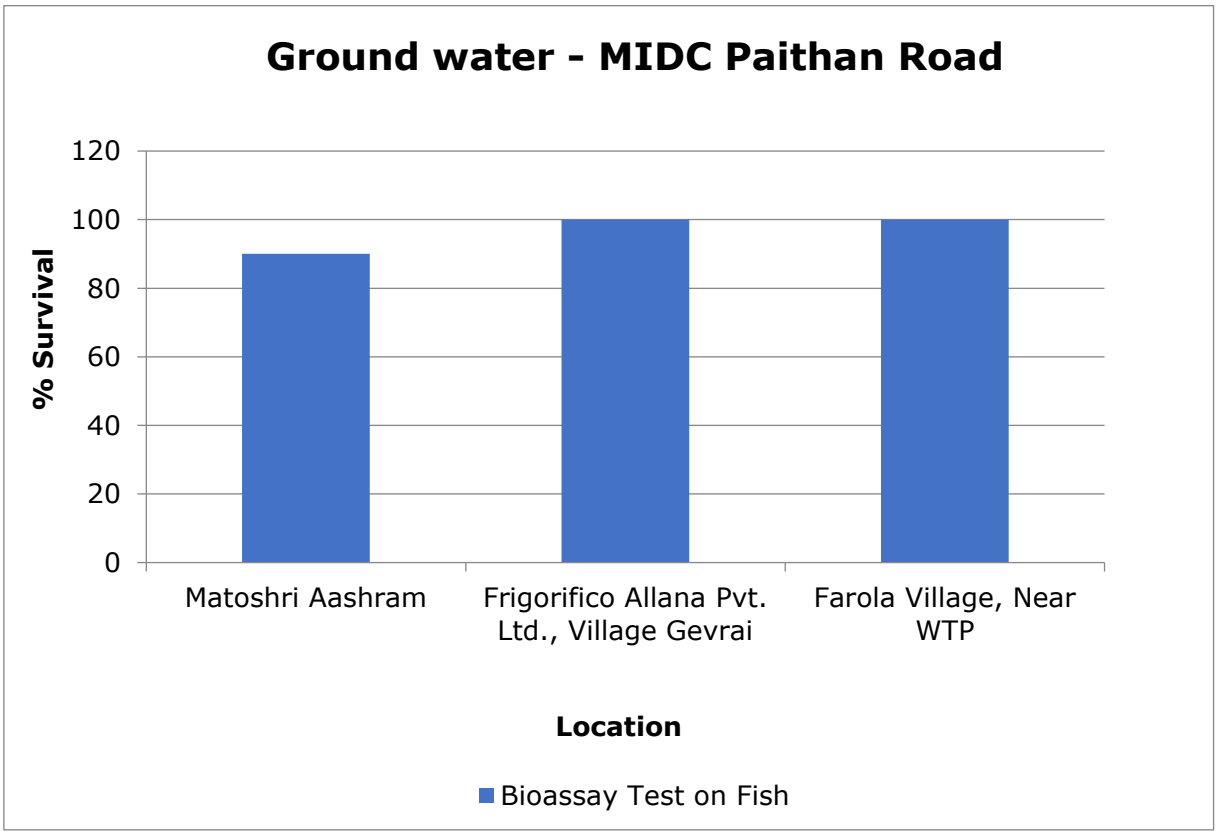
Parameters	**Unit**	**Results**		
		Matoshri Aashram, Paithan Road	**Borewell Mr. Shivaji Mule Farolla Village, Paithan Road,**	**Frigorifico Allana Pvt. Ltd., Village Gevrai, MIDC Paithan**
Sanitary Survey	-	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood
General Appearance	-	No Floating matter	No Floating matter	No Floating matter
Transparency	m	0	0	0
Temperature	Hazen	25	25	25
Colour	°C	1	1	1
Smell	-	Agreeable	Agreeable	Agreeable
pH	-	7.8	7.8	7.7
Oil & Grease	mg/L	BLQ	BLQ	BLQ
Total Suspended Solids	mg/L	47	40	39
Total Dissolved Solids	mg/L	451	335	317
Chemical Oxygen Demand	mg/L	50	57	42
Biochemical Oxygen Demand (3 days, 27°C)	mg/L	13	15	12

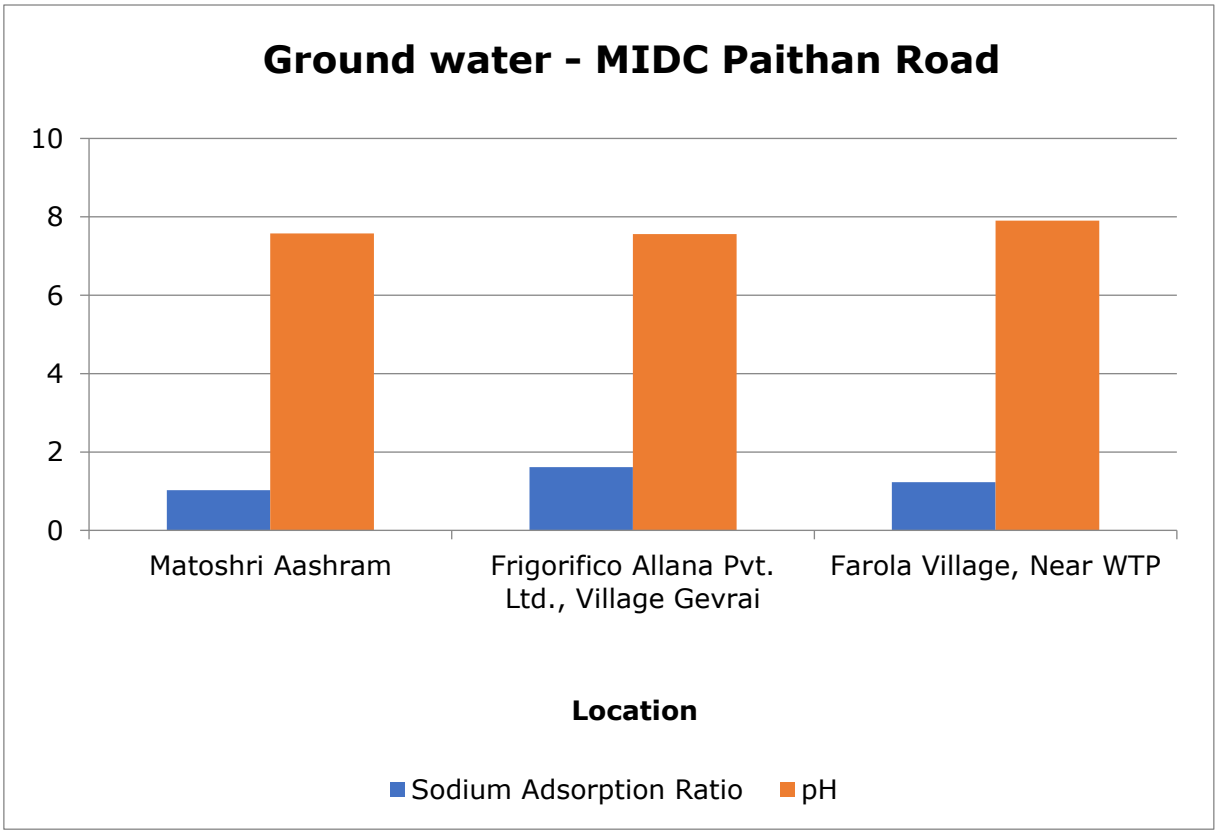
Parameters	Unit	Results		
		Matoshri Aashram, Paithan Road	Borewell Mr. Shivaji Mule Farolla Village, Paithan Road,	Frigorifico Allana Pvt. Ltd., Village Gevrai, MIDC Paithan
Electrical Conductivity (at 25°C)	µmho/cm	805	599	567
Nitrite Nitrogen (as NO_2)	mg/L	BLQ	BLQ	BLQ
Nitrate Nitrogen (as NO_3)	mg/L	0.91	0.62	2.86
(NO_2 + NO_3)-Nitrogen	mg/L	0.93	0.63	2.89
Free Ammonia (as NH_3-N)	mg/L	BLQ	BLQ	BLQ
Total Residual Chlorine	mg/L	BLQ	BLQ	BLQ
Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ
Fluoride (as F)	mg/L	1.46	1.63	0.88
Sulphide (as H_2S)	mg/L	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	0.16	0.18	0.20
Sodium Adsorption Ratio	-	1.65	1.70	1.70
Total Coliforms	MPN Index /100 mL	<1.8	<1.8	<1.8
Faecal Coliforms	MPN Index /100 mL	<1.8	<1.8	<1.8
Total Phosphate (as P)	mg/L	0.3	0.2	0.5
Total Kjeldahl Nitrogen (as N)	mg/L	1	2	6
Total Ammonia (NH_4+NH_3)-Nitrogen)	mg/L	1	BLQ	0
Total Nitrogen	mg/L	2	3	9
Phenols (as C_6H_5OH)	mg/L	BLQ	BLQ	BLQ
Anionic Detergents (as MBAS)	mg/L	BLQ	BLQ	BLQ
Organo Chlorine Pesticides	µg/L	BLQ	BLQ	BLQ
Polynuclear aromatic hydrocarbons (PAH)	mg/L	BLQ	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	BLQ	BLQ	BLQ
Nickel (as Ni)	mg/L	BLQ	BLQ	BLQ
Copper (as Cu)	mg/L	BLQ	BLQ	BLQ
Hexavalent Chromium (as Cr^{6+})	mg/L	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	BLQ	BLQ	BLQ
Total Arsenic (as As)	mg/L	BLQ	BLQ	BLQ
Lead (as Pb)	mg/L	BLQ	BLQ	BLQ
Cadmium (as Cd)	mg/L	BLQ	BLQ	BLQ
Mercury (as Hg)	mg/L	BLQ	BLQ	BLQ
Manganese (as Mn)	mg/L	BLQ	BLQ	BLQ
Iron (as Fe)	mg/L	BLQ	BLQ	BLQ
Vanadium (as V)	mg/L	BLQ	BLQ	BLQ
Selenium (as Se)	mg/L	BLQ	BLQ	BLQ
Boron (as B)	mg/L	BLQ	BLQ	BLQ
Bioassay Test on fish	% survival	97	100	100

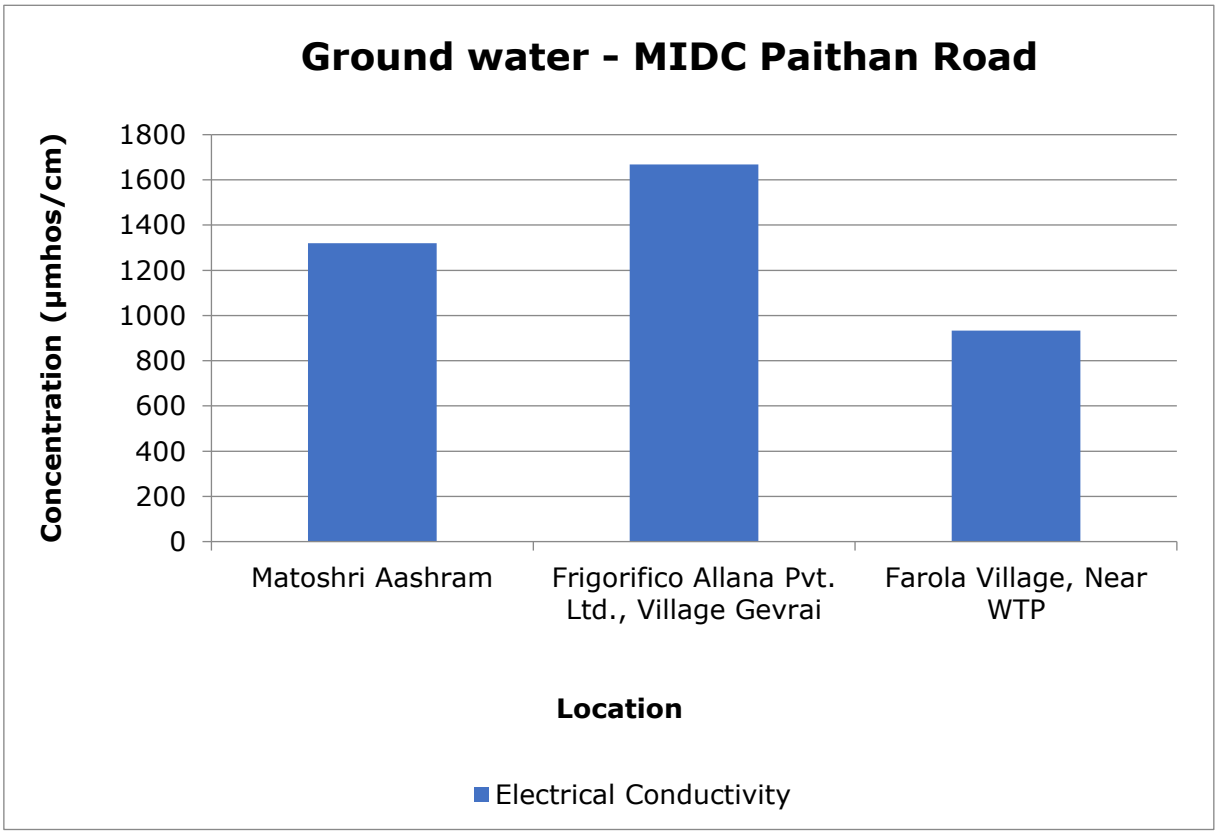
Graphs - Ground Water of MIDC Paithan






Ground water - MIDC Paithan Road
120
100
80
60
40
20
0
% Survival
Matoshri Aashram
Frigorifico Allana Pvt. Ltd., Village Gevrai
Farola Village, Near WTP
Location
Bioassay Test on Fish


Ground water - MIDC Paithan Road
10
8
6
4
2
0
Matoshri Aashram
Frigorifico Allana Pvt. Ltd., Village Gevrai
Farola Village, Near WTP
Location
Sodium Adsorption Ratio
pH


Ground water - MIDC Paithan Road
Concentration (µmhos/cm)
1800
1600
1400
1200
1000
800
600
400
200
0
Matoshri Aashram
Frigorifico Allana Pvt. Ltd., Village Gevrai
Farola Village, Near WTP
Location
Electrical Conductivity

8. Health Related Data

C: Receptor

Component C (Impact on Human Health)	
Main - 10	
% increase in cases	**Marks**
<5%	**0**
5-10%	**5**
>10%	**10**

- % increase is evaluated based on the total no. of cases recorded during two consecutive years.
- For Air Environment, total no. of cases related to Asthma, Bronchitis, Cancer, Acute respiratory infections etc. are to be considered.
- For surface water/ ground water Environment, cases related to Gastroenteritis, Diarrhoea, renal (kidney) malfunction, cancer etc are to be considered.
- For the above evaluation, the previous 5 years records of 3-5 major hospitals of the area shall be considered.

Annexure – I Health Related Data enclosed.

9. CEPI Score

Comprehensive Environmental Pollution Index (CEPI) is intended to act as early warning tool which helps in categorization of industrial clusters/ areas in terms of priority of needing attention. The CEPI score have been calculated based on CPCB Letter No. B-29012/ESS (CPA)/2015-16 dated 26th April 2016. The scoring system involves an algorithm that considers the basic selection criteria. It is proposed to develop the CEPI based on sources of pollution, real time observed values of the pollutants in the ambient air, surface water and ground water in & around the industrial cluster and health related statistics. The present study is the compilation of Pre-monsoon season.

Table 8.1 CEPI score of the Pre-monsoon season 2025 is given below:

	A1	A2	A	B	C	D	CEPI
Air Index	2.75	2.5	6.88	1.5	10	5	**23.4**
Water Index	2.75	2.5	6.88	37	10	5	**58.9**
Land Index	1.5	2.5	3.75	15.25	10	5	**34.0**
						Aggregated CEPI	**62.2**

Table 8.2 Comparison of CEPI Scores

	Air Index	Water Index	Land Index	CEPI
CEPI Score June 2025	23.4	58.9	34.0	**62.2**
CEPI score March 2025	25.3	53.4	49.4	**59.20**
CEPI Score June 2024	20.30	56.00	37.10	**59.30**
CEPI Score March 2024	25.00	43.30	53.00	**58.10**
CEPI Score June 2023	24.00	54.50	46.40	**59.60**
CEPI Score March 2023	21.90	55.90	36.00	**59.40**
CEPI Score June 2021	15.50	54.38	53.00	**58.12**
CEPI Score March 2021	23.00	53.90	53.75	**59.60**
CEPI score March 2020	53.80	34.50	38.50	**59.90**
CEPI score June 2019	25.00	58.50	17.50	**60.31**
CEPI score March 2019	22.75	23.25	62.00	**64.01**

	Air Index	Water Index	Land Index	CEPI
CEPI Score June 2025	23.4	58.9	34.0	**62.2**
CEPI score June 2018	36.25	55.25	56.25	**65.01**
CEPI score March 2018	56.00	34.00	50.00	**64.38**
CPCB CEPI score March 2018	45.00	65.38	28.75	**69.85**

CEPI Score Calculation:

Aurangabad, Maharashtra - CEPI - JUNE 2025

Ambient Air Analysis report

Pollutant	Group	A1	A2	A (A1 X A2)
CO	B	2	Moderate	
NO2	A	0.25		
PM10	B	0.5		
		2.75	**2.5**	**6.875**

Pollutant	Avg (1)	Std (2)	EF (3) [(3)=(1)/(2)]	No. of samples Exceeding (4)	Total no. of samples (5)	SNLF Value (6) [(6)=(4)/(5)x(3)]	SNLF score (B)	
CO	1.57	2	0.79	0	16	0.00	L	1.5
NO2	30.68	80	0.38	0	16	0.00	L	0
PM10	50.27	100	0.50	0	16	0.00	L	0
B score = (B1+B2+B3)							**B**	**1.5**

C	**10**	**>10 %**
D	**5**	**A-IA-A**

Air CEPI	**(A+B+C+D)**	**23.4**

Water Quality Analysis report

Pollutant	Group	A1	A2	A (A1 X A2)
BOD	B	2	Moderate	
TDS	A	0.25		
TP	B	0.5		

		2.75	**2.5**	**6.875**

Pollutant	**Avg (1)**	**Std (2)**	**EF (3) [(3)=(1)/(2)]**	**No. of samples Exceeding (4)**	**Total no. of samples (5)**	**SNLF Value (6) [(6)=(4)/(5)x(3)]**	**SNLF score (B)**	
BOD	35.93	8	4.49	22	24	4.12	C	30
TDS	835.90	2000	0.42	1	24	0.02	M	2.75
TP	15.33	15	1.02	8	24	0.34	M	4.25
B score = (B1+B2+B3)							**B**	**37**

C	**10**	**>10 %**
D	**5**	**A-IA-A**

Water CEPI	**(A+B+C+D)**	**58.9**

Ground Water Quality Analysis report

Pollutant	**Group**	**A1**	**A2**	**A (A1 X A2)**
F	A	1	Moderate	
Fe	A	0.25		
TDS	A	0.25		
		1.5	**2.5**	**3.75**

Pollutant	**Avg (1)**	**Std (2)**	**EF (3) [(3)=(1)/(2)]**	**No. of samples Exceeding (4)**	**Total no. of samples (5)**	**SNLF Value (6) [(6)=(4)/(5)x(3)]**	**SNLF score (B)**	
F	1.25	1.5	0.83	3	12	0.21	M	11.25
Fe	0.48	0.3	1.60	2	12	0.27	M	4
TDS	756.17	2000	0.38	0	12	0.00	L	0
B score = (B1+B2+B3)							**B**	**15.25**

C	**10**	**>10 %**
D	**5**	**A-IA-A**

Land CEPI	**(A+B+C+D)**	**34.0**

Water CEPI Score (im)	**58.9**
Land CEPI Score (i2)	**34.0**
Air Score (i3)	**23.4**

Aggregated CEPI Score =	**im + {(100- im)*i2/100)*i3/100)}** where, im = maximum sub index; and i2 and i3 are sub-indices for other media
CEPI Score	**62.2**

10. Conclusion

Ambient Air Quality

- In the present study, 16 AAQ stations of 4 MIDCs namely: MIDC Shendra, MIDC Chikalthana, MIDC Waluj and MIDC Paithan, were identified in the CEPI impact area to cover both upwind and cross wind directions and AAQ survey was conducted.
- All air quality parameters are observed well within the limits as per NAAQS.
- In the CEPI score calculated for Air environment by CPCB in March 2018, the concentration of PM_{10} and $PM_{2.5}$ has exceeded at 50% of the studied locations, which contributed to air index (45.00). However, in the present report, concentration of both PM_{10} and $PM_{2.5}$ are found below permissible levels resulted in less exceedance factor, hence lower air index (23.4).

Surface Water Quality

- To understand the quality of treated effluent, samples were collected from 24 locations of different MIDCs.
- Concentration of BOD, and Total Dissolved Solids was found to exceed the acceptable limits at few places.
- All the industries in the Chhatrapati Sambhaji nagar region are either reusing the treated trade effluent as sewage in their process or gardening.
- The environmental Pollution Index of water in the current study is observed as 58.9.

Ground Water Quality

- Total 12 ground water samples were collected from different Dug well, well and Bore well in different regions of four MIDCs.
- All the parameters of groundwater analysis were found within the permissible limits, except Fluoride content which is found to exceed in few of the water samples.
- The environmental Pollution Index of land in the current study is observed as 34.0.

CEPI Score

- The CEPI Score of Pre-monsoon season is 62.2.
- During the calculation of CEPI score, water Index is calculated highest with 58.9, followed by the land Index 34.0 and Air index as 23.4. The parameters of surface water and ground water in Chhatrapati Sambhaji nagar region are observed well within the limits. Hence, aggregated CEPI score is calculated as 62.2, which is lower than the CPCB CEPI score March 2018 which was 69.85.

- In CEPI score of CPCB 2018, Air index and water index were higher as compared to the present (March 2025) indices.
- As per the CPCB CEPI calculation revised in 2016, Health statistics represented by Receptor C in CEPI Calculation, also plays an important role.
- Collective efforts of regional office of MPCB, NMMC, administration and environmental organizations are resulting in significant reduction in pollution level over the years.
- Efforts taken to reduce the pollution level is represents factor D in CEPI Calculation, which also affects the overall CEPI score.
- The present study is the compilation of pre-monsoon season, which results in higher pollution load, hence also affects the total score.
- In conclusion, approximately 11% decrease in CEPI score is observed from 69.85 in 2018 to 62.2 in June 2025.

11. Efforts taken by MPCB to control and reduce Environmental Pollution Index

- Encouragement to the industries to switch over to cleaner fuel from existing fuel coal.
- Drive against open burning of biomass, crop residue, garbage, leaves, etc
- All the water polluting industries change their underground ETP tank to overhead.
- Four Number of Organic Waste ComPre machines: Provided by Corporation at processing site
- Waste collection and segregation centres: The AMC has already installed and commissioned the MSW Processing Plant of 150MT/day capacity at Chikalthana and Padegaon. The Biogas Plant at Kanchanwadi of 30 TPD Biomethanization Technology has been installed and commissioned.
- Construction of one Common Effluent Treatment plant (CETP) at M/s. SMS Waluj CETP Pvt Ltd., MIDC Waluj, -10 MLD & M/s. Chhatrapati Sambhaji nagar Industrial Township Ltd. (CETP), Auric City, Shendra
- Sixteen CEMS are installed for Air and Water in Large and Medium scale RED category industries
- Arrangement of scientific collection and treatment of sewage generated: Chhatrapati Sambhaji nagar Municipal Corporation has provided Sewage Treatment Plants at Kanchanwadi — 161 MLD, Zalta — 2.0 MLD, Padegaon — 2.5 MLD and Dr. Salim Ali Lake — 7.0MLD, which is of adequate capacity for treating the domestic sewage generated from Chhatrapati Sambhaji nagar city.
- Installation of three Continuous Ambient Air Quality Monitoring Stations (CAAQMS) i.e. in MIDC Waluj, Deogiri Engineering College premises and at MPCB Office premises.
- Four monitoring stations under the National Water Quality Monitoring Programme (NWMP) are also installed to check the water quality of the area. i.e. Collector Office Chh. Sambhaji nagar, C.A.D.A Office, Garkheda, S.B.E.S College of Science.
- Steps are taken for industrial areas/other units to recycle 100% treated effluent to achieve zero liquid discharge (ZLD). Time to time directions were issued to the industries to provide ZLD systems &to recycle 100 % treated effluent to achieve ZLD. Total 23 industries have provided the ZLD system.
- Steps taken to reduce dust emission:
  a) AMC has widened the roads and squares to avoid traffic congestion.
  b) Road sweeping machines have been provided by AMC.
  c) Condition of city roads improved under Smart City.
  d) The industries have been instructed to operate the Air Pollution Control System like dust collector, scrubber efficiently to achieve the consented standards.
- 40,000 Tree plantations in last one year: Steps taken by MPCB to increase tree plantation in industrial premises.

- Other initiatives taken to control and reduce pollution in air, surface water and groundwater.
- The work of MSW Processing Plant of 150 MT/day capacity (Each) at Harsool is in progress.
- Public awareness campaign is taken.
- Continuous vigilance & monitoring of industries carried out by MPCB.
- Initiatives have been taken to reduce the dust from the city by Procurement of mechanized road sweeping machines and Procurement of Dust Suppression Vehicles with Multi-Purpose Sprayer
- Installation of Stationary/Movable Cannon Dust Suppression Systems
- Creation of green buffers along the traffic corridors
- Introduction of water/mist fountains for major traffic intersections
- Greening of open areas, gardens, community places and Maintaining pothole free roads, Blacktopping/paving of roads
- Enhancement in green belt from 33% to 40%

Dust Suppression Vehicles with Multi-Purpose Sprayer-Mechanized Road Sweepers

Public Awareness Activities

Miyawaki Plantation

Biomining of Legacy Waste

Smart Traffic Signals

Pothole free roads

Solar Roof Top

Continuous Ambient Air Quality Monitoring Station (CAAQMS)

Ambient Air Quality Monitoring (AAQM) Van

12. Photographs

<table>
<tr>
<td> 
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<tr>
<td>Ambient Air Sampling Ranjangaon MIDC Waluj</td>
<td>Ambient Air Sampling, MIDC Shendra</td>
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<tr>
<td>Ambient Air Sampling Fasting Wing/Viglva Paper Mill, Chittegaon, Waluj</td>
<td>Ambient Air Sampling Ashok Nagar, Industrial Area Chikalthana</td>
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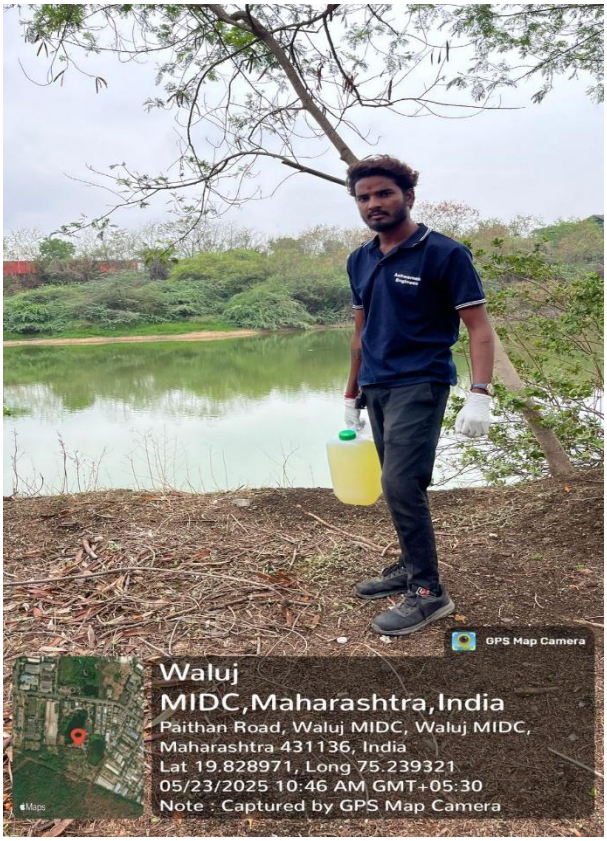
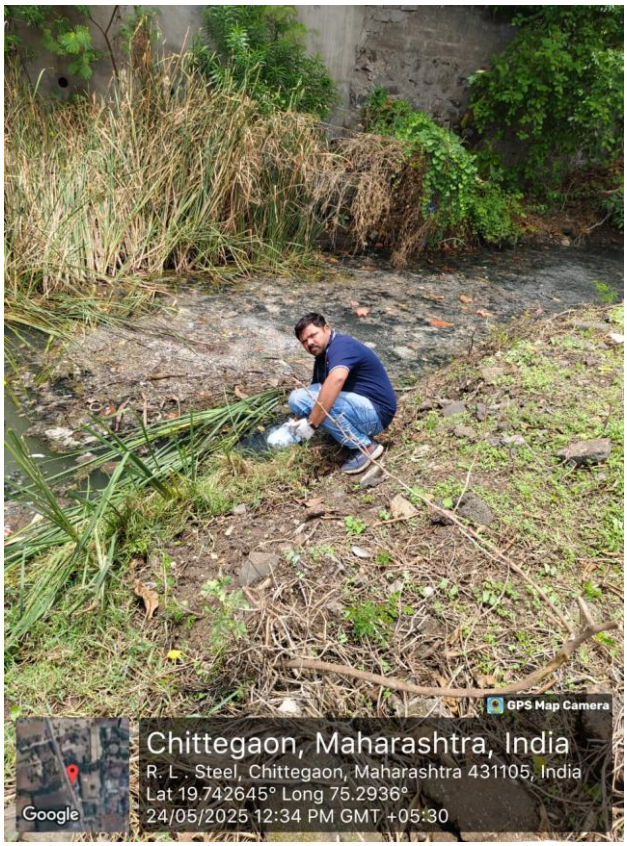
	
Surface Water Sampling Patil Lake Paithan road	**Surface Water Sampling Pond water near SMS CETP MIDC Waluj**
	
Surface Water Kubhephal, Lake MIDC Shendra	**Surface Water Back side, R.L. Steel, Chittegaon, Waluj**

	
Ground Water Sampling Open Well Allena Frigarifico MIDC Paithan	**Ground Water Sampling nearby Hanuman Temple MIDC Shendra**
	
Ground water Sampling Gangapur, MIDC Waluj	**Ground water Sampling Manik Nagar Galli No.3 Chikalthana**

- **Annexure – I Health Related Dat**

HEALTH STATISTICS

Required for Comprehensive Environmental Pollution Index (CEPI) Post-monsoon Season (December 2024- February 2025) Study by Maharashtra Pollution Control Board (MPCB), MAHARASHTRA

Name of the Polluted Industrial Area (PIA)	Chatrapati Sambhajinagar
Name of the major health center/ organization	Savarkar Hospital, Aurangabad
Name and designation of the Contact person	
Address	CIDCO N-8, Aurangabad

CIDCO, N-8, Hospital, Municipal Corporation, Chhatrapati Sambhajinagar

S No.	Diseases	No. of Patients Reported	
		Year Jan 2023 to Dec 2023	Year Jan 2024 to Dec 2024
AIRBORNE DISEASES			
1.	Asthma	1	–
2.	Acute Respiratory Infection	1626	3255
3.	Bronchitis	–	–
4.	Cancer	–	–
WATERBORNE DISEASES			
1.	Gastroenteritis	1	–
2.	Diarrhea	29	55
3.	Renal diseases	–	–
4.	Cancer	–	–

Date: 17/02/2025

MEDICAL OFFICER
CIDCO, N-8 Hospital,
Municipal Corporation,
Chhatrapati Sambhajinagar

Signature

HEALTH STATISTICS

Required for Comprehensive Environmental Pollution Index (CEPI) Post-monsoon Season (December 2024- February 2025) Study by Maharashtra Pollution Control Board (MPCB), MAHARASHTRA

Name of the Polluted Industrial Area (PIA)	**Chatrapati Sambhajinagar**
Name of the major health center/ organization	**Medicover Hospital, Aurangabad**
Name and designation of the Contact person	7709477993 Y. Patil
Address	

S No.	Diseases	No. of Patients Reported	
		Year Jan 2023 to Dec 2023	Year Jan 2024 to Dec 2024
AIRBORNE DISEASES			
1.	Asthma	300	250
2.	Acute Respiratory Infection	200	180
3.	Bronchitis	135	150
4.	Cancer	310	280
WATERBORNE DISEASES			
1.	Gastroenteritis	180	200
2.	Diarrhea	240	250
3.	Renal diseases	300	280
4.	Cancer	310	270

Date: 12/5/25.

Signature

MEDICOVER HOSPITALS N-6 CIDCO Aurangabad Reg.No.-547

HEALTH STATISTICS

Required for Comprehensive Environmental Pollution Index (CEPI)

Post-monsoon Season (December 2024-February 2025) Study by

Maharashtra Pollution Control Board (MPCB), MAHARASHTRA

Name of the Polluted Industrial Area	Chhatrapati Sambhajinagar
Name of the major health center/organization	Employees State Insurance Scheme, Chhatrapati Sambhajinagar
Name and designation of the contact Person	Dr. Sachin Phadnis Mob.no. 9823117972
address	P-16, MIDC, Chikalthana, Chhatrapati Sambhajinagar

Sr.no	Diseases	Year Jan 2023 to Dec 2023	Year Jan 2024 to Dec 2024
AIRBORNE DISEASES			
1.	Asthma	1326	1543
2.	Acute Respiratory Infection	2628	2746
3.	Bronchitis	241	336
WATERBORNE DISEASES			
1.	Gastroenteritis	3621	4827
2.	Diarrohea	5208	6404
3.	Renal Diseases	172	279
OTHER DISEASES			
1.	Cancer	46	51

Resident Medical Officer
MH-ESI Society Hospital
Chhatrapati Sambhajinagar
180101