

Monitoring, Sampling and Analysis for Ambient Air Quality, Surface Water Quality and Ground Water Quality in Critically/Severely/Other Polluted Industrial Areas of Maharashtra

NASHIK

Pre-Monsoon (April 2023 to June 2023)



LiFE
Lifestyle for
Environment

Maharashtra Pollution Control Board

Kalptaru Point, Sion East, Mumbai - 400 022

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ABBREVIATION

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

The Nashik CEPI area including MIDC Ambad and MIDC Satpur was monitored for Ambient Air Quality, Ground and Surface Waters quality and CEPI Score was calculated based on the Latest directions 120 of Letter No. B-29012/ESS (CPA)/2015-16 dated 26th April 2016 of Central Pollution Control Board (CPCB). Maharashtra Pollution Control Board (MPCB) has carried out monitoring at CPCB location with the additional location of samplings 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 2023 to June 2023 to verify the Ambient Air Quality, Surface water and Groundwater.

The Ambient Air Quality stations were identified considering the upwind and cross wind direction in the CEPI impact area. The concentration of all 12 Parameters is well within the limit prescribed by NAAQS at all locations. In surface water of Nashik the level of BOD exceeds in four samples collected out of five samples are collected. In ground water, the concentrations of Iron have exceeded in some of the samples collected.

The CEPI score is the combination of A (Source), B (Pathway), C (Impact on Human Health) and D (Additional High-Risk Element) factors. Maharashtra Pollution Control Board has worked on controlling and mitigating the air and water pollution with installation of CAAQMS, CETPs, online VOC analysers etc.

Maharashtra Pollution Control Board has taken various initiatives in reducing the CPCB CEPI Score of 69.49 of 2018 to 57.28 of June 2023. Based on the study results of April 2023 to June 2023 the CEPI score as per the revised CPCB 2016 guidelines, the CEPI index of Pre-Monsoon - Ambient Air is 22.75, Surface Water is 52.50, and Ground Water is 44.25. The overall CEPI score for Nashik area for the Pre-monsoon 2023 is 59.10.

2. Introduction

Industries play a pivotal role in a country's economic development, contributing to GDP growth, job creation, and technological advancement. However, in recent years, the environmental pollution caused by industries has emerged as a formidable challenge for authorities worldwide. The impact of these industrial activities on the environment is severe, affecting the quality of the water we drink, the air we breathe, and the soil that nurtures our plants. Industries releasing untreated wastewater have contaminated drinking water with hazardous substances, posing risks to human, animal, and aquatic life. Exposure to air pollutants has been linked to various respiratory and cardiovascular diseases, particularly in early human life, leading to infant mortality or chronic health issues in adulthood. According to the World Health Organization (WHO), environmental pollution is responsible for an estimated 9 million premature deaths worldwide each year. It also estimates that over 90% of the global population is exposed to air pollution levels that exceed WHO guidelines, causing serious health risks. Around 2 billion people worldwide use drinking water contaminated with faeces leading to infectious diseases such as cholera and dysentery.

Hence, addressing these pollution sources is crucial to achieving significant environmental and health benefits. Additionally, the widespread nature of industrial pollution requires extensive monitoring systems and resources to collect reliable data and assess the full extent of the environmental impacts. The complexities associated with monitoring and identifying pollution sources make it a daunting task for authorities to develop targeted strategies and enforce regulations effectively. Striking a balance between economic growth and environmental protection requires delicate negotiations and innovative policy approaches. Overcoming these challenges demands robust regulatory frameworks, international collaboration, advanced monitoring technologies, and a commitment to sustainable practices from industries and governments alike.

In view of this, Central Pollution Control Board (CPCB) has evolved the concept of the Comprehensive Environmental Pollution Index (CEPI) during 2009-10 as a tool for comprehensive environmental assessment of prominent industrial clusters and formulation of remedial Action Plans for the identified critically polluted areas. Later in 2016, the revised concept of CEPI was formulated by eliminating the subjective factors but retaining the factors which are monitorable CEPI bridges the perceptive gap between experts, public, and government departments by simplifying the complexity of environmental issues. It aims at categorizing critically polluted industrial areas based on scientific criteria, so as to ascertain various dimensions of pollution. This is a combined framework used to evaluate the impacts caused by industrial clusters on the nearby environment, as a numerical value.

The present CEPI study includes areas under Nashik. After Pune and Mumbai, Nashik is third industrial hub of the Maharashtra state, for the highly industrial development in Maharashtra.

Existing industrial areas in Nashik district are Satpur, Ambad, Sinnar, Igatpuri, Dindori and Vinchur. The proposed areas are Additional Sinnar and Malegaon MIDC. Large-scale industries present in Nashik district are Mahindra & Mahindra, BOSCH, Epiroc Mining India Limited, CEAT Limited, CG Power and Industrial Solutions Ltd, Graphite India, ThyssenKrupp, TDK India Private Limited, Everest Industries, Gabriel India, GlaxoSmithKline, Hindustan Unilever Limited, Jindal Polyster, Kirlosker Oil Engines, KSB Pumps, Hindustan National Glass & Industries Ltd, Mahindra Sona, United Spirits Limited, Perfect Circle Industries, Samsonite, Shalimar Paints, Siemens, VIP Industries, Indian Oil Corporation, XLO India Limited and Jindal Saw.

The present report is also based on the revised CEPI version 2016. The results of the application of the Comprehensive Environmental Pollution Index (CEPI) to selected industrial clusters or areas are presented in this report. The main objective of the study is to identify polluted industrial clusters or areas in order to take concerted action and to centrally monitor them at the national level to improve the current status of their environmental components such as air and water quality data, ecological damage, and visual environmental conditions. The index captures the various dimensions of environment including air, water and land. Comprehensive Environmental Pollution Index (CEPI), which is a rational number to characterize the environmental quality at a given location following the algorithm of source, pathway and receptor have been developed.

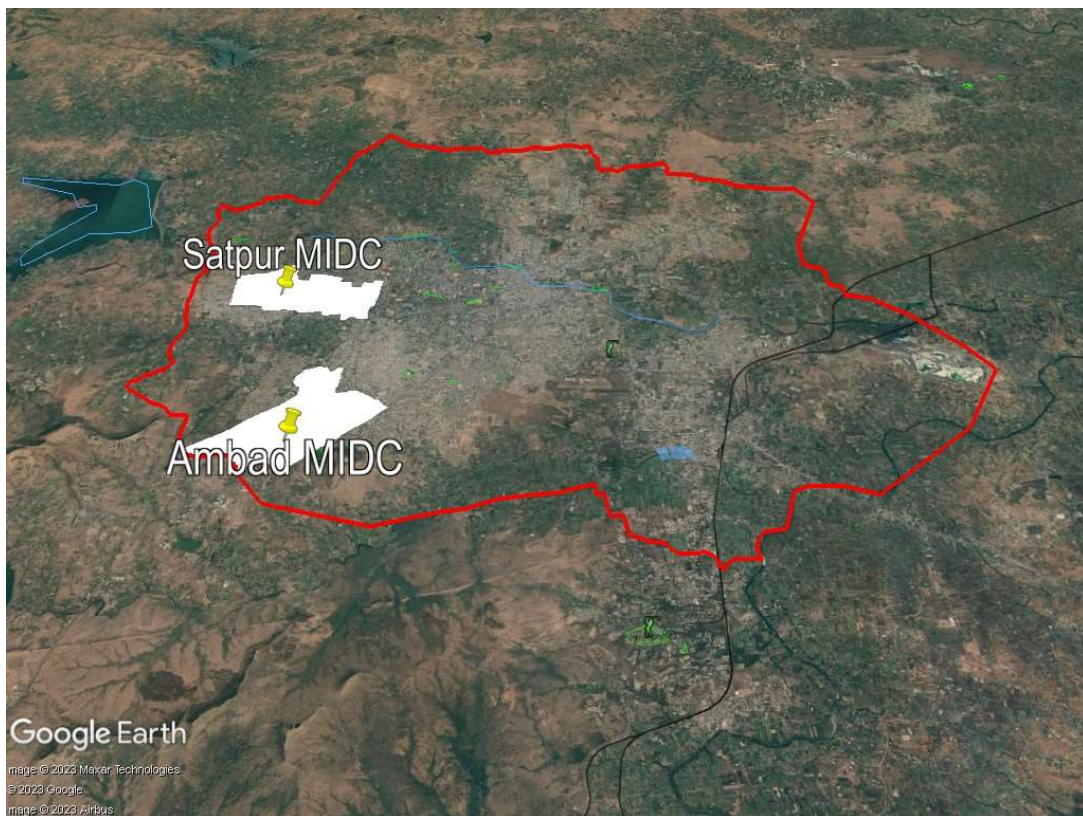


Fig. Nashik region CEPI monitoring zone

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 selected Pollution Industrial Areas (PIAs) of Nashik, 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 Nashik

Sampling Criteria	Number of sites	Total Sites	Monitoring Parameters
Ambient Air Quality	<ul style="list-style-type: none"> • MIDC Ambad -04 • MIDC Satpur -04 	08	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂ , NH ₃ , O ₃ , C ₆ H ₆ , CO, BAP, Pb, Ni, As
Volatile Organic Compounds	<ul style="list-style-type: none"> • MIDC Ambad -02 • MIDC Satpur -02 	04	Dichloromethane, Chloroform, Carbon Tetrachloride, Trichloroethylene, Bromodichloromethane, 1,3-Dichloropropane, 1,4-Dichlorobenzene, 1,3-Dichlorobenzene, 1,2-Dichlorobenzene, 1,2-Dibromo-3-Chloropropane, Napthalene, 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-Propyl benzene, 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-Trichlorobenzene, Hexachlorobutadiene, 1,2,4-Trichlorobenzene, 2,2-Dichloropropane, Dibromo

Sampling Criteria	Number of sites	Total Sites	Monitoring Parameters
			methane, 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
Water Quality Monitoring	Surface water <ul style="list-style-type: none"> MIDC Ambad -06 MIDC Satpur -06 	12	(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 and PCT, 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 <ul style="list-style-type: none"> MIDC Ambad -06 MIDC Satpur -06 	12	

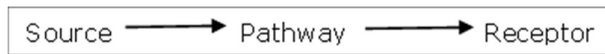
Table 3.2 Frequency of Sampling

	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

	Parameter	Round of Sampling	Frequency in Each Round
6.	Ozone (O ₃)	03	24 Shifts of 1 hr each
7.	Benzene (C ₆ H 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:



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 Nashik 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.*

1. MIDC Ambad: In MIDC Ambad four locations have been monitored of checking the Ambient Air Quality (AAQ). The concentration of all the ambient air parameters was found well within the limits prescribed by NAAQS at all locations.

Table 5.1 MIDC Ambad - 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.	Near VIR Electro Engg. Pvt. Ltd.	19°94'65.76"N	73°73'90.28"E	29.05.2023	31.05.2023	02.06.2023
2.	Near Mahindra CIE Automated Ltd.	19°96'51.87"N	73°73'84.38"E	29.05.2023	31.05.2023	02.06.2023
3.	Near Isovolta India Ltd.	19°95'67.06"N	73°74'92.16"E	29.05.2023	31.05.2023	02.06.2023
4.	Near Sudal Industries Ltd.	19°94'95.62"N	73°74'83.12"E	29.05.2023	31.05.2023	02.06.2023

Table 5.2 MIDC Ambad - Details of Sampling Location of Volatile Organic Compounds (VOCs) Monitoring

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Near Rainbow Decoplus Pvt. Ltd.	19°95'46.31"N	73°74'97.71"E	29.05.2023	31.05.2023	02.06.2023
2.	Near Kirloskar oil India Ltd.	19°95'72.27"N	73°73'25.58"E	29.05.2023	31.05.2023	02.06.2023



Fig. Geographical Locations of Ambient Air Quality Monitoring MIDC Ambad

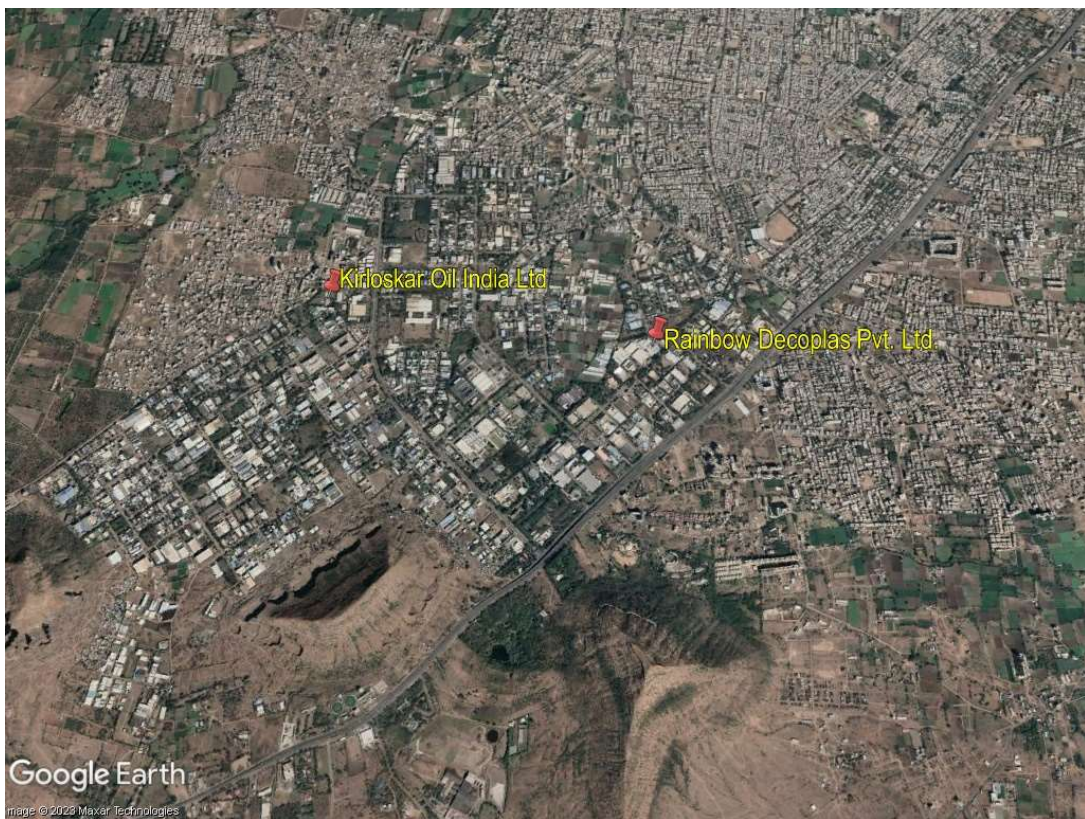


Fig. Geographical Locations of VOCs Monitoring MIDC Ambad

Table 5.3 MIDC Ambad - Ambient Air Quality Monitoring Results

Parameters	Unit	Results			
		Near VIR Electro Engg. Pvt. Ltd.	Near Mahindra CIE Automated Ltd.	Near Isovolt India Ltd.	Near Sudal Industries Ltd.
Sulphur Dioxide (SO ₂)	µg/m ³	9.52	10.3	16.2	16
Nitrogen Dioxide (NO ₂)	µg/m ³	18.4	14.5	15.7	15.4
Particulate Matter (size less than 10 µm) or PM ₁₀	µg/m ³	72	70	59	76
Particulate Matter (size less than 2.5 µm) or PM _{2.5}	µg/m ³	20	20	17	21
Ozone (O ₃)	µg/m ³	BLQ	BLQ	BLQ	BLQ
Lead (Pb)	µg/m ³	BLQ	0.093	BLQ	0.092
Carbon Monoxide (CO) (1 h)	mg/m ³	1.46	1.50	1.51	1.37
Carbon Monoxide (CO) (8 h)	mg/m ³	1.68	1.67	1.57	1.52
Ammonia (NH ₃)	µg/m ³	118	186	133	131
Benzene (C ₆ H ₆)	µg/m ³	2.75	2.98	3.61	2.61
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	9.93	BLQ	BLQ	BLQ

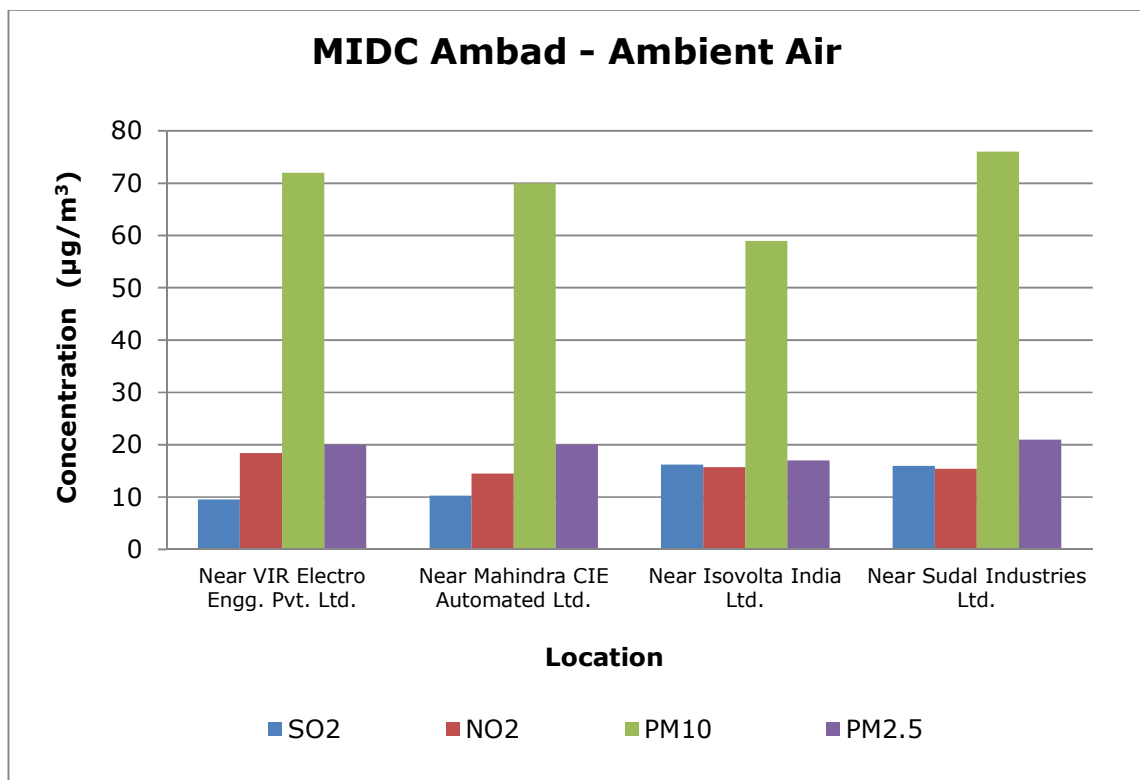
Table 5.4 MIDC Ambad - Volatile Organic Compounds (VOCs) in Ambient Air Results

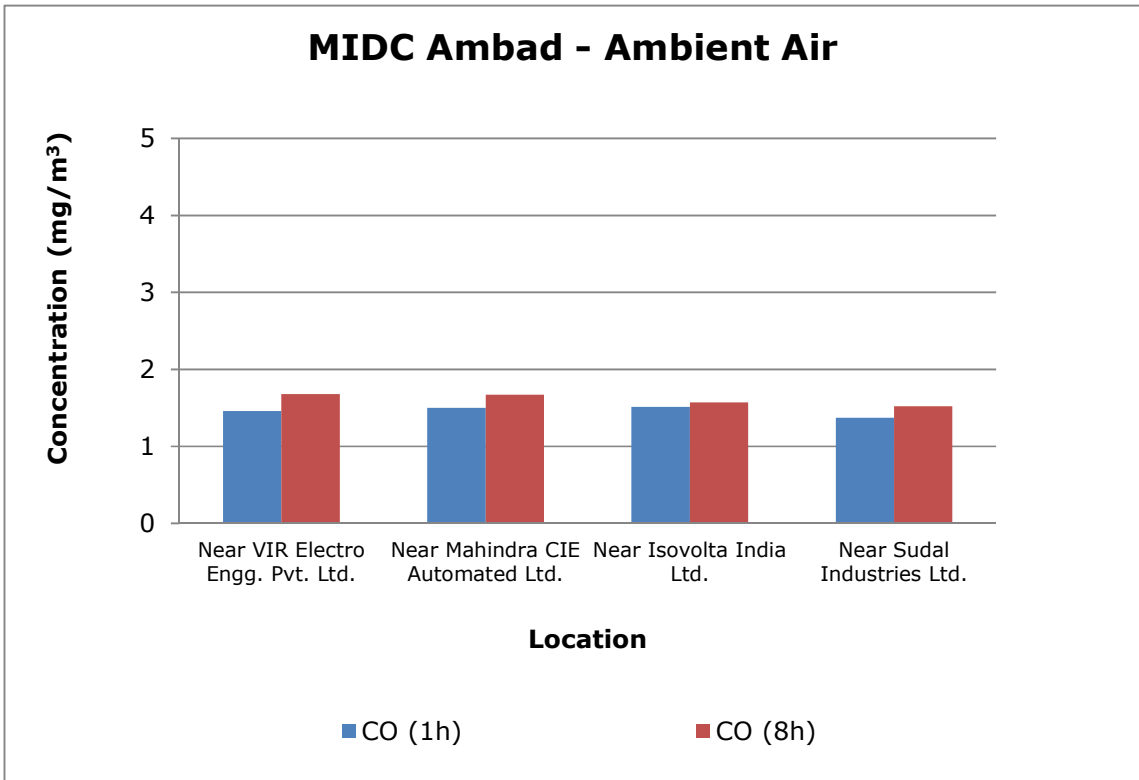
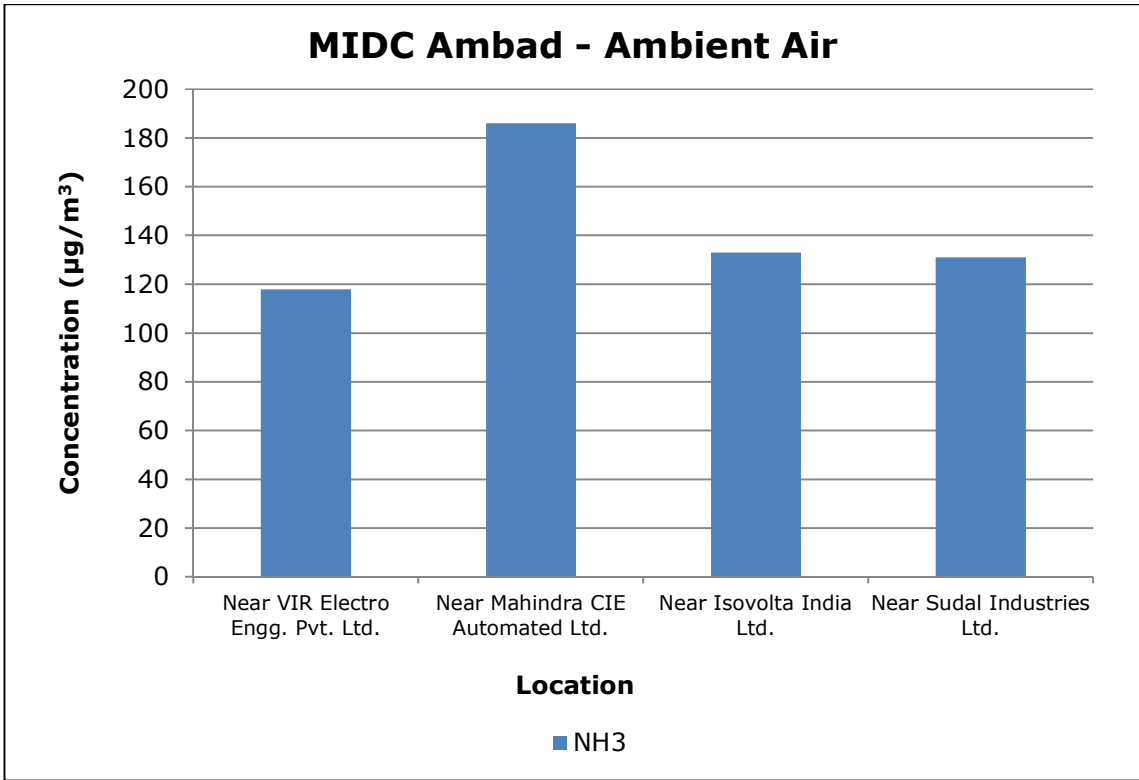
Parameters	Unit	Results	
		Near Rainbow Decoplus Pvt. Ltd.	Near Kirloskar oil India Ltd.
Dichloromethane	µg/m ³	0.91	0.95
Chloroform	µg/m ³	0.67	1.14
Carbon Tetrachloride	µg/m ³	BLQ	0.51
Trichloroethylene	µg/m ³	0.91	0.56
Bromodichloromethane	µg/m ³	BLQ	BLQ
1,3-Dichloropropane	µg/m ³	BLQ	BLQ
1,4-Dichlorobenzene	µg/m ³	BLQ	BLQ
1,3-Dichlorobenzene	µg/m ³	BLQ	BLQ
1,2-Dichlorobenzene	µg/m ³	BLQ	BLQ
1,2-Dibromo-3-Chloropropane	µg/m ³	BLQ	BLQ

Parameters	Unit	Results	
		Near Rainbow Decoplus Pvt. Ltd.	Near Kirloskar oil India Ltd.
Napthalene	µg/m ³	BLQ	BLQ
Bromobenzene	µg/m ³	BLQ	BLQ
1,2,4-Trimethylbenzene	µg/m ³	BLQ	BLQ
2-Chlorotoluene	µg/m ³	BLQ	BLQ
Tert-Butylbenzene	µg/m ³	BLQ	BLQ
SEC-Butylbenzene	µg/m ³	BLQ	BLQ
P-Isopropyltoluene	µg/m ³	BLQ	BLQ
M-Xylene	µg/m ³	BLQ	BLQ
P-Xylene	µg/m ³	2.83	BLQ
Styrene	µg/m ³	BLQ	BLQ
Cumene	µg/m ³	BLQ	BLQ
1,2,3-Trichloropropane	µg/m ³	BLQ	BLQ
N-Propylbenzene	µg/m ³	2.93	0.54
Dibromochloromethane	µg/m ³	BLQ	BLQ
1,2-Dibromoethane	µg/m ³	BLQ	BLQ
Chlorobenzene	µg/m ³	BLQ	BLQ
1,1,1,2-Tetrachloroethane	µg/m ³	BLQ	BLQ
Ethylbenzene	µg/m ³	BLQ	0.728
1,1-Dichloropropylene	µg/m ³	BLQ	2.72
1,2-Dichloroethane	µg/m ³	4.58	5.52
1,2-Dichloropropane	µg/m ³	BLQ	BLQ
Trans-1,3-Dichloropropene	µg/m ³	BLQ	BLQ
CIS 1,3-Dichloropropene	µg/m ³	BLQ	BLQ
1,1,2-Trichloroethane	µg/m ³	BLQ	BLQ
Tetrachloroethylene	µg/m ³	1.00	0.763
1,3,5-Trimethylbenzene	µg/m ³	BLQ	BLQ
N-Butylbenzene	µg/m ³	BLQ	BLQ
1,2,3-Trichlorobenzene	µg/m ³	BLQ	BLQ
Hexachlorobutadiene	µg/m ³	BLQ	BLQ
1,2,4-Trichlorobenzene	µg/m ³	BLQ	BLQ
2,2-Dichloropropane	µg/m ³	BLQ	BLQ
Dibromomethane	µg/m ³	BLQ	BLQ

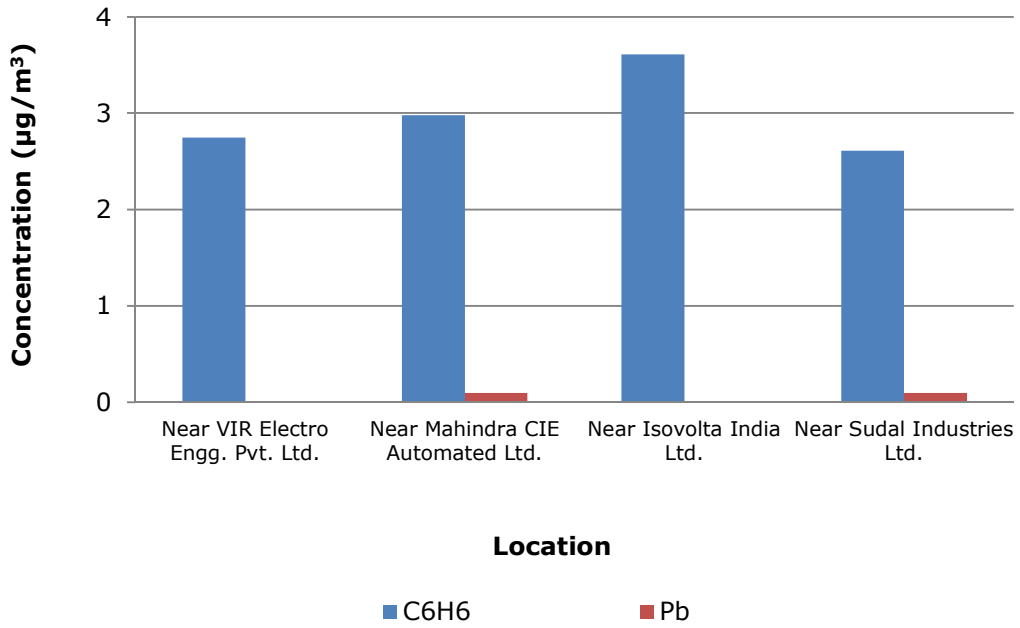
Parameters	Unit	Results	
		Near Rainbow Decoplus Pvt. Ltd.	Near Kirloskar oil India Ltd.
Toluene	µg/m ³	4.62	4.125
O-Xylene	µg/m ³	6.46	2.27
Bromoform	µg/m ³	0.525	BLQ
1,1,2,2-Tetrachloroethane	µg/m ³	BLQ	BLQ
4-Chlorotoluene	µg/m ³	BLQ	BLQ
1,1-Dichloroethylene	µg/m ³	BLQ	BLQ
Trans-1,2-Dichloroethylene	µg/m ³	BLQ	BLQ
1,1-Dichloroethane	µg/m ³	BLQ	BLQ
CIS-1,2-Dichloroethylene	µg/m ³	BLQ	BLQ
Bromochloromethane	µg/m ³	BLQ	BLQ
1,1,1-Trichloroethane	µg/m ³	BLQ	BLQ

Graphs - Ambient Air Quality Monitoring of MIDC Ambad

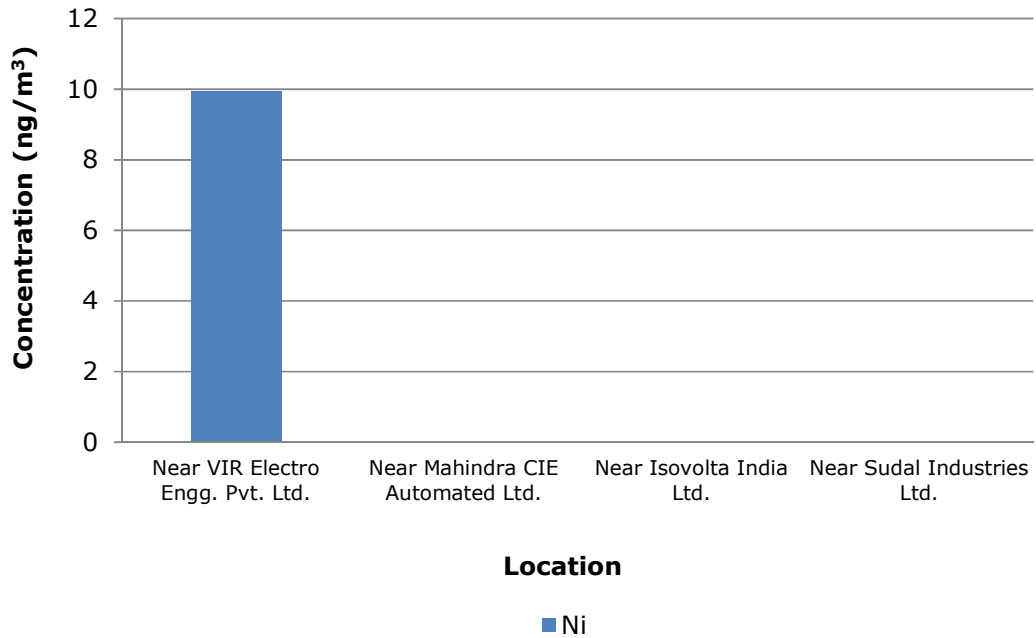




MIDC Ambad - Ambient Air



MIDC Ambad - Ambient Air



MIDC Satpur: In MIDC Satpur four locations have been monitored of checking the Ambient Air Quality (AAQ). The concentration of all the ambient air parameters was found well within the limits prescribed by NAAQS at all locations.

Table 5.5 MIDC Satpur - 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.	Near Mahindra & Mahindra Plant-I	19°99'59.54"N	73°71'63.31"E	22.05.2023	24.05.2023	26.05.2023
2.	Near Graphite India Ltd.	20°00'04.91"N	73°71'72.53"E	22.05.2023	24.05.2023	26.05.2023
3.	Near AATCO Food Ltd.	20°0'02.85"N	73°74'0.43"E	22.05.2023	24.05.2023	26.05.2023
4.	Near MSL Drive Line System	19°99'78.16"N	73°71'67.76"E	22.05.2023	24.05.2023	26.05.2023

Table 5.6 MIDC Satpur - Details of Sampling Location of Volatile Organic Compounds (VOCs) Monitoring

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Near Mahindra & Mahindra Plant-I	19°99'59.54"N	73°71'63.31"E	22.05.2023	24.05.2023	26.05.2023
2.	Near MSL Drive Line System	19°99'78.16"N	73°71'67.76"E	22.05.2023	24.05.2023	26.05.2023

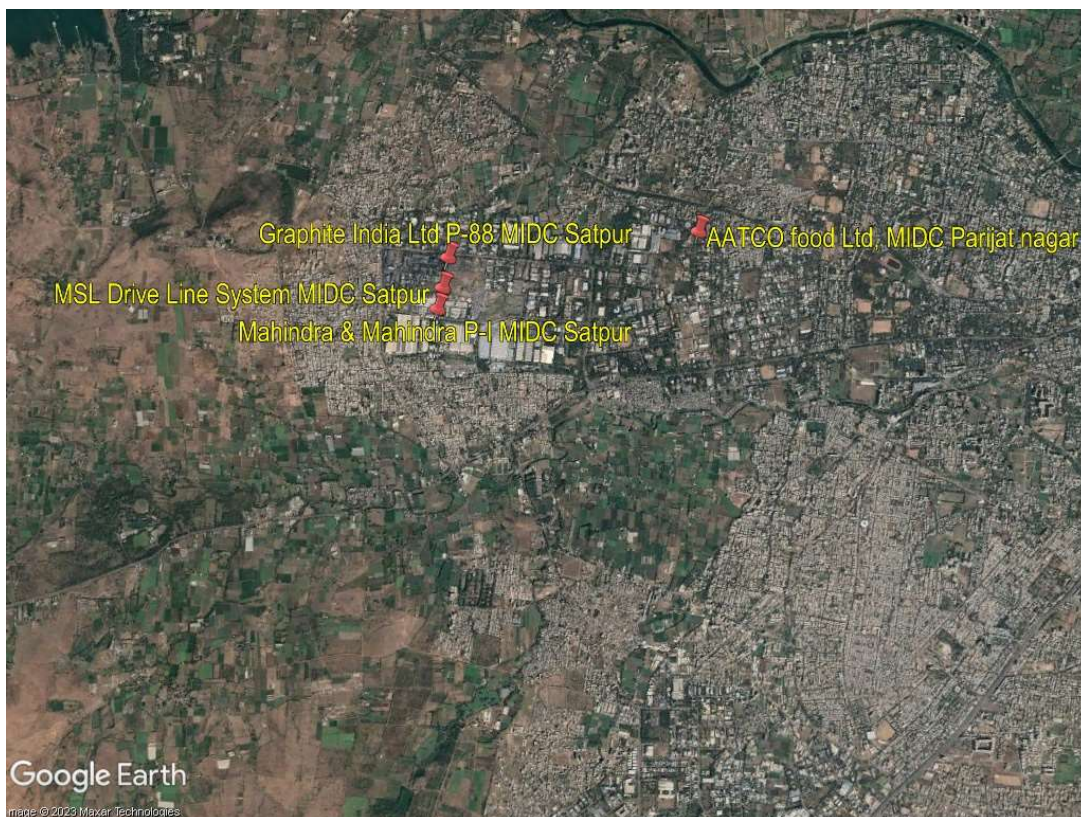


Fig. Geographical Locations of Ambient Air Quality Monitoring MIDC Satpur

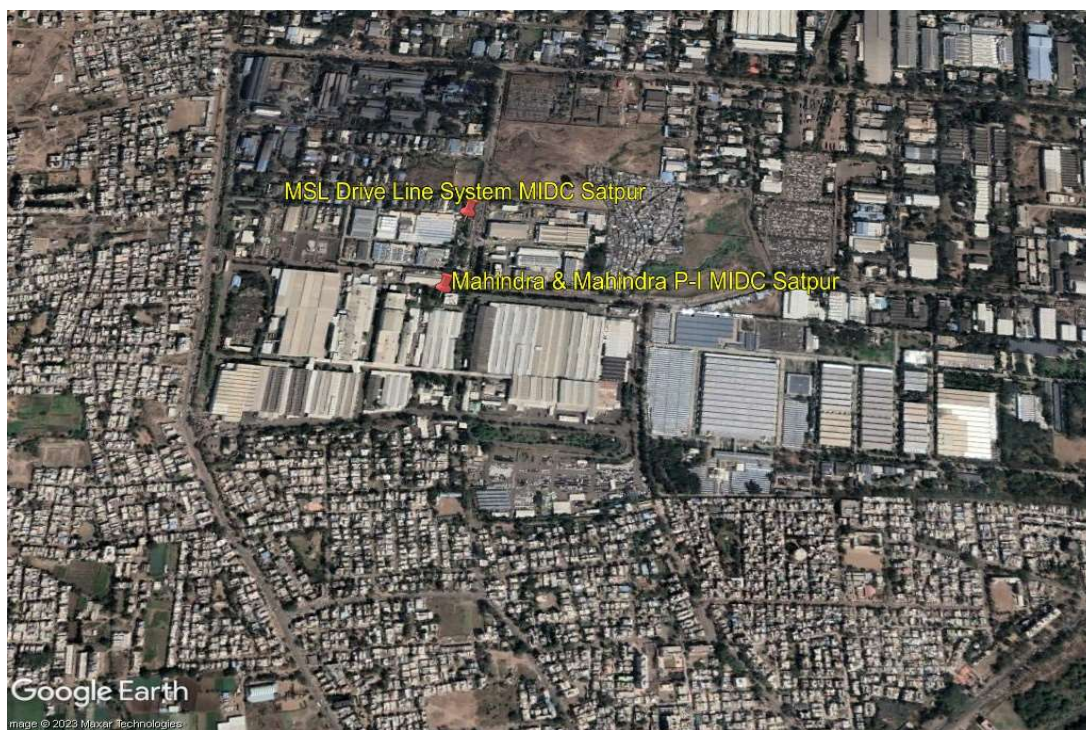


Fig. Geographical Locations of VOCs Monitoring MIDC Satpur

Table 5.7 MIDC Satpur - Ambient Air Quality Monitoring Results

Parameters	Unit	Results			
		Near Mahindra & Mahindra Plant- I	Near Graphite India Ltd.	Near AATCO Food Ltd.	Near MSL Drive Line System
Sulphur Dioxide (SO ₂)	µg/m ³	13.3	13.9	10.4	11.3
Nitrogen Dioxide (NO ₂)	µg/m ³	16.8	20.4	19.0	21.1
Particulate Matter (size less than 10 µm) or PM ₁₀	µg/m ³	56	90	59	66
Particulate Matter (size less than 2.5 µm) or PM _{2.5}	µg/m ³	16	23	15	16
Ozone (O ₃)	µg/m ³	40.4	25	31.9	33.8
Lead (Pb)	µg/m ³	0.034	0.055	BLQ	BLQ
Carbon Monoxide (CO) (1 h)	mg/m ³	1.3	1.2	1.3	1.3
Carbon Monoxide (CO) (8 h)	mg/m ³	1.5	1.7	1.5	1.6
Ammonia (NH ₃)	µg/m ³	82.3	65	62.8	54.7
Benzene (C ₆ H ₆)	µg/m ³	2.05	2.49	2.81	2.2
Benzo (a) Pyrene (BaP) – particulate phase only	ng/m ³	BLQ	BLQ	BLQ	BLQ
Arsenic (As)	ng/m ³	3.5	1.35	1.68	0.68
Nickel (Ni)	ng/m ³	BLQ	5.32	4.86	4.37

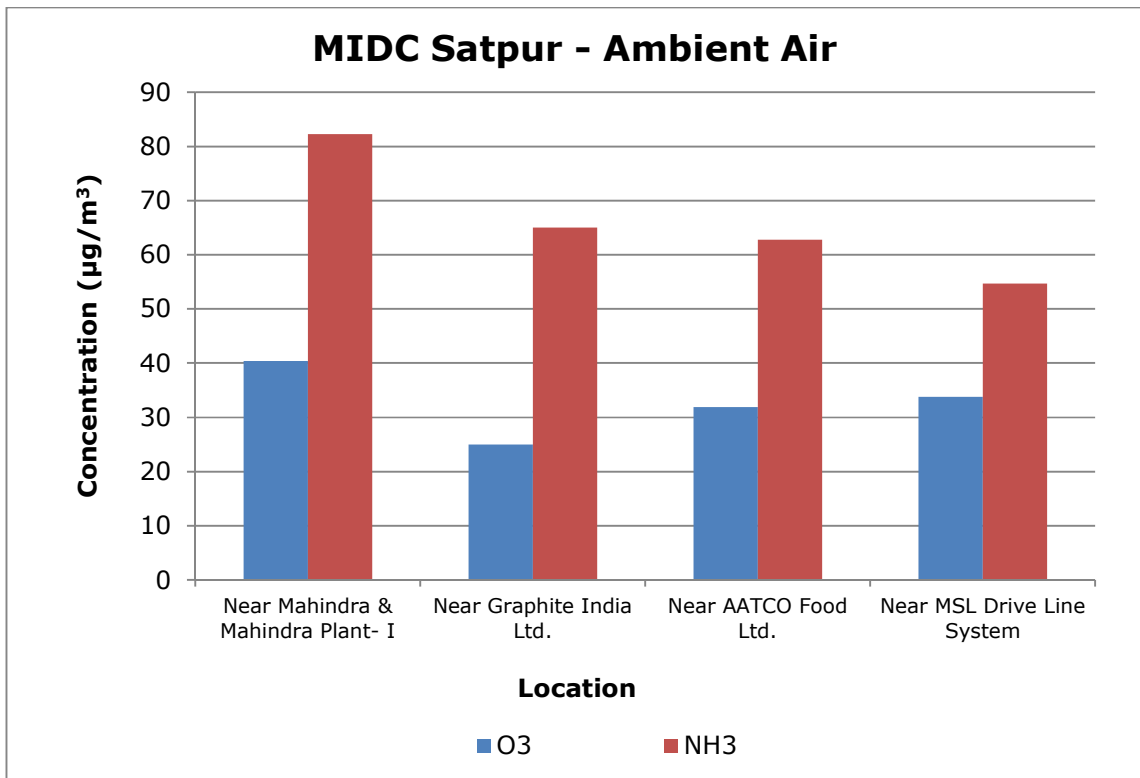
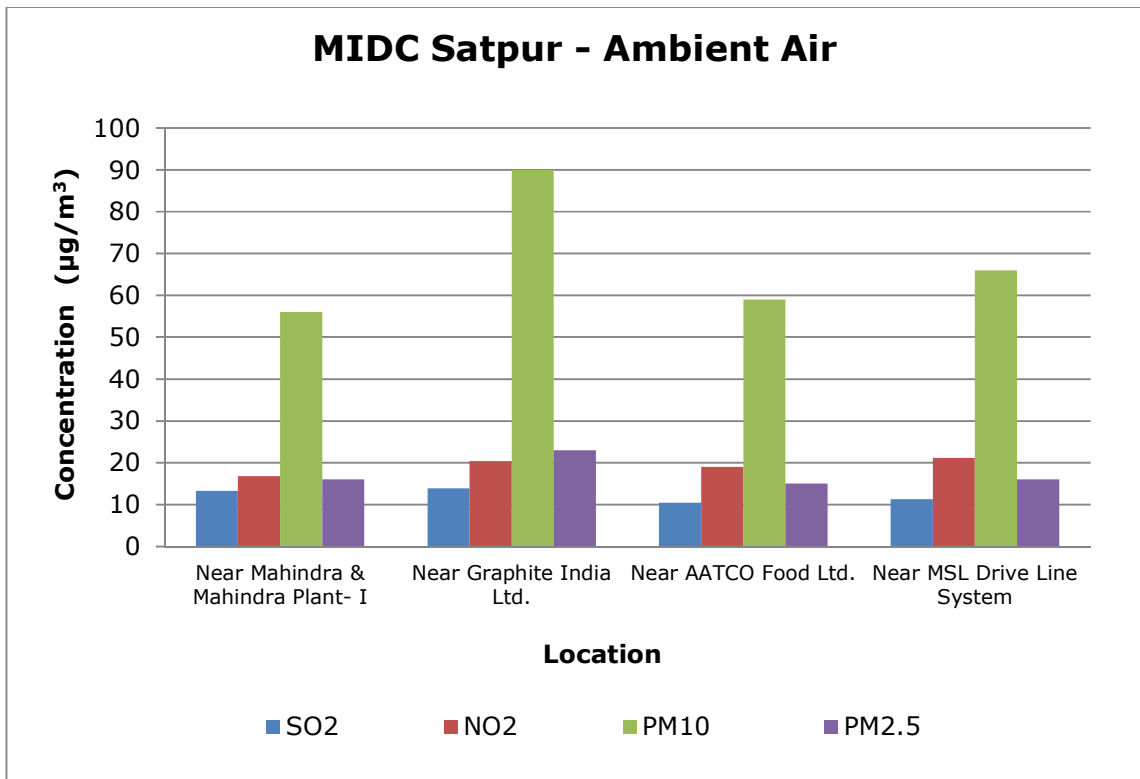
Table 5.8 MIDC Satpur - Volatile Organic Compounds (VOCs) in Ambient Air Results

Parameters	Unit	Results	
		Near Mahindra & Mahindra Plant I	Near MSL Drive Line System
Dichloromethane	µg/m ³	0.76	1.07
Chloroform	µg/m ³	1.53	2.38
Carbon Tetrachloride	µg/m ³	2.96	0.83
Trichloroethylene	µg/m ³	0.64	1.26
Bromodichloromethane	µg/m ³	BLQ	BLQ
1,3-Dichloropropane	µg/m ³	BLQ	BLQ
1,4-Dichlorobenzene	µg/m ³	BLQ	3.13
1,3-Dichlorobenzene	µg/m ³	15.1	11.4
1,2-Dichlorobenzene	µg/m ³	BLQ	BLQ
1,2-Dibromo-3-Chloropropane	µg/m ³	BLQ	BLQ

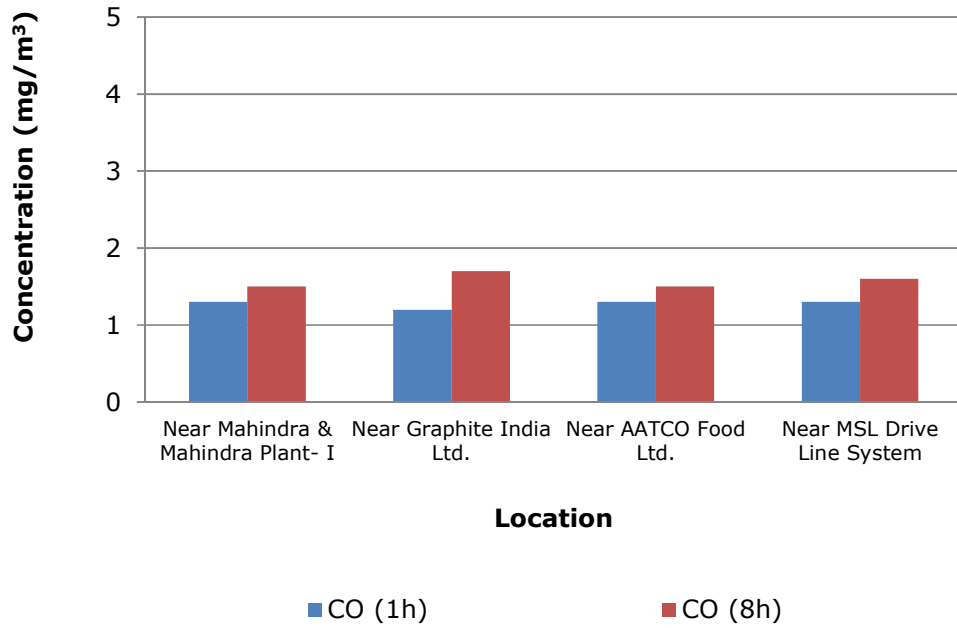
Parameters	Unit	Results	
		Near Mahindra & Mahindra Plant I	Near MSL Drive Line System
Napthalene	µg/m ³	BLQ	BLQ
Bromobenzene	µg/m ³	BLQ	BLQ
1,2,4-Trimethylbenzene	µg/m ³	BLQ	3.935
2-Chlorotoluene	µg/m ³	BLQ	BLQ
Tert-Butylbenzene	µg/m ³	BLQ	BLQ
SEC-Butylbenzene	µg/m ³	BLQ	BLQ
P-Isopropyltoluene	µg/m ³	1.53	8.91
M-Xylene	µg/m ³	BLQ	BLQ
P-Xylene	µg/m ³	BLQ	BLQ
Styrene	µg/m ³	BLQ	BLQ
Cumene	µg/m ³	BLQ	BLQ
1,2,3-Trichloropropane	µg/m ³	BLQ	BLQ
N-Propylbenzene	µg/m ³	11.9	4.89
Dibromochloromethane	µg/m ³	BLQ	BLQ
1,2-Dibromoethane	µg/m ³	BLQ	BLQ
Chlorobenzene	µg/m ³	BLQ	BLQ
1,1,1,2-Tetrachloroethane	µg/m ³	BLQ	BLQ
Ethylbenzene	µg/m ³	1.31	BLQ
1,1-Dichloropropylene	µg/m ³	2.91	0.81
1,2-Dichloroethane	µg/m ³	5.40	5.54
1,2-Dichloropropane	µg/m ³	BLQ	BLQ
Trans-1,3-Dichloropropene	µg/m ³	BLQ	BLQ
CIS 1,3-Dichloropropene	µg/m ³	BLQ	BLQ
1,1,2-Trichloroethane	µg/m ³	BLQ	BLQ
Tetrachloroethylene	µg/m ³	3.35	2.06
1,3,5-Trimethylbenzene	µg/m ³	BLQ	BLQ
N-Butylbenzene	µg/m ³	BLQ	BLQ
1,2,3-Trichlorobenzene	µg/m ³	BLQ	BLQ
Hexachlorobutadiene	µg/m ³	BLQ	BLQ
1,2,4-Trichlorobenzene	µg/m ³	BLQ	BLQ
2,2-Dichloropropane	µg/m ³	BLQ	BLQ
Dibromomethane	µg/m ³	BLQ	BLQ

Parameters	Unit	Results	
		Near Mahindra & Mahindra Plant I	Near MSL Drive Line System
Toluene	µg/m ³	0.85	0.50
O-Xylene	µg/m ³	1.03	BLQ
Bromoform	µg/m ³	BLQ	BLQ
1,1,2,2-Tetrachloroethane	µg/m ³	BLQ	BLQ
4-Chlorotoluene	µg/m ³	BLQ	BLQ
1,1-Dichloroethylene	µg/m ³	BLQ	BLQ
Trans-1,2-Dichloroethylene	µg/m ³	BLQ	BLQ
1,1-Dichloroethane	µg/m ³	BLQ	BLQ
CIS-1,2-Dichloroethylene	µg/m ³	BLQ	BLQ
Bromochloromethane	µg/m ³	BLQ	BLQ
1,1,1-Trichloroethane	µg/m ³	BLQ	BLQ

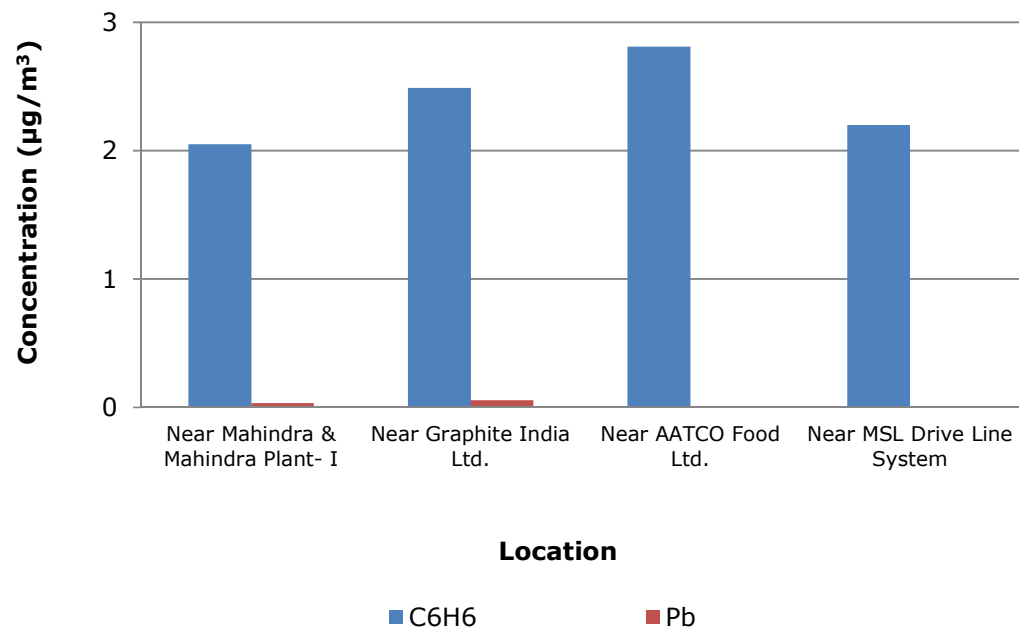
Graphs - Ambient Air Quality Monitoring of MIDC Satpur



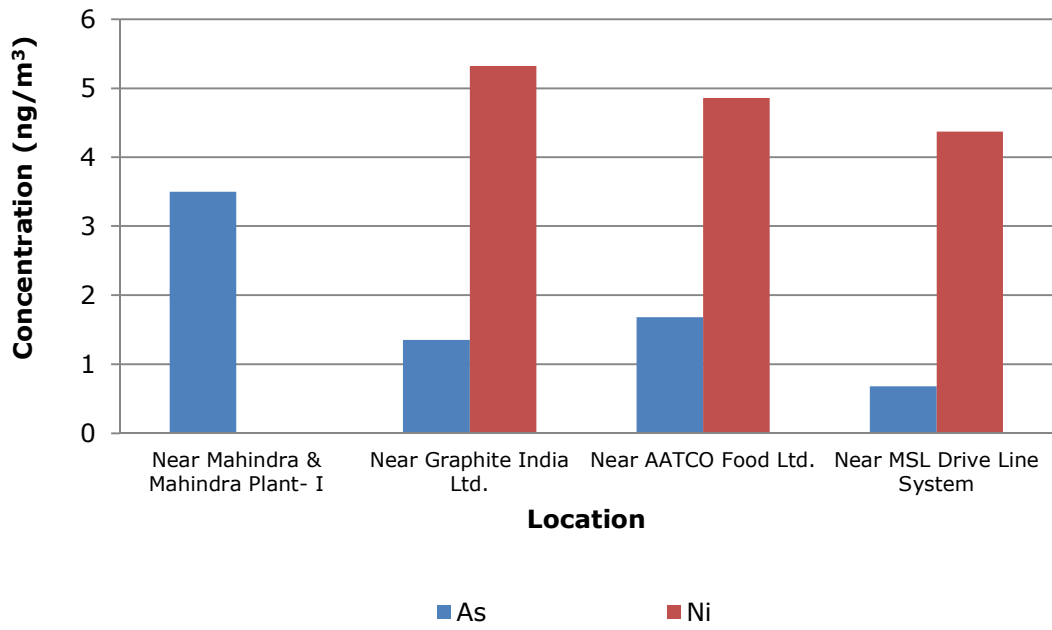
MIDC Satpur - Ambient Air



MIDC Satpur - Ambient Air



MIDC Satpur - Ambient Air



WATER ENVIRONMENT

6. Water Environment

For studying the water Environment of Nashik area, surface water was collected from MIDC Ambad and MIDC Satpur. Total 5 samples are collected.

- 1. MIDC Ambad:** Two surface water samples are collected from MIDC Ambad region.
- All two samples are acceptable in general appearance, colour, smell and transparency.
 - pH and suspended solids are well within the limits in both samples collected.
 - BOD exceeded at both samples collected.
 - 100% survival in Fish Bioassay was observed at one location.
 - Metals like Total Arsenic, Hexavalent Chromium (Cr^{6+}), Cadmium, Mercury, Zinc etc. are observed either below limit of quantification or below their standard limits.
 - Metals like Copper, Total Chromium, Iron, etc. are found above the standard limits.
 - Parameters like Free Residual Chlorine, Cyanide, Sulphide, Dissolved Phosphate, Total Ammonical Nitrogen and Phenolic compounds also meet the criteria as prescribed by CPCB.
 - Polynuclear aromatic hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB) are below the limit of quantification in both samples collected.
 - Organo Chlorine Pesticides are also below the detectable limit in both samples collected.

Table 6.1 MIDC Ambad - 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.	Kirloskar Industry back side Nalla	19°95'9.05"N	73°73'2.37"E	30.05.2023	01.06.2023	03.06.2023
2.	Ambadgaon Nalla	19°96'0.91"N	73°74'5.36"E	30.05.2023	01.06.2023	03.06.2023



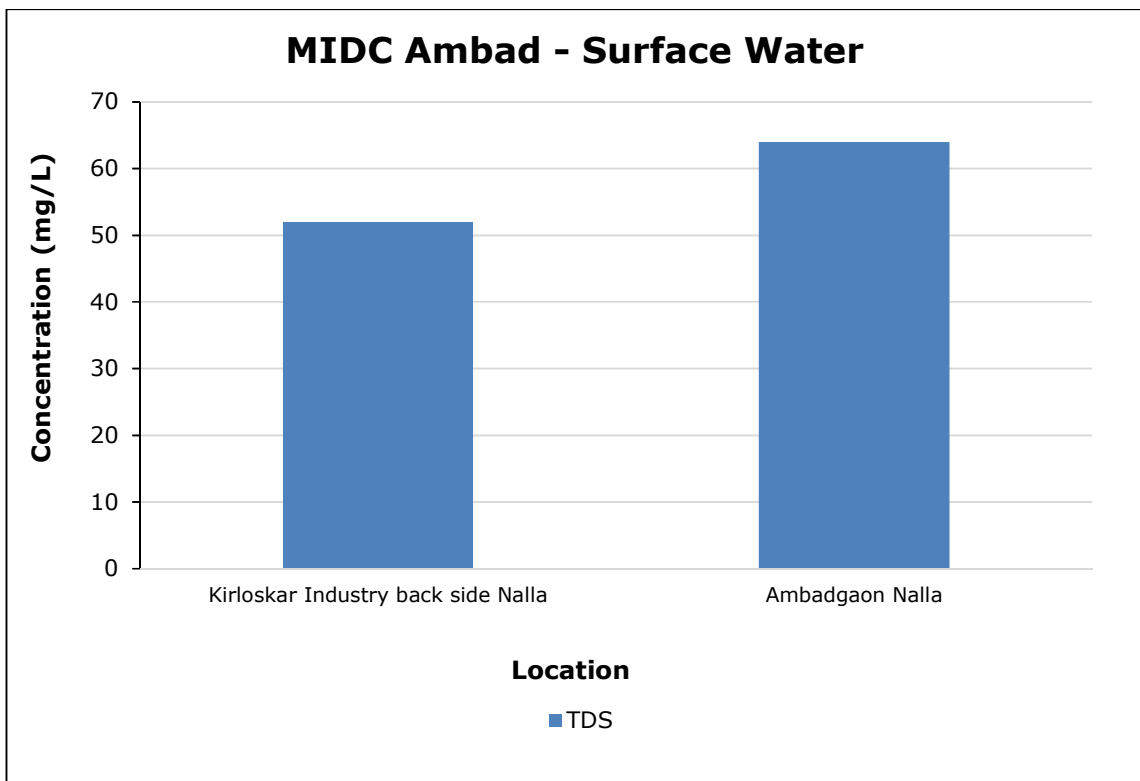
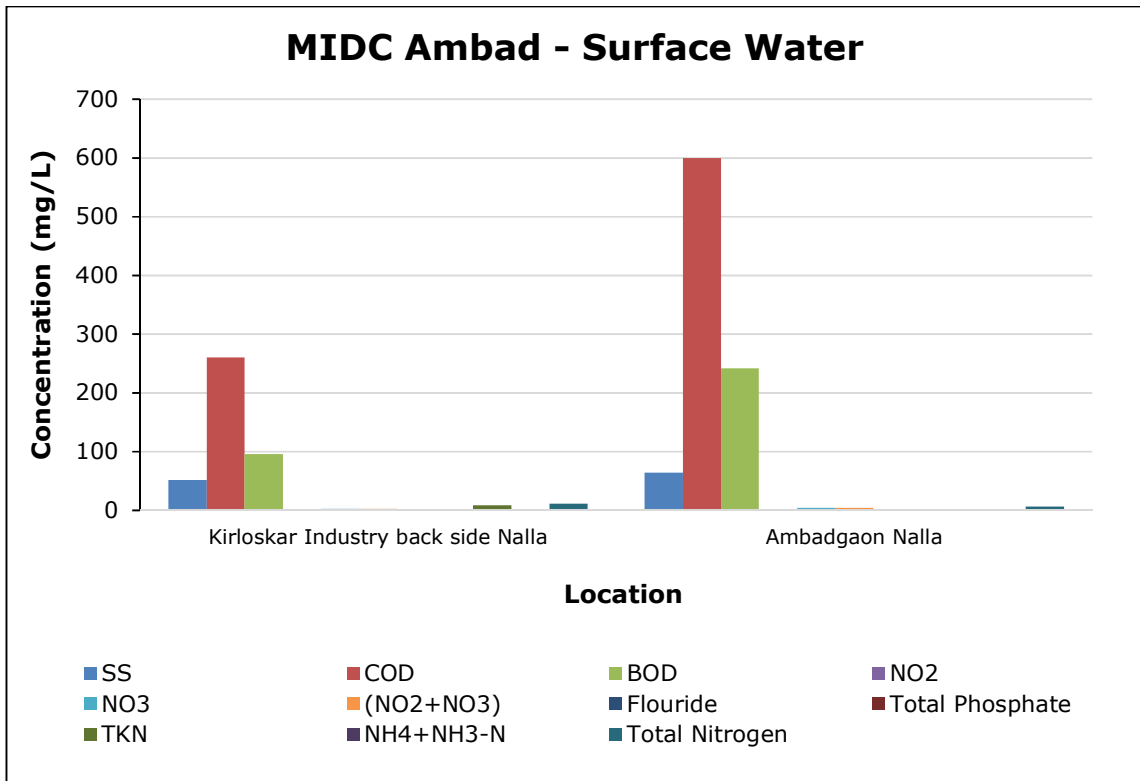
Fig. Geographical Locations of Surface Water Sampling MIDC Ambad

Table 6.2 MIDC Ambad - Results of Surface Water

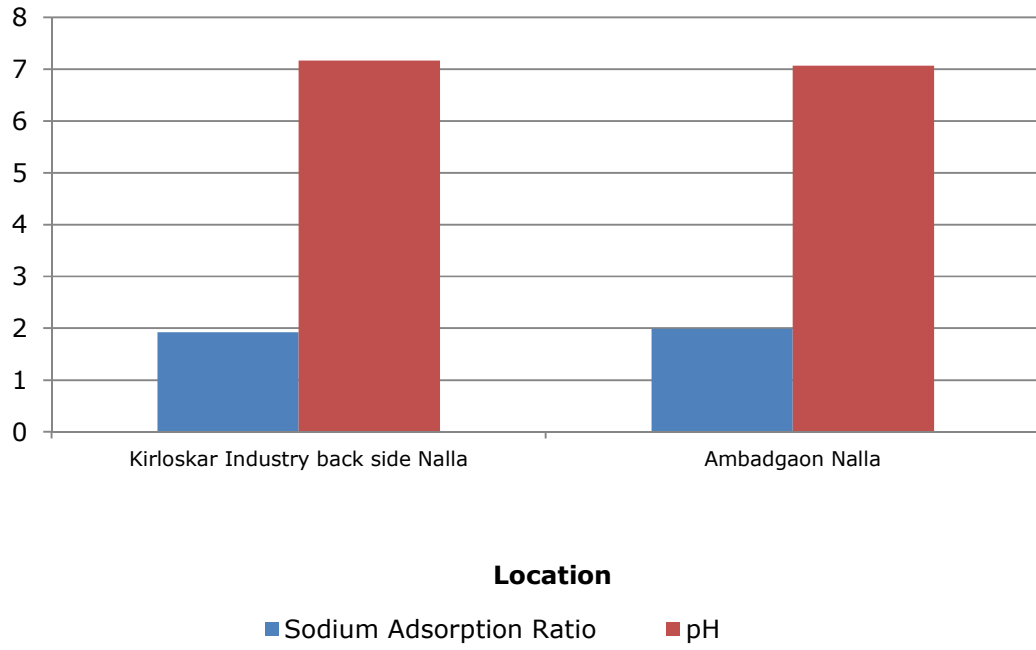
Parameters	Unit	Results	
		Kirloskar Industry back side Nalla	Ambadgaon Nalla
Sanitary Survey	-	Generally clean neighbourhood	Generally clean neighbourhood
General Appearance	-	Floating Matter Evident	Floating Matter Evident
Transparency	m	0.5	0.5
Temperature	°C	28	27
Colour	Hazen	2	1.5
Smell	-	Not agreeable	Not agreeable
pH	-	7.17	7.07
Oil & Grease	mg/L	BLQ	BLQ
Total Suspended Solids	mg/L	52	64
Total Dissolved Solids	mg/L	560	795
Dissolved Oxygen (% Saturation)	%	42	30
Chemical Oxygen Demand	mg/L	260	600
Biochemical Oxygen Demand (3 days, 27°C)	mg/L	96	242
Electrical Conductivity (at 25 °C)	µmho/cm	998	1416
Nitrite Nitrogen (as NO ₂)	mg/L	BLQ	BLQ
Nitrate Nitrogen (as NO ₃)	mg/L	2.80	4.32

Parameters	Unit	Results	
		Kirloskar Industry back side Nalla	Ambadgaon Nalla
(NO ₂ + NO ₃)-Nitrogen	mg/L	2.80	4.32
Free Ammonia (as NH ₃ -N)	mg/L	BLQ	BLQ
Free Residual Chlorine	mg/L	1.49	0.32
Cyanide (as CN)	mg/L	BLQ	BLQ
Fluoride (as F)	mg/L	0.93	1.17
Sulphide (as H ₂ S)	mg/L	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	0.59	1.12
Sodium Adsorption Ratio	-	1.92	1.99
Total Coliforms	MPN Index/ 100 ml	1083	596
Faecal Coliforms	MPN Index/ 100 ml	846	326
Total Phosphate (as P)	mg/L	0.73	1.33
Total Kjeldahl Nitrogen (as N)	mg/L	8.59	2.24
Total Ammonia (NH ₄ +NH ₃)-Nitrogen	mg/L	1.55	1.70
Total Nitrogen	mg/L	11.41	6.57
Phenols (as C ₆ H ₅ OH)	mg/L	BLQ	BLQ
Anionic Detergents (as MBAS Calculated as LAS, mol.wt.288.38)	mg/L	BLQ	BLQ
Organo Chlorine Pesticides	µg/L	BLQ	BLQ
Polynuclear aromatic hydrocarbons (as PAH)	mg/L	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ
Zinc (as Zn)	mg/L	BLQ	0.09
Nickel (as Ni)	mg/L	0.02	0.02
Copper (as Cu)	mg/L	0.03	0.08
Hexavalent Chromium (as Cr ⁶⁺)	mg/L	BLQ	BLQ
Total Chromium (as Cr)	mg/L	0.07	BLQ
Total Arsenic (as As)	mg/L	BLQ	BLQ
Lead (as Pb)	mg/L	0.017	BLQ
Cadmium (as Cd)	mg/L	BLQ	BLQ
Mercury (as Hg)	mg/L	BLQ	BLQ
Manganese (as Mn)	mg/L	0.07	0.09
Iron (as Fe)	mg/L	0.37	0.59
Vanadium (as V)	mg/L	0.02	BLQ
Selenium (as Se)	mg/L	0.01	0.01
Boron (as B)	mg/L	BLQ	0.43
Bioassay Test on fish	% survival	93	100

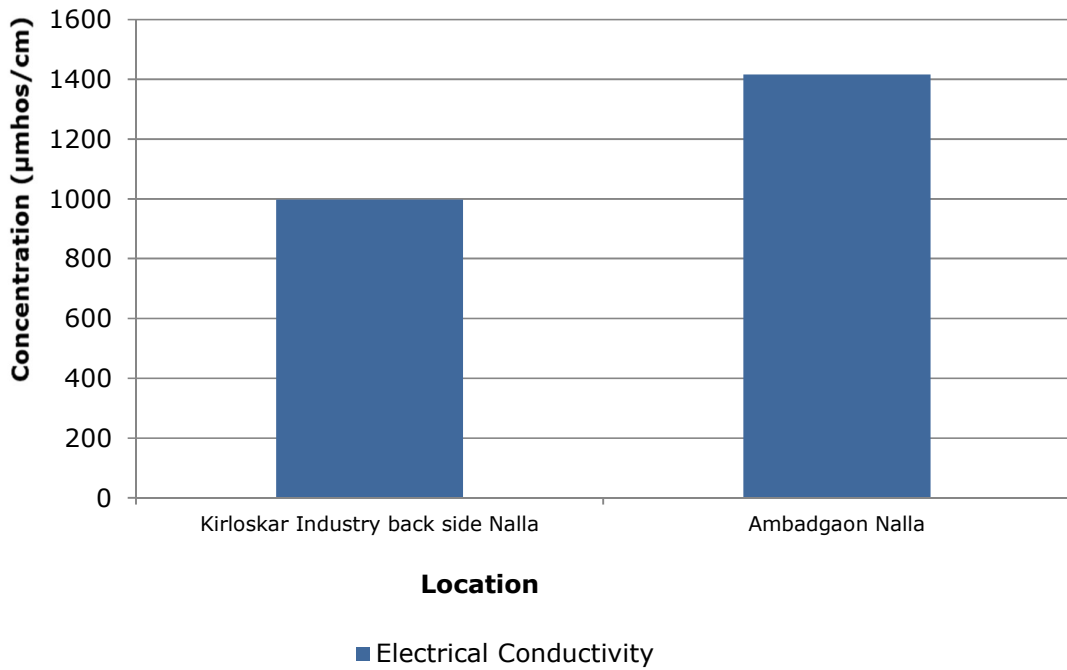
Graphs - Surface Water Quality of MIDC Ambad

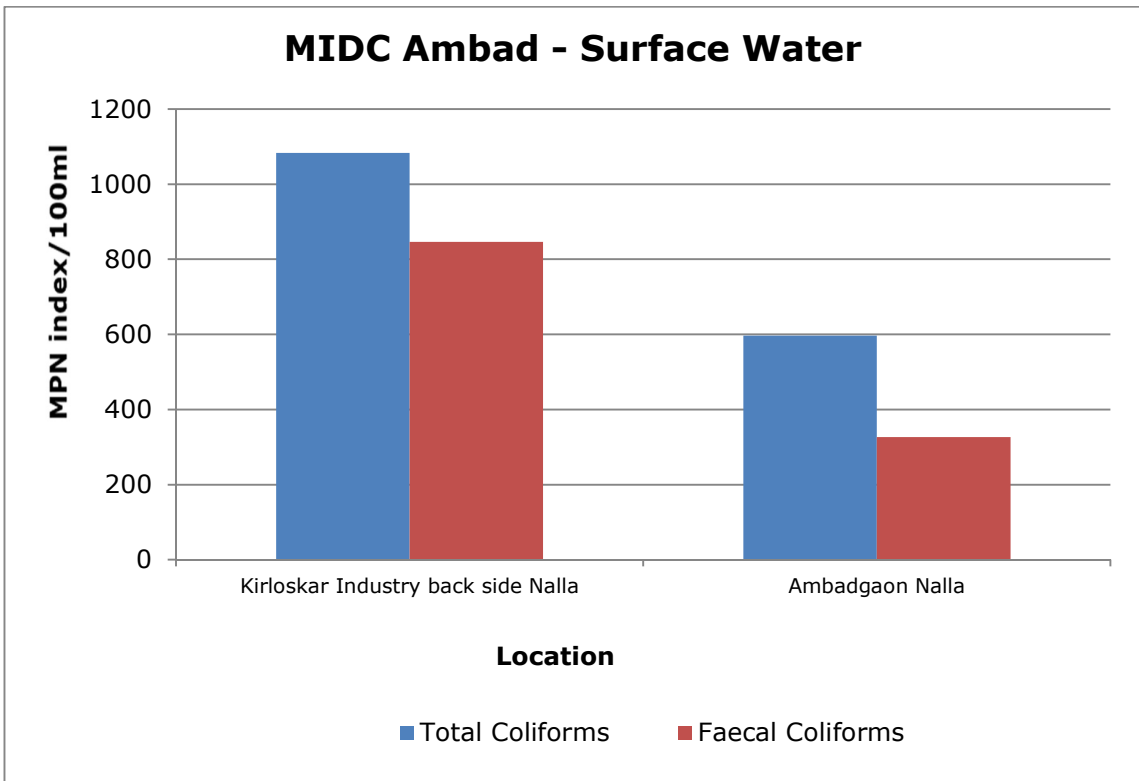
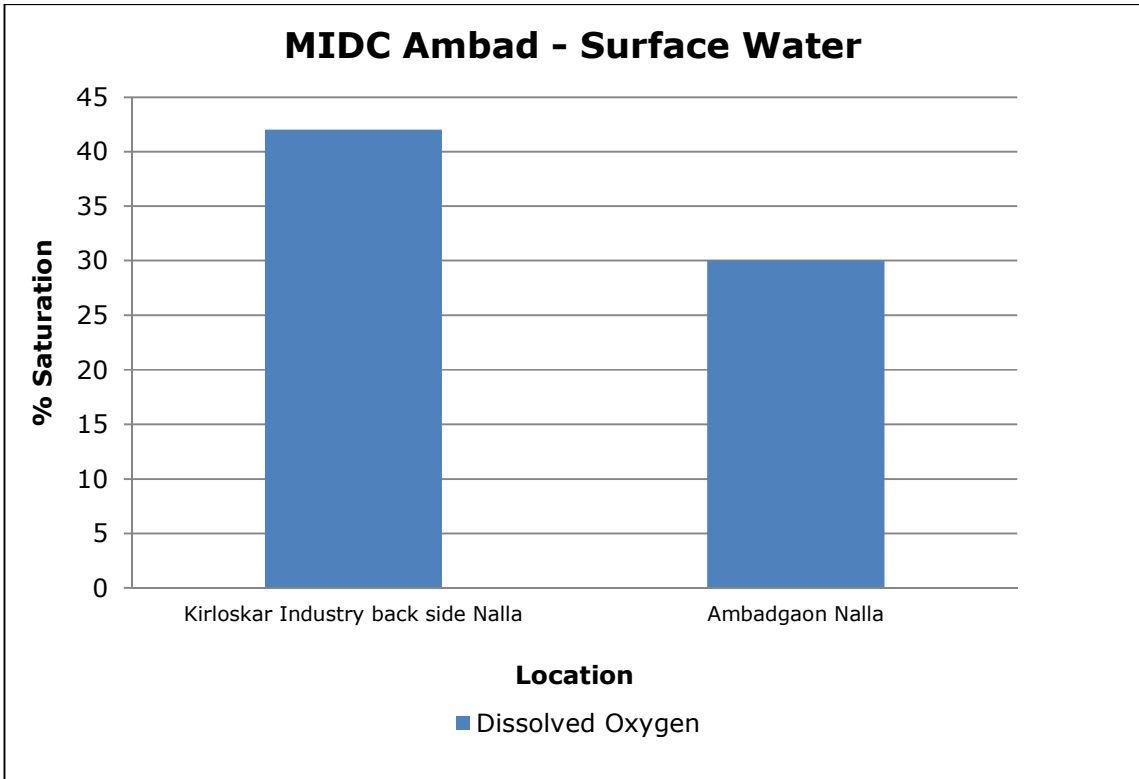


MIDC Ambad - Surface Water

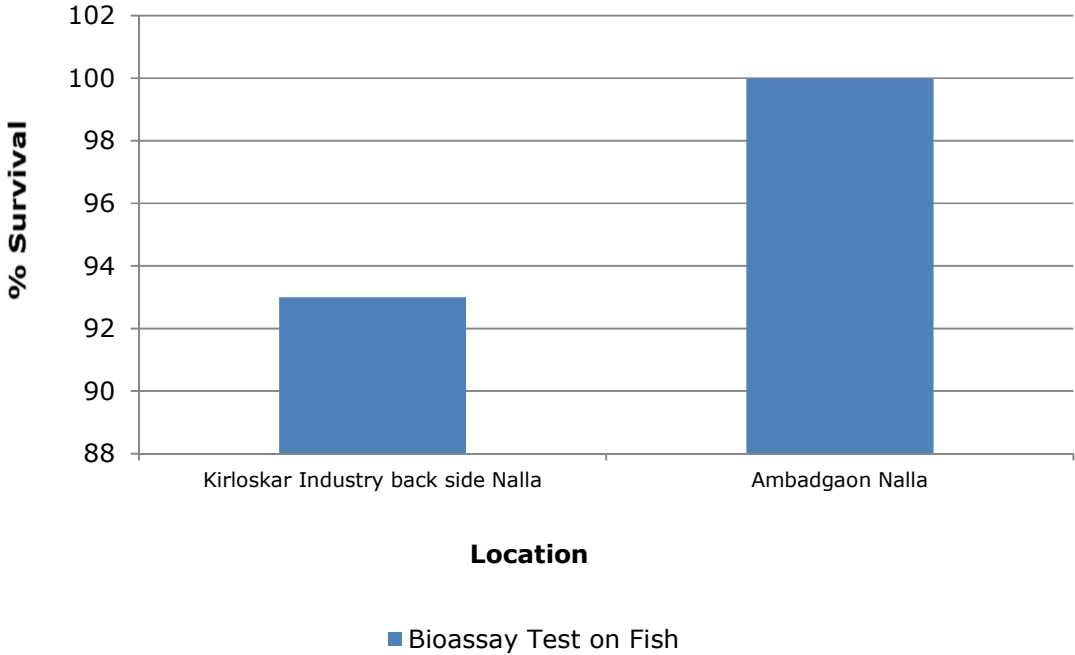


MIDC Ambad - Surface Water





MIDC Ambad - Surface Water



2. MIDC Satpur: Three surface water samples are collected from MIDC Ambad region.

- Three surface water sample are acceptable in general appearance, colour, smell and transparency.
- pH and suspended solids are well within the limits in both samples collected.
- BOD exceeded at two sample collected.
- 100% survival in Fish Bioassay was observed only at Sahid Arun Chitte Pool Anandvadi, Gangapur Road.
- Metals like Hexavalent Chromium (Cr⁶⁺), Total Arsenic, Lead, Cadmium, Mercury, Selenium, Zinc, etc. are observed either below limit of quantification or below their standard limits.
- Metals like Nickel, Copper, Manganese, Iron and Total Chromium are found above the standard limits.
- Parameters like Total Residual Chlorine, Cyanide, Sulphide, Dissolved Phosphate and Phenolic compounds, also meet the criteria as prescribed by CPCB.
- Polynuclear aromatic hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB) are below the limit of quantification in all samples collected.
- Organo Chlorine Pesticides are also below the limit of quantification in all samples collected.

Table 6.3 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.	Sahid Arun Chittee Pool, Anandvalil Gangapur Road, Satpur	20°02'58.86"N	73°75'5.26"E	23.05.2023	25.05.2023	27.05.2023
2.	Nasardi Pool, Near EPF Office Satpur	19°98'8.99"N	73°75'01.85"E	23.05.2023	25.05.2023	27.05.2023
3.	ALP industry Opposite side Nalla	20°00'6.78"N	73°71'4.04"E	23.05.2023	25.05.2023	27.05.2023



Fig. Geographical Locations of Surface Water Sampling MIDC Satpur

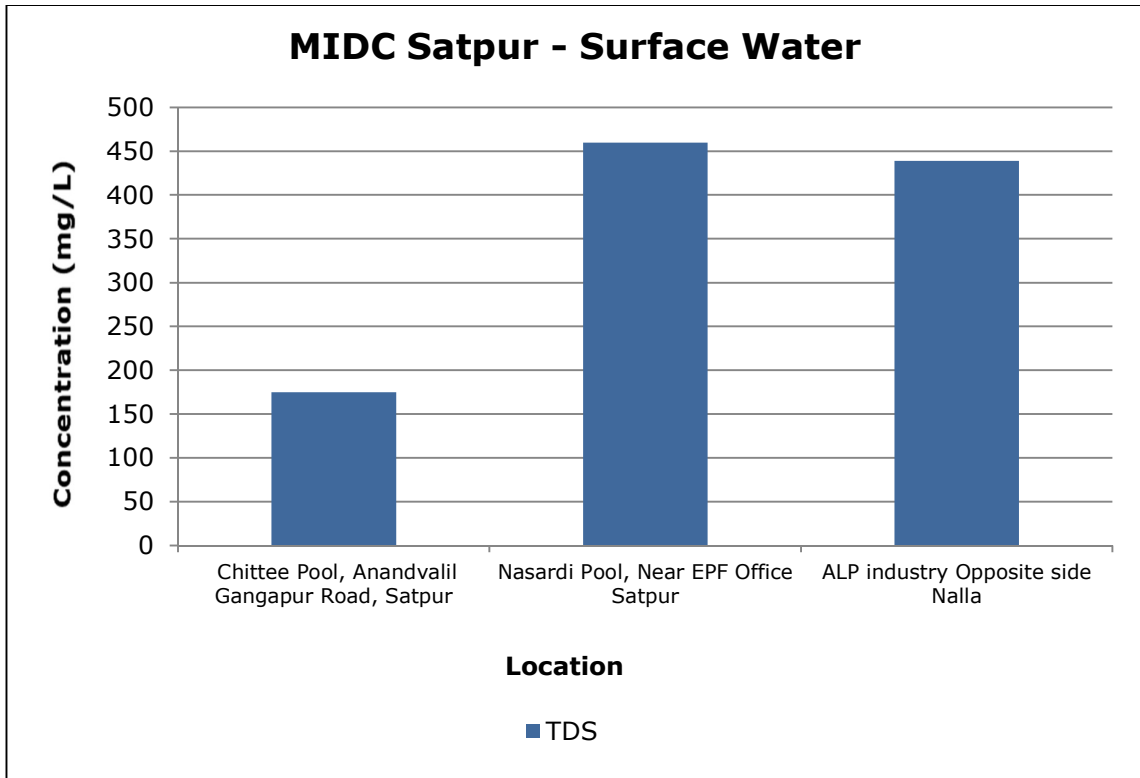
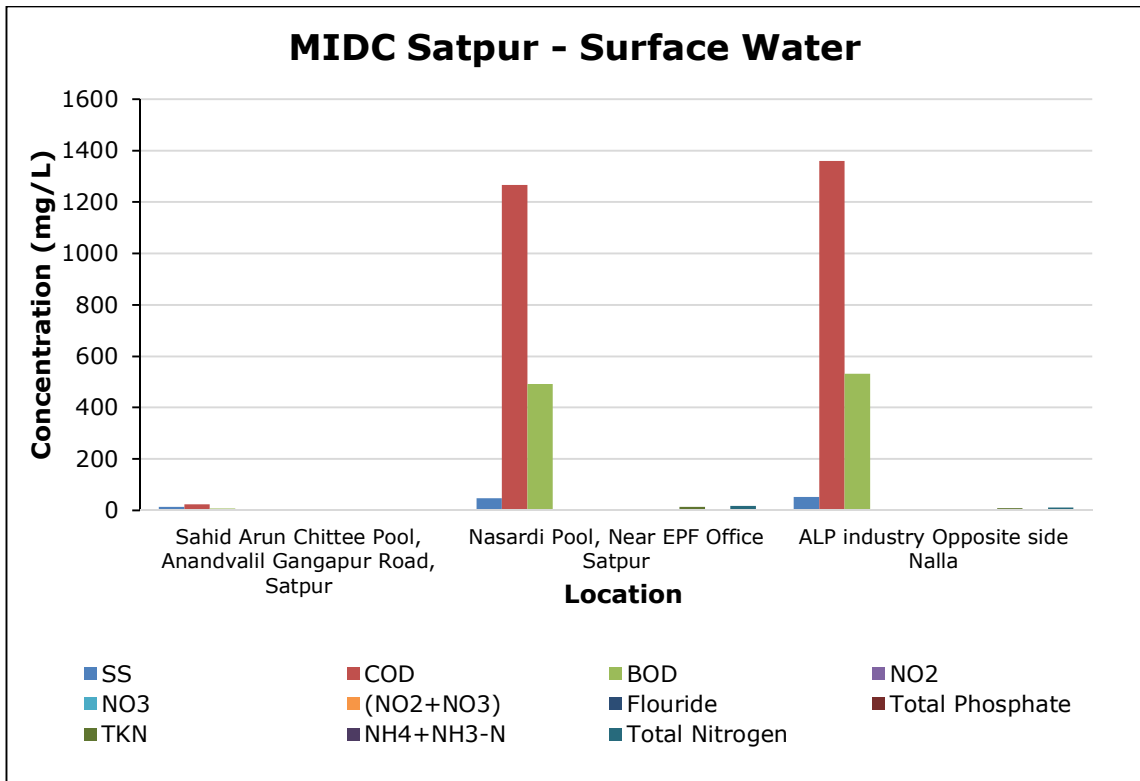
Table 6.4 MIDC Satpur Results of Surface Water

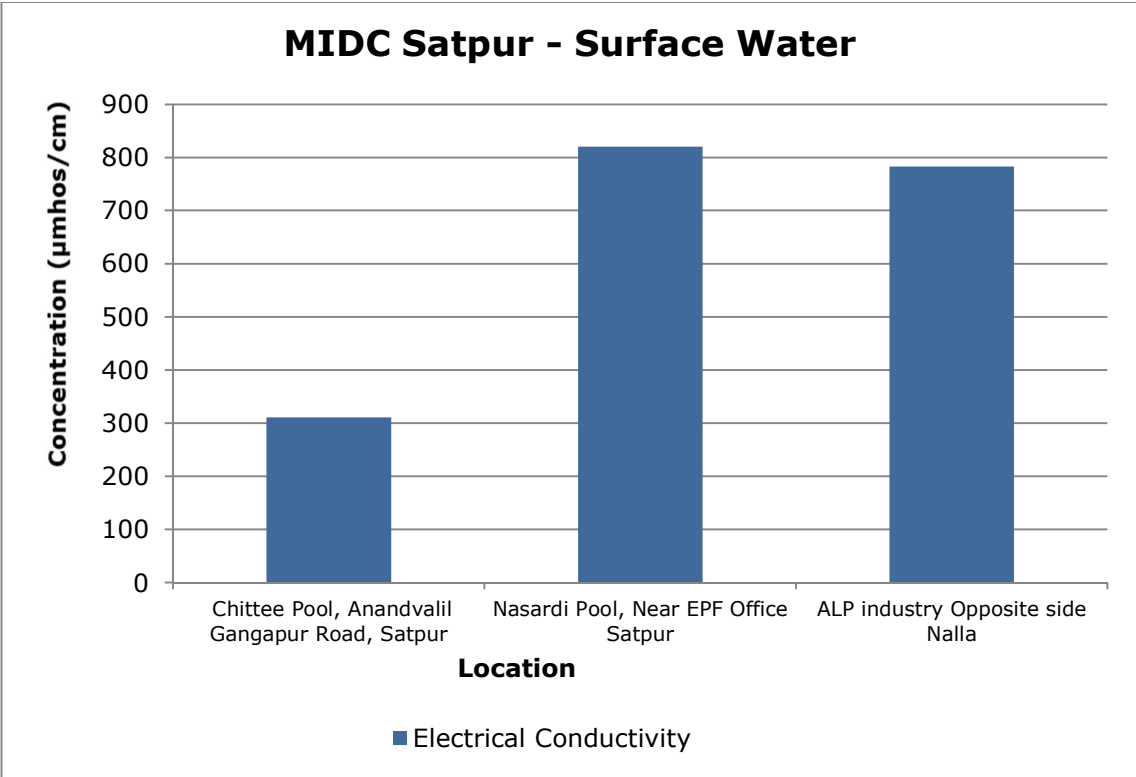
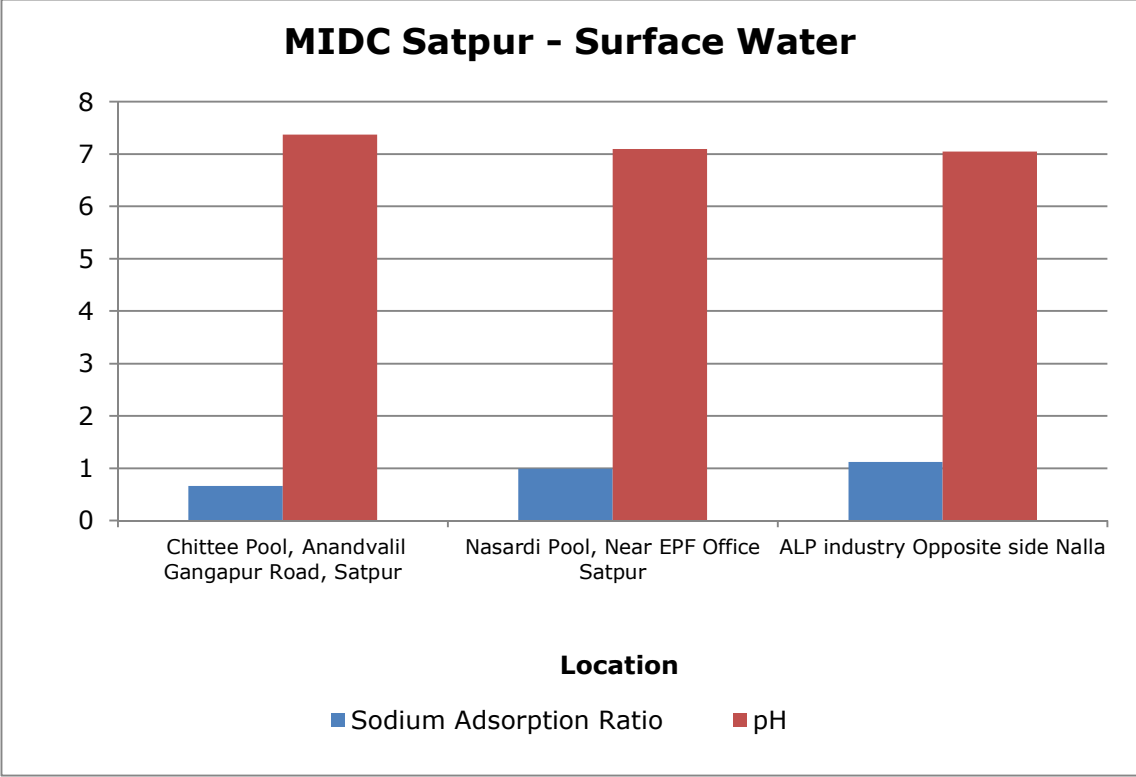
Parameters	Unit	Results		
		Sahid Arun Chittee Pool, Anandvalil Gangapur Road, Satpur	Nasardi Pool, Near EPF Office Satpur	ALP industry Opposite side Nalla
Sanitary Survey	-	Very clean neighbourhood and catchment	Generally clean neighbourhood	Generally clean neighbourhood
General Appearance	-	Floating Matter Evident	Floating Matter Evident	Floating Matter Evident
Transparency	m	0.5	0.5	0.5
Temperature	°C	28	28	27
Colour	Hazen	1	4	4
Smell	-	Agreeable	Agreeable	Not Agreeable
pH	-	7.37	7.10	7.05
Oil & Grease	mg/L	BLQ	BLQ	BLQ
Total Suspended Solids	mg/L	14	47	53
Total Dissolved Solids	mg/L	175	460	439
Dissolved Oxygen (% Saturation)	%	71	38	39
Chemical Oxygen Demand	mg/L	24	1267	1360

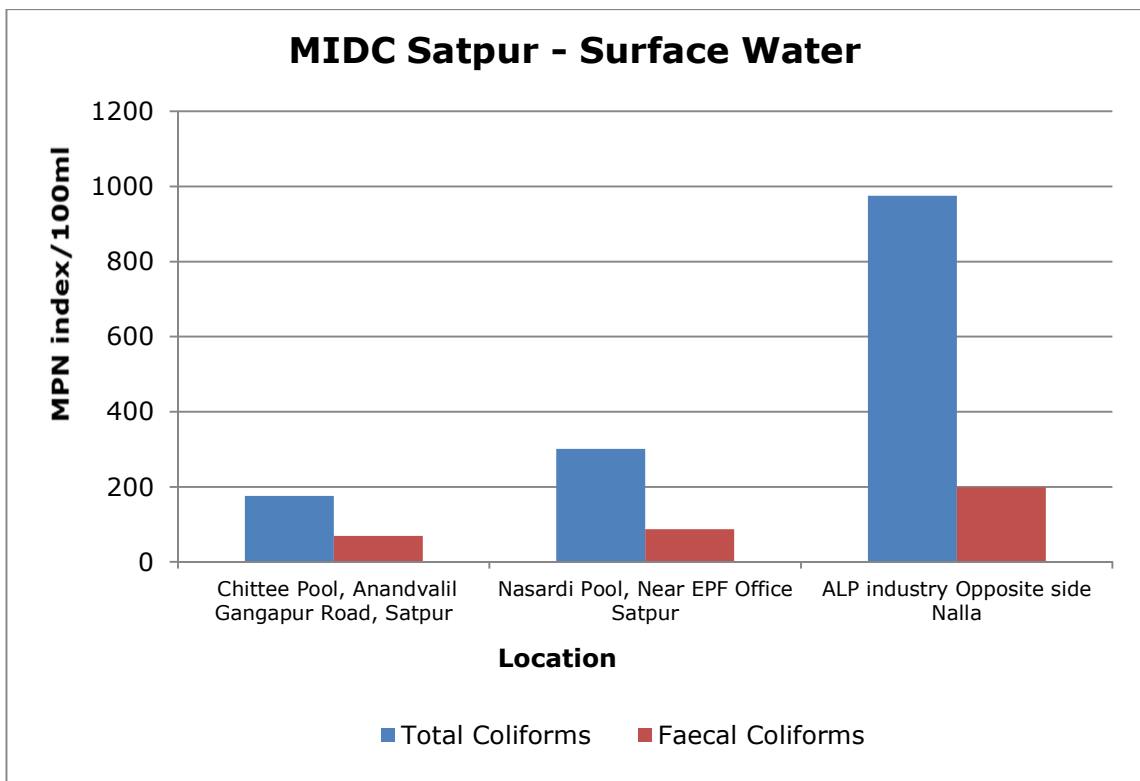
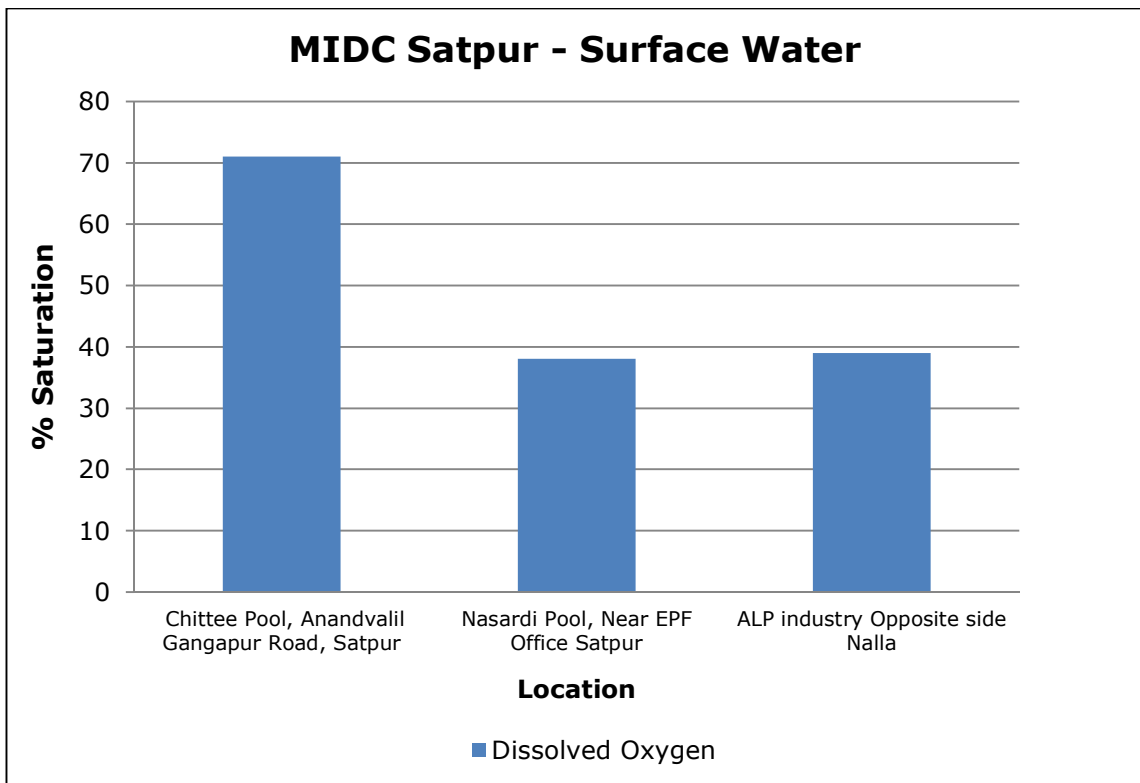
Parameters	Unit	Results		
		Sahid Arun Chittee Pool, Anandvalil Gangapur Road, Satpur	Nasardi Pool, Near EPF Office Satpur	ALP industry Opposite side Nalla
Biochemical Oxygen Demand (3 days, 27°C)	mg/L	7	492	532
Electrical Conductivity (at 25 °C)	µmho/cm	311	820	783
Nitrite Nitrogen (as NO ₂)	mg/L	0.04	0.06	0.04
Nitrate Nitrogen (as NO ₃)	mg/L	BLQ	3.38	2.54
(NO ₂ + NO ₃)-Nitrogen	mg/L	BLQ	3.40	2.57
Free Ammonia (as NH ₃ -N)	mg/L	BLQ	BLQ	BLQ
Free Residual Chlorine	mg/L	0.24	0.25	0.24
Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ
Fluoride (as F)	mg/L	0.23	0.73	0.63
Sulphide (as H ₂ S)	mg/L	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	BLQ	0.99	1.08
Sodium Adsorption Ratio	-	0.66	0.99	1.12
Total Coliforms	MPN Index/ 100 ml	176	301	975
Faecal Coliforms	MPN Index/ 100 ml	69	87	199
Total Phosphate (as P)	mg/L	BLQ	1.07	1.13
Total Kjeldahl Nitrogen (as N)	mg/L	0.56	13.84	8.41
Total Ammonia (NH ₄ +NH ₃)-Nitrogen	mg/L	0.13	2.43	2.96
Total Nitrogen	mg/L	0.83	17.24	10.98
Phenols (as C ₆ H ₅ OH)	mg/L	BLQ	BLQ	BLQ
Anionic Detergents (as MBAS Calculated as LAS, mol.wt.288.38)	µg/L	BLQ	BLQ	BLQ
Organo Chlorine Pesticides	mg/L	BLQ	BLQ	BLQ
Polynuclear aromatic hydrocarbons (as PAH)	mg/L	BLQ	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	BLQ	0.14	0.11
Nickel (as Ni)	mg/L	BLQ	0.03	0.02
Copper (as Cu)	mg/L	BLQ	BLQ	0.11
Hexavalent Chromium (as Cr ⁶⁺)	mg/L	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	BLQ	0.06	0.02
Total Arsenic (as As)	mg/L	BLQ	BLQ	BLQ
Lead (as Pb)	mg/L	BLQ	BLQ	BLQ

Parameters	Unit	Results		
		Sahid Arun Chittee Pool, Anandvalil Gangapur Road, Satpur	Nasardi Pool, Near EPF Office Satpur	ALP industry Opposite side Nalla
Cadmium (as Cd)	mg/L	BLQ	BLQ	BLQ
Mercury (as Hg)	mg/L	BLQ	BLQ	BLQ
Manganese (as Mn)	mg/L	BLQ	0.12	0.10
Iron (as Fe)	mg/L	0.23	0.48	0.78
Vanadium (as V)	mg/L	0.05	0.03	0.05
Selenium (as Se)	mg/L	0.01	0.01	0.01
Boron (as B)	mg/L	BLQ	0.10	0.13
Bioassay Test on fish	% survival	100	67	77

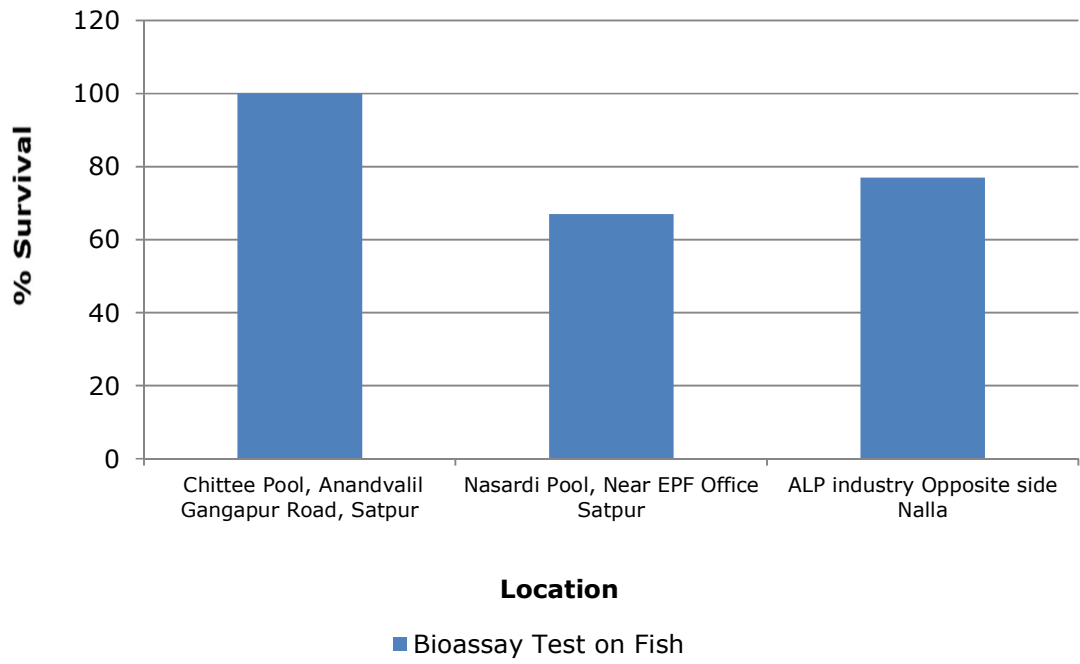
Graphs - Surface Water Quality of MIDC Satpur







MIDC Satpur - Surface Water



LAND ENVIRONMENT

7. Land Environment

For studying the land Environment of Nashik area, ground water was collected from Bore well, open well and hand pumps. A total of 12 samples were collected.

1. MIDC Ambad:

- All six water samples collected are acceptable in general appearance, colour, smell and transparency.
- pH, suspended solids and BOD are also well within the limits at all six samples collected.
- 100% survival was achieved in Fish Bioassay in one samples out of 6 samples collected.
- Metals like Zinc, Hexavalent Chromium (Cr⁶⁺), Total Arsenic, Lead, Cadmium, Mercury, Manganese, etc. are observed either below limit of quantification or below their standard limits.
- Parameters like Free Residual Chlorine, Cyanide, Sulphide, Dissolved Phosphate, Total Ammonical Nitrogen and Phenolic compounds, also meet the criteria as prescribed by CPCB.
- Total Phosphate exceeded in the one out of six samples collected.
- Polynuclear aromatic hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB) are below the limit of quantification in all six samples collected.
- Organo Chlorine Pesticides are also below the limit of quantification in all six samples collected.

Table 7.1 MIDC Ambad - 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.	Hotel Tapovan Garvare Point (Bore well Water)	19°34'37.86"N	73°74'34.08"E	30.05.2023	01.06.2023	03.06.2023
2.	Shivaji Kachru Chavan, Gat No 154/3, Village Vilholi (Well Water)	19°95'75.31"N	73°75'45.12"E	30.05.2023	01.06.2023	03.06.2023
3.	Dashrath Pandit Nikam, Plot No. 4, Mauli Chowk, Datta Nagar, Village Chinchale (Bore well Water)	19°95'72.04"N	73°72'13.06"E	30.05.2023	01.06.2023	03.06.2023

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
4.	Pancharatna Farm, Maruti Sankul, Datta Nagar, Backside Kirloskar Oil India Pvt. Ltd. (Bore well Water)	19°95'14.02"N	73°72'88.58"E	30.05.2023	01.06.2023	03.06.2023
5.	Govind Vitthoba Shirsath, Sirshat Vasti, Ambad Gaon (Well Water)	19°95'31.15"N	73°73'89.06"E	30.05.2023	01.06.2023	03.06.2023
6.	Sai Eknath Park (Near Indoline Furniture) (Bore Well Water)	19°96'08.35"N	73°75'02.32"E	30.05.2023	01.06.2023	03.06.2023



Fig. Geographical Locations of Ground Water Sampling MIDC Ambad

Table 7.2 MIDC Ambad - Results of Ground Water

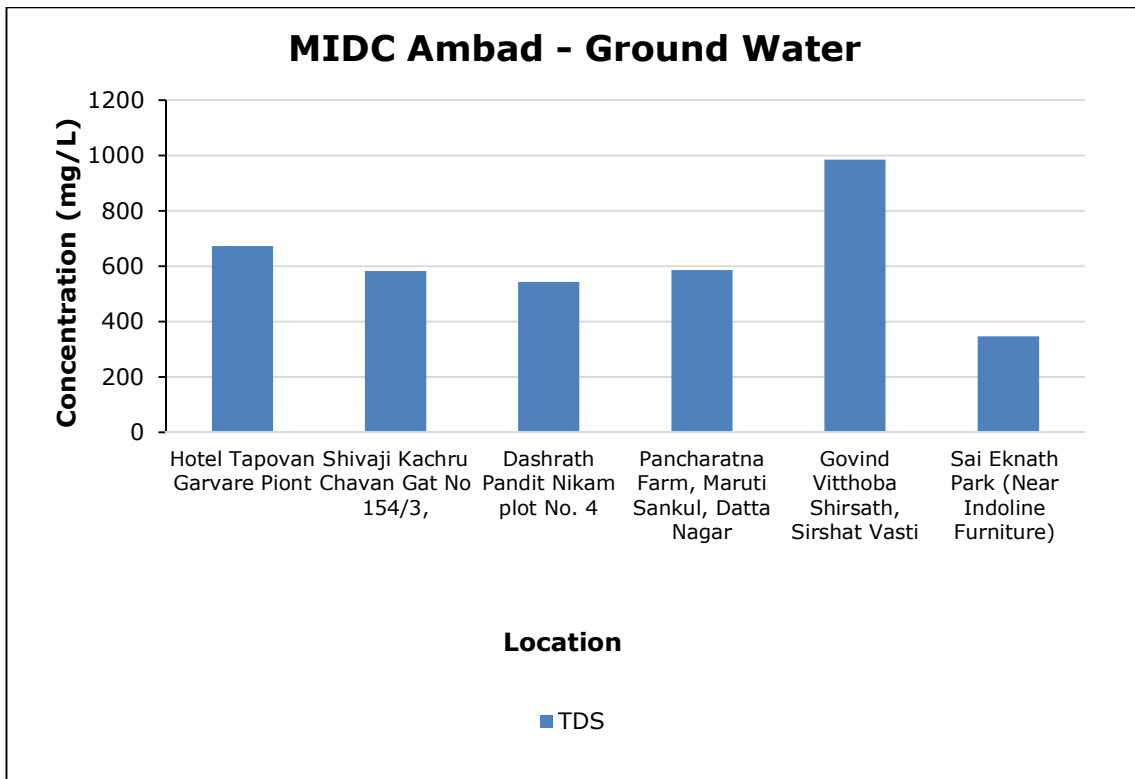
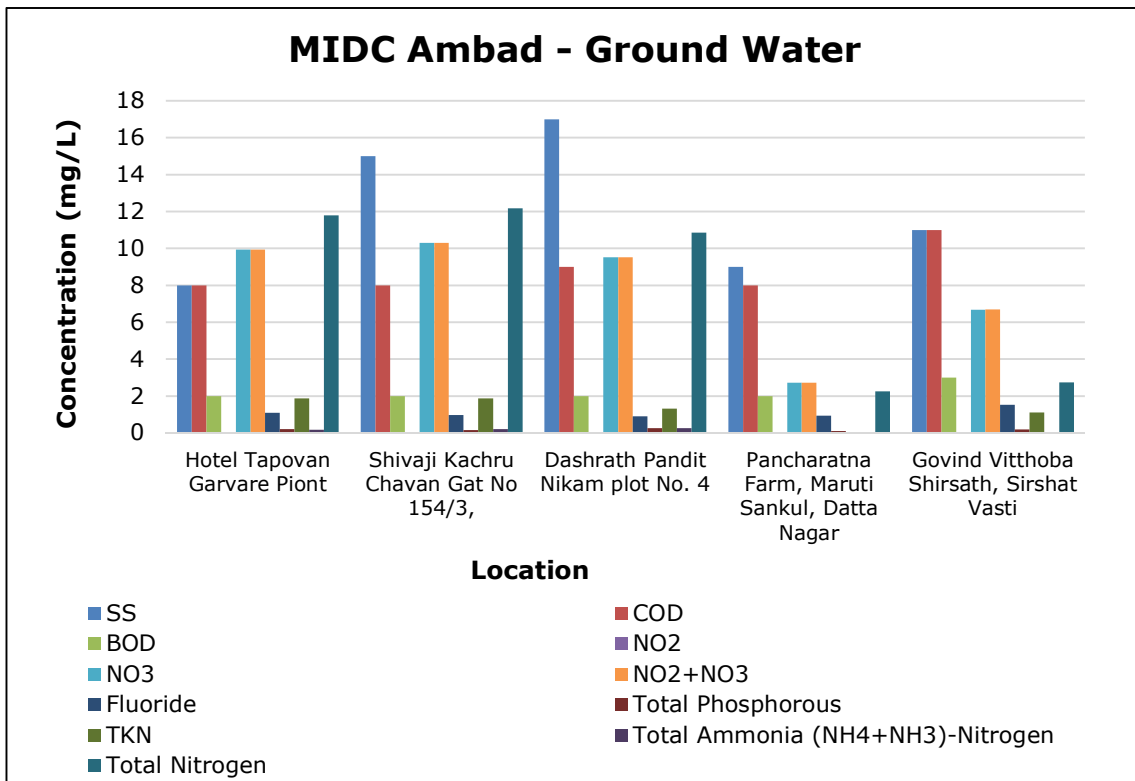
Parameters	Unit	Results		
		Hotel Tapovan Garvare Point (Bore well Water)	Shivaji Kachru Chavan, Gat No 154/3, Village Vilholi (Well Water)	Dashrath Pandit Nikam, Plot No. 4, Mauli Chowk, Datta Nagar, Village Chinchale (Bore well Water)
Sanitary Survey	-	Very Clean Neighbourhood and Catchment	Reasonably clean neighbourhood	Generally Clean Neighbourhood
General Appearance	-	Not Applicable	Floating Matter Evident	Not Applicable
Transparency	m	Not Applicable	1	Not Applicable
Temperature	°C	27	27	27
Colour	Hazen	1	1	1
Odour	-	Agreeable	Agreeable	Agreeable
pH	-	7.27	7.06	7.21
Oil & Grease	mg/L	BLQ	BLQ	BLQ
Suspended Solids	mg/L	8	15	17
Total Dissolved Solids	mg/L	673	583	543
Chemical Oxygen Demand	mg/L	8	8	9
Biochemical Oxygen Demand (3 days, 27°C)	mg/L	2	2	2
Electrical Conductivity (at 25°C)	µmhos/cm	1201	1040	969
Nitrite Nitrogen (as NO ₂)	mg/L	BLQ	BLQ	0.03
Nitrate Nitrogen (as NO ₃)	mg/L	9.93	10.30	9.52
(NO ₂ + NO ₃)-Nitrogen	mg/L	9.93	10.30	9.53
Free Ammonia (as NH ₃ -N)	mg/L	BLQ	BLQ	BLQ
Free Residual Chlorine	mg/L	0.41	0.68	3.02
Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ
Fluoride (as F)	mg/L	1.10	0.97	0.90
Sulphide (as H ₂ S)	mg/L	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	0.15	0.12	0.20
Sodium Adsorption Ratio	-	1.39	1.89	2.21
Total Coliforms	MPN Index/100 ml	319	370	86
Faecal Coliforms	MPN Index/100 ml	124	90	85
Total Phosphate (as PO ₄)	mg/L	0.20	0.15	0.25

Parameters	Unit	Results		
		Hotel Tapovan Garvare Point (Bore well Water)	Shivaji Kachru Chavan, Gat No 154/3, Village Vilholi (Well Water)	Dashrath Pandit Nikam, Plot No. 4, Mauli Chowk, Datta Nagar, Village Chinchale (Bore well Water)
Total Kjeldahl Nitrogen	mg/L	1.87	1.87	1.31
Total Ammonia (NH ₄ +NH ₃)-Nitrogen	mg/L	0.17	0.20	0.25
Total Nitrogen	mg/L	11.80	12.17	10.87
Phenols (as C ₆ H ₅ OH)	mg/L	BLQ	BLQ	BLQ
Anionic Detergents (as MBAS Calculated as LAS, mol.wt.288.38)	mg/L	BLQ	BLQ	BLQ
Organo Chlorine Pesticides	µg/L	BLQ	BLQ	BLQ
Polynuclear aromatic hydrocarbons (as PAH)	mg/L	BLQ	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	0.10	0.10	0.09
Nickel (as Ni)	mg/L	0.02	0.04	0.02
Copper (as Cu)	mg/L	0.09	0.08	0.08
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	0.10	0.07	0.09
Iron (as Fe)	mg/L	0.59	0.77	0.43
Vanadium (as V)	mg/L	BLQ	0.11	0.02
Selenium (as Se)	mg/L	0.02	0.02	0.01
Boron (as B)	mg/L	BLQ	0.76	BLQ
Bioassay Test on fish	% survival	97	97	70

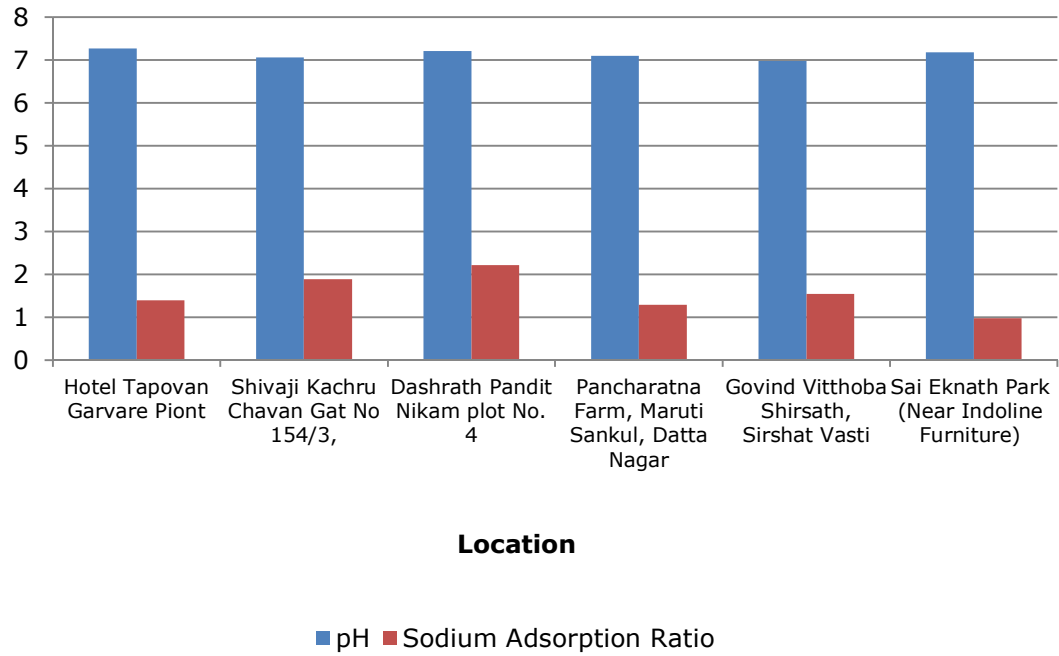
Parameters	Unit	Results		
		Pancharatna Farm, Maruti Sankul, Datta Nagar, Backside Kirloskar Oil India Pvt. Ltd. (Bore well Water)	Govind Vitthoba Shirshath, Sirshat Vasti, Ambad Gaon (Well Water)	Sai Eknath Park (Near Indoline Furniture) (Bore Well Water)
Sanitary Survey	-	Very Clean Neighbourhood and Catchment	Reasonably Clean Neighbourhood	Very Clean Neighbourhood and Catchment
General Appearance	-	Not Applicable	Floating Matter Evident	Not Applicable
Transparency	m	Not Applicable	1	Not Applicable
Temperature	°C	28	29	27
Colour	Hazen	1	1	1
Odour	-	Agreeable	Agreeable	Agreeable
pH	-	7.10	6.98	7.18
Oil & Grease	mg/L	BLQ	BLQ	BLQ
Suspended Solids	mg/L	9	11	8
Total Dissolved Solids	mg/L	586	985	347
Chemical Oxygen Demand	mg/L	8	11	BLQ
Biochemical Oxygen Demand (3 days, 27°C)	mg/L	2	3	BLQ
Electrical Conductivity (at 25°C)	µmhos/cm	1045	1704	617
Nitrite Nitrogen (as NO ₂)	mg/L	BLQ	0.02	0.02
Nitrate Nitrogen (as NO ₃)	mg/L	2.73	6.68	8.29
(NO ₂ + NO ₃)-Nitrogen	mg/L	2.73	6.69	8.30
Free Ammonia (as NH ₃ -N)	mg/L	BLQ	BLQ	BLQ
Free Residual Chlorine	mg/L	0.70	0.54	0.27
Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ
Fluoride (as F)	mg/L	0.93	1.53	0.53
Sulphide (as H ₂ S)	mg/L	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	BLQ	0.12	0.24
Sodium Adsorption Ratio	-	1.29	1.55	0.98
Total Coliforms	MPN Index/100 ml	657	1600	316
Faecal Coliforms	MPN Index/100 ml	562	853	122
Total Phosphate (as PO ₄)	mg/L	0.10	0.18	0.31
Total Kjeldahl Nitrogen	mg/L	BLQ	1.12	0.75

Parameters	Unit	Results		
		Pancharatna Farm, Maruti Sankul, Datta Nagar, Backside Kirloskar Oil India Pvt. Ltd. (Bore well Water)	Govind Vitthoba Shirsat, Sirshat Vasti, Ambad Gaon (Well Water)	Sai Eknath Park (Near Indoline Furniture) (Bore Well Water)
Total Ammonia (NH ₄ +NH ₃)-Nitrogen	mg/L	BLQ	0.13	0.13
Total Nitrogen	mg/L	2.75	7.82	9.04
Phenols (as C ₆ H ₅ OH)	mg/L	BLQ	BLQ	BLQ
Anionic Detergents (as MBAS Calculated as LAS, mol.wt.288.38)	mg/L	BLQ	BLQ	BLQ
Organo Chlorine Pesticides	µg/L	BLQ	BLQ	BLQ
Polynuclear aromatic hydrocarbons (as PAH)	mg/L	BLQ	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	0.12	0.09	0.09
Nickel (as Ni)	mg/L	0.02	0.02	0.02
Copper (as Cu)	mg/L	0.16	0.08	0.08
Hexavalent Chromium (as Cr ⁶⁺)	mg/L	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	0.02	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	0.06	0.06	0.09
Iron (as Fe)	mg/L	0.39	0.52	0.35
Vanadium (as V)	mg/L	0.02	0.02	0.06
Selenium (as Se)	mg/L	0.01	0.01	0.01
Boron (as B)	mg/L	BLQ	0.18	0.89
Bioassay Test on fish	% survival	80	57	100

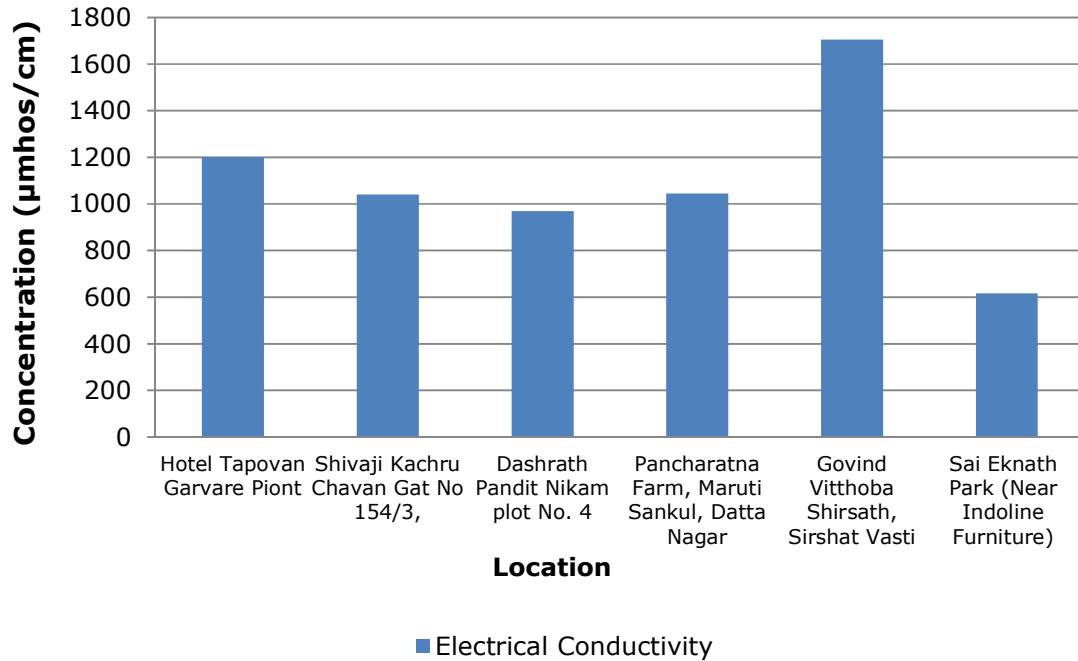
Graph - Ground Water Quality Monitoring for MIDC Ambad

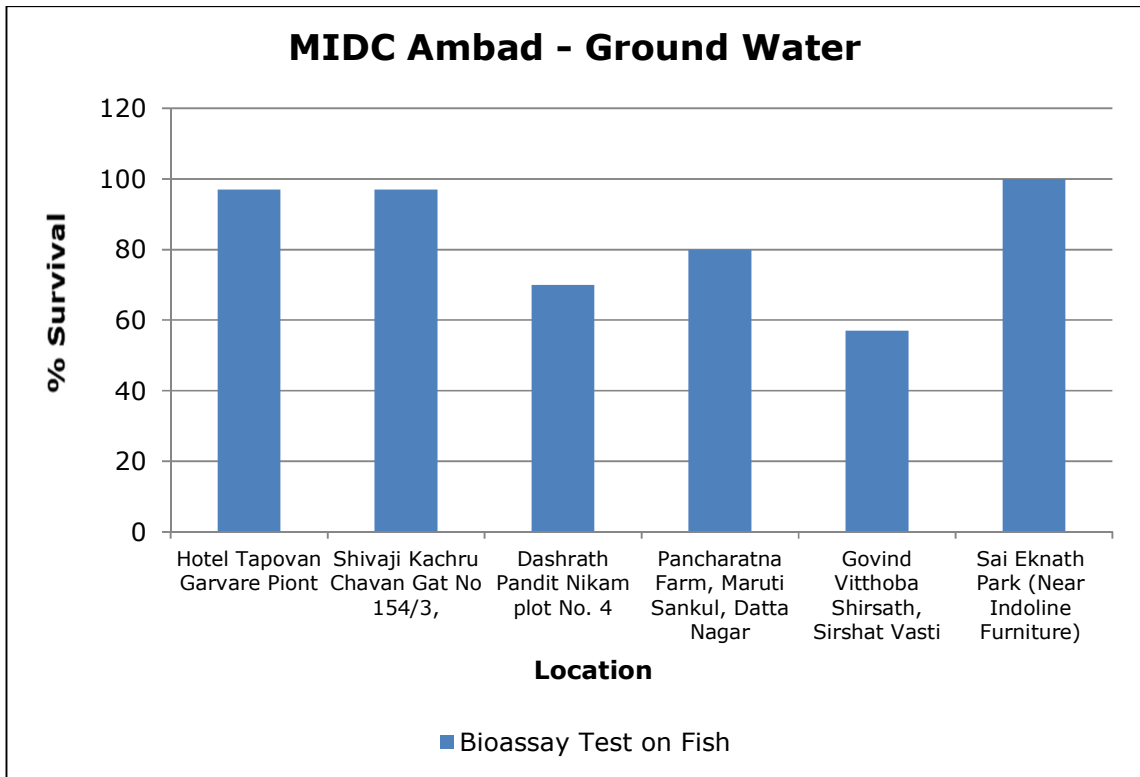
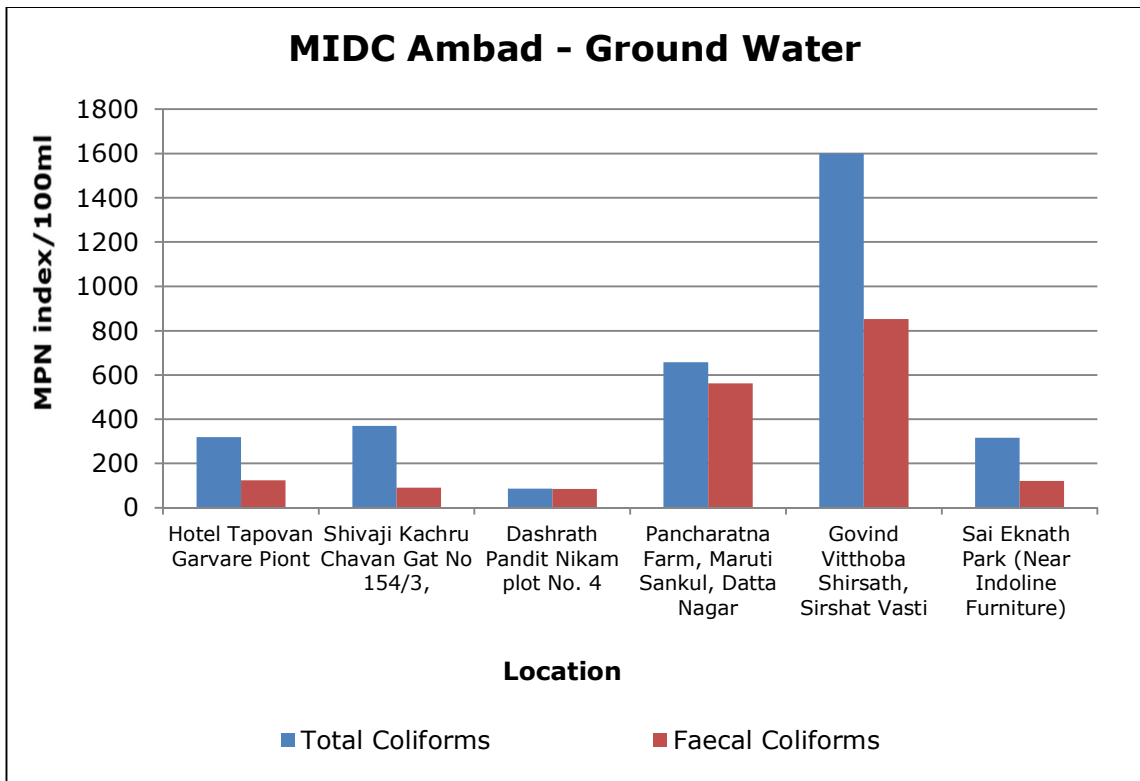


MIDC Ambad - Ground Water



MIDC Ambad - Ground Water





2. **MIDC Satpur:**

- All six water samples collected are acceptable in general appearance, colour, smell and transparency.
- pH, suspended solids, BOD, and COD are also well within the limits at all three samples collected.
- 100% survival was achieved in Fish Bioassay in all samples collected.
- All metals like Zinc, Hexavalent Chromium (Cr⁶⁺), Total Chromium, Total Arsenic, Lead, Cadmium, etc. are observed either below limit of quantification or below their standard limits.
- Parameters like Total Residual Chlorine, Cyanide, Fluoride, Sulphide, Dissolved Phosphate, Total Ammonical Nitrogen and Phenolic compounds also meet the criteria as prescribed by CPCB.
- Polynuclear aromatic hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB) are below the limit of quantification in all six samples collected.
- Organo Chlorine Pesticides are also below the limit of quantification in all six samples collected.

Table 7.3 MIDC Satpur - 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.	Ramesh Chandra Kale Near ESI Hospital, Satpur (Bore Well Water)	19°99'0.94"N	73°71'12.79"E	23.05.2023	25.05.2023	27.05.2023
2.	Seva Developers Pvt. Ltd., Satpur (Bore Well Water)	20°00'29.42"N	73°74'96.97"E	23.05.2023	25.05.2023	27.05.2023
3.	Shivaji Nagar (Shishila Hospital), Plot No 55/6, Satpur Carbon Naka) (Bore Well Water)	20° 00'16.34"N	73°71'12.79"E	23.05.2023	25.05.2023	27.05.2023
4.	Shradha Farmhouse, Shradha Moters Back Side) MIDC Satpur (Well Water)	20°00'5.16"N	73°72'69.48"E	23.05.2023	25.05.2023	27.05.2023

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
5.	Amit Deelip Yadav, Plot No 50, Ganesh Nagar, Satpur (Bore Well Water)	20°00'57.45"N	73°73'80.03"E	23.05.2023	25.05.2023	27.05.2023
6.	Rudhra Evershine, Virshab Industries Back Side, Vanvihar Colony, Satpur (Bore Well Water)	20°00'57.45"N	73°73'80.03"E	23.05.2023	25.05.2023	27.05.2023



Fig. Geographical Locations of Ground Water Sampling MIDC Satpur

Table 7.4 MIDC Satpur - Results of Ground Water

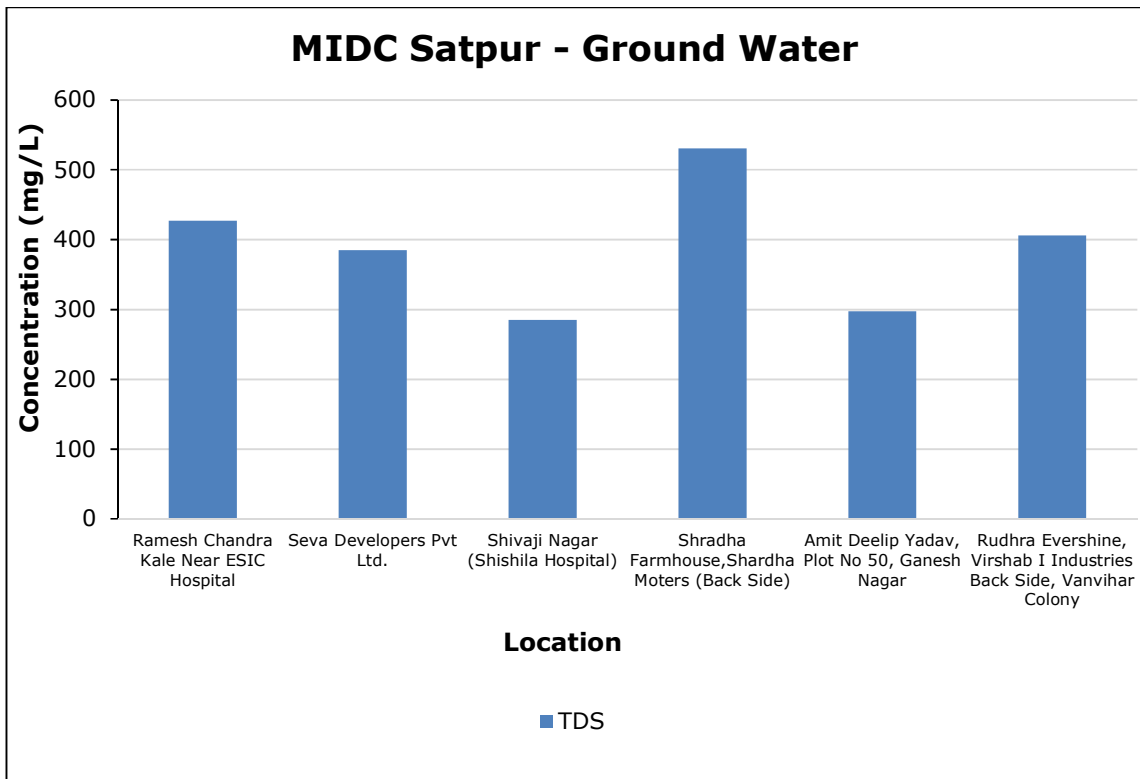
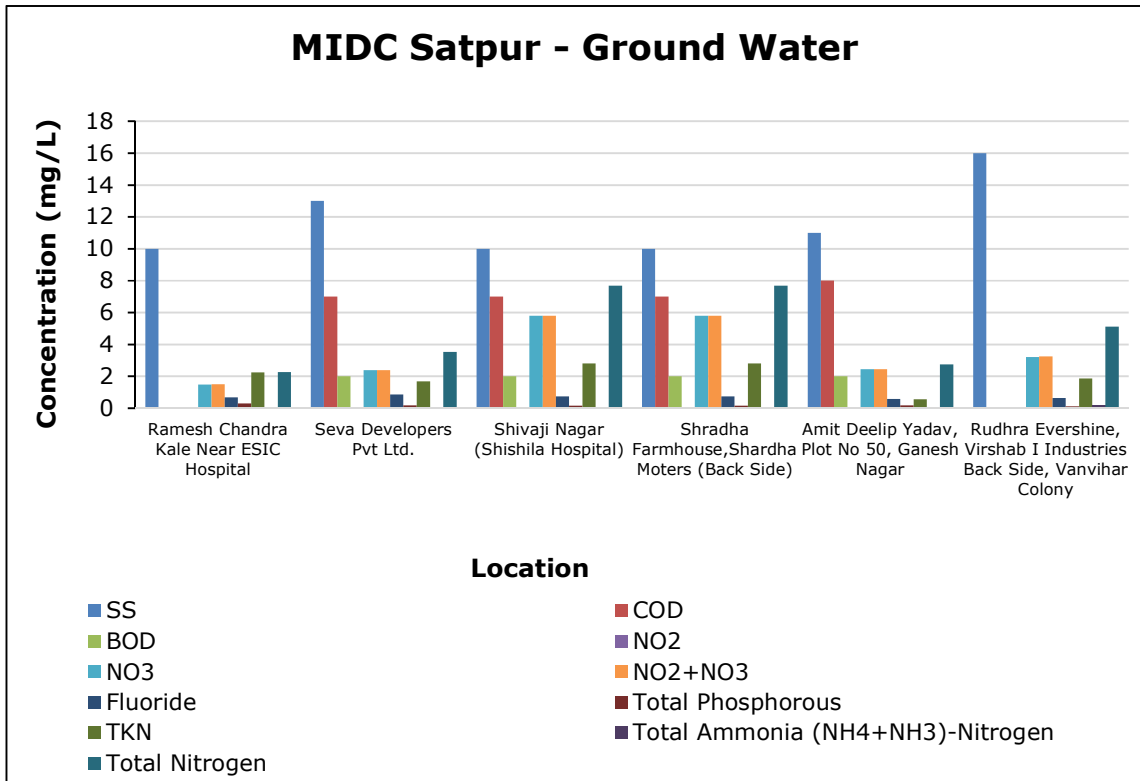
Parameters	Unit	Results		
		Ramesh Chandra Kale Near ESI Hospital, Satpur (Bore Well Water)	Seva Developers Pvt. Ltd., Satpur (Bore Well Water)	Shivaji Nagar (Shishila Hospital), Plot No 55/6, Satpur Carbon Naka) (Bore Well Water)
Sanitary Survey	-	Very Clean Neighbourhood and Catchment	Very Clean Neighbourhood and Catchment	Very Clean Neighbourhood and Catchment
General Appearance	-	Not Applicable	Not Applicable	Not Applicable
Transparency	M	Not Applicable	Not Applicable	Not Applicable
Temperature	°C	27	28	27
Colour	Hazen	1	1	1
Odour	-	Agreeable	Agreeable	Agreeable
pH	-	7.33	7.17	7.33
Oil & Grease	mg/L	BLQ	BLQ	BLQ
Suspended Solids	mg/L	10	13	10
Total Dissolved Solids	mg/L	427	385	285
Chemical Oxygen Demand	mg/L	BLQ	7	7
Biochemical Oxygen Demand (3 days, 27°C)	mg/L	BLQ	2	2
Electrical Conductivity (at 25°C)	µmhos/cm	819	950	950
Nitrite Nitrogen (as NO ₂)	mg/L	0.04	0.02	0.04
Nitrate Nitrogen (as NO ₃)	mg/L	1.49	2.39	5.78
(NO ₂ + NO ₃)-Nitrogen	mg/L	1.51	2.39	5.81
Free Ammonia (as NH ₃ -N)	mg/L	BLQ	BLQ	BLQ
Free Residual Chlorine	mg/L	0.22	0.26	0.23
Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ
Fluoride (as F)	mg/L	0.67	0.87	0.73
Sulphide (as H ₂ S)	mg/L	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	0.20	0.17	0.13
Sodium Adsorption Ratio	-	0.87	0.53	1.06
Total Coliforms	MPN Index/100 ml	72	13	98
Faecal Coliforms	MPN Index/100 ml	13	<1.8	15
Total Phosphate (as PO ₄)	mg/L	0.30	0.18	0.16
Total Kjeldahl Nitrogen	mg/L	2.24	1.68	2.80
Total Ammonia (NH ₄ +NH ₃)-Nitrogen	mg/L	BLQ	BLQ	BLQ

Parameters	Unit	Results		
		Ramesh Chandra Kale Near ESI Hospital, Satpur (Bore Well Water)	Seva Developers Pvt. Ltd., Satpur (Bore Well Water)	Shivaji Nagar (Shishila Hospital), Plot No 55/6, Satpur Carbon Naka (Bore Well Water)
Total Nitrogen	mg/L	2.26	3.52	7.69
Phenols (as C ₆ H ₅ OH)	mg/L	BLQ	BLQ	BLQ
Anionic Detergents (as MBAS Calculated as LAS, mol.wt.288.38)	mg/L	BLQ	BLQ	BLQ
Organo Chlorine Pesticides	µg/L	BLQ	BLQ	BLQ
Polynuclear aromatic hydrocarbons (as PAH)	mg/L	BLQ	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	0.16	BLQ	BLQ
Nickel (as Ni)	mg/L	BLQ	0.09	0.10
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	0.03	0.03
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	0.13	0.06
Iron (as Fe)	mg/L	0.26	0.21	0.16
Vanadium (as V)	mg/L	0.04	0.04	0.04
Selenium (as Se)	mg/L	0.01	0.01	0.01
Boron (as B)	mg/L	0.16	0.15	0.18
Bioassay Test on fish	% survival	100	100	100

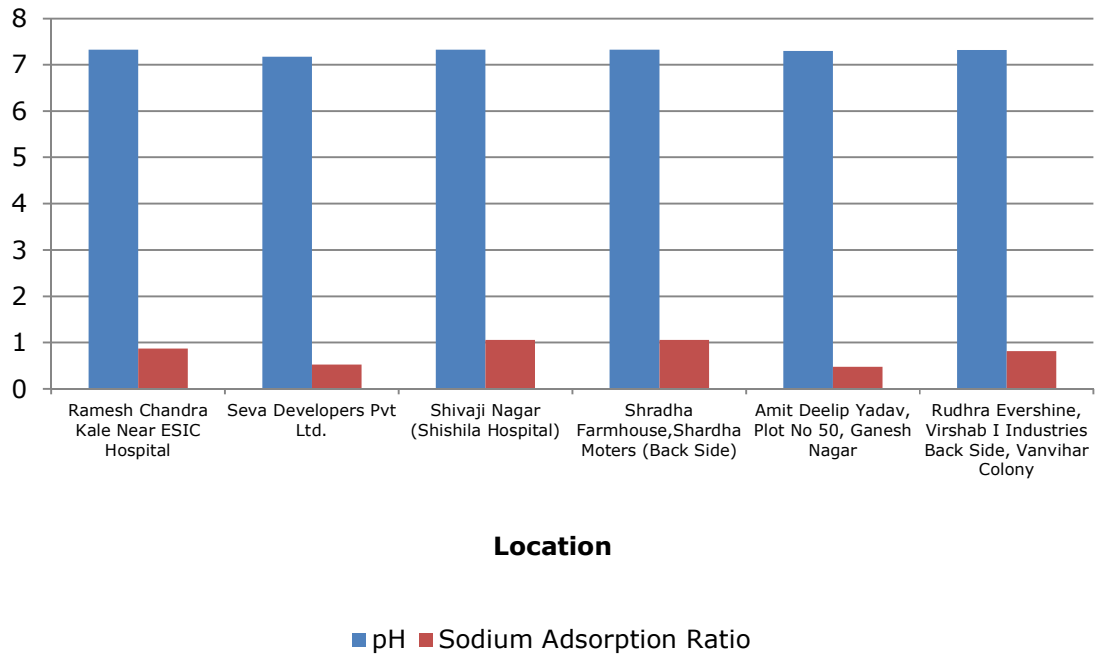
Parameters	Unit	Results		
		Shradha Farmhouse, Shardha Moters (Back Side) MIDC Satpur (Well Water)	Amit Deelip Yadav, Plot No 50, Ganesh Nagar, Satpur (Bore Well Water)	Rudhra Evershine, Virshab I Industries Back Side, Vanvihar Colony, Satpur (Bore Well Water)
Sanitary Survey	-	Very Clean Neighbourhood and Catchment	Very Clean Neighbourhood and Catchment	Very Clean Neighbourhood and Catchment
General Appearance	-	Not Applicable	Not Applicable	Not Applicable
Transparency	M	Not Applicable	Not Applicable	Not Applicable
Temperature	°C	27	28	28
Colour	Hazen	1	1	1
Odour	-	Agreeable	Agreeable	Agreeable
pH	-	7.33	7.30	7.32
Oil & Grease	mg/L	BLQ	BLQ	BLQ
Suspended Solids	mg/L	10	11	16
Total Dissolved Solids	mg/L	531	297	406
Chemical Oxygen Demand	mg/L	7	8	BLQ
Biochemical Oxygen Demand (3 days, 27°C)	mg/L	2	2	BLQ
Electrical Conductivity (at 25°C)	µmhos/cm	950	529	723
Nitrite Nitrogen (as NO ₂)	mg/L	0.04	BLQ	0.05
Nitrate Nitrogen (as NO ₃)	mg/L	5.78	2.45	3.20
(NO ₂ + NO ₃)-Nitrogen	mg/L	5.81	2.45	3.24
Free Ammonia (as NH ₃ -N)	mg/L	BLQ	BLQ	BLQ
Free Residual Chlorine	mg/L	0.23	0.21	0.29
Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ
Fluoride (as F)	mg/L	0.73	0.57	0.63
Sulphide (as H ₂ S)	mg/L	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	0.13	0.12	BLQ
Sodium Adsorption Ratio	-	1.06	0.48	0.82
Total Coliforms	MPN Index/100 ml	98	86	223
Faecal Coliforms	MPN Index/100 ml	15	15	23
Total Phosphate (as PO ₄)	mg/L	0.16	0.18	0.11
Total Kjeldahl Nitrogen	mg/L	2.80	0.56	1.87
Total Ammonia (NH ₄ +NH ₃)-Nitrogen	mg/L	BLQ	BLQ	0.16

Parameters	Unit	Results		
		Shradha Farmhouse, Shardha Moters (Back Side) MIDC Satpur (Well Water)	Amit Deelip Yadav, Plot No 50, Ganesh Nagar, Satpur (Bore Well Water)	Rudhra Evershine, Virshab I Industries Back Side, Vanvihar Colony, Satpur (Bore Well Water)
Total Nitrogen	mg/L	7.69	2.74	5.10
Phenols (as C ₆ H ₅ OH)	mg/L	BLQ	BLQ	BLQ
Anionic Detergents (as MBAS Calculated as LAS, mol.wt.288.38)	mg/L	BLQ	BLQ	BLQ
Organo Chlorine Pesticides	µg/L	BLQ	BLQ	BLQ
Polynuclear aromatic hydrocarbons (as PAH)	mg/L	BLQ	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	BLQ	BLQ	0.23
Nickel (as Ni)	mg/L	0.10	BLQ	0.04
Copper (as Cu)	mg/L	BLQ	BLQ	0.28
Hexavalent Chromium (as Cr ⁶⁺)	mg/L	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	BLQ	BLQ	0.034
Total Arsenic (as As)	mg/L	0.03	0.02	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	0.06	0.03	0.10
Iron (as Fe)	mg/L	0.16	0.18	0.62
Vanadium (as V)	mg/L	0.04	BLQ	0.09
Selenium (as Se)	mg/L	0.01	0.01	0.01
Boron (as B)	mg/L	0.18	BLQ	0.10
Bioassay Test on fish	% survival	100	100	100

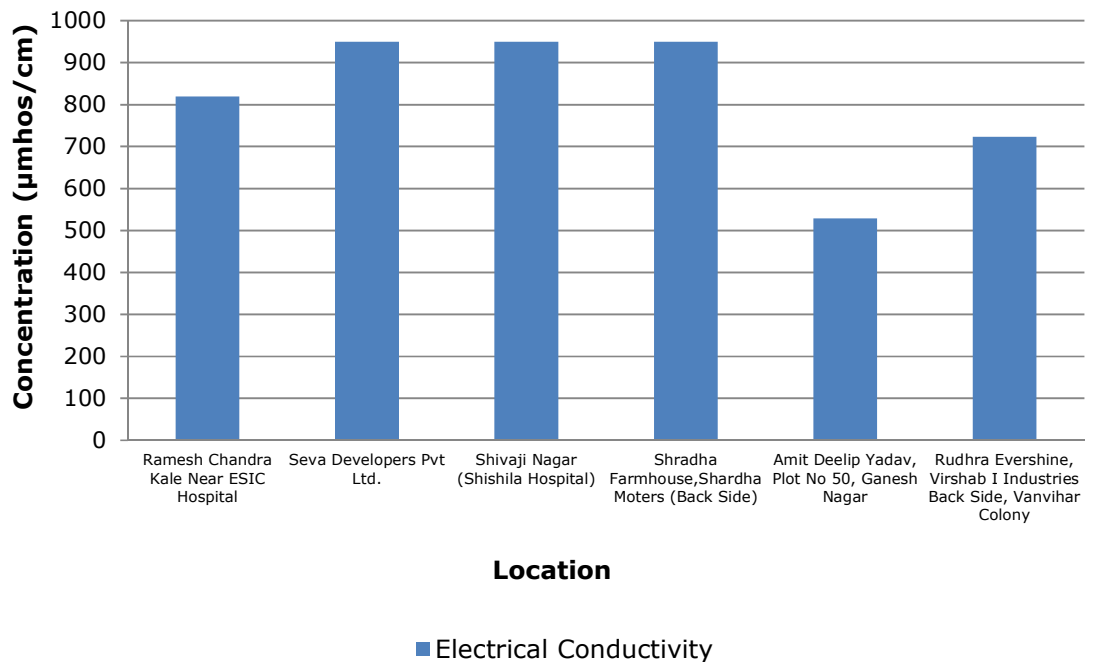
Ground - Ground Water Quality Monitoring for MIDC Satpur



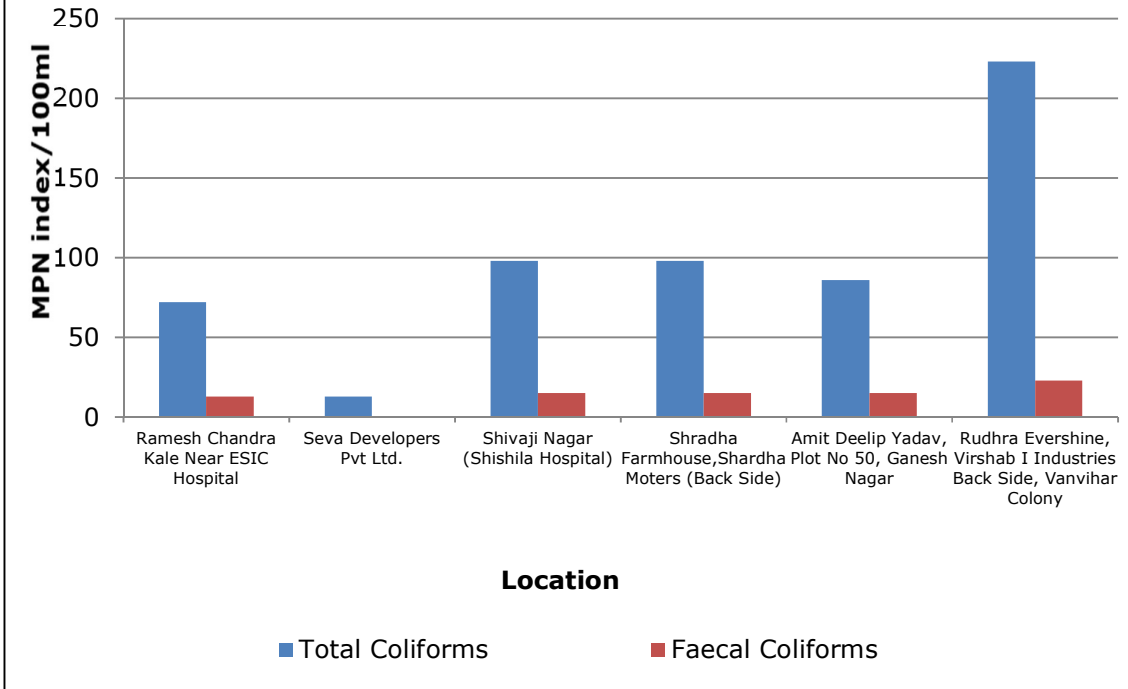
MIDC Satpur - Ground Water



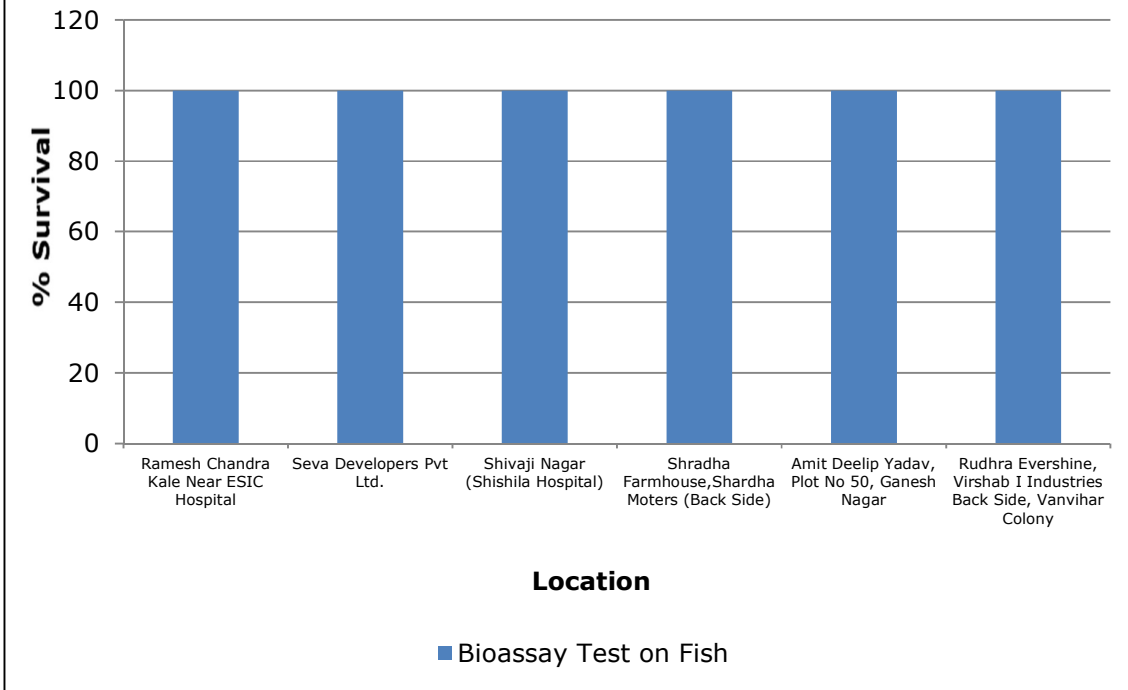
MIDC Satpur - Ground Water



MIDC Satpur - Ground Water



MIDC Satpur - Ground Water



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.

Table 8.1 CEPI score of the Pre monsoon season 2023

	A1	A2	A	B	C	D	CEPI
Air Index	2.75	1	2.75	0	10	10	22.75
Water Index	2.50	1	2.50	30	10	10	52.50
Land Index	1.50	1	1.50	22.75	10	10	44.25
Aggregated CEPI							57.28

Table 8.2 Comparison of CEPI Scores

	Air Index	Water Index	Land Index	CEPI
CEPI Score June 2023	22.75	52.50	44.25	57.28
CEPI Score March 2023	32.50	52.50	42.80	59.10
CEPI Score June 2021	20.00	46.00	48.30	53.10
CEPI Score March 2021	33.30	46.00	27.00	50.90
CEPI score March 2020	50.00	32.80	37.80	56.20
CEPI score June 2019	36.30	43.30	40.60	47.49
CEPI score March 2019	35.50	42.70	38.50	46.10
CEPI score June 2018	39.00	31.00	41.30	46.80
CEPI score March 2018	26.98	31.81	30.10	33.96

CPCB CEPI score March 2018	56.50	60.00	42.00	69.49
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The result shows that CEPI score of present report is 59.10. The present study is the compilation of pre-monsoon season, which also affects the score value. This time CEPI is observed lower than the CPCB CEPI score March 2018 which was 69.49.

CEPI score calculation:

Ambient Air Analysis Report

Pollutant	Group	A1	A2	A (A1 X A2)
PM10	B	2	Limited	
PM2.5	B	0.5		
SO ₂	A	0.25		
		2.75	1	2.75

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)		
PM10	68.50	100	0.69	0	8	0.00	L	0	
PM2.5	18.50	60	0.31	0	8	0.00	L	0	
SO ₂	12.62	80	0.16	0	8	0.00	L	0	
B score = (B1+B2+B3)								B	0

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

Air CEPI Score	(A+B+C+D)	22.75
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Water Quality Analysis Report

Pollutant	Group	A1	A2	A (A1 X A2)
BOD	B	2	Limited	
Zn	A	0.25		
TDS	A	0.25		
		2.5	1	2.5

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	273.80	8	34.23	4	5	27.38	C	30
Zn	0.07	0.3	0.23	0	5	0.00	L	0
TDS	46.00	2000	0.02	0	5	0.00	L	0

B score = (B1+B2+B3)	B	30
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C	10	>10%
D	10	A-IA-A

Water CEPI Score	(A+B+C+D)	52.50
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Ground Water Quality Analysis Report

Pollutant	Group	A1	A2	A (A1 X A2)
Fe	A	1	Limited	
TP	A	0.25		
TDS	A	0.25		
		1.5	1	1.5

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)	
Fe	0.39	0.3	1.30	7	12	0.76	H	19.5
TP	0.19	0.3	0.63	2	12	0.11	M	3.25
TDS	504.00	2000	0.25	0	12	0.00	L	0
B score = (B1+B2+B3)							B	22.75

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

Land CEPI Score	(A+B+C+D)	44.25
------------------------	------------------	--------------

Water CEPI Score (im) 52.50

Land CEPI Score (i2) 44.25

Air CEPI Score (i3) 22.75

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 = 57.28

10. Conclusion

Ambient Air Quality

- The AAQ stations were identified in the CEPI impact area to cover both upwind and crosswind directions and AAQ survey was conducted.
- All parameters are well within the limits as per NAAQS except two locations of MIDC Satpur.

Surface Water Quality

- Higher concentration of Total phosphates was observed in the surface water samples collected which may be due to increase in microbial activity, poor agricultural practices, leaking septic systems or discharges from sewage treatment plants.
- Total Kjeldahl Nitrogen also exceeded in most of the samples collected.
- All the industries in Nashik region are either reusing the treated trade effluent as sewage in their process or gardening.

Ground Water Quality

- Ground water samples were collected from different Bore well in the region.
- Copper and Iron also exceeded in most of the samples collected.

CEPI Score

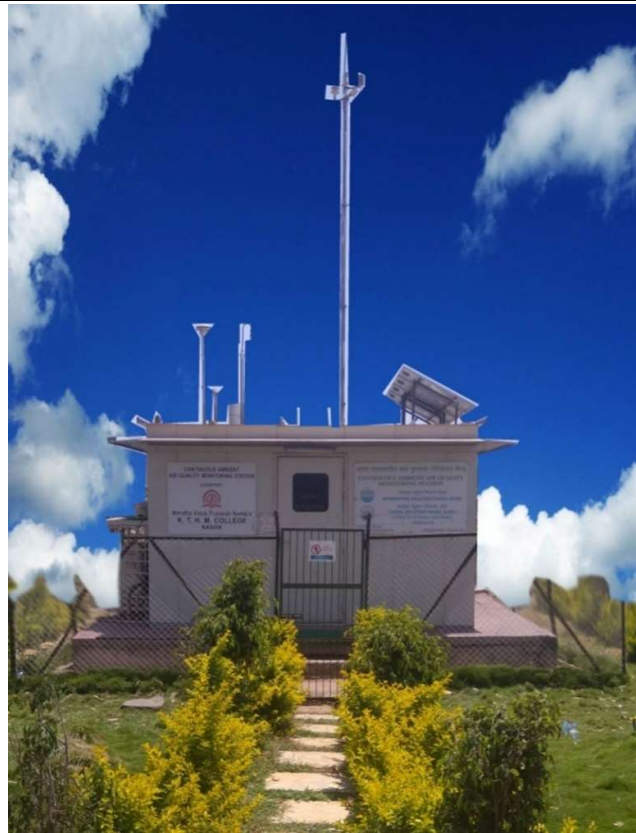
- The CEPI Score Pre-monsoon season is 57.28.
- In comparison with the CEPI Score of March 2023, a decrease in the Air Index and a slight increase in the Land Index is observed in the present study.
- The present study is the compilation of Pre-monsoon season, which shows an increase in health impact, hence resulted in higher CEPI score in comparison to the previous year.

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

- Drive against open burning of biomass, crop residue, garbage, leaves, etc.: Directions issued by Board to ULB for not to allow open burning.
- **Organic Waste Compost machines:** 08 machines are installed.
- **Waste collection and segregation centers:**
 - ✓ **Domestic Solid Waste:** NMC has provided on site waste collection and segregation facility for residential area.
 - ✓ **Industrial Non Hazardous waste:** Recyclable waste is sent to authorized waste recyclers and other waste collected by corporations.
 - ✓ **Hazardous Waste:** Industrial hazardous waste sent to common hazardous treatment and disposal facility by industries.
- **Construction of Common Effluent Treatment plant (CETP):** Yet not established proposal under consideration.
- **Installation of CEMS installed for Air and Water in Large and Medium scale RED category industries:** 04 no.
- Arrangement of scientific collection and treatment of sewage generated: Nashik Municipal Corporation has provided Sewage network and collection system in residential area and provided Sewage 11 number of STP.
- Installation of CAAQMS station: 04 stations
- Establishment of Monitoring stations under National Water Quality Monitoring Programme (NWMP) are 10.
- Steps are taken for industrial area/other units to recycle 100% treated effluent to achieve zero liquid discharge (ZLD): Directions were issued to the unit to provide ZLD and use 100% treated water for the secondary purpose. About 110 units have been provided by ZLD system.
- Steps taken to reduce dust emission:
 1. Conservation of traditional crematorium to electric based technology and three are converted to electricity and solar power.
 2. Conversion 100% city transport bus in to CNG. At present 120 buses are in operation.
 3. Conversion of Auto into PNG and CNG based fuel.
 4. The industries have changed their fuel F.O. to low Sulphur fuel and Green fuel like LPG, PNG and Electricity.
 5. Regular cleaning of roads and traffic diversions and signals shall be installed by the corporation.
 6. Road swiping machine provided.
- Tree plantation in last one year (2021-2022): 8000 nos.
- Other initiatives taken to control and reduce pollution in air, surface water and ground water in last one year (2021-2022):
 - a) Presently 04 CAAQM stations are installed at 1. KTHM College, Nashik 2. Guru Govind Singh Collage, Pathardi, Nashik 3. AIIMA Ambad, Nashik 4. Swargiya Sadashiv Gngaram Bhole Natyagruhu Hirawadi, Nashik and 4 manual stations at 1. Old NMC Building, Main Road, Nashik

2. RTO Office old, Sharanpur Road 3. VIP Industries Ltd. MIDC Satpur and 4. Udyog Bhavan, ITI Signal, Nashik. As per the population criteria proposed 4 locations of CAAQMS are installed and are in operation for monitoring of air quality.

- b) The ZP has installed three STP (in-situ nalla) treatments at four village and waste work on other villages is in progress.
- c) A clean up drive of Darna River back water and collection of plastic waste from river.
- d) Public awareness campaign on the Godavari River pollution control.
- e) Clean up drive in MIDC Satpur.
- f) Tree Plantation drive in MIDC Ambad.



Continuous Ambient Air Quality Monitoring Station



Ambient Air Quality Monitoring Van

12. Photographs



**MIDC Ambad - Ambient Air Sampling nearby
VIR Electro**



**MIDC Ambad - Ambient Air Sampling nearby
Isovolta India Ltd.**



**MIDC Ambad - Ambient Air Sampling nearby
Sudal Industries Ltd.**



**MIDC Satpur - Ambient Air Sampling nearby
Graphite India Ltd.**



MIDC Satpur - Ambient Air Sampling nearby AATCO Food Ltd.



MIDC Satpur - Ambient Air Sampling nearby MSL Drive Line System



MIDC Satpur – Surface water Sampling Sahid Arun Chittee Pool, Anandvalil Gangapur Road



MIDC Satpur – Surface water Sampling Nasardi Pool, Near EPF Office



NASHIK CEPI
NASHIK
23.05.2023 09:48
20.00681, 73.73471
2P4M+MVJ, Sadguru Nagar, Satpur Colony, Nashik,
Maharashtra 422007

MIDC Satpur – Surface water Sampling ALP industry Opposite side Nalla



Nashik CEPI
01.06.2023 10:39
19.95351, 73.72542
XP3G+F4G, Gauri St, Ambedkar Nagar, Chunchale, Nashik,
Maharashtra 422007, India

MIDC Ambad – Ground water Sampling Dashrath Pandit Nikam, Plot No. 4, Mauli Chowk, Datta Nagar, Village Chinchale (Bore well Water)



Nashik CEPI
01.06.2023 10:54
19.95931, 73.73149
XP5J+HG8, Aanand Vatika Rd, Ambedkar Nagar, Chunchale,
Nashik, Maharashtra 422007, India

MIDC Ambad – Ground water Sampling Pancharatna Farm, Maruti Sankul, Datta Nagar, Backside Kirloskar Oil India Pvt. Ltd. (Bore well Water)



25.05.2023 09:59
19.99087, 73.73482
Trambakeshwar Rd, Near Pratiksha Hotel, opp. ESIS Hospital, Satpur Gaon, Satpur Colony, Nashik

MIDC Satpur – Ground water Sampling Ramesh Chandra Kale Near ESI Hospital, Satpur (Bore Well Water)



25.05.2023 10:18
20.00316, 73.74955
Kamgar, Suyog Colony, Satpur Colony, Nashik

**MIDC Satpur – Ground water Sampling Seva
Developers Pvt. Ltd., Satpur (Bore Well
Water)**



25.05.2023 08:57
20.00163, 73.71131
National, NH 50, Shramik Nagar, Nashik

**MIDC Satpur – Ground water Sampling
Shivaji Nagar (Shishila Hospital), Plot No
55/6, Satpur Carbon Naka) (Bore Well
Water)**

Annexure – I Health Related Data

HEALTH STATISTICS

Required for Comprehensive Environmental Pollution Index (CEPI) Study by
Maharashtra Pollution Control Board (MPCB)

Name of the Polluted Industrial Area (PIA)	NASHIK
Name of the major health center/ organization	Civil Hospital
Name and designation of the Contact person	Asst- civil surgeon
Address	District hospital Trimbak Road Nashik

S No.	Diseases	No. of Patients Reported	
		2022 (Jan-Dec)	2021 (Jan-Dec)
AIRBORNE DISEASES			
1.	Asthma	164	122
2.	Acute Respiratory Infection	186	1135
3.	Bronchitis	325	196
4.	Cancer	-	-
WATERBORNE DISEASES			
1.	Gastroenteritis	75	19
2.	Diarrhea	136	76
3.	Renal diseases	157	283
4.	Cancer ^{way of} (other) includes	30	12

Date: 06-02-2023

Signature

ADDL. CIVIL SURGEON
CIVIL HOSPITAL, NASHIK


HEALTH STATISTICS

Required for Comprehensive Environmental Pollution Index (CEPI) Study by
Maharashtra Pollution Control Board (MPCB)

Name of the Polluted Industrial Area (PIA)	NASHIK
Name of the major health center/ organization	Indira Gandhi Rugnalaya
Name and designation of the Contact person	
Address	Panchavali ^o karanja, panchavati - nashik

S No.	Diseases	No. of Patients Reported	
		2022 (Jan-Dec)	2021 (Jan-Dec)
AIRBORNE DISEASES			
1.	Asthma	67	72
2.	Acute Respiratory Infection	8366	5934
3.	Bronchitis	-	-
4.	Cancer	-	-
WATERBORNE DISEASES			
1.	Gastroenteritis	-	-
2.	Diarrhea	595	492
3.	Renal diseases	-	-
4.	Cancer	-	-

Date: 23/01/23


 वैद्यकीय अधिकारी
 Signature
 इंदिरा गांधी रुग्णालय, पंचवटी,
 नाशिक महानगरपालिका, नाशिक.

HEALTH STATISTICS

Required for Comprehensive Environmental Pollution Index (CEPI) Study by
Maharashtra Pollution Control Board (MPCB)

Name of the Polluted Industrial Area (PIA)	NASHIK
Name of the major health center/ organization	Sudarshan Hospital
Name and designation of the Contact person	Dr. Suresh Dhanraj MBBS D OHLU.
Address	Chy place, opp. Kalkar mandir Old Azga Road, Mumbai near

S No.	Diseases	No. of Patients Reported	
		2022 (Jan-Dec)	2021 (Jan-Dec)
AIRBORNE DISEASES			
1.	Asthma	02	03
2.	Acute Respiratory Infection	04	02
3.	Bronchitis	05	03
4.	Cancer	-	-
WATERBORNE DISEASES			
1.	Gastroenteritis	02	01
2.	Diarrhea	06	04
3.	Renal diseases	04	02
4.	Cancer	-	-

Date:

Signature

