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

DOMBIVALI

Post-Monsoon (December 2024 - February 2025)

MAHARASHTRA

LiFE Lifestyle for Environment

Maharashtra Pollution Control Board

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

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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

The Dombivali CEPI area includes MIDC Phase I and MIDC Phase II and 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 Groundwater in consideration with the previous CEPI monitoring and covering the entire CEPI Impact Zone. The post-monsoon monitoring was carried out during the period of December 2025 to February 2024 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 PM_{10} and $PM_{2.5}$ are found within the limit prescribed by NAAQS, 2009. The concentration of total Kjeldahl Nitrogen and BOD is observed higher than its acceptable limit in few of the surface water samples. In Groundwater, the concentration of all the parameters is observed within the acceptable limits, except iron concentration, which is found above the permissible limit of 0.3mg/L.

Based on the study report conducted by CPCB during the period March 2018, the CEPI score of Dombivali region as per the revised guidelines is 69.67 (Ambient Air–62, Water-63.50, Land–27.25). In the CEPI score of CPCB, the concentration of PM_{10} and $PM_{2.5}$ were the main contributors in the score. However, in the present study the concentration of PM_{10} and $PM_{2.5}$ is observed lower than the standard limit of NAAQS, 2009. In the present study, iron concentration in all the ground water samples is found to exceed the permissible limit.

Maharashtra Pollution Control Board has taken various initiatives in reducing the CPCB CEPI Score of 69.67 in 2018 to 44.5 in March 2025. This shows a decrease by almost 31% in the CEPI score in the present investigation. Based on the study as per the revised CEPI 2016, the CEPI index of Post-monsoon - Ambient Air is 35.0, Surface Water is 37.0, and Groundwater is 33.8. The overall CEPI score for Dombivali area for the Post-monsoon 2025 is 44.5.

2. Introduction

The industrial sector remains a pivotal force in driving a nation's economic growth, significantly contributing to increased production, fixed investment, exports, employment, and capacity utilization. Industries serve as engines of economic development, bolstering government revenue, international trade, social services, and job creation. The growth rate of the industrial sector directly impacts the overall economic growth of a country. Consequently, industries are essential for achieving economic goals and prosperity. According to the World GDP Ranking 2024, India stands as the fifth-largest economy globally. Several Sustainable Development Goals (SDGs) focus on growth, including Decent Work and Economic Growth (Goal 8) and Industry, Innovation, and Infrastructure (Goal 9).

Despite these economic benefits, industrial activities have a profound negative impact on the environment, affecting water, air, and soil quality. Industries discharging untreated wastewater have contaminated drinking water with hazardous substances, posing severe risks to human, animal, and aquatic life. Air pollution from industrial emissions is linked to a range of respiratory and cardiovascular diseases, particularly affecting children and leading to increased rates of infant mortality and chronic health issues in adulthood. According to the World Health Organization (WHO), environmental pollution is responsible for approximately 9 million premature deaths annually. Over 90% of the global population is exposed to air pollution levels exceeding WHO guidelines, posing serious health risks. Furthermore, around 2 billion people use drinking water contaminated with faeces, leading to infectious diseases such as cholera and dysentery.

The impact on flora and fauna is equally alarming. Industrial pollution has led to habitat destruction, loss of biodiversity, and the disruption of ecosystems. Toxic pollutants can cause genetic mutations, reproductive failures, and behavioural changes in wildlife, endangering entire species. Plants exposed to polluted air and water can experience stunted growth, reduced photosynthesis, and increased susceptibility to diseases, which ultimately affects food security and ecosystem stability.

To mitigate these adverse effects, robust environmental policies are essential. These policies set forth rules for industries and individuals, enforced by government agencies. Key aspects include monitoring pollution levels, imposing fines or penalties on violators, and conducting environmental impact assessments for proposed projects. Conservation measures are crucial for protecting biodiversity, and policies must be regularly updated to address emerging challenges. A comprehensive approach, including robust regulatory frameworks, international collaboration, advanced monitoring technologies, and a commitment to sustainable practices from industries and governments, is vital for safeguarding our natural resources and promoting 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.

This report explores the methodology, findings, and implications 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, Maharashtra) and Dombivali MIDC (Phase I & II). Established in 1964, the Dombivali Industrial Area under MIDC has undergone rapid industrialization, accommodating textile, chemical, and engineering industries. The region comprises industrial plots and sheds in Phase I and II, interspersed with residential and commercial zones, leading to significant environmental concerns due to industrial emissions, wastewater discharge, and land contamination.

This study follows the revised CEPI version (2016), which evaluates pollution levels across air, water, and land using an index-based approach. The CEPI framework identifies pollution sources, pathways, and receptors, providing a quantitative measure of environmental degradation in a given location. These assessments are crucial in guiding targeted interventions, regulatory policies, and community-driven initiatives to mitigate pollution and safeguard public health. Despite persistent environmental challenges, ongoing CEPI-driven action plans offer a structured approach to addressing pollution concerns. Through regulatory enforcement, industry compliance, and sustainable urban planning, the findings of this report aim to contribute towards restoring ecological balance and ensuring long-term environmental sustainability in Dombivali and Chembur.

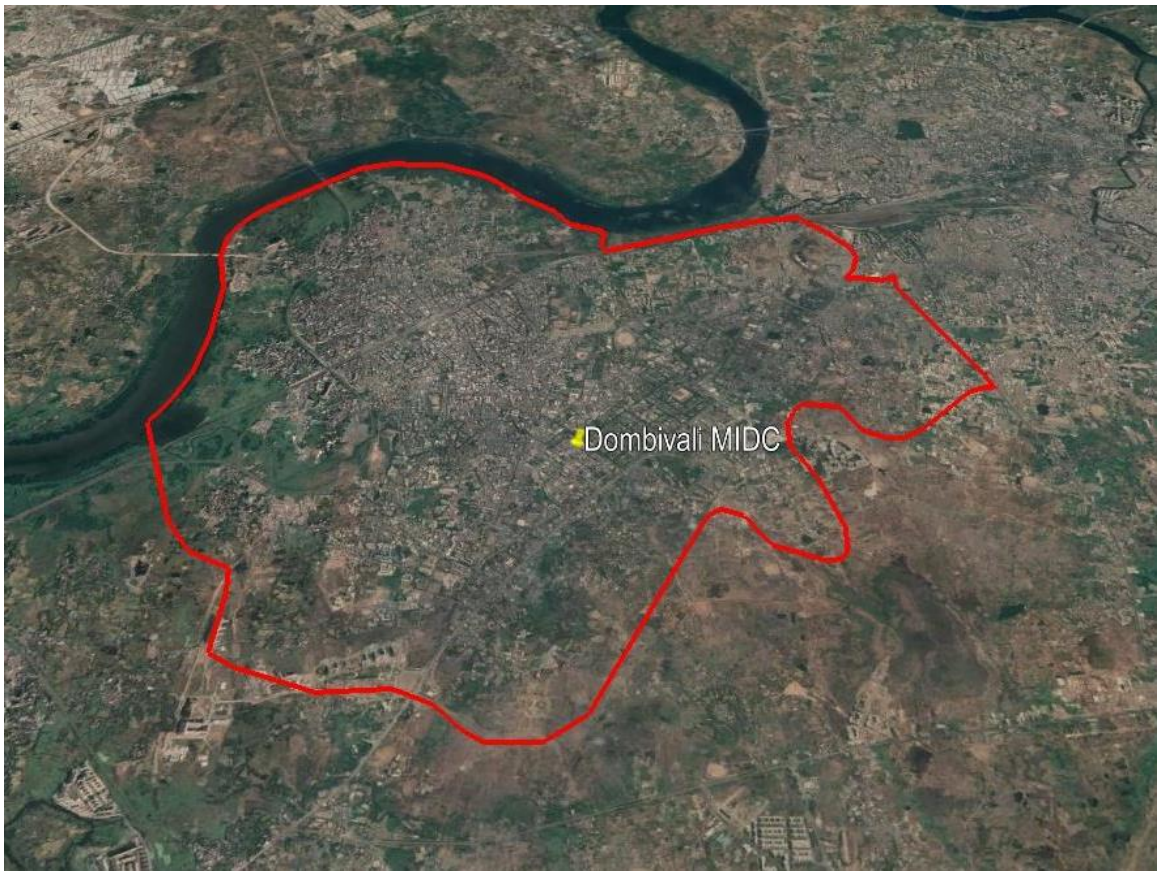


Fig. Dombivali Region CEPI Monitoring Zone

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 & Groundwater Quality in selected Pollution Industrial Areas (PIAs) of Dombivali, 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 Groundwater are given in Table 3.1 and Table 3.2 respectively.

Table 3.1 Sampling Details of Dombivali

Sampling Criteria	Number of sites	Total Sites	Monitoring Parameters
Ambient Air Quality	• Phase I-04 • Phase II-04	**08**	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)	• Phase I-02 • Phase II-02	**04**	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 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

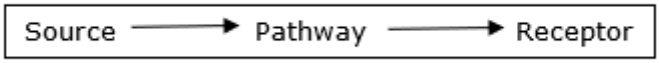
Sampling Criteria	Number of sites	Total Sites	Monitoring Parameters
Water Quality Monitoring	**Surface water** • Phase I-06 • Phase II-06	**12**	**(i) Simple Parameters** Sanitary Survey, General Appearance, Colour, Smell, Transparency and Ecological **(ii) Regular Monitoring Parameters** pH, O & G, 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) Bioassay (zebra Fish)** Test – For specified samples only.
	Groundwater • Phase I-03 • Phase II-03	**06**	

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	**Groundwater**		
	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 Groundwater 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 Dombivali 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 determined.

**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 Phase I:** In MIDC Phase I of Dombivali four locations have been monitored for Ambient Air Quality (AAQ). The AAQ monitoring was carried out by taking samples in triplicate on 20thJan to 24th Jan 2025. All twelve parameters are observed well within the limits at all 4 locations monitored.

Table 5.1 Phase I - 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 main gate Gharda Chemicals	19°13'10.45"N	73°6'50.33"E	20.01.2025	22.01.2025	24.01.2025
2.	Near main gate DEBESA CETP	19°13'0.45"N	73°6'18.07"E	20.01.2025	22.01.2025	24.01.2025
3.	Near main gate Balkrishna Industries Ltd.	19°12'36.40"N	73°6'41.92"E	20.01.2025	22.01.2025	24.01.2025
4.	Near main gate Sagar Ice & Cold Storage Pvt. Ltd.	19°12'55.54"N	73°6'26.29"E	20.01.2025	22.01.2025	24.01.2025

Table 5.2 Phase I - 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 main gate Gharda Chemicals	19°13'10.45"N	73°6'50.33"E	20.01.2025	22.01.2025	24.01.2025
2.	Near main gate DEBESA CETP	19°13'0.45"N	73°6'18.07"E	20.01.2025	22.01.2025	24.01.2025

Fig. Geographical Locations of Ambient Air Quality Monitoring MIDC Dombivali Phase I

Fig. Geographical Locations of VOCs Monitoring MIDC Dombivali Phase I

Table 5.3 Phase I - Results of Ambient Air Quality Monitoring

Parameters	Unit	Results			
		Gharda Chemicals	DEBESA CETP	Balkrishna Industries Ltd.	Sagar Ice & Cold Storage Pvt. Ltd.
Sulphur Dioxide (SO_2)	µg/m³	22.40	85.90	50.30	32.60
Nitrogen Dioxide (NO_2)	µg/m³	56.37	54.33	43.47	55.57
Particulate Matter (size less than 10 µm) or PM_{10}	µg/m³	44	44	44	43
Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$	µg/m³	12	10	12	11
Ozone (O_3)	µg/m³	BLQ	BLQ	BLQ	BLQ
Lead (Pb)	µg/m³	BLQ	BLQ	BLQ	BLQ
Carbon Monoxide (CO) (1 h)	mg/m³	1.38	1.35	1.31	1.28
Carbon Monoxide (CO) (8 h)	mg/m³	1.67	1.85	1.80	1.60
Ammonia (NH_3)	µg/m³	37.95	60.50	58.95	120.00
Benzene (C_6H_6)	µg/m³	2.98	2.92	2.68	2.85
Benzo (a) Pyrene (BaP) – particulate phase only	ng/m³	BLQ	BLQ	BLQ	BLQ
Arsenic (As)	ng/m³	3.18	2.11	2.32	2.13
Nickel (Ni)	ng/m³	BLQ	BLQ	BLQ	BLQ

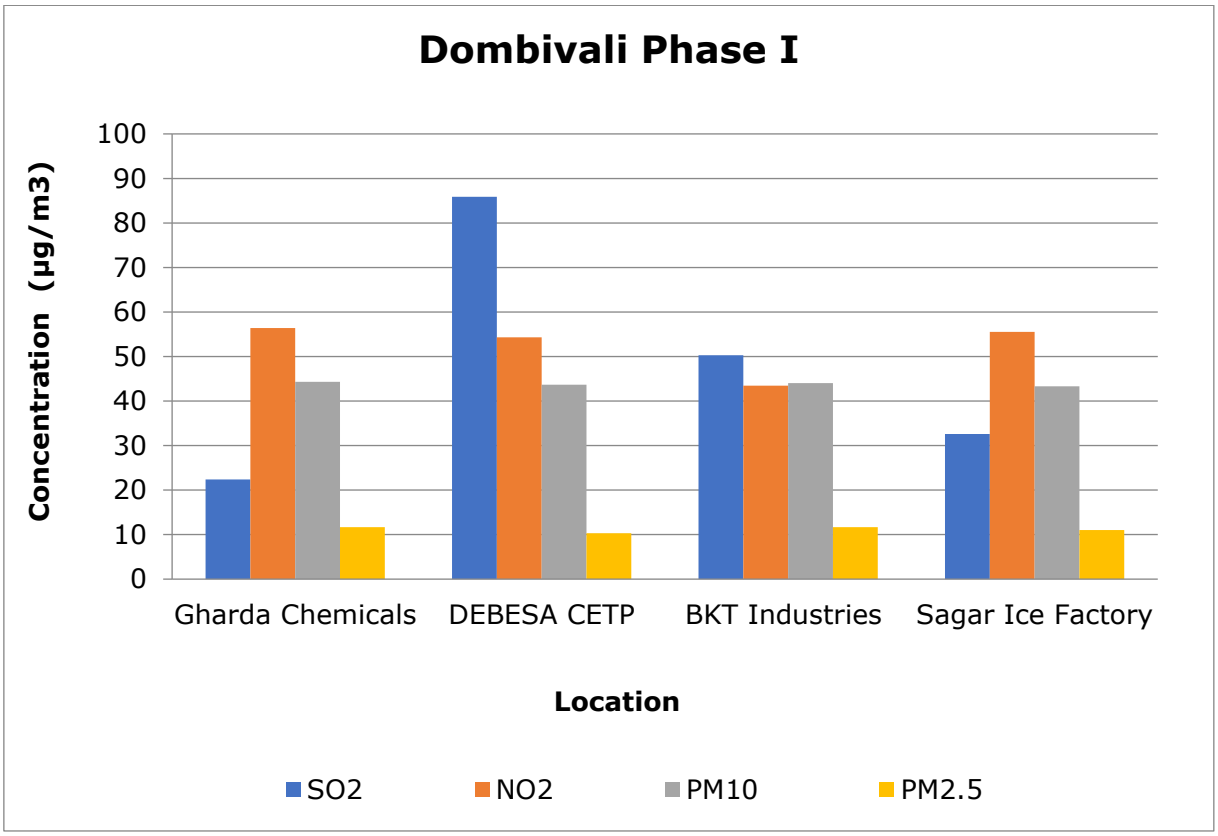
Table 5.4 Phase I - Volatile Organic Compounds (VOCs) in Ambient Air Results

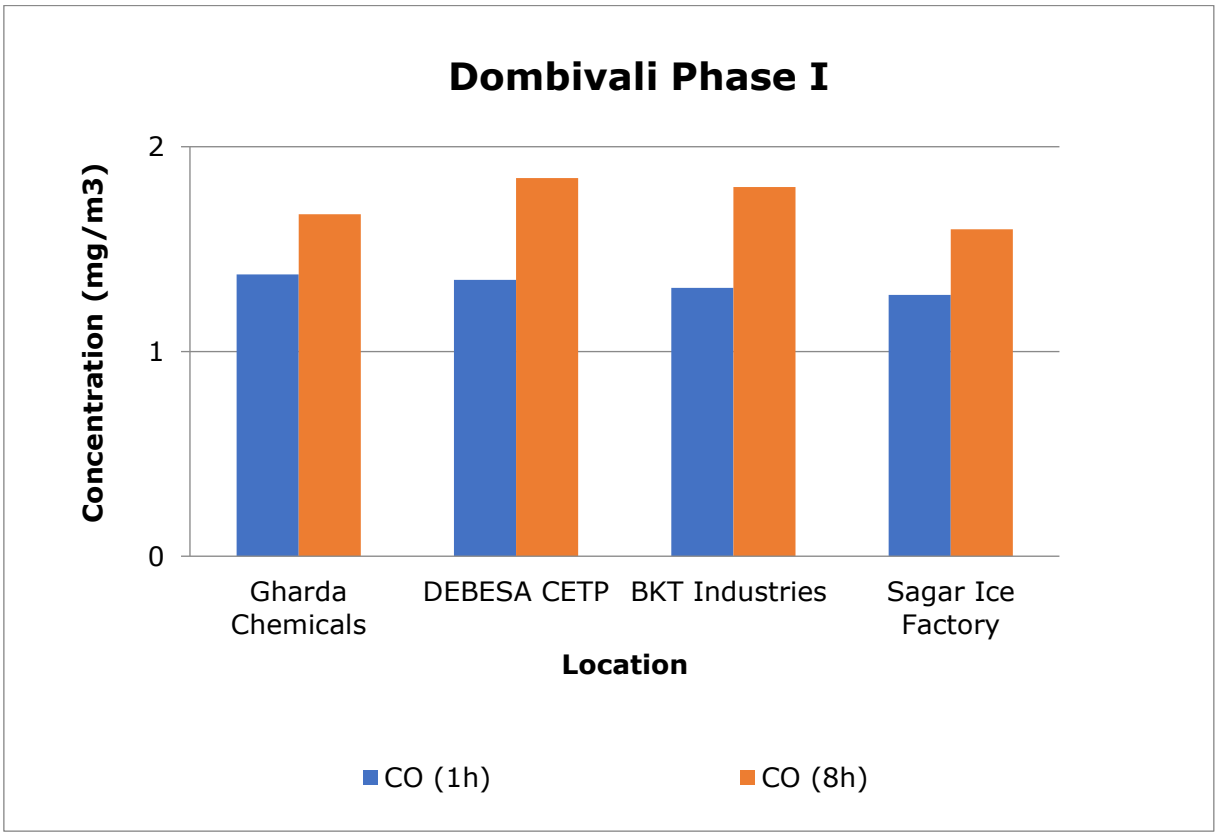
Parameters	Unit	Results	
		Gharda Chemicals	DEBESA CETP
Chloroform	µg/m³	0.84	0.80
Carbon Tetrachloride	µg/m³	BLQ	BLQ
Trichloroethylene	µg/m³	BLQ	BLQ
Bromodichloromethane	µg/m³	BLQ	BLQ
1,3-Dichloropropane	µg/m³	BLQ	BLQ
1,4-Dichlorobenzene	µg/m³	BLQ	BLQ
1,3-Dichlorobenzene	µg/m³	BLQ	BLQ
1,2-Dichlorobenzene	µg/m³	BLQ	BLQ
1,2-Dibromo-3-Chloropropane	µg/m³	BLQ	BLQ
Napthalene	µg/m³	BLQ	BLQ
Bromobenzene	µg/m³	BLQ	BLQ

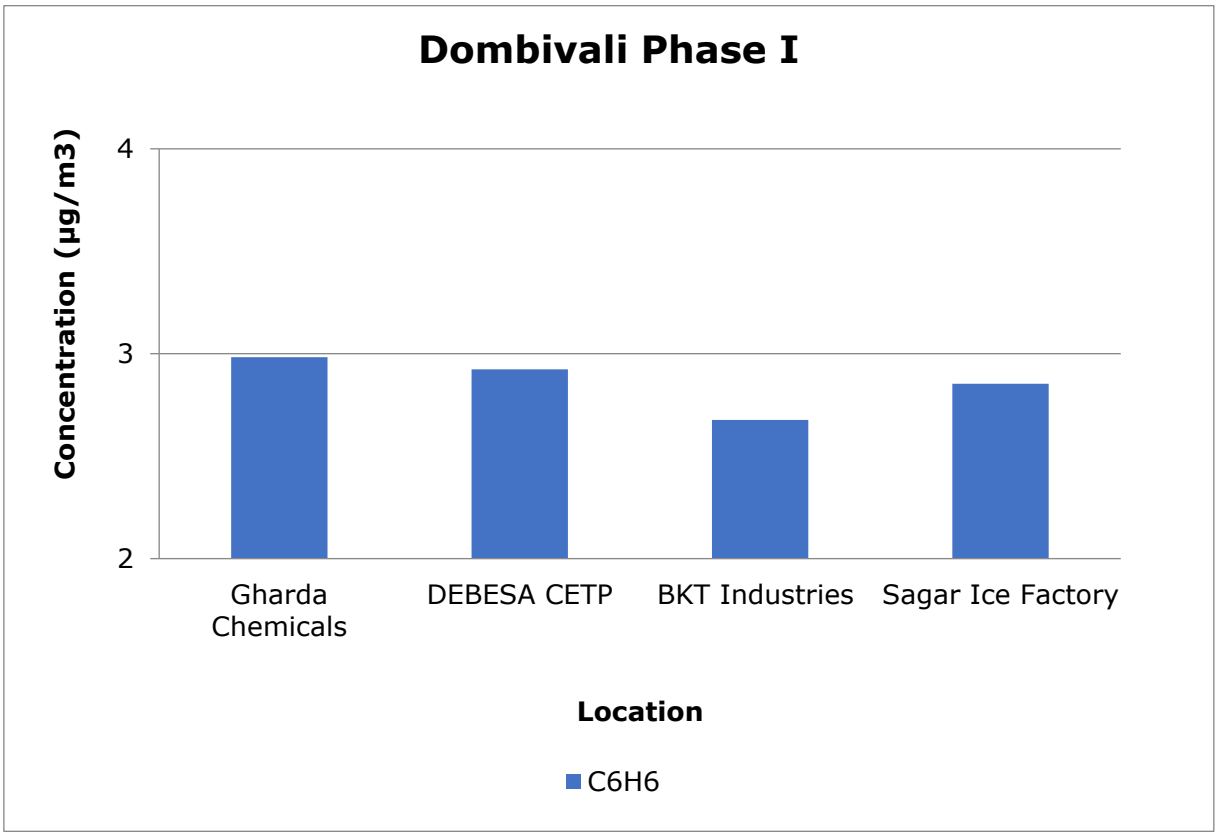
Parameters	Unit	Results	
		Gharda Chemicals	DEBESA CETP
1,2,4-Trimethylbenzene	µg/m³	BLQ	BLQ
2-Chlorotoluene	µg/m³	BLQ	BLQ
Tert-Butylbenzene	µg/m³	BLQ	BLQ
SEC-Butylbenzene	µg/m³	BLQ	BLQ
P-Isopropyltoluene	µg/m³	BLQ	BLQ
M-Xylene	µg/m³	BLQ	BLQ
P-Xylene	µg/m³	BLQ	BLQ
Styrene	µg/m³	BLQ	BLQ
Cumene	µg/m³	BLQ	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	0.94	0.94
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	3.80	3.70

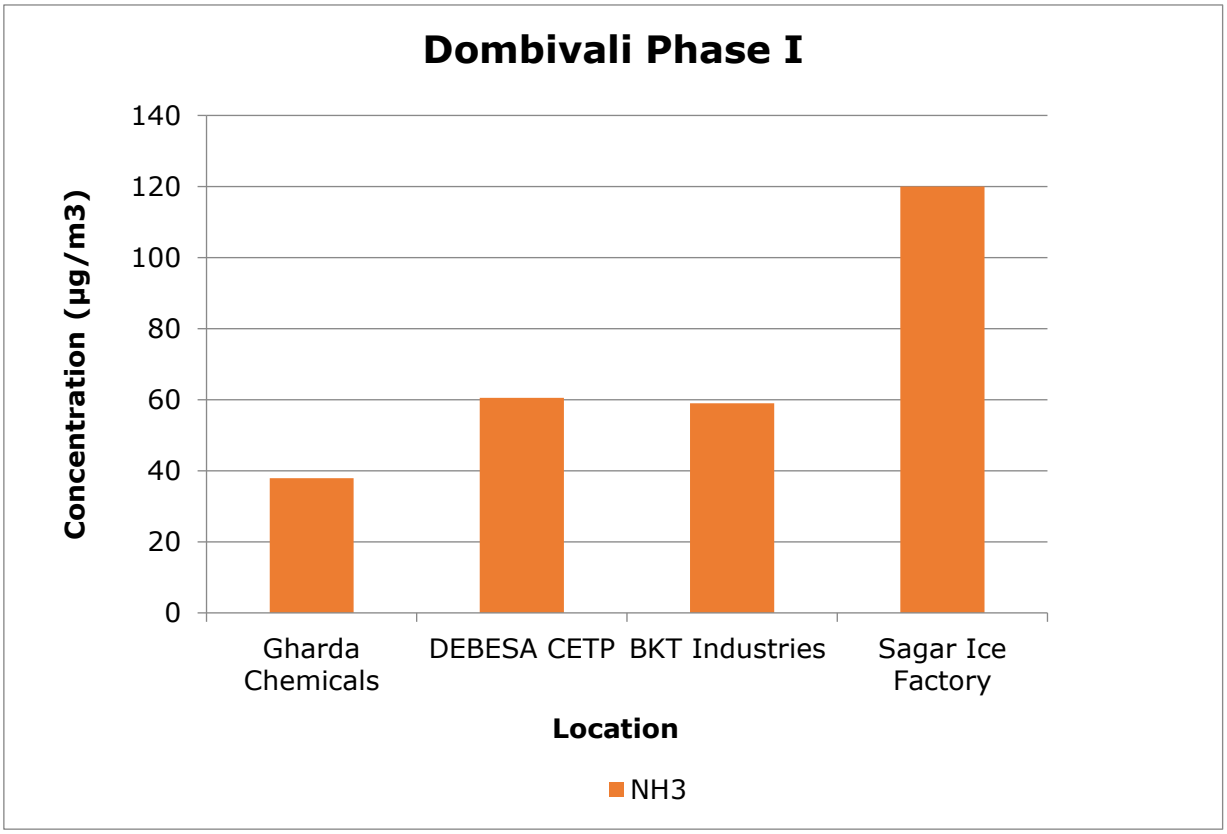
Parameters	Unit	Results	
		Gharda Chemicals	DEBESA CETP
O-Xylene	µg/m³	BLQ	BLQ
Bromoform	µg/m³	BLQ	BLQ
1,1,2,2-Tetrachloroethane	µg/m³	BLQ	BLQ
4-Chlorotoluene	µg/m³	BLQ	BLQ
1,1-Dichloroethylene	µg/m³	BLQ	BLQ
Trans-1,2-Dichloroethylene	µg/m³	BLQ	BLQ
1,1-Dichloroethane	µg/m³	BLQ	BLQ
CIS-1,2-Dichloroethylene	µg/m³	BLQ	BLQ
Bromochloromethane	µg/m³	BLQ	BLQ
1,1,1-Trichloroethane	µg/m³	BLQ	BLQ

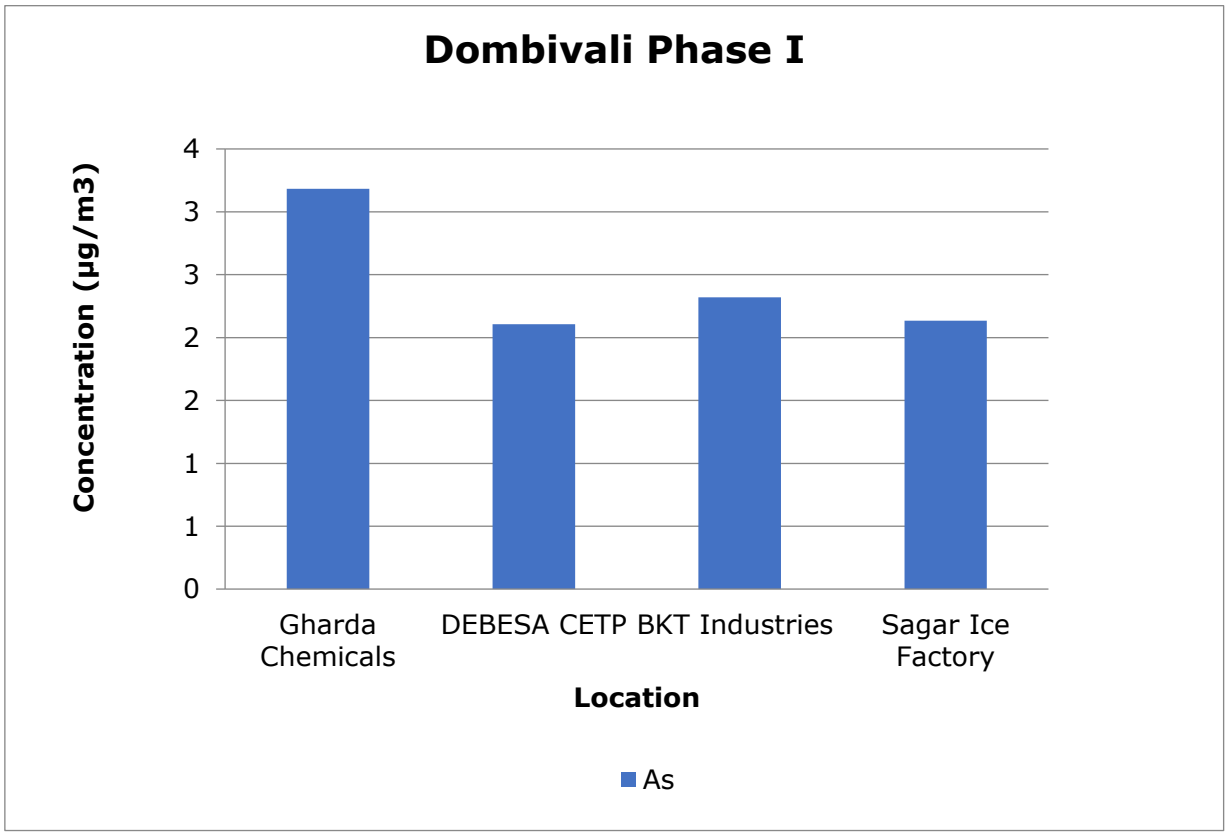
Graphs - Ambient Air Quality of MIDC Dombivali Phase I






Dombivali Phase I
Concentration (µg/m3)
4
3
2
Gharda Chemicals
DEBESA CETP
BKT Industries
Sagar Ice Factory
Location
C6H6


Dombivali Phase I
Concentration (µg/m3)
140
120
100
80
60
40
20
0
Gharda Chemicals
DEBESA CETP
BKT Industries
Sagar Ice Factory
Location
NH3


Dombivali Phase I
Concentration (µg/m3)
4
3
3
2
2
1
1
0
Gharda Chemicals
DEBESA CETP
BKT Industries
Sagar Ice Factory
Location
As

2. **MIDC Phase II:** In MIDC Phase II of Dombivali also all 4 locations monitored. Samples were taken in triplicate from 20th Jan to 24th Jan 2025. Concentration of all the parameters were found within the limits mentioned under NAAQS, 2009.

Table 5.5 Phase II - 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 main gate Dombivali Common Effluent Treatment Plant	19°12'17.37"N	73° 5'58.34"E	20.01.2025	22.01.2025	24.01.2025
2.	Behind Connectwell Industries Pvt. Ltd.	19°11'37.12"N	73° 5'39.80"E	20.01.2025	22.01.2025	24.01.2025
3.	Near main gate Metropolitan Eximchem Ltd.	19°12'7.89"N	73° 5'56.18"E	20.01.2025	22.01.2025	24.01.2025
4.	Near main gate Apartim Equipment	19°12'22.33"N	73° 6'1.31"E	20.01.2025	22.01.2025	24.01.2025

Table 5.6 Phase II - 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 main gate Dombivali Common Effluent Treatment Plant	19°12'17.37"N	73° 5'58.34"E	20.01.2025	22.01.2025	24.01.2025
2.	Behind Connectwell Industries Pvt. Ltd.	19°11'37.12"N	73° 5'39.80"E	20.01.2025	22.01.2025	24.01.2025

Fig. Geographical Locations of Ambient Air Quality Monitoring MIDC Dombivali Phase II

Fig. Geographical Locations of VOCs Monitoring MIDC Dombivali Phase II

Table 5.7 Phase II - Results of Ambient Air Quality Monitoring

Parameters	Unit	Results			
		Dombivali CETP	Connectwell Industries Pvt. Ltd.	Metropolitan Eximchem Ltd.	Apartim Equipment
Sulphur Dioxide (SO_2)	µg/m^3	7.17	88.60	BLQ	BLQ
Nitrogen Dioxide (NO_2)	µg/m^3	36.60	93.03	91.60	95.23
Particulate Matter (size less than 10 µm) or PM_{10}	µg/m^3	47	47	51	48
Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$	µg/m^3	13	13	13	13
Ozone (O_3)	µg/m^3	BLQ	BLQ	BLQ	BLQ
Lead (Pb)	µg/m^3	BLQ	BLQ	BLQ	BLQ
Carbon Monoxide (CO) (1 h)	mg/m^3	1.56	1.69	1.47	1.67
Carbon Monoxide (CO) (8 h)	mg/m^3	1.85	2.09	1.86	1.94
Ammonia (NH_3)	µg/m^3	123.00	51.35	64.20	76.90
Benzene (C_6H_6)	µg/m^3	2.67	2.69	2.43	2.66
Benzo (a) Pyrene (BaP) – particulate phase only	ng/m^3	BLQ	BLQ	BLQ	BLQ
Arsenic (As)	ng/m^3	3.58	3.03	4.90	2.42
Nickel (Ni)	ng/m^3	3.79	3.47	3.23	3.61

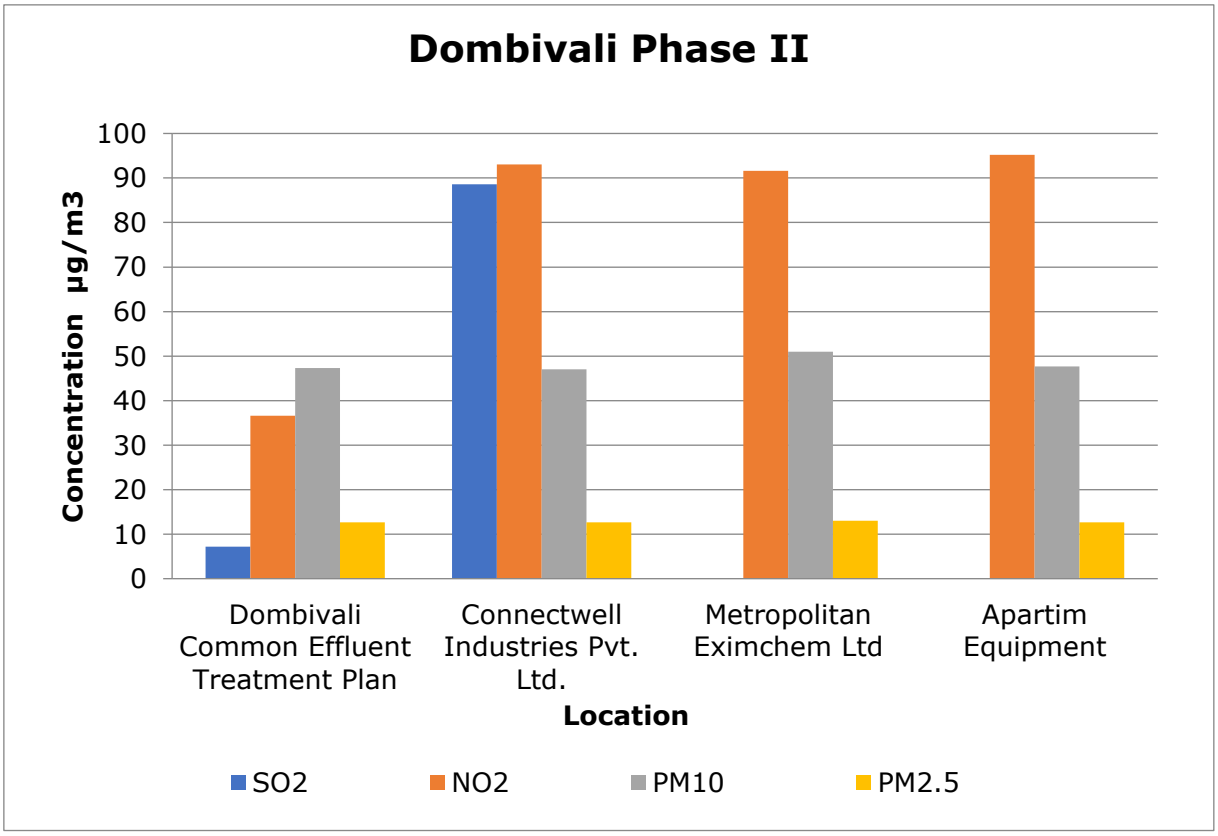
Table 5.8 Phase I - Volatile Organic Compounds (VOCs) in Ambient Air Results

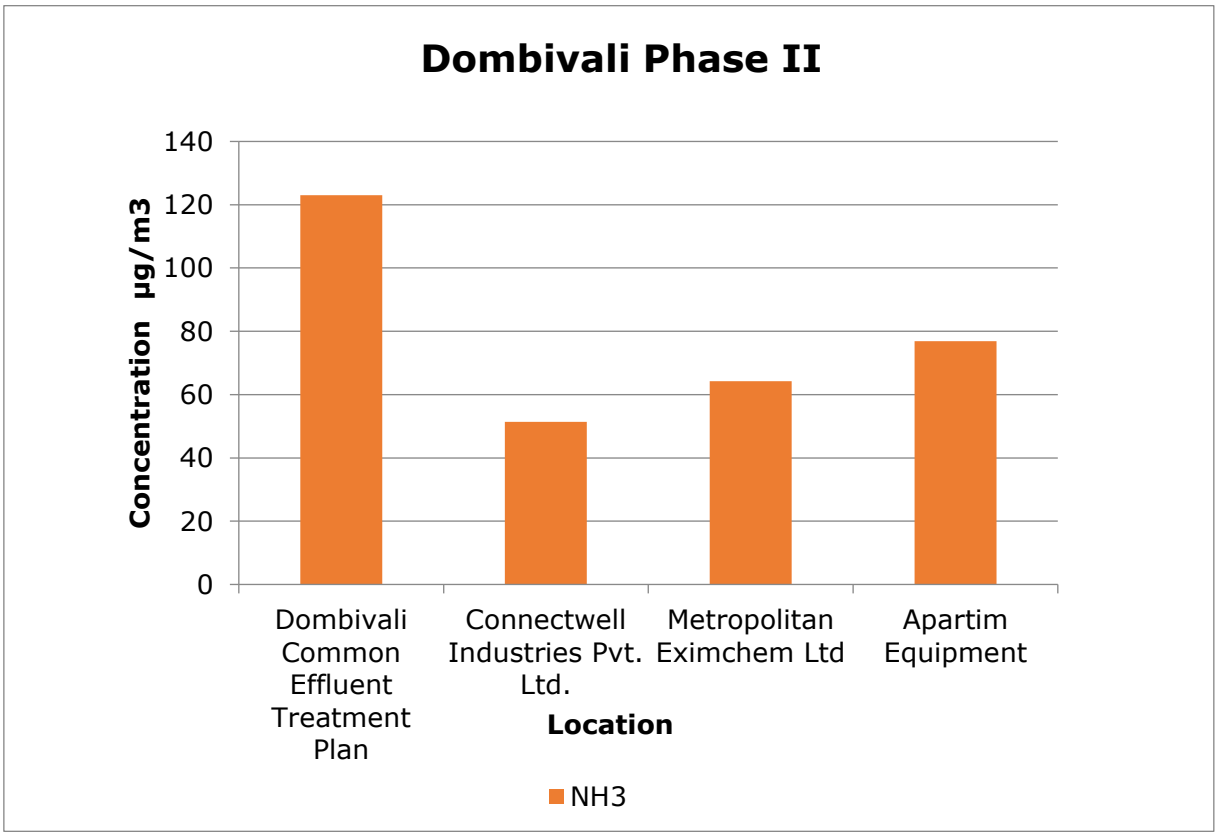
Parameters	Unit	Results	
		Dombivali CETP	Connect well Industries Pvt. Ltd.
Chloroform	µg/m³	1.10	0.87
Carbon Tetrachloride	µg/m³	BLQ	BLQ
Trichloroethylene	µg/m³	BLQ	BLQ
Bromodichloromethane	µg/m³	BLQ	BLQ
1,3-Dichloropropane	µg/m³	BLQ	BLQ
1,4-Dichlorobenzene	µg/m³	BLQ	BLQ
1,3-Dichlorobenzene	µg/m³	BLQ	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	BLQ

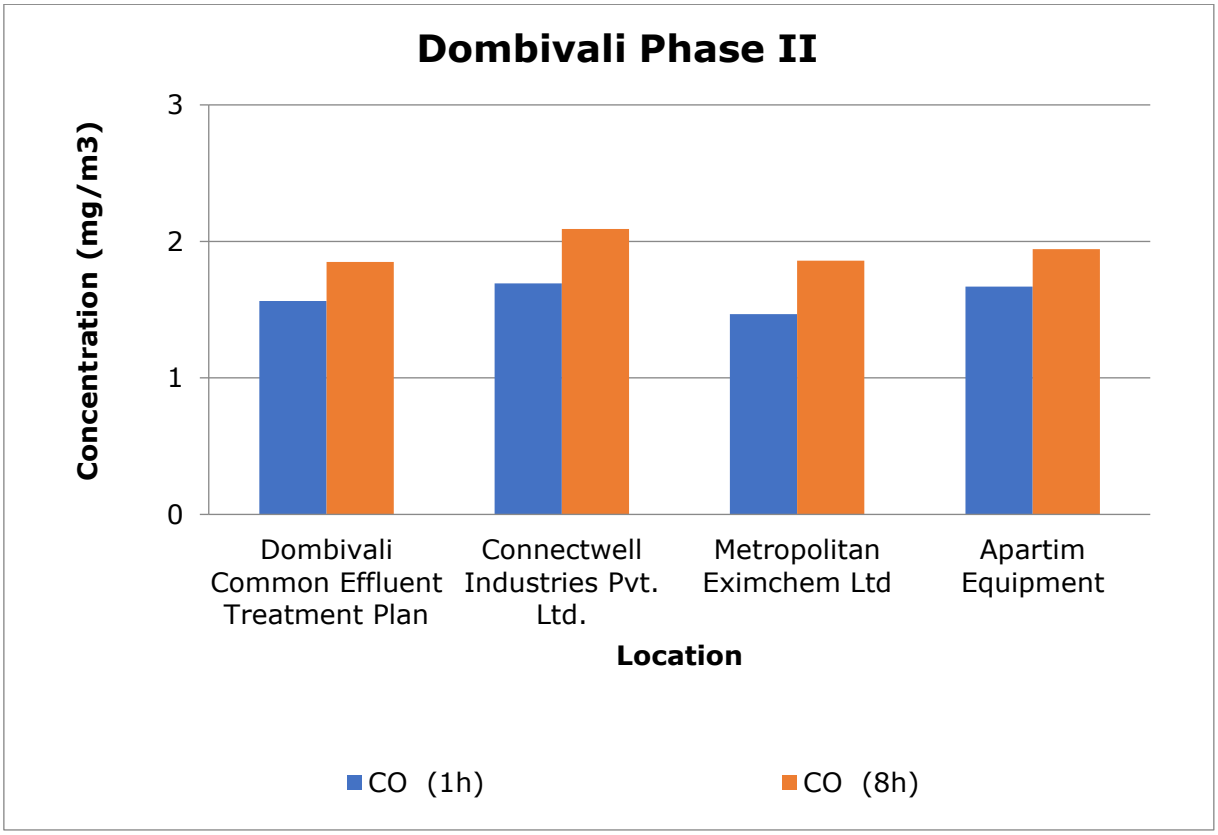
Parameters	Unit	Results	
		Dombivali CETP	Connect well Industries Pvt. Ltd.
1,2,4-Trimethylbenzene	µg/m³	BLQ	BLQ
2-Chlorotoluene	µg/m³	BLQ	BLQ
Tert-Butylbenzene	µg/m³	BLQ	BLQ
SEC-Butylbenzene	µg/m³	BLQ	BLQ
P-Isopropyltoluene	µg/m³	BLQ	BLQ
M-Xylene	µg/m³	BLQ	BLQ
P-Xylene	µg/m³	BLQ	BLQ
Styrene	µg/m³	BLQ	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	1.41	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	0.55	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	2.22	1.42

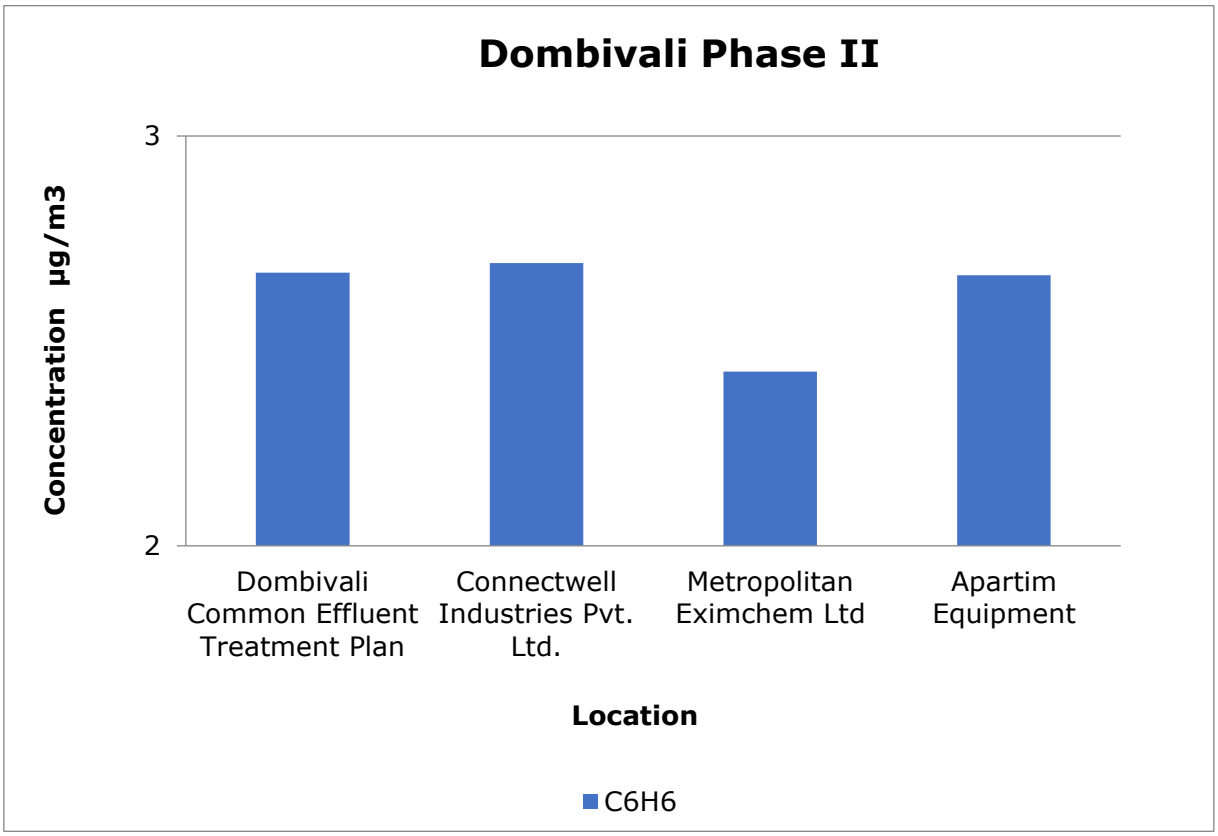
Parameters	Unit	Results	
		Dombivali CETP	Connect well Industries Pvt. Ltd.
O-Xylene	µg/m³	BLQ	BLQ
Bromoform	µg/m³	BLQ	BLQ
1,1,2,2-Tetrachloroethane	µg/m³	BLQ	BLQ
4-Chlorotoluene	µg/m³	BLQ	BLQ
1,1-Dichloroethylene	µg/m³	BLQ	BLQ
Trans-1,2-Dichloroethylene	µg/m³	BLQ	BLQ
1,1-Dichloroethane	µg/m³	BLQ	BLQ
CIS-1,2-Dichloroethylene	µg/m³	BLQ	BLQ
Bromochloromethane	µg/m³	BLQ	BLQ
1,1,1-Trichloroethane	µg/m³	BLQ	BLQ

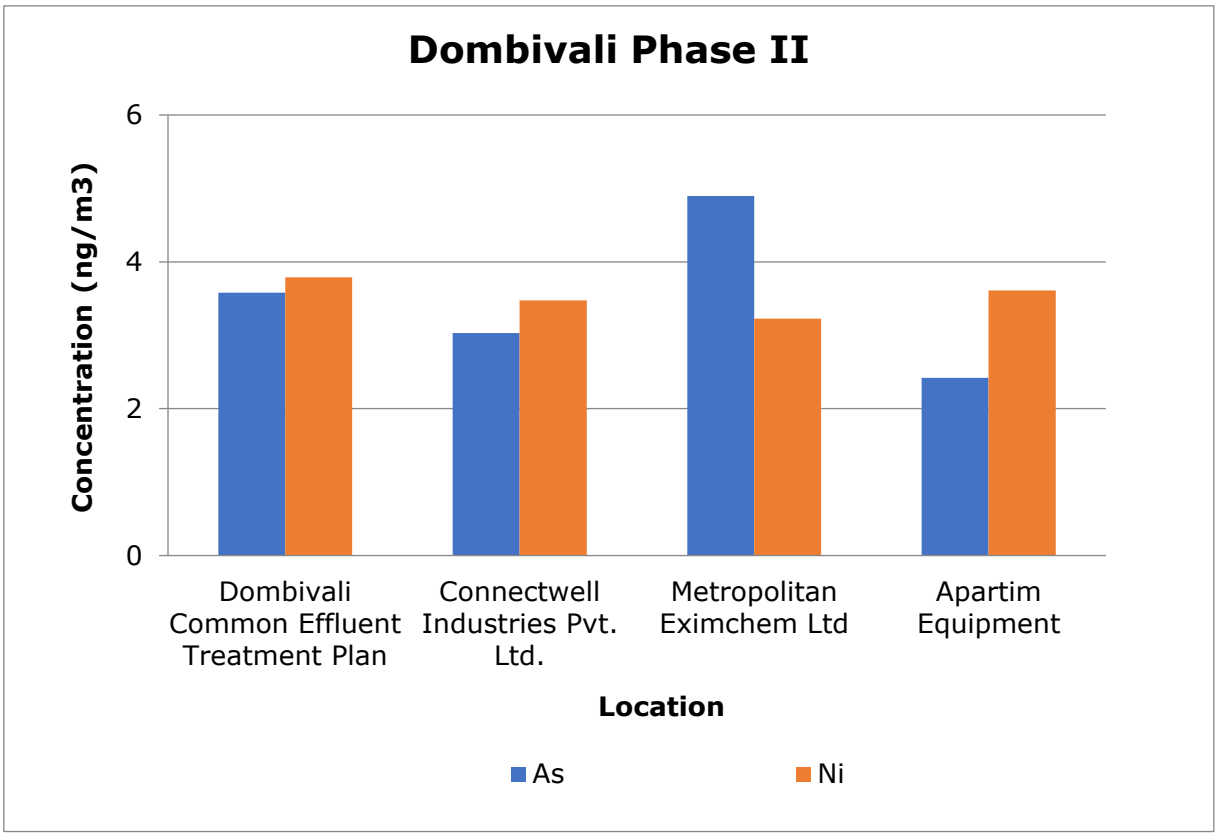
Graphs - Ambient Air Quality of MIDC Dombivali Phase II




Dombivali Phase II
140
120
100
80
60
40
20
0
Concentration µg/m3
Dombivali Common Effluent Treatment Plan
Connectwell Industries Pvt. Ltd.
Metropolitan Eximchem Ltd
Apartim Equipment
Location
NH3


Dombivali Phase II
3
2
1
0
Concentration (mg/m3)
Dombivali Common Effluent Treatment Plan
Connectwell Industries Pvt. Ltd.
Metropolitan Eximchem Ltd
Apartim Equipment
Location
CO (1h)
CO (8h)


Dombivali Phase II
Concentration µg/m3
3
2
Dombivali Common Effluent Treatment Plan
Connectwell Industries Pvt. Ltd.
Metropolitan Eximchem Ltd
Apartim Equipment
Location
C6H6


Dombivali Phase II
Concentration (ng/m3)
6
4
2
0
Dombivali Common Effluent Treatment Plan
Connectwell Industries Pvt. Ltd.
Metropolitan Eximchem Ltd
Apartim Equipment
Location
As
Ni

WATER ENVIRONMENT

6. Water Environment

For studying the water Environment of Dombivali area, surface water was collected from Nallah, Lake, and River and CETP outlet. A total of 12 samples were collected from MIDC Phase I and MIDC Phase II of Dombivali.

1. **MIDC Phase I:** Six surface water samples are collected from the Dombivali MIDC Phase I region.

- No floating matter was observed in any of the water samples. The smell was agreeable in all the samples except Thakurli Talav and DEBESA CETP water samples.
- pH and suspended solids are well within the limits of all the collected samples.
- BOD and COD exceeded in the samples of Khambal Pada and Gharda Chemicals.
- 100% survival was achieved in Fish Bioassay in the water sample collected from DEBESA CETP, Near Khambal Pada and Krishna Alkali Pvt. Ltd.
- Concentration of all other metals like Arsenic, Nickel, Copper, Hexavalent Chromium (Cr^{6+}) etc. are 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) are below the limit of quantification in all 6 samples collected.
- Organo Chlorine Pesticides are also below the limit of quantification (BLQ) in all 6 samples collected.

Table 6.1 Phase I – 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.	Drain Flowing from DEBESA CETP	19°12'59.98"N	73°6'21.74"E	20.01.2025	22.01.2025	24.01.2025
2.	Near Khambal Pada	19°13'49.19"N	73°6'19.11"E	20.01.2025	22.01.2025	24.01.2025
3.	Thakurli Talav	19°13'19.42"N	73°5'57.92"E	20.01.2025	22.01.2025	24.01.2025
4.	Storm Water DEBESA CETP Nallah	19°12'58.47"N	73°6'56.60"E	20.01.2025	22.01.2025	24.01.2025

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
5.	Nallah nearby Gharda Chemical Ltd.	19°13'2.87"N	73°6'44.41"E	20.01.2025	22.01.2025	24.01.2025
6.	Nallah nearby Krishna Alkali Pvt. Ltd.	19°13'1.18"N	73°6'38.89"E	20.01.2025	22.01.2025	24.01.2025

Fig. Geographical Locations of Surface Water Sampling MIDC Dombivali Phase I

Table 6.2 Phase I – Results of Surface Water

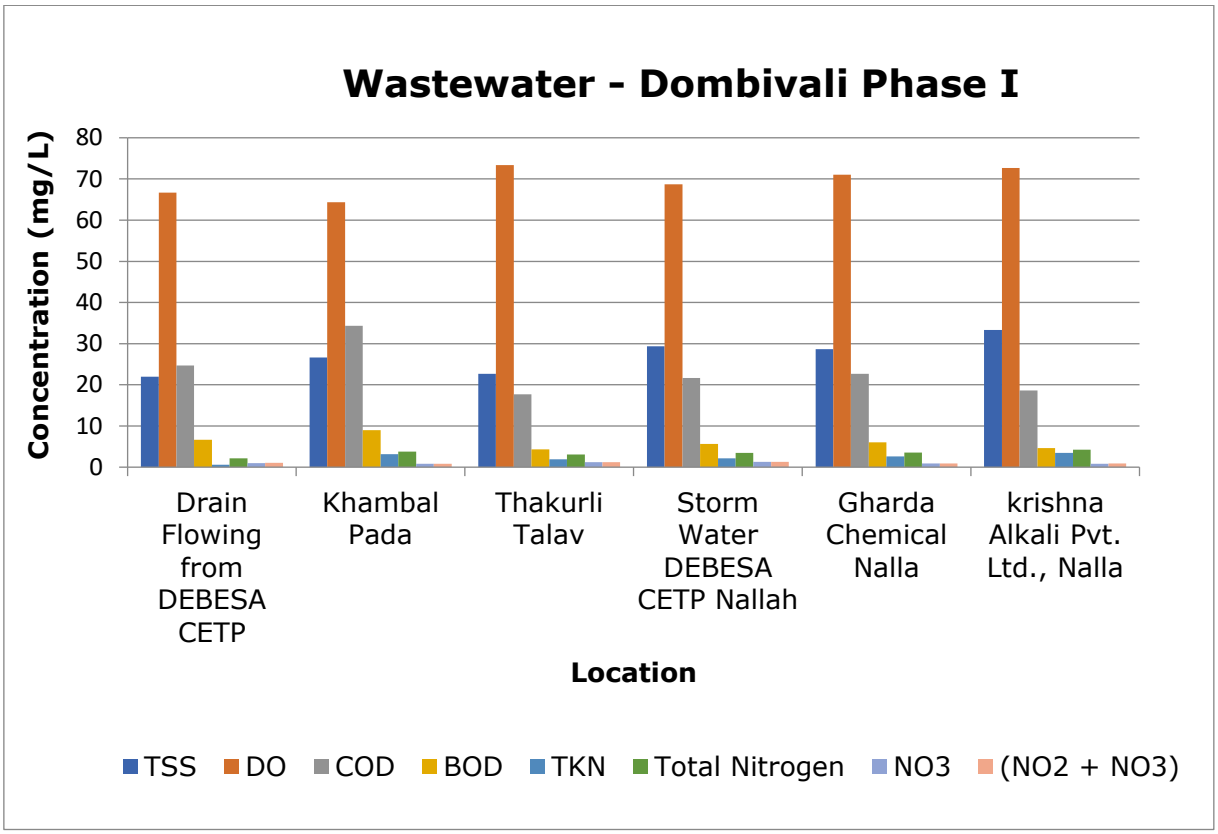
Parameters	Unit	Results					
		Drain Flowing from DEBESA CETP	Near Khambal Pada	Thakurli Talav	Storm Water DEBESA CETP Nallah	Gharda Chemical Ltd.	Krishna Alkali Pvt. Ltd.
Sanitary Survey	-	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood
General Appearance	-	No Floating Matter	No Floating Matter	No Floating Matter	No Floating Matter	No Floating Matter	No Floating Matter
Transparency	m	0.30	0.20	0.30	0.3	0.3	0.233333333

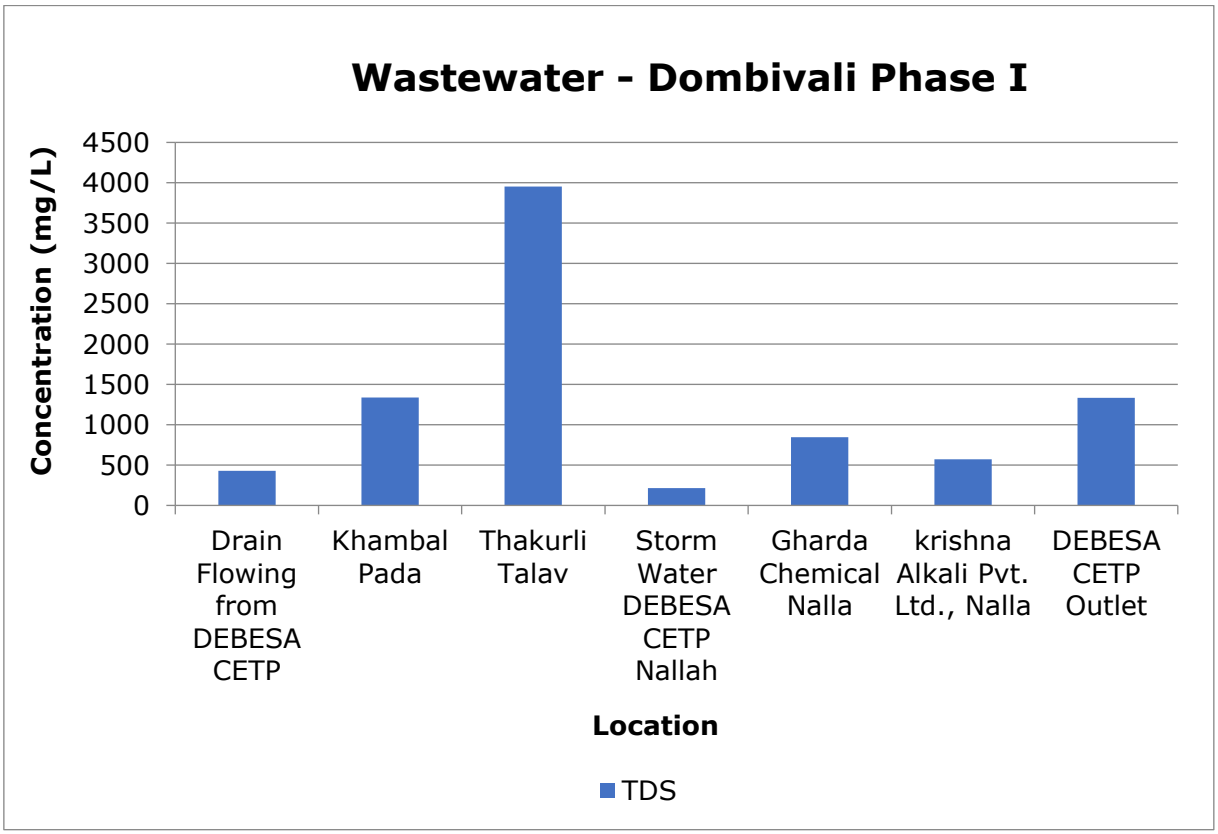
Parameters	Unit	Results					
		Drain Flowing from DEBESA CETP	**Near Khambal Pada**	**Thakurli Talav**	**Storm Water DEBESA CETP Nallah**	**Gharda Chemical Ltd.**	**Krishna Alkali Pvt. Ltd.**
Temperature	°C	27	26	29	28	29	29
Colour	Hazen	1	1	2	1	1	1
Smell	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
pH	-	7.79	7.62	7.98	7.69	7.43	7.85
Oil & Grease	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Suspended Solids	mg/L	22.00	26.67	22.67	29.33	28.67	33.33
Total Dissolved Solids	mg/L	149	191	305	237	197	202
Dissolved Oxygen (% Saturation)	%	66.67	64.33	73.33	68.67	71.00	72.67
Chemical Oxygen Demand	mg/L	25	34	18	22	23	19
Biochemical Oxygen Demand (3 days,27°C)	mg/L	7	9	4	6	6	5
Electrical Conductivity (at 25 °C)	µmho/ cm	265	342	545	424	352	361
Nitrite Nitrogen (as NO_2)	mg/L	0.04	0.02	BLQ	BLQ	0.03	0.04
Nitrate Nitrogen (as NO_3)	mg/L	1.02	0.79	1.19	1.27	0.92	0.85
(NO_2 + NO_3)-Nitrogen	mg/L	1.04	0.80	1.19	1.27	0.94	0.88
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	0.33	0.32	0.47	0.34	0.34	0.33
Sulphide (as H_2S)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	0.18	0.10	0.56	BLQ	BLQ	BLQ
Sodium Adsorption Ratio	-	0.86	0.94	0.75	0.66	1.15	0.93
Total Coliforms	MPN Index/ 100 ml	676	3277	840	148	1082	181

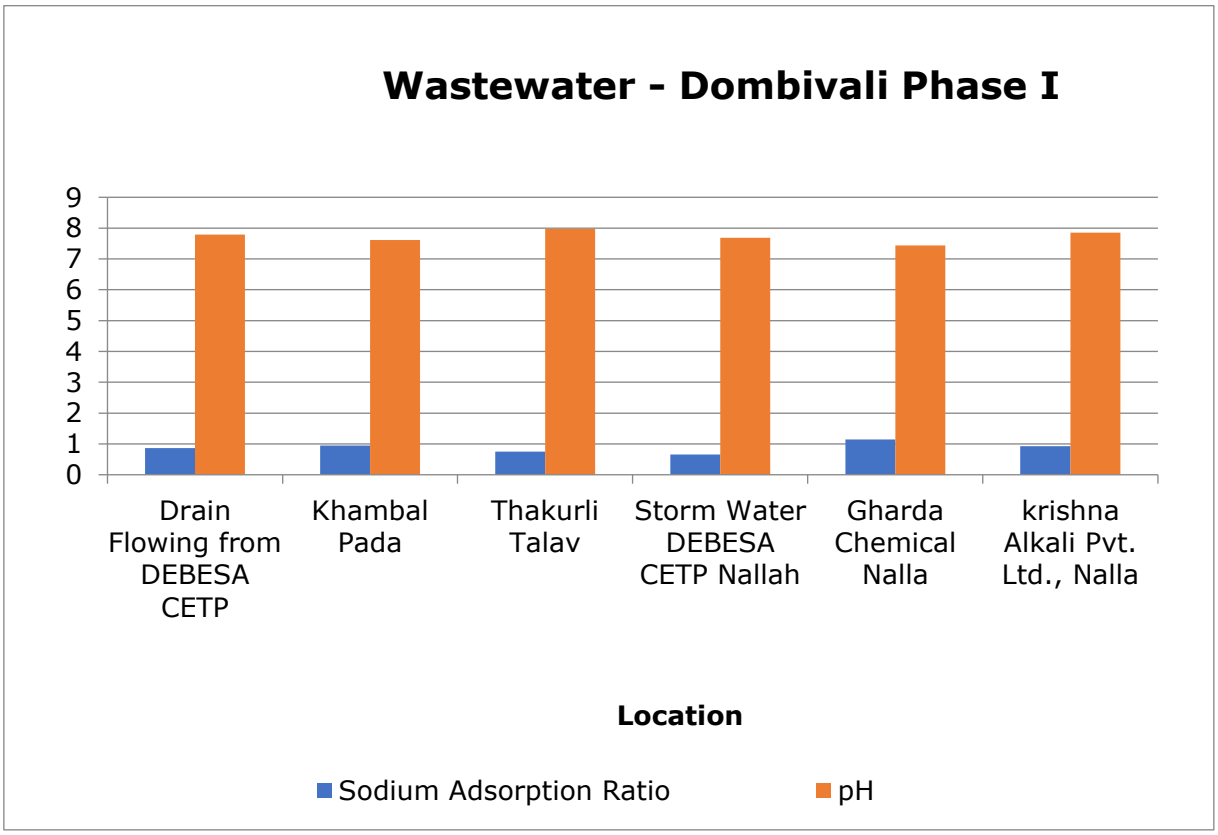
Parameters	Unit	Results					
		Drain Flowing from DEBESA CETP	Near Khambal Pada	Thakurli Talav	Storm Water DEBESA CETP Nallah	Gharda Chemical Ltd.	Krishna Alkali Pvt. Ltd.
Faecal Coliforms	MPN Index/ 100 ml	181	196	814	145	629	205
Total Phosphate (as P)	mg/L	0.26	0.36	0.45	0.16	BLQ	BLQ
Total Kjeldahl Nitrogen (as N)	mg/L	0.58	3.17	1.91	2.15	2.64	3.45
Total Ammonia (NH_4+NH_3)-Nitrogen	mg/L	0.20	0.32	0.12	0.10	0.27	0.25
Total Nitrogen	mg/L	2.16	3.78	3.09	3.44	3.56	4.21
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	0.00	BLQ	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	0.11	0.08	0.15	0.10	0.09	0.10
Nickel (as Ni)	mg/L	0.01	0.01	0.01	0.01	0.01	0.01
Copper (as Cu)	mg/L	0.08	0.03	0.05	BLQ	0.05	0.03
Hexavalent Chromium (as Cr^{6+})	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	0.02	0.02	0.03	0.02	0.02	0.02
Total Arsenic (as As)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Lead (as Pb)	mg/L	BLQ	0.02	BLQ	BLQ	BLQ	0.01
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	0.05	0.10	0.09	0.10	0.09	0.12

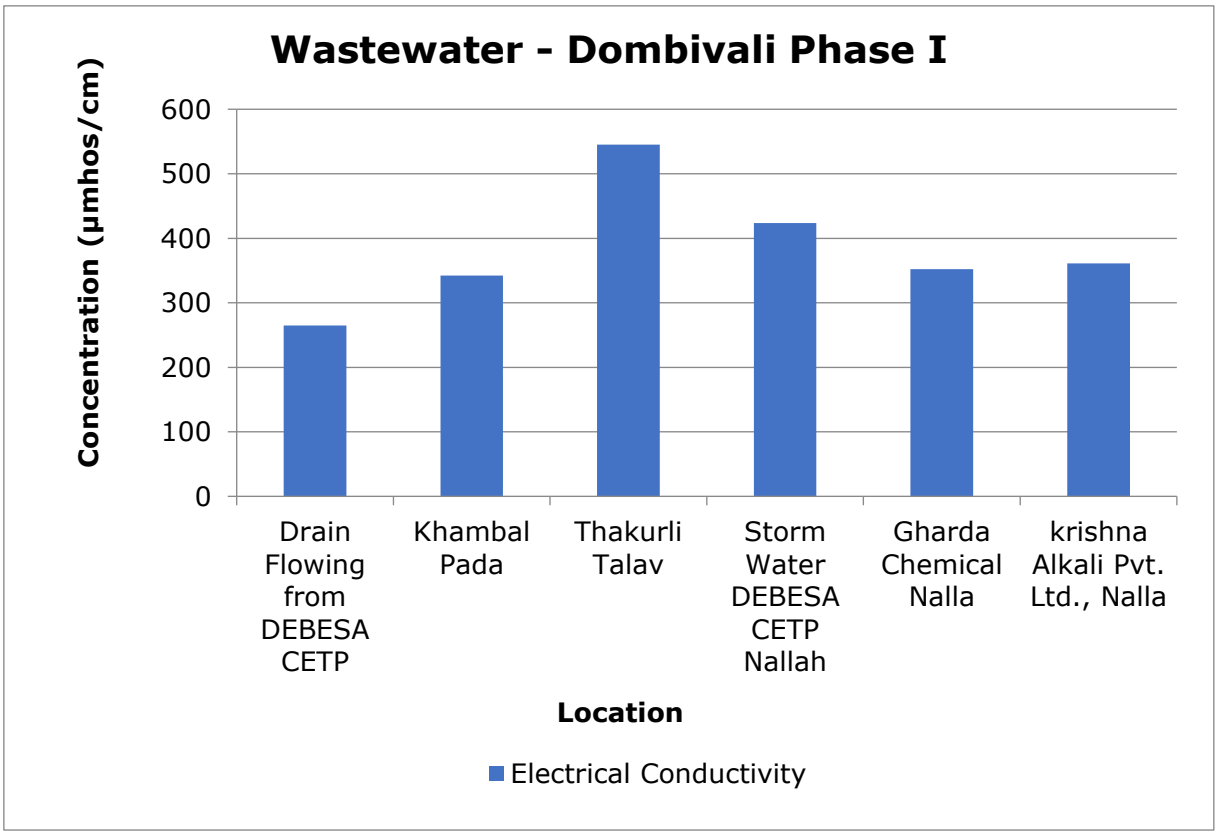
Parameters	Unit	Results					
		Drain Flowing from DEBESA CETP	Near Khambal Pada	Thakurli Talav	Storm Water DEBESA CETP Nallah	Gharda Chemical Ltd.	Krishna Alkali Pvt. Ltd.
Iron (as Fe)	mg/L	0.35	0.42	0.81	0.46	0.63	0.37
Vanadium (as V)	mg/L	0.04	BLQ	BLQ	BLQ	BLQ	BLQ
Selenium (as Se)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Boron (as B)	mg/L	0.56	1.23	BLQ	BLQ	0.83	0.96
Bioassay Test on fish	% survival	100	100	80	93	93	100

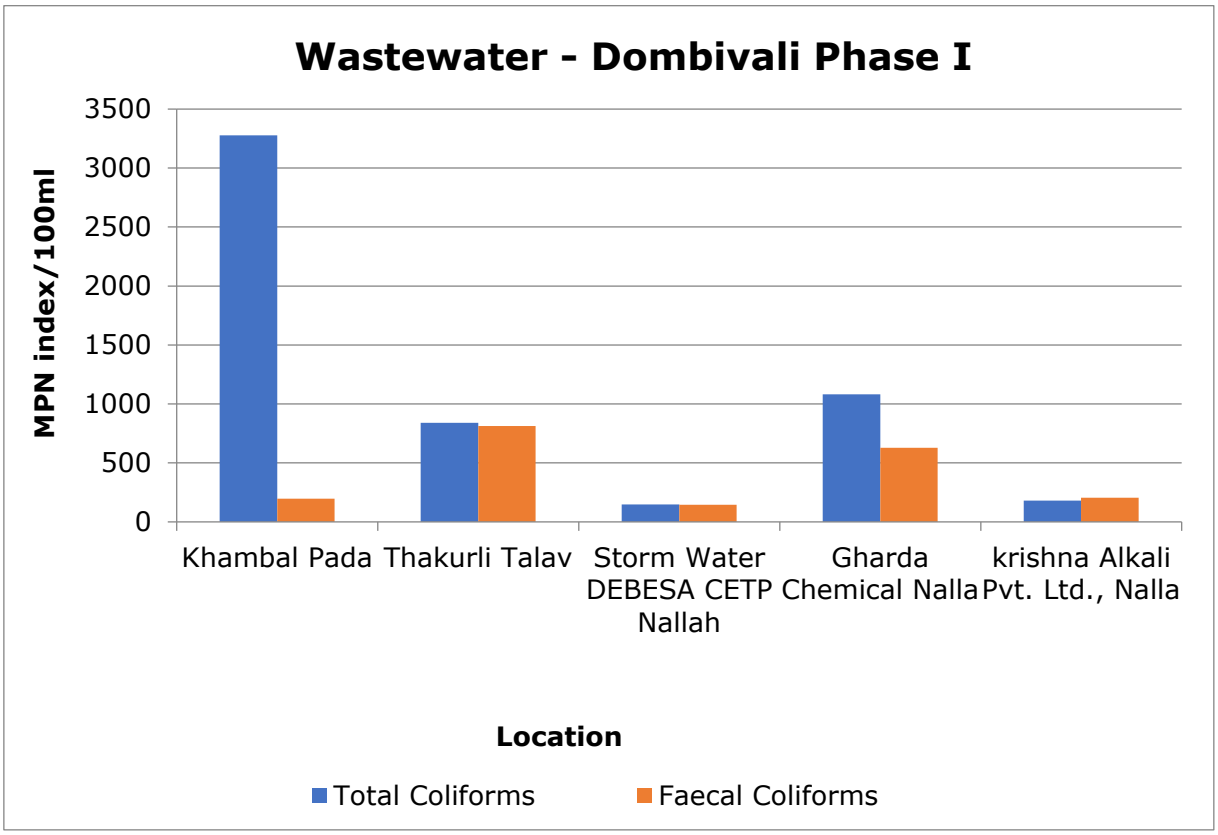
Graphs - Surface Water Quality of MIDC Dombivali Phase I

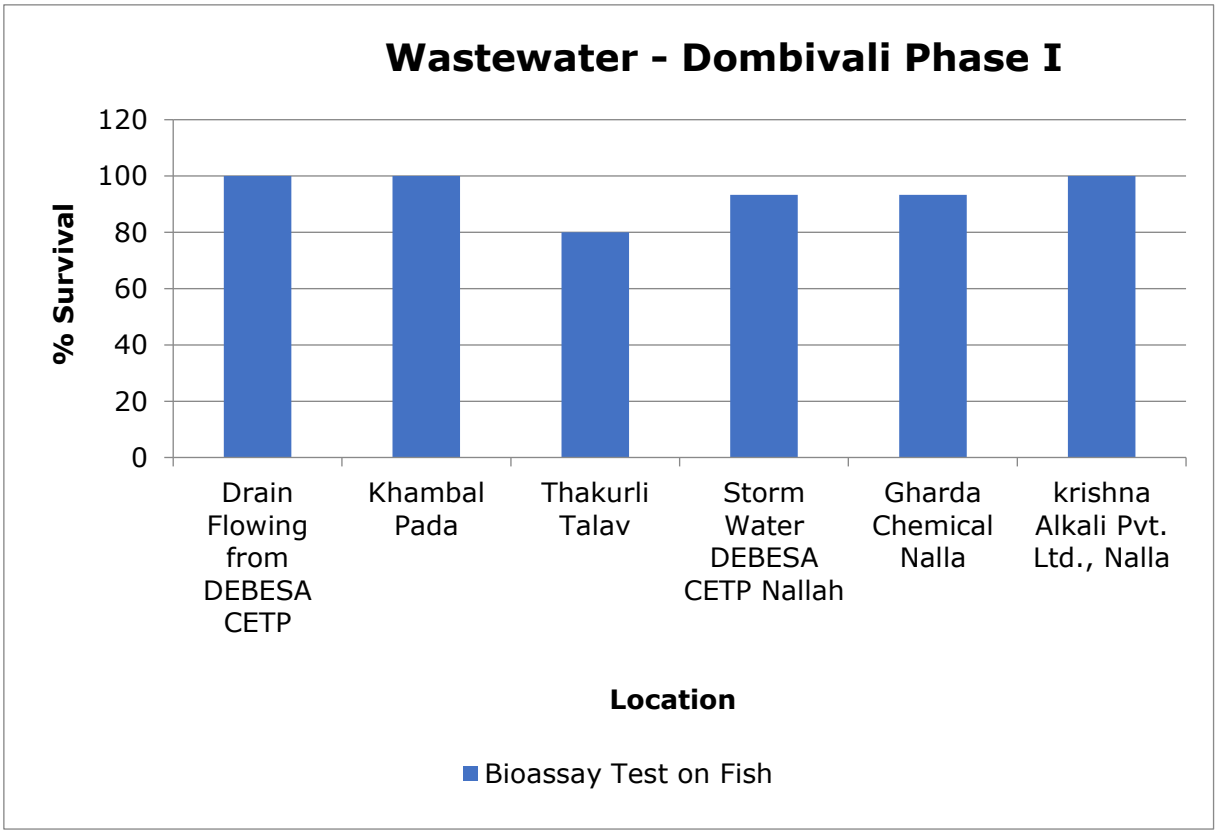





Wastewater - Dombivali Phase I
9
8
7
6
5
4
3
2
1
0
Drain Flowing from DEBESA CETP
Khambal Pada
Thakurli Talav
Storm Water DEBESA CETP Nallah
Gharda Chemical Nalla
krishna Alkali Pvt. Ltd., Nalla
Location
Sodium Adsorption Ratio
pH


Wastewater - Dombivali Phase I
Concentration (µmhos/cm)
600
500
400
300
200
100
0
Drain Flowing from DEBESA CETP
Khambal Pada
Thakurli Talav
Storm Water DEBESA CETP Nallah
Gharda Chemical Nalla
krishna Alkali Pvt. Ltd., Nalla
Location
Electrical Conductivity


Wastewater - Dombivali Phase I
MPN index/100ml
3500
3000
2500
2000
1500
1000
500
0
Khambal Pada
Thakurli Talav
Storm Water DEBESA CETP Nallah
Gharda Chemical Nalla
krishna Alkali Pvt. Ltd., Nalla
Location
Total Coliforms
Faecal Coliforms


Wastewater - Dombivali Phase I
% Survival
120
100
80
60
40
20
0
Drain Flowing from DEBESA CETP
Khambal Pada
Thakurli Talav
Storm Water DEBESA CETP Nallah
Gharda Chemical Nalla
krishna Alkali Pvt. Ltd., Nalla
Location
Bioassay Test on Fish

2. **MIDC Phase II:** Six surface water samples are collected from Dombivali MIDC Phase II.

- No floating matter was observed in any of the six samples, but the odour of five samples is observed as non-agreeable.
- pH and suspended solids of all six samples collected are observed less than the permissible limit.
- Electrical conductivity in CETP water sample is observed highest with 1962µmhos/cm.
- Concentration of BOD and COD exceeded the acceptable limit in all six samples collected.
- Concentration of Iron is found to exceed the acceptable limit in all the samples.
- 100% fish survival was achieved in only one water sample i.e. Tempo Naka during Fish Bioassay.
- All metals like Arsenic, Nickel, Copper, Hexavalent Chromium (Cr^{6+}) etc. are 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) are also observed below the limit of quantification (BLQ) in all the water samples.
- Organo Chlorine Pesticides are also determined as below the limit of quantification (BLQ) in all 6 samples collected.

Table 6.3 Phase II – 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.	Nearby Navjeevan Synthetics & Super Casting Nallah	19°11'34.57"N	73°5'20.35"E	20.01.2025	22.01.2025	24.01.2025
2.	Nallah nearby Metropolitan Exichem Ltd.	19°12'1.77"N	73°5'52.83"E	20.01.2025	22.01.2025	24.01.2025
3.	Nallah after DCETP	19°12'14.67"N	73°5'49.60"E	20.01.2025	22.01.2025	24.01.2025
4.	Nallah near Ramchandra Nagar	19°12'16.38"N	73°5'24.75"E	20.01.2025	22.01.2025	24.01.2025
5.	CETP Outlet	19°12'15.32"N	73°5'52.87"E	20.01.2025	22.01.2025	24.01.2025
6.	Tempo Naka Nallah	19°11'50.39"N	73°5'53.34"E	20.01.2025	22.01.2025	24.01.2025

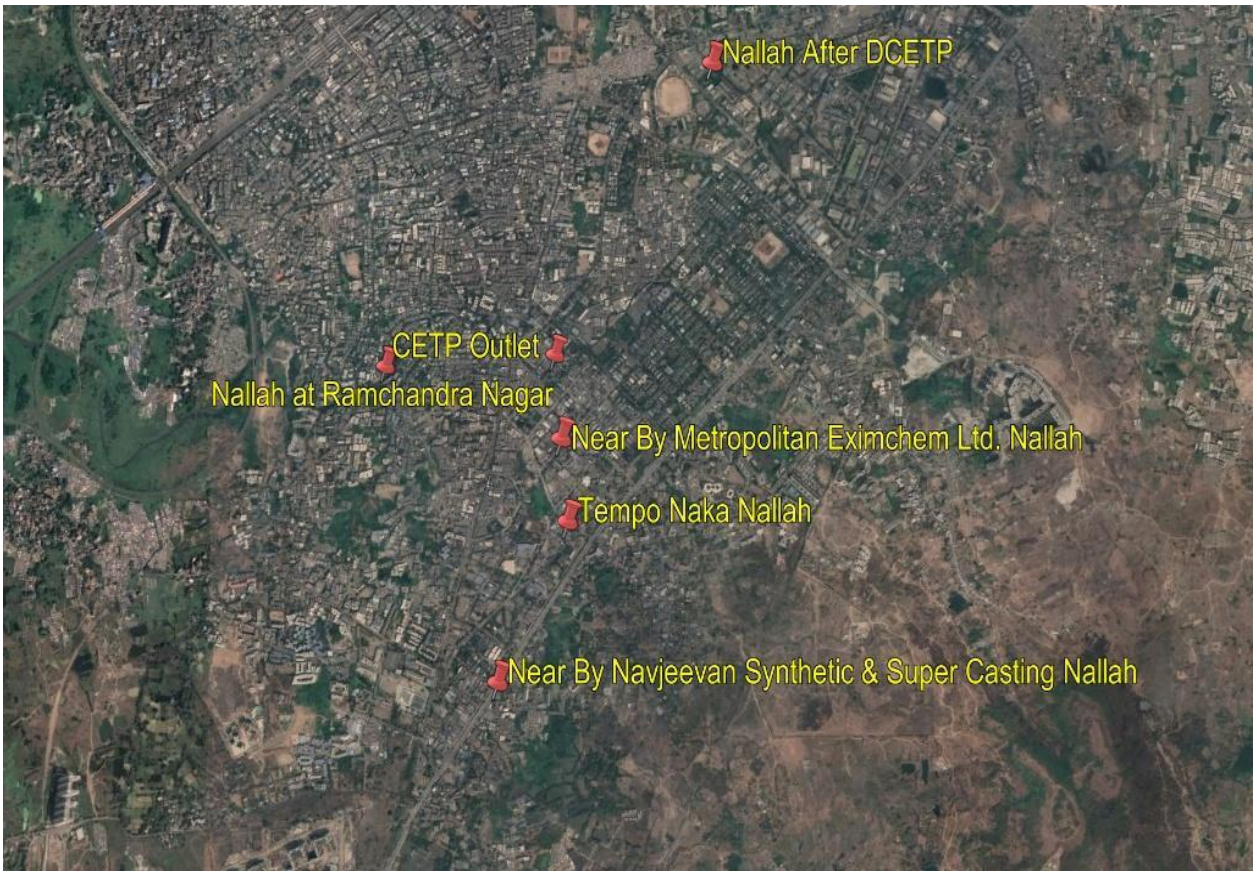


Fig. Geographical Locations of Surface Water Sampling MIDC Dombivali Phase II

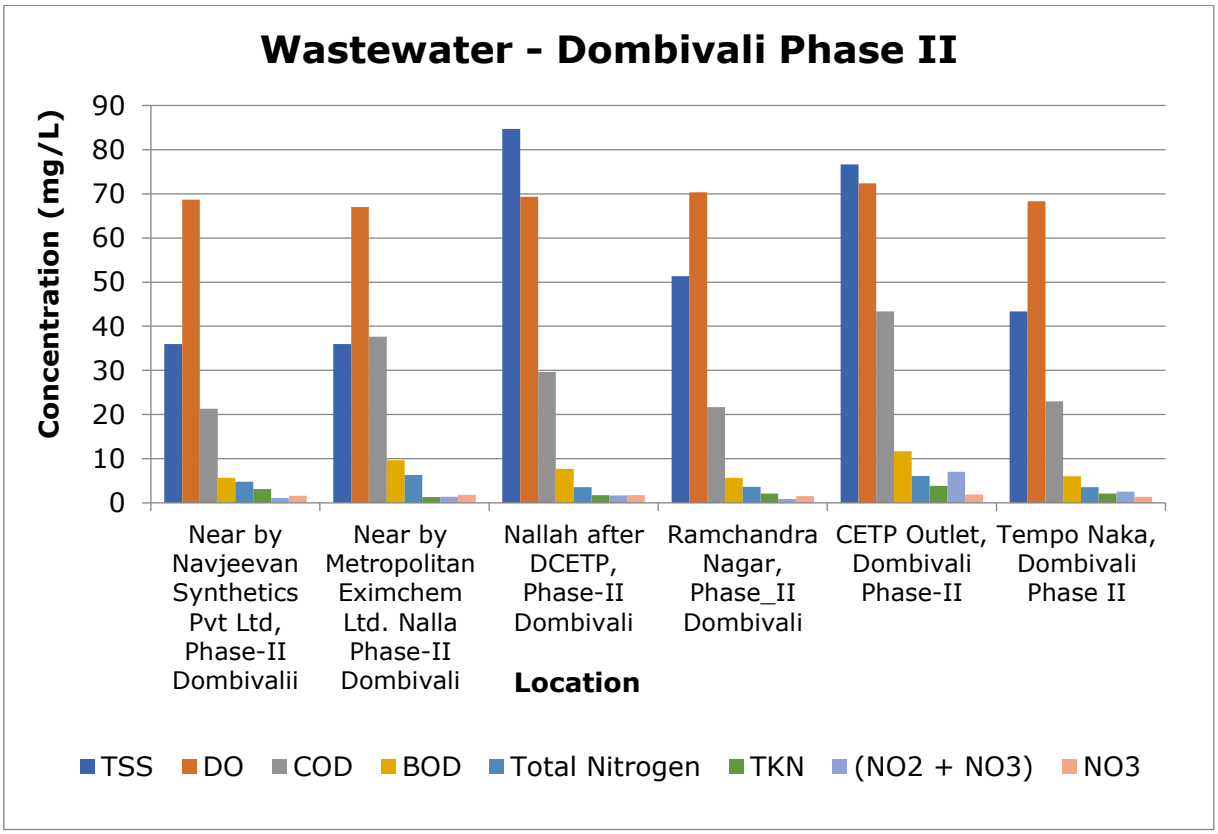
Table 6.4 Phase II – Results of Surface Water

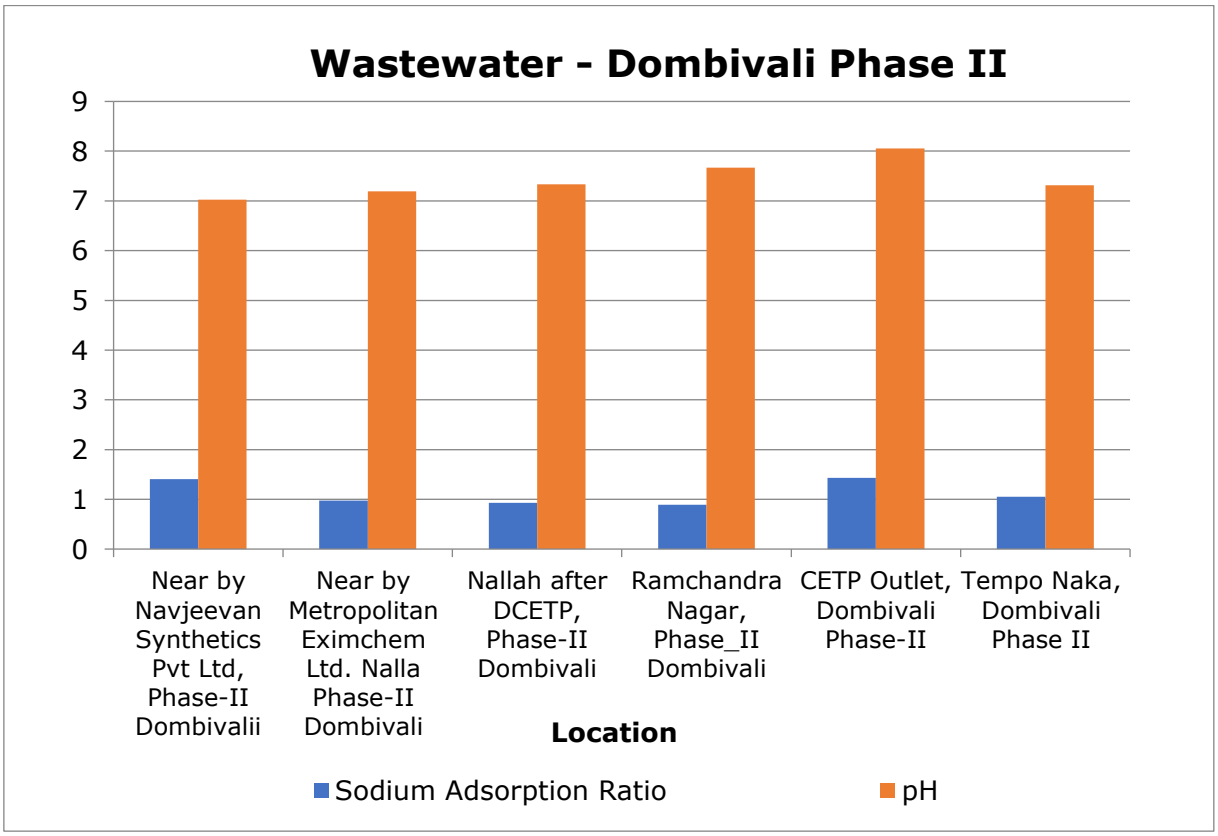
Parameters	Unit	Results					
		Navjeevan Synthetics Pvt Ltd	**Metropolitan Eximchem Ltd. Nallah**	**Nallah after DCETP**	**Ram chandra Nagar**	**CETP Outlet**	**Tempo Naka**
Sanitary Survey	-	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood
General Appearance	-	No Floating Matter	No Floating Matter	No Floating Matter	No Floating Matter	No Floating Matter	No Floating Matter
Transparency	m	0.33	0.2	0.10	0.433333333	0.3	0.4
Temperature	°C	29	29	29	29	28	29
Colour	Hazen	2	2	1	2	10	1
Smell	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
pH	-	7.023333333	7.193333333	7.34	7.67	8.05	7.32
Oil & Grease	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Suspended Solids	mg/L	36.00	36.00	84.67	51.33	76.67	43.33

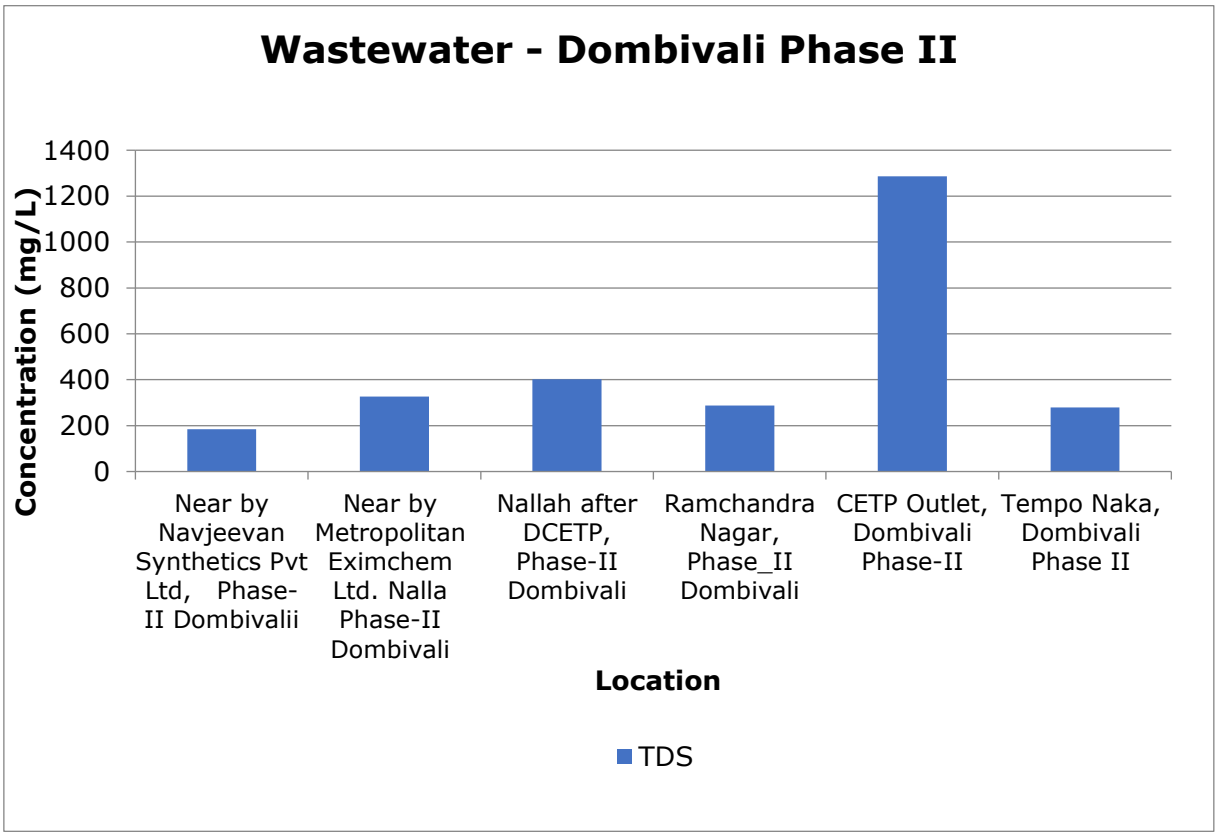
Parameters	Unit	Results					
		Navjeevan Synthetics Pvt Ltd	Metropolitan Eximchem Ltd. Nallah	Nallah after DCETP	Ram chandra Nagar	CETP Outlet	Tempo Naka
Total Dissolved Solids	mg/L	317	240	237	230	818	204
Dissolved Oxygen (% Saturation)	%	68.67	67.00	69.33	70.33	72.33	68.33
Chemical Oxygen Demand	mg/L	21	38	30	22	43	23
Biochemical Oxygen Demand (3 days,27°C)	mg/L	6	10	8	6	12	6
Electrical Conductivity (at 25 °C)	µmho/cm	565	429	423	411	1962	365
Nitrite Nitrogen (as NO_2)	mg/L	0.02	BLQ	0.06	0.02	0.08	0.13
Nitrate Nitrogen (as NO_3)	mg/L	1.60	1.84	1.77	1.52	1.90	1.36
(NO_2 + NO_3)-Nitrogen	mg/L	1.61	1.84	1.79	1.52	2.25	1.41
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	0.39	0.36	0.31	0.31	0.63	0.33
Sulphide (as H_2S)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	0.14	0.14	BLQ	BLQ	0.15	BLQ
Sodium Adsorption Ratio	-	1.40	0.97	0.93	0.89	1.43	1.05
Total Coliforms	MPN Index/100 ml	16445	767	31208	2349	16453	7882
Faecal Coliforms	MPN Index/100 ml	1662	652	18088	1341	11058	7458
Total Phosphate (as P)	mg/L	0.22	0.18	BLQ	0.12	0.36	0.23
Total Kjeldahl Nitrogen (as N)	mg/L	3.13	1.29	1.79	2.12	3.87	2.12

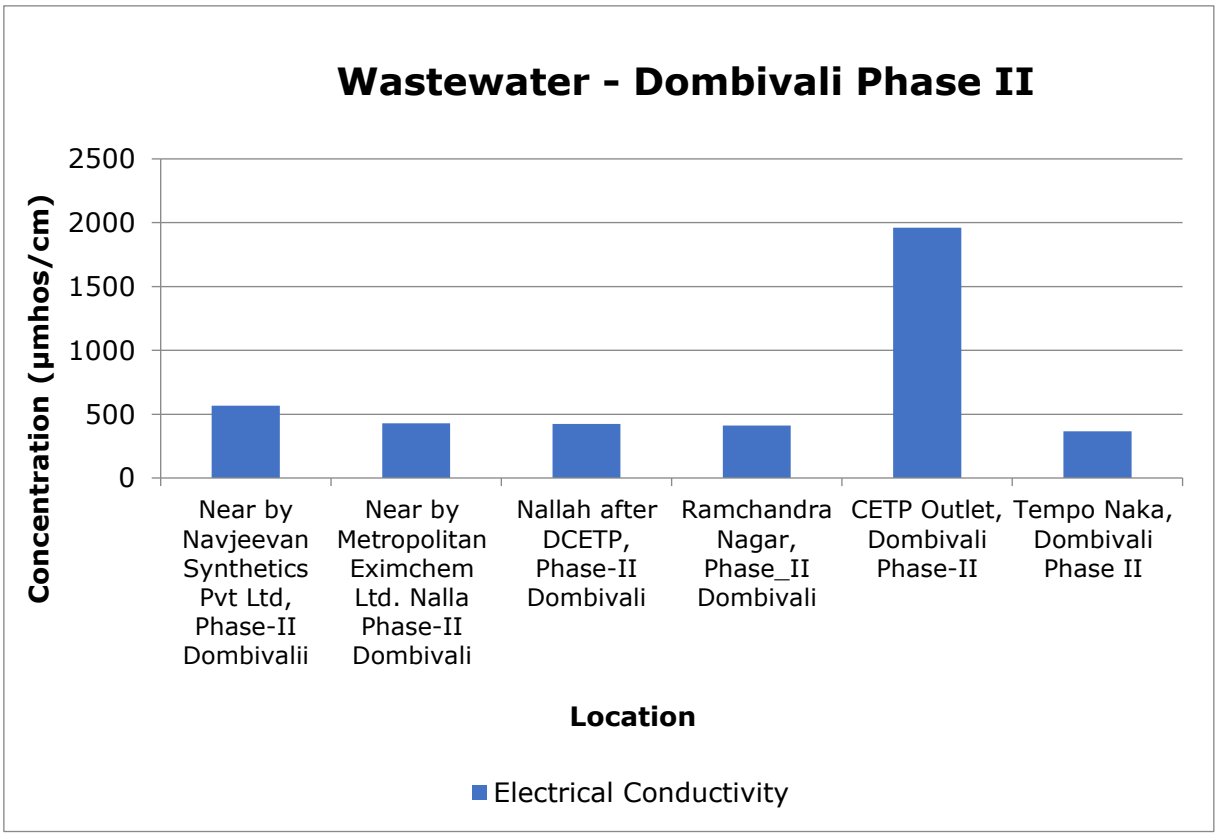
Parameters	Unit	Results					
		Navjeevan Synthetics Pvt Ltd	Metropolitan Eximchem Ltd. Nallah	Nallah after DCETP	Ram chandra Nagar	CETP Outlet	Tempo Naka
Total Ammonia (NH_4+NH_3)-Nitrogen	mg/L	0.36	0.24	1.21	0.28	1.22	0.30
Total Nitrogen	mg/L	4.78	6.33	3.59	3.65	6.12	3.54
Phenols (as C_6H_5OH)	mg/L	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	0.00	BLQ	0.00	0.00	0.00	0.00
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	0.43	0.14	0.09	0.10	0.12	0.10
Nickel (as Ni)	mg/L	0.02	0.02	0.03	0.02	0.03	0.02
Copper (as Cu)	mg/L	0.05	0.02	0.03	0.03	0.04	0.03
Hexavalent Chromium (as Cr^{6+})	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	0.05	0.03	0.04	0.04	0.04	0.03
Total Arsenic (as As)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Lead (as Pb)	mg/L	0.01	0.01	0.01	0.01	0.11	0.14
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	1.95	0.69	0.27	0.18	0.09	0.21
Iron (as Fe)	mg/L	0.67	0.49	1.94	1.19	0.57	0.59
Vanadium (as V)	mg/L	0.01	BLQ	0.01	0.01	0.01	BLQ
Selenium (as Se)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Boron (as B)	mg/L	BLQ	BLQ	BLQ	BLQ	0.24	BLQ
Bioassay Test on fish	% survival	100	100	97	97	80	90

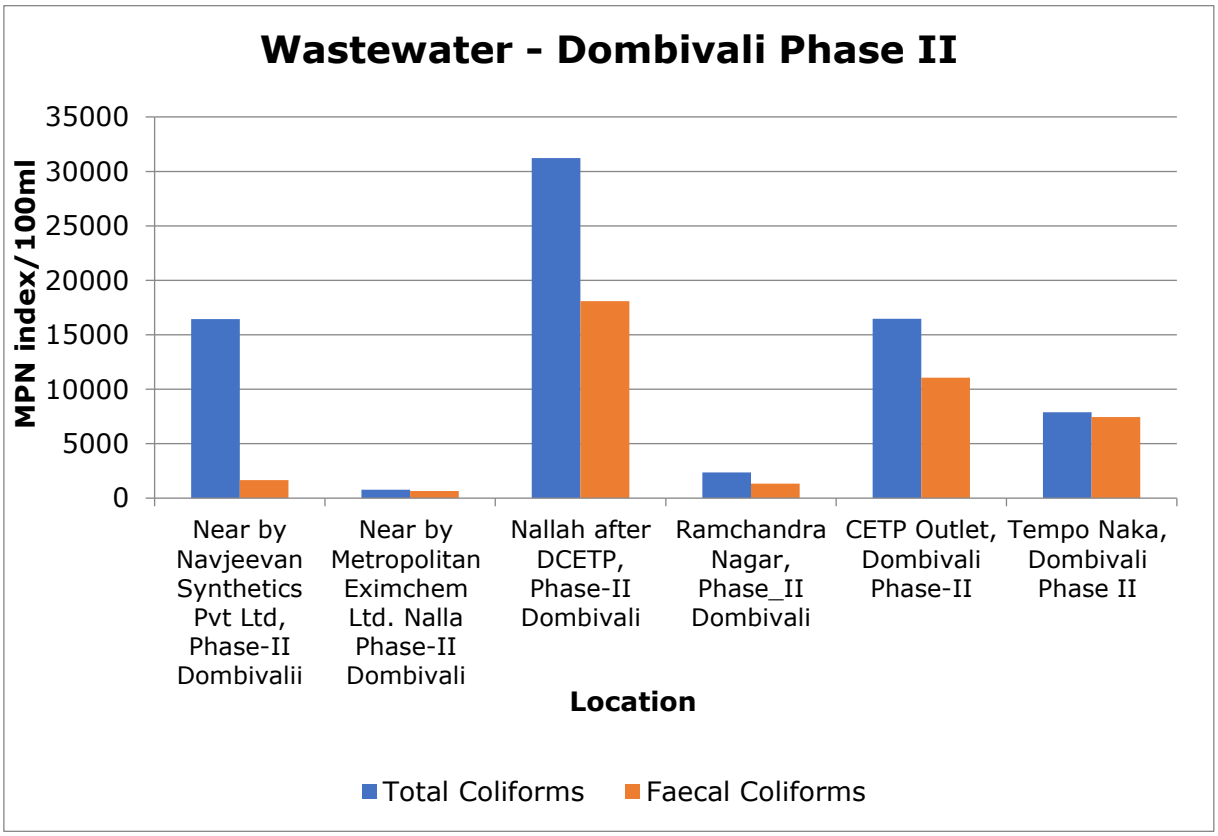
Graphs - Surface Water Quality of MIDC Dombivali Phase II

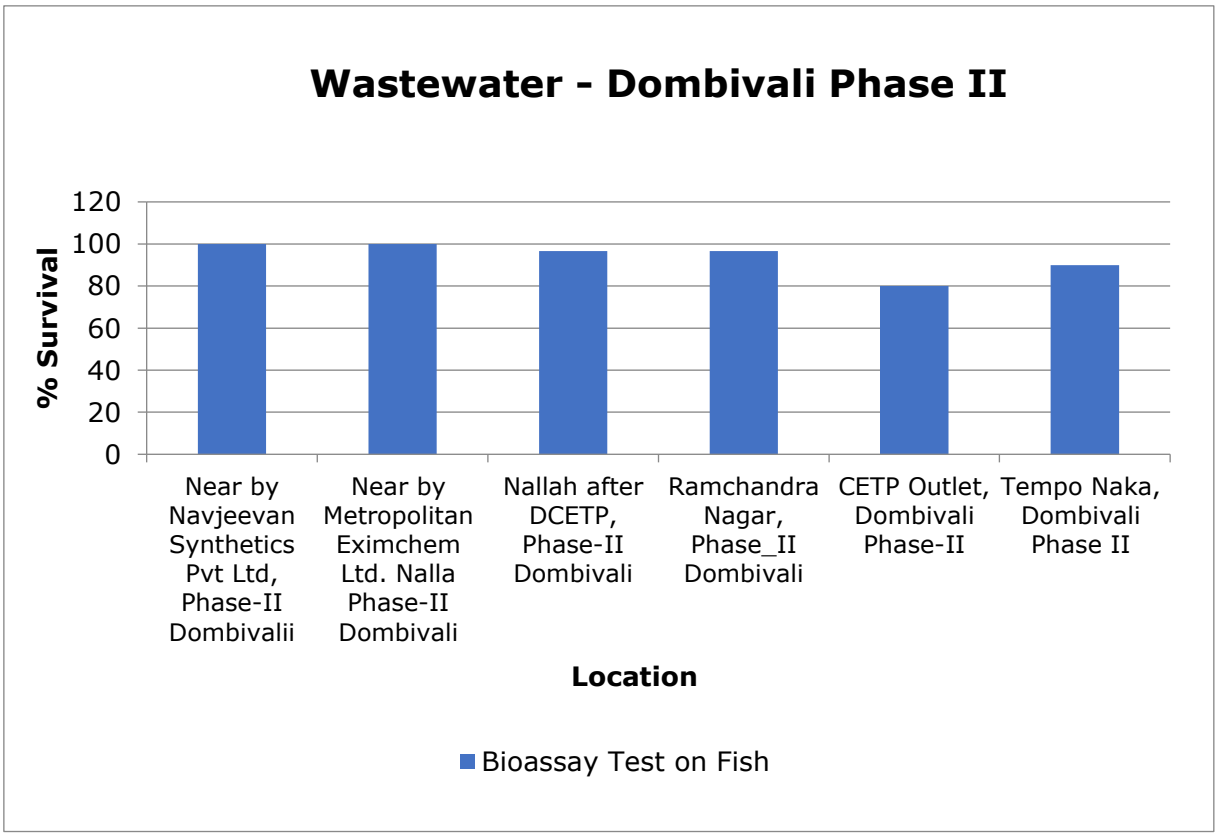





Wastewater - Dombivali Phase II
Concentration (mg/L)
1400
1200
1000
800
600
400
200
0
Near by Navjeevan Synthetics Pvt Ltd, Phase-II Dombivalii
Near by Metropolitan Eximchem Ltd. Nalla Phase-II Dombivali
Nallah after DCETP, Phase-II Dombivali
Ramchandra Nagar, Phase_II Dombivali
CETP Outlet, Dombivali Phase-II
Tempo Naka, Dombivali Phase II
Location
TDS


Wastewater - Dombivali Phase II
Concentration (µmhos/cm)
2500
2000
1500
1000
500
0
Near by Navjeevan Synthetics Pvt Ltd, Phase-II Dombivalii
Near by Metropolitan Eximchem Ltd. Nalla Phase-II Dombivali
Nallah after DCETP, Phase-II Dombivali
Ramchandra Nagar, Phase_II Dombivali
CETP Outlet, Dombivali Phase-II
Tempo Naka, Dombivali Phase II
Location
Electrical Conductivity


Wastewater - Dombivali Phase II
MPN index/100ml
35000
30000
25000
20000
15000
10000
5000
0
Near by Navjeevan Synthetics Pvt Ltd, Phase-II Dombivalii
Near by Metropolitan Eximchem Ltd. Nalla Phase-II Dombivali
Nallah after DCETP, Phase-II Dombivali
Ramchandra Nagar, Phase_II Dombivali
CETP Outlet, Dombivali Phase-II
Tempo Naka, Dombivali Phase II
Location
Total Coliforms
Faecal Coliforms


Wastewater - Dombivali Phase II
% Survival
120
100
80
60
40
20
0
Near by Navjeevan Synthetics Pvt Ltd, Phase-II Dombivalii
Near by Metropolitan Eximchem Ltd. Nalla Phase-II Dombivali
Nallah after DCETP, Phase-II Dombivali
Ramchandra Nagar, Phase_II Dombivali
CETP Outlet, Dombivali Phase-II
Tempo Naka, Dombivali Phase II
Location
Bioassay Test on Fish

LAND ENVIRONMENT

7. Land Environment

For studying the land Environment of Dombivali area, Groundwater was collected from Borewell in triplicates from 20th Jan to 24th Jan 2025. A total of 6 samples were collected from MIDC Phase I and MIDC Phase II of Dombivali region.

1. **MIDC Phase I:** Three groundwater samples were collected from MIDC Phase I of the Dombivali region.
   - All three water samples collected are acceptable in general appearance, colour, smell and transparency.
   - pH and suspended solids are observed well within the limits at all three samples collected.
   - Parameters like Total Residual Chlorine, Cyanide, Fluoride, Sulphide, Dissolved Phosphate, Total Ammonical Nitrogen and Phenolic compounds also meet the criteria as prescribed by CPCB.
   - 100% survival was achieved in Fish Bioassay Bore well at Horizon Hall water samples.
   - All metals like Arsenic, Nickel, Copper, Iron, Hexavalent Chromium (Cr^{6+}) etc. are observed either below limit of quantification or below their standard limits.
   - Polynuclear aromatic hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB) were found 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 Phase I – Details of Sampling Location of Groundwater

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Bore well opposite Kama Office	19°12'49.14"N	73°6'27.99"E	20.01.2025	22.01.2025	24.01.2025
2.	Bore well Near Mamata Hospital	19°12'27.36"N	73°6'15.12"E	20.01.2025	22.01.2025	24.01.2025
3.	Bore well at Horizon hall	19°11'30.01"N	73°5'31.82"E	20.01.2025	22.01.2025	24.01.2025

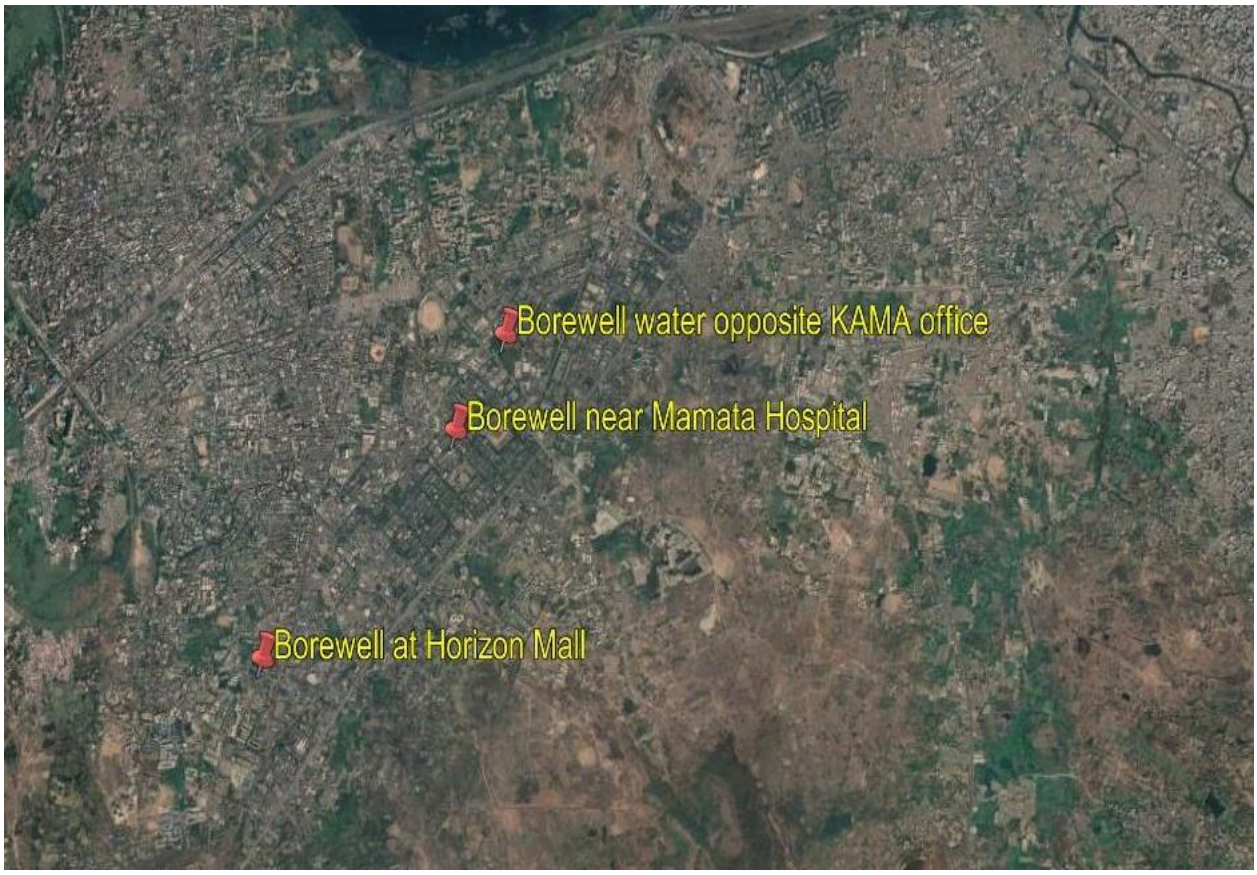


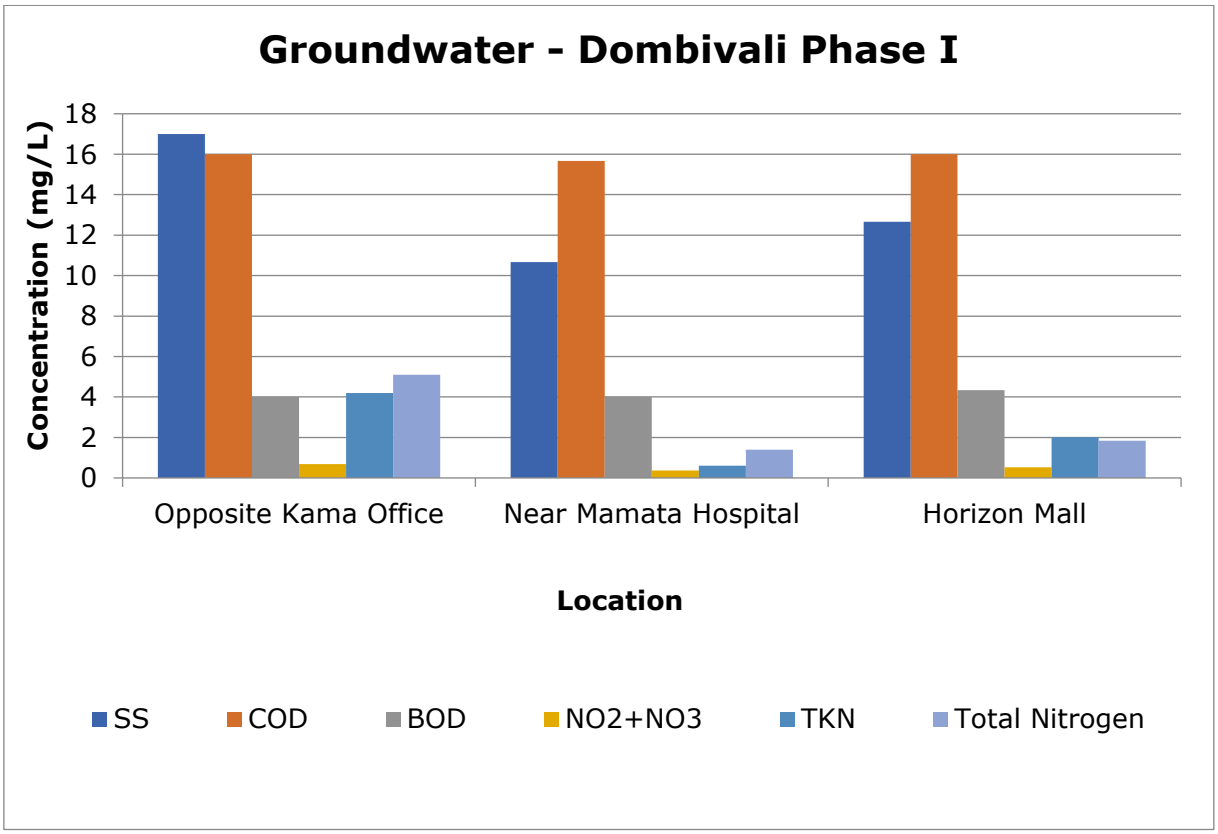
Fig. Geographical Locations of Groundwater Sampling MIDC Dombivali Phase I

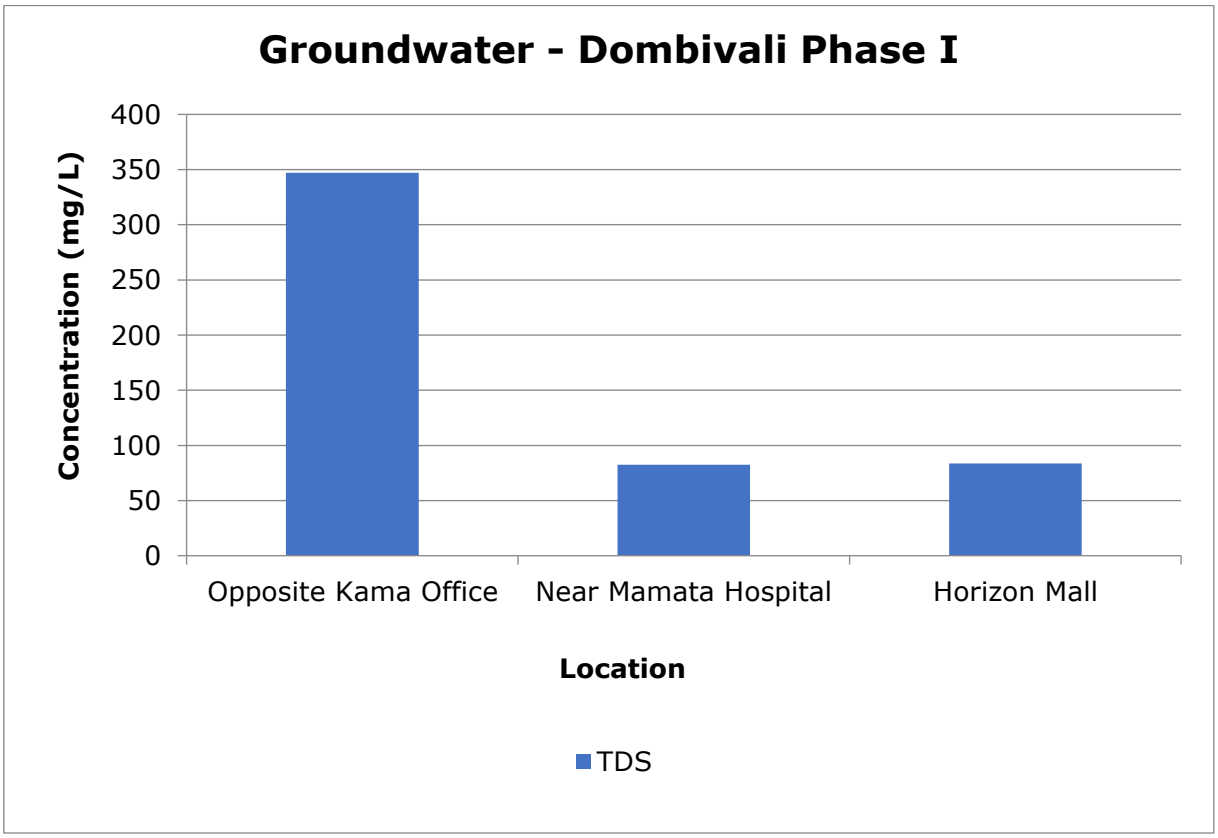
Table 7.2 Phase I – Results of Groundwater

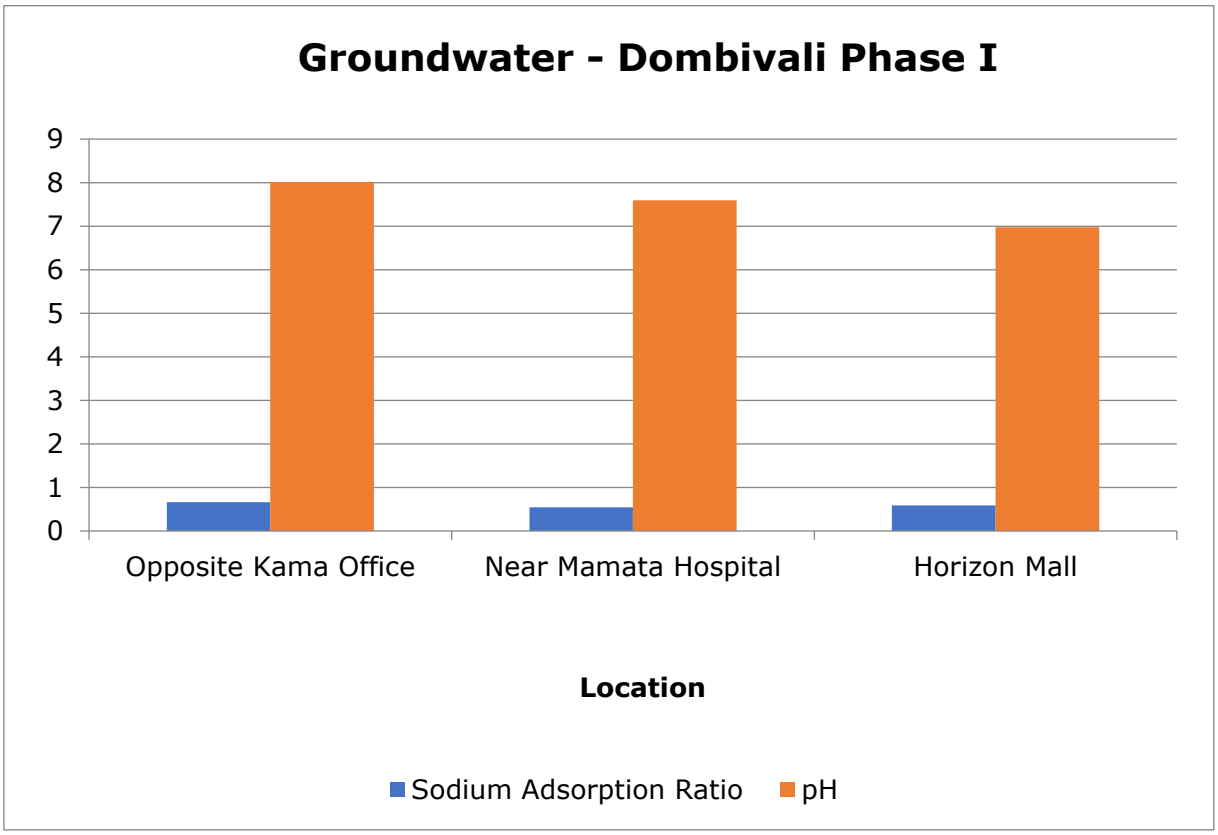
Parameters	Unit	Results		
		Bore well opposite Kama Office	**Bore well Near Mamata Hospital**	**Bore well at Horizon Hall**
Sanitary Survey	-	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood
General Appearance	-	No Floating Matter	No Floating Matter	No Floating Matter
Transparency	m	NA	NA	NA
Temperature	^oC	29	19	28
Colour	Hazen	1	1	1
Smell	-	Agreeable	Agreeable	Agreeable
pH	-	8.01	7.59	6.98
Oil & Grease	mg/L	BLQ	BLQ	BLQ
Suspended Solids	mg/L	17.00	10.67	12.67
Total Dissolved Solids	mg/L	347	82	84
Chemical Oxygen Demand	mg/L	NA	NA	NA
Biochemical Oxygen Demand (3 days,27^oC)	mg/L	16	16	16
Electrical Conductivity (at 25 ^oC)	µmho/cm	4	4	4
Nitrite Nitrogen (as NO_2)	mg/L	620	150	150
Nitrate Nitrogen (as NO_3)	mg/L	BLQ	0.02	BLQ
(NO_2 + NO_3)-Nitrogen	mg/L	0.69	0.36	0.53

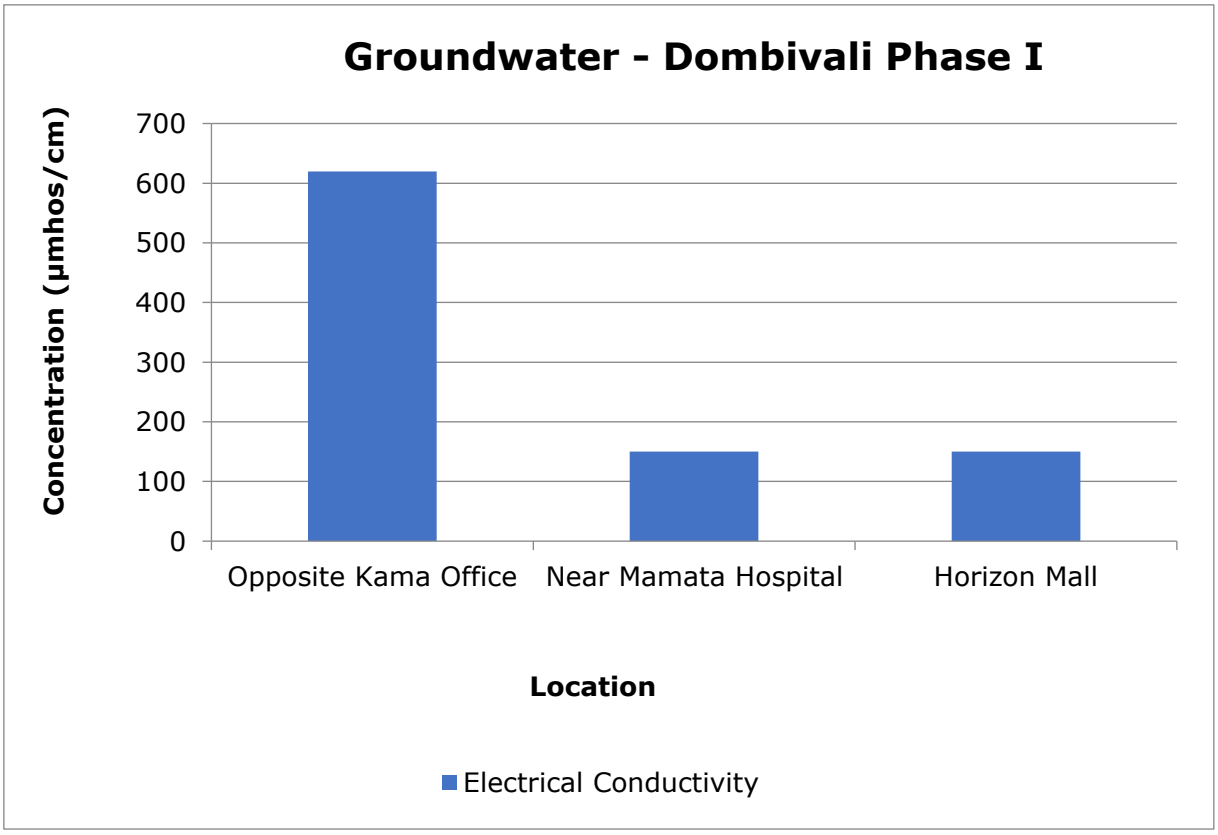
Parameters	Unit	Results		
		Bore well opposite Kama Office	Bore well Near Mamata Hospital	Bore well at Horizon Hall
Free Ammonia (as NH_3-N)	mg/L	BLQ	BLQ	BLQ
Total Residual Chlorine	mg/L	BLQ	BLQ	BLQ
Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ
Fluoride (as F)	mg/L	0.53	BLQ	BLQ
Sulphide (as H_2S)	mg/L	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	BLQ	BLQ	BLQ
Sodium Adsorption Ratio	-	0.66	0.55	0.59
Total Coliforms	MPN Index/ 100 ml	240	BLQ	240
Faecal Coliforms	MPN Index/ 100 ml	240	BLQ	79
Total Phosphate (as P)	mg/L	0.17	BLQ	BLQ
Total Kjeldahl Nitrogen (as N)	mg/L	4.20	0.60	2.01
Total Ammonia (NH_4+NH_3)-Nitrogen	mg/L	0.22	BLQ	BLQ
Total Nitrogen	mg/L	5.10	1.40	1.84
Phenols (as C_6H_5OH)	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	0.13	0.08
Nickel (as Ni)	mg/L	0.01	0.01	0.01
Copper (as Cu)	mg/L	0.02	BLQ	0.02
Hexavalent Chromium (as Cr^{6+})	mg/L	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	0.03	0.02	0.02
Total Arsenic (as As)	mg/L	BLQ	BLQ	BLQ
Lead (as Pb)	mg/L	BLQ	BLQ	0.01
Cadmium (as Cd)	mg/L	BLQ	BLQ	BLQ
Mercury (as Hg)	mg/L	BLQ	BLQ	BLQ
Manganese (as Mn)	mg/L	0.12	0.03	0.05
Iron (as Fe)	mg/L	0.28	0.22	0.48
Vanadium (as V)	mg/L	BLQ	BLQ	BLQ
Selenium (as Se)	mg/L	BLQ	BLQ	BLQ
Boron (as B)	mg/L	BLQ	BLQ	1.10
Bioassay Test on fish	% survival	97	93	100

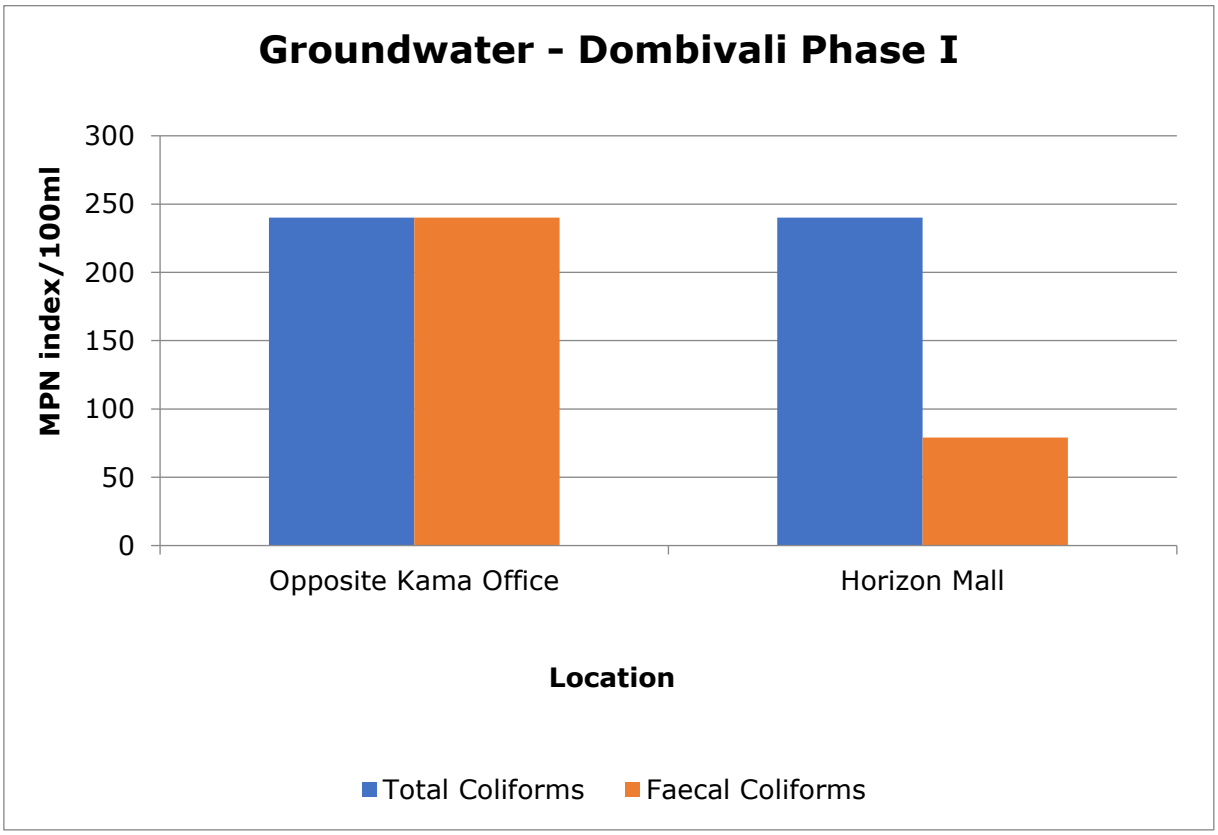
Graphs - Groundwater Quality of MIDC Dombivali Phase I

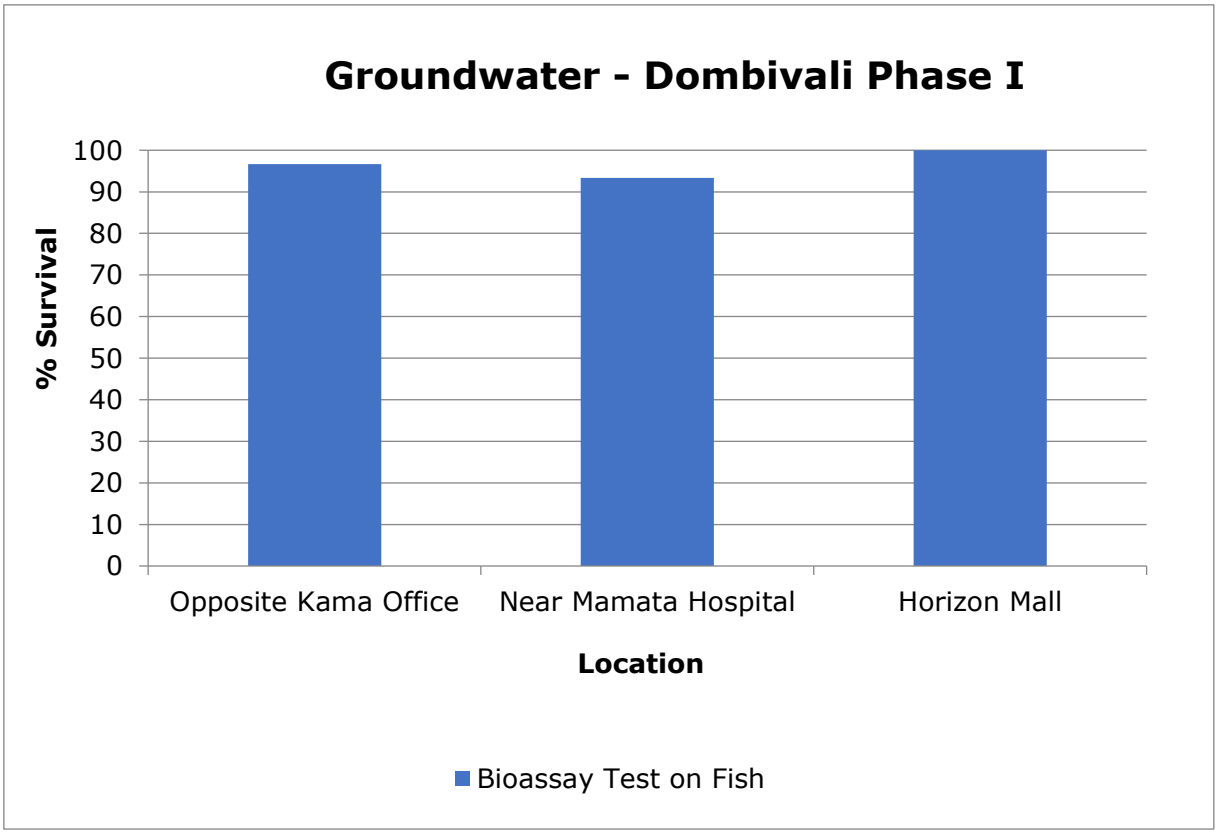





Groundwater - Dombivali Phase I
9
8
7
6
5
4
3
2
1
0
Opposite Kama Office
Near Mamata Hospital
Horizon Mall
Location
Sodium Adsorption Ratio
pH


Groundwater - Dombivali Phase I
Concentration (µmhos/cm)
700
600
500
400
300
200
100
0
Opposite Kama Office
Near Mamata Hospital
Horizon Mall
Location
Electrical Conductivity


Groundwater - Dombivali Phase I
MPN index/100ml
300
250
200
150
100
50
0
Opposite Kama Office
Horizon Mall
Location
Total Coliforms
Faecal Coliforms


Groundwater - Dombivali Phase I
% Survival
100
90
80
70
60
50
40
30
20
10
0
Opposite Kama Office
Near Mamata Hospital
Horizon Mall
Location
Bioassay Test on Fish

2. **MIDC Phase II:** From MIDC Phase II, three groundwater samples are collected.

- All three water samples collected were found acceptable in general appearance, colour, smell and transparency.
- pH and suspended solids were observed within the limits at both the samples collected.
- Electrical conductivity of Bore well Hardikar Hospital and Pimpleshwar Mahadeva temple was high at 5µmhos/cm.
- Parameters like Total Residual Chlorine, Cyanide, Sulphide, Dissolved Phosphate, Total Ammonical Nitrogen and Phenolic compounds also met the criteria as prescribed by CPCB.
- All metals like Arsenic, Nickel, Copper, Iron, Hexavalent Chromium (Cr^{6+}) etc. are observed either below the limit of quantification or below their standard limits.
- The concentration of Total Kjeldahl Nitrogen (TKN) exceeded the permissible limit in all the Groundwater samples collected from MIDC Phase II.
- Polynuclear aromatic hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB) were also observed below the limit of quantification in all 3 samples collected.
- Organo Chlorine Pesticides were found below the detectable limit in both samples collected.

Table 7.3 Phase II – Details of Sampling Location of Groundwater

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
1.	Bore well water Pimpleshwar Mahadev Temple	19°11'37.88"N	73° 5'41.06"E	20.01.2025	22.01.2025	24.01.2025
2.	Bore well Hardikar Hospital	19°12'21.16"N	73° 5'28.58"E	20.01.2025	22.01.2025	24.01.2025
3.	Borewell at Lodha Vihar	19°11'27.55"N	73° 5'15.26"E	20.01.2025	22.01.2025	24.01.2025

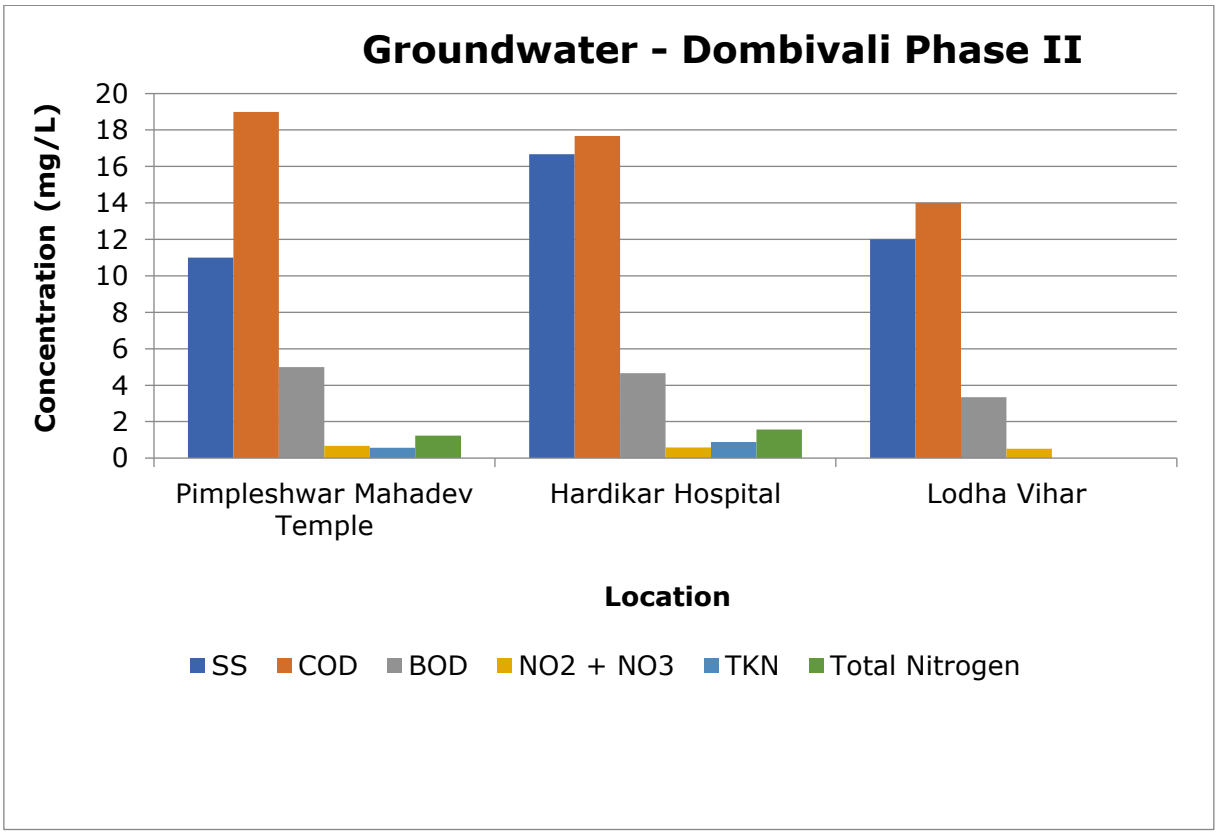
Fig. Geographical Locations of Groundwater Sampling MIDC Dombivali Phase II

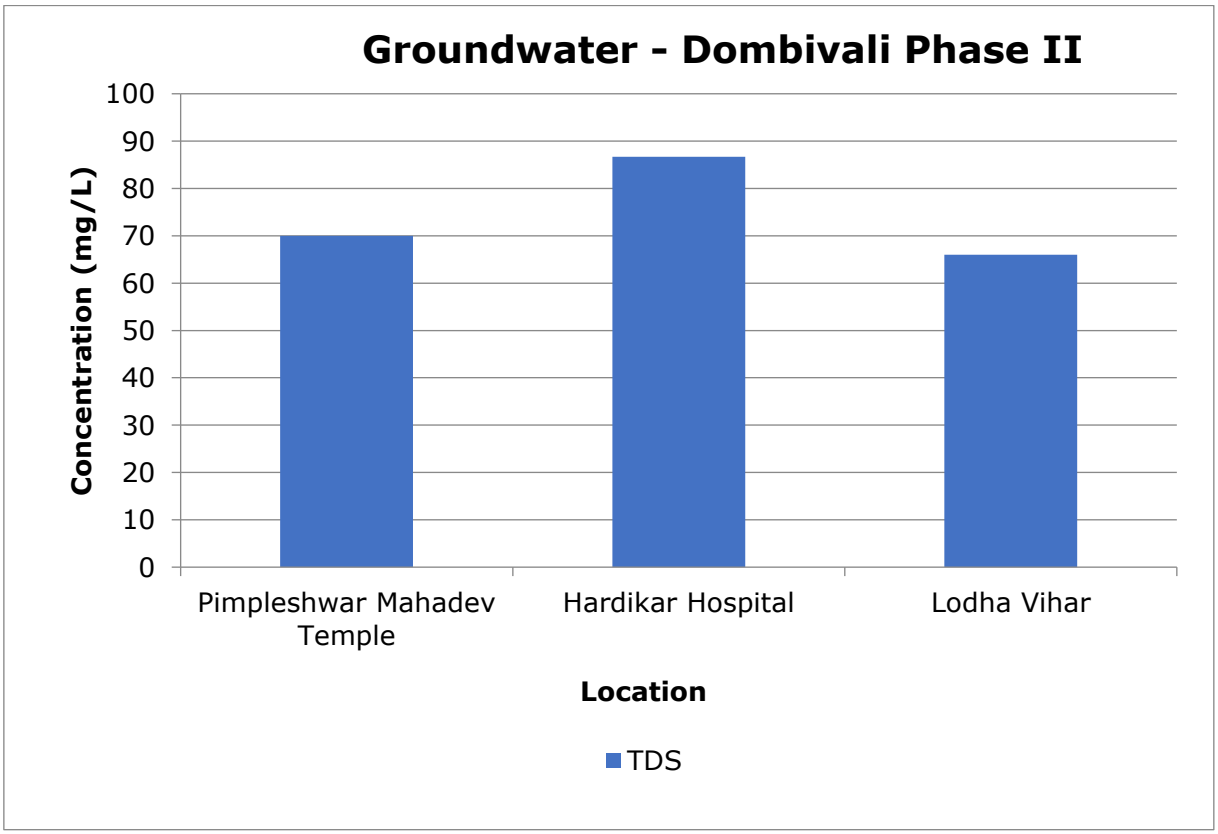
Table 7.4 Phase II – Results of Groundwater

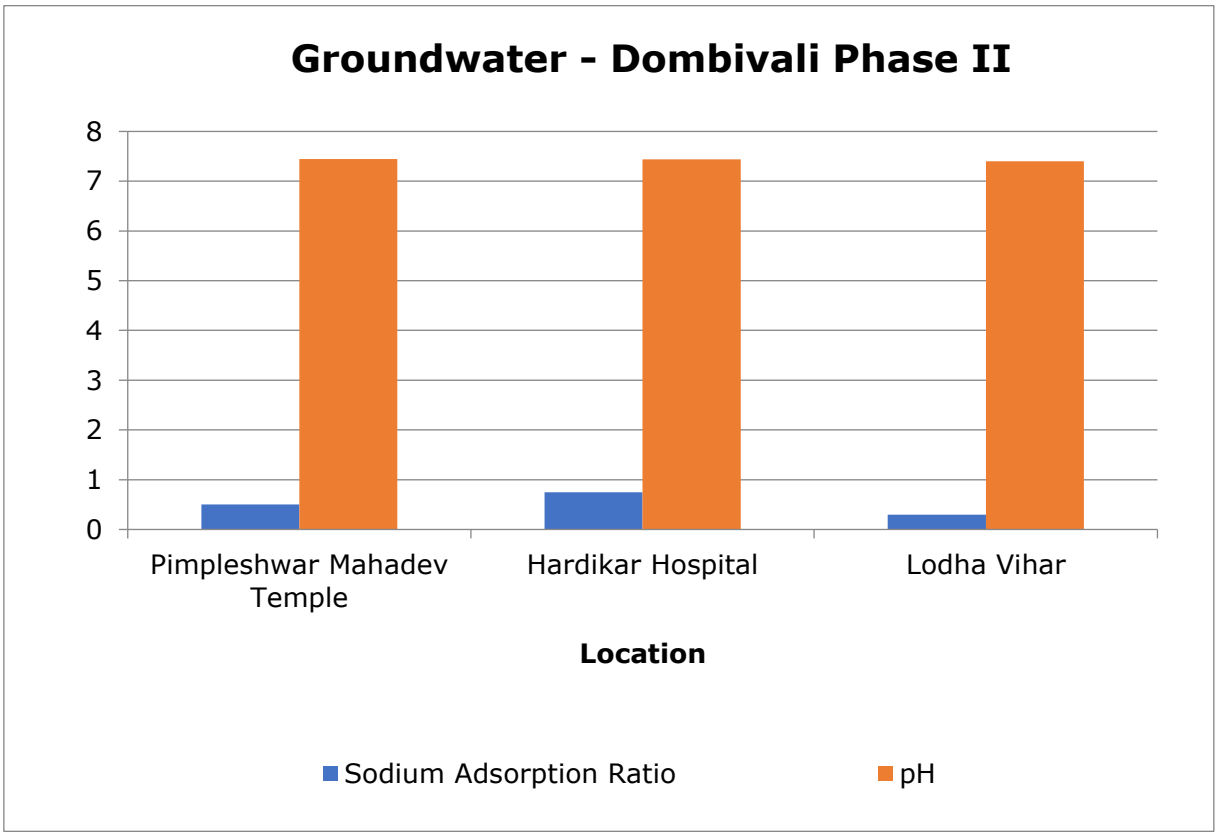
Parameters	Unit	Results		
		Pimpleshwar Mahadev Temple	Hardikar Hospital	Lodha Vihar
Sanitary Survey	-	Reasonably clean neighbourhood	Reasonably clean neighbourhood	Reasonably clean neighbourhood
General Appearance	-	No Floating Matter	No Floating Matter	No Floating Matter
Transparency	m	NA	NA	NA
Temperature	^oC	30	27	28
Colour	Hazen	1	1	1
Smell	-	Agreeable	Agreeable	Agreeable
pH	-	7.44	7.44	7.40
Oil & Grease	mg/L	BLQ	BLQ	BLQ
Suspended Solids	mg/L	11.00	16.67	12.00
Total Dissolved Solids	mg/L	70	87	66
Chemical Oxygen Demand	mg/L	NA	NA	NA
Biochemical Oxygen Demand (3 days, 27^oC)	mg/L	19	18	14
Electrical Conductivity (at 25 ^oC)	µmho/cm	5	5	3
Nitrite Nitrogen (as NO_2)	mg/L	126	155	119
Nitrate Nitrogen (as NO_3)	mg/L	0.02	BLQ	BLQ
(NO_2 + NO_3)-Nitrogen	mg/L	0.66	0.58	0.52

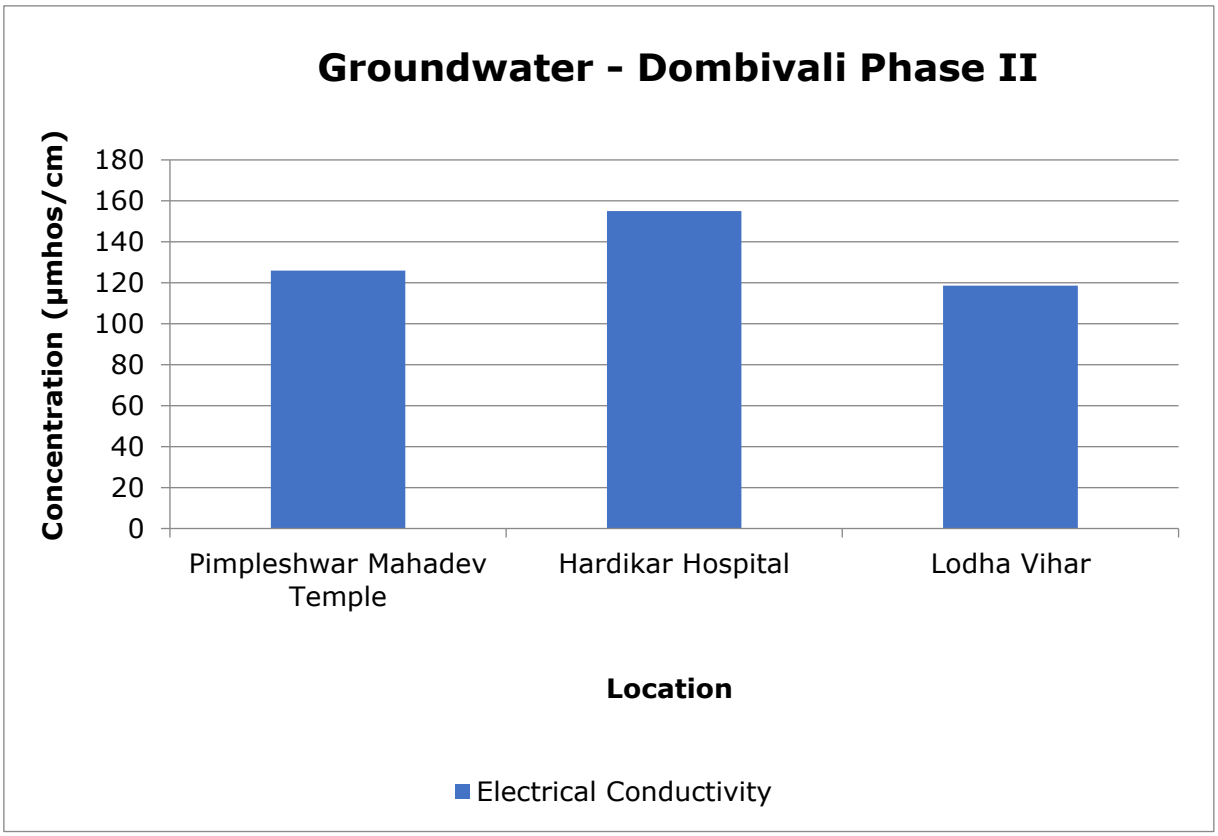
Parameters	Unit	Results		
		Pimpleshwar Mahadev Temple	Hardikar Hospital	Lodha Vihar
Free Ammonia (as NH_3-N)	mg/L	BLQ	BLQ	BLQ
Total Residual Chlorine	mg/L	BLQ	BLQ	BLQ
Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ
Fluoride (as F)	mg/L	BLQ	BLQ	BLQ
Sulphide (as H_2S)	mg/L	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	BLQ	BLQ	BLQ
Sodium Adsorption Ratio	-	0.50	0.75	0.30
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	BLQ	BLQ	BLQ
Total Kjeldahl Nitrogen (as N)	mg/L	0.56	0.89	BLQ
Total Ammonia (NH_4+NH_3)-Nitrogen	mg/L	BLQ	BLQ	BLQ
Total Nitrogen	mg/L	1.24	1.57	BLQ
Phenols (as C_6H_5OH)	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	0.12	BLQ
Nickel (as Ni)	mg/L	0.01	0.03	0.01
Copper (as Cu)	mg/L	BLQ	0.20	BLQ
Hexavalent Chromium (as Cr^{6+})	mg/L	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	0.02	0.02	0.02
Total Arsenic (as As)	mg/L	BLQ	BLQ	BLQ
Lead (as Pb)	mg/L	0.01	BLQ	BLQ
Cadmium (as Cd)	mg/L	BLQ	BLQ	BLQ
Mercury (as Hg)	mg/L	BLQ	BLQ	BLQ
Manganese (as Mn)	mg/L	0.09	0.04	0.04
Iron (as Fe)	mg/L	0.33	0.24	0.29
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

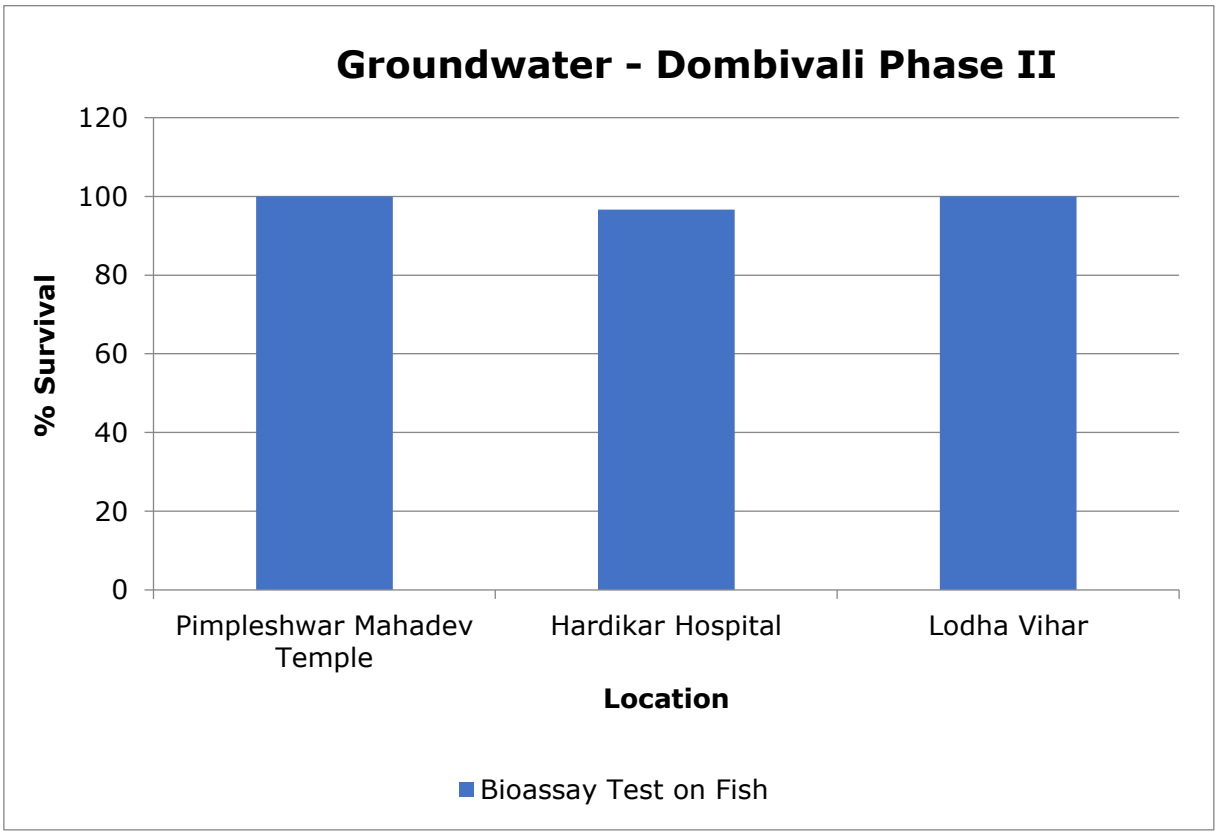
Graphs - Groundwater Quality of MIDC Dombivali Phase II






Groundwater - Dombivali Phase II
8
7
6
5
4
3
2
1
0
Pimpleshwar Mahadev Temple
Hardikar Hospital
Lodha Vihar
Location
Sodium Adsorption Ratio
pH


Groundwater - Dombivali Phase II
Concentration (µmhos/cm)
180
160
140
120
100
80
60
40
20
0
Pimpleshwar Mahadev Temple
Hardikar Hospital
Lodha Vihar
Location
Electrical Conductivity


Groundwater - Dombivali Phase II
120
100
80
60
40
20
0
% Survival
Pimpleshwar Mahadev Temple
Hardikar Hospital
Lodha Vihar
Location
Bioassay Test on Fish

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 causes related to Asthma, Bronchitis, Cancer, Acute respiratory infections etc. are to be considered.
- For surface water/ Groundwater 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 Groundwater in & around the industrial cluster and health related statistics.

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

	A1	A2	A	B	C	D	CEPI
Air Index	3.5	4	14	6	10	5	**35.0**
Water Index	1.75	4	7	15	10	5	**37.0**
Land Index	1.5	4	6	12.8	10	5	**33.8**
						Aggregated CEPI	**44.5**

Among all Environment Pollution Indices (EPI), Water Environment Pollution Index is the highest with a score of 37.0. The reason for the higher Land EPI is the exceedance of Iron concentration in all the water samples.

Table 8.2 Comparison of CEPI Scores

	Air Index	Water Index	Land Index	CEPI
CEPI score March 2025	35.00	37.00	33.80	**44.50**
CEPI score June 2024	29.00	46.50	51.00	**57.60**
CEPI score March 2024	38.50	40.30	32.50	**47.80**
CEPI score June 2023	28.30	54.80	30.00	**58.60**
CEPI Score March 2023	34.30	57.50	45.00	**64.10**
CEPI score June 2021	21.00	56.00	45.00	**60.20**
CEPI Score March 2021	21.00	59.80	48.00	**63.90**
CEPI score March 2020	57.30	49.00	29.30	**63.40**
CEPI score June 2019	44.10	38.50	42.30	**53.20**

	Air Index	Water Index	Land Index	CEPI
CEPI score March 2019	45.90	41.55	40.90	**55.09**
CEPI score June 2018	46.31	40.60	46.20	**46.20**
CEPI score March 2018	54.88	48.63	46.04	**64.98**
CPCB CEPI score March 2018	62.00	63.50	27.25	**69.67**

The result shows that CEPI score of the Dombivali region is 44.50. This time CEPI is observed lower than the CPCB CEPI score March 2018 which was 69.67.

CEPI Score Calculation:

Dombivali, Maharashtra - CEPI - March 2025

Ambient Air Analysis Report

Pollutant	**Group**	**A1**	**A2**	**A (A1 X A2)**
CO	B	2	Large	
Benzene	C	1		
PM_{10}	B	0.5		
		3.5	**4**	**14**

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	1.83	2	0.92	0	8	0.00	L	6
Benzene	2.73	5	0.55	0	8	0.00	L	0
PM_{10}	46.04	100	0.46	0	8	0.00	L	0
B score = (B1+B2+B3)							**B**	**0**

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

Air CEPI	**(A+B+C+D)**	**35.0**

Water Quality Analysis Report

Pollutant	Group	A1	A2	A (A1 X A2)
TKN	A	1	Large	
Se	B	0.25		
BOD	B	0.5		
		1.75	4	7

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)	
TKN	2.35	3	0.78	3	12	0.20	M	11.25
Se	4.02	15	0.27	0	12	0.00	L	0
BOD	6.89	8	0.86	3	12	0.22	M	3.75
B score = (B1+B2+B3)							**B**	**15**

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

Water CEPI	**(A+B+C+D)**	**37.0**

Ground Water Quality Analysis Report

Pollutant	Group	A1	A2	A (A1 X A2)
Fe	A	1	Large	
F	A	0.25		
TDS	A	0.25		
		1.5	**4**	**6**

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	0.31	0.3	1.03	2	6	0.34	M	12.75
F	0.09	1.5	0.06	0	6	0.00	L	0
TDS	122.61	2000	0.06	0	6	0.00	L	0
B score = (B1+B2+B3)							**B**	**12.8**

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

Land CEPI	**(A+B+C+D)**	**33.8**

Water CEPI Score (im)	**37.0**
Air CEPI score (i2)	**35.0**
Land CEPI Score (i3)	**33.8**
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	**44.5**

10. Conclusion

Ambient Air Quality

- The AAQ stations were identified in the CEPI impact area to cover both upwind and cross wind directions and AAQ survey was conducted.
- All parameters are well within the limits as per NAAQS.
- In the CEPI score calculated for Air Environment by CPCB in March 2018, PM_{10} and $PM_{2.5}$ have exceeded which may also be due to the vehicular emissions.

Surface Water Quality

- Higher concentration of BOD and Total Kjeldahl Nitrogen (TKN) was observed in the 3-4 surface water samples collected which may be due to an increase in microbial activity, leaking septic systems or discharges from sewage treatment plants.
- All the industries in the Dombivali region are either reusing the treated trade effluent as sewage in their process or gardening or are disposed into Sea.
- In the CEPI score calculated for Water Environment by CPCB in March 2018, the concentration of BOD and total ammoniacal nitrogen exceeded at all samples collected.

Groundwater Quality

- Groundwater samples were collected from different Bore well in the region.
- In the present study, concentration of Iron is found to exceed in all the water samples.
- In the CEPI score calculated for Land Environment by CPCB in March 2018, BOD and Total Ammonia Nitrogen have exceeded in all the samples collected.
- Identification of contamination of Groundwater is difficult as there are many sources.

CEPI Score

- The CEPI Score post-monsoon season is 44.5.
- In comparison with the CEPI Score of March 2024, water indices decreased substantially, however little increase is observed in the Air as well as land Indices this year.
- Collective efforts of MPCB, administration and environmental organizations have resulted in improved and safer groundwater. This shows a decline in pollution levels in Dombivali.
- The present study is the compilation of post-monsoon season, which results in dilution of environmental samples resulting in lower pollution load, hence also affecting the total score.
- In conclusion, a decrease of approx. 31% in CEPI score is observed from 69.67 of the CPCB score of March 2018 to 44.5 in March 2025.

11. Efforts Taken by MPCB to Control and Reduce Environmental Pollution Index

- Drive against open burning of biomass, crop residue, garbage, leaves, etc.
- **Organic Waste Compost machines**: Residential complexes or Commercial complexes more than 20,000 sqm BUA has installed organic waste compost machines individually.
- **Waste collection and segregation centres**: KDMC has provided waste collection segregation centres at various places and also segregation is carried out at MSW processing sites.
- **Construction of Common Effluent Treatment plant (CETP)**: Two CETPs are in operation. 1. CETP having capacity 16 MLD for textile effluent 2, CETP having capacity 1.5 MLD for chemical effluent.
- **Installation of CEMS installed for Air and Water in Large and Medium scale RED category industries**: Online monitoring system with SCADA and NRV system provided by the industries.
- Arrangement of scientific collection and treatment of sewage generated: KDMC has provided 9 STPs, out of which 6 STPs are in operation. Rest will be brought into operation, so as to cater the entire 216 MLD domestic effluent.
- Installation of CAAQMS station: Two stations
- Number of CAAQMS proposed for future: Two stations are installed one is at Pimpleshwar Temple, MIDC Dombivali, Phase-II and second at 'B' Ward KDMC, Kalyan (W).
- Two Monitoring stations under the National Water Quality Monitoring Programme (NWMP) are established.
- Steps are taken for industrial areas/other units to recycle 100% treated effluent to achieve zero liquid discharge (ZLD)- Forty units have achieved Zero Liquid Discharge.
- Steps taken to reduce dust emission: -

  1. Board has changed the norms of TPM from 150 mg/Nm^3 to 50 mg/Nm^3 in consent.
  2. Board is promoting the use of PNG as fuel to the boiler.
  3 Concreted road with tree plantation along the road is going on
- Tree plantation: 6000 nos.
- Other initiatives taken to control and reduce pollution in air, surface water and groundwater:
  a) To know the status of air quality in Kalyan Dombivali area MPC Board has installed two CAAQM stations and two AAQM stations. Out of which two are installed in MIDC area and other two are installed other than MIDC area.
  b) The MPC Board is continuously in touch with industry to use the proper quantity of fuel to the boiler to avoid the overload and thereby emission. As well as ensure that air pollution control system provided by industry are continuously operation are not
  c) Night monitoring was also carried out to check the status during the night period.
  d) Industries located in the MIDC area are discharging partially treated effluent to CETP through underground pipelines. No direct discharge of effluent to the nallah by the industries.
- Introduction of Deep Clean Drive Campaign, wherein Daily Targeted Roads are Washed & Cleaned using Non-Potable Water.

- In F.Y 2023-24 approx. 1,04,493.938 Kms. of road length is washed with the help of more than 5000 Tankers.
- For Suppression of road dust Sprinkling Machines & Misting Machines are deployed.
- Under Deep Clean Drive Campaign, more than 2250 MT of garbage & more than 875 MT of odd trash/abandoned materials were removed.
- Deployment of 114 E-buses, 67 old diesel buses [more than 10 years] are phased out from fleet & monthly average 35,500 litres of diesel is saved resulting in reduced carbon emissions.

Deployment of E-buses, and charging stations

PNG Crematorium

C&D Plant – 300 TPD
Stationary Water Cannons
Ambient Air Quality Monitoring (AAQM) Van
Continuous Ambient Air Quality Monitoring Station (CAAQMS)

12. Photographs

<table>
<tr><td>
</td><td>
</td></tr>
<tr><td>Ambient Air Sampling at Near main gate Gharda Chemicals</td><td>Ambient Air Sampling Near Main Gate DEBESA CETP</td></tr>
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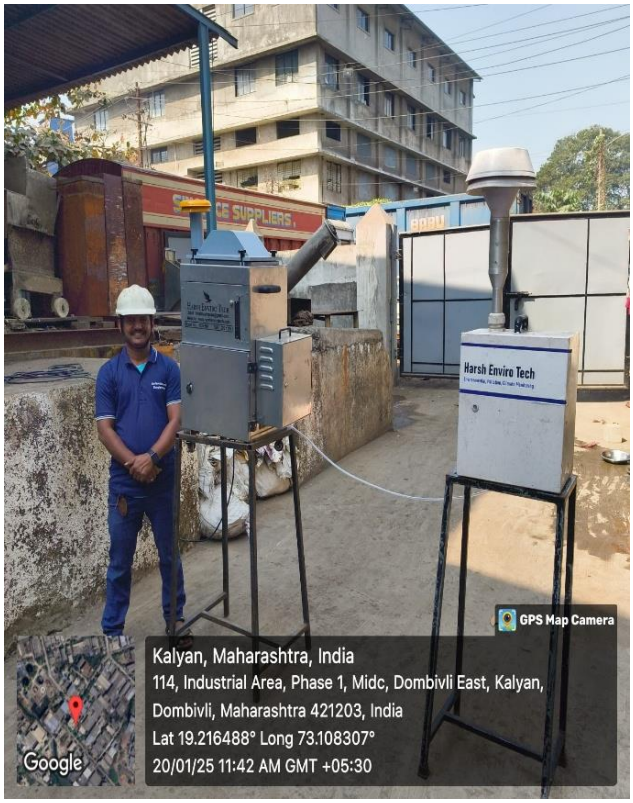
</td><td> 
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<tr><td>Ambient Air Sampling at Near Main Gate Balkrishna Industries Ltd.</td><td>Ambient Air Sampling Near main gate Sagar Ice & Cold Storage Pvt. Ltd.</td></tr>
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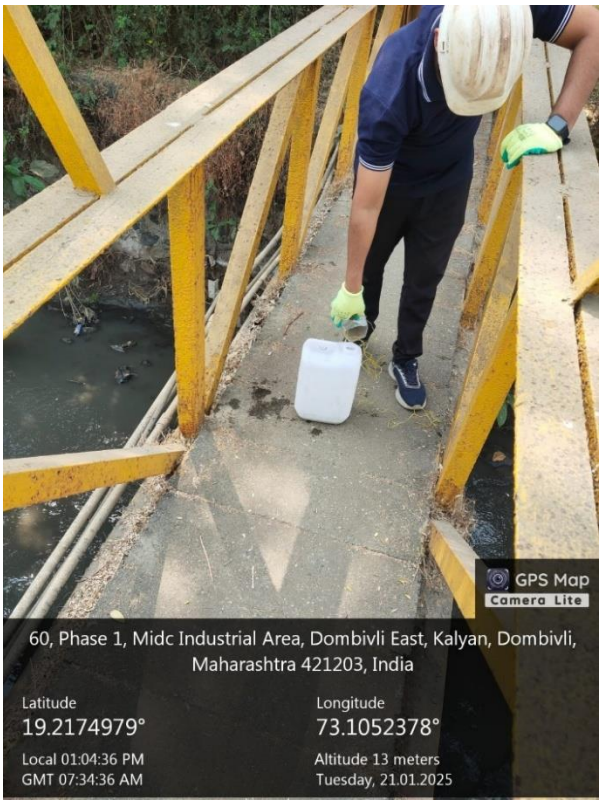
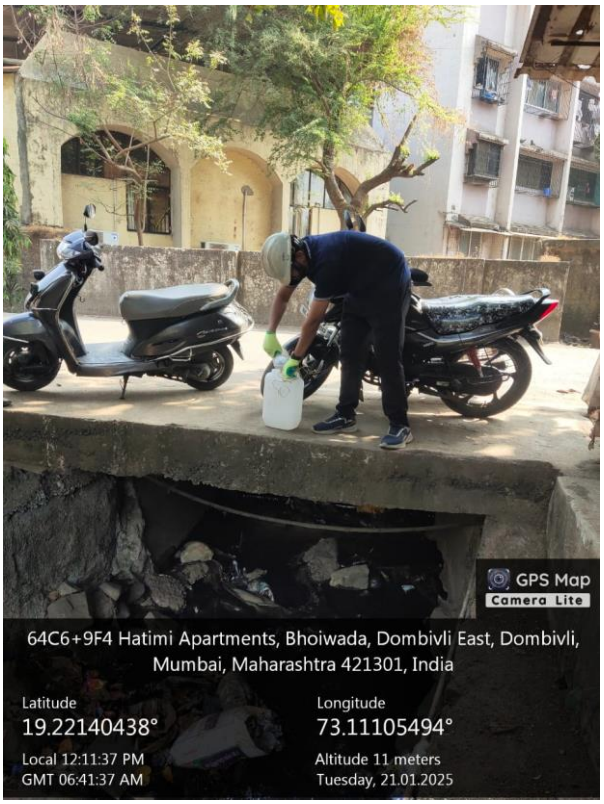
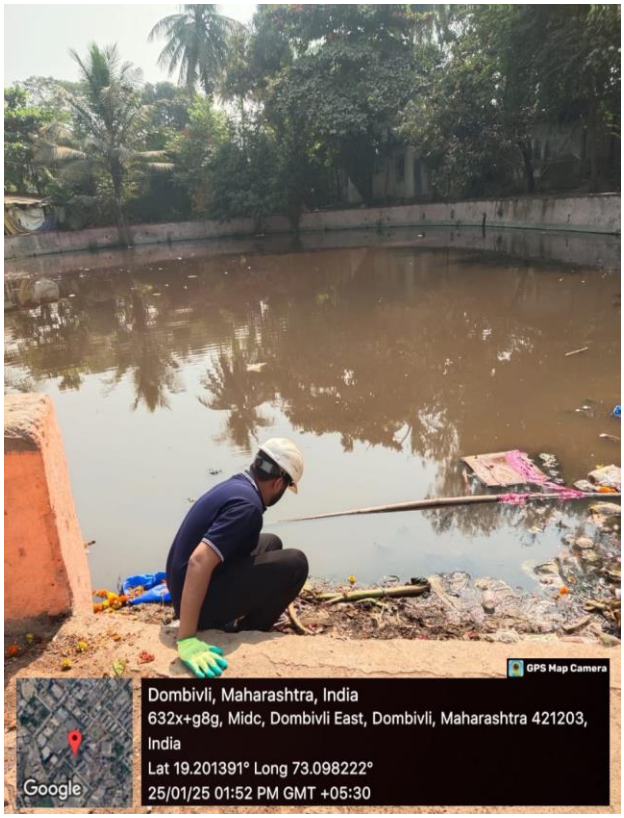


Surface water sampling at Drain Flowing from DEBESA CETP



Surface water sampling at Near Khambal Pada.



Surface water Sampling at Thakurli Talav

Surface water Sampling at Sonar pada naka to star colony MIDC ROAD Dombivali

Dombivali Phase – I- Ground water Sampling at opposite Kama Office	**Ground water Sampling at Horizon hall**
Ground water Sampling at Near Mamata Hospital	**Ground water Sampling at Pimpleshwar Mahadev Temple**

Annexure – I Health Related Data

HEALTH STATISTICS

Required for Comprehensive Environmental Pollution Index (CEPI)

Maharashtra Pollution Control Board (MPCB), MAHARASHTRA

Name of the Polluted Industrial Area (PIA)	DOMBIVALI
Name of the major health center/ organization	Mamta Hospital
Name and designation of the Contact person	Unit Head.
Address	

S No.	Diseases	No. of Patients Reported	
		Year 2023	Year 2024
AIRBORNE DISEASES			
1.	Asthma	47	67
2.	Acute Respiratory Infection	189	210
3.	Bronchitis	140	160
4.	Cancer	15	21
WATERBORNE DISEASES			
1.	Gastroenteritis	119	138
2.	Diarrhea	80	105
3.	Renal diseases	50	60
4.	Cancer	15	21

Date: 19/2/25

Signature

SRV MAMATA HOSPITAL DOMBIVLI

HEALTH STATISTICS

Required for Comprehensive Environmental Pollution Index (CEPI)

Maharashtra Pollution Control Board (MPCB), MAHARASHTRA

Name of the Polluted Industrial Area (PIA)	DOMBIVALI
Name of the major health center/ organization	Municipal Hospital
Name and designation of the Contact person	
Address	

S No.	Diseases	No. of Patients Reported	
		Year 2023 Jan 2023 to Dec 2023	Jan Year 2024 to Dec. 2024 Jan. 2024
AIRBORNE DISEASES			
1.	Asthma	04	05
2.	Acute Respiratory Infection	12	20
3.	Bronchitis	01	01
4.	Cancer	Nil.	02
WATERBORNE DISEASES			
1.	Gastroenteritis	24	63
2.	Diarrhea	52	131
3.	Renal diseases	01	02
4.	Cancer	01	02

Date: 10/2/2025

10/2/25
Signature

Chief Medical Officer
Shastrinagar Hospital, Dombivli (W)
Kalyan Dombivali Municipal Corporation

10/2/2025

HEALTH STATISTICS

Required for Comprehensive Environmental Pollution Index (CEPI)

Maharashtra Pollution Control Board (MPCB), MAHARASHTRA

Name of the Polluted Industrial Area (PIA)	DOMBIVALI
Name of the major health center/ organization	**Hambarde Hospital**
Name and designation of the Contact person	
Address	Tai Pingle Chowk OPP Santosh Hall Dombivli (E)

S No.	Diseases	No. of Patients Reported	
		Year 2023	Year 2024
AIRBORNE DISEASES			
1.	Asthma	22	18
2.	Acute Respiratory Infection	4	5
3.	Bronchitis	4	4
4.	Cancer	6	4
WATERBORNE DISEASES			
1.	Gastroenteritis	23	25
2.	Diarrhea	23	26
3.	Renal diseases	17	10
4.	Cancer	6	4

Date:

Signature

Dr. Rajiv K. Hambarde

Reg.No. 53659 (M.S.)

Consulting General & Laparoscopic Surgeon

HAMBARDE HOSPITAL

Reg.No. KMC / HO / BNHR / 02 / 019 / 9445

Tai Pingle Chowk Opp Santosh Hall Dombivli (E)