BEFORE NATIONAL GREEN TRIBUNAL
WESTERN ZONE BECH – PUNE
DIST – PUNE
Original Application No.77/2016 (WZ)
IN
Application No.33 (THC)/2013

In the matter of :-

Janardan Chandar Patil **-APPLICANT**

V/s

Union of India **-APPELLANT**

AFFIDAVIT ON BEHALF OF RESPONDENT NO. 4 & 5

I, Satish H. Padwal, aged about 51 Years, occupation-service, the in charge 'Regional Officer' of the Maharashtra Pollution Control Board at Navi Mumbai, having my office at Raigad Bhavan, 7th Floor, CBD Belapur, Navi Mumbai, do hereby state on solemn affirmation in continuation with the earlier Affidavits & compliance of the order dated 26.04.2023 on behalf of the Respondent No. 4 & 5 as under :-

I say and submit that incompliance of order dated 12.7.2016 and order dated 26.4.2023, the following actions have been taken which are summarized as under:

i) It is submitted that in compliance of this Hon'ble Tribunal order dated 12.7.2016, the Respondent Board has prepared & submitted revised Action Plan of Severally Polluted Area (SPA) of Navi Mumbai area to CPCB, New Delhi vide letter dated 3.8.2020 . However,CPCB has hoisted said revised Action Plan on their website with no modifications. Therefore, the Respondent Board has executed revised action plan accordingly. A copy of said communication dated 3.8.2020 is enclosed and marked as an **Annexure I.**

ii) The Respondent Board has taken necessary steps and measures to execute and enforce such Action Plan with the all-stake holders & taken

review meeting alongwith stakeholders on 31.8.2016, 19.10.2016, 09.11.2016 ,04.01.2017 respectively. The Board has submitted progress report before the Registrar of Hon'ble Tribunal on 28.7.2016, 20.8.2016, 28.9.2016, 15.11.2016, 13.1.2017. An abstract of said communication is enclosed and marked as an **Annexure II collectively**.

iii) The Respondent Board has continuously taking review of action plan under the Chairmanship of Principal Secretary (Environment), Member Secretary & Regional Officer to review the progress and also submitted the progress to the Registry & Hon'ble NGT. In view of this Board has constituted District monitoring committee which are chaired by District Collector, (Thane) and convened by respective Regional Officer. The Board has conducted State Level Monitoring Committee meeting and District Level Monitoring Committee Meeting from time to time.

iv) The Respondent Board has prepared Progress Report of CEPI Action Plan for Navi Mumbai alongwith Stakeholder upto July 2023 is enclosed and marked as ***Annexure III***.

v) The Board has also submitted Post Monsoon Monitoring, sampling and analysis for Ambient Air Quality, surface water quality and ground water quality in critically/severely/ other polluted industrial area of Maharashtra (December 2022 to February 2023) to CPCB on 16.05.2023 . A copy of said report is enclosed and marked as an **Annexure IV.**

vi) The Respondent Board has submitted CEPI score to CPCB and scored is as under :-

NOTARY R. C. DIGPAL AREA: GREATER BOMBAY & NEW BOMBAY 980/97 GOVT. OF INDIA

Year	CEPI Score
2009	73.77
2013	77.39
2018	66.32
2020	53.00
2023	53.59

It is submitted that the Respondent Board has hoisted CEPI score on Board's Website.

vii) Under National Clean Air Program (NCAP) by Ministry of Env. Forest and Climate Change under XV Finance Commission, Navi Mumbai Municipal Corporation has been funded for 105 Cr till 2024- 25. Uptill now (i.e. 2022-23) total grants released under NCAP for various initiatives as per CPCB approved plan is 58.75 Cr. These initiatives include.

a. procurement of electric buses for public transport

b. Procurement of dust supressing machines

c. conversion of conventional pyres into PNG fired crematoriums.

Navi Mumbai Municipal Corporation has submitted future action plan in this context. Therefore, implementation of these initiatives has been reflected into reduction of CEPI score.

viii) In RO Navi Mumbai jurisdiction there are 2 old CAQMS (Continuous Ambient Air Quality Monitoring Stations). After 2016, the Board has installed additional five new CAQMS Stations which are operational.

- Fire Station, CBD Belapur (New).
- Sewage Treatment Plant, Nerul (Old)

- Tortoise Amusement Park, Sanpada (New).
- Sensory Garden, Kopari Gaon (New).
- Nirmal Bhavan, Mahape(old)
- Opposite to Hindalco, MIDC Taloja (New)
- CIDCO garden , Kalamboli (new)

ix) It is submitted that the Regional Office MPCB (Navi Mumbai) is deputing 1 no. of Mobile Ambient air quality monitoring van in respective areas. Ultimately, 7 fixed and 1 mobile ambient air quality monitoring stations are operational. The data of CAQMS stations is connected and hosted on the CPCB and MPCB website.

x) It is submitted that the Respondent Board has communicated order passed by Hon'ble NGT New Delhi dated 12.7.2016 and 26.4.2023 to Regional Director, CPCB, Pune and MCZMA, Mumbai for information and further needful action.

The analysis of the aggregated CEPI score shows that the pollution in Navi Mumbai area has reduced in last five years. Approximately 20% decrease in CEPI score is observed from 66.32 in 2018 to 53.59 in 2023.

Solemnly affirmed on this ---------- of July, 2023 at Pune.

Identified by

Advocate for the
For Respondent No.4&5

Affiant

(Satish H. Padwal)
Regional Officer-Navi Mumbai

ATTESTED BY ME
R. C. DIGPAL
ADVOCATE & NOTARY
MUMBAI

REGISTERED VIDE
SL NO.: 918
DT: 21 JUL 2023

ANNEXURE - I

MAHARASHTRA POL[illegible]N CONTROL BOARD

Tel.: 24010437/24020781/24014701
Fax : 24024068 / 24044531
Website : www.mpcb.gov.in
E-mail : jdair@mpcb.gov.in

Kalpataru Point, 2nd - 4th Floor,
Opp. PVR Cinema,
Near Sion Circle, Sion (E),
Mumbai - 400 022.

NO.BO/JD(APC)/CEPI Report/TB-2/B-200803FTS-0007 Date:-03/08/2020.

To,
Shri. P. K . Gupta
AD & Div. Head, IPC-VII,
Central Pollution Control Board,
Parivesh Bhavan, East Arjun Nagar,
New Delhi-110032.

Sub: Submission of revised CEPI action plans of Tarapur, Chandrapur as CPAs and Navi Mumbai, Aurangabad, Dombivali and Nashik as SPAs in Maharashtra.

Ref: CPCB letter No. CPCB/IPC-VII/CEPI/MPCB-Action Plan dtd. 15/05/2020.

Sir,

With reference above subject, please find submitted herewith revised action plans as per modification suggested vide letter dtd. 15/05/2020 of 2 Nos. of Critically Polluted Areas namely, Tarapur & Chandrapur and 4 Nos. of severally Polluted areas namely Navi Mumbai, Aurangabad, Dombivali and Nashik in Maharashtra. Same were uploaded on Board website.

This is issued with approval of Member Secretary of the Board.

D.A.:- Action plans of TArapur, Chandrapur,
Navi Mumbai. Aurangabad, Dombivali & Nashik.

Yours Faithfully

(Dr. V. M. Motghare) 08/08/2020
Joint Director (Air Pollution Control)

Copy submitted for information to: -

1. Principal Secretary, Environment Department, Mantralaya, Mumbai.
2. Member Secretary, Central Pollution Control Board, Parivesh Bhavan, East Arjun Nagar, New Delhi-110032.
3. Member Secretary, M.P.C.Board, Sion, Mumbai.

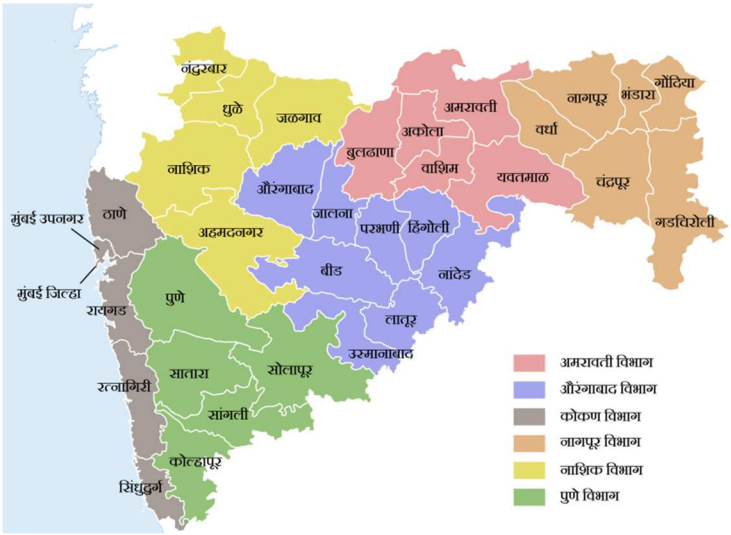
Copy to:-

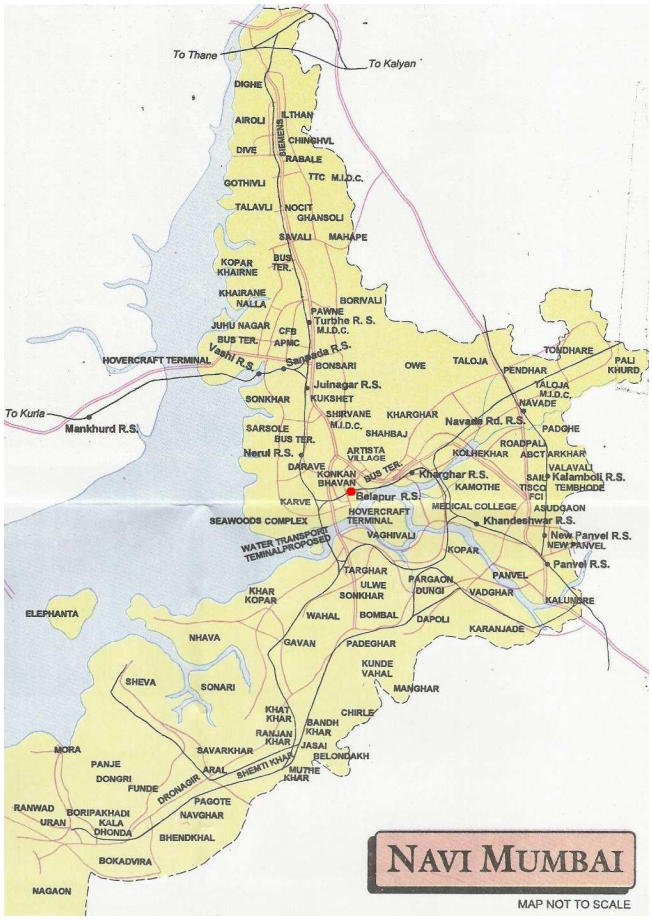
Regional Officer, MPCB, Nasik/ Kalyan/Thane/Aurangabad/Navi Mumbai/ Chandrapur and Sub-Regional Officer, MPCB, Nasik/ Tarapur-I/Navi Mumbai-I/II/Aurangabad/Chandrapur/Kalyan- for information & necessary action.

R-2

Revised Action Plan for Industrial Cluster in Severally Polluted Areas

नवी मुंबई Navi Mumbai





MAHARASHTRA

Maharashtra Pollution Control Board

महाराष्ट्र प्रदूषण नियंत्रण मंडळ

JUly-2020

A. PREAMBLE:

In 2009, the Ministry of Environment & Forests (MoEF), Govt. of India in association with Central Pollution Control Board (CPCB), New Delhi and Indian Institute of Technology (IIT), New Delhi have carried out an environmental assessment of industrial clusters across the country named Comprehensive Environmental Pollution Index (CEPI) with the aim of identifying polluted industrial clusters & prioritizing planning needs for intervention to improve the quality of environment in these industrial clusters and the nation as a whole. For this, CPCB has selected 88 industrial clusters in country out of which 43 Nos. of industrial clusters in 16 states.

The industrial clusters/areas having aggregated CEPI scores of 70 and above were considered critically polluted clusters/areas and those with scores above 60 were classified as Severely Polluted; further detailed investigations were carried out in terms of the extent of environmental damage and formulation of appropriate remedial action plan.

Again in year 2017-2018 CPCB carried out monitoring and found that, number of identified polluted areas in country went upto 100. The said number included 38 Critically Polluted (CEPI Score above 70), 31 Severely Polluted (CEPI Score between 60-70) and reaming 31 as Other Polluted (CEPI Score below 60).

In identified 100 polluted areas Maharashtra having 9 Nos. of area namely Tarapur (CEPI Score 93.69), Chandrapur (CEPI Score 76.41), Aurangabad (CEPI Score 69.85), Dombivali (CEPI Score 69.67), Nashik (CEPI Score 69.49), Navi Mumbai (CEPI Score 66.32), Chembur (CEPI Score 54.67), Pimpri-Chinchwad (CEPI Score 52.15) & Mahad (CEPI Score 47.12).

Government of Maharashtra, under Chairmanship of Principal Secretary, Environment Department, GoM constituted State Level Committee and one local committee at Regional Officer level at each regions. Also Member Secretary of Board conducted several review meetings with all stakeholders at a regular interval to review the status of implementation of CEPI action plans.

With compare to earlier CEPI score calculated by CPCB in 2009-2010 of Navi Mumbai (without Taloja MIDC) was ranking at no 30 with overall CEPI score 73.77 i.e Critically polluted Industrial cluster, but after effective implementation CEPI score of Air, water & land are reduce and now as per CPCB 2017-2018 monitoring report Navi Mumbai industrial area is out of critically polluted industrial area and overall CEPI score below 70. All stakeholder taking effort for same. Now in Navi Mumbai Taloja industrial area is added. The proposed action plan will help to reduce Air CEPI score below 60.

B. Navi Mumbai – Trans Thane Creek (TTC Industrial Area) & Taloja Industrial Area:

Earlier in 2009 the Taloja MIDC Cluster was not included in the CEPI of Navi Mumbai. Hon'ble NGT Principal Bench, New Delhi in Original Application No. 1038/2018 in their Order dtd.10.07.2019 "The Tribunal also considered the case of pollution in the Taloja industrial area13 which finds mention under the title 'Navi Mumbai' at rank 51 based on its CEPI score. High level of pollution was found on the basis of joint inspection conducted by the CPCB and the Maharashtra PCB dated 02.01.2018, as the CETP was not functioning properly. The Maharashtra State PCB gave notice to 92 industries for closure. Apart from requiring the CETP operators to deposit a sum of Rs. 10 crores as compensation, steps were required to be taken to remedy the pollution. The Tribunal held that only option was to permit only such industries to function which had stand-alone ETP and are fully compliant with the norms and to close the industries which were non-compliant in O.A No. 125/2018, Arvind Pundalik Mhatre Vs. Ministry of Environment and Forest & Climate Change & Ors., order dated 09.04.2019."

1. Trans Thane Creek (TTC) MIDC Estate:

1.1 Area details including brief history (background information):

Maharashtra Industrial Development Corporation (MIDC) has established an industrial estate at Thane Belapur Road, Navi Mumbai in the year 1963 which is known as Trans Thane Creek (TTC) MIDC Estate. The Estate is located along Thane Belapur Road towards Northern side of road and total area of the industrial estate is 27 sq.kms and about 16% of total area in Navi Mumbai falls under MIDC zone.

The TTC industrial area accounts about 3254 industrial units of various category engaged in the manufacture of chemicals, dyes, dye- intermediates, Bulk drugs, pharmaceuticals, Textile auxiliaries, Pesticides, Petrochemicals, Textile processors, Engineering units etc. Some of them are generating trade effluent and total effluent quantity from all these units is 26 MLD. All the major & medium industries have provided full-fledged effluent treatment plant and the small industries have provided primary effluent treatment plants (ETP). The treated effluent of the industries is discharged into Common Effluent Treatment Plant (CETP) for further treatment and disposal. The effluent is further treated in CETP and then discharged into TTC creek through closed pipeline at the point recommended by National Institute of Oceanography (NIO).

All the air polluting industries have provided emission control systems such as Scrubbers, Wet scrubbers, Dust collectors and stacks of sufficient height. Some industries generate hazardous waste from their process and effluent treatment plant. The Hazardous waste is sent to CHWTSDF.

There are two major common infrastructures in TTC MIDC area. One is Common Effluent Treatment Plant (CETP). Capacity of the CETP is 27 MLD and based on extended aerations activated sludge process technology. The treated effluent from the industries is collected through closed pipeline. The CETP comprises of collection/ equalization/ neutralization sump, Clariflocculator, Aeration tank, clarifier, sludge drying beds & decanter etc.

Another infrastructure is Common Hazardous Waste Treatment Storage and Disposal Facility (CHWTSDF) provided by TTC Waste Management Association. The Hazardous Waste from the Navi Mumbai area is discharged at the facility by either direct landfill (DFL) or landfill after treatment (LAT) as required. The incinerable waste is sent to another CHWTSDF at Taloja, provided by M/s. Mumbai Waste Management Ltd. MIDC Taloja, Dist. Raigad.

There is a Township newly established by CIDCO on the either side of Thane Belapur Road which is known as Navi Mumbai and is governed by Navi Mumbai Municipal Corporation (NMMC). Navi Mumbai is a planned city, designed to decongest Mumbai, in 1970 City & Industrial Development Corporation (CIDCO) was incorporated with purpose to plan, develop and maintain the city of Navi Mumbai under ‘Companies Act' of 1956'. CIDCO has planned to develop 14 nodes in Navi Mumbai out of which 8 nodes were handed over to Navi Mumbai Municipal Corporation (NMMC) in 1991 for its maintenance.

Navi Mumbai is a part of Konkan coast line and is located in centre of MMR (Mumbai Metropolitan Region) with Thane creek on west side while the Parsik hill ranges surrounded on east side, whereas Thane and Panvel region covers the North and South zone. NMMC jurisdiction is divided in eight zones starting with Digha in north and Belapur in south

Population of the Town is above a million. Requirement of water for the Township is 317 MLD which is fulfilled by Morbe, Barvi and Hetwane dam, and generation of sewages is

245 MLD. The NMMC have provided 8 Sewage Treatment Plants (STP) at various places. All of them are fully equipped and working satisfactorily.

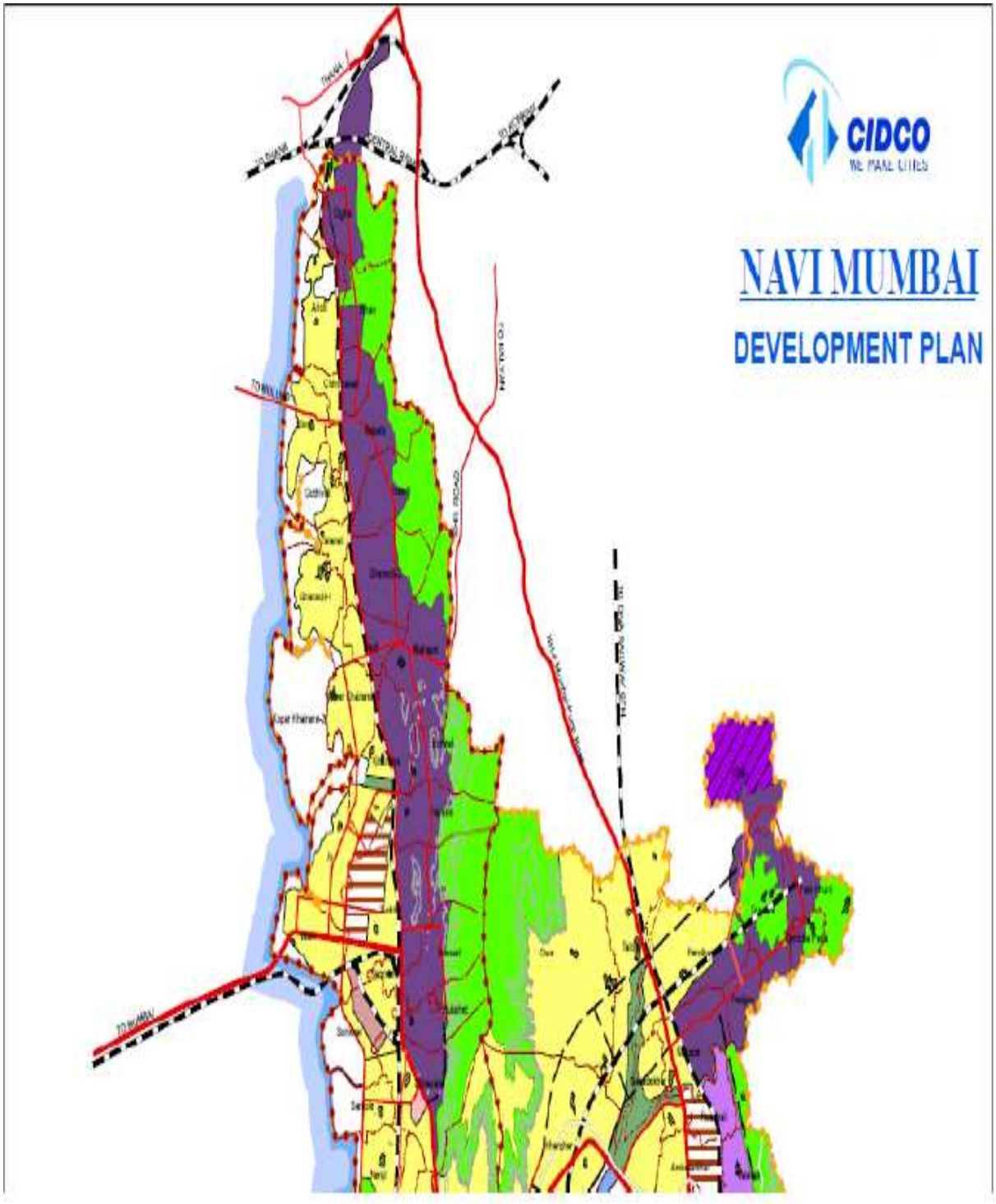
Besides the industries, there are other sources which are major contributors for pollution, especially air pollution. Navi Mumbai is a developing town and so many construction activities are going on. There is lot of emissions by transport and handling of cement and other construction material. There is another organization i.e. Agro Produces Marketing Committee (APMC) were there is huge transaction of agro products. There is lot of emissions due to transport, loading, unloading and handling of agro produces. These activities contribute air pollution.

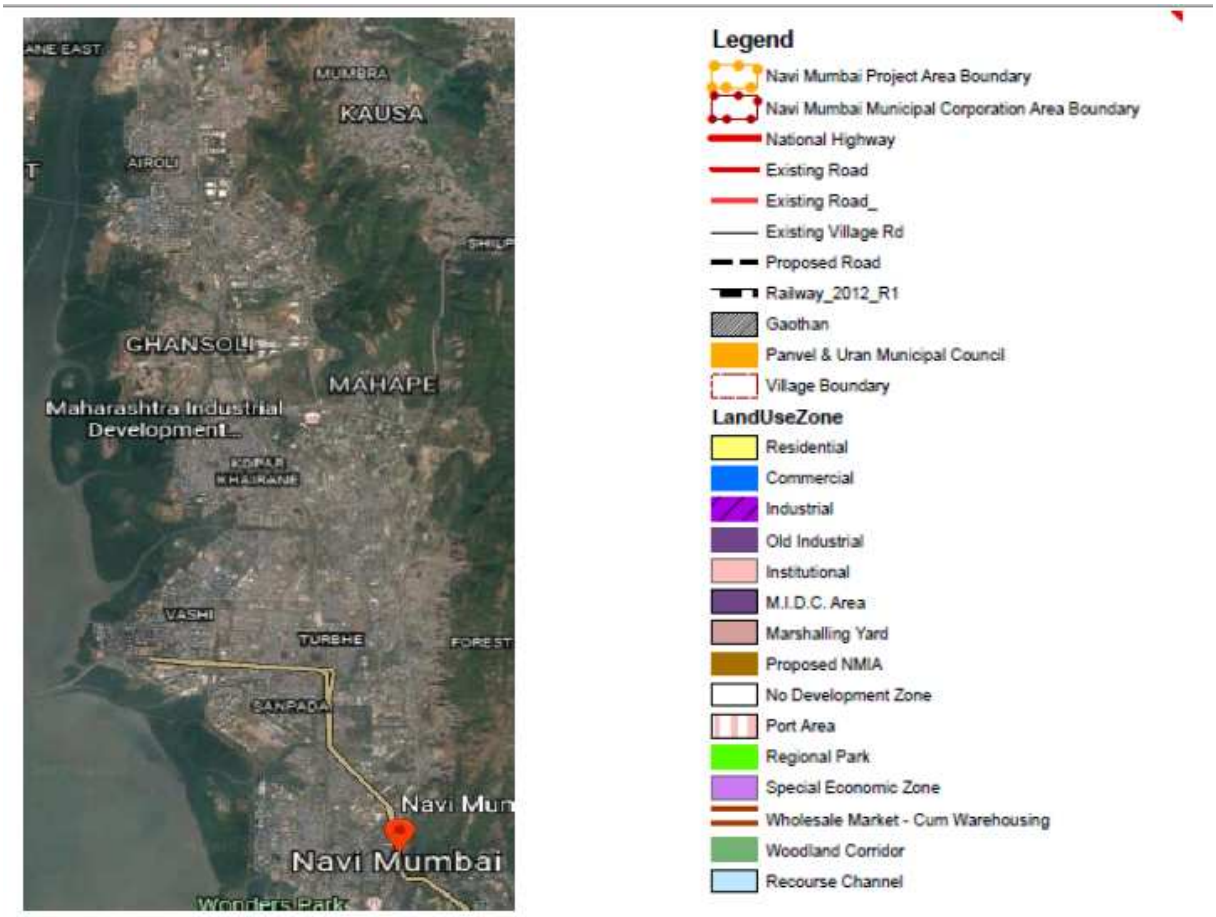
Another major source for air pollution is the transport. Navi Mumbai is the major pass-way for Mumbai and Thane and lacs of vehicles pass to and fro. The auto exhaust as well as dust emissions from these vehicles contribute lot of air pollution. There are also other sources of stationery emissions such as Rail/Bus transport, Market places etc. The sources other than the industries contribute more.

1.2 Location:

Name of the Industrial cluster	**:**	TTC MIDC area, Thane Belapur Road, Navi Mumbai.		
Area	**:**	Approx. 27 Sq.km.		
Surroundings	**:**	**East**	**:**	Parsik Hill range.
		West	**:**	Thane Municipal Area
		North	**:**	Parsik Hill
		South	**:**	Thane Belapur Road, and Navi Mumbai Township.

DIGITIZED MAP:





1.3 CLUSTER DEMARCATION:

The initial boundary coordinates of the cluster boundary are as follows:

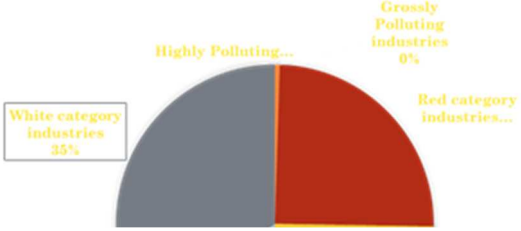
Direction	Latitude	Longitude
East	19° 6'53.34"N	72°59'8.07"E
West	19° 6'51.30"N	73° 2'25.75"E
North	19°13'6.88"N	73° 0'9.42"E
South	19° 2'33.85"N	73° 1'0.86"E

Also, a 5 km impact zone has been demarcated from the edge of the cluster as shown in the maps below:

1.4 INDUSTRIES IN THE TTC Industrial CLUSTER:

The total number of industries operating in the TTC CEPI Industrial cluster is as listed below:

Types of industry	Total
Highly Polluting Industry (17 Category)	07
RED Category	806



Orange Category	796
Green Category	512
White Category	1124
Total	**3245**

17 category Industries TTC CEPI area			
		In operation (Unit)	**Closed (Unit)**
Pharmaceutical (Bulk Drugs)	**04**	04	0
Dye & Dye	**1**	1	0
Petrochemical	**2**	2	0
Total	**07**	07	0

1.5 Water Aspect:

1. **Domestic**

- **Navi Mumbai Municipal Corporation**

  Water Consumption : 317 MLD

  Wastewater Generation : 245 MLD

  Treatment Capacity : 417 MLD (08 STP)

  Disposal : Thane Creek

2. **Industrial:**

- Total trade effluent generation: 26 MLD.
- The treated effluent of the industries is discharged into Common Effluent Treatment Plant (CETP) for further treatment and disposal and then discharged into TTC creek through closed pipeline at the point recommended by National Institute of Oceanography (NIO) nearly 3 km inside Vashi creek

Sewage Treatment Plants in Navi Mumbai

Sr. No.	Node	Capacity in MLD	Treatment Type	Final Disposal
1	CBD Belapur, Sector -12	21.00	C-Tech (SBR)	Creek
2	Nerul, Sector- 2	17.00	Aerated Lagoon	Creek
3	Nerul, Sector -50	100.0	C-Tech (SBR)	Creek
4	Vashi, Sector -18	100.0	C-Tech (SBR)	Creek
5	Sanpada, Sector- 20	37.50	C-Tech (SBR)	Creek
6	Airoli, Sector- 18	80.0	C-Tech (SBR)	Creek
7	Koper Khairane, Sector-5	87.5	C-Tech (SBR)	Creek
8	Ghansoli, Sector (Operated by CIDCO)	30.0	C-Tech (SBR)	Creek
Total Capacity		**473 MLD**		

3. Common Effluent Treatment Plant in TTC MIDC:

Details	Phase-I	Phase-II
Date of Commissioning	Nov-97	Mar-06
Capacity	12 MLD	15 MLD
Project Cost	4.0 Cr.	8.25 Cr.

- No. of Members : 3145

  SSI Users : 599

  LSI/MSI Users : 96

  Associate Members : 2450

- Disposal : Into Thane Creek through closed pipeline at the spot recommended by NIO

1.6 Municipal Solid Waste

Navi Mumbai:

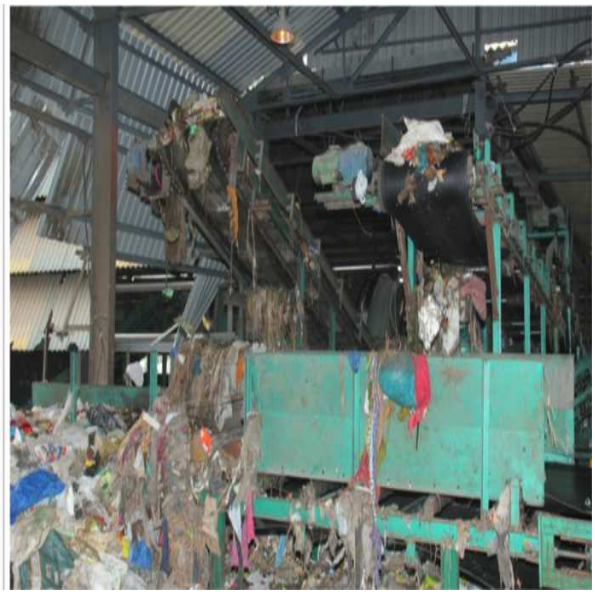
Total MSW generation : 550 T/D

Break up : NMMC - 400T

: APMC - 100 T

: MIDC - 50 T

- 65 acres of land allotted at Turbhe Navi Mumbai.
- 30 acres composting, landfilling and 30 acres reserved for office building, Green Belt, Internal Road, Leachet Plant.
- 5 acres comprising of MSW processing facility.
- Landfill site is operational i.e. date of commissioning January 2005.
- Cell 1& 2 Completed closed scientifically ,
- MSW Dumped in two cells 623474 MT.
- Third Cell is in Operation at present.



MSW site photo-Navi Mumbai

2. Taloja Industrial Area: (Newly included in Navi Mumbai CEPi Area)

Earlier in 2009 the Taloja MIDC Cluster was not included in the CEPI of Navi Mumbai. Hon'ble NGT Principal Bench, New Delhi in Original Application No. 1038/2018 in their Order dtd.10.07.2019 "The Tribunal also considered the case of pollution in the Taloja industrial area which finds mention under the title 'Navi Mumbai' at rank 51 based on its CEPI score. High level of pollution was found on the basis of joint inspection conducted by the CPCB and the Maharashtra PCB dated 02.01.2018, as the CETP was not functioning properly. The Maharashtra State PCB gave notice to 92 industries for closure. Apart from requiring the CETP operators to deposit a sum of Rs. 10 crores as compensation, steps were required to be taken to remedy the pollution. The Tribunal held that only option was to permit only such industries to function which had stand-alone ETP and are fully compliant with the norms and to close the industries which were non-compliant in O.A No. 125/2018, Arvind Pundalik Mhatre Vs. Ministry of Environment and Forest & Climate Change & Ors., order dated 09.04.2019."

2.1 Location:

Raigad district is positioned as an alternate proposition to Mumbai. It has a distinction of being India's well-planned district in terms of Industrial infrastructure, construction, development, and transport. MIDC Taloja, MIDC Patalganga, MIDC Vile-Bhagad, MIDC Roha & MIDC Mahad are five major industrial area in Raigad district. MIDC Taloja Industrial area is one of the preferred Chemical Industrial Area developed by Maharashtra Industrial Development Corporation (MIDC) . The Industrial area is situated adjacent to Navi-Mumbai and Panvel. It is one of the fully developed Industrial Area having Industries involved in various Industrial activities. The dominating Industrial activities are Chemical, Food and Fish Processing, Dairy Products & Cold stores and Engineering.

MIDC Taloja Industrial area not only enjoys the proximity to Mumbai city, Port and Airport, but also it has very good connectivity through Road, Rail, and Air. The distances to important places are as under:-

JNPT	34 Kms. Approx.
Navade Railway Station	1.5 Kms. Approx.
Proposed Navi Mumbai Airport	14 Kms. Approx.
Mumbai International Airport:.	41Kms Approx.

Some of the renowned industries in Taloja MIDC

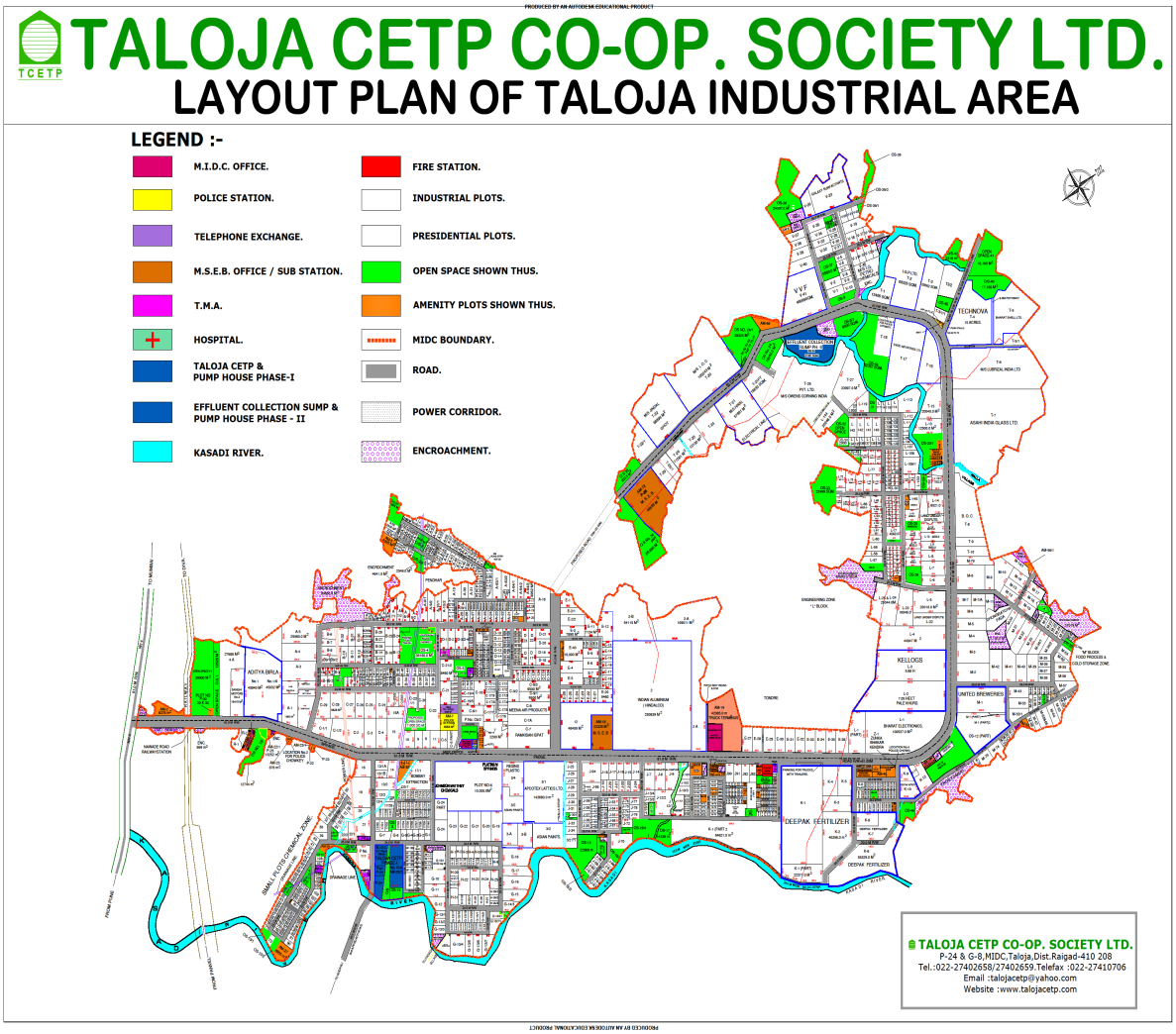
Industry Type	**Names**
Chemical	SARK Chemical Industries, Scottish Chemical Industries, Fineotex Chemical Industries, Hikal Ltd., Deepak Nitrite Ltd., Dow Chemical International Pvt. Ltd.
Engineering/ Automobiles	Exide Industries Ltd, Niumec Engineering Corporation. Convac Engineering Company, Bharat Coach Builders Pvt. Ltd.
Petrochemical / Gas	Universal Petro Chemical, Lubrizol India Ltd., Mahanagar Gas Ltd.
Textile Processors and Textile Auxiliaries	Eskay Dyestuffs & Organic Chemicals Pvt. Ltd., Jaysynth Dyestuff Ltd., Imagico India Pvt. Ltd.
Intermediates	Pidilite, Sai Chemicals & Intermediates Pvt. Ltd.
Drug Intermediates, Bulk	Flamingo Pharmaceuticals Ltd., Glenmark Pvt. Ltd., Johnson

Drugs and Pharmaceuticals	Matthey Chemicals India Pvt. Ltd. Alkem Laboratory.
Food and Dairy Products	Kellogg India Ltd., Godrej Tyson Foods Ltd., United Breweries Ltd., Blue Fin Frozen Foods Pvt. Ltd, A. S. P. Foods.

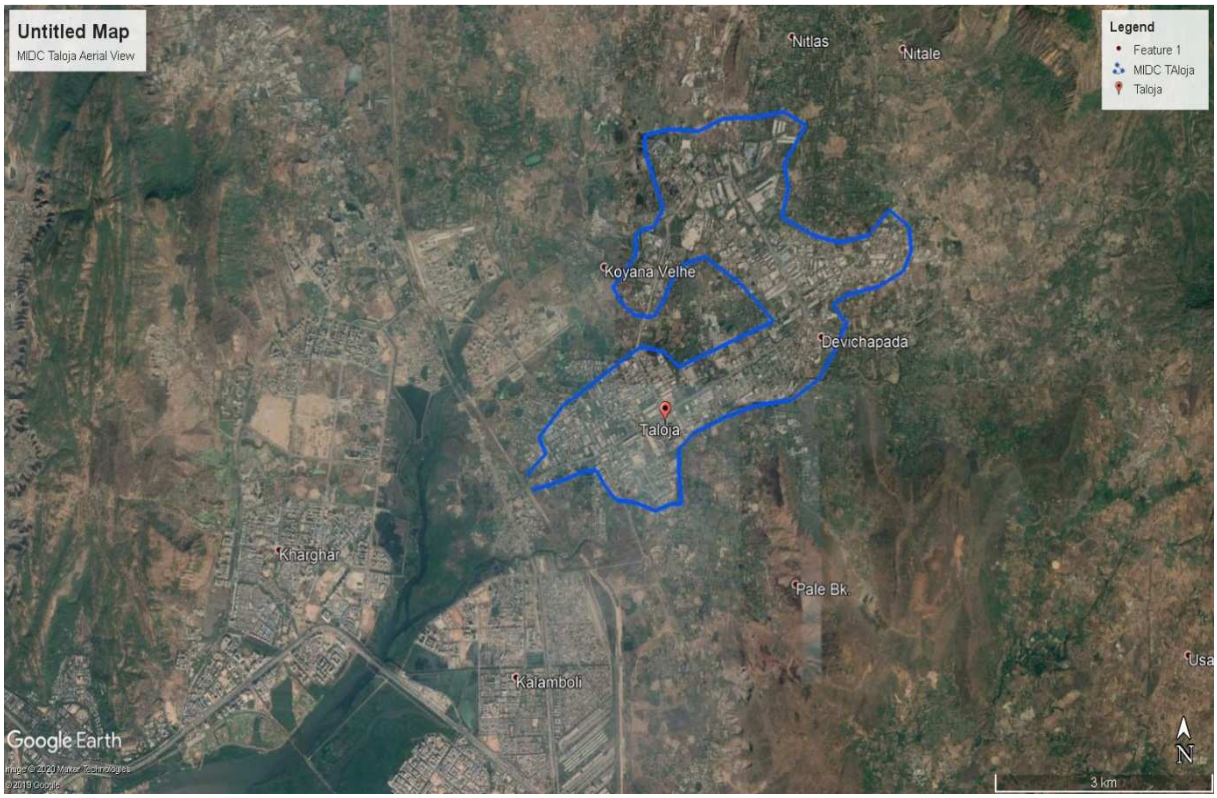
2.2 About MIDC Taloja Cluster:

Name of the Industrial cluster	SRO Taloja Jurisdiction - Taloja MIDC area. SRO Raigad Jurisdiction – Industries located outside MIDC like Jeans Washing Industries, Stone Crushers near Taloja MIDC, Residential colony of Taloja Phas-I & II, Panvel Corporation MSW Site near MIDC.
Area	MIDC Taloja Area Approx. 863.18 Hectors.
Surroundings	✓ East : Hilly Area ✓ West : Panvel Municipal Corporation Residential Area ✓ North: Residential Area ✓ South : Panvel Municipal Corporation Residential Area
Land Use :	Industries in MIDC Taloja, Common Effluent Treatment Plant, Common Hazardous Waste Treatment and Disposal Facility, Common Bio-medical Waste Treatment and Disposal Facility and Panvel Corporation MSW near MIDC

Location Map:



Aerial View of MIDC Taloja:



The initial boundary coordinates of the cluster boundary are as follows:

Direction	Latitude	Longitude
East	19° 4'38.64"N	73° 6'45.06"E
West	19° 4'50.11"N	73° 9'14.31"E
North	19° 5'54.13"N	73° 7'46.13"E
South	19° 3'8.06"N	73° 7'28.86"E

5 Km Impact Zone MIDC Taloja

2.3 Industries in the Taloja Industrial Cluster: Red Category & 17 – Category:

The total number of industries operating in the TTC Industrial cluster is as listed below:

Types of industry	Large	Medium	Small	Total
RED Category	88	16	418	522
Orange Category	27	125	45	197
Green Category	5	4	286	295
Total	120	142	749	1014

17 category Industries			
		In operation (Unit)	**Closed (Unit)**
Pharmaceutical (Bulk Drugs)	03	03	0
Dye & Dye	03	03	0
Petrochemical	01	01	0
Pesticide	01	01	0
Fertilizer	01	01	0
Total	**09**	**09**	**0**

2.4 Water Aspect:

1. **Industrial Effluent:**

- Total trade effluent generation: 17 MLD.
- The treated effluent of the industries is discharged into Common Effluent Treatment Plant (CETP) for further treatment and disposal and then discharged through closed pipeline and disposed into Waghivali creek at about 7 Kms

2. **Common Effluent Treatment Plant in Taloja MIDC:**

- CETP Taloja is constructed in two phases viz. Phase-I & Phase-II of total design capacity 22.5 MLD.
- Phase-I commissioned during December 1999 with an installed capacity of 10 MLD and later augmented to 12.5 MLD in 2000.
- The Phase –II of the CETP was commissioned during February 2008 with a designed capacity of 10 MLD.
- CETP designed for inlet BOD maximum 1000 mg/l and COD maximum 2700 mg/l.
- All effluent generating industries have provided their own ETP, the Board has granted consent with BOD- 100 mg/l and COD- 250 mg/l norms to LSI and MSI units.

Trends of CETP Weekly analysis results

	Average Inlet (mg/l except pH)					Average Outlet (mg/l except pH)				
	pH	BOD	COD	SS	TDS	pH	BOD	COD	SS	TDS
Limits	6 to 9				- -	6 to 9	30	250	100	2100
Year 2018 (Jan to Dec-18)	6	1888.43	4474.9	318.65	10160.51	7.09	956.18	2323.22	229.8	7966.1
Year 2019 (Jan to Aug-19)		919.35	2491.1	475.48	4904.68	6.98	607.9	1567.35	276.65	4894.1

2.5 Common Hazardous Waste Treatment Storage Disposal Facility at Taloja:

a. Mumbai Waste Management Limited

i. Secured landfill : 1,20,000 MT/Y

Incinerator: 20,000 MT/Y

MSW Site Photos

2.6 BIO MEDICAL WASTE at Taloja:

MWML at Taloja has established a common bio medical waste facility for disposal of BMW wastes in the year 2003. Following units are operational in this facility:

b. Segregation of waste and colour coded bagging of waste at source.

c. Door to door BMW collection and transportation facility

d. Incinerator of capacity 200 Kg/ Hour

e. Autoclave two nos of capacity 600 & 200 Liters/Cycle respectively.

f. Shredder

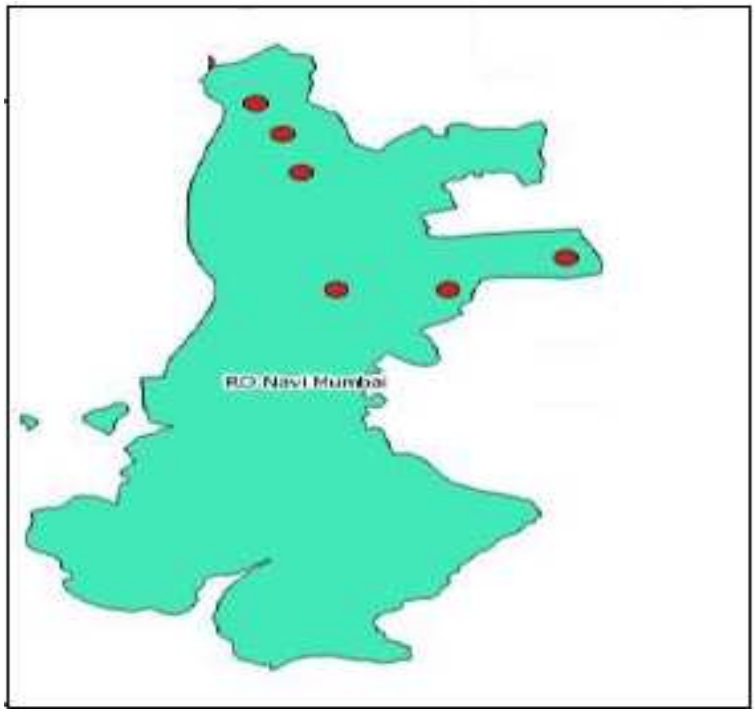
g. Secured landfill

2.7 Major Issues in Taloja MIDC Area:

- Incidence of leakage of effluent due to breakage of effluent carrying pipeline.
- Overflow of MIDC effluent carrying chambers.
- Overflow of CETP collection chamber particularly during heavy rain.
- MIDC has not provided drainage system in some pockets of MIDC area.
- Approach roads to MIDC are not in good condition and dusty.
- The treated effluent from CETP is pumped through closed pipeline and disposed into Waghivali creek at about 7 Kms, which needs to be extend upto the point suggested by NIO with diffuser system.

3. Ambient Air Quality Monitoring:

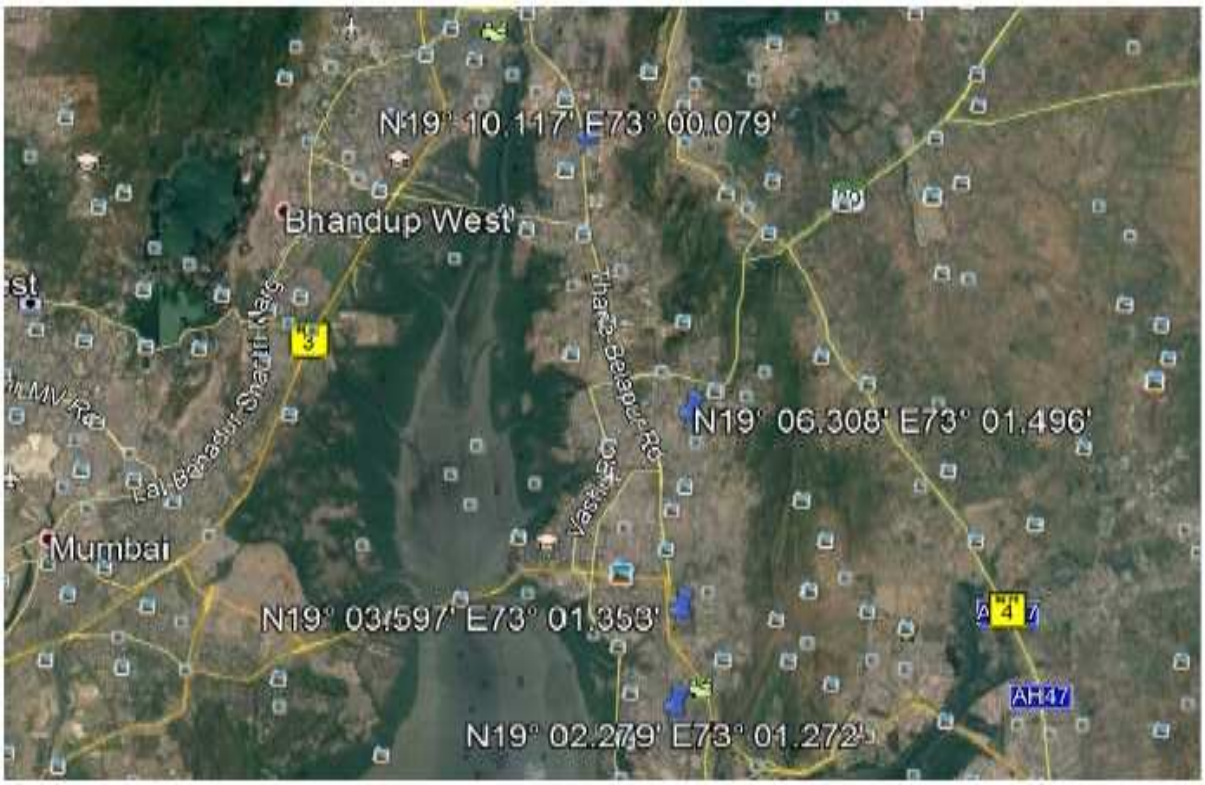
M.P.C.Board has carried out Ambient air quality Monitoring at various location at Navi Mumbai are as below,



AREA	Station name	Type	Latitude	Longitude
Navi Mumbai	Rabale	Industrial	19°08' 15.2" N	73° 00' 13.1" E
Navi Mumbai	Nerul - DY Patil	Residential	19° 02' 28.1" N	73° 01' 29.5" E
Navi Mumbai	Mahape, MPCB-Nirmal Bhavan	Industrial	19° 06' 49.0" N	73° 00' 40.1" E
Navi Mumbai	Airoli	Rural and other areas	19° 09' 21.4" N	72° 59' 35.4" E
Taloja	Kharghar - CIDCO Nodal Office	Residential	19° 02' 29.4" N	73° 04' 11.8" E
Taloja	Taloja - MIDC Building	Industrial	19° 03' 40.0" N	73° 06' 58.6" E

2. MONITORING STATIONS SELECTED BY CPCB: SURFACE WATER, GROUND WATER& AIR QUALITY:

i. Air Quality Monitoring Station:

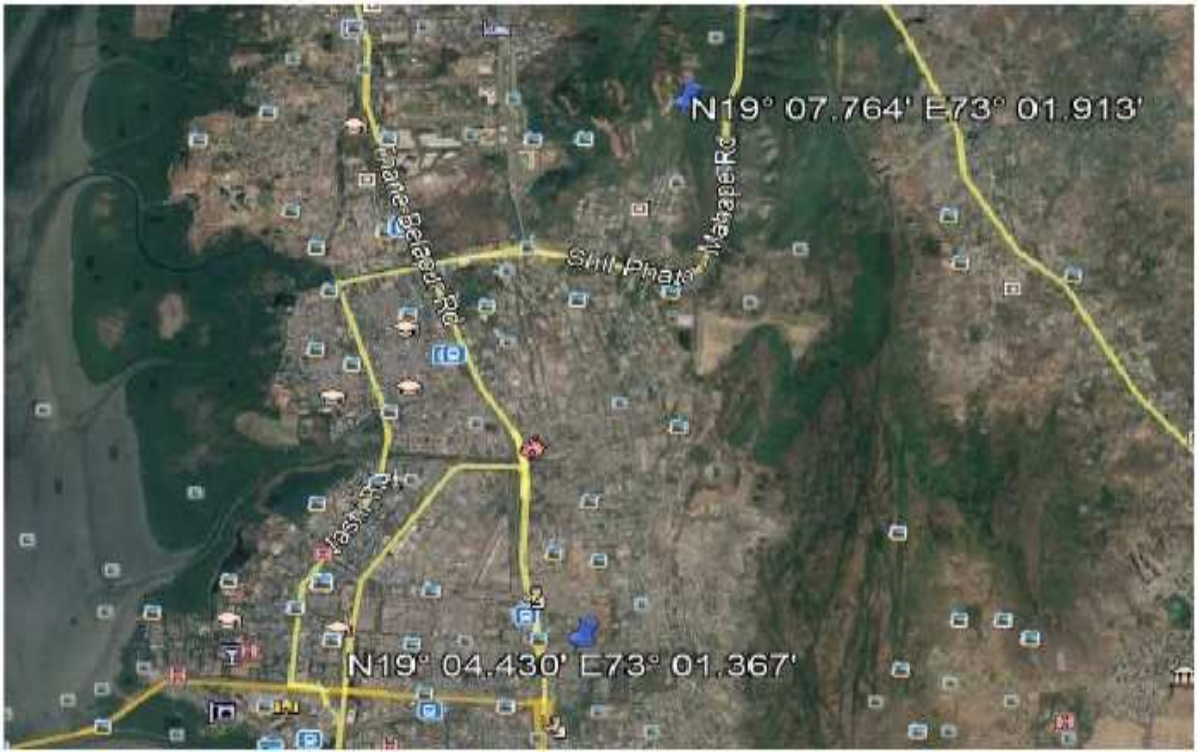


Sr. No.	Location Name	Latitude	Longitude
A-1	DY PATIL HOSPITAL, SECTOR-V, NERUL, NAVI MUMBAI	N19°02'27.88"	E73°01'27.22"
A-2	TTCWMA, MAHAPE, NAVI MUMBAI	N19°03'59.68"	E73°01'35.35"
A-3	RELIABLE IT PARK, AIROLI, NAVIMUMBA	N19°06'30.77"	E73°01'49.57"
A-4	ZOETIS PHARMACEUTICALS RESEARCH PVT. LTD, PLOT NO 16, TTC, MIDC TURBHE, NAVIMUMBAI	N19°10'11.71"	E73°00'07.89"

ii. **Surface Water Monitoring Station:**

Sr. No.	Location Name	Latitude	Longitude
SW-1	AIROLI CREEK AT AIROLI BRIDGE, NAVI MUMBAI	N19°08'09.00"	E72°59'59.03'
SW-2	VASHI CREEK AT VASHI BRIDGE, NAVI MUMBAI	N19°03'83.20"	E72°58'68.20"

iii. Ground Water Monitoring Station:



Sr. No.	Location Name	Latitude	Longitude
GW-1	DUG WELL AT TURBHE GAON, NAVI MUMBAI	N19°07'76.41"	E73°01'91.27"
GW-2	NAVI MUMBAI MSW DUMPING GROUND, BOREWELL WATER, TURBHE NAVI MUMBA	N19°04'42.97"	E73°01'36.71"

Comprehensive Environmental Pollution Index As per CPCB Monitoring 2017-2018:

Pollution in the Taloja industrial area which finds mention under the title 'Navi Mumbai' at rank 51 based on its CEPI score.

Sr. No	Industrial Area	Air	Water	Land	CEPI Score	Rank
1	Navi Mumbai	56.00	63.00	16.00	66.32	51

Revised CEPI is comprised of the following components:

Component A	**Scale of industrial activity**	**20 Marks**
Component B	**Status of Ambient ENV. Quality (Air/SW/GW)**	**20 Marks**
Component C	**Health related Statistics**	**20 Marks**
Component D	**Compliance of**	**20 Marks**

a) Air Score:

- **Ambient Air Quality Parameter considered for CEPI calculation: PM_{10}, PM $_{2.5}$ & As.**
- **Sub Score (A+B+C+D)= (16+30+10+0)=56.0**

b) Water Score (Surface Water):

- **Surface Water Parameter considered for CEPI calculation : BOD, TP,Hg**
- **Sub Score (A+B+C+D)= (16+37+10+0)=63.0**

c) Land Score (Ground Water):

- **Ground Water Parameter considered for CEPI calculation : Total Hardness, TDS, Iron**
- **Sub Score (A+B+C+D)= (6+0+10+0)=16.0**

COMPLIANCE OF SHORT TERM AND LONG TERM ACTION PLAN

With the implementation of long term and short term plan, the impact on Environment pollution have decreased which is visible from the decrease in the CEPI score of the region.

Summary of action plan implementation are given below:

Short Term Action Point (upto 1 year, including continuous Activities)

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
1	Uncovered area will be connected to CETP, TTC	MIDC, CETP, MPCB.	MIDC Authority in TTC Industrial Area Drainage Network for (underground Effluent collection System) Airoli & Digha (K Block) has been connected to CETP TBIA Navi Mumbai. Work is completed.	Complied
2	Performance Evaluation of CETP, TTC	CETP, MPCB.	MPCB had already carried out a "Report on Assessment of the Adequacy of Common Effluent Treatment Plant of Thane-Belapur Association and after going through the report the overall performance is conforming to the conditions imposed in the consent granted to CETP and it is being operate and maintained by the Thane Belapur CETP Association regularly. Performance of CETP is weekly monitored by MPCB	Complied. As it is regular activity ongoing

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
3	Performance Evaluation of ETPs, In TTC industrial Area	Industries	➢ There are total 48 no. of Large and Medium Scale Industries generating trade effluent and have provided necessary ETPs. ➢ Those ETPs are being operated regularly. The statement showing the results on monitoring of 48 Nos of Large and Medium Scale Industries is already submitted in previous progress report. ➢ Most of all industries generally meeting the consented standards. ➢ 17 category industries 11 have installed on-line monitoring system for water quality monitoring at ETP Outlet remaining 4 are SSI units and follow up with for one unit ➢ M/s. Modepro India Pvt. Ltd. has carried out performance evaluation from third party and reported that, performance of the ETP is satisfactory.	

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
4	Performance Evaluation of ECS. In TTC	Industries	➢ Because of switch over to cleaner fuel, the compliance in respect of the standards of air pollution control has been improved. ➢ Total 69 industries have changed their fuel pattern and using PNG as fuel. ➢ Another 22 industries have submitted their application for change in fuel (Use of PNG) to Mahangar Gas Co	
5	Repairs of Internal Roads in TTC MIDC area.	NMMC	There are internal roads of 95 km in TTC MIDC area, Navi Mumbai Municipal Corporation authority informed that 98% construction work of internal roads in MIDC area is completed & the remaining work will be completed at the earliest.	Complied
6	Taking possession of drainage pipeline carrying effluent to CETP, TTC	CETP, MIDC, MPCB as Nodal Agency	➢ Treated effluent of the MIDC area is collected at Thane Belapur CETP through MIDC drainage system. ➢ Part of system is under possession of MIDC and part under possession of CETP. ➢ CETP & MIDC officials giving quick response in case of accidental breakages.	Complied

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
7	Online display of AAQM data.	TBIA MPCB as Nodal Agency	➢ AAQM is carried out at 3 locations by MPCB under NAMP (Mahape, Nerul&Rabale (TBIA Rabale) for measurement of parameters – SO2, NOX, RSPM , SPM & results of the same displayed on MPCB website at http:// www. mpcb. gov.in /envtdata /demoPage1.php ➢ Also, there are four automatic online display centers (CAAQMS) installed by NMMC at four locations viz, Airoli Fire Station, Turbhe MSW Site, Koparkhiarne&Nerul garden. Air Quality Index (AQI) is displayed in public domain at http://www.mpcb.gov.in/envtdata/demoPage1.phpon MPC Board website	Complied

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
8	Inventory of Hazardous air Pollutant emitting units and installation of Leak detection & repair (LDAR) in Case pesticide &bulk drug manufacturing units, TTC	MPCB/ Individual industry	➢ Presently, 16 industries identified as a Hazardous Air Pollutant emitting units. ➢ This office has issued directions to all 16 industries to install Leak detection & repair system (LDAR) within 06 months. ➢ Presently, 10 industries installed LDAR namely- 1. Amines & Plasticizers Ltd. Turbhe 2. Lubrizol Ltd. Turbhe 3. Zydus Takeda Healthcare Ltd. Pawane 4. NOCIL Ltd. Pawane 5. Sandoz Ltd. Turbhe 6. RPG Life Sciences Pawane 7. Lubrizol Ltd. Pawane 8. SI Group Pvt. Ltd. Turbhe 9. Modepro India Pvt. Ltd. 10. Croda Chemicals Ltd.	Complied + ongoing work

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
9	Monitoring of the Industries for compliance of CEPI norms, TTC	MPCB/ Individual industry	➢ Point wise periodical review taken. ➢ Reduction due to closed industries (57 Industries were closed) :- ✓ BOD- 800.49 T/A ✓ COD - 1855.59 T/A ✓ SO2 - 17300.50 T/A ✓ HW - 14926.10 T/A	Complied
10	Recovery of Solvent by solvent using units, In TTc	Industries	➢ Bulk Drugs units are using solvents in their process and generate waste solvents ➢ All major industries have installed their own solvent recovery system at their site. ➢ At present, they are sending waste solvents to authorized party. ➢ There 24 Solvent distillation Units out which 12 are operational and remaining 11 units closed&01 unit not involved in waste solvent recovery ➢ Board has issued directions u/s 31 (A) of Air (P&CP) Act to solvent reprocessing units to enhance the recovery of solvent up to 96%. Accordingly, all operational units achieved their solvent recovery up to 96%.	Complied

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
11	Health Impact Assessment Study.	DISH District Health Officer MPCB	➢ DISH, District Health Officer are being requested to give information about health in the industrial area. ➢ DISH is agreed to submit Impact report on regular basis. ➢ DISH informed vide letter dated 16/10/2015 that, as per Rule 18 A of the Maharashtra Factory Act, 1963, it is mandatory on every occupier to carry out health check-up of workers through Authorized Medical Officer. Also informed, 11 industries carried out health check-up of 987 workers NMMC is supplying treated water in corporation area. The source of water supply is Morabe dam, which is about 30 Km away from the city.	Complied (Health impact studies to be initiated)
12	Monitoring of ground water at MSW/TSDF site.	MPCB	• MPCB is regularly monitoring ground water quality at CHWTSDF & MSW site and analysis reports shows ground water quality is not chemically deteriorated.	Complied

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
13	Improvements in CETP, In TTC	CETP	Improvements in CETP- 1. Installed on line monitoring system for pH, DO and flow meters. 2. Installed & Commissioned 2 Nos. 20 HP Mixer aerators in the aeration tank. 3. Installed & Commissioned of Central Control Panel (Mimic Panel) for the plant operators to monitor the functioning of all unit operations from one place and exercise adequate control. 4. Installed Online TOC Analyzer for continuous monitoring of quality of treated effluent in 2004 5. Microbiological laboratory has been set up. 6. Installed CCTV Cameras at various points at the plant process to monitor the operations closely. 7. Installed a pilot plant of 2000 ltrs. for Bio-gas generation by feeding biological sludge with small amount of kitchen waste. 8. Installed Solar PV system of 2.4 KWP for internal lightening 9. Installed Centrifuge decanters for faster drying and better handling of sludge in 2013 10. Installed Real Time effluent quality monitoring systems for effluent at both inlet and outlet of CETP ➢ Board has asked to carry out performance evaluation of CETP to know present scenario.	

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
14	Installation of VOC analyzer, in TTC	Industries	Total 16 industries have been identified to install VOC analyzer. Out this 10 industries have installed VOC analyzer system. 2 units not in operation. And remaining 4 units has been directed for compliance.	
15	Set up of New AAQM Station, Navi Mumbai	TBIA and MPCB	➢ Already there are three AAQM Stations (NAMP) established by MPCB (Nerul, Rabale, Mahape). ➢ In view of CEPI Action Plan, the Board has installed CAAQM Stations at Mahape CEPI area, which is in operation	

Long Term Action Points (more than 1 year)

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
1.	Improvements in CETP.	CETP	• CETP (Thane-Belapur) Association is involved in treatment of industrial effluents generated from TTC industrial area and total 27 MLD CETP is in successful operation since almost 15 years • Performance of CETP is weekly monitored by MPCB	Continuous process
2	Up gradation of Individual ETPs	Industries	➢ All the major industries had improved their treatment system to reduce pollutant load at least by 10%. Recently 3 nos of industries upgraded their existing ETP which was reported in last progress report as – 1. M/s. SoujanyaColourPvt Ltd Plot no: C-35 & 36 TTC MIDC Pawane 2. M/s. Zydus Takeda Health Care PvtLtd Plot no: C-4 TTC MIDC Pawane. Navi Mumbai (Installed RO System for 50% effluent generated) 3. M/s. RPG Life Sciences Pvt. Ltd. Plot No. 25, MIDC Pawane, Navi Mumbai	Complied

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
3	Change in fuel	Industries	Total 69 industries have changed their fuel pattern and using PNG as fuel and the remaining 13 industries using coal as fuel has been directed to switch over for use of PNG, however because of economic viability out these 13 units 11 has upgraded ECS and provided Bag filter and ventury scrubbers.	Complied +Ongoing activity
4	Improvement in ECS	Industries	Individual 13 units which have upgraded ECS. Monitoring of these units will be carrying out.	
5	Replacement of damaged pipeline. The replacement of old/damaged pipelines by the new one has not been completed.	MIDC	• Total length of pipeline (Collection & Disposal) - 113 Km • Length of existing HDPE pipeline-15 Km • Remodeling with HDPE pipe a) Administratively Approved- 2 Km b) Proposed for Administrative approval -42 Km c) Tender under process - 22 Km d) Work in Progress-7 Km	
6	To provide proper sewerage system for slum pockets & connects the sewage to STPs & use of treated sewage for gardening & industrial purpose	MIDC/ NMMC	• Recently NMMC/ MIDC have jointly removed the illegal encroachment in MIDC area. • A Detail DPR is under progress after finalization of the same appropriate action will be taken. • Concern local bodies are being requested to submit updated information in this regard.	

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
7	Installation of CAAQM Stations with digital display on screen.	TBIA	➢ There are 4 nos of CAAQMS stations are operating at four stations viz Nerul Garden, Airoli, Turbhe MSW Site &Koparkhiarne by the Navi Mumbai Municipal Corporation. (Monitoring 12 parameters as per National Air Quality Standards).	Complied
8	Development of green belt & garden.	MIDC/ TBIA	Thane Belapur Industries Association (TBIA) informed that, over 12,00,000 saplings have been planted in Navi Mumbai area with 90% survival rate. Plantation is regularly carried out by MIDC TBIA, Individual industries &Navi Mumbai Municipal Corporation.	Complied+ On going activity
9	Scientific Disposal of MSW. (500 MT/D)	NMMC	MSW disposal site i.e. installation of leachate treatment plant, waste to Compost and RDF projects etc. are completed and operating satisfactory.	Complied
10	Installation of Supervisory control and data acquisition (SCADA)	Industry CETP MPCB	A system for remote monitoring and control that operates with coded signals over communication channels for industries generating more than 100 CMD trade effluents, as a mitigative measures towards leakage of effluent carrying pipeline. Total 15 nos of industries installed SCADA system.	

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
11	Air pollution control measures for stone crusher units.	MPCB Stone Crusher Units	These units are one of the sources of air pollution. The Board has constituted field team comprising of members of NEERI & IIT and carried out extensive survey of stone crusher units and taken action against 24 defaulting units under section 31 A of Air (P&CP) Act, 1981& now, 19 nos. of the stone crushers have taken steps towards improvement of air pollution control system by providing dust suppression system, water sprinkling arrangement & metal road. All stone crusher units have installed water sprinkling system & covered the trucks during transportation of raw & finished material.	Complied
13)	Installation of Online monitoring system to 13 nos. of highly polluting (17th Category) industries.	Industry MPCB	Total 11 units have installed online effluent monitoring system. CPCB has issued closure direction to 01 unit and 01 unit has reported, online monitoring system is not applicable as per CPCB guidelines.	Complied

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
14	Vehicle pollution and traffic management plan	NMMC RTO MIDC	Regional Transport officer and local Body(Navi Mumbai Municipal Corporation) are being requested to give the point wise information about the time bound strategy to control the vehicular pollution and traffic management for : a) Phasing out of the old commercial vehicles say more than 15 years old, most of which are diesel driven b) Conversion of existing public transport buses/tempos/mini buses to CNG/PNG operated. c) Introduction of suitable public road-transport system. d) Diversion of non-destined traffic especially the trucks trough by pass roads. e) Construction of under – passes, fly-overs and widening of roads to control the traffic jams	

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
15	Reuse of Treated Sewage.	NMMC MPCB	• The raw sewage generated in NMMC area is 230.00 MLD. • Though the NMMC has installed 8 sewage treatment plant (Total capacity of these Sewage Treatment Plants is to treat 434 MLD). • STP's installed based on Cyclic Activated Sludge Technology (C-Tech) process. C-Tech Technology was found efficient to produce the excellent effluent quality which fulfills the effluent discharge standards & as well Water Recycling requirement for non-potable reusages. • Presently treated sewage and the treated effluent is being disposed into Vashi Creek and ultimately to Arabian Sea. • Land use pattern, Low lying area unsuitable for development. Navi Mumbai Municipal Corporation, Thane-Belapur) Association is involved in CETP operation is being requested to explore and give the information on the Possibilities to enhance the reuse of treated sewage.	Immediate + ongoing activity.

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
16	Air Quality Monitoring and Emission Source apportionment Study of Navi Mumbai City	NMMC / MPCB	MPCB issued Work Order to IIT (B), Mumbai and NERI. Work under progress.	
17	Noise mapping of Navi Mumbai City	NMMC / MPCB	NEERI has carried out Noise mapping	Completed
18	Awareness program	MPCB TBIA	Awareness programs are conducted regularly in coordination with TBIA, TTCWMA, CETP & other industries. MPC Board has also conducted aware ness programs such as – World Environment day (5 June), World Ozone Day (22 Sep), Eco friendly Ganesh Festival, Vasundhara Awards, & Fire Cracker testing during Diwali.	Complied + Ongoing activity

EFFORTS TAKEN FOR POLLUTION REDUCTION:

3. Infrastructure Developments

1. There are internal roads of 95 km in TTC MIDC area, Navi Mumbai Municipal Corporation authority informed construction work of internal roads in MIDC area is completed.

2. TTC Industrial Area Drainage Network for (underground Effluent collection System) Airoli & Digha (K Block) has been connected to CETP TBIA Navi Mumbai.

3. Four number of CAAQMS stations are operating at four stations viz Nerul Garden, Airoli, Turbhe MSW Site & Kopar khiarne by the Navi Mumbai Municipal Corporation. (Monitoring 12 parameters as per National Air Quality Standards).

4. Water Environment

1. Large and Medium Scale Industries generating trade effluent and have provided necessary ETPs. Those ETPs are being operated regularly.

2. 17 category industries 11 have installed on-line monitoring system for water quality monitoring at ETP Outlet.

3. Population of the Town is above a million. Requirement of water for the Township is 317 MLD which is fulfilled by Morbe, Barvi and Hetwane dam, and generation of sewages is 245 MLD. The NMMC have provided 8 Sewage Treatment Plants (STP) at various places. All of them are fully equipped and working satisfactorily.

5. Air Environment

1. Total 69 industries have changed their fuel pattern and using PNG as fuel and the remaining 13 industries using coal as fuel has been directed to switch over for use of PNG, However because of economic viability these 13 units has upgraded ECS and provided Bag filter and ventury scrubbers. Work in progress for remaining 2 units.

2. Total 16 industries have been identified to install VOC analyzer. Out this 10 industries have installed VOC analyzer system. 2 units not in operation. And remaining 4 units has been directed for compliance.

3. Dust suppression measures at the stone crusher cluster found to be in effective. Trucks carrying the crushed stone material not covering the material that is being transported.

6. Municipal Solid Waste Management

1. MSW disposal site i.e. installation of leachate treatment plant, waste to Compost and RDF projects etc. are completed and operating satisfactory.

2. NMMC has Provided leachate treatment plant and in operation satisfactory

7. Hazardous Waste Management

1. The TSDF site was commissioned in the year 2004. TTCWMA is operating a Secured Landfill Facility. The first landfill is permanently capped; the second landfill is in operation.

2. Bore well water at CHWTSDF premises are being monitored regularly. From the results, it seems that ground water in the above vicinity is not deteriorated

3. CHWTSDF premises are being monitored regularly. From the results, it seems that ground water in the above vicinity is not deteriorated

4. Presently, 16 industries identified as a Hazardous Air Pollutant emitting units. This office has issued directions to all 16 industries to install Leak detection & repair system (LDAR) within 06 months.

5. Presently, 10 industries installed LDAR namely-

    1. Amines & Plasticizers Ltd. Turbhe

    2. Lubrizol Ltd. Turbhe

    3. Zydus Takeda Healthcare Ltd. Pawane

    4. NOCIL Ltd. Pawane

    5. Sandoz Ltd. Turbhe

    6. RPG Life Sciences Pawane

    7. Lubrizol Ltd. Pawane

8. SI Group Pvt. Ltd. Turbhe

9. Modepro India Pvt. Ltd.

10. Croda Chemicals Ltd.

6. There 24 Solvent distillation Units out which 12 are operational and remaining 11 units closed & 01 unit not involved in waste solvent recovery.

7. 12 Operational Solvent Distillation Units has enhanced recovery of solvent capacity from existing 75% to 96% recovery of solvent (all operational units achieved their solvent recovery up to 96%).

8. Bio Medical Waste Management

1. M/s.Mumbai Waste Management Ltd.(MWML) has developed disposal facility for BMW at MIDC, Taloja, Dist.Raigad. All the BMW in Navi Mumbai is collected and disposed scientifically by MWML.

2. A joint venture of TERI and NMMC (Navi Mumbai Municipal Corporation) under the project “ECO–CITY”. Cutting across three major sectors- residential, industrial, and government, the Eco-city project shall be accomplished in two phases in the span of three years. Phase I focussed on estimating the city level carbon emissions of Navi Mumbai and preparing a comprehensive action plan for implementing the Eco–city project. The ongoing Phase II of the project shall witness the implementation of the action plan developed in Phase I. Overall, the project would be implemented as a PPP model (Public–Private Partnership), with a strong participatory role played by the public as well as private sector of Navi Mumbai.

Carrying out CEPI Monitoring as per CPCB direction dtd.26/04/2016:

As per CPCI direction dtd.26/04/2016 Board has selected third party agency (laboratory) recognized under Environmental (Protection) Act, 1986 and accredited under NABL through E-tendering for 3-year Post-monsoon season & Pre-monsoon Season monitoring. The monitoring data with CEPI score were communicated to CPCB and uploaded on public domain. The monitoring score are as below,

Below are the CEPI score from 2017 to Feb 2019 Carried by Board through third party as per CPCB direction:

	Air Index	Water Index	Land Index	CEPI
CEPI score Feb 2019	40	32.5	22.5	44.39
CEPI score June 2018	40	22	13.5	41.78
CEPI score February 2018	48	53.75	56.25	67.54
CEPI score June 2017	52	49	49	63.52
CEPI score February 2017	51	48	36	59.46
CEPI Score 2016	30.5	48	48	56.86

PROPOSED ACTION PLANS FOR 2019 – 2020:

1. CEPI area for Navi Mumbai including TTC Industrial area, MIDC Navi Mumbai (including Blocks-D, C, EL, A, R, General, Kalva and newly added Taloja Industrial Estate.

2. In the Application No. 1038/2018, directions are given by Hon'ble NGT regarding CEPI score for Aurangabad is 66.32 as its rank is 51 as Severely Polluted Industrial Area (SPAs).

3. MPCB with all stakeholders prepared time bound action plan t improve CEPI score as an below,

No	Points	Action	Time Target	Concerned Stakeholder
1	Assessment of carrying capacity of Navi Mumbai CEPI Area	M. P. C. Board is in process to carrying study for further planning of pollution control in Aurangabad CEPI area.	18 month	MPCB
2	Mechanism to be developed for reduction of CEPI score	Measures for reduction in pollution - a) Enhancement in green belt from 33% to 40%.	Coming monsoon	Industry/ MIDC
		b) Encouragement to switchover to clean fuel PNG from existing fuel coal.	June-2020	Industry & MNGL
		c) Permissible limit for TPM to be reduced from 150 ppm to 50 ppm.	June-2020	MPCB & Industry
		d) Zero liquid discharged to be achieved by major polluting units.	June-2020	MPCB & Industry
3	Pollution control measures in MIDC area	a) Inspection & monitoring of air polluting industries to assess the compliance status for adequacy of APC system.	March-2020	MPCB & Industry

No	Points	Action	Time Target	Concerned Stakeholder
		b) Repair & maintenance of approach & internal roads of industrial area.	March-2020	MIDC & Local Body (NMMC & Panvel Municipal Corporation)
		d) Provision of land by MIDC to NMMC for installation of 5 MLD STP & work of STP to be completed within 18 months. Provision of drainage network to cater the sewage generating from slum pockets & other residential areas to STP.	April-2021	MIDC & NMMC.
		f) Extension of disposal point treated effluent of Thane-Belapur CETP as well as Taloja CETP & strengthening of the disposal pipeline. Action plan to be submitted within 15 days	March-2020	MIDC
		g) Replacement of old drainage pipelines in the MIDC areas as well as regular operation & maintenance of drainage system to prevent the leakages of effluent into nallas.	Dec-2020	MIDC
		i) To provide PNG facility to maximum industries in TTC & Taloja. To organise a co-ordination meeting of industries, MNGL & MPCB within 15 days. To submit business plan for replacement of PNG as fuel.	March-2020	MNGL
		j) To provide proper treatment & disposal facility for sewage & MSW generating in & around Taloja MIDC. To submit	Dec-2020	Panvel Municipal Corporation
	CAAQMS	Installation of CAAQMS Station at Taloja MIDC	Dec-2020	MPCB

No	Points	Action	Time Target	Concerned Stakeholder
	Ban on Biomass burning on open land (This action point is incorporated in City level action plan under NCAP also sperate follw-up as per Hon'ble NGT order in OA No. 606/2018)	1. Launch extensive drive against open burning of bio-mass, crop residue, garbage, leaves, etc. 2. Ensure segregation of waste at source 3. Regular collection of municipal solid wastes. 4. Regular check and control of burning of Municipal Solid waste 5. Providing Organic Waste Compost machines, decentralization of processing of Waste, dry waste collection centers. 6. MPCB already issued direction on 29/08/2019 to Municipal Corporation for complete prohibition on open burning and for violation imposed Environmental Compensation.	Continuous process	Municipal Corporation

Conclusion:

Earlier CEPI score calculated by CPCB in 2009-2010 Navi Mumbai (without Taloja MIDC) was ranking at no 30 with overall CEPI score 73.77 i.e Critically polluted Industrial cluster, but after effective implementation CEPI score of Air, water & land are reduce and now as per CPCB 2017-2018 monitoring report Navi Mumbai industrial area is out of critically polluted industrial area and overall CEPI score below 70. All stakeholder taking effort for same. Now in Navi Mumbai Taloja industrial area is added. The proposed action plan will help to reduce Air CEPI score below 60.State Level Monitoring Committee, under Chairmanship of Principal Secretary, Environment Department and M.P.C.Board under Chairmanship of Member Secretary taking review meeting for effective implementation of action plan.

205

ANNEXURE - II

BEFORE NATIONAL GREEN TRIBUNAL

WESTERN ZONE BECH – PUNE

DIST – PUNE

Original Application No.77/2016 (WZ)

IN

Application No.33 (THC)/2013

In the matter of :-

JanardanChandarPatil -APPLICANT

V/s

Union of India -APPELLANT

AFFIDAVIT

I, Dr. Anant Harshwardhan, aged about 53 Years, occupation-service, the Incharge Regional Officer of the Maharashtra Pollution Control Board at Navi Mumbai, having my office at Raigad Bhavan, 6th Floor, CBD Belapur, Navi Mumbai, do hereby state on solemn affirmation in continuation with the earlier Affidavits & compliance of the order dated 26.07.2016 on behalf of the Respondent No.5 as under :-

211

NOTARY
DEEPAK RAMLAL BADGUJAR
PUNE DISTRICT
Reg. No. 239
Exp. Date 12/5/2018
GOVERNMENT OF INDIA

BEFORE NATIONAL GREEN TRIBUNAL

WESTERN ZONE BECH – PUNE

DIST – PUNE

Original Application No.77/2016 (WZ)

IN

Application No.33 (THC)/2013

20 AUG 2016

In the matter of :-

Janardan Chandar Patil -APPLICANT

V/s

Union of India - Respondents

AFFIDAVIT ON BEHALF OF RESPONDENT NO.5-MPCB

I, A.D. Mohekar, aged about 55 Years, occupation-service, the Regional Officer of the Maharashtra Pollution Control Board at Navi Mumbai, having my office at RaigadBhavan, 6th Floor, CBD Belapur, Navi Mumbai, do hereby state on solemn affirmation in continuation with the earlier Affidavits &compliance of the order dated 28.07.2016 on behalf of the Respondent No.5 as under :-

NATIONAL GREEN TRIBUNAL PUNE FILED
Date 20/8/2016

Sr. No.	Order	Compliance
01	The Member Secretary, CPCB shall review the action plan for control of pollution for Navi Mumbai area submitted by MPCB for its adequacy and efficacy and finalise the	Concerned with CPCB The Board will ensure the approval to the action plan prepared by MPCB with rigorous follow up with CPCB.

(1)

MAHARASHTRA POLLUTION CONTROL BOARD
Regional Office - Navi Mumbai

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Fax : 022-2757 1586
Visit us at :- htpp//mpcb.gov.in
e-mail : ronavimumbai@ mpcb.gov.in

Raigad Bhavan, 7th Floor,
Sector-11,
C.B.D.Belapur
Navi Mumbai 400 614

No: MPCB/RONM/NGT/ 160927 AP0292 Date: 27/08/2016

To,
The Registrar,
National Green Tribunal (Western Zone, Pune Bench),
New Administrative Building, 1st floor, B-Wing,
Opposite Council Hall,
Pune – 411001.

Sub: Progress Report of Action plan of CEPI - Navi Mumbai.

Ref: 1. Hon'ble NGT (Western Zone) Bench order dt: 17/08/2015 – Application No: 33 (THC)/2013 (WZ).
2. Hon'ble NGT (Western Zone) Bench order dt: 01/7/2016, 12/7/2016, 26/7/2016, 28/7/2016, 22/08/2016 & 06/9/2016

Sir,

As per Hon'ble NGT (Western Zone) Bench order dt: 17/08/2015 – Application No: 33 (THC)/2013 (WZ), Board office has taken review of Action Plan with stake holders on 31/8/2016 and the minutes of the meeting is submitting herewith.

MPC Board has already requested CPCB to approve earlier submitted action plan submitted vide letter dated 02/11/2015, 19/7/2016 & 04/8/2016 and also requested to update CEPI index of Navi Mumbai and communicate updated CEPI index to MPCB.

Thanking you.

Yours faithfully

(A.D. Mohekar)
Regional Officer, Navi Mumbai

NATIONAL GREEN TRIBUNAL
PUNE
FILED
Date 28/9/16

Copy submitted for favour of information to:

1) The Member Secretary, MPCB, Mumbai

Copy submitted to:

2) Joint Director (APC), MPCB, Mumbai -- For necessary follow up.
3) The Regional Officer (HQ), MPCB, Mumbai.

MAHARASHTRA POLLUTION CONTROL BOARD
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Sector-11,
C.B.D.Belapur
Navi Mumbai 400 614

No: MPCB/RONM/NGT/1611156T0001 Date: 16 /11/2016

To,
The Registrar,
National Green Tribunal (Western Zone, Pune Bench),
New Administrative Building, 1st floor, B-Wing,
Opposite Council Hall,
Pune–411001.

Sub: Progress Report of Action plan of CEPI-Navi Mumbai.

Ref: 1. Hon'ble NGT (Western Zone) Bench order dt: 17/08/2015 – Application No: 33 (THC)/2013 (WZ).
2. Hon'ble NGT (Western Zone) Bench order dt: 01/7/2016, 12/7/2016, 26/7/2016, 28/7/2016, 22/08/2016& 06/9/2016

Sir,

As per Hon'ble NGT (Western Zone) Bench order dt: 17/08/2015 – Application No: 33 (THC)/2013 (WZ), Board office has taken review of Action Plan with stake holders on 19/10/2016 & 09/11/2016 and the progress report as on Oct 2016 is submitting herewith.

MPCB has started manual AAQM station at MIDC Mahape garden as per the Hon'ble NGT directives till installation of CAAQMS.

MPC Board is taking rigorous follow up with CPCB and requested CPCB to approve earlier submitted action plan vide letter dated 02/11/2015, 19/7/2016, 04/8/2016&17/8/2016and also requested to update CEPI index of Navi Mumbai and communicate updated CEPI index to MPCB.

MPC Board has calculated CEPI and same is 56.48.

Thanking you.

Yours faithfully

(A.D. Mohekar)
Regional Officer, Navi Mumbai

Copy submitted for favour of information to:

1) The Member Secretary, MPCB, Mumbai

Copy submitted to:
1) Joint Director (APC), MPCB, Mumbai – For necessary follow up.
2) The Regional Officer (HQ), MPCB, Mumbai.

652

04/01/2017

MAHARASHTRA POLLUTION CONTROL BOARD
Regional Office - Navi Mumbai

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Raigad Bhavan, 7th Floor,
Sector-11,
C.B.D.Belapur
Navi Mumbai 400 614

No: MPCB/RONM/NGT/ **Date: /01/2017**

To,
The Registrar,
National Green Tribunal (Western Zone, Pune Bench),
New Administrative Building, 1st floor, B-Wing,
Opposite Council Hall,
Pune – 411001.

Sub: Progress Report of Action plan of CEPI - Navi Mumbai as on Dec-16

Ref: 1. Hon'ble NGT (Western Zone) Bench order dt: 17/08/2015 – Application No: 33 (THC)/2013 (WZ).
2. Hon'ble NGT (Western Zone) Bench order dt: 01/7/2016, 12/7/2016, 26/7/2016, 28/7/2016, 22/08/2016, 06/9/2016, 03/10/2016 & 06/12/2016

Sir,

As per Hon'ble NGT (Western Zone) Bench order dt: 17/08/2015 – Application No: 33 (THC)/2013 (WZ), Board office has taken review of Action Plan with stake holders on 04/1/2017 and the progress report as on Dec 2016 is submitting herewith as an **Annexure-I.**

MPCB has started manual AAQM station at MIDC Mahape as per the Hon'ble NGT directives till installation of Continuous Ambient Air Quality Monitoring Station (CAAQMS). A location map of existing 04 CAAQMS installed by Navi Mumbai Municipal Corporation as well as the 03 manual AAQM stations operated by educational institute on behalf of MPCB under NAMP and the new station installed & operated as per Hon'ble NGT order is enclosed as an **Annexure-II.**

MPC Board is taking rigorous follow up with CPCB and requested CPCB to approve earlier submitted action plan vide letter dated 02/11/2015, 19/7/2016, 04/8/2016, 17/8/2016 & 11/01/2017 and also requested to update CEPI index of Navi Mumbai and communicate updated CEPI index to MPCB.

MPC Board has taken review of revised action plan subsequent to the CEPI version 2016 published in April 2016. As per the said guidelines the approximate CEPI score is 56·48, a comparative CEPI score calculation sheet is enclosed as an **Annexure-III.** Further, on 02/7/2016 Board has appointed M/s. Ashwamedh Engineers as an external environmental agency for monitoring, sampling, analysis of Stack, AAQM, surface water, ground water & wastewater based upon analysis results the said agency has also calculated the CEPI score which is 56·86. A detailed report submitted by the said agency is also enclosed as an **Annexure-IV.**

Thanking you.

Yours faithfully

(A.D. Mohekar)
Regional Officer, Navi Mumbai

NATIONAL GREEN TRIBUNAL PUNE 13/1/17

Copy submitted for favour of information to:

1) The Member Secretary, MPCB, Mumbai

Copy submitted to:

1) Joint Director (APC), MPCB, Mumbai – For necessary follow up.
2) The Regional Officer (HQ), MPCB, Mumbai.

ANNEXURE III

Progress Report
of
CEPI Action Plan
Navi Mumbai

July 23

Short Term Measures

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status as on July 2023
A	**Short Term Measures**		
1	Uncovered area will be connected to CETP	MIDC CETP MPCB	**TTC-CETP, Navi Mumbai-** MIDC Authority communicated that, in TTC Industrial Area Drainage Network for (underground Effluent collection System) Airoli & Digha (K Block) has been connected to CETP TBIA Navi Mumbai. **Taloja MIDC:** Entire MIDC Taloja industrial area is covered with underground drainage system connected to Taloja CETP **Work is completed.**
2	Performance Evaluation of CETP	CETP MPCB	**TTC-CETP, Navi Mumbai-** Performance of CETP is regularly monitored by MPCB & from analysis reports it reveals that CETP is complied with norms. **Taloja MIDC:** Performance of Taloja CETP is regularly monitored by MPCB & from analysis reports it reveals that CETP is still non-complied with norms. However, there is substantial improvement in the outlet standards compared to the earlier.
3	Performance Evaluation of ECS.	Industries	Mahanagar Gas Ltd (MNGL) has reported that 117 No of industries from Trans Thane Creek Industrial area, Navi Mumbai has switch over to cleaner fuel (PNG) and 41 Nos of industries are under process. **Taloja MIDC:** Mahanagar Gas Ltd (MGL) has reported that 46 No of industries from MIDC Taloja has switched over to

			cleaner fuel (PNG) and 19 Nos of industries are under process.
4	Repairs of Internal Roads in MIDC area.	NMMC	There are internal roads of 95 km in TTC MIDC area, Navi Mumbai Municipal Corporation authority informed that 90% construction work of internal roads in MIDC area is completed & the remaining work will be completed shortly. **Taloja MIDC:** All internal roads in Taloja MIDC are well intact and pothole free.
5	Replacement of damaged pipeline	MIDC MPCB as Nodal Agency	MIDC authority has already initiated steps towards replacement of old existing pipeline by HDPE Pipeline in TTC MIDC Area. About 70% work of replacement of existing pipelines is completed and replacement work of pipelines in balance area is in progress. **Taloja MIDC:** MIDC has already replaced the old drainage pipeline by new one.
6	Online display of AAQM data.	TBIA MPCB as Nodal Agency	In RO Navi Mumbai jurisdiction there are 7 stations are operational. 1. Fire Station, CBD Belapur. 2. Sewage Treatment Plant, Nerul. 3. Tortoise Amusement Park, Sanpada. 4. Sensory Garden, Kopari Gaon. 5. Nirmal Bhavan, Mahape. 6. Opposite to Hindalco, MIDC Taloja 7. CIDCO garden , Kalamboli Along with these, Regional Office MPCB (Navi Mumbai) is deputing 2 nos. of Mobile Ambient air quality monitoring vans in respective areas. Ultimately, 7 fixed and 2 mobile

			ambient air quality monitoring stations are operational.
7.	Inventory of Hazardous air Pollutant emitting units and installation of Leak detection & repair (LDAR) in Case pesticide & bulk drug manufacturing units	MPCB/Individual industry	Following industries are having LDAR- 1. Amines & Plasticizers Ltd. Turbhe 2. Lubrizol Ltd. Turbhe 3. Zydus Takeda Healthcare Ltd. Pawane 4. NOCIL Ltd. Pawane 5. RPG Life Sciences Pawane 6. Hikal Ltd., MIDC, Taloja. 7. Deepak Fertilizer, MIDC Taloja. 8. IGPL,MIDC, Taloja.
8.	Monitoring of the Industries for compliance of CEPI norms	MPCB/Individual industry	Board is regularly monitoring the industries compliance of consent conditions. Regional office Navi Mumbai has issued various directions in the year 2022-23. Details are as below: Proposed/Interim Directions – 145 Closure Directions – 70 This ensures the compliance of CEPI norms. In the
9.	Recovery of Solvent by solvent using units.	Industries	Board is strictly adhering to CPCB Standard Operating Process (2021) for solvent recovery units for the issuance of consent as well as authorizations.
10	Health Impact Assessment Study.	DISH District Health Officer MPCB	Health related data is enclosed in the Post Monsoon report prepared by MPCB on page No. 37.
11	Monitoring of ground water at MSW/TSDF site.	MPCB	Health related data is enclosed in the Post Monsoon report prepared by MPCB on page No. 29.
12	Improvements in CETP.	CETP	TTC, CETP Navi Mumbai is complied with norms. Taloja CETP, Rehabilitation of Phase-I Capacity 12.5 MLD completed and commissioned in November 2019. Rehabilitation of

			Phase-II Capacity 10 MLD completed and commissioned in July 2019. New Phase-III Capacity 5 MLD Commissioned in March 2021.

Long Term Measures

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status as on July 2023
1.	Improvements in CETP.	CETP	Trans Thane Creek, Belapur CETP is complied with the norms. Taloja CETP, Rehabilitation of Phase-I Capacity 12.5 MLD completed and commissioned in November 2019. Rehabilitation of Phase-II Capacity 10 MLD completed and commissioned in July 2019. New Phase-III Capacity 5 MLD Commissioned in March 2021.
2.	Change in fuel	Industries	**TTC MIDC, Navi Mumbai-** MPCB requested MNGL to revisit the commercial policy for industrial PNG deployment which resulted into PNG conversion of 117 Nos of industries from TTC Industrial Area. Still more industries are in pipeline and 41 Nos of industries are under process. **Taloja MIDC-** Mahanagar Gas Ltd (MGL) has reported that 46 No of industries from MIDC Taloja has switched over to cleaner fuel (PNG). Still more industries are in pipeline and 19 Nos of industries are under process.
3	Improvement in ECS	Industries	MPCB has imposed stringent Environmental complied standards under consent conditions which resulted into improvement of emission control system.
4	Installation of VOC analyzer	Industries	**TTC MIDC-** 12 Nos of solvent recovery units have installed VOC analyzer.

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status as on July 2023
			Taloja MIDC- 7 Nos of solvent recovery units have installed VOC analyzer.
5	To provide proper sewerage system for slum pockets & connects the sewage to STPs & use of treated sewage for gardening & industrial purpose	MIDC/ NMMC	Sewage system has been provided in various parts of Slums. Providing of Sewerage system in balance area is in progress.
6	Development of green belt & garden.	MIDC/NMMC	TBIA informed that, over 12,00,000 saplings have been planted in Navi Mumbai aera with 90% survival rate. Board has taken special drive of mass tree plantation in Maharashtra. Accordingly, around 8000 Nos. of trees planted in TTC area. Plantation is regularly carried out by MIDC TBIA, Individual industries & Navi Mumbai Municipal Corporation.
7	Scientific Disposal of MSW. (500 MT/D)	NMMC	Navi Mumbai Municipal Corporation has full-fledged MSW processing facility at Turbhe of capacity 500 MT/Day with leachate treatment plant, waste to Compost and RDF projects etc. Recently NMMC has installed C & D processing unit.
8	Vehicle pollution reduction and traffic management plan	NMMC RTO	NMMC and MIDC have been directed to provide good roads in the area. Most of the public transport vehicles, taxies, Auto Rickshaw running on natural gas.

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status as on July 2023
			RTO have been informed for synchronizing traffic line strategy for phase out old vehicles. Installation of new CNG station is in consideration by the Mahanagar Gas in TTC MIDC Area is in progress. MPCB has already communicated to RTO Office to submit statics information such as vehicles operated on CNG, no. of vehicles above 15 year old, violation of PUC. Navi Mumbai Municipal Corporations Transport System has provided 195 Nos of Electric buses and 100 Nos. of CNG buses (out of **600** Buses) for public transport system.
9	Reuse of Treated Sewage.	NMMC	Total sewage generation from NMMC area is 230 MLD and same is treated in 08 STPs located at different locations. About 65 MLD treated water is being used for various purposes like gardening etc. washing of roads, divider etc.
10	Awareness program	MPCB TBIA	Awareness program under Mission LiFE, NCAP, CEPI are jointly conducted with NMMC, MIDC, DISH, MNGL and Industry association on the occasion of various environmental days.

ANNEXURE- IV

MAHARASHTRA POLLUTION CONTROL BOARD

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E-mail : jdair@mpcb.gov.in

Kalpataru Point 2nd Floor,
Sion Matunga Scheme Road No. 8,
Near Sion Circle,
Sion (E), Mumbai - 400 022.

"Your Service is our Duty"

No./MPCB/ JD(APC)/TB/B - 0112 Date 17/05/2023

To,
Member Secretary,
Central Pollution Control Board,
Parivesh Bhavan,
East Arjun Nagar,
Delhi.

Sub: Post Monsoon (Dec-22 to Feb-23) environmental monitoring (Air, Water & land) report of CEPI Area in State of Maharashtra i.e Tarapur, Chandrapur, Aurangabad, Nashik, Dombivali, Navi Mumbai. Chembur, Mahad & Primpri-Chinchwad

Ref: CPCB letter No. B-29012/ESS(CPA)/2015-16/341 dtd. 26/04/2016.

Sir,

With reference above subject matter, please find submitted herewith Post Monsoon (Dec-22 to Feb-23) environmental monitoring (Air, Water & land) report of CEPI Area in State of Maharashtra i.e Tarapur, Chandrapur, Aurangabad, Nashik, Dombivali, Navi Mumbai. Chembur, Mahad & Primpri-Chinchwad. Same will be hosting on Board website.

This is for your perusal & approval, please.

D.A.:- Environmental monitoring Report of 9 CEPI

17/5/23

(Dr. V. M. Motghare)
Joint Director (Air Pollution Control)

Copy submitted for information to: -
Member Secretary, MPCB, Sion, Mumbai.
Copy to:-
Regional Officer, MPCB, Mumbai/Nasik/Pune/Kalyan/Thane/Aurangabad/Navi Mumbai/ Chandrapur and Sub-Regional Officer, MPCB, Mumbai--III/ Nasik/PimpriChinchwad/Tarapur-I/II/Navi Mumbai-I/II/Aurangabad/Chandrapur/Kalyan- for information & necessary action.

D.A.:- Environmental monitoring Report of 9 CEPI

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

NAVI MUMBAI

Post Monsoon (December 2022 to February 2023)

Maharashtra Pollution Control Board

Kalptaru Point, Sion East, Mumbai – 400 022

Index

ABBREVIATIONS

CPCB	Central Pollution Control Board
MPCB	Maharashtra Pollution Control Board
CEPI	Comprehensive Environmental Pollution Index
EPA	Environmental Protection Act, 1986
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
CETP	Common Effluent Treatment Plant
VOCs	Volatile Organic Compounds
MIDC	Maharashtra Industrial Development Corporation
NWMP	National Water Quality Monitoring Program
NAAQS	National Ambient Air Quality Standard
ZLD	Zero Liquid Discharge
CPA	Critically Polluted Area
SPA	Severely Polluted Area

1. Executive Summary

Navi Mumbai was monitored for Ambient Air Quality, Ground and Surface Water quality. Based on the data collected by monitoring, a Comprehensive Environmental Pollution Index (CEPI) Score [as per latest directions 120 of Letter No. B-29012/ESS (CPA)/2015-16 dated 26th April 2016 of Central Pollution Control Board (CPCB)] was calculated. Maharashtra Pollution Control Board (MPCB) has carried out monitoring at CPCB location with the additional locations of sampling for ambient air, surface and ground water in consideration with the previous CEPI monitoring and covering the entire CEPI Impact Zone. The post monsoon monitoring was carried out during the period of December 2022 to February 2023 to assess the ambient air quality, surface water quality and ground water quality.

The Ambient Air Quality stations were identified considering the upwind and cross wind direction in the CEPI impact area. Ambient Air Quality was monitored at eight locations. The concentration of all the ambient air parameters was found well within the limits prescribed by NAAQS. Six locations each for surface water and ground water were monitored for the study. Land index is represented by ground water in the CEPI. Ground water parameters were also found to be within the permissible limits when compared with IS10500:2012 drinking water standards.

Based on the study conducted by CPCB during the period January 2018, the CEPI score of Navi Mumbai region as per the revised guidelines of CEPI (2016) was 66.32 (Air Index–56, Water Index-63 and Land Index–16). However, the present study reports aggregated CEPI score of Navi Mumbai region of post-monsoon season (March, 2023). Based on the study, the present CEPI score is 53.59 (Air Index–36.00, Water Index-50.75 and Land Index–16.00). The CEPI score is the combination of A, B, C and D factors. Here, C factor represents the health data and D factor represents the initiatives taken by MPCB in past few years to mitigate pollution. As the regional offices of MPCB has taken various initiatives like the installation of CAAQMS, CETPs, online VOC analysers etc. in the past few years to control and mitigate air and water pollutants. This has contributed to the factor D, hence reduced the CEPI score of the region over the years.

The analysis of the aggregated CEPI score shows that the pollution in Navi Mumbai industrial clusters has reduced in last three years. Approximately 20% decrease in CEPI score is observed from 66.32 in 2018 to 53.59 in 2023.

2. Introduction

Over the past few decades, environmental deterioration has become a "common concern" for humanity. The distinctive nature of the current environmental issues is that human activity contributes to them more than natural events. Economic expansion and mindless consumption are beginning to have negative impacts on Mother Nature. It's been studied and reported that the majority of industries (77% approximately) contribute to water pollution, 15% to air pollution, and the remaining 8% to both air and water pollution. Additionally, the most polluting businesses are those that depend on natural resources and are expanding quickly.

These human activities have an adverse effect on the environment by polluting the water we drink, the air we breathe, and the soil in which plants grow. Untreated wastewater from industries has affected the potability and hygiene of drinking water due to the presence of hazardous impurities in it, causing detrimental health effects to human, animal and aquatic life. Exposure to air pollutants is closely related to Pulmonary Diseases, wheezing, asthma, respiratory disease, cardiovascular diseases etc. Moreover, air pollution seems to have various malign health effects in early human life, such as respiratory, cardiovascular, mental, and perinatal disorders, leading to infant mortality or chronic disease in adult age. Therefore, it is crucial to identify and investigate the major sources of pollution to implement mitigation strategies for substantial environmental and health co-benefits. Even though health is a major concern, industrial growth is a necessity for a developing economy. Research into the development of such systems that can cut down on the usage of freshwater by industrial sectors as well as the development of efficient and effective water treatment methods is encouraged for overall socioeconomic progress and well-being. To mitigate any hazardous impacts, new advancements and ongoing monitoring of the execution methods of various programmes and interventions related to industrial wastewater treatment are critically important.

In view of this, Central Pollution Control Board (CPCB) has evolved the concept of 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. 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 Navi Mumbai region, which is the largest planned city in the world. Its development was started in 1972 to de-congest Mumbai. Navi Mumbai is environmentally very important, ecologically sensitive and are natural habitats for migratory birds. It also includes mangroves, lakes and wetlands. Its industrial area is commonly known as TTC MIDC Estate. This TTC MIDC accounts for about 3254 industrial units of various category engaged in the manufacturing of chemicals, dyes, dye-intermediates, Bulk drugs, pharmaceuticals, Textile auxiliaries, Pesticides, Petrochemicals, Textile processors, Engineering units etc. Besides the industries, there are other

sources which are major contributors of pollution like emissions by transport and construction activities etc.

The present report is based on the revised CEPI version 2016. The results of the application of the Comprehensive Environmental Pollution Index (CEPI) to selected industrial cluster 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. Navi Mumbai 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 Navi Mumbai, 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 Navi Mumbai

Sampling Criteria	Total Sites	Monitoring Parameters
Ambient Air Quality	**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)	**02**	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 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	Total Sites	Monitoring Parameters
Water Quality Monitoring	**Surface water - 06**	**(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 - 06	

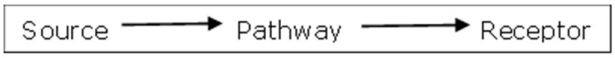
Table 3.2 Frequency of Sampling

	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

	Parameter	Round of Sampling	Frequency in Each Round
6.	Ozone (O_3)	03	24 Shifts of 1 hr each
7.	Benzene (C_6H_6)	03	1 Shifts of 24 hrs
8.	Carbon Monoxide (CO)	03	24 Shifts of 1 hr each
9.	Benzo (a) Pyrene (BaP) – particulate phase only	03	3 Shifts of 8 hrs each
10.	Lead (Pb)	03	3 Shifts of 8 hrs each
11.	Arsenic (As)	03	3 Shifts of 8 hrs each
12.	Nickel (Ni)	03	3 Shifts of 8 hrs each
B	**Volatile Organic Compounds (VOCs)**		
	As mentioned in Table 3.1	03	3 Shifts of 24 hrs each
C	**Ground Water**		
	As mentioned in Table 3.1	03	01 sample at each round
D	**Surface Water**		
	As mentioned in Table 3.1	03	01 sample at each round

4. Methodology

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



Ambient air stations, Surface water locations and Ground water locations were decided by the respective regional officers. The sampling was done in 3 rounds with an interval of one or two days at each location. Sampling has been done at the potentially 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.

AIR ENVIRONMENT

5. Air Environment

For studying the Air Environment of Navi Mumbai 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.*

In Navi Mumbai eight locations have been monitored for checking the Ambient Air Quality (AAQ) in triplicate from 16th Jan., 2023 to 21st Jan., 2023. Volatile Organic Compounds (VOCs) were monitored at 2 locations namely Zoetis Pharmaceuticals Research Pvt. Ltd. and Deepak Fertilizer and Petrochemicals Ltd.

Table 5.1 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.	DY Patil Hospital	N19^{0}02'27.88"	E73^{0}01'27.22"	16.01.2023	18.01.2023	20.01.2023
2.	TTCWMA, Mahape	N19^{0}06'28.72"	E73°01'51.68"	16.01.2023	18.01.2023	20.01.2023
3.	Nearby Reliable IT Park	N19^{0}06'30.77"	E73^{0}01'49.57"	16.01.2023	18.01.2023	20.01.2023
4.	Nearby Zoetis Pharmaceuticals Research Pvt. Ltd.	N19°03'59.58"	E73°01'32.13"	16.01.2023	18.01.2023	20.01.2023
5.	CETP Koparkharine, near ETP Table No. I	N19^{0}04'30.99"	E73^{0}04'03.74"	16.01.2023	18.01.2023	20.01.2023
6.	Nearby Ashi India Glass	N19^{0}05'10.73"	E73^{0}06'19.14"	16.01.2023	18.01.2023	20.01.2023
7.	Nearby Technova Imaging System	N19^{0}03'27.50"	E73^{0}06'48.19"	16.01.2023	18.01.2023	20.01.2023
8.	Nearby Deepak Fertilizer and Petrochemicals	N19^{0}04'08.26"	E73^{0}07'59.22"	16.01.2023	18.01.2023	20.01.2023

Table 5.2 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.	Nearby Zoetis Pharmaceuticals Research Pvt. Ltd.	N19°03'59.58"	E73°01'32.13"	16.01.2023	18.01.2023	20.01.2023
2.	Nearby Deepak Fertilizer and Petrochemicals	N19^{0}04'08.26"	E73^{0}07'59.22"	16.01.2023	18.01.2023	20.01.2023

Fig: Geographical Locations of Ambient Air Quality Monitoring

Fig. Geographical Locations of VOCs Monitoring

Table 5.3 Ambient Air Quality Monitoring Results

Parameters	Unit	Results			
		DY Patil Hospital	TTC WMA, Mahape	Nearby Reliable IT Park	Nearby Zoetis Pharmaceuticals Research Pvt. Ltd.
Sulphur Dioxide (SO_2)	µg/m^3	31.82	19.51	15.42	29.45
Nitrogen Dioxide (NO_2)	µg/m^3	23.35	21.20	12.79	23.30
Particulate Matter (size less than 10 µm) or PM_{10}	µg/m^3	62	65	56	65
Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$	µg/m^3	18	17	16	15
Ozone (O_3)	µg/m^3	22.70	27.30	26.20	24.20
Lead (Pb)	µg/m^3	BLQ	BLQ	0.03	BLQ
Carbon Monoxide (CO) (1h)	mg/m^3	1.37	1.66	1.67	1.83
Carbon Monoxide (CO) (8h)	mg/m^3	1.78	2.01	1.97	2.16
Ammonia (NH_3)	µg/m^3	104.03	92.75	92.30	225.00
Benzene (C_6H_6)	µg/m^3	3.04	2.88	2.54	3.52

Parameters	Unit	Results			
		DY Patil Hospital	TTC WMA, Mahape	Nearby Reliable IT Park	Nearby Zoetis Pharmaceuticals Research Pvt. Ltd.
Benzo (a) Pyrene (BaP) – particulate phase only	ng/m^3	BLQ	BLQ	BLQ	BLQ
Arsenic (As)	ng/m^3	0.70	BLQ	0.75	0.46
Nickel (Ni)	ng/m^3	4.54	BLQ	BLQ	3.48

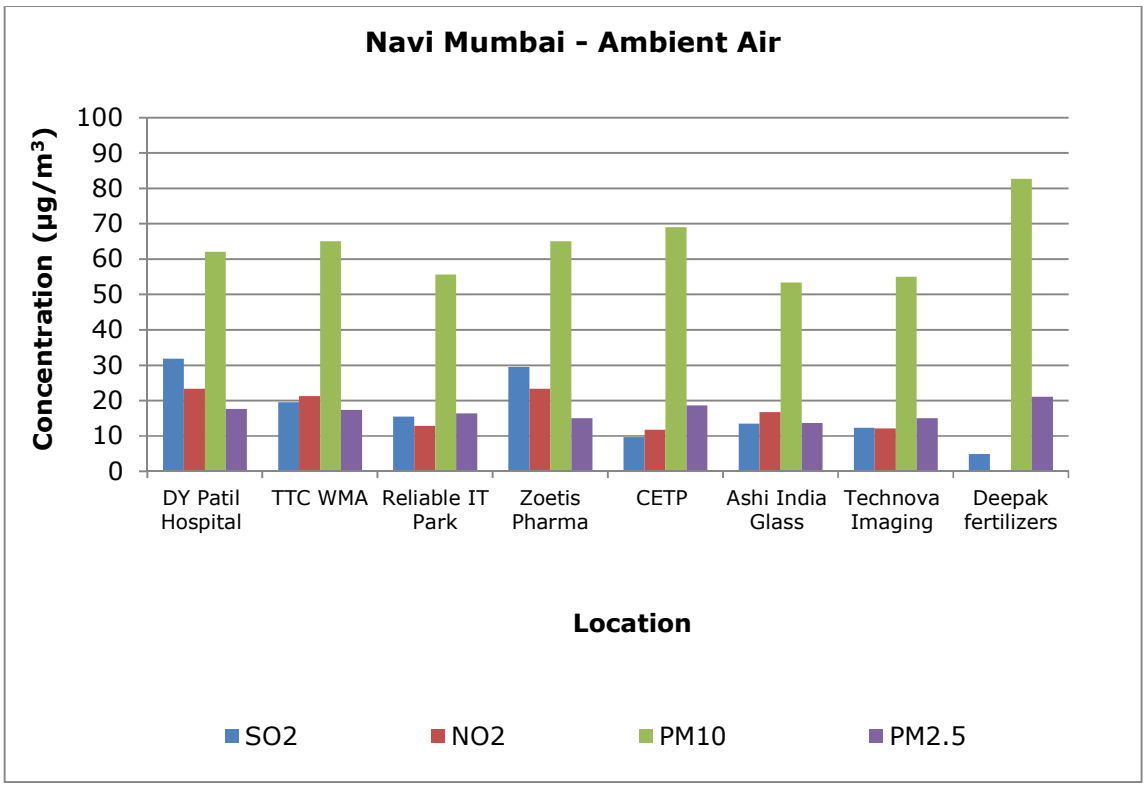
Parameters	Unit	Results			
		CETP Koparkharine Near ETP Table No. I	Nearby Ashi India Glass	Nearby Technova Imaging System	Nearby Deepak Fertilizer and Petrochemicals
Sulphur Dioxide (SO_2)	µg/m^3	9.66	13.50	12.30	4.87
Nitrogen Dioxide (NO_2)	µg/m^3	11.80	16.70	12.11	BLQ
Particulate Matter (size less than 10 µm) or PM_{10}	µg/m^3	69	53	55	83
Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$	µg/m^3	19	14	15	21
Ozone (O_3)	µg/m^3	BLQ	28.20	28.00	BLQ
Lead (Pb)	µg/m^3	BLQ	0.03	0.02	BLQ
Carbon Monoxide (CO) (1h)	mg/m^3	1.40	1.50	1.47	1.43
Carbon Monoxide (CO) (8h)	mg/m^3	1.60	1.86	1.63	1.84
Ammonia (NH_3)	µg/m^3	171.00	108.50	119.45	86.50
Benzene (C_6H_6)	µg/m^3	2.74	2.50	2.72	3.24
Benzo (a) Pyrene (BaP) – particulate phase only	ng/m^3	BLQ	BLQ	BLQ	BLQ
Arsenic (As)	ng/m^3	BLQ	0.30	BLQ	0.97
Nickel (Ni)	ng/m^3	BLQ	3.26	3.09	BLQ

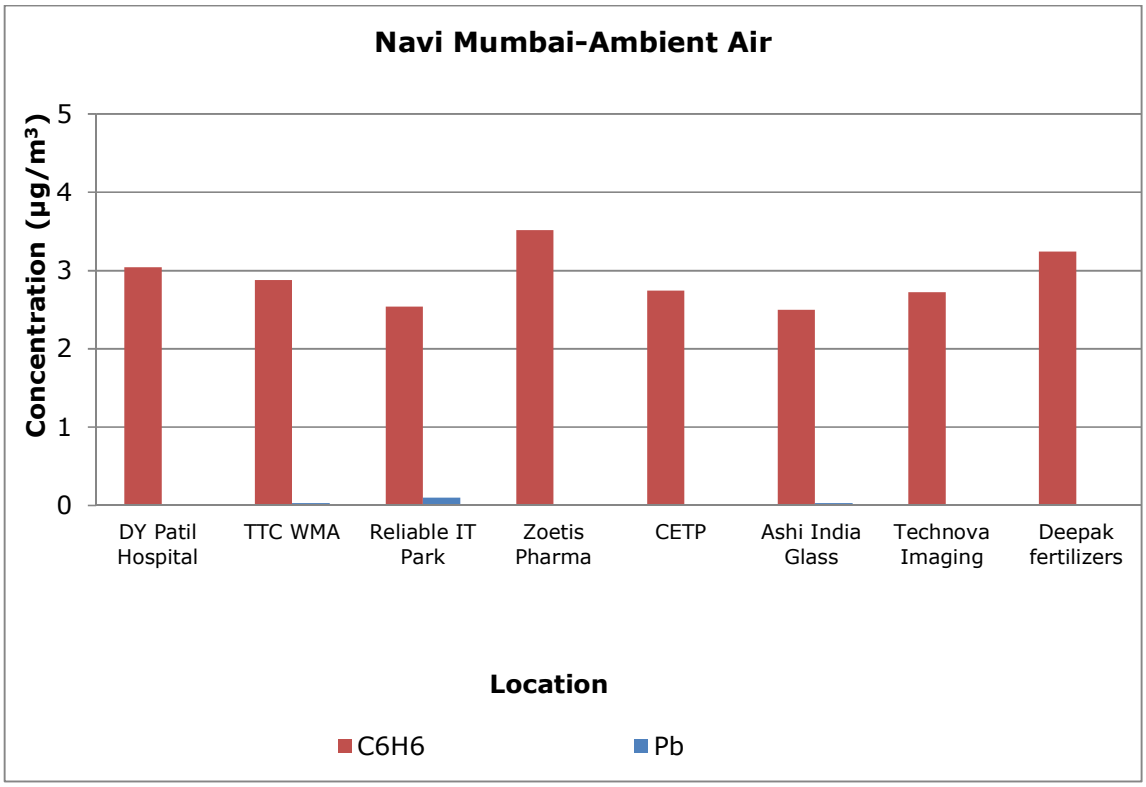
Table 5.4 Volatile Organic Compounds (VOCs) in Ambient Air Results

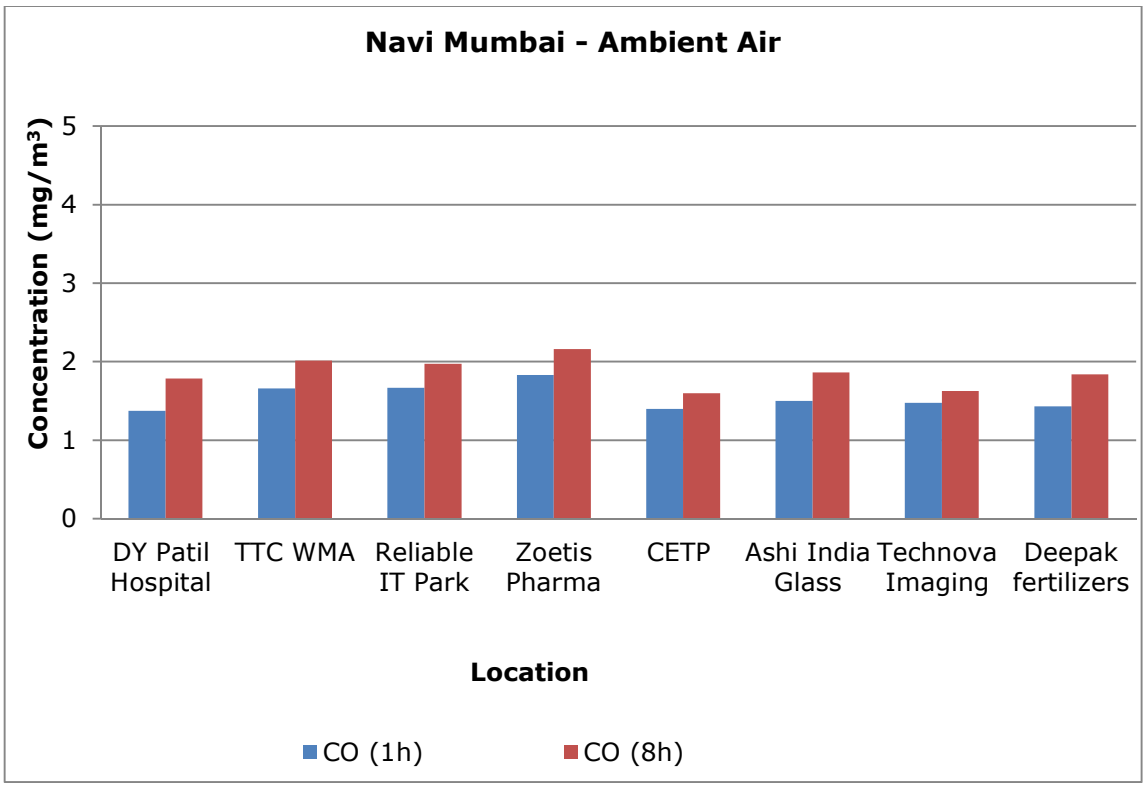
Parameters	Unit	Results	
		Zoetis Pharmaceuticals Research Pvt. Ltd.	Deepak Fertilizer and Petrochemicals
Dichloromethane	µg/m³	BLQ	BLQ
Chloroform	µg/m³	BLQ	BLQ
Carbon Tetrachloride	µg/m³	BLQ	BLQ
Trichloroethylene	µg/m³	BLQ	BLQ
Bromodichloromethane	µg/m³	BLQ	BLQ
1,3-Dichloropropane	µg/m³	BLQ	BLQ
1,4-Dichlorobenzene	µg/m³	1.66	2.58
1,3-Dichlorobenzene	µg/m³	1.74	1.89
1,2-Dichlorobenzene	µg/m³	1.60	BLQ
1,2-Dibromo-3-Chloropropane	µg/m³	BLQ	BLQ
Napthalene	µg/m³	3.01	2.00
Bromobenzene	µg/m³	BLQ	BLQ
1,2,4-Trimethylbenzene	µg/m³	0.55	0.62
2-Chlorotoluene	µg/m³	BLQ	BLQ
Tert-Butylbenzene	µg/m³	BLQ	BLQ
SEC-Butylbenzene	µg/m³	BLQ	BLQ
P-Isopropyltoluene	µg/m³	1.27	1.25
M-Xylene	µg/m³	BLQ	0.64
P-Xylene	µg/m³	BLQ	BLQ
Styrene	µg/m³	BLQ	0.57
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	0.54	BLQ
1,1,1,2-Tetrachloroethane	µg/m³	BLQ	BLQ
Ethylbenzene	µg/m³	BLQ	BLQ
1,1-Dichloropropylene	µg/m³	BLQ	BLQ
1,2-Dichloroethane	µg/m³	BLQ	BLQ
1,2-Dichloropropane	µg/m³	BLQ	BLQ

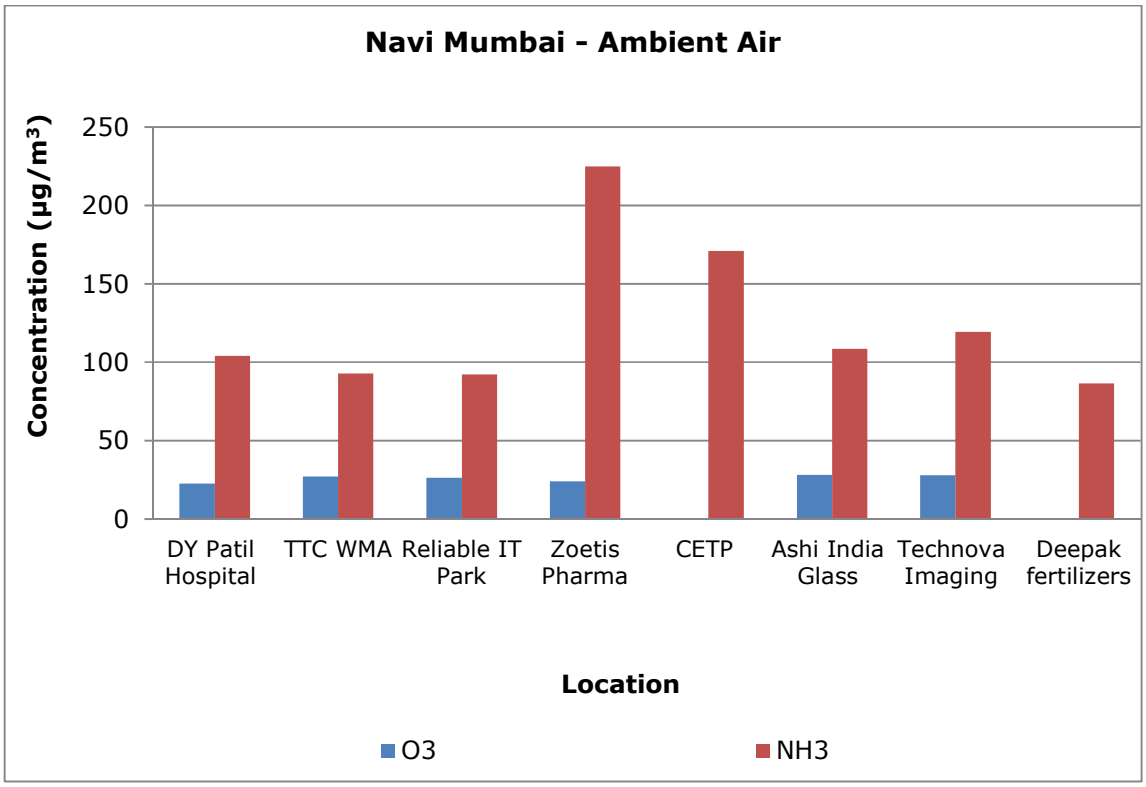
Parameters	Unit	Results	
		Zoetis Pharmaceuticals Research Pvt. Ltd.	Deepak Fertilizer and Petrochemicals
Trans-1,3-Dichloropropene	µg/m³	BLQ	BLQ
CIS 1,3-Dichloropropene	µg/m³	BLQ	BLQ
1,1,2-Trichloroethane	µg/m³	BLQ	BLQ
Tetrachloroethylene	µg/m³	1.14	BLQ
1,3,5-Trimethylbenzene	µg/m³	BLQ	BLQ
N-Butylbenzene	µg/m³	1.77	1.24
1,2,3-Trichlorobenzene	µg/m³	BLQ	0.58
Hexachlorobutadiene	µg/m³	BLQ	BLQ
1,2,4-Trichlorobenzene	µg/m³	1.12	2.02
2,2-Dichloropropane	µg/m³	BLQ	BLQ
Dibromomethane	µg/m³	BLQ	BLQ
Toluene	µg/m³	2.65	1.68
O-Xylene	µg/m³	0.51	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

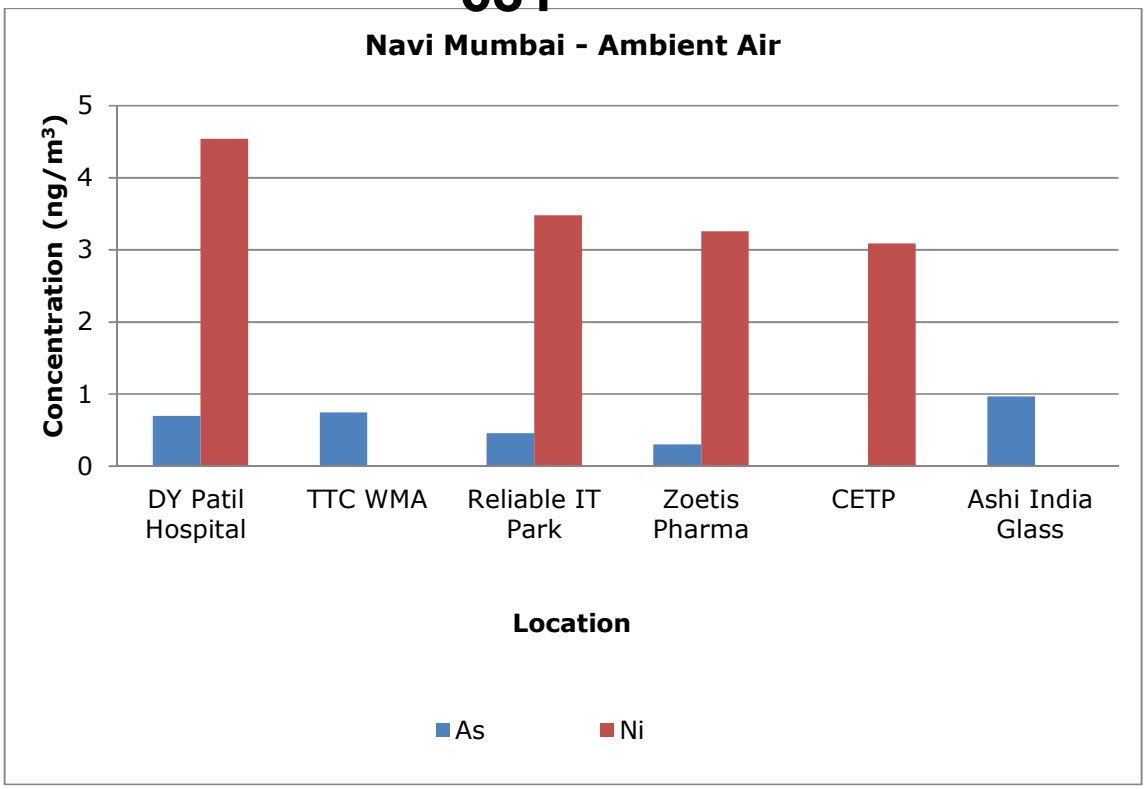
Graphs - Ambient Air Quality Monitoring in Navi Mumbai






Navi Mumbai - Ambient Air
Concentration (mg/m³)
5
4
3
2
1
0
DY Patil Hospital
TTC WMA
Reliable IT Park
Zoetis Pharma
CETP
Ashi India Glass
Technova Imaging
Deepak fertilizers
Location
CO (1h)
CO (8h)


Navi Mumbai - Ambient Air
Concentration (µg/m³)
250
200
150
100
50
0
DY Patil Hospital
TTC WMA
Reliable IT Park
Zoetis Pharma
CETP
Ashi India Glass
Technova Imaging
Deepak fertilizers
Location
O3
NH3


Navi Mumbai - Ambient Air
Concentration (ng/m³)
5
4
3
2
1
0
DY Patil Hospital
TTC WMA
Reliable IT Park
Zoetis Pharma
CETP
Ashi India Glass
Location
As
Ni

6. Water Environment

For studying the water environment of Navi Mumbai area, surface water was collected from Nallah, Lake and River. To understand the quality of treated effluent, samples were collected from following six industries - (i) Airoli Creek Taloja (ii) Vashi Creek (ii) CETP Outlet (iii) Siemens Nallah (iv) CBD Nallah (v) CETP Taloja Bridge (vi) Lek Village Ghot. The following points are observed through the analysis of water samples:

- All six water samples collected are found acceptable in general appearance, colour, smell and transparency.
- General parameters like pH and suspended solids, are observed well within the limits in all the samples.
- Total Kjeldahl Nitrogen (TKN) and BOD concentration values were found to exceed the standard limit in all the samples.
- Concentration of Total Phosphorous (TP) is also found above standard limit in all the water samples.
- In fish bioassay, 67 %- 100% survival of fishes was achieved.
- All metals like Arsenic, Nickel, Copper, Iron, Hexavalent Chromium (Cr^{6+}) etc. were also observed either below the limit of quantification (BLQ) or below their standard limits.
- Parameters like Total Residual Chlorine, Cyanide, Fluoride, Sulphide, Dissolved Phosphate, Total Ammonical Nitrogen and Phenolic compounds, also meet the criteria as prescribed by CPCB.
- Organo Chlorine Pesticides, Polynuclear aromatic hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB) are also observed below the limit of quantification in all the studied samples.

Table 6.1 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.	Airoli Creek at Airoli Bridge	N19^{0}08'09.00"	E72^{0}59'59.03"	17.01.2023	19.01.2023	21.01.2023
2.	Vashi Creek at Vashi Bridge	N19^{0}03'83.20"	E72^{0}58'68.20"	17.01.2023	19.01.2023	21.01.2023
3.	Siemens Nallah	N19°09'3.11"	E73° 0'18.78"	17.01.2023	19.01.2023	21.01.2023
4.	CBD Nallah	N19° 0'28.72"	E73° 1'29.24"	17.01.2023	19.01.2023	21.01.2023
5.	Kasardi River Near CETP Taloja Bridge	N19°05321593°	E73°11432839°	17.01.2023	19.01.2023	21.01.2023

Sr. No.	Name of Monitoring Location	Latitude	Longitude	Date of Sampling		
				Round-1	Round-2	Round-3
6.	Lek Village Ghot	N19°0872947°	E73°1030953°	17.01.2023	19.01.2023	21.01.2023

Fig: Geographical Locations of Surface Water Sampling

Table 6.2 Results of Surface Water

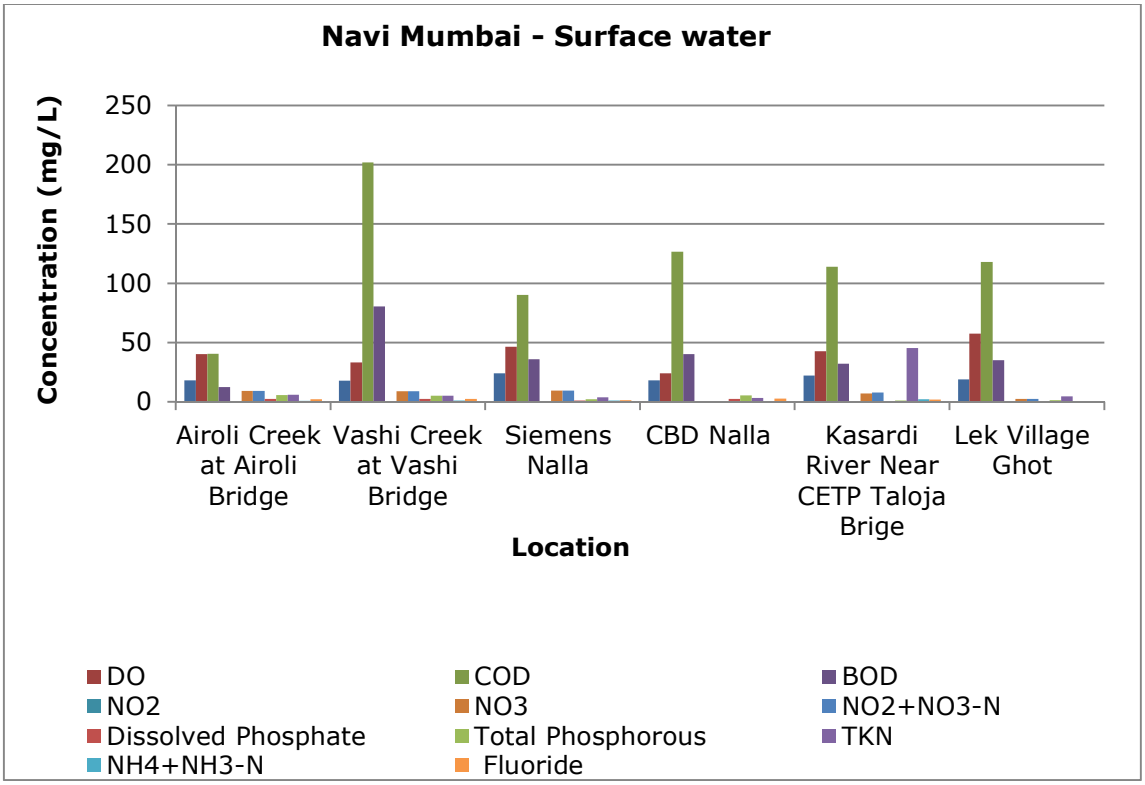
Parameters	Unit	Results					
		Airoli Creek at Airoli Bridge	Vashi Creek at Vashi Bridge	Siemens Nallah	CBD Nallah	Kasardi River Near CETP Taloja Bridge	Lek Village Ghot
Sanitary Survey		Generally clean neighbourhood	Generally clean neighbourhood	Generally clean neighbourhood	Generally clean neighbourhood	Generally clean neighbourhood	Generally clean neighbourhood
General Appearance		No Floating matter	No Floating matter	No Floating matter	No Floating matter	No Floating matter	No Floating matter
Transparency	m	0.53	0.47	0.50	0.43	0.43	0.47
Temperature	°C	26	27	27	27	28	28
Colour	Hazen	1	2	2	1	1	2

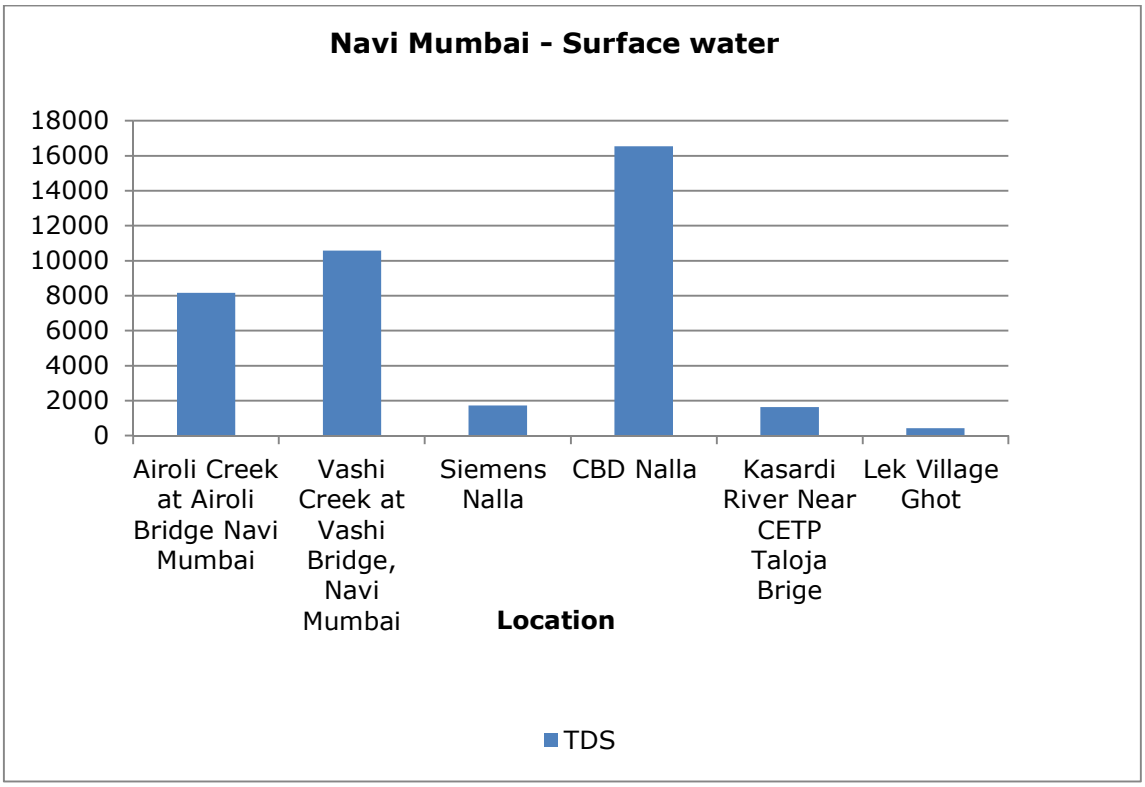
Parameters	Unit	Results					
		Airoli Creek at Airoli Bridge	**Vashi Creek at Vashi Bridge**	**Siemens Nallah**	**CBD Nallah**	**Kasardi River Near CETP Taloja Bridge**	**Lek Village Ghot**
Smell	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
pH	-	6.94	7.20	7.41	7.45	7.80	8.08
Oil & Grease	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Suspended Solids	mg/L	18	18	24	18	22	19
Total Dissolved Solids	mg/L	8160	10577	1722	16547	1634	419
Dissolved Oxygen (% Saturation)	%	40.00	33.33	46.33	24.00	42.67	57.67
Chemical Oxygen Demand	mg/L	166	520	199	431	114	118
Biochemical Oxygen Demand (3 days,27°C)	mg/L	48	210	63	149	32	35
Electrical Conductivity (at 25 °C)	µmho/cm	14230	18307	3073	28533	2917	745
Nitrite Nitrogen (as NO_2)	mg/L	0.14	0.13	BLQ	BLQ	0.57	BLQ
Nitrate Nitrogen (as NO_3)	mg/L	9.19	8.88	9.46	BLQ	7.23	2.66
(NO_2 + NO_3)-Nitrogen	mg/L	9.21	8.93	9.46	BLQ	7.80	2.66
Free Ammonia (as NH_3-N)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Total Residual Chlorine	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Cyanide (as CN)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Fluoride (as F)	mg/L	2.03	2.40	1.23	2.80	1.73	0.57
Sulphide (as H_2S)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	2.57	2.39	1.00	2.48	0.54	0.44
Sodium Adsorption Ratio	-	48.70	54.83	8.15	35.80	10.15	2.19

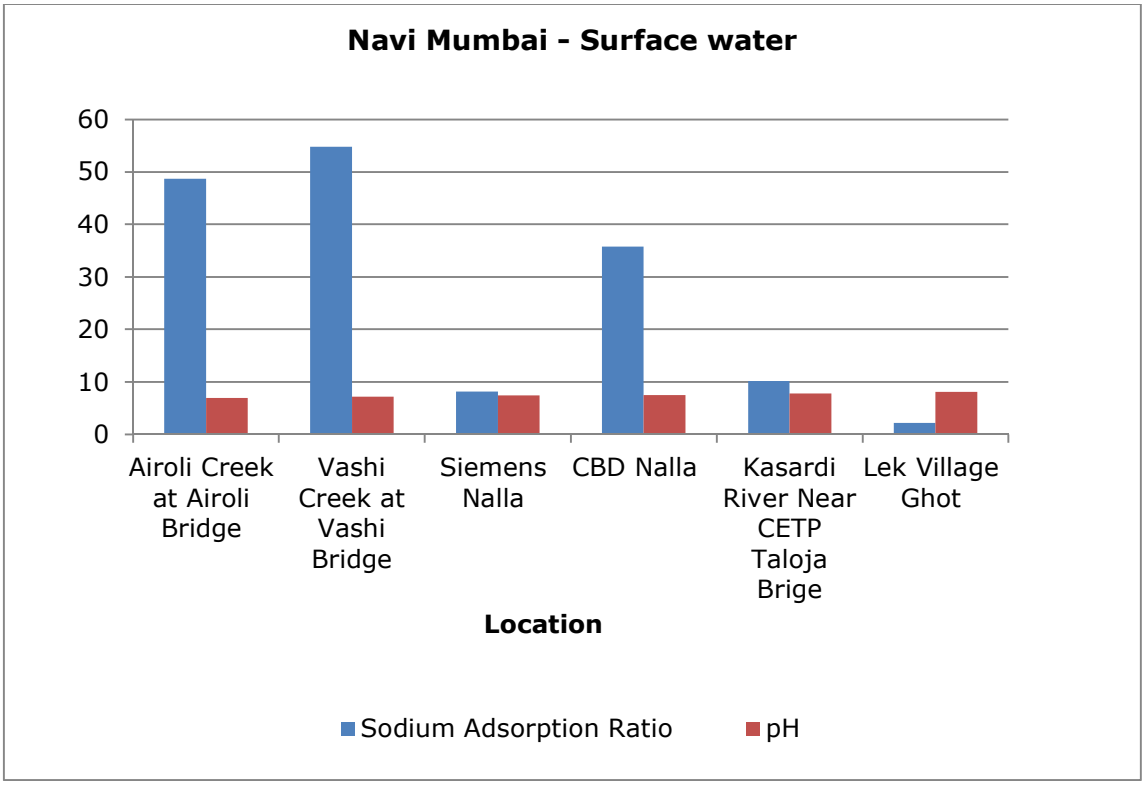
Parameters	Unit	Results					
		Airoli Creek at Airoli Bridge	Vashi Creek at Vashi Bridge	Siemens Nallah	CBD Nallah	Kasardi River Near CETP Taloja Bridge	Lek Village Ghot
Total Coliforms	MPN Index/ 100 ml	723	1140	666	657	1183	650
Faecal Coliforms	MPN Index/ 100 ml	548	621	206	485	975	343
Total Phosphate (as P)	mg/L	5.55	5.13	2.03	5.27	1.11	1.26
Total Kjeldahl Nitrogen (as N)	mg/L	5.96	5.05	3.92	3.36	45.33	4.67
Total Ammonia (NH_4+NH_3)-Nitrogen	mg/L	0.74	1.08	0.91	0.52	2.05	0.35
Phenols (as C_6H_5OH)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Anionic Detergents (as MBAS Calculated as LAS, mol.wt.288.38)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Organo Chlorine Pesticides	µg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Polynuclear aromatic hydrocarbons (as PAH)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	BLQ	0.14	BLQ	BLQ	BLQ	BLQ
Nickel (as Ni)	mg/L	0.01	0.02	BLQ	BLQ	0.02	0.01
Copper (as Cu)	mg/L	BLQ	0.10	BLQ	BLQ	BLQ	BLQ
Hexavalent Chromium (as Cr^{6+})	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	BLQ	0.03	BLQ	BLQ	BLQ	BLQ
Total Arsenic (as As)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Lead (as Pb)	mg/L	BLQ	0.04	BLQ	BLQ	BLQ	BLQ

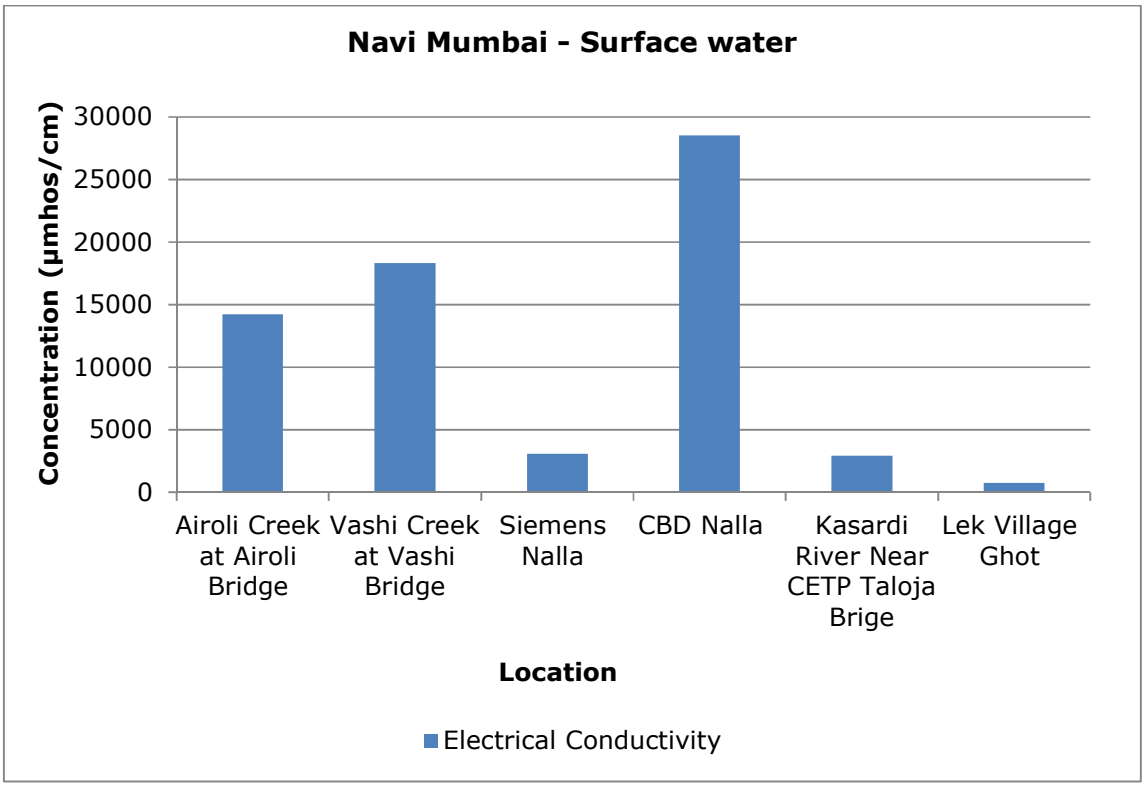
Parameters	Unit	Results					
		Airoli Creek at Airoli Bridge	Vashi Creek at Vashi Bridge	Siemens Nallah	CBD Nallah	Kasardi River Near CETP Taloja Bridge	Lek Village Ghot
Cadmium (as Cd)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mercury (as Hg)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Manganese (as Mn)	mg/L	0.11	0.28	0.11	0.22	0.12	0.10
Iron (as Fe)	mg/L	0.33	4.88	1.07	1.53	0.26	0.44
Vanadium (as V)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Selenium (as Se)	mg/L	0.01	0.01	0.01	BLQ	BLQ	BLQ
Boron (as B)	mg/L	1.46	1.81	0.56	2.14	0.52	0.11
Total Nitrogen	mg/L	15.20	13.98	6.33	12.93	53.13	5.89
Bioassay Test on fish	% survival	67	67	67	67	67	100

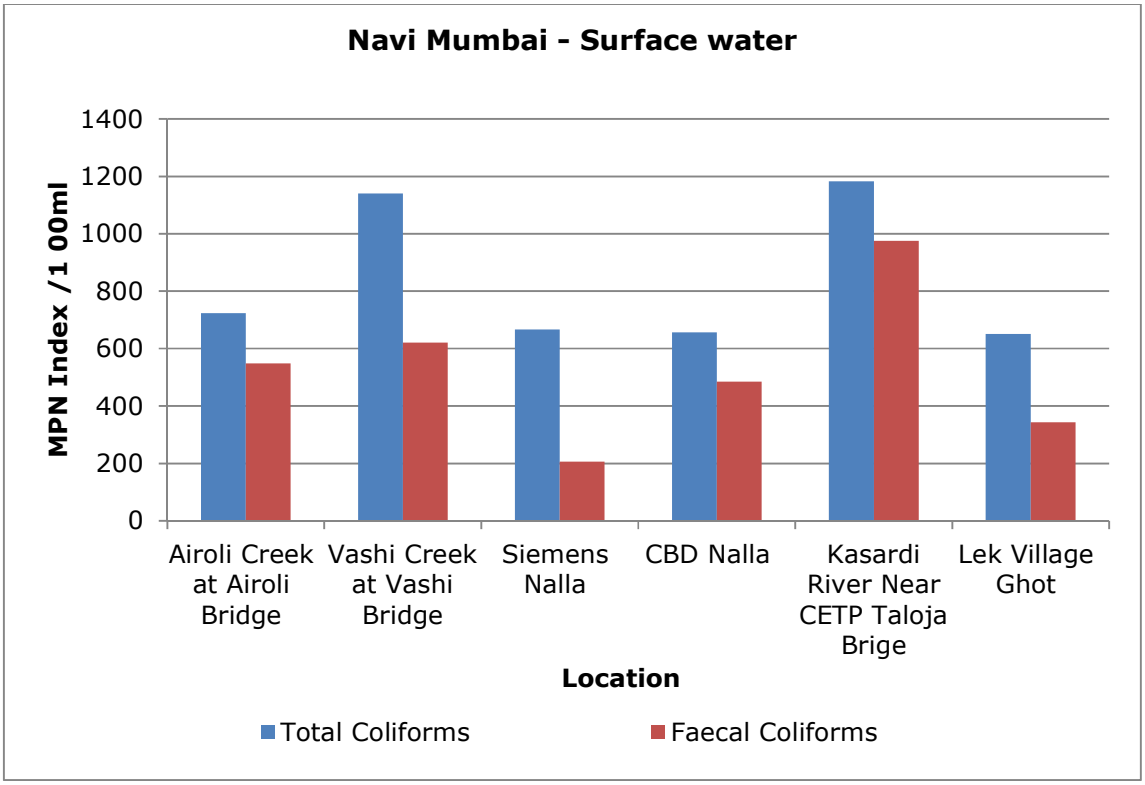
Graphs - Surface Water Quality of Navi Mumbai

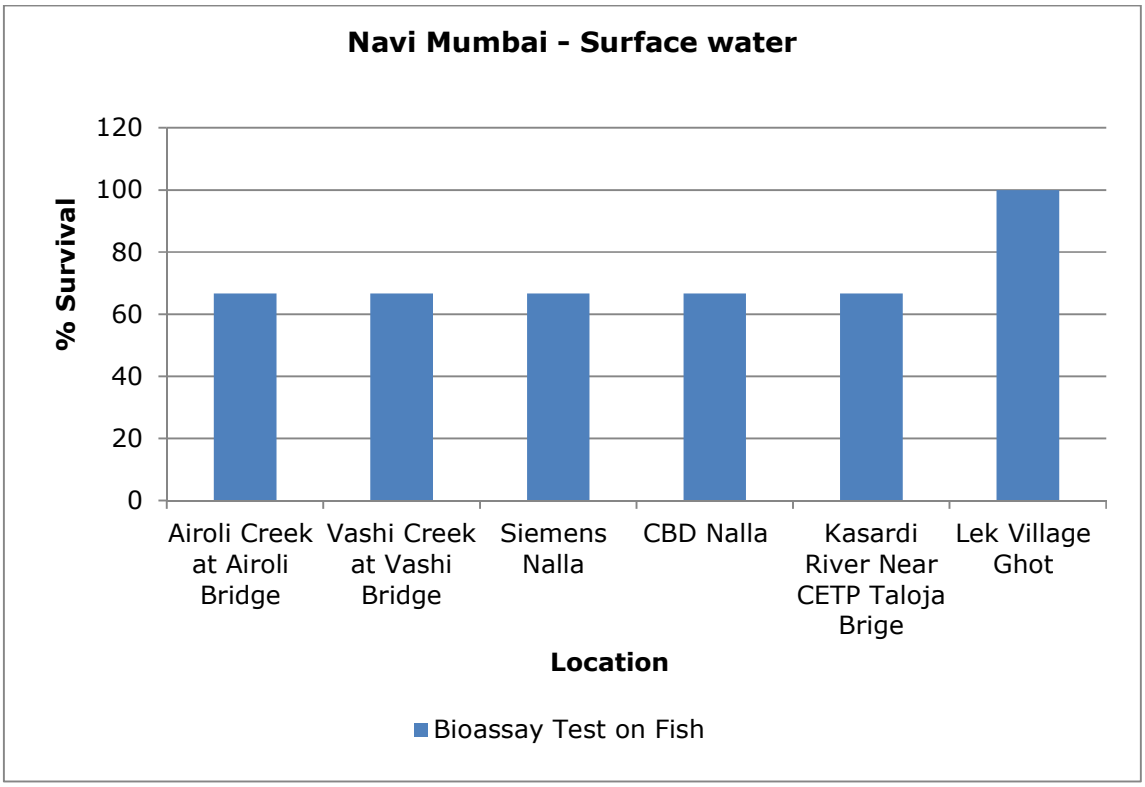





Navi Mumbai - Surface water
60
50
40
30
20
10
0
Airoli Creek at Airoli Bridge
Vashi Creek at Vashi Bridge
Siemens Nalla
CBD Nalla
Kasardi River Near CETP Taloja Brige
Lek Village Ghot
Location
Sodium Adsorption Ratio
pH


Navi Mumbai - Surface water
Concentration (µmhos/cm)
30000
25000
20000
15000
10000
5000
0
Airoli Creek at Airoli Bridge
Vashi Creek at Vashi Bridge
Siemens Nalla
CBD Nalla
Kasardi River Near CETP Taloja Brige
Lek Village Ghot
Location
Electrical Conductivity


Navi Mumbai - Surface water
MPN Index /1 00ml
1400
1200
1000
800
600
400
200
0
Airoli Creek at Airoli Bridge
Vashi Creek at Vashi Bridge
Siemens Nalla
CBD Nalla
Kasardi River Near CETP Taloja Brige
Lek Village Ghot
Location
Total Coliforms
Faecal Coliforms


Navi Mumbai - Surface water
% Survival
120
100
80
60
40
20
0
Airoli Creek at Airoli Bridge
Vashi Creek at Vashi Bridge
Siemens Nalla
CBD Nalla
Kasardi River Near CETP Taloja Brige
Lek Village Ghot
Location
Bioassay Test on Fish

7. Land Environment

For studying the land Environment of Navi Mumbai area, ground water was collected from Bore well. Dug well, and Hand Pump. A total of 6 samples were collected from i) Dugwell at Turbhe Gaon (ii) MSW Dumping Ground (iii) MSW TTC Area (iv) TTC WMA (v) TTC Plot no. 142 MIDC (vi) Mumbai Waste Management Ltd. (MWML) site.

Six ground water samples were collected from MIDC Navi Mumbai region.

- All the water samples collected are found acceptable in general appearance, colour, smell and transparency.
- General parameters like pH, suspended solids, TDS, electrical conductivity, BOD, and COD are also observed well within the limits in all the collected samples.
- 80-100% survival was achieved in Fish Bioassay.
- All metals like Arsenic, Nickel, Copper, Iron, Hexavalent Chromium (Cr^{6+}) etc. were also observed either below the limit quantification or below their standard limits.
- Parameters like Total Residual Chlorine, Cyanide, Fluoride, Sulphide, Dissolved Phosphate, Total Ammonical Nitrogen and Phenolic compounds, also met the criteria as prescribed by CPCB.
- Organo Chlorine Pesticides, Polynuclear aromatic hydrocarbons (PAH) and Polychlorinated Biphenyls (PCB) were below the limit quantification in all studied samples.

Table 7.1 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.	Dug Well at Turbhe Gaon	N19°04'16.30"	E 73°0'34.09"	17.01.2023	19.01.2023	21.01.2023
2.	Navi Mumbai MSW Dumping Ground Borewell Water Turbhe	N19^{0}04'42.97"	E73^{0}01'36.71"	17.01.2023	19.01.2023	21.01.2023
3.	MSW, TTC Area Borewell	N19^{0}04'40.94"	E73^{0}08'15.11"	17.01.2023	19.01.2023	21.01.2023
4.	TTC WMA Site Borewell	N19^{0}06'31.05"	E73^{0}01'49.67"	17.01.2023	19.01.2023	21.01.2023
5.	TTC Plot no. 142 Borewell	N19^{0}05'46.58"	E73^{0}01'27.10"	17.01.2023	19.01.2023	21.01.2023
6.	Mumbai Waste Management limited Borewell MIDC Taloja	N19^{0}05'48.65"	E73^{0}06'56.03"	17.01.2023	19.01.2023	21.01.2023

Fig: Geographical Locations of Groundwater Sampling in Navi Mumbai

Table 7.2 Results of Ground Water

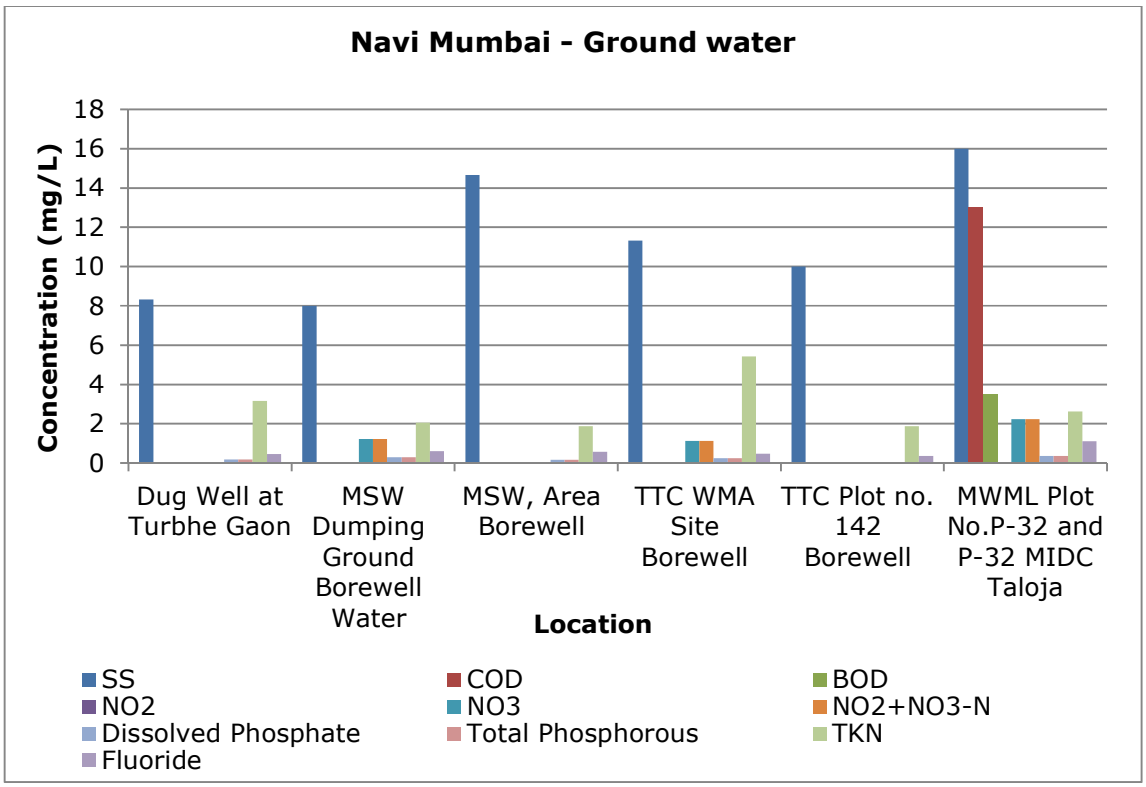
Parameters	Unit	Results					
		Dug Well at Turbhe Gaon, Navi Mumbai	**Navi Mumbai MSW Dumping Ground Borewell Water Turbhe Navi Mumbai**	**MSW, Area Borewell Navi Mumbai**	**TTC WMA Site Borewell**	**TTC Plot no. 142 Borewell**	**Mumbai Waste Management Limited Plot No.P-32 and P-32 Part MIDC, Taloja**
Sanitary Survey	-	Generally clean neighbourhood	Generally clean neighbourhood	Generally clean neighbourhood	Generally clean neighbourhood	Generally clean neighbourhood	Generally clean neighbourhood
General Appearance	-	No Floating matter	No Floating matter	No Floating matter	No Floating matter	No Floating matter	No Floating matter
Transparency	m	0.50	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Temperature	°C	28	28	28	27	28	27
Colour	Hazen	1	1	1	1	1	1
Smell	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
pH	-	8.28	7.81	7.78	7.79	7.89	8.37

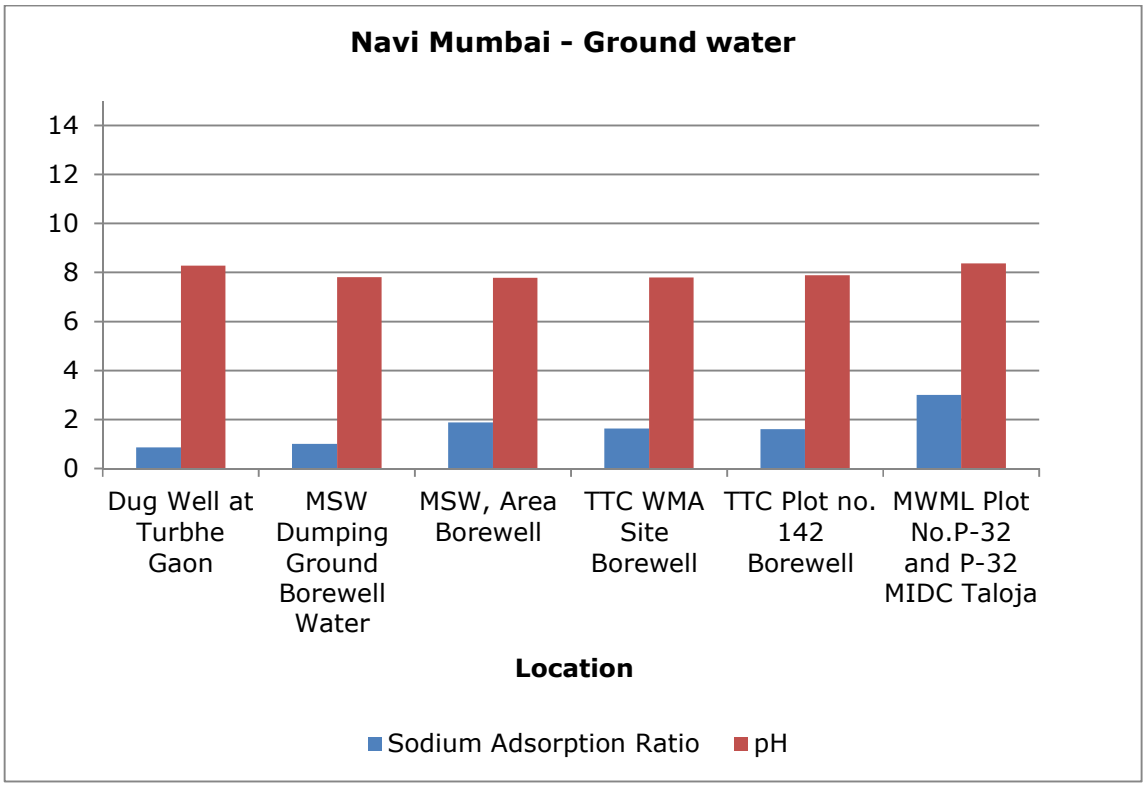
Parameters	Unit	Results					
		Dug Well at Turbhe Gaon, Navi Mumbai	Navi Mumbai MSW Dumping Ground Borewell Water Turbhe Navi Mumbai	MSW, Area Borewell Navi Mumbai	TTC WMA Site Borewell	TTC Plot no. 142 Borewell	Mumbai Waste Management Limited Plot No.P-32 and P-32 Part MIDC, Taloja
Oil & Grease	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Suspended Solids	mg/L	8	8	15	11	10	16
Total Dissolved Solids	mg/L	203	359	339	287	239	785
Chemical Oxygen Demand	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	13
Biochemical Oxygen Demand (3 days,27°C)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	4
Electrical Conductivity (at 25 °C)	µmho/cm	363	640	604	513	425	1400
Nitrite Nitrogen (as NO_2)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Nitrate Nitrogen (as NO_3)	mg/L	BLQ	1.22	BLQ	1.12	BLQ	2.23
(NO_2 + NO_3)-Nitrogen	mg/L	BLQ	1.22	BLQ	1.12	BLQ	2.23
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	0.45	0.60	0.57	0.47	0.37	1.10
Sulphide (as H_2S)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Dissolved Phosphate (as P)	mg/L	0.18	0.29	0.17	0.24	BLQ	0.37
Sodium Adsorption Ratio	-	0.87	1.01	1.87	1.63	1.61	3.00
Total Coliforms	MPN Index/ 100 ml	865	324	28	807	611	244

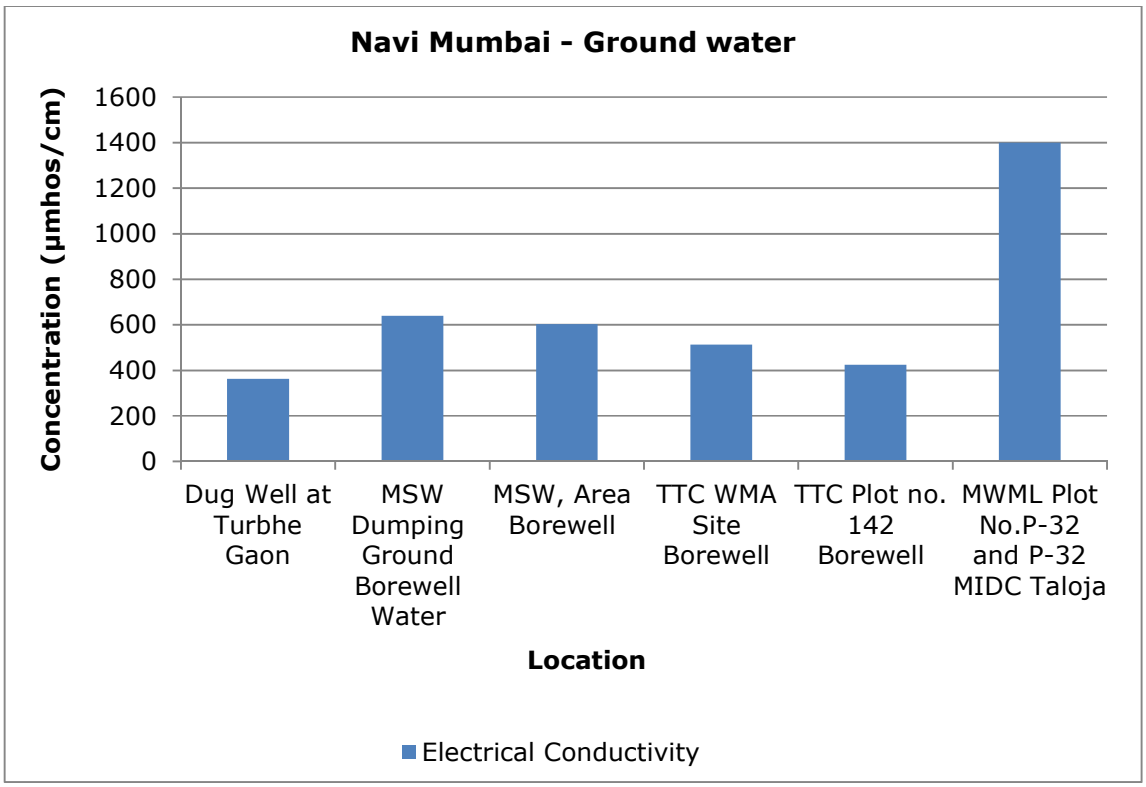
Parameters	Unit	Results					
		Dug Well at Turbhe Gaon, Navi Mumbai	Navi Mumbai MSW Dumping Ground Borewell Water Turbhe Navi Mumbai	MSW, Area Borewell Navi Mumbai	TTC WMA Site Borewell	TTC Plot no. 142 Borewell	Mumbai Waste Management Limited Plot No.P-32 and P-32 Part MIDC, Taloja
Faecal Coliforms	MPN Index/ 100 ml	807	277	15	804	807	285
Total Phosphate (as P)	mg/L	0.18	0.29	0.17	0.24	BLQ	0.37
Total Kjeldahl Nitrogen (as N)	mg/L	3.17	2.05	1.87	5.42	1.87	2.61
Total Ammonia (NH_4+NH_3)-Nitrogen	mg/L	0.23	0.49	0.37	0.74	0.48	0.49
Phenols (as C_6H_5OH)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Anionic Detergents (as MBAS Calculated as LAS, mol.wt.288.38)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Organo Chlorine Pesticides	µg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Polynuclear aromatic hydrocarbons (as PAH)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Polychlorinated Biphenyls (PCB)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Zinc (as Zn)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Nickel (as Ni)	mg/L	0.01	0.01	BLQ	0.01	BLQ	0.02
Copper (as Cu)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Hexavalent Chromium (as Cr^{6+})	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Total Chromium (as Cr)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Total Arsenic (as As)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Lead (as Pb)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ

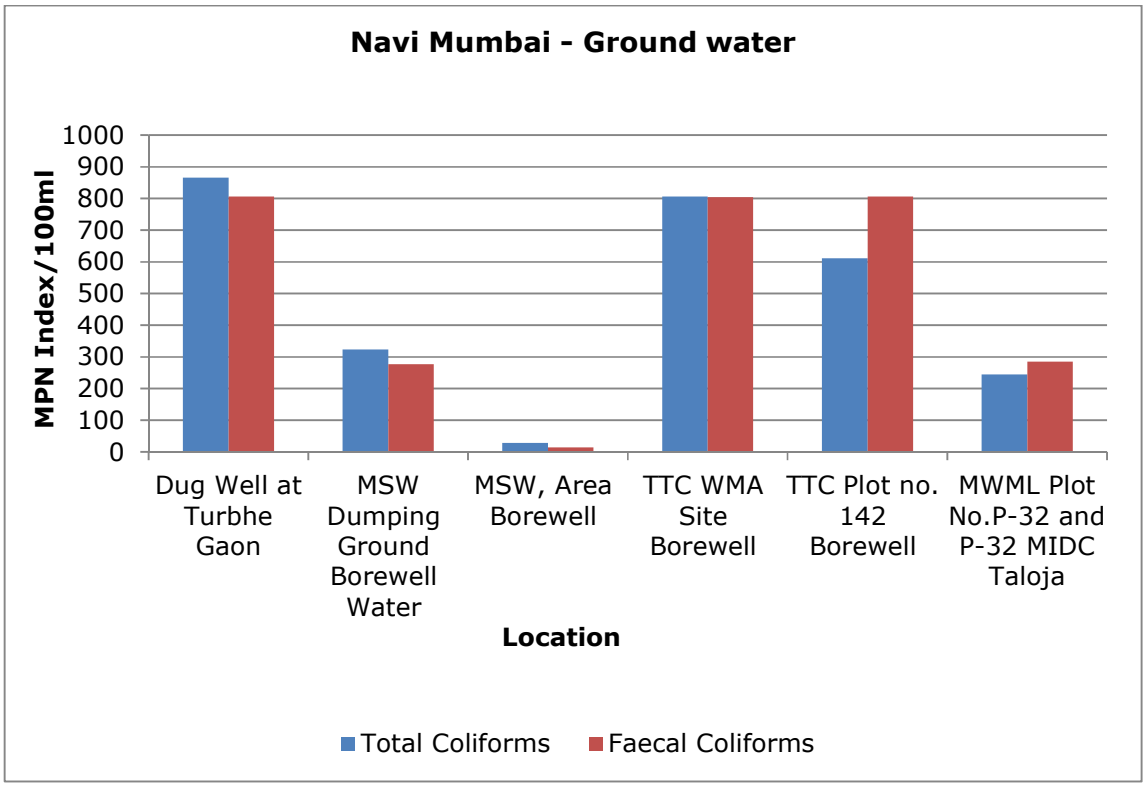
Parameters	Unit	Results					
		Dug Well at Turbhe Gaon, Navi Mumbai	Navi Mumbai MSW Dumping Ground Borewell Water Turbhe Navi Mumbai	MSW, Area Borewell Navi Mumbai	TTC WMA Site Borewell	TTC Plot no. 142 Borewell	Mumbai Waste Management Limited Plot No.P-32 and P-32 Part MIDC, Taloja
Cadmium (as Cd)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Mercury (as Hg)	mg/L	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Manganese (as Mn)	mg/L	0.10	0.24	0.13	0.16	0.15	0.41
Iron (as Fe)	mg/L	0.21	0.11	0.14	0.09	0.16	0.17
Vanadium (as V)	mg/L	0.01	BLQ	BLQ	0.03	0.03	0.02
Selenium (as Se)	mg/L	BLQ	0.01	BLQ	0.01	BLQ	0.01
Boron (as B)	mg/L	3.81	2.85	2.49	6.42	2.57	4.84
Total Nitrogen	mg/L	BLQ	BLQ	0.19	0.24	0.14	0.18
Bioassay Test on fish	% survival	87	80	93	100	100	100

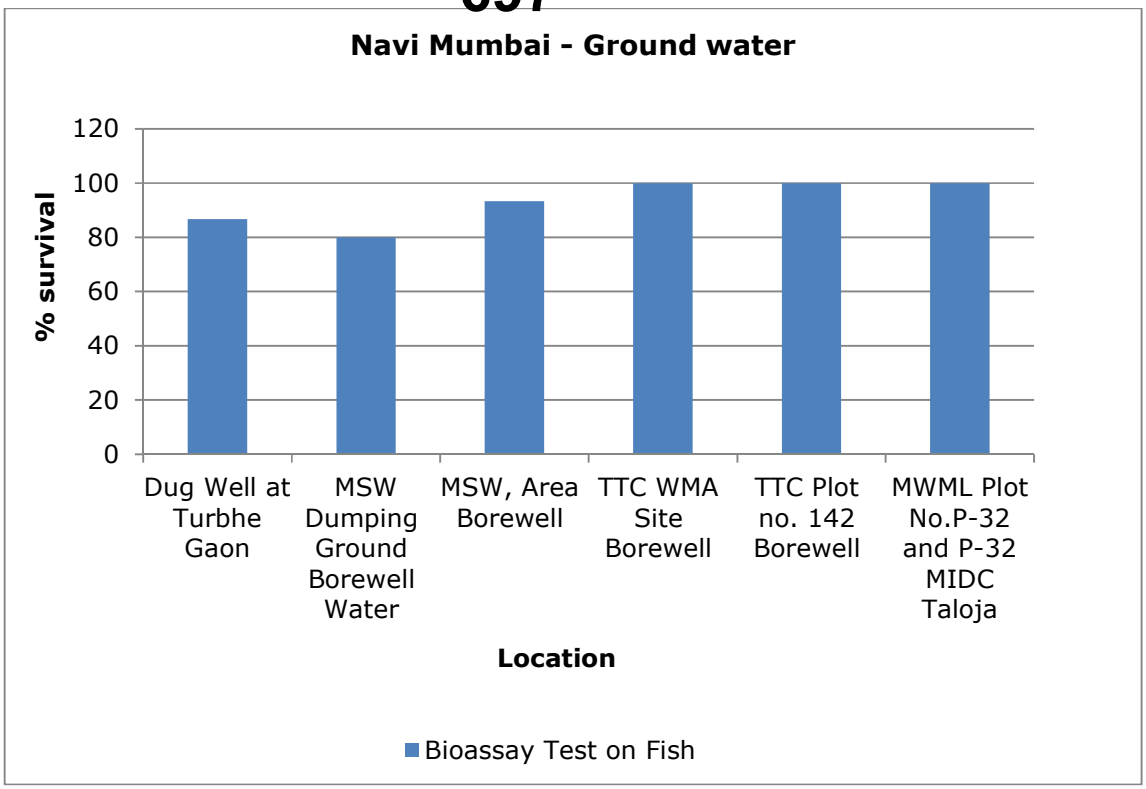
Graphs - Ground Water Quality of Navi Mumbai






Navi Mumbai - Ground water
Concentration (µmhos/cm)
1600
1400
1200
1000
800
600
400
200
0
Dug Well at Turbhe Gaon
MSW Dumping Ground Borewell Water
MSW, Area Borewell
TTC WMA Site Borewell
TTC Plot no. 142 Borewell
MWML Plot No.P-32 and P-32 MIDC Taloja
Location
Electrical Conductivity


Navi Mumbai - Ground water
MPN Index/100ml
1000
900
800
700
600
500
400
300
200
100
0
Dug Well at Turbhe Gaon
MSW Dumping Ground Borewell Water
MSW, Area Borewell
TTC WMA Site Borewell
TTC Plot no. 142 Borewell
MWML Plot No.P-32 and P-32 MIDC Taloja
Location
Total Coliforms
Faecal Coliforms


Navi Mumbai - Ground water
120
100
80
60
40
20
0
% survival
Dug Well at Turbhe Gaon
MSW Dumping Ground Borewell Water
MSW, Area Borewell
TTC WMA Site Borewell
TTC Plot no. 142 Borewell
MWML Plot No.P-32 and P-32 MIDC Taloja
Location
Bioassay Test on Fish

C: Receptor

Component C (Impact on Human Health) 10	
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 Post monsoon season 2023

	A1	A2	A	B	C	D	CEPI
Air Index	4.00	4.00	16.00	0.00	10.00	10.00	36.00
Water Index	1.50	4.00	6.00	34.75	10.00	0.00	50.75
Land Index	1.50	4.00	6.00	0.00	10.00	0.00	16.00
						Aggregated CEPI	**53.59**

Table 8.2 Comparison of CEPI Scores

Year	Air Index	Water Index	Land Index	CEPI
CEPI score March 2023	36.00	50.75	16.00	**53.59**
CEPI Score June 2021	35.00	48.25	39.25	**55.36**
CEPI Score March 2021	42.75	43.75	36.00	**52.40**
CEPI score March 2020	50.80	17.80	25.30	**53.00**
CEPI score June 2019	46.25	30.00	25.50	**50.36**
CEPI score March 2019	40.0	32.5	22.5	**44.39**
CEPI score June 2018	40.0	22.0	13.5	**41.78**
CEPI score March 2018	48.0	53.75	56.25	**67.54**
CPCB CEPI score March 2018	56.00	63.00	16.00	**66.32**

CEPI Score Calculation:

Navi Mumbai
Ambient Air Analysis Report

Pollutant	Group	A1	A2	A (A1 X A2)
As	C	3	Large	
PM_{10}	B	0.5		
$PM_{2.5}$	B	0.5		
		4	**4**	**16**

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)	
As	0.4	6	0.07	0	8	0.00	L	0
PM_{10}	63.5	100	0.63	0	8	0.00	L	0
$PM_{2.5}$	16.8	60	0.28	0	8	0.00	L	0
B score = (B1+B2+B3)							**B**	**0**

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

Air CEPI Score	(A+B+C+D)	36.00

Water Quality Analysis Report

Pollutant	Group	A1	A2	A (A1 X A2)
TN	A	1	Large	
TDS	A	0.25		
Zn	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)	
TDS	6509	2000	3.25	3	6	1.63	C	30
TN	17.91	15	1.19	2	6	0.40	M	4.75
Zn	0.14	0.3	0.46	0	6	0.00	L	0
B score = (B1+B2+B3)							**B**	**34.75**

C	**10**	**>10 %**
D	**0**	**A-A-A**

Water CEPI Score	**(A+B+C+D)**	**50.75**

Ground Water Quality Analysis Report

Pollutant	Group	A1	A2	A (A1 X A2)
TN	A	1	Large	
Fe	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)	
TN	3.83	45	0.09	0	6	0.00	L	0
Fe	0.15	0.3	0.50	0	6	0.00	L	0
TDS	368.89	2000	0.18	0	6	0.00	L	0
B score = (B1+B2+B3)							**B**	**0**

C	**10**	**>10%**
D	**0**	**A-A-A**

Land CEPI Score	**(A+B+C+D)**	**16.00**

Water CEPI Score (im) **50.75**

Air CEPI Score (i2) **36.00**

Land Score (i3) **16.00**

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 **53.59**

10. Conclusion

Ambient Air Quality

- In the present study, 08 AAQ stations were identified in the CEPI impact area to cover both upwind and cross wind directions and AAQ survey was conducted.
- All air quality parameters are observed well within the limits as per NAAQS.
- Concentration of PM10 is observed in the range of 53.33 µg/m^3 to 82.67 µg/m^3 and PM2.5 in the range of 13.67 to 21.0 µg/m^3 at the studied locations.
- In the CEPI score calculated for Air Environment by CPCB in March 2018, the concentration of PM_{10} has exceeded at all the studied locations and which contributed to higher air index (56.00). However, in the present report, concentration of both PM10 and PM2.5 are found below permissible levels resulted in less exceedance factor, hence lower air index (36.00).

Surface Water Quality

- To understand the quality of treated effluent, samples were collected from six industries
- Higher concentration of BOD and Total phosphates was observed in the surface water samples collected which may be due to domestic wastewater, sewage, other localized activities.
- All the industries in Navi Mumbai region are either reusing the treated trade effluent as sewage in their process or gardening.
- In the CEPI score calculated for Water Environment by CPCB in March (post monsoon) 2018, concentration values of total phosphorous were higher and exceeded at all the studied locations as observed in the present study also.

Ground Water Quality

- Six ground water samples were collected from different Dug well, well and Bore well in the region.
- Ground water of the studied regions was found to be safe for drinking with a very low concentration of TDS, TKN and iron, chromium and other general as well as carcinogenic parameters.
- In the CEPI score calculated for Land Environment by CPCB in March (post monsoon) 2018 also there is no critical pollutant exceeding in any water sample collected.

CEPI Score

- The CEPI Score post monsoon season is 53.59.
- During calculation of CEPI score, water Index is calculated highest with 50.75, followed by the Air Index 36.00 and Land index as 16. The parameters of surface water and ground water in Navi

Mumbai region is well within the limits. Hence, aggregated CEPI score is calculated as 53.59, which is lower than the CPCB CEPI score 2018 post monsoon season, which was 66.32.

- In CEPI score of CPCB 2018 (post monsoon), the air index and water Index was higher as compared to the present (post monsoon 2023) indices.
- In comparison with the CEPI Score of 2021 (post monsoon), there is a decrease in the land Index, but the Water Index and the Air index increased this year.
- As per the CPCB CEPI calculation revised in 2016, Health statistics represented by Receptor C in CEPI Calculation, also plays an important role.
- For analysing the health data collected from hospitals, more than 10% increase in air and water borne disease cases is observed in the consecutive years of 2020-2021 and 2021-2022. Hence score for receptor C is considered as 10 for all three environments.
- Collective efforts of regional office of MPCB, NMMC, administration and environmental organizations are resulting in significant reduction in pollution level.
- Efforts taken to reduce the pollution level is represents factor D in CEPI Calculation, which also affects the overall CEPI score.
- The present study is the compilation of post monsoon season, which results in dilution of environmental samples resulting in lower pollution load, hence also affects the total score.
- In conclusion, approximately 20% decrease in CEPI score is observed from 66.32 in 2018 to 53.59 in 2023.

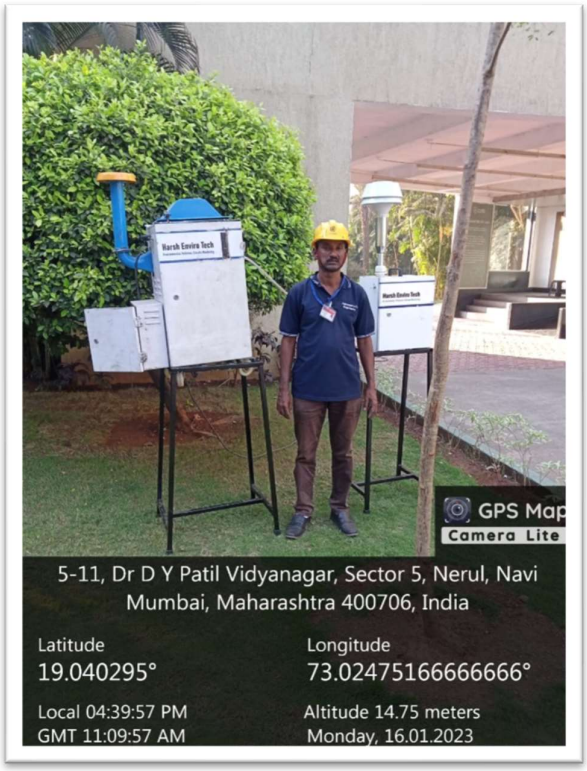
11. Efforts taken by MPCB to Control and Reduce Environmental Pollution Index

- Drive against open burning of biomass, crop residue, garbage, leaves, etc.
- Organic Waste Compost Machines Malls, Infrastructure projects, Large scale hospitals & Hotels has installed OWC.
- Waste collection and segregation centres: Provided by NMMC at all wards.
- Construction of Common Effluent Treatment Plant (CETP): 1 CETP of 27 MLD capacity is already operational and complied.
- Installation of CEMS installed for Air and Water in Large and Medium scale RED category industries: 63 Nos. of unit has installed CEMS & connected to CETP server.
- Arrangement of scientific collection and treatment of sewage generated: 04 Nos of STP having total capacity as 256.5 MLD with adequate capacity of collection sumps are provided by NMMC.
- Installation of CAAQMS station: Total 4 Nos. (1 old + 3 new) of CAAQMS stations are operational.
- Number of Monitoring stations under National Water Quality Monitoring Programme (NWMP): 1 (Vashi Creek at Vashi Bridge).
- Steps are taken for industrial area/other units to recycle 100% treated effluent to achieve Zero Liquid Discharge (ZLD): 11 Nos of Industries has adapted ZLD.
- Steps are taken to reduce dust emission: Concretization of Roads and twice daily sweeping of Roads by NMMC authority. Presently NMMC has proccured2 Nos. of fogging machines. NMMC is already having 6 Nos. of mechanical sweeping machines.
- Around 1 lakh trees are planted in last one year (2021-2022).
- Directions issued to the industries to switch over on clean fuel.

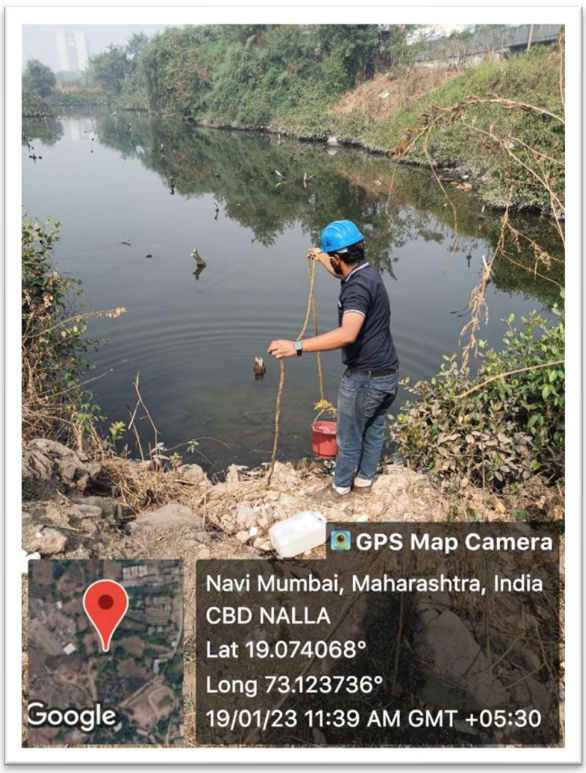
	
Continuous Ambient Air Quality Monitoring Station (CAAQMS)	**Ambient Air Quality Monitoring (AAQM) Van**

12. Photographs

Ambient Air Sampling at Ashi India Glass



Ambient Air Sampling at D Y Patil hospital



Surface Water Sampling – CBD Nallah

Surface Water Sampling – Kasardi River near CETP Taloja

Groundwater Sampling – TTC WMA Borewell

Groundwater Sampling – MWML

Groundwater Sampling – TTC plot no. 142

Groundwater Sampling – Dug well Turbhe

HEALTH STATISTICS

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

Name of the Polluted Industrial Area (PIA)	NAVI MUMBAI
Name of the major health center/ organization	E.S.I.S Hospital
Name and designation of the Contact person	
Address	

S No.	Diseases	No. of Patients Reported	
		2022 (Jan-Dec)	2021 (Jan-Dec)
AIRBORNE DISEASES			
1.	Asthma	516	218
2.	Acute Respiratory Infection	484	204
3.	Bronchitis	218	84
4.	Cancer	109	88
WATERBORNE DISEASES			
1.	Gastroenteritis	184	17
2.	Diarrhea	148	68
3.	Renal diseases	425	312
4.	Cancer	179	116

Date:

Signature

MEDICAL SUPERINTENDENT
E.S.I.S. HOSPITAL, VASHI,
Navi Mumbai-400703

नवी मुंबई
महानगरपालिका
1ला माळा, प्रशासकिय विभाग, सार्वजनिक रुग्णालय वाशी, नवी मुंबई 400703 .
दूरध्वनी क्र : 2899901,02,03

Navi Mumbai
Municipal Corporation
1st FLOOR, ADMINISTRATIVE OFFICE,
GENERAL HOSPITAL VASHI
NAVI MUMBAI – 400703.
TEL. No. : 27899901,02,03

बेटी बचाओ
save the girl child

जा.क्र. नमुंमपा/सा.रु.वाशी/ 499 /2023
दि. 01 / 02 / 2023

प्रति,

मा.उप-प्रादेशिक अधिकारी,
महाराष्ट्र प्रदुषण नियंत्रण मंडळ,नवी मुंबई

विषय- रुग्णालयातील आरोग्यविषयक रुग्णांचे विविध आजारांची माहीती बाबत.
संदर्भ - १) MPCB/SRONM-1/230117-FTS-0172

महोदय,

उपरोक्त संदर्भिय पत्रान्वये रुग्णालयातील आरोग्यविषयक रुग्णांचे विविध आजारांची माहीती मागविण्यात आलेली आहे. त्याअनुसार सदरची माहिती खालीलप्रमाणे आहे.

अ.क्र.	Disease	No Of Patient Reported	
		2022(Jan To Dec)	2021(Jan To Dec)
AIRBORN DISESSES			
1	Asthma	382	202
2	Acute Respiratory Infection	1109	562
3	Bronchitis	215	124
4	Cancer	39	35
WATERBORN DISESSES			
1	Gastroenteritis	206	151
2	Diarrhea	282	143
3	Renal Diseases	157	146
4	Cancer	———	———

(डॉ. प्रशांत जवादे)
वैद्यकिय अधिक्षक
सार्वजनिक रुग्णालय वाशी
नवी मुंबई महानगरपालिका
सेक्टर १०ए, वाशी, नवी मुंबई