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

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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.

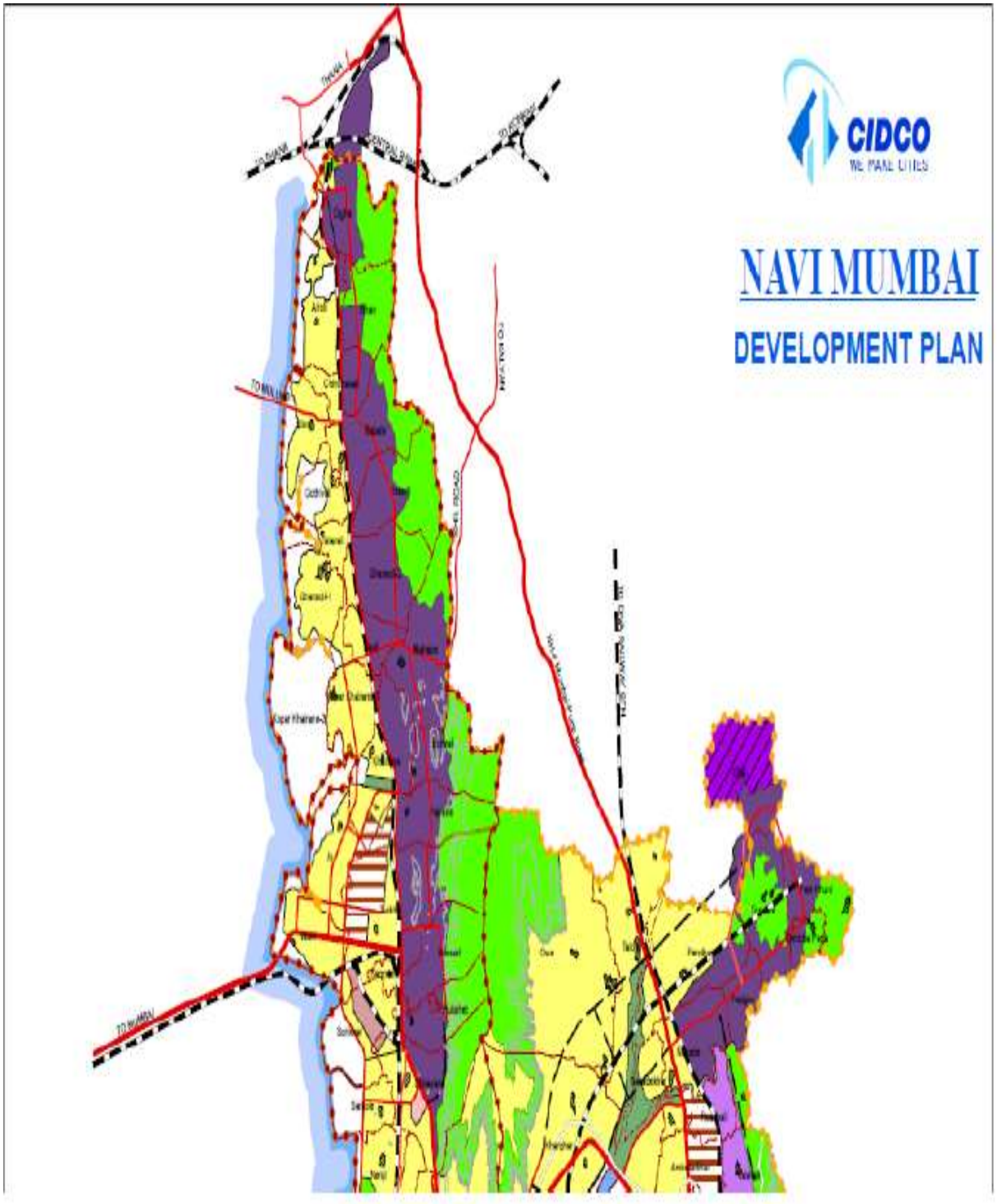
Besides the industries, there are other sources which are major contributors for pollution, especially air pollution. Navi Mumbai is a developing town and so many construction activities are going on. There is lot of emissions by transport and handling of cement and other construction material. There 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.

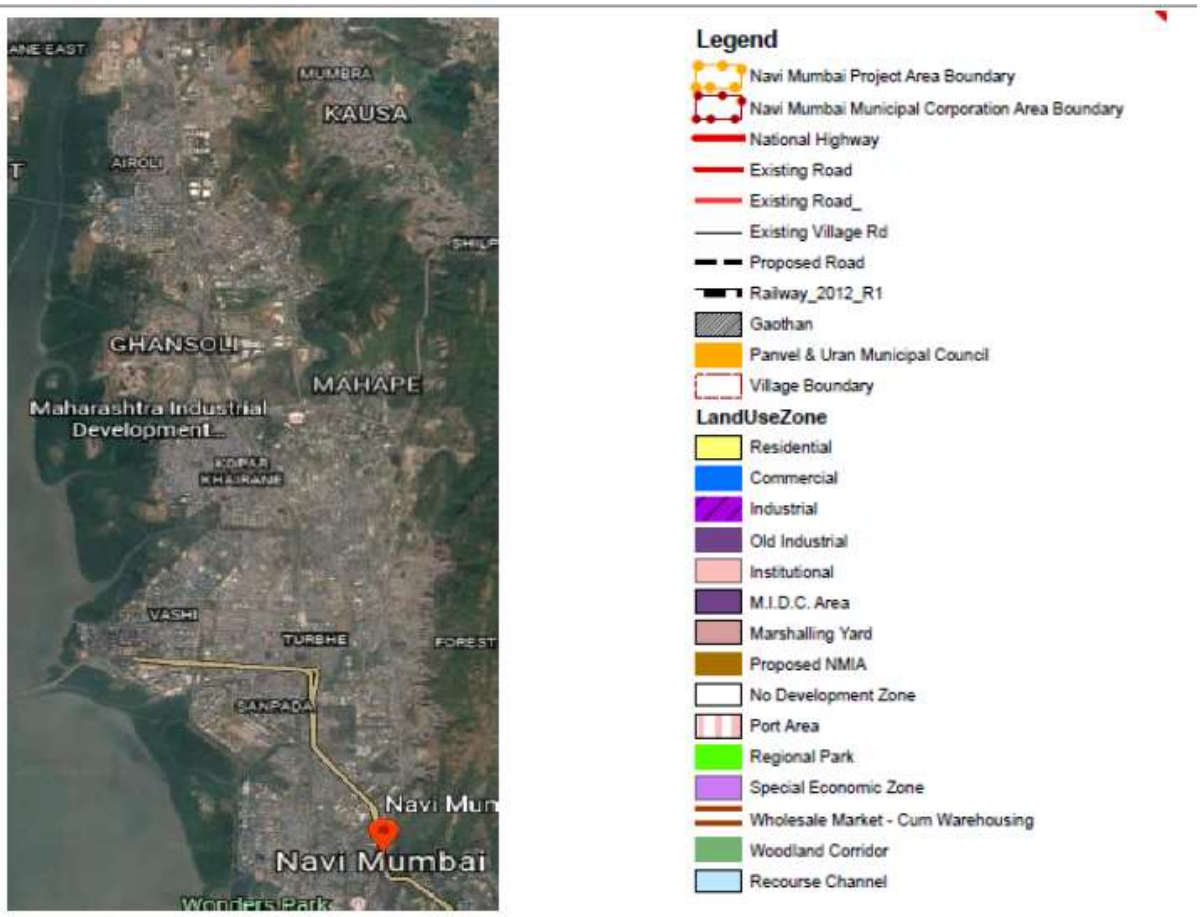
Another major source for air pollution is the transport. Navi Mumbai is the major pass-way for Mumbai and Thane and lacs of vehicles pass to and fro. The auto exhaust as well as dust emissions from these vehicles contribute lot of air pollution. There are also other sources of stationery emissions such 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:

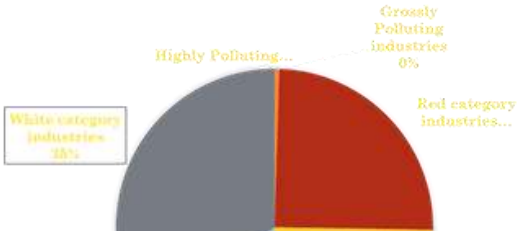
Direction	Latitude	Longitude
East	19° 6'53.34"N	72°59'8.07"E
West	19° 6'51.30"N	73° 2'25.75"E
North	19°13'6.88"N	73° 0'9.42"E
South	19° 2'33.85"N	73° 1'0.86"E

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

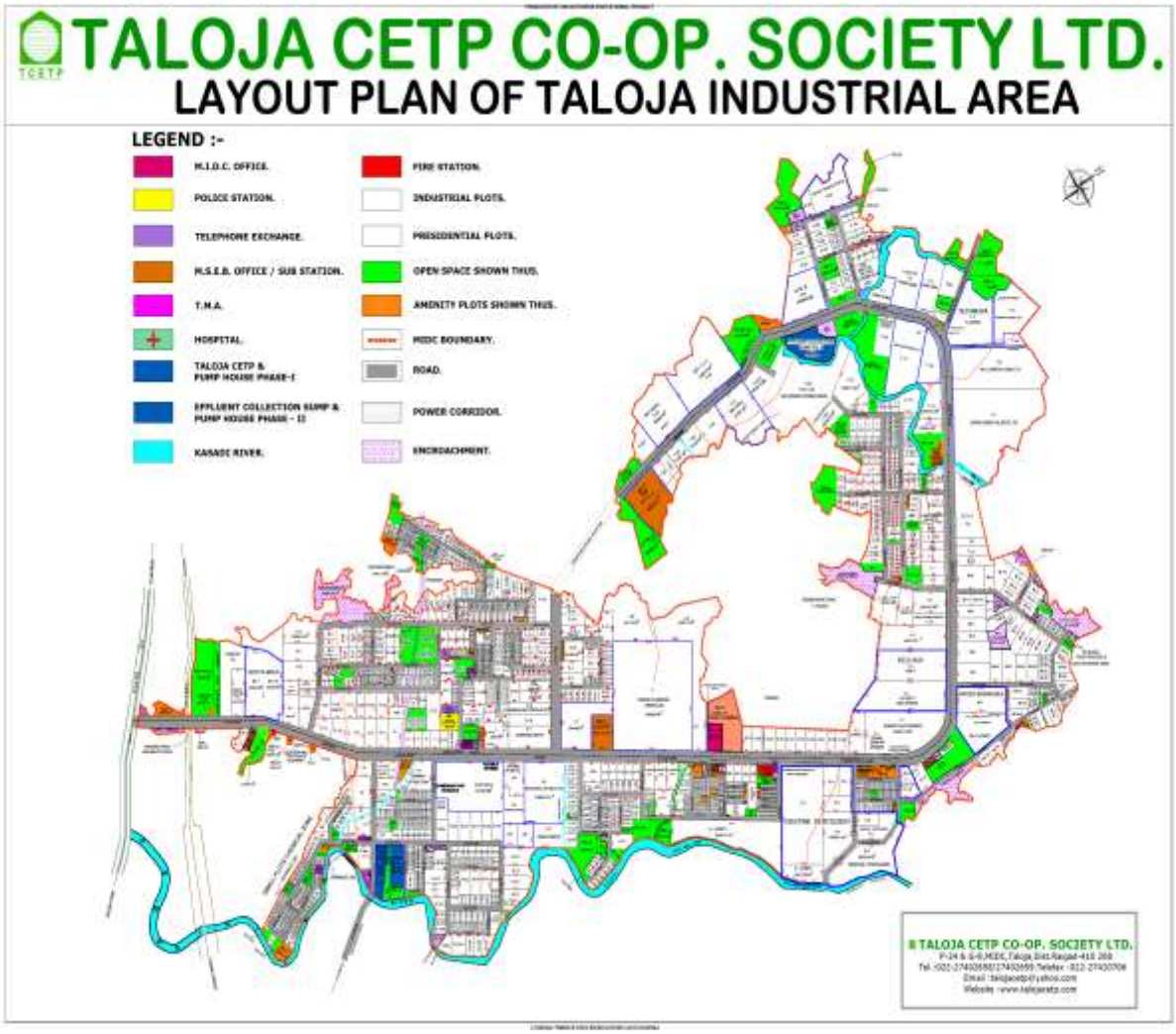
Industry Type	**Names**
Chemical	SARK Chemical Industries, Scottish Chemical Industries, Fineotex Chemical Industries, Hikal Ltd., Deepak Nitrite Ltd., Dow Chemical International Pvt. Ltd.
Engineering/ Automobiles	Exide Industries Ltd, Niumec Engineering Corporation. Convac Engineering Company, Bharat 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.

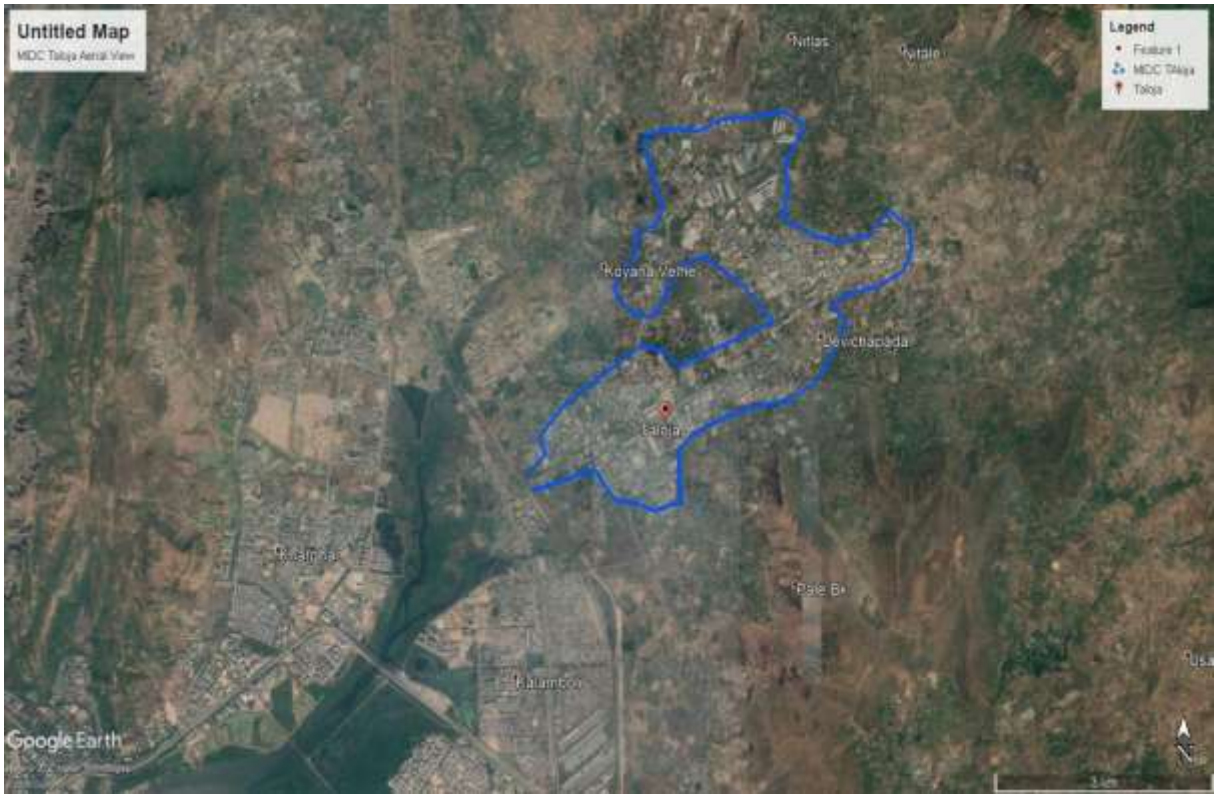
2.2 About MIDC Taloja Cluster:

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

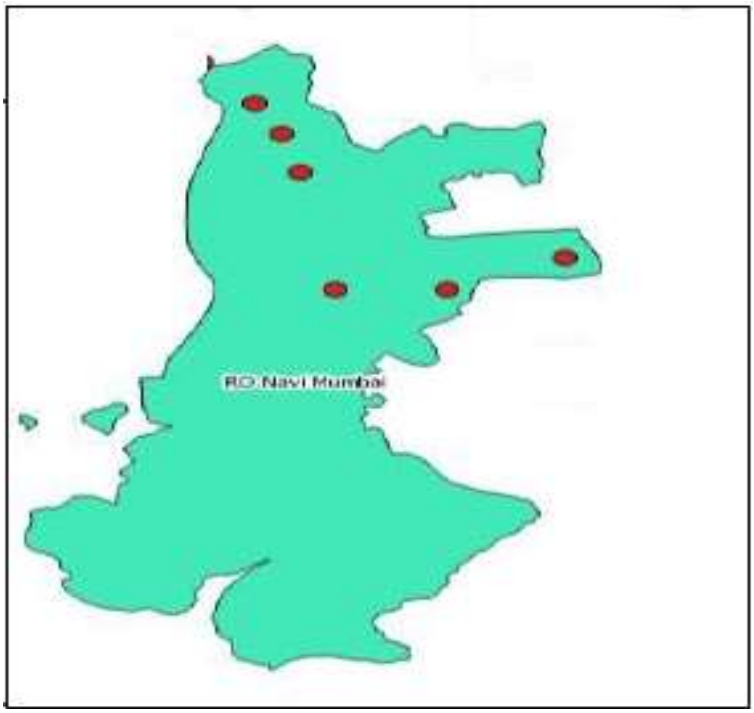
g. Secured landfill

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:

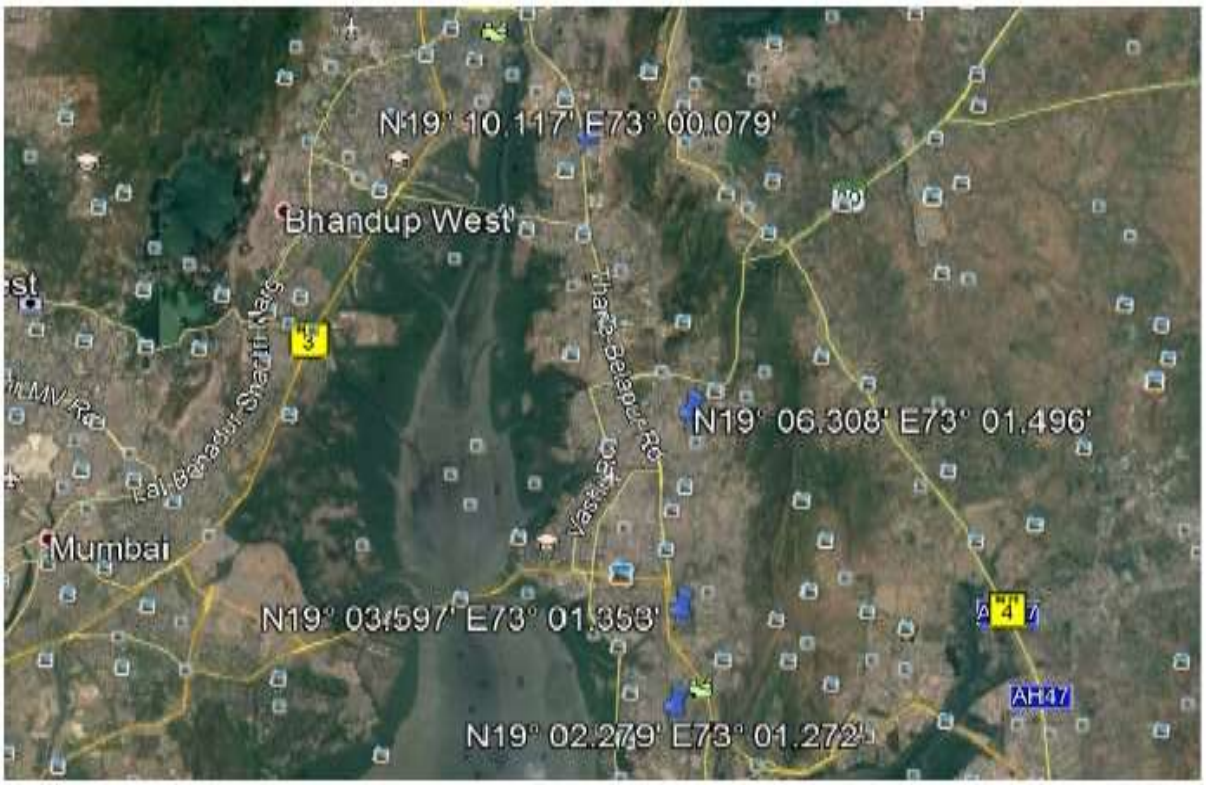
M.P.C.Board has carried out Ambient air quality Monitoring at various location at Navi Mumbai are as below,



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:

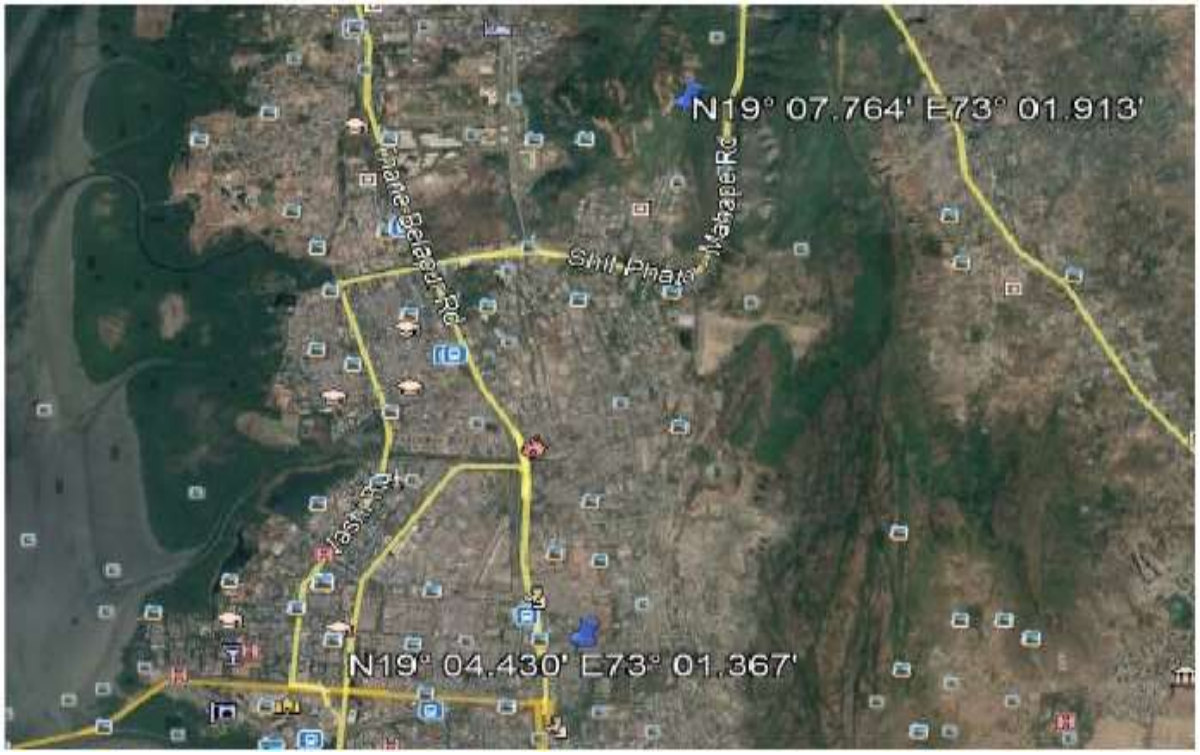


Sr. No.	Location Name	Latitude	Longitude
A-1	DY PATIL HOSPITAL, SECTOR-V, NERUL, NAVI MUMBAI	N19°02'27.88"	E73°01'27.22"
A-2	TTCWMA, MAHAPE, NAVI MUMBAI	N19°03'59.68"	E73°01'35.35"
A-3	RELIABLE IT PARK, AIROLI, NAVIMUMBA	N19°06'30.77"	E73°01'49.57"
A-4	ZOETIS PHARMACEUTICALS RESEARCH PVT. LTD, PLOT NO 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)**	**50 Marks**
Component C	**Health related Statistics**	**10 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:

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.	Work is completed. 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.	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. ➢ Board has asked to carry out	

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	
16	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
17	Improvement in ECS	Industries	Individual 13 units which have upgraded ECS. Monitoring of these units will be carrying out.	

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
18	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	
19	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.	
20	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

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
21	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
22	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.	
23	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

Sr. No	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	Remarks
24	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
25	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
26	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
26	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.	
27	Noise mapping of Navi Mumbai City	NMMC / MPCB	NEERI has carried out Noise mapping	Completed
28	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 capacity study with coordination of NEEI for further planning of pollution control in Aurangabad CEPI area.	18 month	MPCB/NEERI
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.	1 Year	Industry,MPCB & MNGL
		c) Permissible limit for TPM to be reduced from 150 ppm to 50 ppm.	1 Year	MPCB & Industry
		d) Zero liquid discharged to be achieved by major polluting units.	1 Year	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.	3 Month	MPCB & Industry

No	Points	Action	Time Target	Concerned Stakeholder
		b) Repair & maintenance of approach & internal roads of industrial area.	6 Months	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.	1 year	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	6 month	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.	1 year	MIDC
		i) To provide PNG facility to maximum industries in TTC & Taloja.	6 Months	NMC/MIDC/MNGL
		j) To provide proper treatment & disposal facility for sewage & MSW generating in & around Taloja MIDC.	1 Year	Panvel Municipal Corporation
4	CAAQMS	Installation of CAAQMS Station at Taloja MIDC	6 Month	MPCB

No	Points	Action	Time Target	Concerned Stakeholder
5	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	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.

State Level Monitoring Committee, under Chairmanship of Principal Secretary, Environment Department constituted vide GR dtd. 31/12/1018.

Till date M.P.C.Board under Chairmanship of Member Secretary conducted various reviews meeting with all stakeholders for effective implementation of action plan and constituted monitoring team at respective Regional Officer for visit.

Also Hon'ble Principle Secretary, Environment Department , GoM and Hon'ble Chief Secretary, GoM has conducted time to time meeting to review progress.

The proposed action plan is comprehensive and each activity under Air, Water and land considered for achieving environmental standards and will help to reduce Air CEPI score below 60. The all stakeholders like MIDC authority,

Industrial associations, District administrator, Local body contribution for implementation of action plan will help to achieve reduction of CEPI score.