

**CEPI Presentation on Action Plan
for
Navi Mumbai**

Date :- 15/05/2015

Background

- CPCB had carried out Comprehensive Environmental Assessment of 88 industrial clusters in country in Dec 2009 based on the Comprehensive Environment Assessment and Comprehensive Environmental Pollution Index(CEPI).
 - The CEPI was developed by number of prominent academic institutions, led by IIT Delhi which were also associated with the field level assessments..
- Out of the 88 industrial clusters, 43 were identified as critically polluted areas where the CEPI score is 70 or more.
- This assessment was released on 24/12/2009
 - Navi Mumbai was one of them having aggregate CEPI Score 73.77

Moratorium Imposed on Critically Polluted Areas

- On 13th January, 2010, the MoEF imposed moratorium on environmental clearance for new projects (and expansion) in the 43 critically polluted industrial clusters in order to stimulate environmental remediation/mitigation activities by industry and by the State Government concerned. This MoEF Notification said that the moratorium would be in placed until:
- Action Plans are prepared by the State Government concerned to deal with the problems of pollution.
- These Action Plans are reviewed by the CPCB.
- The State Governments revise the Action Plans based on the CPCB review.

Moratorium Lifted of 8 Critically Polluted Areas on 15th Feb 2011

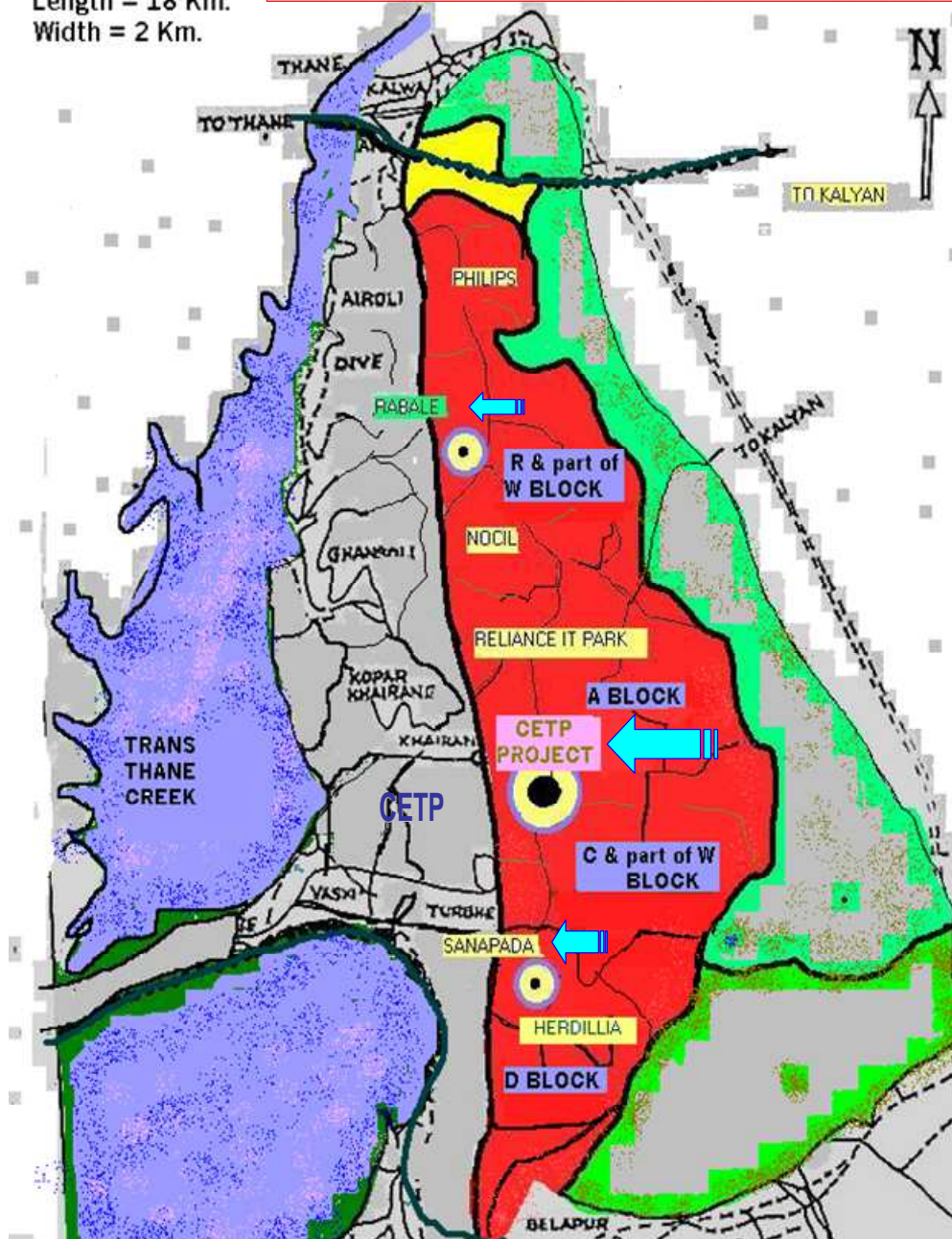
- After that Navi Mumbai Action Plan was prepared and submitted to HQ and implementation started.
- Report of compliance submitted.
- These Action Plans were reviewed by CPCB and on the recommendations reported by CPCB, the moratorium has been lifted on 15th February, 2011 in 8 cities out of which one is Navi Mumbai.

Chronology order of CEPI – Navi Mumbai

Sr.No.	Date	Details	Venue of the meeting
1	Dec-2009	CPCB/MoEF Published CEPI	--
2	July-2010	Preparation of Tentative Action plan	--
3	Aug-2010	Issued letters to Organizations	--
4	Sept-2010	Issued letters to Industries	--
5	Oct-2010	Reply received from most of the Stake Holders	--
6	Oct-2010	Submitted 1 st Compliance Report	--
7	Nov-2010	Preparation of Final Action plan	--
8	4 th & 5 th Feb-2011	CEPI Review Meeting with Industries & Organizations	Conference Hall at Raigad Bhavan, CBD Belapur
9	10 th May-2011	Review Meeting	CETP – Khairane
10	24 th Jan-2012	Review Meeting	TTCWMA – Mahape
11	29 th May-2012	Review Meeting	NMMC MSW Site – Turbhe
12	14 th Dec-2012	Review Meeting	CETP – Khairane
13	June-2013	Present Status Report on CEPI Action Points Submitted CPCB	

TTC INDL. AREA
Length = 18 Km.
Width = 2 Km.

TTC INDUSTRIAL AREA AND CETP LOCATION



Details of Industrial Cluster of Navi Mumbai

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

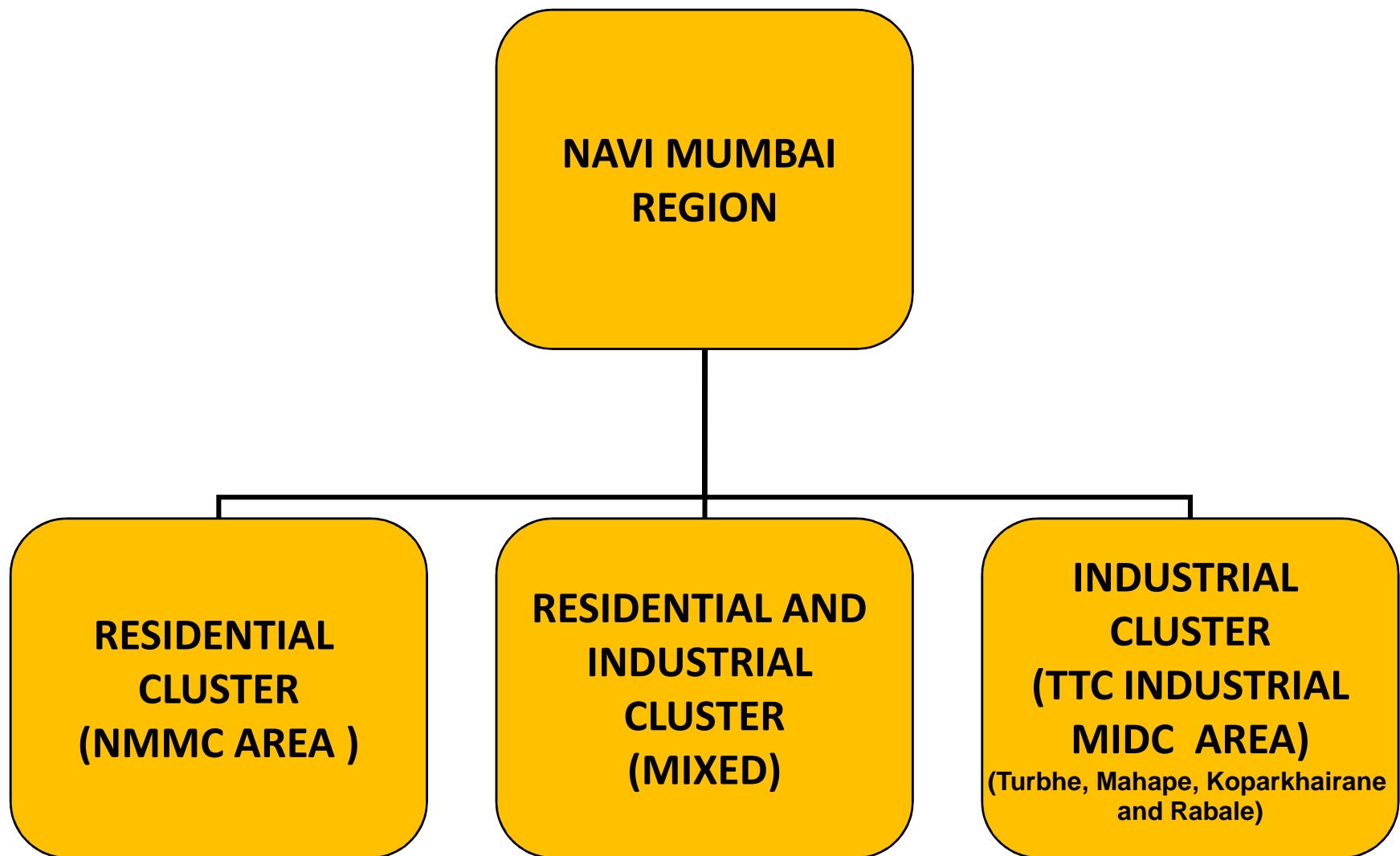
Factors considered for CEPI

A Pollutants	A1- Air & Water Pollutants based on 17 category & 54 category industries A2 – Scale of industrial activities in 10 sq.mt. radius	A=A1 x A2
B Pathway	B1 – Open water & air pollution due to leakage & disposal pipeline B2 – Evidence of adverse impact on people B3 – Eco geological features	B= B1 + B2 + B3
C Receptor	C1 – People affected within 2 km radius C2 – Level of exposure 2 R 17 + 100 R 54 C3 – Sensitive receptors within 1 km radius	C = (C1 x C2) + C3
D High risk element	Status of adequacy of pollution control facility provided by industries	D
		Aggregate CEPI = A+B+C+D

CEPI Score (Air, Water, Land and Total) As on 2010

Air CEPI 61.00		A1	A2	A	B1	B2	B3	B	C1	C2	C3	C	D	Total
Water CEPI 59.00	Air	6.00	5.00	30.00	6.00	0.00	0.00	6.00	3.00	5.00	0.00	15.00	10.00	61.00
Land CEPI 55.50		A1	A2	A	B1	B2	B3	B	C1	C2	C3	C	D	Total
Agri. CEPI 73.77	Water	3.00	5.00	15.00	8.00	3.00	3.00	14.00	5.00	3.00	5.00	20.00	10.00	59.00
		A1	A2	A	B1	B2	B3	B	C1	C2	C3	C	D	Total
	Land	3.00	5.00	15.00	6.00	1.50	3.00	10.50	5.00	3.00	5.00	20.00	10.00	55.50

Core Sector of Navi Mumbai Region



INDUSTRY STATISTICS

Category	LSI	MSI	SSI	TOTAL
RED	44	27	549	620
ORANGE	20	13	436	469
GREEN	5	7	2091	2103
TOTAL	69	47	2529	3192

Highly Polluting industries 17 category		
Sr. No	Category	TTC MIDC
1	Aluminium Smelter	0
2	Chlor Alkali	0
3	Cement	0
4	Copper Smelter	0
5	Distillery	0
6	Dyes & D. I.	3
7	Fertilizers	0
8	Intg. Iron & Steel	0
9	Tanneries	0
10	Pesticides	0
11	Petrochemicals	3
12	Pharmaceuticals & Bulk Drugs	12
13	Pulp & Paper	0
14	Oil Refinery	0
15	Sugar	0
16	Thermal Power Plant	0
17	Zinc Smelter	0
	Total	18

Status of STP 's In Navi Mumbai Region

Information	Status
Population of the Navi Mumbai city	@ 12.5 lacs.
Water consumption	317MLD
Qty of waste water generation	245 MLD
Treatment	8 STPs of capacity 473 MLD are provided at various locations.
Disposal	Thane 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		

Common Effluent Treatment Plant

- Industrial Effluent generation about 26 MLD.
- LSI & MSI Industries have provided full fledged ETP.
- SSI industries have provided ETP upto primary stage.
- CETP is meant originally for SSI units considering their various constraints.
- LSI & MSI units were also added in view of their financial strength & to have a auto dilution factor for combined treatment of effluent.
- Performance of CETP is satisfactory and results are within MPCB norms. Also as per Hon'ble High Court order regular weekly sampling is carried out.

Water Pollution Aspects

- Water Requirement for Navi Mumbai Township is 317 MLD.
- Water is supplied through Morbe dam, Barvi & Hetwane dam.
- Total industrial effluent generation is 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.

Common Effluent Treatment Plant in TTC MIDC

Sr. No.	Details	Phase-I	Phase-II
1	Date of Commissioning	Nov-97	Mar-06
2	Capacity	12 MLD	15 MLD
3	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

AMBIENT AIR MONITORING STATIONS- NAVI MUMBAI

1. Fire Brigade Compound, Airoli	-	CAAQM	2009
2. MSW Dumping Site, Turbhe	-	CAAQM	2012
3. Koperkhairane	-	CAAQM	2013
4. Dr.D.Y Patil Collage Nerul	-	NAMP	2006
5. Central Lab Mahape	-	NAMP	
6. T.B.I.A. Rabale	-	NAMP	

(Results are displayed on MPC Board's Web Site)

IMPROVEMENT IN POLLUTION STATUS DUE TO CHANGE IN FUEL PATTERN

- **About 17 industries have started using Natural Gas as fuel (PNG) since last 4 years. Gas Pipeline works started from 2011.**
- **12 industries are major consumers**
- **5 industries are minor consumers**
- **Due to Change in Fuel Pattern the SO₂ Reduction : 576.70 T/A**

Pollution Control Devices Installed

- All major polluting industries having their own full fledged ETP in their premises for treatment of effluent generated during activities. And then treated effluent is sent to CETP for further treatment and disposal in the Creek.
- All Large /Medium/ small scale industries has installed dust collectors and scrubbing systems as Air Pollution Control Devices.
- M/s. NOCIL Ltd, C-37, MIDC, TTC Indl. area, Pawane village, Navi Mumbai has provided ESP System for their coal fired Boiler as Air Pollution Control Devices in TTC Industrial Cluster

Air Pollution Control Devices details

- **Installation of VOC analyser:**

- All the bulk mfg. units (12 nos) are being proposed to install VOC analyser including alarm system.

- **Recovery of Solvent :**

- Bulk Drugs units are using solvents in their process and generate waste solvents as by-product.
- At present they are sending waste solvents to authorized party.
- All major industries have installed their own solvent recovery system at their site.
- 24 solvent distillation units are operating.

Details of Conversion of fuel to Clean in TTC Indl.Area

Sr.No.	Name of Industry	SO2 Reduction Kg/day	SPM Reduction Kg/day	Fuel type	Qty. MT/day	PNG
1	NOCIL Ltd.	140	8.0	LSHS Furnace Oil Coal Coal HSD	45 MT/day 5.0 MT/day 60 MT/day 72 MT/day 5.0 MT/day	20000 Nm3/day
2	Lubrizol India P.Ltd.	300	19.0	LSHS HSD LPG FO	20 MT/day 17 KL/M 30 MT/M 75 KL/M	25350 Nm3/day
3	Mazda Colours Ltd	400	24.8	LDO	12.98 KL/day	12000 Nm3/day
4	Croda Chemicals India P.Ltd	19.2	81.2	FO	70000 Kg/M	70000 Nm3/day
5	Prdeep Metals Ltd	35.2	68.2	FO	30000 Lit/M	2800 Nm3/day
6	BASF (I) Ltd	408	28.0	FO LDO	18.0 T/day 4.8 T/day	2.76 T/day

Contd.

Sr.No.	Name of Industry	SO2 Reduction Kg/day	SPM Reduction Kg/day	Fuel type	Qty. MT/day	PNG
7	Hindustan Platinum Ltd	28	48.0	LDO	1.5 KL/day	1400 Nm3/day
8	SI Group India Ltd.	60	70.0	Diesel LSHS	25 Kg/Hr. 50.50 T/day	65089 MT/day 31.40 MT/day
9	B.R Steel	30	8.2	Brickets	20 T/day	1500 Kg/day
10	Kubo Combustion	40	12.4	FO	30000 Lit/M	1000 Nm3/day
11	Henkel	120	6.8	LDO	3500 Kg/day	4500 Nm3/day
12	Zydus Tekeda	1651.60	5.4	FO	9240 Kg/day	9600 Nm3/day

Contd.

Sr.No.	Name of Industry	SO2 Reduction Kg/day	SPM Reduction Kg/day	Fuel type	Qty. MT/day	PNG
13	Sandoz Pvt.Ltd.			LDO		
14	Alok Industries Ltd.			Coal		
15	Mehk Chemical Pvt.Ltd.			LDO		
16	Hemmo Pharamceutical Pvt.Ltd.		104.6	LDO		
17	M/s. Arkema Chemicals India Pvt, Shirwane Nerul Navi Mumbai	108	-	Furnace oil	50 lits/hrs	100m3/hrs
	Total	1688.40	374.60			

MUNICIPAL SOLID WASTE

Navi Mumbai:

- Total MSW generation 550 T/D.
- Brake up - NMMC - 400T
APMC - 100 T
MIDC - 50 T
- 65 acres of land allotted at Turbhe Navi Mumbai.
- Landfill site is operational i.e. date of commissioning January 2005.
- Bio-Methanation with power generation plant is proposed for 1 to 1.5 MW.
- 30 acres composting, landfilling and 30 acres reserved for office building, Green Belt, Internal Road, Leachet Plant.
- 5 acres comprising of MSW processing facility.

BIO MEDICAL WASTE

- 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:
 - Segregation of waste and colour coded bagging of waste at source.
 - Door to door BMW collection and transportation facility
 - Incinerator of capacity 200 Kg/ Hour
 - Autoclave two nos of capacity 600 & 200 Liters/Cycle respectively.
 - Shredder
 - Secured landfill

Common Hazardous Waste Treatment Storage Disposal Facility

➤ Mumbai Waste Management Limited

- Secured landfill :- **1,20,000 MT/Y**
- Incinerator :- **20,000 MT/Y**

➤ Trans Thane Creek Waste Management

- Secured landfill:- **10,000 MT/Y**

REDUCTION IN POLLUTION DUE TO CLOSED INDUSTRIES

- About 57 major polluting industries are closed, namely – NOCIL Petrochemicals, Reliance Silicons, Standard Alkali (Chemical Division), Corromandal Fertilizers, Jaysynth Dyechem, Unique Chemicals, Cabbot India etc .

- Reduction in Pollution Load due closed industries
 - BOD Reduction 800.49 T/A
 - COD Reduction 1855.59 T/A
 - SO2 Reduction 17300.50 T/A
 - Hazardous Waste 14926.10 T/A

IMPROVEMENT IN POLLUTION STATUS in last 3 years

➤ BOD Reduction	14.90 T/A
➤ COD Reduction	86.20 T/A
➤ SO2 Reduction	780.70 T/A

- Implementation of CEPI Action Plan by improvement of Environmental Pollution Control System has resulted in Reduction of Pollution Load**
- This has resulted in low pollution levels & hence improvement in CEPI status.**
- Use of CNG for industrial and transportation already started**

Navi Mumbai – CEPI ACTION PLAN

Action Points - CEPI Navi Mumbai			
A. Short term action Points :-			
Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status
1	Uncovered area will be connected to CETP	MIDC CETP MPCB	<ul style="list-style-type: none"> • Some part of TTC Industrial area is not connected to MIDC drainage system due to topography. The work is in progress and MIDC is in process of providing infrastructure of collection of drainage from all parts of MIDC. Work is under process
2	Performance Evaluation of CETP	CETP MPCB	<ul style="list-style-type: none"> • The performance evaluation of CETP has been done by M/s. Aditya Environmental Services Pvt Ltd Mumbai.
3	Performance Evaluation of ETPs	Industries	<ul style="list-style-type: none"> • All the major industries are being proposed to improve their treatment system in order to reduce pollution load at least by 10%. • The work is almost completed.
4	Performance Evaluation of ECS.	Industries	<ul style="list-style-type: none"> ▪ All the major industries are being proposed to improve their ECS in order to reduce pollutant load at least by 10% ▪ The ECS system is upgraded.
5	Repairs of Internal Roads in MIDC area.	NMMC	<ul style="list-style-type: none"> • There are internal roads of 95 km in MIDC area, most of the roads under improvement in order to limit dust emissions by vehicle transport. • Navi Mumbai Municipal Corporation has started constructions of roads.

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status
6	Taking possession of drainage pipeline carrying effluent to CETP.	CETP MIDC MPCB as Nodal Agency	<ul style="list-style-type: none"> • Treated effluents of the MIDC area is collected at CETP through MIDC drainage system.
7	Replacement of damaged pipeline	MIDC MPCB as Nodal Agency	<ul style="list-style-type: none"> • Some part of effluent carrying pipeline is corroded which may create problem of leakages in future. MIDC has replaced damage pipe line.
8	Online display of AAQM data.	TBIA MPCB as Nodal Agency	<ul style="list-style-type: none"> • AAQM is carried out at three locations; however there are three automatic online display centers at three stations viz Fire Brigade Compound Vashi, Airoli Fire Station and Turbhe MSW Site. • AAQM station has been installed at Koparkhiane Teen Taki Area by NMMC .
9	Monitoring of the Industries for compliance of CEPI norms	MPCB/Individual industry	<ul style="list-style-type: none"> • Point wise periodical review taken.
10.	Recovery of Solvent by solvent using units.	I ndustries	<ul style="list-style-type: none"> • Bulk Drugs units are using solvents in their process and generate waste solvents as by-product. • At present they are sending waste solvents to authorized party. • All major industries have installed their own solvent recovery system at their site. • The work is almost completed.

Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status
11	Health Impact Assessment Study.	DISH District Health Officer MPCB	<ul style="list-style-type: none"> DISH, District Health Officer are being requested to give information about health in the industrial area.
12	Improvement in pollution control aspects	Stone crushers	<ul style="list-style-type: none"> All the stone crushers have to fully comply with the consent conditions so as to control the air pollution in the near by area. Approx 105 stone crushers operating.
13	Monitoring of ground water at MSW/TSDF site.	MPCB	<ul style="list-style-type: none"> Monitoring at CHWT/SDF and MSW site is already started.
14	Improvements in CETP.	CETP	<ul style="list-style-type: none"> CETP is adequate. However, they have decided to adopt latest Environment friendly advanced technology including pre-tertiary treatment facilities in order to improve quality of effluent furthermore and to explore possibilities for reuse of the treated effluent. Installation of Centrifuge decanters for faster drying and better handling of sludge .
15	Scientific Disposal of MSW. (500 MT/D)	NMMC	<ul style="list-style-type: none"> MSW disposal site i.e. installation of leachate treatment plant, waste to Compost and RDF projects etc. are completed and operating satisfactory.

B. Long Term Action Points				
Sr. No.	Action Points (including source & mitigation measures)	Responsible Stake Holders	Present Status	
1.	Change in fuel	Industries	<ul style="list-style-type: none"> The Mahanagar gas co. is laying down gas pipeline in TTC Area which is commissioned at some places. All the industries will be proposed to use natural gas after completion of the pipeline work. 17 industries have changed their fuel pattern and using CNG as fuel. 	
2	Improvement in ECS	Industries	<ul style="list-style-type: none"> All the air polluting industries are being proposed to improve their ECS by increasing efficiency of their scrubbers and changing to eco-friendly fuels 	
3	Installation of VOC analyzer	Industries	<ul style="list-style-type: none"> All the bulk mfg. units (12 in nos) are being proposed to install VOC analyzer including alarm system. 	
4	Installation of CAAQM Stations with digital display on screen.	TBIA	<ul style="list-style-type: none"> CAAQMS stations are operating at three stations viz Vashi, Airoli and Turbhe MSW Site. AAQM station has been installed at Koparkhiane by NMMC . Airoli CAAQMS station has now been linked with Air Quality Index network. 	
5	Set up of New AAQM Station	TBIA and MPCB	<ul style="list-style-type: none"> At present there are three AAQM Stations established by MPCB (Nerul, Rabale, Mahape). 	
6	Development of green belt & garden.	MIDC/TBIA	<ul style="list-style-type: none"> NMMC, MIDC, Industries as well as NGOs are taking lead for plantation and green belt development. 	

7	Vehicle pollution and traffic management plan	NMMC RTO MIDC MPCB	<ul style="list-style-type: none"> 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. RTO will be informed for synchronizing traffic line strategy for phase out old vehicles.
8	To provide proper sewerage system for slum pockets & connect the sewage to STPs and use of treated sewage for gardening and industrial Purpose.	NMMC	<ul style="list-style-type: none"> Navi Mumbai has provided 8 STPs at various places . The total capacity STP's 464 MLD. However, the total generation is 245 MLD . NMMC is being proposed to cover the slum pockets under municipal drainage system.
9	Reuse of Treated Sewage.	NMMC MPCB	<ul style="list-style-type: none"> NMMC has 8 STPs for treatment of sewage from residential areas. About 15 MLD out 40 MLD treated Sewage of Vashi STP is used by CIDCO for gardening and construction purpose.
10	Minimization of waste by the industries	Industries	<ul style="list-style-type: none"> Some industries have adopted cleaner technology. Other major units are being proposed to minimize waste i.e. textile industries are being proposed to use eco friendly chemicals so as to reduce process waste. Coal using industries are being proposed to use eco-friendly fuels. Overall the major industries are being proposed to reduce their waste at least by 10%.
11	Awareness program	MPCB TBIA	<ul style="list-style-type: none"> Awareness program will be conducted at various schools, colleges, public places, etc. through road shows, posters, banners, hand bills and various programs etc.

Conclusion

- **In TTC industrial area , CETP is operating satisfactorily.**
- **Many chemical and other industries are closed and new IT parks , Residential towers are coming up.**
- **3 CAAQMS and 3 NAMP stations located show generally good air quality except RSPM.**
- **It seems from the monitoring & up-gradation carried out by the industries, the pollution load is reduced.**

CEPI Score details- Year wise after implementation of action plan (Air, Water, Land)

Parameter	CEPI Score As per CPCB Report 2009	CEPI Score As per CPCB Report 2013	CEPI Score As per MPCB Report Feb 2015
Water	59	66	34.00
Air	61	47	25.50
Land	55.5	43	35.50
Total aggregate CEPI	73.77	72.87	40.00

CEPI CALCULATION : $35.50 + \{ 100-35.50\} \times (34/100) \times (25.50/100) = 40.00$

Where i_1 : maximum sub index and i_2, i_3 are sub indices of for other media (air/water/land) , Thus CEPI reduced from 73.77 to 40.00



SAVE ENVIRONMENT SAVE LIFE
THANK YOU