ENHANCED STRATEGIC PLAN TOWARDS CLEAN AIR IN MUMBAI METROPOLITAN REGION

INDUSTRIAL POLLUTION

About the study

- **Objective** – To identify the industrial pollution hotspots and major polluting sectors in MMR and come up with a comprehensive action plan.

- Estimation of industrial air pollution load was done & other emission sources identified.

- **Data Source**: Regulatory body, field visits, meetings with stakeholders.
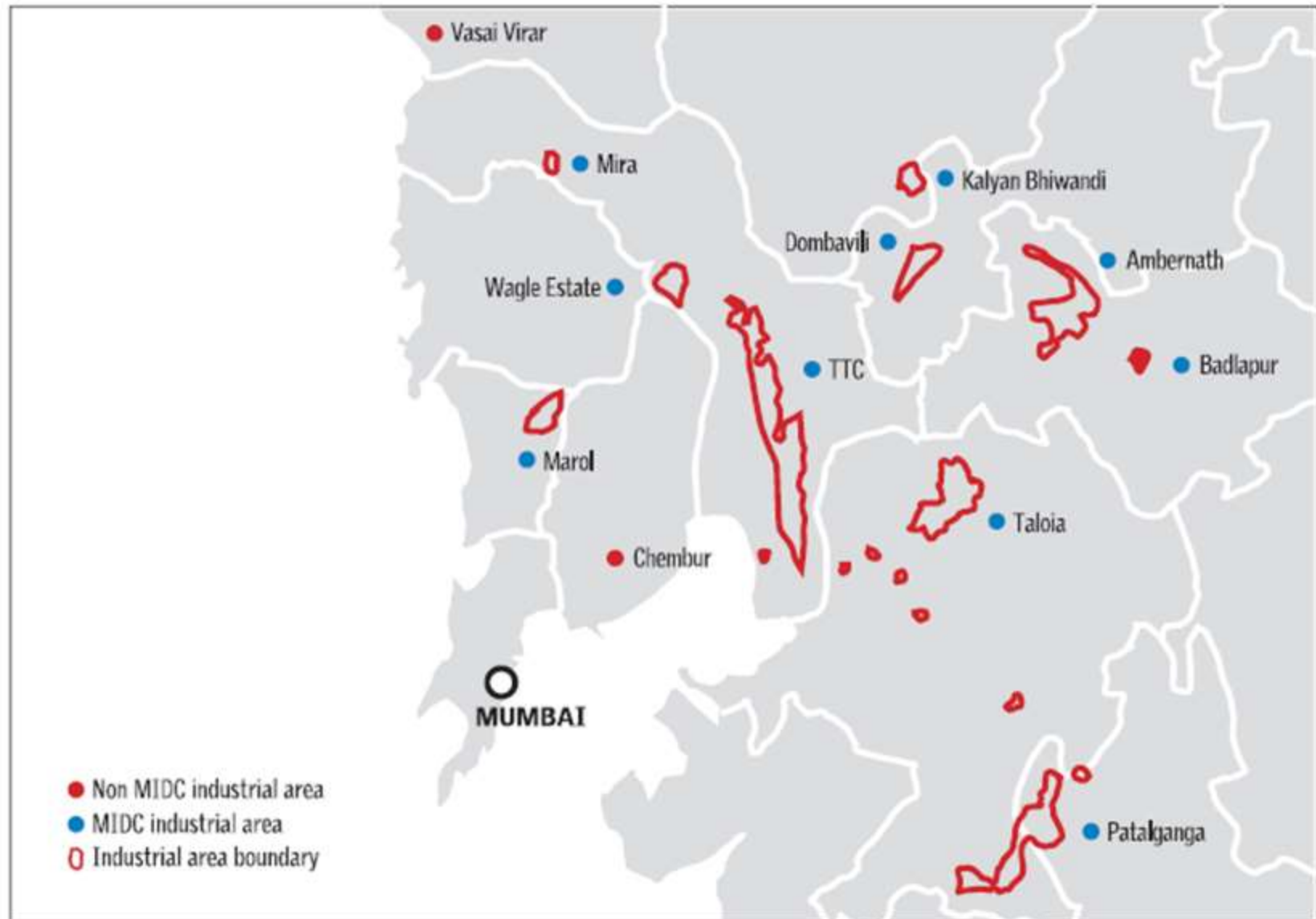
Industrial areas in MMR

S. no	Industrial area	District administration	Area (in hectare)	Number of industries (approximate)	Major sectors
1	Ambernath	Thane	786	400	Chemical and engineering
2	Badlapur	Thane	104	370	Chemical, engineering and textile dyeing
3	Dombivali	Thane	347	500	Chemical, engineering and textile dyeing
4	Kalyan-Bhiwandi	Thane	86	100	Textile
5	Mira Bhayandar	Thane	7	46	Engineering
7	TTC	Thane	2333	900	Engineering and chemical
8	Taloja	Thane	900	900	Food
9	Wagle estate	Thane	255	30	Industries have started moving out of this area
10	Patalganga	Raigarh	NA	40	Textile and chemical
11	Marol	Mumbai		-	Majority of industries have moved out of this area
12	Chembur	Mumbai		5	Oil, power and fertilizer plant
13	Vasai Virar	Palgarh	NA	2,400	MSME, engineering, rubber and plastic moulds

Source: CSE 2019–20 (compiled from MIDC website, industry sources, stakeholder interactions and MPCB data)

Major Industrial Areas

Source: Compiled from MIDC GIS information.

Area-wise industrial fuel consumption

Industrial area	Fuel consumption (in tonnes per year)						
	Coal	HSD or LDO	FO	PNG	Agro-waste	Wood	LPG
Ambernath	201,323	521,556	53,752	40,116	57,437	968	3,295
Dombivali	235,277	24,473	10,740	991	2,805	1,089	1,572
Taloja	418,189	359,563	59,324	218,511	91,446	198	31,502
TTC	1,163,427	292,670	69,931	75,803	376,728	1,084	2,293
Total	2,018,216	1,198,262	193,747	335,422	528,415	3,340	38,663
Total (in million tonnes)	2.02	1.2	0.19	0.34	0.53	0.003	0.04

Source: CSE 2019–20 (analysis based on data provided by MPCB)

- Analysis has been done for Ambernath, Dombivali, Taloja and TTC
- Highest coal consumption- TTC industrial area
- Highest liquid fuel consumption- Ambernath

Area-wise pollution loading

Industrial area	PM	SO2	NOx
	Tonnes per year		
Ambernath	3,000	6,300	3,200
Dombivali	1,800	1,200	605
Taloja	4,200	5,800	3,382
TTC	10,000	8,800	4,582

- TTC is largest share holding hotspot, followed by Taloja industrial area.
- Dombivali- densely populated vicinity, is an issue of concern even if it has lowest loading.

Sector-wise fuel consumption

Sector	Coal	HSD or LDO	FO	PNG	Agro-waste	LPG	Wood	Total
Chemical	1,433,817	808,691	155,903	293,317	458,477	1,538	1,231	3,152,975
Engineering	250,296	148,893	28,810	26,200	58,131	3,175	145	515,649
Food and food processing	15,795	13,419	1,790	7,570	6,973	33,748	83	79,378
Textile	243,332	13,978	2,376	3,798	3,977	195	891	268,547
Construction	6,600	195,296	462	3,633	0	0	0	205,990
Pulp and paper	67,716	58	0	0	0	0	990	68,764
Others	660	16,098	4,406	903	858	7	0	22,932

- Chemicals and Engineering largest coal consuming sectors
- Chemicals is also largest agro residue consuming sector.

Sector-wise pollution loading

Industrial sector	PM	SO$_2$	NO$_x$	Percent share in overall load
	Tonnes per year			
Chemical	13,000	15,000	8,500	72.3
Engineering	2,300	2,700	1,400	12.6
Food and food processing	169	225	128	1
Textile	1,800	1,000	500	6.3
Construction	400	1,900	600	5.5
Pulp and paper	497	252	124	1.7
Other	50	200	90	0.7

- Chemical and engineering sectors are the largest contributors to the pollution load.

Industrial Areas :Other Sources

Non- Hazardous Industrial Waste

Poor Condition of Roads

Shop floor emissions

Industrial Areas : Good practices

Smokeless chimneys

Good waste management

Clean and well built roads

Recommendations

- Hotspot-specific action plan development for MMR region and TTC.

  - Detailed survey of industrial area and different industrial sectors to identify specific issues related to industrial air pollution, including study of different industrial sectors in the TTC hotspot region.

- Develop an air toxics emissions inventory and control plan for the MMR region.

- Sector-specific pollution assessment study focusing on pollution potential from process and resource efficiency of the sector.

- Feasibility of a common solvent recovery plant.

- Continuous monitoring of VOCs in the ambient air where chemical industries are predominant.

Agenda 3: Switch to cleaner fuel

- Expedite the fuel shift in the industries from conventional polluting fuel to cleaner and non-polluting fuel.

- Industries should refrain themselves from using high sulphur fuel.

- Feasibility of using agriculture-based fuel as an intermediary fuel.

- Natural gas to be made more competitive- Removal of VAT.

Agenda 4: Replacement of small boilers with common boilers

- Identification of industrial clusters with significant numbers of small boilers & a preliminary feasibility study of selected clusters to replace with common boilers.

Agenda 5: Non hazardous industrial waste management

- Estimating the quantum and type of waste generated in different areas is the primary objective.

- Based on the quantification and characterization of waste, a management plan can be decided upon.

Other Actions

– CEMS audit- in CSE's experience data quality is a bottleneck in using CEMS as enforcement tool.

– Maintaining road infrastructure, drainage systems, waste collection and safe disposal facilities etc., in industrial areas.

– Modify non-attainment criteria for cities where industries are located within the city limits.

THANK YOU