

REPORT
ON
ENVIRONMENT STATUS
OF
MUMBAI REGION



MAHARASHTRA POLLUTION CONTROL BOARD
Kalpataru Point, Sion Circle, Sion (East) Mumbai -400022

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1. INTRODUCTION

1.1 Maharashtra Government is the first state in the country to notify rules under the Maharashtra Prevention & Control of Pollution Act, 1969, way back in year 1970. With the increasing environmental awareness & newly added environment legislation. M. P. C. Board is entrusted with the function of implementation of pollution Control & Environment legislations. MOEF has declared area under Water (Prevention and Control of Pollution) Act, 1974 & the same came in force in the year 1981. M. P. C. B. is now implementing following environmental legislation in the state such as -

1. Water (Prevention and Control of Pollution) Act, 1974
2. Air (Prevention and Control of Pollution) Act, 1981
3. Environmental (Protection) Act, 1986 and the rules made there under like:-
 - Environmental Impact Assessment Notification, 1994 & amendment there under
 - Coastal Zone Regulation, 1991
 - Hazardous Waste (Management and Handling) Rules, 1989 & amendment in 2003
 - Bio-Medical Waste (M & H) Rules, 1998
 - Municipal Solid Waste (M & H) Rules, 2000
 - Recycled Plastic Manufacture and Usage(Amended) Rules, 2003
 - Fly ash Utilization Notification, 1999 etc.

The Environmental Status Report of Mumbai region is prepared, which covers the background status, efforts towards effective implementation of above enactments and thereby present status of environment as regards to water, air, solid waste, hazardous waste and Bio-medical waste management.

1.2 The implementation of these enactments is being carried out through a separate Regional Office. The administrative structure of Mumbai Regional Office is given in Table1.

Table1:- Administrative structure of Regional Office Mumbai

Sr. No.	Name of office	Jurisdiction
1.	Regional Office-Mumbai	Mumbai & Mumbai Suburban district.
2.	Sub Regional Office-Mumbai-I	Greater Mumbai Area up to Sion
3.	Sub Regional Office-Mumbai-II	Andheri, Marol, Bandra Sakinakha, Goregaon, Jogeshwari
4.	Sub Regional Office-Mumbai-III	Chembur, Bhandup to Ghatkopar (east & west)
5.	Sub Regional Office-Mumbai-IV	Mulund, Malad, Kandivali Boravali, Dahisar (east & west sides)

1.3 Industrial Development:-

Mumbai & Mumbai Suburban area is highly urbanized & most of the industries are located in mix area. As such, no buffer zone is provided. Mainly Textiles, Dyes, Fertilizer, Thermal power, Oil refineries and Pharmaceuticals large & medium scale unit are operational in Mumbai. The SSI unit such as Engineering, Chemical, Pharmaceutical, Electronic, Electrical etc are also located in industrial estates & other area in the jurisdiction. Due to ban on expansion in Mumbai area & recession, Textile units, Dyes & Basic drugs have shifted to adjoining area or closing down their operations in city area. The land use pattern also changing & converted in to residential/commercial complex. Recently 5378.28 hectors industrial area is allowed for development of residential & commercial area i.e. 406.61 hectors & 341.39 respectively.

In order to avoid the further deterioration of air/water quality in Mumbai, the Govt. of Maharashtra has banned establishment of new polluting industries in Mumbai city and suburban areas. Obviously, the industrial activities have been shifted to adjacent districts, i.e. Thane & Raigad & other districts.

As per data available, there are about 7850 nos. of industries in Mumbai region. The categories of industries are presented as under:

Table 2:- CATEGORISATION OF INDUDUSTRIES

District	Category	LSI	MSI	SSI	TOTAL
Mumbai &	RED	97	14	898	1009
Mumbai	ORANGE	21	26	2581	2628
(Suburb)	GREEN	3	15	4195	4213
	TOTAL	121	55	7674	7850

LSI : Large-Scale Industries

MSI : Medium Scale Industries.

SSI : Small Scale Industries.

2. MUMBAI METROPOLITAN AREA

i) Mumbai Mahanagar: It was originally cluster of seven islands, which includes SASTI Island. These islands were given in dowry by the Portuguese king to the king of England. These islands have been joined to form present Mumbai. The total area specified in general is 466.35 Sq kms. Its maximum width is 17 Km east to west and 42 Km north to south. Mumbai is located on the western sea cost of India from 18 Deg 53' North to 19 Deg 16' latitude & from 72 Deg east to 72 Deg 59' longitude.

Mumbai has an interesting history of nomenclature Mr.Saletor feels that name of Mumbai may have come from 'Mirat-E-Ahmed' literature, in which word Mumbai is used for local Buddhist goddess. Shri H.D. Sankliya a Historian feels that the name of Mumbai came from Munga Fisherman, who build temple of Mumbadevi.

ii) GEOGRAPHICAL FEATURES: - The Geographical features of Mumbai area mentioned in Table 3. The city is divided into two revenue districts i.e. Mumbai Island & Mumbai sub-urban

Description	MUMBAI DISTRICT	MUMBAI SUBURBAN DISTRICT
1. Population		
i. 1677	60,000	
ii. as per 1991 census	33.26 lakhs	86.40 lakhs
2. Total area	69 sq. kms	446 sq kms.
3. Population ratio/sq. kms	48,000	19,373
4. Length of Rail track	a. East 13.60 kms b. Harber 13.40 kms. d. West 12.93 kms.	a) west suburb 25 kms. b) East suburb 31 kms.
5.Length of Road	506.480 kms	927.05 kms
1941.172 kms		

iii) Due to fast pace of industrial development coupled with urbanization, the Mumbai city become a premier national & international Business Centre.

Mumbai is the second largest metropolis, financial capital of India & capital of Maharashtra. The city is fastest growing & has witnessed a phenomenon growth of Industrial & business centre alike. Good Infrastructure facility provided by State Government & local body has added to the prosperity of Mumbai city & its adjoining area. Also, natural sources such as Railway network, Airways, Sea transportation, Ports, & recent National four lane golden quadrilateral Road, ample electricity & water supply have also added to the ever growing prosperity of city.

iv) **CLIMATE:**

Mumbai is located along western Arabian coast of India from 18 deg. 53' north to 19 deg. 16 ' north latitude and from 72 deg. East to 72 deg. 59' longitude.

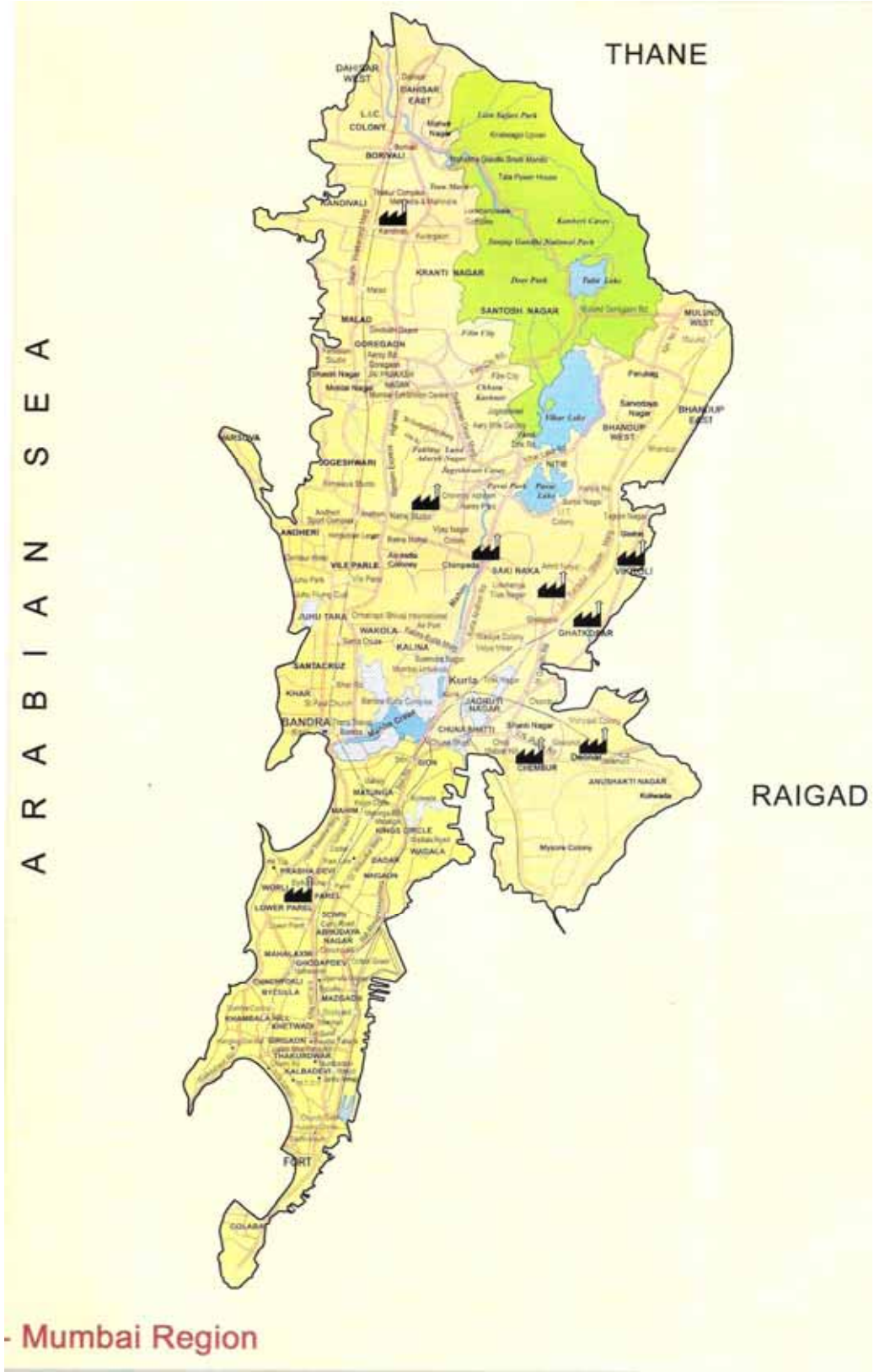
Mumbai experiences tropical savanna climate. It receives heavy south west monsoon rainfall, measuring 2166 mm on an average every year. The temperature ranges from 16.5 deg. centigrade (Jan 05) to 34.7 deg. centigrade (Nov. 05) with marginal changes between summer and winter months. Where as relative humidity ranges between 54.5 % to 85.5%. The city has reach natural sources like lake, coastal water, Forest, Wet land and Mangroves etc.

Table 4:- Metrological observations for the year 2004-2005

Month	Temperature		Rainfall In mm	Relative Humidity	wind speed In km/hr.
	Min	Max			
1. April-04	33.2	24.7	0.0	66.5	6.7
2. May-04	34.5	27.7	69.7	66.5	9.6
3. June04	32.2	26.5	253.6	75.5	15.6
4. July-04	30.2	25.3	818.6	83.0	10.3
5. Aug.-04	29.3	24.9	918.2	85.2	15.2
6. Sept.-04	31.1	25.0	155.9	79.0	7.2
7. Oct.-04	33.2	23.2	21.9	58.5	8.2
8. Nov.-04	34.7	22.1	0.5	56.5	7.0
9. Dec.-4	33.0	18.3	0.0	54.5	-
10. Jan.-04	30.2	16.5	0.3	59.0	7.1
11. Feb.-04	31.1	17.8	0.0	60.5	7.4

V) HERITAGE & HISTORICAL PLACES

Historical Heritage: - It has Mumbai boasts of its rich cultural & historical heritage, other Land mark location e.g. Kanheri caves, Mad island, Sanjay Gandhi National Park, Essel world, Film City, Gorai, Manori, Juhu Choupati, Vihar, Gateway, C.S.Terminus, Marine line, Tarapurwal Aquarium, Choupati etc also have been identified as tourist spots of the city. It has many Forts having historical bearings e.g Mumbai Fort, Mahim Fort, Worali Fort, Shiv Fort, and Shivdi Fort.



3. WATER ENVIRONMENT

i) Water supply-MCGM

The population of Mumbai in the year has reached nearly 12 million with water supply requirement of about 3900 MLD. At present, domestic, industrial & commercial water supply catered to 3050 MLD.

Details of Water supply in Mumbai city is presented in Table

Table 5:- Details of Present Water supply system

Sr. No.	Source	OWNERSHIP	TREATMENT PLANTS	
	MLD			
1.	Tulshi	18	MCGM	Tulshi
2.	Vihar	110	MCGM	Vihar
3.	Tansa	477	MCGM	Bhandup complex
4.	Vaitarna	1070	MCGM	Bhandup complex
5.	Bhatsa	1475	GOM	Bhandup complex
				Panjarpur
	TOTAL	3150		
	En route			
	Losses (-)	100		
	Total	3050		

The MCGM has provided good water supply network to residential, commercial & industrial area. Presently all water supply schemes are having pre-chlorination, Alum dosing, settling, filtration & post-chlorination units.

Considering the short fall in demand & supply of drinking water. MCGM has proposed additional sources of water supply. The details are given in table.

Table 6: Proposed water supply scheme

Source	MLD	OWNERSHIP	Expected year of Completion.
1. Bhatsa IIIA	355	GOM	2005
2. Middle Vaitarna	477	MCGM	2015
3. Gargai	455	GOM	Preliminary stage
4. Pinjal	865	GOM	Preliminary stage.

ii) Industrial Pollution & Control Measures

Pollution Control Measures adopted by large/medium scale Industries in greater Mumbai are indicated as follows.

It has been observed that majority of large, medium & SSI units have adopted full-fledged treatment facilities & the treated water is meeting MPCB consented standards. Some industries have adopted novel scheme of using treated effluent to meet their water requirement, such as-

1) M/s RCF, Chembur has provided STP of the capacity above 5 MLD. Sewage is taken from MCGM. Thus by way of treating sewage in their STP, RCF is recycling/ reusing the treated effluent to maximum extent possible.

2) M/s. BPCL has provided improved treatment system & thereby by recycling the treated effluent by 70% (700 CMD).

3) M/s Asian Paints is also taking required amount of sewage from MCGM, treating the same in the STP provided and reusing the same in their operations. This firm has developed a team to motivate rain water harvesting to the maximum extent not only in their unit but also other sectors too.

All the LSI & MSI units have also provided Primary & Secondary treatment facilities. The SSI units have mainly provided Primary treatment facilities.

QUANTITY OF INDUSTRIAL EFFLUENT IN MUMBAI:-

Table 7 :- Status of the Polluting & Non Polluting Industries

1	2			3	4
Dist Mumbai & Suburban	No. of Polluting Industries			No. of Polluting Industries	No. of Non Polluting Industries
	Water	Air	Hazardous		
Mumbai & Mumbai Suburban	658	691	250	2387	5463

The estimated quantity of industrial effluent is about 240 MLD in Greater Mumbai.

In the jurisdiction, there are five Nos of Non-Ferrous Metal recycler units, one unit is engaged in reprocessing of waste oil, two Nos of oil refineries, one no of Thermal power station, one no of fertilizer unit & 58 nos of textile mills approx.

Officials are visiting industries to monitor pollution control systems & encouraging industries to upgrade systems. On the basis of monitoring Non-complying was issued proposed directions u/s 33 of water (P & C.P.) Act, 1974 to 76 Nos. units & closure directions issued to 19 Nos of industries. The industries are responding positively & upgrading the pollution control system accordingly.

Table 8: No of Environmental samples collected & analyzed.

	WATER	AIR	STACK	HW	SEA	LAKE	RIVER
1. SRO-M-I	112	36	26	22	72		
2. SRO-M-II	148	29	28	24	88	12	
3. SRO-M-III	360	52	40	10	14	22	
4. SRO-M-IV	163	41	3	59	24		12

* Note: In addition to above AAQM, one continuous monitoring station is operated at Mulund, Mumbai & Mobile van is allotted to monitor air quality in Mumbai city.

An attempt is made to indicate average treated effluent quality of few major Industries in Mumbai.

AVERAGE TREATED WASTE WATER QUALITY OF FEW MAJOR INDUSTRIES DURING 2004-05

Table 9:-

Sr No	Name Of Industries	pH	SS	BOD	COD
1	Godrej & Boycf Ltd	6.92	16	20	76
2	BPCL Ltd	6.5	18	22	120
3	RCF Ltd	6.9	16	18	44
4	HPCL	7.3	246	60	260
5	PEPSICO	7.52	11	24	84
6	Tata Power Ltd	8.66	20	10.43	40
7	S H Kelkar & Co	8.4	34	16	164
8	MERIND Ltd	7.2	44	20	46
9	Johnson & Johnson Ltd	7.8	18	16	40
10	Gemini Dying Ltd	7.2	16	11	48
11	Century Textile Mill	7.9	36	82	144
12	Tata Steel Ltd	7.1	82	20	108
13	Mahindra & Mahindra Ltd	7.0	20	10	40
14	Cable Coporation Ltd	7.6	22	6.5	40
15	Hindustan Lever Ltd	6.2	10	25	75
16	Radha Dying	8.86	110	280	616
17	Taj Hotel	7.3	62	80	220
18	Deonar Abattoir	6.8	22	50	168

(Average Value in mg/lit except pH)



Photograph Showing ETP Unit



Photograph Showing ETP Unit

iii) Water pollution from sewage & control measures

a) Generation of sewage & treatment;

The Total water supply at present is 3050 MLD & estimated quantity of sewage effluent is about 2700 MLD. The MCGM has provided STPs at following locations to treat domestic swage.

Table 10:- Details of STPs in Mumbai

Sr. No.	Name of STP	Installed Capacity (In MLD)	Receiving quantity In dry weather in MLD
1.	STP at Bhandup	180	73
2.	STP at Ghatkopar	138	100
3.	STP at Malad	240	190
4.	STP at colaba	41	37
5.	STP at Worli	757	605
6.	STP at Bandra	797	716
7.	STP at Varsova	131	115

Considering the quantity of sewage effluent generation, it seems that the STPs provided by MCGM are inadequate & under capacity utilized.

At present 60 % population live in slums. Coastal area, creeks, River quality is deteriorated mainly because of non availability of sanitation & proper drainage & collection system. The authority has to provide drainage systems covering such area, which are developed in an unorganized manner.

As per the recent notification issued by MOEF dated 7.7.2004 & guide lines, all major residential/commercial projects have to obtain environmental clearance. Also, the project proponent should carry-out R.E.I.A. & implement EMP. The projects are shifted to provide STP & Solid waste treatment facility on their own premises. This action will as help in creating awareness amongst residents about environment & minimization of domestic pollution load & MSW disposal problems.

The MPCB are regularly monitors the out let quality of STP. The show cause notice was also issued to MCGM to operate & maintain STP properly.

Table 11: Treated Waste Water Quality of Sewage Treatment Plant

Sr No	Name Of STP	pH	SS	BOD	COD
1	Love Grove Worli	6.9	60	125	280
2	MULUND	6.9	72	186	272
3	GHATCOPAR	6.8	16	24	64
4	BHANDUP	7.0	24	130	196
5	KULABA	6.9	182	90	368
6	Malad	6.7	98	120	292

All values in mg/l except pH

b) River/Sea/Ground water Pollution:-

In order to control the water pollution of River / Sea this office is regular collecting samples at Worli Sea Face, Shivaji Park, Malbar Hill, Haji Ali, Gate Way of India, Nariman Point, Mithi River, Elephanta, Madh, Manori, Gorai Beach, Juhu in order to check the receiving water bodies for checking it's quality.

Table 12: - Worli Sea Water

	Min	Max	Avg
pH	7.2	7.8	7.54
COD	128	496	240
BOD	10	24	17.91
DO	2.2	6.9	4.12

(All parameters in mg/lit except pH)

Table 13:- Sea water at Shivaji Park

	Min	Max	Avg
Ph	7.2	8.02	7.55
COD	128	420	233.09
BOD	10	36	18.45
DO	2.3	4.9	3.98

(All parameters in mg/lit except pH)

Table14:- Sea Water - Malbar Hill

	Min	Max	Avg
pH	7.3	8.06	7.69
COD	136	312	214.18
BOD	10	60	19.73
DO	3.2	6.4	4.2

(All parameters in mg/lit except pH)

Table 15:- Sea Water at Haji Ali

	Min	Max	Avg
pH	7.1	7.7	7.53
COD	116	296	205.45
BOD	11	50	18.64
DO	3.4	5.8	4.64

(All parameters in mg/lit except pH)

Table 16:- Sea Water at Gateway of India

	Min	Max	Avg
pH	7.0	8.0	7.61
COD	192	272	197.99
BOD	9	20	14.36
DO	3.6	6.2	4.51

(All parameters in mg/lit except pH)

Table 17:- Sea Water at Nariman Point

	Min	Max	Avg
pH	7.1	8.4	7.8
COD	144	228	215
BOD	12	28	16.4
DO	3.7	6.7	4.7

(All parameters in mg/lit except pH)

Table 18:- Sea Water at Mud

	Min	Max	Avg
pH	6.2	7.5	7.21
COD	195	286	198.9
BOD	12	35	19.4
DO	3.7	6.4	4.2

(All parameters in mg/lit except pH)

Table 19:- Sea Water at Manori, Borivali

	Min	Max	Avg
pH	7.1	8.5	7.9
COD	152	282	202.5
BOD	13	36	23.2
DO	3.1	6.2	4.8

(All parameters in mg/lit except pH)

d) Mithi River:-

In this region, there is only major River namely, Mithi River. This River is a confluence of tail water discharges of Powai & Vihar Lakes. Mithi River originates at Powai and meets Arabian Sea at Mahim flowing through a residential and industrial complex of powai, sakinaka, kurla and mahim over a distance about 15 Kms. This river is treated like an open drain by the citizens who discharge raw sewage, industrial waste and garbage unchecked. Beside this, illegal activities of washing of oily drums, discharge of unauthorized hazardous waste are also carried out along the bank of this river. The organic waste, sludge and garbage dumping has reduced the carrying capacity of the Mithi River. The water with sewage and industrial waste is a threat to Marine life and the river is showing sign of total loss of life support system.

Mahim Bay Area, where Mithi River meets Arabian Sea is a nominated bird sanctuary called "Salim Ali Bird Sanctuary" where migratory birds come for nesting. This part is full of mangroves and this fragile eco system requires consideration from pollution point of view, so that is not destroyed.

TABLE 20: MITHI REVER

	Min	Max	Avg
pH	6.9	7.7	7.26
COD	10	616	245.28
BOD	4	120	69.8
DO	2.8	6.9	6.5

(All parameters in mg/lit except pH)



Photograph Showing Nalla Leading To Sea



Photograph Showing Sea Water Near Gateway

4. AIR ENVIRONMENT

4.1 Industrial Air Pollution

The no of consented air polluting industries are 691 Nos. The industries are regularly monitored for its emission. During the year, 255 Nos of AAQ/source samples collected & analyzed. One continuous monitoring station is also operated at Mulund. The AAQ reports are given to media on daily basis. The Mobile van is allotted specifically to Mumbai city area only for continuous Air monitoring. The average results are given in table

Table 21: Ambient Air Quality Monitored in Mumbai

Sr No	Name Of Station	Year	SO2 (ug/m3)			NOX (ug/m3)			RSPM		
			Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
1	Sion	2004-05	25.0	25.0	25.0	253.0	253.0	253.0	191.36	406.5	241.76
2	Mulund	2004-05	4.0	19.0	12.71	23.0	78.0	43.0	----	----	-----

Average Values

Table 22: Ambient air quality monitoring results of Chembur area.

Sr No	SO2			Nox			NH3			RSPM		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
1	8.92	38.5	20.6	35	181.2	38.3	47.3	133.9	85.5	140.5	218.1	177.9

(in ug/m3)

Table 23: NATIONAL AMBIENT AIR QUALITY STANDARDS

Parameters	Exposure Period	Industrial Area	Residential, Rural & Other Area	Sensitive area
SO ₂	Annual Avg	80	60	15
	24 Hrs Avg II	120	80	30
NO ₂	Annual Avg	80	60	15
	24 Hrs Avg II	120	80	30
NH ₃	Annual Avg	100	100	100
	24 Hrs Avg II	400	400	400
SPM	Annual Avg	360	140	70
	24 Hrs Avg II	500	200	100
RSPM	Annual Avg	120	60	50
	24 Hrs Avg II	150	100	75
Lead	Annual Avg	1.0	0.75	0.50
	24 Hrs Avg II	1.5	1.0	0.75
Carbon Monoxide	8 Hrs	5.0 mg/m ³	2.0 mg/m ³	1.0 mg/m ³
	1 Hr	10.0 mg/m ³	4.0 mg/m ³	2.0 mg/m ³

(Above values are in ug/m³)

EMISSION LOAD OF MUMBAI CITY (TONNES / DAY) IN THE YEAR
2004-2005

Table 24:

Sr No	Sources	So ₂	Particulate Matter	Nox	Co	HC	Total
1	Domestic	3.57	10.77	4.22	108.36	17.56	144.48
2	Industrial	30.78	3.77	16.10	----	0.01	50.66
3	Refuse Burning	0.11	1.37	0.25	5.42	1.92	9.07
4	Transportation						
(a)	Transport (Diesel)	4.64	1.85	26.65	14.10	5.46	52.70
(b)	Transport (Petrol)	0.59	0.13	17.35	265.58	39.46	323.11
	Total	39.69	17.89	64.57	393.46	64.41	580.02

(Source - MCGM)

Non-compliance & action:-

MPCB initiated action against 59 industries during the year, as per the provisions of Air Act 1981. The industries also responded positively & provided/upgraded Emission control systems accordingly.

4.2 Vehicular pollution status:

Greater Mumbai has good Transport system & well laid down road network. The vehicle composition is as follows, 49 % two wheelers, 31.7 % cars, 4.4 % taxis, 5.4 heavy vehicles, 8.4 % three wheeler & other 0.6 %

On the basis of fuels consumption, air pollution load due to auto exhaust is 459 MT/day consisting of SO₂, NO₂, CO, SPM, Hydrocarbons etc. as pollutants. To control the air pollution due to automobiles, various measures are initiated such as conversion to CNG & LPG, PUC tests etc. On an average it is estimated that 60% of air pollution is caused by Auto- emission.

Therefore vehicular pollution is a major contributing factor in causing air pollution in the city environment.

TABLE 25:- INDICATING VEHICAL POPULATION & IT'S INCREASE

	2002-2003	2003-2004	2004-2005
1. Year			
2. Total No. of Vehicles	11,65,782	11,99,420	13,16,123
3. % of increase in vehicles	5.80 %	5.50 %	9.73 %
4. Total vehicles converted To CNF & LPF	51,146	1,26,841	1,51,128

Other than above figures, the floating vehicles are estimated more than one lakh in the city area.

4.3 NOISE MONITORING:-

The MPCB has carried out monitoring of noise levels during the Diwali & Ganesh Festival because during the period we observed heavy air & noise pollution in city.

Table 26: Noise Level

Sr No	Area	Ganesh Festival	Diwali Festival
1	Dadar	71-85	80-97
2	Sion	78-89	82-96
3	Chembur	76-84	78-89
4	Mulund	67-88	75-92
5	Ghatkopar	70-85	62-90
6	Andheri	76-97	82-99
7	Goregaon	72-96	78-102
8	Borivali	71-87	75-92

(All values in db (A))

5. PUBLIC COMPLAINTS & its COMPLIANCE:-

MPCB received public complaints regarding pollution which was attended to. The matter was investigated on priority & suitable action was taken in the matter. The details of complaint received & attended are as follows-

TABLE 27: - NO. OF COMPLAINTS & COMPLIANCE

	Water	Air	Noise
1. SRO Mumbai-I	07	23	02
2. SRO Mumbai-II	09	31	04
3. SRO Mumbai-III	01	09	NIL
4. SRO Mumbai-IV	02	22	02

6. H.W. Management

There are 283 industries in Mumbai Region generating H.W. Details of H.W. generation are given below

Table 28: Generation of H.W. in Mumbai Region

1. Secured land fill able water	1,15,857.9 MT/Year.
2. Recyclable	1,54,711.3 MT/Year.
3. Incinerable	14,023.4 MT/YEAR
Total	2,84,592.6 MT/Year.

All the industries have joined CHWTSDF at Taloja or TTC. The industries are monitored regularly & so far collected 115 Nos. of samples for analysis. The non complied one was issued closure directions. Till date 56 nos of industries have been prosecuted under the provision of respective legislation.

7. BIO-MEDICAL WASTE

As per the available office record, there are 1354 health care units in Mumbai City. The details are as below.

Table 29:

Sr No	Total No of HCFS	Total No of HCFS applied	No of authorization granted	Application under process	No of HCFS joined CBMWTF	BIO MEDICAL WASTE QUANTITY/ DAY
1	1354	1108	1100	8	1063	10 MT

The BMW generated from the Hospitals, Dispensaries & Pathological Laboratories Located within the Municipal area has to be collected, transported & disposed off in the manner & methods as suggested under Bio-medical waste (M & H) Rules 1998. As per the estimates & the figures available 10 T/ day of Bio-medical waste is generated & transported to CHWTSDF Taloja. The Bio-Medical waste is collected & transported by the authorized agencies.

This office has constantly persuaded with medical association and issued notices to defaulters, which were not sending BMW to facility. At present collection & incineration facility provided at Shiveeri, Mumbai is not in operation.

8. MUNICIPAL SOLID WASTE MANAGEMENT

Due to increased population & commercial development, Mumbai is facing problems of MSW disposal. The solid waste contains Bio degradable, Non Biodegradable, Construction waste, Metal waste, plastic, paper etc.

Table 30:- Details of MSW quantity & its disposal sites:-

Sr No	Name of site	Quantity (In Ton / Day)
1	Deonar	6000
2	Gorai	2400
3	Mulund	1700

MSW disposal sites are in the thickly populated area of the city. There is no mechanical facility provided for segregation of MSW. The sites have been fully utilized & exhausted. The MCGM has Vermi composting facility for wet garbage at various locations in the city. There is an urgent need to select new site & adopt scientific method for treatment & disposal of MSW.

The leachates generated from the dumping ground are not collected properly & untreated leachate directly finding its way to creek / sea through nalla. The MCGM failed to provide MSW treatment & disposal facility within stipulated period as per MSW Rules.



Photograph Showing MSW disposal site at residential complex near Mulund



Photograph Showing Leachates generation from the MSW disposal Site at Mulund

The MPCB is regularly monitoring the sites & collected JVS. The statement of results is given below:-

Table 31:- QUALITY OF LEACHATES OF SOLID WASTE DUMPING YARD

Sr No	Name Of MSW-Site	pH	SS	BOD	COD	TDS
1	DEONAR	7.9	390	310	928	----
2	MULUND	8.2	152	119	1264	6942
3	GORAI	7.8	112	600	1150	----

The Action proposed:-

MCGM have been directed to select new sites for collection & treatment of MSW. Since, there is petition in the court of law & Honorable Court has directed authority to provide scientific treatment & disposal facility. MPCB is continuously perusing the matter. As per the direction of Court, the Government has allotted 165 hector of land for new site development at Kanjur.



Photograph showing Leachates finding it's way to creek through Nalla at Mulund



Photograph Showing MSW disposal site



Photograph Showing MSW Site at Gorai Boriwali



Photograph Showing MSW Disposal Site, Leahates Generation Mangrove & Sea at Gorai, Boriwali



Photograph Showing MSW Site at Gorai, Boriwali



Photograph Showing MSW Disposal Site, Leahates generation Mangrove & Sea at Gorai, Boriwali

9. Recycled Plastic Manufacture and Usage (Amended) Rules, 2003

In the Mumbai Region, there are 31Nos of industries are in operation. All these industries are manufacturing Plastic items more than 20 microns thickness.

The Plastic recycling & disposal - Rough estimate of composition of the municipal solid waste indicates that about 4 to 6 % recyclable waste material i.e. Glass, Paper, Metals & Plastic, etc. The recyclable constituents of the municipal sold waste are segregated by the generator of the waste & the rest is removed & collected by the Rag pickers in Mumbai region.

It is the Plastic trash i.e. Plastic bags, Papers, HDPE & LDPE material & PVC parts cause the real problems of disposal in safe way. It is now a well known fact that the poly material causes great hazard to natural environment both soil & water.

The PVC material contains Toxic Metals & Chemicals, which are non-biodegradable & remain in soil. It's presence in municipal drainage system & storm water drains causes chocking of sewages handling & disposal systems. The presence of Poly material in soil for long duration also prevents the process of rain water seepages in to ground.

MPCB is making appeal to the residents of Mumbai to segregate the recyclable & non-biodegradable waste i.e. Plastic, Metals, etc at source. It has issued guild lines as part of mass awareness campaign for management of municipal solid waste. Efforts are also being made at various forums to highlight the importance of public participation at large to address the issue of segregation, recycle & reuse of plastic material at individual household & generation level it self.

10. Battery (Management & Handling) Rules, 2001

In the jurisdiction of Mumbai Region 87Nos of Battery dealers/ bulk consumers are identified & they are submitting returns regularly.

11. ENVIRONMENTAL IMPROVEMENT PROGRAMME

1. Damupada- Kandivili---

There is cluster of stone crushers and hot mix plants so the area is facing problem of air pollution. To overcome this problem this office has taken action against above units like issuing closure directions and also taking bank guarantee. This action has led to positive development in the overall air quality.

2. Powai & Chandivili ---

There are a cluster of stone crushers and hot mix plants in this area & hence air pollution is a major concern in this sector too. To overcome this problem, this office has taken action against certain polluting units issuing closure directions and also taking bank guarantee etc. As results, there is remarkable change in air quality.

3. Bhuleshwar Area ---

There are several gold refinery units in this area, which are causing air pollution. Recently this office has carried out survey of this area and is trying to overcome the problem at the grass root level.

Area of Concern:

After having taken the assessment of Environmental factors affecting the quality of life in Mumbai Region , we strongly feel that in addition to our routine survey & monitoring following sectors also need to be given proper attention & care to maintain ecological balance & to preserve symbiotic relationship between water bodies, soil & funna & flora of the Region.

1. To undertake survey of Hajibundar area - The area is facing air pollution due to coal handling.
2. Invention of water polluting source in un-organized sector.
3. Use of treated effluents for its recycling & reuse.
4. Identification of new disposal sites for MSW treatment by improved technology.
5. Control of Auto exhaust emissions by using cleaner fuel & adoption of strict standards in Mumbai.
6. To survey Mithi river water quality, to create data base for effective implementation of improvement plant
7. Protection of Mangroves & development of green zone around coastal area along bank of Mithi River.

CONCLUSION:-

It is evident from the survey & the monitoring data available with Mumbai & its surrounding needs special care on part of concern agencies & hence M.P.C.B role as an environment protection agency in the state has paramount importance. In order to co-ordinate the various environment activities of respective agencies, we need to have a cohesive & concerted efforts to build strong environment regulating & implementing infrastructure facilities. This action demands strong technical & resource back-up at our command, so as to streamline & strengthen the Regional set-up.