

Annual Report

2003-04

by

Maharashtra Pollution Control Board

Contents

1. Introduction	1
2. Constitution of the Board	3
3. Meetings of the Board	4
4. Committees constituted by the Board	6
5. Monitoring network for water and air quality	11
6. Present status of environment, problems and control measures	15
7. Environmental research	34
8. Environmental training	43
9. Environmental awareness and public participation	44
10. Environmental standards time schedule for enforcement	49
11. Prosecutions launched and convictions secured	55
12. Finance and accounts	57
13. Important matters dealt with by the Board	59
<i>Annexures I-V</i>	67-75

1. INTRODUCTION

The State of Maharashtra pioneered environmental legislation with the introduction of the Maharashtra (Prevention of Water Pollution) Act, 1969. Under this Act, the State Pollution Control Board, which monitors water pollution, was established on 7 September 1970. After Parliament passed a central enactment – the Water (Prevention and Control of Pollution) Act, 1974 – the Maharashtra Legislature repealed its own Act and began implementing provisions of the central Act.

The State Pollution Control Board and the State Environment Department have been combining their efforts to maximize the protection of the environment and to control pollution in all sectors. The State Board, since its inception, has faced problems of intensifying pollution with an ever growing population. Besides industrial pollution, the Board also looks after air pollution from vehicles, the disposal of solid wastes, safe handling of biomedical wastes, hazardous wastes, plastic wastes etc.

Over the last few years many industries have become pollution-conscious and taken appropriate steps to invest in technologies for pollution control. Most of the industries functioning in clusters or industrial estates have joined a Common Effluent Treatment Plant (CETP). Under the Central Action Plan, out of 738 identified highly polluting industries, almost all have complied with standards set by the government. Only eight have defaulted and legal action has been initiated against them. Certain large scale industries have erected MINAS plants to achieve pollution control norms. A few have installed their own automatic air quality monitoring stations.

Response from local bodies, however, continues to be poor. No single municipality in the State has a full-fledged sewage treatment or solid waste disposal facility. Common treatment and disposal facilities for the disposal of solid waste, biomedical waste and hazardous waste are now being developed. The solid waste disposal facilities at Taloja and TTC are already operating. Closure directions have been issued to 110 industries for not complying with pollution control norms during the year.

Monitoring activity for water and air quality has been strengthened to ensure compliance with stricter pollution control standards. Under a recent Supreme Court order, various steps and actions have been initiated for the safe management and disposal of hazardous waste. As its activities and responsibilities expand, the Board has decided to embark on a process of

restructuring. CRISIL has been commissioned to evaluate current Board requirements and to make appropriate proposals.

Although details of Board functions are laid down in the Acts, priority areas are: advising the State Government on matters relating to pollution, administering pollution control in the industrial sector and municipal bodies, monitoring of ambient air and water quality in the State, and taking necessary steps to improve air and water quality, and creating awareness about the ill-effects of pollution.

2. CONSTITUTION OF THE BOARD

The Government of Maharashtra in exercise of the powers conferred under section 4 of the Water (Prevention and Control of Pollution) Act, 1974 reconstituted the Maharashtra Pollution Control Board (MPCB) through its notifications dated 16 June 2000, 14 March 2001, 11 March 2003 and 2 January 2004.

According to the above notifications, during the year under report, the Board was comprised of a part-time Chairman; four officials representing the interest of the State Government; two officials representing those companies and corporations owned and controlled by the State Government. In addition, four members representing the interests of local bodies, and one member to represent the interests of industries, trade, fisheries, etc., have been nominated by the State Government.

A full-time Member Secretary is appointed to execute the decisions taken by the Board.

The list of members representing the Board as on 31.03.04 is enclosed as *Annexure-I*.

Changes

Dr. D. B. Boralkar was appointed Member-Secretary of the Board by D.O. letter dated 12.11.2003 of the General Administration Department, Government of Maharashtra.

Shri Amol Narsingrao Patil was appointed member of the Board by a government notification dated 2 January 2004 to represent local authorities functioning within the State.

3. MEETINGS OF THE BOARD

The Board held four meetings during the year.

Sr.No.	Meeting Number	Date	Venue
1.	137 (1 st sitting) (2 nd sitting)	10.04.2003 25.04.2003	Mumbai
2.	138 (1 st sitting) (2 nd sitting)	20.08.2003 19.11.2003	Mumbai
3.	139	22.01.2004	Mumbai
4.	140	03.03.2004	Mumbai

The following important items were discussed during these meetings:

137th meeting of the Board

- Extending financial assistance to the 'National Green Corps Project' from the cess fund
- Execution of environmental monitoring and awareness campaign during the *Kumbha mela* at Trimbakeshwar and Nashik, to be held from July 2003 to August 2004
- Installation of a continuous Ambient Air Quality monitoring station at MIDC Lote Parshuram
- Extending financial support to Shivaji University, Kolhapur for the preparation of a field guide for mangroves in Maharashtra

138th meeting of the Board

- Delegation of powers to the regional officers to grant consent under the Water (Prevention & Control of Pollution) Act, 1974 and the Air (Prevention & Control of Pollution) Act, 1981 and authorization under the Municipal Solid Waste (Management & Handling) Rules, 2000 to 'B' & 'C' Class Municipal Councils.
- Proposal for acquiring office premises, admeasuring 553.11, sq. mtrs. on ownership basis, at 5th floor, Udyog Bhavan, Nagpur at a total cost of Rs.100 lakhs to be called from MSSIDC (Government of Maharashtra undertaking) cess funds.
- Approval of the Annual Report for the year 2001-02
- Granting administrative and financial approval for furnishing regional offices/laboratories

139th meeting of the Board

- Status of follow-up actions regarding implementation of Pune and Solapur Action Plans
- Proposal for setting up model facilities for management of municipal solid wastes at the following places:
 1. Ambad Jalna (twin towns)
 2. Nawapur in Nandurbar Dist.
 3. Daund-Baramati-Bhigwan
 4. Murud-Janjira
- Proposed project on environmental improvement at religious places
- Computerization of activities in MPCB for enhanced efficiency and transparent operations
- Strengthening and reorganization of functional structure of Maharashtra Pollution Control Board
- Revision of sampling and analysis charges
- Procurement of laboratory instruments/equipment worth Rs.3,08,68,200
- Furnishing of laboratories and offices costing Rs.2,72,00,000
- Revision of consent fees
- Purchase of premises at Mumbai, Nanded and Kalyan
- Proposal for construction of building for central laboratory, at Navi Mumbai
- Review of permissible limit of BOD and TDS for land disposal of treated effluent at Aurangabad

140th meeting of the Board

- Action Plan for collection, treatment and disposal of sewage by the Pimpri-Chinchwad Municipal Corporation.
- Institutional mechanism for development of environmental infrastructure in the State of Maharashtra
- Annual account for the year 1999-2000 and budget estimate for the year 2004-05
- Responsibilities of the State Pollution Control Board in handling hazardous waste/hazardous chemicals lying within the premises of the units closed for long time.
- Status of fly ash utilization by MSEB
- Financial assistance to M/s Sai Paranjape Films Pvt. Ltd. Mumbai for their project entitled *Chakachak*, a film based on participation of children in environmental protection
- Continuation of zoning atlas activity during 10th Five Year Plan (2003-04 to 2006-07)
- Status of action taken regarding pollution problems of the Panchganga river

4. COMMITTEES CONSTITUTED BY THE BOARD

With a view to have smooth functioning of the Board as provided under section 9 of the Water (Prevention and Control of Pollution) Act 1974 and section 11 of the Air (Prevention and Control of Pollution) Act 1981 the Board has constituted several committees for efficient and effective implementation of the provisions of the Acts and Rules.

During the year under report, the following committees were constituted to conduct specific work:

Consent Appraisal Committee

Constituted to verify, decide and clear consent applications of certain categories. This committee may decide to call a meeting with representatives from industry to discuss assorted pollution issues and problems and to suggest suitable remedies for pollution control. In some cases, this committee may commence prosecution. Committee members may also visit industrial premises to inspect the status and measures taken for pollution control and decide to grant or refuse consent.

During the reporting year, the Committee had the following members:

1) Shri Mushtaq Antulay	Chairman
2) Shri Suresh Deshmukh	Member
3) Shri Hemant Takle	Member
4) Shri Vijay Kurtadkar	Member
5) Shri Salim Patel	Member
6) Shri Rajeshwar Neture,	Member
7) Shri Amol N. Patil	Member
8) Dy. Secretary (Technical) Environment Department, Govt. of Maharashtra.	Member
9) Technical Advisor, (MIDC)	Member
10) Member Secretary	Member Secretary

During the year there were nine meetings held by the Consent Appraisal Committee during which 460 cases were placed on the agenda. Out of these, consents have been granted to 366 units. Twenty-one cases were refused and 73 cases were deferred for different reasons.

Research Advisory Committee

During its 135th Meeting held on 22.10.2002, the Board constituted the Research Advisory Committee (RAC) under Section 9 (1) of the Water (Prevention and Control of Pollution) Act, 1974, to guide and monitor its research activities. (The Chairman of the Board may nominate an Expert/Additional Member as and when required on the committee). The Research Advisory Committee is comprised of the following members:

1) Member Secretary	Chairman
2) Dr. A. D. Sawant Jt. Director Govt. of Maharashtra	Member
3) Expert-Scientist / Engineer (Air/Water) (Prof. S. B. Chaphekar, Ex Head, Env. Deptt., Pune University)	Member
4) Expert-Scientist/ Engineer (BMW/HW/MSW) (Prof. S. K. Gupta IIT Mumbai)	Member
5) Representative of CPCB (Dr. A. B. Akolkar, Addl. Director, CPCB)	Member
6) Water Pollution Abatement Engineer (Shri R. G. Pethe, MPCB)	Member
7) Air Pollution Abatement Engineer (Shri A. M. Deshpande, MPCB)	Member
8) Principal Scientific Officer (Dr. A. R. Supate, MPCB)	Convener

The Terms of Reference of the RAC:

- 1) To recommend and specify priority Research and Development (R & D) proposals to be undertaken by the laboratories and field offices from the cess funds of the Board
- 2) To examine and approve the R & D projects covering the scope as specified under Section 17 of Water (Prevention and Central of Pollution) Act, 1974 and Section 9 of the Environment (Protection) Rules, 1986 or Section 12 of the Environment (Protection) Act, 1986, including budget, manpower, scope, etc., and recommend implementation strategy
- 3) To suggest, approve and/recommend specific research projects with external financial aid (e.g., CPCB, MoEF, etc.)
- 4) To examine and recommend sampling and analysis methods/procedures, etc
- 5) To examine and recommend budget provisions for the activities and the development of laboratories, to conduct R & D projects
- 6) To propose and organize in-house training programs for the staff of the Board

The Laboratory Committee

The Board in exercise of the powers conferred under Section 9 of the Water (Prevention and Control of Pollution) Act, 1974 and under Section 11 of the Air (Prevention and Control of Pollution) Act, 1981 decided to constitute a Laboratory Committee (LC) under the chairmanship of the Chairman of the Board to strengthen the Board's laboratories. The composition of the Laboratory Committee is as under:

1) Chairman MPCB	Chairman
2) Secretary Environment Deptt Govt. of Maharashtra, Mumbai	Member
3) Principal Secretary Public Health Deptt Govt. of Maharashtra, Mumbai	Member
4) Chief Executive Officer MIDC., Mumbai	Member
5) Shri Suresh Deshmukh Member, MPCB	Member
6) Shri Vijay Kudtarkar Member, MPCB	Member
7) Shri Saleem Patel Member, MPCB	Member
8) Head of the Department (Environment) Institute of Science, Mumbai	Member
9) Head of the Department Institute of Science, Mumbai	Member
10) Head of the Department Chemical/Environmental Engg UDCT., Mumbai	Member
11) Member Secretary MPCB	Member
12) Principal Scientific Officer MPCB	Member-Convener

The terms of reference of the LC:

- 1) To examine proposals for new laboratories and/or sections in existing laboratories of the Board and to recommend their approval by the Board
- 2) To examine proposals for laboratory development, manpower, instrument, equipments, etc., and recommend budget provisions for laboratory activities and laboratory development
- 3) To examine and recommend budget provisions for laboratory activities and laboratories
- 4) To examine and approve the analysis norms, sampling charges, analytical procedures, etc
- 5) To review, at least twice a year, functioning of the laboratories and recommend improvements, if any
- 6) To recommend specific projects undertaken by laboratories and field offices
- 7) To examine and approve project proposals covering the scope as specified under Section 17 of Water (Prevention and Control of Pollution) Act, 1974 and Section 9 of the Environment (Protection) Rules, 1986 or Section 12 of Environment (Protection) Act, 1986, or Section 12 of the Environment (Protection) Act, 1986, including budget, manpower, etc., and recommend an implementation strategy
- 8) To evaluate tenders (technical and financial) pertaining to laboratory development, including procurement of instruments and equipments for reasonableness rates etc. (exceeding financial limits of Member Secretary and/or Chairman), and recommend for the Board's approval (except repairs to laboratory equipment and vehicles)
- 9) This committee shall meet at least once in three months

A meeting of the Laboratory Committee was held on 19.08.2003 to discuss the following points:

- Performance of the laboratories during 2002-03
- Purchase of additional instruments/equipment for laboratories
- Installation of sand filter and procurement of consumables for Millipore Water Purification System
- Approval of Project Implementation Plan (PIP) for Zoning Atlas Cell of MPCB

During the meeting, the committee members agreed to upgrade regional laboratories, specifically, the regional laboratories at Nagpur, Nashik, Aurangabad, Pune and Chiplun, for bacteriology, bio-assay and hazardous waste analysis. The Thane laboratory will perform analysis of air, water (except metals), bacteriology and bioassay. Hazardous waste and bacteriology samples will continue to be analyzed in the central laboratory of the Board. The purchase list of instruments proposed for the upgradation of laboratories has been approved.

In addition to those committees specified above, committees previously constituted last

year such as the Recruitment Committee, the Departmental Promotion Committee, the Accommodation Committee and the Committee for Furnishing Board offices and laboratories continued their work in the reporting year.

5. MONITORING NETWORK FOR WATER AND AIR QUALITY

To plan for the prevention, control or abatement of the pollution of streams, wells and air in the state; to secure the execution of such plans; to classify the waters of the State – these are some of the functions of the State Board. Monitoring stations have been set up for regular observation of pollution levels in river water, seawater and in ambient air. The Board also ensures routine sampling of sewage from local bodies and of industrial effluents and solid wastes as well.

Most air pollution is caused by industrial emissions, vehicular exhausts and the burning of solid wastes. Stations have been established to monitor the level of air pollutants. These stations are operated through the help of an HVS and mobile monitoring van.

To assess water quality, 38 stations have been set up under the MINARS and GEMS projects. The Board monitors these stations to ensure they meet the norms fixed by the CPCB. Twenty-six stations – monitored by local educational institutions, local authorities and by the Board – have been set up under the NAAQM project to assess air quality. The monitoring at five stations – three at Chandrapur, two at Dombivli and Ambarnath – is conducted exclusively by the Board. Funds have been made available for these projects by the CPCB and the WHO. The frequency of monitoring at stations under the MINARS project has been reduced. Earlier all 33 stations monitored the air monthly, now only 14 do and that too, quarterly.

River waters in the State are classified on the basis of their best designated use as A-I, A-II, A-III and A-IV. The monitoring is conducted as per CPCB norms. Water quality is judged through physical, chemical and biological tests conducted at the central laboratory which is well equipped and through the regional laboratories. The number of samples analyzed in 2003-04 under the MINARS and GEMS project are 278 and 55 respectively.

**Monitoring stations under MINARS project
(Monitoring of Indian National Aquatic Resource Sampling)**

Sr no.	River Basin / Creek	No. of Monitoring Stations
1	Kalu River	1
2	Ulhas River	2
3	Godavari River	6
4	Patalganga River	2
5	Kundalika River	1
6	Krishna River	3
7	Bhima River	5
8	Wardha River	2
9	Tapi River	3
10	Girna River	2
11	Pancganga River	1
12	Bhatsa River	1
13	Nira River	1
14	Bassian Creek	1
15	Thane Creek	1
16	Mahim Creek	1
TOTAL		33

**Monitoring stations under GEMS
(Global Environmental Monitoring System) project**

Sr.No.	River Basin	No. of Monitoring Stations
1	Wainganga River	1
2	Godavari River	1
3	Bhima River	1
4	Krishna River	2
TOTAL		5

Air quality monitoring network

Ever since the Maharashtra Government has declared the entire state as an Air Pollution Control Area under the provisions of the Air Act, the Board has taken a number of steps to exercise its responsibilities. Mobile vans with sophisticated instruments and computerized data recording systems have been procured and employed to assess ambient air quality. These mobile vans have been allotted to seven regional offices. The Board's regional laboratories are also well equipped for such tasks. In Mumbai and Thane, municipal corporations themselves monitor ambient air quality. The Mumbai Municipal Corporation monitors air quality through a network of nine stations in the city.

Under the NAAQM project sponsored by the CPCB, there are 26 stations set up for air quality monitoring. The cities of Pune, Aurangabad, Nashik, Nagpur, Chandrapur, Solapur, Dombivli and Ambernath cities are covered under this project. With the exceptions of Chandrapur and Dombivli-Ambernath, the stations in these cities are operated by local

educational institutions. The stations sanctioned for Mumbai and Thane cities under this project are being monitored by NEERI and the Thane Municipal Corporation respectively. The sampling frequency at these stations is twice a week. For Mumbai, Pune and Solapur, special action plans have been prepared for the control of air pollution which include particularly control over vehicular emissions. Some major industries have installed their own continuous air quality monitoring systems.

The Board has monitored ambient air quality through 99 stations established during the reporting year. Out of these, 28 were in industrial locations, ten were in residential locations and the rest in mixed/commercial locations. The region-wise break-up of these stations is given below:

Region	No. of monitoring stations
Mumbai	13
Navi-Mumbai	3
Thane	5
Raigad	7
Kalyan	12
Nashik	11
Pune	11
Kolhapur	9
Aurangabad	3
Amravati	7
Nagpur	17

The stations manned under the NAAQM project are given in the following table:

Sr. No.	Name of the city	No. of stations	Operating Agency
1	Mumbai	3	National Environmental Engineering Research Institute
2	Pune	5	University of Pune
3	Nashik	3	K.T.H.M. College Nashik
4	Nagpur	3	V.R.C.E. Nagpur
5	Chandrapur	2	M.P.C.Board Chandrapur
6	Solapur	2	Walchand Institute of Technology Solapur
7	Kalyan	2	M.P.C.Board Kalyan
8	Thane	3	Thane Municipal Corporation

In order to assess the air pollution caused due to stack emissions from industries, stack monitoring has now been made compulsory. The Board itself conducts stack monitoring to counter-check the data furnished by the industries. During the year 2003-04, 1419 stacks were monitored by the Board.

Monitoring of industrial pollution

The Board monitors industries frequently to ascertain the status of pollution control in these units. Norms have been fixed for inspections and sample collection. The inspection of industries include checking compliance of consent conditions, collection of untreated / treated samples, law evidence samples, hazardous waste samples for analysis, and observation of the concentration of pollutants in the sample. Stack emissions are also monitored. The Board checks to ensure whether each industrial plant has installed adequate air treatment plant or not, and whether the plant is in operation. Arrangements made for reuse and recycle of treated effluent/waste are also verified. The industrial units covered under cess are also monitored for quantum of their water consumption. The actual number of industries monitored and the collection of samples analyses is presented in the following table:

Sr. No.	Regional Office	Visit for Grant of Consent Renewal to industries	Visit for Checking compliance Conditions	Trade Effluent Samples (JVS)		Law Evidence Samples		Air Samples Collected		Hazardous Waste Samples
				Untreated	Treated	Untreated	Treated	Ambient	Stack	
1	Mumbai	200	612	27	882	-	-	635	64	110
2	Navi Mumbai	714	1704	105	1266	-	2	140	145	308
3	Raigad	199	919	11	941	1	7	127	311	478
4	Thane	471	574	7	669	-	3	114	85	99
5	Kalyan	220	684	11	603	1	3	61	146	195
6	Pune	835	1798	322	1619	-	2	290	179	279
7	Nashik	596	1178	415	1016	-	-	96	56	82
8	Aurangabad	438	819	343	588	-	2	187	80	80
9	Nagpur	500	990	534	615	-	-	179	167	348
10	Amravati	385	284	18	240	-	-	59	26	61
11	Kolhapur	683	1369	348	765	36	49	153	160	57
TOTAL		5241	10931	2141	9204	38	68	2041	1419	2097

6. PRESENT STATUS OF ENVIRONMENT, PROBLEMS AND CONTROL MEASURES

Municipal solid waste management

The processes of urbanization and industrialization in mega cities have resulted in exponential increase of the urban population. Hence the critical rise in pollution problem areas. Water pollution, air pollution, noise pollution, disposal of municipal solid waste, biomedical waste, etc., have all become major issues of concern. Actions are being taken to control this pollution under the provisions of the Water Act, 1974, the Air Act 1981, the Environment (Protection) Act, 1986 and the Rules made thereunder. Maharashtra State has 22 municipal corporations and 223 municipal councils and seven cantonment boards. The ratio of the total population living within the jurisdiction of municipal corporations to that of the total population living in municipal councils is 3 : 1.

Except for Navi Mumbai Municipal Corporation, no other municipal corporation has adequate treatment facilities to treat its domestic effluent. There are thirteen corporations discharging domestic effluent into rivers and six discharging their domestic effluent into creeks. The remaining corporations discharge their waste water into nearby nallas and on open land. Of the total water consumed by these corporations, 81% is generated as effluent. The effluent generated from 22 corporations is 2,714,241 M³/d. Fourteen corporations have arrangements for partial treatment and disposal of domestic effluent.

About 11,600 MT of solid waste is generated every day from corporations. As far as the disposal of this waste is concerned, six corporations have adopted composting methods but these efforts are not adequate. The other corporations do not have any treatment or disposal facility for solid waste. In most corporations, solid waste is utilized as landfill.

Out of 223 municipal councils, no municipal council has adequate treatment and disposal facilities for domestic waste-water. The situation in solid waste management is more or less similar to that of the corporations. Only ten local bodies have arrangements for partial treatment of domestic effluent. The total effluent generated from these local bodies is 4,76,916 M³/d. There are 213 local bodies with absolutely no facilities for treatment or disposal of solid waste. Only 17 local bodies have arrangements for partial treatment and disposal of solid waste. The quantity of solid waste generated from these councils is 3829 MT/d approximately.

Show cause notices have been served on all local bodies by the Board. Some municipal corporations have been prosecuted for violation of the provisions of the Water Act: proposed directions have been issued to them under section 33A of the Act 1974. A proposal for setting up of model facilities for management of municipal solid wastes at the following places is under consideration of the Board:

Ambad Jalna (twin towns)
Nawapur in Nandurbar Dist.
Daund-Baramati-Bhigwan
Murud-Janjira

Water Quality Status

River water

Most of the rivers in Maharashtra are monsoon fed. Due to maximum abstraction of water, the flow in the river is meagre after the monsoon.

River water is generally polluted by effluent discharges from nearby industrial plants as well as by domestic wastes from local settlements situated on the bank of the river. Population and industrial growth and agricultural development have incurred a steadily increasing demand for water and this has resulted in a reduction in water quantity and quality.

In order to improve and maintain water quality in the State, 19 river basins have already been publicly notified as water pollution prevention areas. The Board therefore regularly monitors these rivers. On the basis of the analytical results of tests taken, necessary preventive and control measures are taken from time to time. The river water is classified into four classes: A-I, A-II, A-III and A-IV, on the basis of best designated use.

River water quality is regularly monitored by the Board under the GEMS (Global Environmental Monitoring System) and MINARS (Monitoring of Indian National Aquatic Resource Sampling) projects and through the routine programmes of the Board.

The comparison of river water quality observed during the reporting year against the results of the previous year's testing reveals that though BOD and DO levels remained more or less the same, the concentration of total coliform (TC) increased at all stations except Pise dam on the Bhatsa river, Kurundwad on the Krishna river and the Gangapur and Jayakwadi dams on the Godavari river. At some of the locations the concentration of TC doubled from that of the previous year. The highest concentration of TC (456.25 mpn/100ml) was found at D/s Bund garden on the Bhima river in Pune. At twelve locations the TC was found exceeding the norm.

In the current year in the Pune region, the rivers have shown a reduction in BOD and COD

concentrations. The values remain high at Vithalwadi on the Mula river and Pimpri, Dapodi and Sangvi on the Pawana river. The DO levels though better than last year's, are still not satisfactory at the stations mentioned above.

In the Amravati region, water quality of the Pedhi river has deteriorated at Haterna and Bhatkuli. The water quality of rivers in the Kolhapur region has improved in parts of the Krishna, Muchkundi and Vashisti rivers, but the TC levels at Ichalkaranji on the Panchganga river and at Karad on the Krishna river were above the limits.

The Nag and Pilli rivers in the Nagpur region show the highest concentration of BOD (340 mg/l and 52 mg/l respectively) in the current year. Though the DO concentration in the Godavari river and its tributaries pertaining to Aurangabad and Nashik regions are satisfactory, the BOD levels exceed the norm at Gangapur dam, Ramkund, D/s Nashik, D/s Majalgaon, Yeldari dam and at Nanded. In fact, they are higher compared to the previous year. Bacterial pollution has also increased during the reporting year.

Rivers flowing through chemical zones and coastal areas of the State – the Bhatsa, Ulhas, Patalganga, Balganga, Kalu and Savitri – show a deterioration of water quality at some places. Monitoring indicates that the BOD and coliform levels do not conform with the norms for the designated class of water. The highest concentration of BOD (108.7 mg/l and 108.4 mg/l) was observed at the MIDC sump on the Patalganga river and at Muthavali on the Savitri river respectively. Along the Mumbai-Goa highway, the Balganga river showed a BOD concentration much reduced from levels in the previous year.

Compared to last year, the DO levels are more satisfactory, except at Kharpada and at the MIDC sump on the Patalganga river.

The water quality observed during 2003-04 for the Godavari and Krishna rivers is presented in the tables on succeeding pages:

GODAVARI RIVER

Sr. No	Station	PH									Values of Parameters (In mg/l)												Total coliform MPN/100ml		
		MIN			MAX			AVG			C.O.D.			B.O.D.			D.O.			MIN	MAX	AVG			
		MIN	MAX	AVG	MIN	MAX	AVG	MIN	MAX	AVG	MIN	MAX	AVG	MIN	MAX	AVG	MIN	MAX	AVG	MIN	MAX	AVG			
1	U&Gangapur Dam	7.4	8.3	7.8	-	-	-	4.0	8.5	6.1	4.8	7.2	6.1	8.5	6.1	4.8	7.2	6.1	110.0	425.0	215.0				
2	Ramkonda	7.3	8.2	7.7	-	-	-	3.0	15.0	6.9	4.8	7.2	5.4	15.0	6.9	4.8	7.2	5.4	140.0	550.0	219.0				
3	D& of Naxalk	7.2	8.1	7.6	-	-	-	4.0	40.0	9.1	0.6	7.0	5.1	40.0	9.1	0.6	7.0	5.1	150.0	425.0	259.0				
4	Ditalegaon	7.6	8.5	8.1	-	-	-	4.0	7.5	5.6	5.5	8.8	6.6	7.5	5.6	5.5	8.8	6.6	170.0	350.0	215.0				
5	Ditagarthakill (Nanded)	7.7	8.6	8.0	-	-	-	4.0	20.0	7.1	3.4	8.3	6.0	20.0	7.1	3.4	8.3	6.0	3.0	9.0	6.7				
6	Raker	7.7	8.6	8.1	-	-	-	4.8	8.0	6.0	5.8	7.4	6.4	8.0	6.0	5.8	7.4	6.4	175.0	425.0	236.0				
7	Kalgaon Toka	7.6	8.2	7.8	11.2	43.6	24.8	4.0	10.0	7.0	4.4	6.1	5.4	10.0	7.0	4.4	6.1	5.4	-	-	-				
8	Jalkwadi Dam	7.2	8.3	7.7	-	-	-	4.0	13.0	6.3	4.2	7.1	6.3	13.0	6.3	4.2	7.1	6.3	140.0	275.0	189.0				
9	U& Godavari river at Pathan	7.2	8.0	7.6	12.0	24.0	20.0	6.0	8.0	7.0	5.2	5.8	5.6	8.0	7.0	5.2	5.8	5.6	-	-	-				
10	D& of Pathan	7.2	8.1	7.1	40.0	40.0	40.0	5.0	13.0	7.0	5.2	5.2	5.2	13.0	7.0	5.2	5.2	5.2	-	-	-				
11	Shalgaon	7.3	8.5	8.9	12.0	110.0	27.6	4.4	35.0	9.1	4.6	6.5	5.6	110.0	27.6	4.6	6.5	5.6	-	-	-				

KRISHNA RIVER & PANCHGANGA RIVER

Sr No	Station	PH			Values of Parameters (in mg/l)												Total coliform Mpn/100ml		
		Min	Max	Avg	C.O.D.				B.O.D.				D.O.				Min	Max	Avg
					Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg			
1	Krishna Sangam Karad,	6.8	8.3	7.5	-	-	-	3.0	170	22.3	3.9	7.3	5.5	140.0	1800.0	388.0			
2	Dhom Dam Satara	7.5	8.6	8.0	-	-	4.0	7.0	5.2	5.9	7.5	6.8	140.0	425.0	223.0				
3	Maighat Sangli	7.0	8.5	7.7	-	-	4.8	9.0	6.4	4.1	7.4	6.1	150.0	350.0	249.0				
4	Rajapur	6.6	8.2	7.5	-	-	5.0	8.5	6.1	3.2	7.0	5.8	140.0	425.0	223.0				
5	Kurundwad	7.0	8.2	7.6	-	-	5.0	7.5	6.1	3.3	7.0	6.2	170.0	780.0	368.0				
6	Ichakaranji (Panchganga river)	6.9	8.0	7.4	20.0	64.0	33.1	4.5	10.0	7.0	3.2	7.4	5.7	150.0	500.0	266.0			
7	At Shirok K.T. (Panchganga River)	7.0	7.8	7.5	240	36.0	32.0	5.4	9.5	7.0	1.9	7.0	5.1	150.0	250.0	-			
8	Mahuli	7.7	7.9	7.8	12.0	66.0	34.0	4.0	18.0	11	4.8	8.9	6.8	-	-	-			
9	Krishna-Vena C.confluence	7.5	8.1	7.8	8.0	28.0	18.0	4.0	9.4	6.7	7.0	7.8	7.4	-	-	-			

GRAPH OF GODAVARI

GRAPH OF KRISHNA

Lake water

During the year, lake water samples were collected from the areas of Navi-Mumbai, Nagpur, Chandrapur, Satara and Solapur to detect pollution levels. In all, a total of twelve lakes were monitored and 100 samples were analyzed. The analysis reports indicate that lakes in Nagpur have a very high concentration of BOD and COD and the DO levels do not conform with the standards. The deterioration in water quality of the Digha lake in Navi-Mumbai was acute with the DO level at 3.3 mg/l. Sakkardara and Ambazari were found to be the most highly polluted lakes in the current year.

Area	No. of lakes monitored	Concentration of Pollutants in mg/l		
		BOD	COD	DO
Navi-Mumbai	3	9.0 -12.7	40.0-54.0	3.3-4.5
Satara	2	6.7- 7.4	18.0-26.0	7.4-7.5
Solapur	2	10.8 -14.0	28.8-37.0	5.5-6.1
Nagpur & Chandrapur	5	6.8 - 120.0	35.4-248.0	3.4-5.1

Ground water

Complaints were received by the Board regarding ground water pollution in the State. The Board therefore collected ground water samples from the respective areas covering Nagpur, Kolhapur, Ratnagiri, Chiplun, Chandrapur and Pune. Around 80 samples were collected during the year for analysis. The analysis report indicates that though DO levels are satisfactory, total hardness, chlorides and sulphates are very high in the ground water of the Pune Region. Next to Pune, the Nagpur region shows a high deterioration in ground water quality. The chloride concentration is much beyond the limits in the ground water in the vicinity of MIDC, Kalmeshwar, and Bramhni village.

Area	No. of wells monitored	Total hardness mg/l	Chlorides mg/l	DO mg/l	Sulphate (SO ₄) mg/l
Sangli	2	-	146.0-422.0	5.6-7.0	76.0-224.0
Ratnagiri & Chiplun	5	81.0-212.0	76.4-247.5	6.5-7.1	1.4-124.0
Nagpur & Chandrapur	3	307.2*	283.6-422.0	5.6*	63.14*
Pune	4	708-966	449.2-778.0	4.4-6.2	-

* monitored at one location only

Sea water

Maharashtra State has a sea coast of 720 km in length. There are several chemical-based industrial zones along the sea coast such as MIDC's Patalganga, TTC, Lote-Parshuram, Mahad, Roha etc., that are discharging their effluents into marine waters. Besides this, various tidal

inlets such as Thane creek, Backbay, Mahim creek, Ulhas creek and Versova creek receive a variety of pollutants from domestic and industrial discharges. The local bodies located on the coastal belt do not have sufficient treatment and disposal facilities for waste water; hence, the discharge from local bodies is also a cause of marine pollution. During the year, the Board monitored sea water quality from 26 different locations – including three under the MINARS Project. The analysis reports reveal that at ten locations the BOD and COD concentrations have increased when compared with the previous year. The highest concentration of BOD (51.7 mg/l) was observed in the Mithi river while the highest COD concentration (590 mg/l) was observed at Bhagvati Minco Wada in Ratnagiri. The rest of the locations show improvement in water quality. However, DO levels are not satisfactory at these locations either.

Sea water quality observed during the year is presented in the following table.

No.	Sampling Station	pH			COD (mg/l)			BOD (mg/l)			DO (mg/l)		
		Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
1	Mahim Creek	7.1	7.9	7.4	-	-	384	8	44	23	0.6	4.7	2.3
2	Elephanta Caves	7.3	7.7	7.5	-	-	352	8.8	18	15.3	3.5	4.8	4.2
3	Madh Beach	7	8	7.6	200	416	268	12.5	30	21.3	3.2	5.1	4.1
4	Manori Beach	7.2	8.5	7.6	24	400	232	5.6	30	19.4	3.3	7.5	4.3
5	Worli Sea Face	7.4	7.9	7.6	96	364	250	10	34	19	2.0	5.3	3.9
6	Near Gateway of India	7.2	8.1	7.6	112	336	264	8.8	37	18.5	1.8	5.6	4.41
7	Near Nariman Point	7.3	8.0	7.7	56	336	248	8.8	33	18.3	2.1	5.6	4.3
8	Dadar Chowpaty	7.3	7.6	7.33	152	400	267	13	40	23	0.6	5.0	3.5
9	Near Malbar Hill	7.3	8.0	7.7	48	296	229	8.8	30	18	2.1	5.4	4.3
10	Near Haji Ali Bridge	7.3	8.1	7.7	56	344	228	8.6	28	19	2.3	6.0	4.4
11	Vashi Bridge (Thane Creek)	6.8	8.3	7.3	80	392	227	11	70	26	1.2	4.6	3.0

Air quality status

Due to urbanization, industrialization and the ever-increasing vehicular population in many cities, the problem of air pollution has become a serious issue. Chemical fertilizer and pesticide industries discharge toxic process emissions into the air. The burning of fuel in boilers adds to such air pollution. Other sources of air pollution include thermal power plants, sugar industries using bagasse as fuel, steel industries and rolling mills using either coal, LDO or FO as fuel. Dust emissions from stone crushing activities, emissions from re-rolling mills and foundries as well as coal mines, and the operation of DG sets also adds to air pollution. To safeguard the public from the most common and damaging pollutants, such as sulphur-dioxide, nitrogen

oxide, carbon monoxide, lead, suspended particulate matter and ground level ozone, ambient air quality standards have been notified by the Ministry of Environment and Forests.

The concentration of pollutants depends upon the quantity of chemicals handled in industrial plants and the efficacy of their operation and the maintenance of their emission control systems.

The ambient air quality in the state is monitored by the Board, academic institutions, research institutes such as NEERI, and the municipal corporations of Mumbai and Thane.

In Mumbai, the Board monitors pollution levels at two junctions: Sion and Mulund. The Board has regularly worked these stations over the last four years. The tests show that there is significant reduction in the concentration of SO₂ and NO_x, but the values of PM10 have increased. Some reduction has been observed in CO.

The ambient air quality monitoring carried out by MCGM indicates that Khar and Borivali remain polluted throughout the year. High concentrations of SPM were found at Khar (430.88 ug/m³) and Nair Hospital (522.0 ug/m³). High levels of NO_x and RPM were found at Mahim, Wadala, Andheri and Worli. In a survey done of Chembur, a suburb in Mumbai, the values of RSPM found were beyond the limits and had in fact increased when compared with the previous year's.

The ambient air quality monitoring carried out in Navi-Mumbai and Raigad Region indicates that pollutants are within limits, while in the Thane region the SPM levels found were found to be far exceeding the limits. In the Kalyan region, at Ambernath and Ulhasnagar, NO_x levels exceeded the limits, while in the Dombivli area, a high rise in RSPM was observed. The SO₂ level crossed the limit at MIDC Dombivli phase-I where it was found to be 168.75 ug/m³. Testing in the Pune region – covering Satara and Solapur districts – also indicated a high rise in SPM and RSPM concentrations, while results from the Kolhapur region – covering Sangli and Ratnagiri districts – showed SPM and RSPM levels far beyond the standards in Sangli city. An ambient air quality survey conducted in Dhule city at nine locations revealed that, except in two locations, SPM values exceeded the limit.

The ambient air quality testing in Aurangabad and Amravati regions indicated values were more or less within the limits except at the Kotwali police station in Amravati.

In the Nagpur region, most of the areas selected for monitoring of air quality were industrial areas. SO₂ and NO_x levels were within the limits but SPM levels exceeded the norms at five industrial locations and RSPM levels exceeded the norms at three locations. The highest SPM concentration (1114.28 ug/m³) found in this region was at MIDC Umrer.

The overall survey reveals that SPM and RSPM were the dominant air pollutants. The range of concentration of pollutants present in the ambient air region-wise is shown in the table below:

Region	No. of locations monitored	Concentration of Pollutants in ug/m3 (values are in range)			
		SO ₂	NO _x	SPM	RSPM
Mumbai	15	5.9–33	30–292	157–522	89–997
Navi Mumbai	3	6–12.6	48–80	134–252	55–96
Raigad	7	2.8–31.5	8.2–39.3	60–145	33–141
Thane	5	6–48.5	6.5–27	201–3621	96.3*
Kalyan	12	5.5–168.7	9–158	64–747	11–323
Pune	11	8.3–35	11.8–47.5	102.6–440	113–378
Kolhapur	9	2–67.9	6–32.1	70.1–1551	46–548
Nashik	11	17–60.2	16.6–55.8	163–839	37.1*
Aurangabad	3	14.0–15.0	14.7–15.8	41–153	–
Amravati	7	15.2–25.9	25–61	170–362	51–162
Nagpur	17	6–29.3	18.4–69.6	80–1114	35–208

* indicates monitoring at one location

Under the National Ambient Air Quality Monitoring (NAAQM) project, the ambient air quality is monitored through 19 stations covering five residential, six industrial and eight commercial locations across the State. The overall observations reveal that while the concentrations of SO₂ and NO_x were well within the limits, the concentrations of SPM and RSPM went well beyond the norms at eleven and six locations respectively. The highest concentrations of SPM and RSPM were observed in Pune and Solapur. There was a reduction in SPM concentration in Solapur when compared with the previous year, but it is increased in Pune in the current year. In order to control air pollution in Pune and Solapur, separate action plans have been prepared and are being implemented. Histograms showing concentration of pollutants observed during the year 2003-04 are produced below:

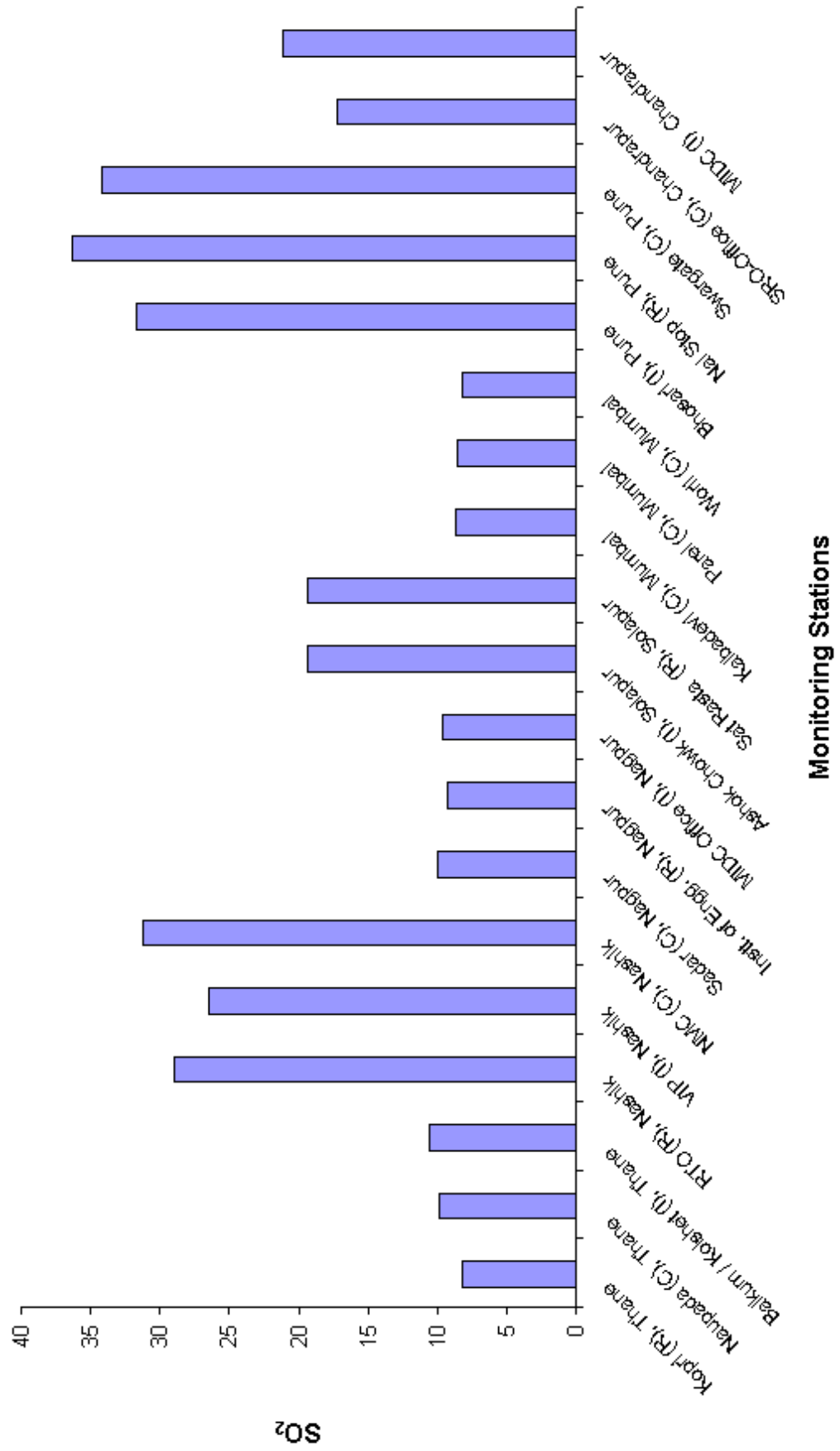
Noise level status

Nowadays due to modernization, urbanization, increase in traffic and developmental activities, ambient noise levels especially in metro cities have increased significantly. These noise levels affect both the health and psychological well being of the public at large. The Ministry of Environment and Forests, Government of India, has already notified ambient quality standards for noise through its notification dated 14 February 2000. Under this notification, the human settlement areas are divided into four zones: industrial, commercial, residential and silence zones. In a silence zone noise levels should be 50 dB (A) during the day and 40 dB (A) at night. The day period is considered to be between 6 a.m. and 10 p.m., and the night period is considered to be between 10 p.m. and 6 a.m.

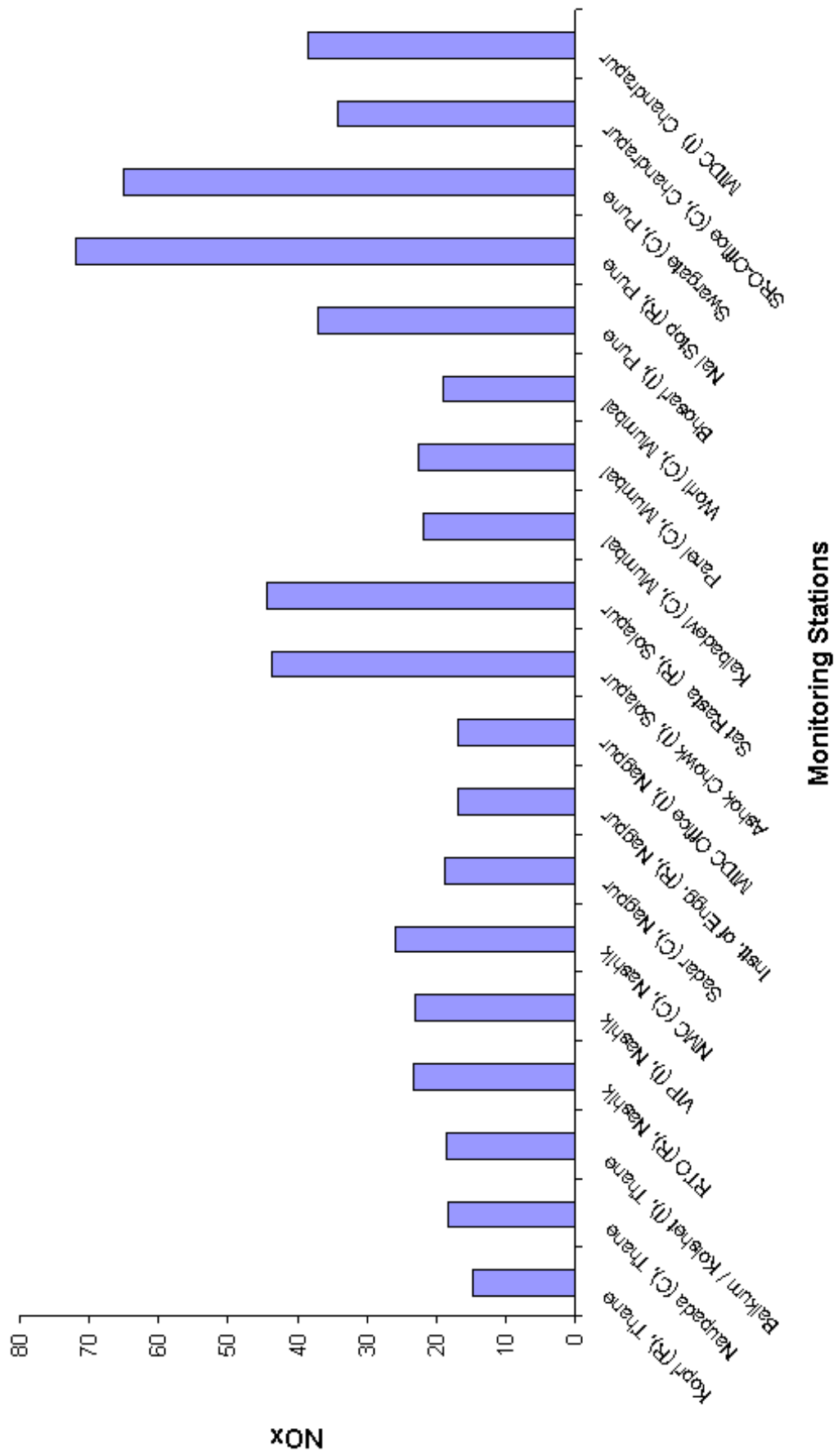
To study noise levels in different regions, the Board has selected specific locations. The regions – and the number of locations – covered are shown in the following table:

In Mumbai, the maximum noise levels were recorded at Ghatkopar and Shivaji park during the Diwali festival period. Noise levels monitored in the month of May in Navi Mumbai indicate that the commercial location known as Vashi sector 17 is polluted. Noise levels were very high

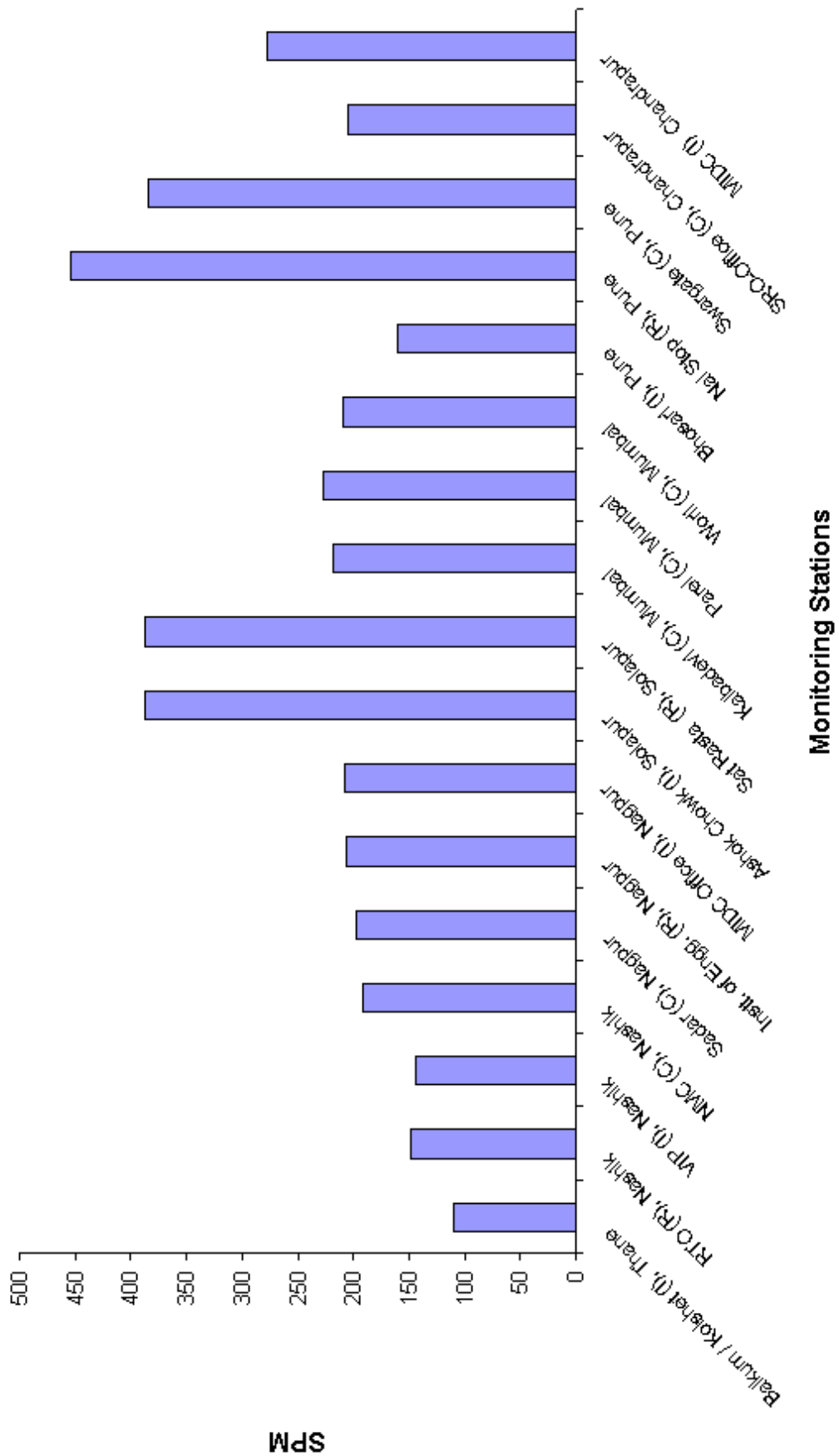
**AMBIENT AIR QUALITY MONITORED UNDER NAAQM PROJECT DURING THE PERIOD OF APRIL 2003 TO MARCH 2004
(PARAMETER SO₂)**



**AMBIENT AIR QUALITY MONITORED UNDER NAAQM PROJECT DURING THE PERIOD OF APRIL 2003 TO MARCH 2004
(PARAMETER NO_x)**



**AMBIENT AIR QUALITY MONITORED UNDER NAAQM PROJECT DURING THE PERIOD OF APRIL 2003 TO MARCH 2004
(PARAMETER SPM)**



during the Diwali festival in Uran area. In Raigad, during Diwali, noise levels crossed the limit at Mahad, Karjat and Alibag. Noise levels observed from December to March in Thane indicate that Thane city and Godbhandar road are polluted. The Kalyan naka in Bhivandi and the Bagaria palace in Ulhasnagar were found to be noise polluted areas within the Kalyan region. Almost at all locations in Pimpri-Chinchwad, Karad, Wai and Phaltan, noise levels violated the norms. In the Nashik region, all commercial locations were selected for noise level monitoring which was conducted during the months of May and August 2003.

The results obtained reveal that, except at one location in Dhule, noise levels exceeded the limits at the remaining 31 locations. Kolhapur, Sangli, Ratnagiri, Miraj and Malvan were monitored for noise levels in the Kolhapur region. The highest noise pollution was recorded in Sangli and Miraj cities. During the Diwali festival, noise levels were also observed for Kolhapur city separately in which Rajarampuri was observed to be the most noise polluted area in the city. Noise levels were monitored at four commercial locations in Nagpur city during the month of October, and it was found they were beyond the limit at all locations.

The maximum noise pollution was at Zansi Rani Chowk.

Region	Industrial	Commercial	Residential
Mumbai	2	1	3
Navi Mumbai	1	3	3
Raigad	-	3	6
Thane	-	1	4
Kalyan	1	13	6
Pune	1	24	2
Nasik	-	32	-
Kolhapur	-	9	7
Nagpur	-	4	-
TOTAL	5	90	31

Industry pollution status

Maharashtra is rich in industry. The Maharashtra Industrial Development Corporation (MIDC) is responsible for the development of industry in the state. Co-operative industrial estates are also developed. Mumbai, Thane, Navi-Mumbai, Kalyan, Nashik, Pune and Pimpri-Chinchwad, all have a high density of industries.

Most industrial activities give rise to substantial pollution of air and water; generate noise, etc. This activity is regularly monitored by the Board. Effluent and emission standards for specific industries have been notified. These standards are included in the consent order. Most industrial companies have installed the necessary effluent treatment plants and emission control systems for the control of pollution.

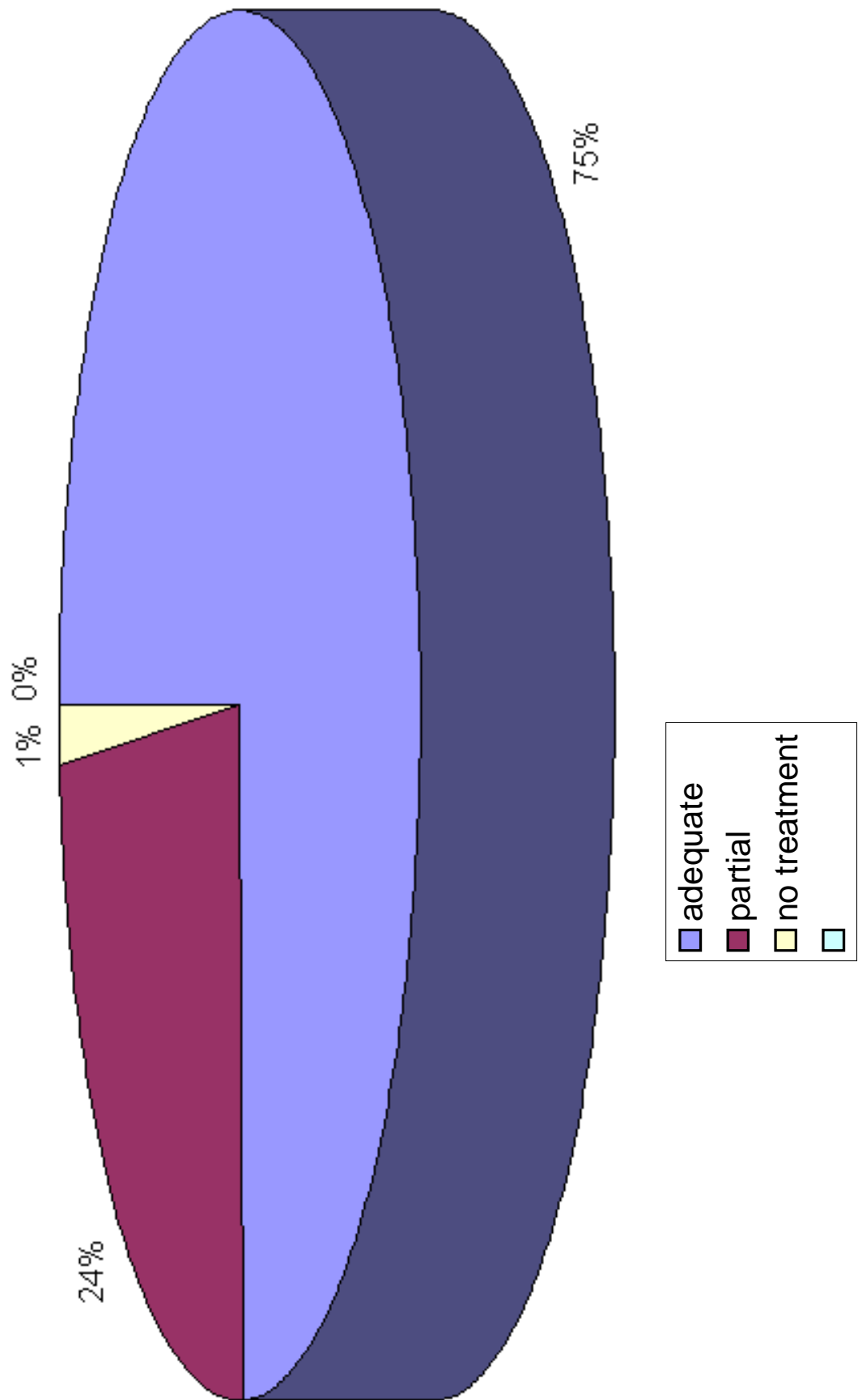
As per the data compiled for the year 2003-04, there are 53070 companies identified by the Board for implementation of pollution control measures. They include 6867 'red', 8418 'orange' and 35365 'green' categories of industries. Of water pollution prone industries, 74% have adequate treatment facilities. Of air-pollution prone industries, 71% have adequate emission control facilities. There are 3544 industries generating hazardous waste. Out of these, 69% have adequate treatment and disposal facilities.

In order to control industrial pollution, the government has proposed several plans and policies. Under the Central Action Plan, major polluting industries have been identified. Sixty-six per cent of the industries identified under the Plan have taken necessary control measures. Twenty-one percent of the industries have closed. Action has been taken against 18 defaulting units. For small scale clusters of industries, common effluent treatment plants have been established. These as a group have the capacity to treat effluent quantity of 91500 cm/d and cover 4455 industrial units. The state has a policy which requires that a safe distance be maintained between industrial units and rivers in order to avoid discharge of effluents into water bodies. The policy also ensures that no industry will be established along the river bank. The recycling and reuse of waste by industries are encouraged.

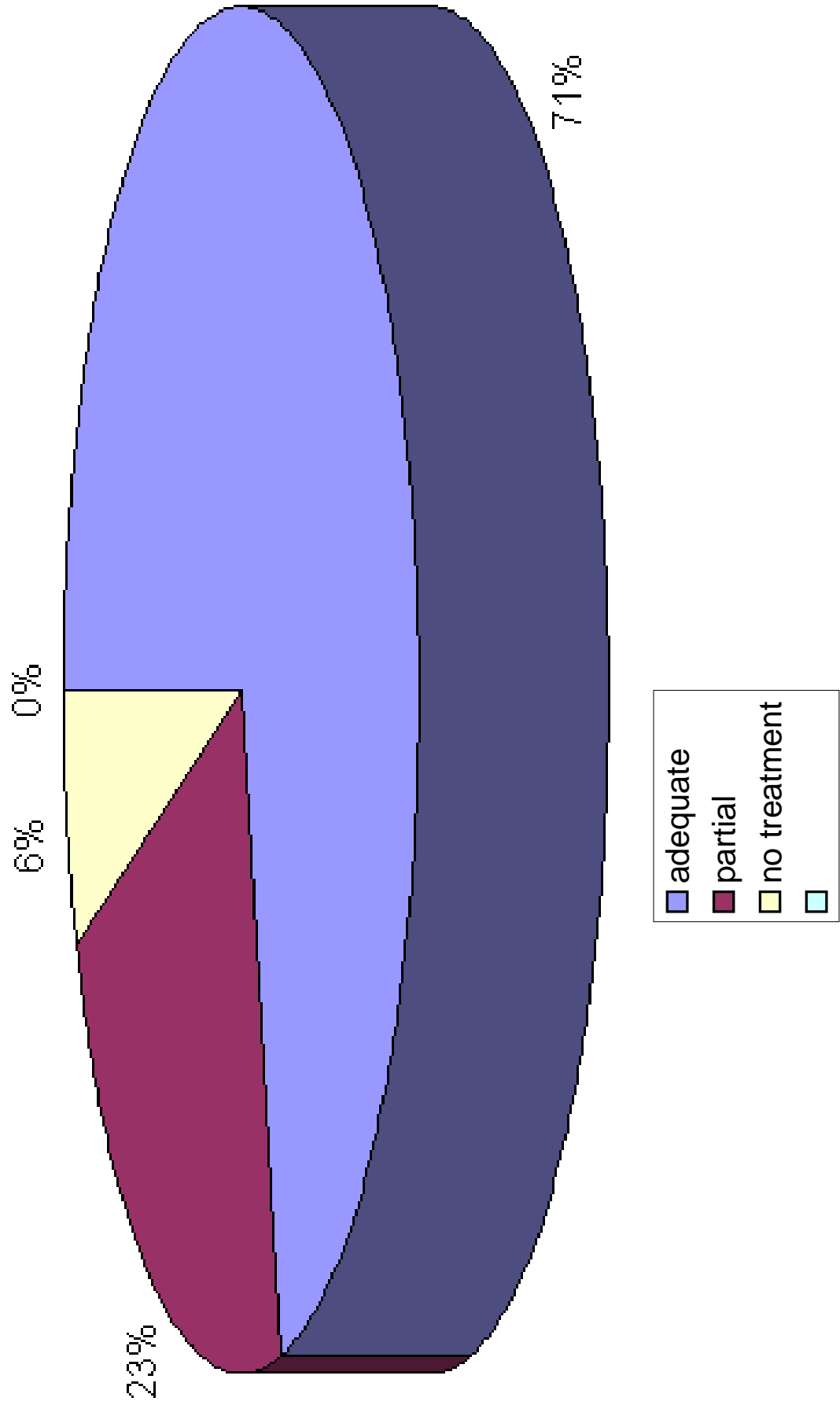
As provided under section 33A of the Water Act 1974, proposed directions were issued to 313 plants and final directions to 114 plants. Under section 31A of the Air Act 1981, proposed directions were issued to 66 plants and final directions to 26 plants in the year.

The charts showing the percentage of plants having adequate, partial or no treatment facilities are presented below:

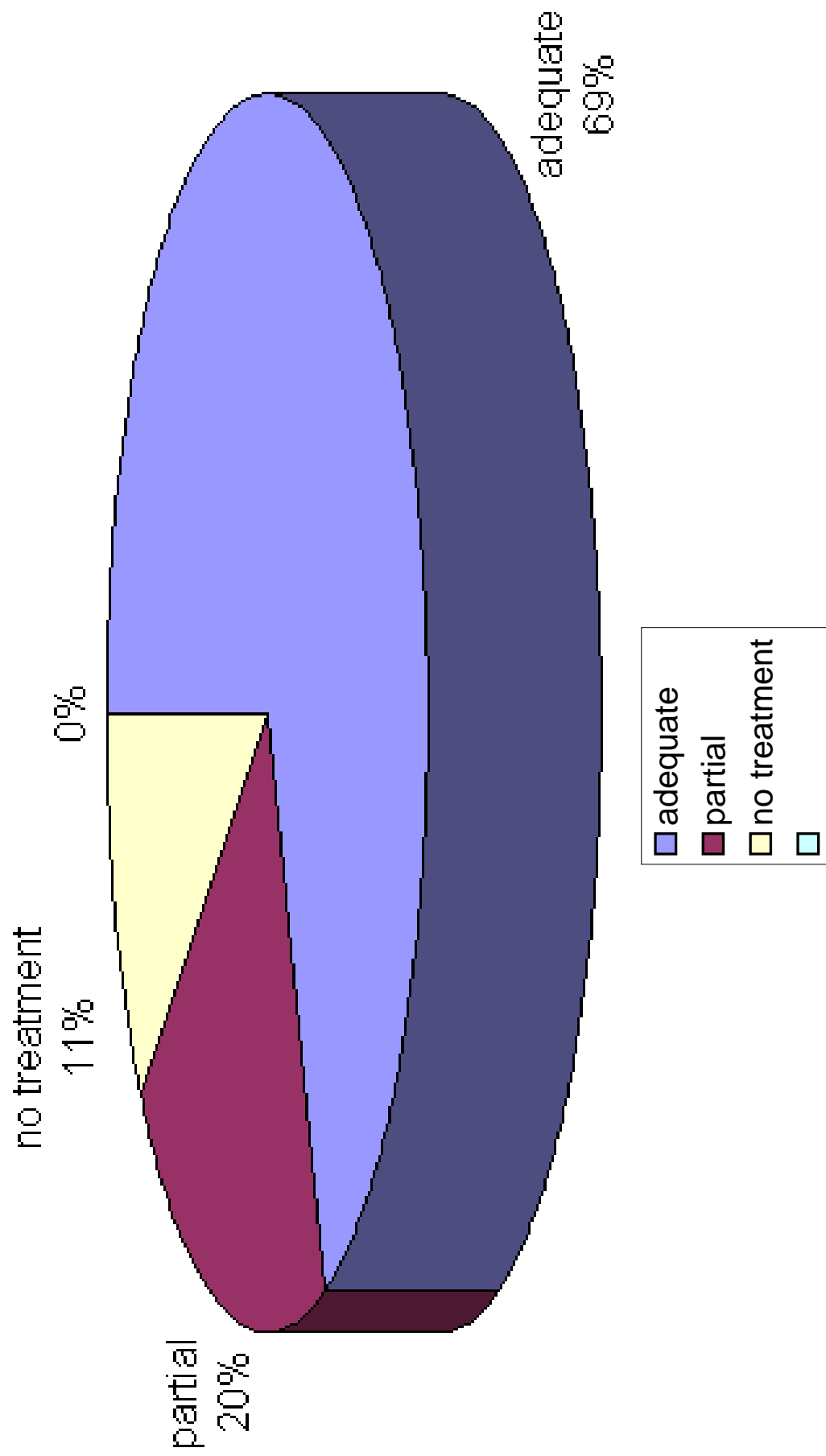
STATUS OF TREATMENT FACILITIES PROVIDED BY WATER-POLLUTION-PRONE INDUSTRIES



STATUS OF EMISSION CONTROL SYSTEM PROVIDED BY AIR-POLLUTION-PRONE INDUSTRIES



STATUS OF TREATMENT/DISPOSAL FACILITIES PROVIDED BY HAZARDOUS-WASTE-PRODUCING-INDUSTRIES



7. ENVIRONMENTAL RESEARCH

Rivers in India are regarded as sacred, hence millions of people take holy baths in them, especially on auspicious occasions. The *Kumbha* and *Ardh Kumbh melas* are among the events in which millions of people take such holy dips.

According to astrologers, the *Kumbha mela* takes place when the planet Jupiter enters Aquarius and the Sun enters Aries.

Bathing activity is one of the important *in situ* utilizations of water bodies that people make and this requires that the water quality of the water body will be different from the water quality required for drinking purposes. During the act of bathing, people not only immerse their bodies in the water but also take sips of it, irrespective of its quality. The Water Act, 1974 is basically designed to support the quality of various designated best-uses of water bodies such as:

- a) Drinking water source without conventional treatment but with disinfection
- b) Outdoor bathing organized
- c) Drinking water source with conventional treatment, followed by disinfection
- d) Propagation of wild life and fisheries
- e) Irrigation, industrial cooling, controlled waste disposal

These beneficial uses of different water bodies have been identified in terms of primary water quality criteria using several physico-chemical parameters. With the growing demand for fresh water, and an enhanced rate of depletion of water resources, designated or classified water bodies have become subject to multiple beneficial use. Such multiple use has naturally resulted in the deterioration of water quality in most sources, rendering them objectionable for organized use. The stress on pollution control activities, along with promotion of cleaner technologies, has led over the years to the formulation of Action Plans to arrest the degradation in water quality from point sources of pollution, such as industrial and domestic water waste. However, the non-point or diffused sources of pollution to water bodies remain a matter of serious concern.

In the year 2003, the *Kumbha mela* was held at Trimbakeshwar and Nashik in Maharashtra. It has a floating population of more than 50 lakhs during each *shahi snan* (bathing activity). Due to this large-scale bathing, a significant rise in pollution of the Godavari at Nashik and Trimbak was observed. Increase in solid waste, plastic, paper as well as biomedical waste

was also observed at both locations. In addition, there was vehicular pollution, noise pollution, odour/smell nuisance problems. To deal with the multiplicity of these pollution generating activities, the Board felt that conducting environmental awareness programmes, educating students as well as adults, publicity through the news papers, local channels, TV and radio was also important, in addition to water and air quality monitoring,

Problems:

1. Many religious places are under severe stress from environmental insanitation and there is urgent need for upgrading required facilities.
2. Heaps of rotten garbage populated with pigs and other animals; uncleaned and choked sewage drains overflowing on roads; cess pools along the roads and public places: all lead to unhygienic living conditions at many religious pilgrimage spots in the country.
3. Due to inadequate infrastructure and manpower, local authorities in such places are not able to cope with the maintenance of cleanliness/sanitation especially during mass gatherings.
4. Solid waste management is an important facet of environmental hygiene and needs to be integrated with total environmental planning. Many diseases are spread through flies, which mainly breed on solid wastes. A common transmission route of bacillary dysentery, amoebic dysentery and diarrhoea by flies is from faecal matter to food. Mismanagement of garbage disposal was the main cause for the famous epidemic of Surat in 1994.
5. Lack of co-ordination among various agencies responsible for public services is also a major cause for insanitation.
6. Drains in general are not cleaned regularly and even if they are cleaned, the sludge is often not removed. Hence, the sludge finds its way again into the drain. The sweepers many times throw the solid waste collected after sweeping from the streets into the drains, causing them to get choked.
7. Due to inadequate and ill maintained toilets, open defecation and urination all along the drains, wall sides, open grounds, parks and other such public places are quite common in most of the religious gathering spots.
8. Proper drainage is lacking for many urinals provided at religious venues. As a result, urine is spread all over the area causing bad odour and an ugly look. Moreover, such situations promote the breeding of several disease vectors.
9. Most garbage collection points are open dumps without boundaries and protection. As such, they are subject to invasions of scavenger pigs, cows and goats which spread out the rotting material and create unhygienic conditions.
10. The organic matter contribution from mass bathing is quite significant, as revealed by a

study done at Nashik-Trimbakeshwar. Apart from bathing, pilgrims were found offering milk, curd, sweets, ghee, flowers and other materials to the river, as part of their worship. Such activities invariably increase the concentration of organic matter during auspicious days when compared to normal days

11. A wide variety of pathogenic organisms are potentially transmissible to man through bathing, such as typhoid, paratyphoid, and cholera, bacterial dysentery and various skin infecting pathogens.

Objectives of the Study

The present study was undertaken with the following objectives:

1. To assess water quality between the pre-and post-bathing periods as well as on the day of *shahi snan* (Parvani) – specifically from July to September 2003 at Trimbakeshwar and Nashik
2. To assess the existing quality of water and wastes in Kushavarta Kund and Ahilya Godavari river Sangam, at the rear of Trimbakeshwar temple at Trimbakeshwar, as well as at Victoria Bridge, Ramkund, Tapowan in terms of physico-chemical, biological, bacteriological, heavy metal and pesticides contamination parameters
3. To evolve remedial measures to prevent environmental hazards due to mass bathing and alternative strategies to maintain water quality for bathing purpose at the above places
4. To suggest measures to restore aquatic life and to evolve a rationale for bathing water quality criteria
5. To monitor air quality and noise levels at the above places due to the gathering of large number of people and related activities

During the survey period, six stations were set up for monitoring of water quality and five for monitoring of ambient air quality. Noise levels were also monitored at stations during this period. The water quality monitoring was done from 8 a.m to 8 p.m. with an interval of four hours and the ambient air quality monitoring was done between 10 a.m. to 6 p.m. The main parameters (pollutants) analyzed for water quality were pH, DO, BOD, SS, detergent, ammonia and bacterial count. The air quality was analyzed for pollutants like SO₂, NO_x, SPM, RSPM and CO. This survey was conducted for 15 days on different dates from 11.8.03 to 8.9.03.

Water quality assessment

At Kushavarta (Trimbakeshwar), the DO levels were below the standards, but at Ahilya Godavari Sangam – with the exception of a few hours of the day – the DO levels were found satisfactory. At Victoria bridge, DO levels were satisfactory. At Ramkund, with the exception of 26.8.03 the DO levels were within acceptable limits. At downstream of STP Tapovan, DO levels were observed to be below standard on 27.8.03 and 28.8.03.

At Kapila-Godavari Sangam Tapovan on 27.8 and 28.8 and few hours on 1.09 and 2.09, DO levels went below the standards.

On 27.8.03, the highest BOD recorded at Kushavarta was 86 mg/l which was much above the limit. Throughout the survey, the BOD concentrations exceeded the limits at all stations.

The concentration of SS was very high on 6.9.03 at Kushavarta. At Ahilya-Godavari Sangam, the levels of SS were found satisfactory from 11.8.03 to 13.8.03. Maximum SS was observed at Victoria bridge point on 16.8.03 at 8.00 p.m. but on the same day, SS was found to be within limits at downstream of STP Tapovan. At Kapila-Godavari Sangam, the highest value of SS recorded on 27.8.03 was 58 ml/g. The overall water quality observed during the period is shown in figure 7.1.

Ambient air quality

Trimbakeshwar Government Hospital: At this station on 7.9.03 during last *shahi snan*, the NO_x level was 111.0 ug/m³. On 6.9.03, the level of RSPM found was 252.00 ug/m³. The other parameters of SO₂, CO and NH₃ were found to be within acceptable limits.

Ramkund: The NO_x level found on 31.8.03 and 1.9.03 was 292 ug/m³ and 141 ug/m³ respectively. On all the days, SPM remained beyond the limit. The highest value of SPM (1020 ug/m³) was observed on 26.8.03. This is due to transport, cooking in open air and the increase in dust due to overcrowding. The average RSPM, SO₂ and NH₃ were within limits, but on most occasions CO levels were beyond the limit

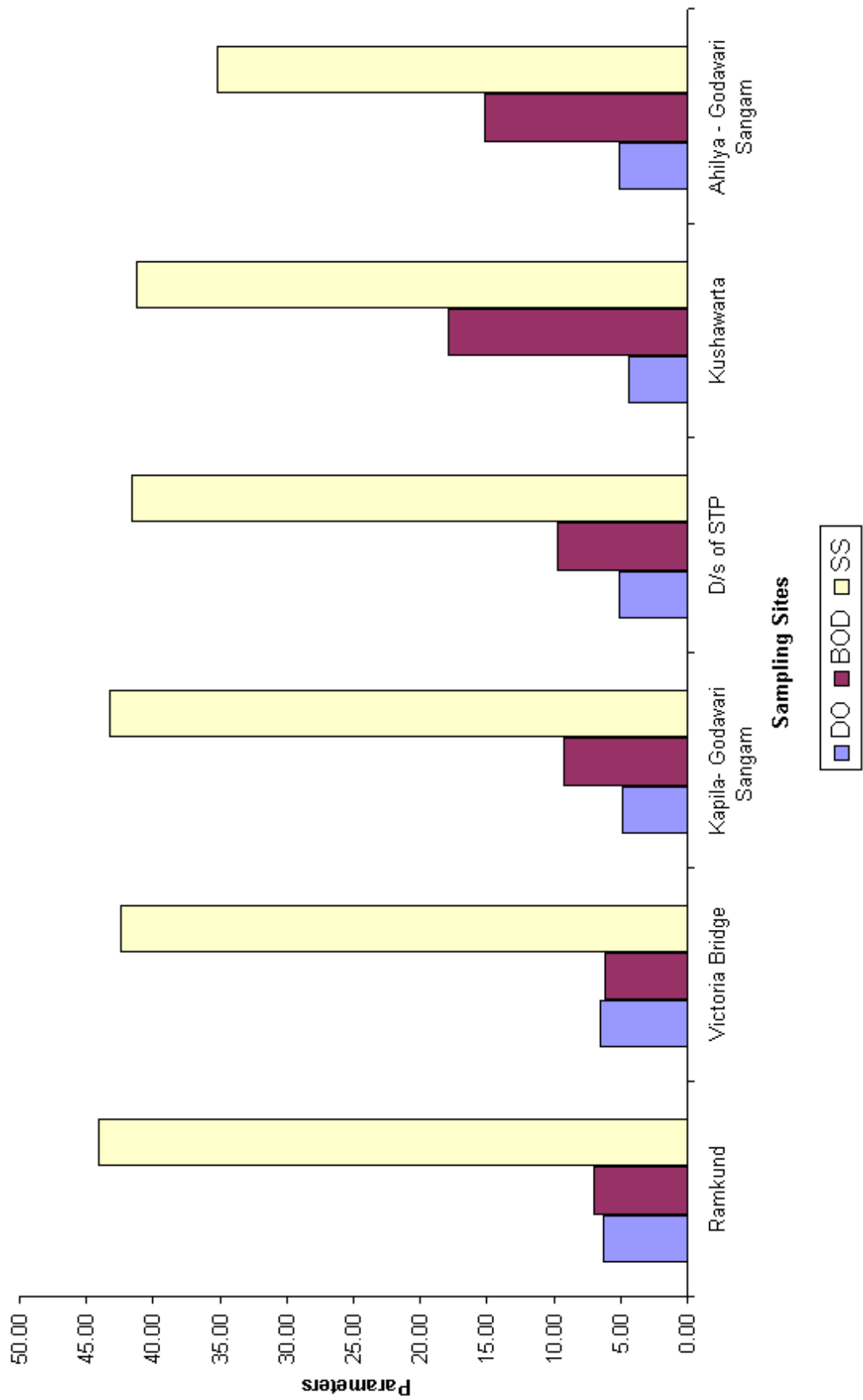
Tapovan Sadhugram: On 26.8.03 during, the second *shahi snan*, the highest concentration of SO₂ (106 ug/m³) was observed. Except on 1.9.03, the SPM levels were well within limits throughout the survey period. The NO_x levels were more or less within limits. Average RSPM level and NH₃ were within limits while the CO exceeded the limits most of the time.

Central bus stand: The highest concentration of SO₂ (107 ug/m³) and NO_x (124 ug/m³) was observed on 16.8.03 and on 2.9.03. SPM was also observed to be very high at 982.00 ug/m³ on the same day, i.e. on 16.8.03. This was probably due to local traffic.

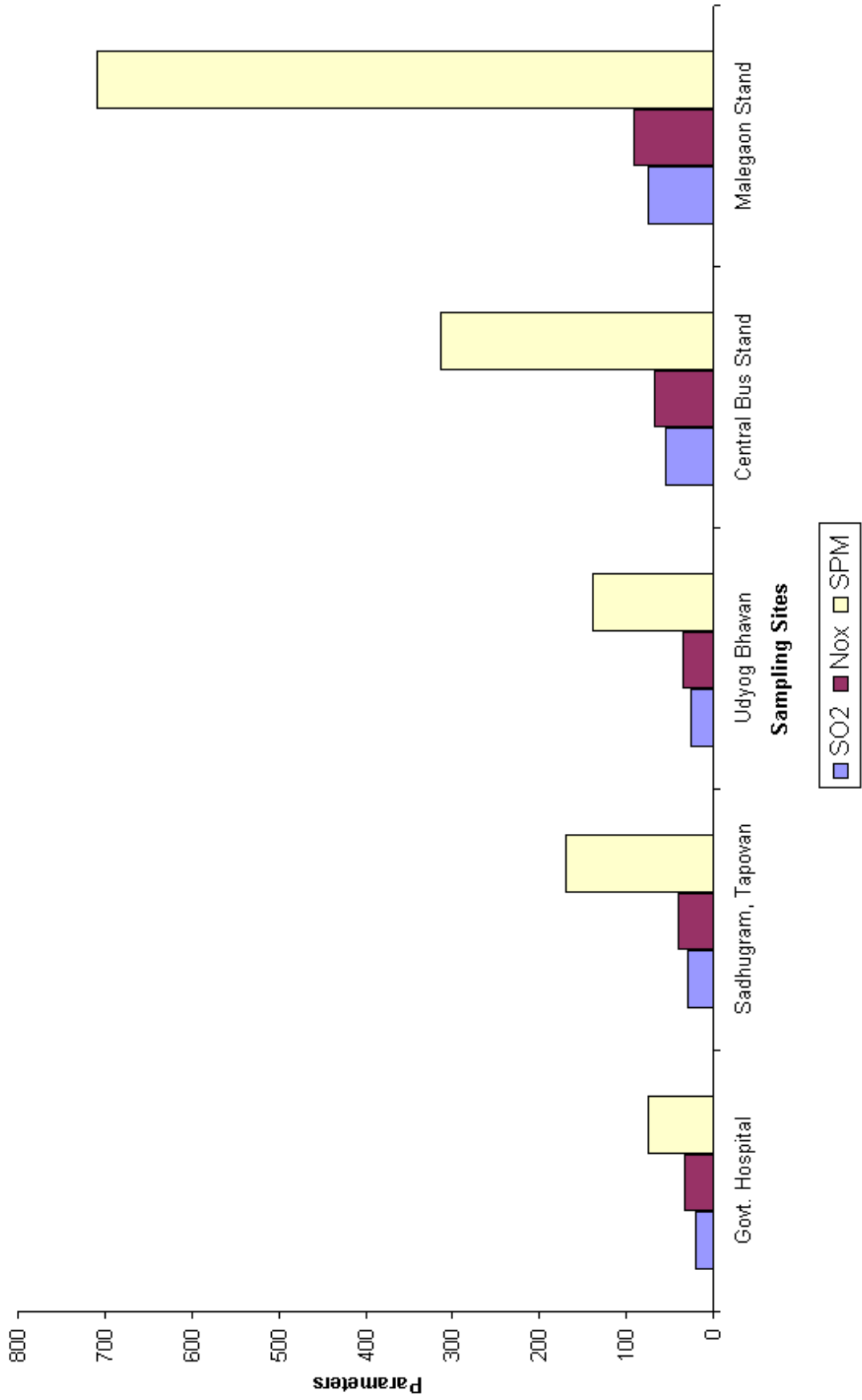
Udyog Bhavan: Except for SPM, the other parameters were within limits at all times.

The ambient air quality observed during the period is shown in figure 7.2.

7.1 WATER QUALITY OBSERVED DURING SINHASTHA KUMBHAMELA 2003-2004



7.2 AMBIENT AIR QUALITY OBSERVED DURING SINHASTA KUMBHAMELA 2003-2004



Noise level monitoring

Noise level detection during the *Kumbha mela* is as important as the monitoring of air and water. As large numbers of people gather at holy landmarks, it becomes an important task to measure the different frequencies of noise levels. The noise levels are measured at daytime in terms of decibels. For detection of noise levels in Nashik and Trimbakeshwar, different stations were selected as follows:

A) Nashik city :

- | | |
|---|-------------------|
| 1) Ramkund | 2) Tapovan |
| 3) Central Bus Stand | 4) Trimbak Road |
| 5) MPCB office, Udyog Bhavan, Rathi chowk | 6) Malegaon stand |

B) Trimbakeshwar :

- 1) Kushavarta
- 2) Rural Hospital

A) *Nashik city*

- 1) Ramkund:** This central area of the *Kumbha mela* at Nashik is a commercial zone. Almost in all *parvanis*, the noise levels found in this region were exceeding commercial zones (65 decibels) limits. Noise levels ranged from 76 to 98 decibels in all *parvanis*. The maximum noise levels (at 98 decibels) were on 17.08.03 and 18.08.03. The minimum noise level was 76 decibels on 16.8.03. In all the *parvanis* at Ramkund, noise levels exceeded permissible limits.
- 2) Tapovan:** This is where the sadhus who come from different parts of India for the *Kumbha mela* reside during the event. This area is a residential zone. The noise levels in this area were in the range of 88 decibels to 102 decibels. The maximum level was observed on 17.8.03 and the minimum level was observed on 16.8.03. In this area noise levels therefore also exceeded the permissible limits.
- 3) Central bus stand:** This area of Nashik is a commercial area. During the *Kumbha mela* the area was heavily populated. The minimum noise level measured was 72 dB on 2.9.03, the maximum was 87 dB on 1.9.03. The noise levels in this area were therefore also crossing the permissible limits.
- 4) Trimbak road:** This road passes through the industrial area of Nashik city and traffic on it increases during the *Kumbha mela*. The minimum noise measured was 62 dB on 26.8.03 and 2.9.03 and the maximum was 72 dB on 17.8.03 and 1.9.03. The measured noise level exceeded permissible limits set for industrial zone.
- 5) MPCB office, Rathi Chowk:** This place also comes under the industrial zone. Here the noise levels ranged from 56 dB to 68 dB. The noise levels in this area exceeded the

permissible limits.

- 6) **Malegaon Stand:** This is the crowded place situated near Ramkund in Panchavati. In this area, the noise levels ranged from 94 dB to 102 dB.

B) *Trimbakeshwar*

Sr.No.	Date	Location-Nashik					
		Ramkund	Tapovan	CBS	Tribak road	MPCB Office Rathi Chowk	Malegaon Stand
1	16.8.2003	76	88	78	68	60	94
	17.8.2003	98	102	85	72	65	102
	18.8.2003	98	97	78	65	58	102
2	26.8.2003	92	95	78	62	61	97
	27.8.2003	95	100	77	70	68	102
	28.8.2003	92	95	72	67	56	97
3	31.8.2003	92	97	73	65	62	98
	1.9.2003	94	101	87	72	67	102
	2.9.2003	90	92	72	62	57	95

Noise level monitored in decibels (dB)

- 1) **Kushavarta:** It is one of the main places of the *Kumbha mela parvanis* at Trimbakeshwar, with noise levels ranging from 68 dB to 85. These values were crossing the permissible limits set for commercial zone.
- 2) **Rural Hospital:** The noise levels in the area ranged from 65 dB to 75 dB. The maximum noise level was recorded as 75 dB on 12.8.03 and 27.08.03. The minimum noise level was recorded as 65 dB on 28.08.03. These values were beyond the permissible limits for commercial zone.

If the total evaluation of the noise levels in all the *parvanis* at the above stations are taken into consideration, it is observed that almost at every station, and in almost all *parvanis*, noise

Sr.No.	Date	Location-Trimbakeshwar	
		Kushavarta	Rural Hospital
1	11.08.2003	75	70
	12.08.2003	85	75
	13.08.2003	76	67
2	26.08.2003	72	70
	27.08.2003	82	75
	28.08.2003	78	65
3	06.09.2003	70	69
	07.09.2003	82	72
	08.09.2003	68	68

Noise level monitored in decibels (dB)

levels exceeded permissible limits.

Recommendations:

The following are the recommendations made based on investigation studies:

- 1) Raw water quality needs to be monitored regularly at Kushavarta as well as Ahilya Godavari Sangam in Trimbakeshwar.
- 2) Regular filtration of Kushavarta water should be undertaken and the installation of a filtration plant is required for this purpose. The filtration plant may be operated during days of heavy human congregation at the auspicious Kushavarta site.
- 3) The health authorities should ensure non-prevalence of any communicable diseases during such mass-bathing congregations near Kushavarta. In future, epidemiological studies should be conducted in order to take preventive measures prior to the mass bathing events.
- 4) The health authorities should ensure proper collection, segregation and disposal of hospital and nursing home waste from the municipal waste, especially during the susceptible period of religious congregation. Random collection and disposal of garbage should be ensured by local authorities immediately during and after the completion of mass bathing episodes.
- 5) Low-cost sanitation facilities should be provided by agencies such as 'Sulabh Shouchalayas' instead of temporary make-shift toilets, which cause unhygienic conditions in the absence of regular cleaning during rains.
- 6) Awareness should be created among all pilgrims for contributing towards cleanliness of the sacred Kushavarta and for maintaining sanitation conditions in the Kushavarta instead of offering coins to the river.
- 7) Cooking and the washing of utensils and clothes should not be allowed in the Kushavarta

8. ENVIRONMENTAL TRAINING

Organizing training in various aspects related to the prevention, abatement and control of pollution is one of the functions of the Board.

With the increase in pollution and enhanced public awareness about its detrimental effects, the task of the Board has become more challenging. To have proper and effective control measures, the staff and officers of the Board need training in the field of technology, methods of laboratory analyses, different survey techniques, monitoring, legal enforcement, etc.

Keeping in view the need for proper monitoring of pollution related issues, the staff and officers of the Board receive regular training to enhance efficiency in their responsibilities. The Board is therefore maintaining rapport with a number of institutions/organizations and agencies engaged in the protection of environment and pollution control.

During the year, staff and officers of the Board were deputed for the following major courses:

- Operation and maintenance of mass spectrometer
- Preparation of air quality management plans
- Automatic and manual sampling of ambient air
- Incineration of waste
- Administration and accounts
- Zero-cost fuels
- Hazardous waste management
- Fly ash utilization
- Environment-based urban renewal

A list of the officers and staff deputed for various workshops/seminars/training is enclosed as *Annexure-IV*

9. ENVIRONMENTAL AWARENESS AND PUBLIC PARTICIPATION

Workshop on environmental issues connected with sugar industries and distilleries

A workshop was organized on 27.05.03 by the MPCB on environmental management of sugar industries and distilleries in Maharashtra state. The workshop was inaugurated by Shri Sushil Kumar Shinde, the Hon. Chief Minister of Maharashtra. Hon. Shri Patangrao Kadam, Minister for Industries, was the Chairman for the workshop. The other dignitaries present for this programme include the Hon. Shri Sharadchandraji Pawar, Chairman, Nationalist Congress Party; Hon. Shri Gopinath Munde, Vice-Chairman, BJP; Shri Prakash Awade, Hon. State Minister for Industries; Shri Ajit Nimbalkar, Chief Secretary of the State; Shri Jayant Kawale, Secretary (Environment) ; Hon. Shri Mushtaq Antulay, Chairman MPCB; and Dr. Munshilal Gautam, Member Secretary, MPCB. The Hon. Board Members were also present on this occasion. Shri Sangeetrao, ex-M.S., MPCB, and Shri P. P. S. Yadavendu, Chief Conservator of Forests, were also present on the occasion. In his speech, the Hon. Chief Minister observed that all though environmental legislations are there to protect the environment, it is the moral and social responsibility of the sugar industries and distilleries to maintain a pollution-free environment. He said that sugar industries should take the initiative for protecting the environment and they should not run their factories without suitable effluent treatment plants. The Hon. Minister Dr. Patangrao Kadam spoke about Krishna river pollution and the main causes behind it. During the afternoon session, Shri Gujal from Vasant Dada Sugar Institute (VSI) delivered a lecture in which he described different methods available to treat the effluent from sugar factories and distilleries. He also explained the cost-benefit analysis of the same.

Shri Subbarao from (EPRF), Sangli, Shri D. R. Rasal, Ex. M.S. and Shri Suryawanshi answered questions raised by the representatives of the sugar factories. Dr. Munshilal Gautam, M.S. (MPCB), also guided the representatives of industries present on this occasion.

World Environment Day celebrations

Every year, 5 June is celebrated as World Environment Day (WED) throughout the world to raise environmental awareness and to strengthen the political, social, industrial responsibility for creating a pollution free environment. The theme for the present year released by UNEP was 'Water: Two billion people are dying for it.' There were several activities suggested by the Central Pollution Control Board in the state on the occasion of World Environment Day. The

Board selected some of these activities for promotion..

In Mumbai, WED itself was celebrated with great enthusiasm. Shri Kumar Ketkar, well known Editor of *Dainik Lokshatta*, inaugurated the function by lighting the lamp within the other chief guests. Dr. Munshilal Gautam M.S., MPCB delivered an introductory speech giving a brief account of the activities handled by the Board during the past year, including the Pune Action Plan, measures taken to control industrial effluent in different industrial estates, legal actions initiated against frequently polluting industries, transparency in consent management etc. The function was chaired by Shri Rajeshji Tope, the Hon. State Minister for Environment and Industry. In his speech the Minister said that government and social organizations and individuals should come forward and act with zeal to protect the environment. He also said that prizes or certificates should be given to those who contribute to the betterment of environment. Shri Kumar Ketkar, Chief Guest for the function, remarked that due to mismanagement of water and ever-increasing population, the people of India will face a water scarcity problem by 2020. He stressed upon the fact that control of the use of water is necessary.

Dr. Bhalchandra Mungekar, vice-chancellor, Mumbai University, expressed his views about natural sources that need to be safe guarded for future generations. He was of the opinion that if water is not protected then there will be wars over water. Shri Mushtaq Antulay, Hon. Chairman MPCB, delivered the vote of thanks. He supported the suggestions of the Hon. Minister and assured the gathering that the Board will not only give an account of its activities of the past year but also present future action plans.

In the afternoon session, Shri S. B. Sahastrabudhe, Transport Commissioner Mumbai, discussed short and long term solutions to curb vehicular pollution, and the measures already taken by the Transport Department in this connection.

Shri S. P. Pendharkar, Chief Project Officer, spoke about the Bandra-Kurla Complex. He was of the opinion that only better environmental planning can solve the environmental problems of the city.

The Chief Forest Conservator, Shri P. P. S. Yadvendu, in his speech said that in every town 33% tree plantation and forest protection is necessary. He also explained why mangrove protection is necessary for the coastal areas.

A TV serial 'Kayapalat' in Marathi, sponsored by MPCB, was shown to the audience to create awareness about environmental issues.

International Day for the Preservation of the Ozone Layer

The Ministry of Environment and Forests, Government of India, in association with the Environment Department, Government of Maharashtra and the Maharashtra Pollution Control

Board observed International Day for the Preservation of the Ozone Layer on 16 September 03 at Rangasharada Auditorium, Bandra, Mumbai. With a view to create wide public awareness, the Central Government has decided to observe the International Day in different State capitals each year. Accordingly, in 2001, the International Day was observed at Hyderabad in Andhra Pradesh, and in 2002 it was observed at Bangalore in Karnataka State. This year the International Day was observed in Mumbai, the capital of Maharashtra. In a joint venture, the State Environment Department, the MPCB, the Maharashtra Nature Park and the Maharashtra State Science Education Institute organized awareness programs throughout the state with assorted activities such as essay and poster competitions. The prizes were distributed to the winners by the Hon'ble Minister for Environment and Forests, Shri T. R. Balu.

The best essays were compiled in a book and published by the Board at the hands of Shri Sushil Kumar Shinde, Hon. Chief Minister of the State.

After lighting the traditional lamp, an original song on the ozone which was translated into Marathi was sung by the students of Nature Park and National Green Course.

The programme started with an introductory speech by Shri Chandramohan, Secretary, MoEF. Shri Chhagan Bhujbal, Deputy Chief Minister of Maharashtra State delivered a talk on this occasion, in which he said that about Rs.1.45 crores had been spent to produce ozone-friendly products in the State. The Minister of Petroleum and Natural Gas explained the steps taken by the Central Government to produce ozone-friendly products. The Chief Minister of Maharashtra clarified the necessity of purchasing only ozone-friendly products by individuals. He said that the State Government and the industries in Maharashtra have taken positive steps to phase out ozone-depleting substances. The Union Minister for Environment and Forests, Shri T. R. Balu, explained the intention behind celebrating the International Day for the Preservation of the Ozone Layer in Maharashtra and he agreed to extend all possible help to the State for producing ozone-friendly products. At the international level, multilateral funds are being made available to phase out the production of ozone-depleting substances and India should avail of such opportunities, he stressed.

Meeting on the implementation of Biomedical Waste (Management and Handling) Rules, 1998 and Amendment Rules, 2000.

A meeting of representatives of municipal corporations and municipal councils was convened by Member Secretary on 11 December, 2003 at the Indian Merchants Chamber, in Mumbai to appraise stake-holders and to decide follow-up actions on defaulters not providing sites for Common Bio-Medical Waste Treatment and Disposal Facilities (CDMWTF) in their jurisdiction/ areas. During the meeting, the MPCB desired to interact on the above concerns with respective regional officers and representatives from municipal corporations and councils and also discuss

the implementation of the Bio-Medical Waste Rules in general. Accordingly, the meeting was arranged by MPCB, and its Chairman presided.

It was observed that some corporations have made arrangements for incineration, some have opted for deep burial and some councils have tie-ups with common biomedical waste treatment and disposal arrangements provided by adjacent municipal councils. The major decisions taken in this meeting were as under:

1. Every municipal corporation/council should make serious efforts to provide sites for treatment /disposal of biomedical waste before 31.12.2003. The MPCB would initiate penal action against defaulters.
2. The MPCB could support corporations to provide CBMWTDF by providing them financial help up to 5% of the total cost of the project.
3. Corporations/councils generating small quantities of biomedical waste could tie-up with facilities developed by adjacent corporations/councils available within a radius of 150 kms for treating their waste. They could do this by upgrading the treatment capacity of the facility concerned. Regional officers concerned would help to facilitate such proposals if these were referred to them by concerned municipal corporations or councils.
4. Before fixing sites for treatment and disposal of biomedical waste, the corporation/ council should consult with officers of MPCB in their jurisdiction/area.

In addition, numerous programmes of mass awareness, public participation and information dissemination were taken up. Print and electronic media, as well as NGOs, were involved.

Sr.No.	Date	Remarks
1	14.02.2004	Meeting in collaboration with Vidarbha Industries Association at Nagpur
2	5.03.2004	Meeting with Nasik Chamber of Commerce and various Industrial associations in the region to review H.W. in the area
3	6.03.2004	Coordination meeting of NGOs organized at Pune in collaboration with CPCB
4	21.03.2004	Meeting at Nagpur to celebrate Water and Forest Day in which school children participated in various program and competition

The details are as under:

Notices are issued in the print media periodically reminding local authorities of the actions necessary for compliance with the directives of the apex court.

Financial assistance given to M/s. Sai Paranjape Films Pvt. Ltd. Mumbai, for its project, *Chakachak* – a film based on environmental protection and the participation of children.

Growth in population and development activities are major challenges for environmental

protection in the country. Poverty is also an important factor, which needs to be redressed properly to achieve goals of sustainable development. Environmental protection is a tall order and requires participation and support from all sectors of society. Most important are public participation and action-oriented programmes involving people. The Hon. Supreme Court has issued directives to the State Government/State Pollution Control Boards to initiate programmes in this regard. Recently in the matter of CWP 657 of 1995 on the subject of hazardous waste management, the Hon. Court has directed the authorities to initiate awareness programmes in the media. The time frame given by the court was eight weeks starting from 14 October 2003.

The Board initiated certain actions for stimulating mass awareness, including publication of news letters, organizing coordination meetings, supporting development of media software for mass awareness which included *inter alia* production of short films and documentaries on the theme of environmental protection.

In order to draw the attention of the public to the degradation and pollution of the environment and to promote improvement and change, M/s. Sai Paranjape Films Pvt. Ltd. initiated the production of a film based on a story involving young school-going children who embark on endeavours of change for the betterment of the environment.

The project received support from various agencies including the Pune Municipal Corporation, the Mumbai Municipal Corporation, USAID/USAEP, the British High Commission, ICICI Bank, etc., in terms of finance, infrastructure and other facilities. The Union Health Ministry, Shri B. G. Deshmukh (former Cabinet Secretary), Ms. Sheela Dixit, Chief Minister of Delhi, also endorsed the project. In view of the above, and considering the usefulness of the project in terms of mass awareness via-a-vis the Water Act, and also to associate the Board with the project, financial support of Rs.10 lakhs along with technical assistance and laboratory facility was extended for shooting the film.

10. ENVIRONMENTAL STANDARDS: TIME SCHEDULE FOR ENFORCEMENT

Municipal Solid Waste (Management & Handling) Rules 2000

Under the Municipal Solid Waste (Management and Handling) Rules 2000, it is mandatory on the part of local bodies to take necessary authorization from the Board. There are 22 municipal corporations, 18 'A' class municipal councils, 60 'B' class municipal councils and 143 'C' class municipal councils in Maharashtra. The provisions under Schedule-I of the Rules have already been brought to the notice of District Collectors and Municipal Commissioners. For effective implementation of the Rules, seminars, workshops and awareness programs were organized in collaboration with the All India Institute of Local Self Government (AIILSG) Andheri, Water Supply and Sanitation Department, Urban Development Department of Government of Maharashtra and representatives of local bodies. In consultation with AIILSG, a checklist has been prepared for existing sites and proposed sites for treatment and disposal of solid waste. This is available on the website of the MPCB. Powers have been delegated to sub-regional officers and regional officers to issue No Objection Certificates to proposed sites selected by the committee constituted under the chairmanship of the District Collector for the management of solid waste. Regional officers have been empowered to issue authorization letters to 'B' and 'C' class municipal councils of the concerned region.

In spite of regular follow-up, only 147 local bodies have applied for the authorization. Of these, authorizations have been granted to 99 local bodies and refused to three local bodies. Forty-two applications have been returned to the concerned sub-regional offices for necessary compliance. Show cause notices have been served on all 22 municipal corporations and 18 'A' class municipal councils for violation of the MSW Rules 2000. Interim notices were served against Thane Municipal Corporation and Mira-Bhayandar Corporation under sec.5 of the Environment (Protection) Act, 1986. Proposals to take similar action against another five municipal corporations – Mumbai, Navi-Mumbai, Kalyan-Dombivli, Pimpri-Chinchwad and Ahmednagar – are under the consideration of the Board. Poor response from local bodies, paucity of funds, non-availability of suitable land for treatment and disposal of solid waste and lack of scientific methods are the causes for delays in the implementation of the Rules.

Criteria for municipal solid waste processing plants and landfill sites

Checklist for siting

A discussion was held with Shri A. K. Jain, Senior Adviser, Municipal Solid Waste Management cell, Government of Maharashtra and the All India Institute of Local Self Government. The following checklist emerged:

1. Location plan, distance from habitation, river, water bodies
2. Permission/views expressed by the District Collector about proposed sites from Town Planning Authority, GSDA, Airport Authority (in case applicable)
3. Distance from water bodies/forest land/national parks/wet land /historical places/habitation/monuments, etc.
4. Quantum of generation of organic and inorganic municipal solid waste
5. Technology details/project details
 - a) Environment-related information as required under the Rules.
 - b) Proposed methodology of waste processing.
6. SRO/RO to give NOC/site clearance letter to municipal council/corporation for setting up municipal solid waste facilities based on the decision taken by the committee appointed by the District Collector for the district.

Site Selection Criteria

7. No-development zone distance to be kept 500 metres from the boundary of the landfill site
8. Capacity of site should be preferably 20–25 years
9. The distance of the site from human habitation should be about 500 metres

Site selection criteria for landfill and processing site for municipal solid waste

10. The distance from the river (HFL) will be as per RRZ policy, as under:
 - a) A-I Above 3.0 kms.
 - b) A-II Above 1.0 kms.
 - c) A-III Above 0.5 kms.
11. Distance from other water bodies (other than notified rivers) beyond 500 metres, avoiding upstream catchments. Location should be preferably downstream.
12. The distance from national monuments and historic places as mentioned in the Rules, duly certified by archeological departments, should be beyond 500 metres.
13. The buffer zone should be 500 metres from the periphery of the new landfill site.
14. The distance from national and state highways should be more than 200 metres.

15. In respect of CRZ, RRZ zones, Rules will be strictly followed.
16. Old quarries and low-lying areas within a city may be earmarked for filling only with construction waste, debris, road waste, road dust, silt from open drains and similar non-toxic inert material only

Biomedical Waste (Management & Handling) Rules 1998

According to the official notification issued to treat biomedical waste in a scientific manner, the Board is empowered to implement the provisions of the Biomedical Waste (Management & Handling) Rules 1998. By studying the information and instructions received from the CPCB and the Ministry of Environment in New Delhi, the MPCB has sought to implement the Rules in different phases. A discussion was held with the Indian Medical Association, the Maharashtra Health System Development Project, the municipal corporation and the institutions working for protection of environment regarding the difficulties faced by the Board while implementing the Rules.

To expedite and avoid paper work, powers have been delegated to the regional officers to grant authorization to hospitals and dispensaries having a bed strength of up to 50. Authorization is not compulsory for clinics and pathology laboratories having 1000 patients/month but an undertaking in the prescribed format is required to be filed.

Considering the suggestions received from the medical associations and the difficulties that have emerged in the implementation of the Rules, some amendments have been made in the authorization letter. Powers have been delegated to regional officers to fine-tune the details of plans for sites to be used, for installing deep burial pits in cities with a population under 50 lakhs and to issue NOCs for these purposes. The last date for getting the authorization under the Rules was 31.12.2002. Those who have not applied by that date will be prosecuted. All municipal corporations and councils have been instructed to make available land for disposal of biomedical wastes.

Present status

A proposal to constitute an expert committee for the disposal of biomedical waste has been submitted to the Environment Department. In Mumbai and other big cities authorization letters with certain conditions have been issued to the transporters to carry biomedical waste to Common Waste Treatment and Disposal facilities. Workshops were organized at District and Tehsil level with the participation of the Commissioner, Medical Associations and local officers of the Board. Information in respect of BMW, particularly regarding authorization, application, fees, etc., has also been launched on the website. An undertaking that Mumbai Municipal Corporation is responsible for the treatment and disposal of biomedical waste generated from all municipal hospitals within the jurisdiction of the corporation has been taken from the Solid

Waste Management Department of the corporation. Notices have been published in newspapers to remind hospitals that have not applied for authorization that they should do so or face legal action. In order to bring all hospitals in the state in compliance with the Biomedical Waste Rules, a decision has been taken to recruit special staff for which the funds are being received from the MoEF.

The statement below shows the number of hospitals, authorizations granted and the quantity of biomedical waste generated as on 31.3.2004:

Sr. No.	Region	No. of Hospitals	No. of Hospitals applied for authorization	No. of authorization granted	Quantity of waste generated KG/D	Quantity of waste treated KG/D
1	Mumbai	1560	610	400	6665	3219
2	Thane	324	323	71	1858	140
3	Kalyan	399	205	43	1008	315
4	Navi-Mumbai	130	118	50	325	200
5	Raigad	384	203	148	180	--
6	Nashik	1871	214	171	4442	3900
7	Aurangabad	1345	118	51	3122	1700
8	Kolhapur	1477	274	252	2580	1525
9	Pune	1690	300	234	902	460
10	Nagpur	868	261	81	2017	180
11	Amravati	1003	265	138	2068	360

Hazardous Waste Management

The scenario in Maharashtra

The High Powered Committee on Management of Hazardous Wastes (HPC) in its report indicated that about 4.4 million tonnes of hazardous waste is generated in India. This was based on the information provided by the State Pollution Control Boards/Pollution Control Committees (SPCBs/PCCs). Out of this, 2.08 million tonnes of hazardous waste is generated in the State of Maharashtra alone. There are 3427 hazardous waste generating units, as per the criteria provided in the Hazardous Wastes (Management and Handling) Rules, 1989 (prior to the amendments in the year 2000 and 2003). Most of the hazardous waste generating units are located in and around Thane-Mumbai, along the coastal belt. It may be appreciated that the issue of management of hazardous waste in Maharashtra is not comparable with other states in terms of volume of waste, potential of the problem, approach to enforcement, institutional requirements, etc.

The Maharashtra State Industrial Development Corporation (MIDC) has been notified by the State Government as an authority under Rule 8 of the Hazardous Waste Rules to promote development of common facilities for treatment, storage and disposal of hazardous wastes

(CHWTSDF). Recently, two TSDFs at (a) Taloja (b) TTC industrial areas of MIDC at New Mumbai have become operational. These are on Build-Operate-Own (BOO) basis. MIDC has planned TSDFs at Buti Bori (for Nagpur and Amravati region), Shendre (Aurangabad region), and Ranjangaon (for Pune, Kolhapur and Solapur region). There is also a proposal to set up a common hazardous waste incinerator at Mahad exclusively for industries at Mahad, Roha and Lote-Parshuram industrial estates. A note on steps taken by MIDC in collaboration with MPCB regarding development of TSDFs is summarized below:

Sr.No	Location	Capacity	Status
1	Taloja, New - Mumbai	SLF: 120000 TPY Incinerator : 2.0 TPH	Operational (2002)
2	TTC, New - Mumbai	SLF : 10000 TPY	Operational (2003)
3	Buti Bori (Nagpur)	SLF : 50000 TPY Incinerator : 2.0 TPH	Operator short-listed through ICB Lol to be issued by January, 2004
4	Ranjangaon (Pune)	SLF : 50000 TPY Incinerator : 2.0 TPH	Operator short-listed through ICB Lol to be issued by January, 2004
5	Shendre (Aurangabad)	SLF : 50000 TPY Incinerator : 3.0 TPH	ICB in progress Operator may be finalized by March, 2003
6	Mahad	Incinerator : 3.0	ICB in progress Operator may be finalized by March, 2003

Clean technology for re-refining/recycling of used oil/waste oil

As per rule 21 of the Hazardous Waste (Management and Handling) Rules, 1989, it is mandatory for all industries to adopt clean technology within six months from the date of publication (21 May 2003) of the Amendment Rules, failing which the registration of the concerned unit shall cease to be valid. Further, the SPCBs are required to submit compliance reports within three months to the Central Pollution Control Board.

The Supreme Court also ordered that re-refining/recycling of used oil/waste oil shall be done through application of clean technology.

The Maharashtra Pollution Control Board issued public notices in several newspapers informing all concerned regarding the new provisions under the Rules and suspended authorizations issued to all used oil/waste oil re-refiners/recyclers. The Member Secretary appointed an Expert Committee for verification of compliance in terms of clean technology applications. The Committee consists of experts from the University Department of Chemical Technology of Mumbai University, Central Pollution Control Board, Industry Associations, MPCB including the regional officer (HQ) MPCB. The Committee has been functioning since 18 December 2003.

Shifting of hazardous wastes from unauthorized dumps

The Court has directed that illegally and unauthorisedly dumped hazardous wastes shall be lifted and sent to secured landfills (SLF). In case of hazardous wastes dumped in industrial estates, MPCB requested the MIDC to immediately remove such wastes and have them sent to SLFs. Regional officers are pursuing the matter with the MIDC. If required, suitable directions will also be issued to MIDC under section 5 of the Environment (Protection) Act, 1986.

In case of illegal dumps of hazardous waste outside MIDC industrial estates, an inventory of such wastes is being prepared. MPCB shall prepare a rehabilitation plan for these dump sites as per court orders.

Implementation of transport guidelines

The Hon. Court's order indicated that transport of hazardous waste shall be done strictly as per rule 7 and guidelines issued by the Central Pollution Control Board. In compliance with the orders of the Court, MPCB issued directions to all hazardous waste generators, auctioneers, buyers, sellers, transporters and others involved in the transportation of hazardous wastes that they must comply with the CPCB guidelines, failing which MPCB would initiate legal action under the Environment (Protection) Act, 1986. Further, pending verification of the compliance with the guidelines, MPCB revoked authorizations issued to all transporters of hazardous wastes. A public notice was issued to this effect by MPCB in leading newspapers which appeared twice with a gap of one week in December, 2003.

Display of information regarding authorization

Directions are issued to industries to display information regarding authorization at the entry gates. A public notice to this effect has been issued through leading newspapers in the State.

Burning of hazardous and non-hazardous wastes on beaches

An advertisement has been issued in all the leading newspapers in the State informing all concerned regarding prohibition of burning of hazardous and non-hazardous wastes on beaches. Suitable instructions are being issued to all sectoral departments in the State Government to comply with the directions of the Hon. Court. Further, field officers of MPCB located along the coastal line have been instructed to maintain strict vigil in the matter and to report any violations for taking legal action. A request has also been made to the State Government to issue a notification in the matter, if necessary.

11. PROSECUTIONS LAUNCHED AND CONVICTIONS SECURED

The Board functions as an environmental law enforcing body in the State. In order to regulate and control pollution from different sources, the Board maintains constant vigil on industries as well as on local government bodies. Through the consent order, certain conditions are imposed on industrial and other units which which they must comply. These conditions are based on the type and load of pollution generated. Also they depend on the environmental conditions in which the industry exists. The Board regularly conducts environmental monitoring of polluting units and pursues them for necessary installation of pollution control equipment. Notices are served for necessary compliance with pollution control norms. Legal action under appropriate sections of the Acts is the last remedy for defaulting units that fail to comply with the consent conditions even after notices have been served. As a principle of natural justice, the defaulting units are also called for a hearing in order to better understand their problems and to consider solutions. It is the Board's experience that large-scale industries generally take necessary measures for pollution control. Some medium and small scale industries do not take sufficient steps due to constraints like space, money and skilled labour to operate their pollution control systems.

During the year 2003-04, several notices were issued by regional offices to industries in order to procure necessary compliance. The region-wise break up is given below:

Regional Offices	To Upgrade Treatment Facility	To Install Treatment Facility	To Achieve Standards
Mumbai	10	-	7
Navi Mumbai	10	-	418
Thane	46	4	260
Kalyan	48	2	8
Raigad	-	-	526
Pune	139	32	750
Nashik	72	133	595
Nagpur	327	21	745
Aurangabad	45	18	106
Amravati	1	42	38
Kolhapur	28	-	138
TOTAL	726	252	3591

The status of prosecutions launched and convictions secured as of March 2004 is provided below:

a) Under Section 43, 44 of the Water (Prevention and Control of Pollution) Act, 1974

- | | |
|-------------------------|-----|
| (1) No. of cases filed | 297 |
| (2) Convictions secured | 56 |

b) Under Section 33 of the Water (Prevention and Control of Pollution) Act, 1974

- | | |
|-------------------------------|-----|
| (1) No. of applications filed | 140 |
| (2) Orders secured | 87 |

c) Under Section 39 r. w. 21 of the Air (Prevention and Control of Pollution) Act, 1981

- | | |
|-------------------------|-----|
| (1) No. of cases filed | 146 |
| (2) Convictions secured | 112 |

d) Under Section 22A of the Air (Prevention and Control of Pollution) Act, 1981

- | | |
|-------------------------|---|
| (1) No. of cases filed | 3 |
| (2) Convictions secured | 1 |

There were a number of cases pending in various courts for long periods of time due to which no effective steps were being taken by the certain plants for control of pollution from their units. For effective and speedy disposal of such cases, the provisions of section 33A under the Water Act 1974 and section 31A of the Air Act 1981 were invoked. Under these provisions, polluters can be compelled to submit an undertaking with a time-bound program for up-gradation/modernization or any requisite alteration in their pollution control devices. The number of proposed and final directions issued during the year is as stated below:

Region	No. of directions issued to industries			
	U/S 33A of Water Act		U/S 31A of Air Act	
	Proposed	Final	Proposed	Final
Mumbai	3	-	1	-
Navi Mumbai	21	1	-	-
Raigad	20	-	3	-
Thane	21	10	16	13
Kalyan	35	33	1	3
Pune	71	3	15	5
Nashik	12	-	2	-
Nagpur	38	12	10	4
Aurangabad	26	18	6	-
Amravati	24	-	12	-
Kolhapur	42	37	-	1
TOTAL	313	114	66	26

12. FINANCE AND ACCOUNTS

(Report is being submitted separately)

13. IMPORTANT MATTERS DEALT WITH BY THE BOARD

Fly ash utilization

The MoEF issued a notification on 14.09.1999 for fly ash utilization. The objectives of the notification were to protect the environment and conserve top soil and to prevent dumping and disposal of fly ash discharges from coal/lignite-based thermal power plants on land. There was a need to restrict escalation of use of top soil for manufacturing of bricks and for promoting utilization of fly ash for the purpose instead.

The new notification required that:

- A) in the manufacture of clay bricks or tiles or blocks, 25% of ash mixing would be henceforth necessary;
- B) within a radius of 50 to 100 km from thermal power stations, every construction must use fly ash bricks in the following proportion within the attendant time schedule given:
 - i) 25 % by 31 August 2004.
 - ii) 50 % by 31 August 2005.
 - iii) 75 % by 31 August 2006.
 - iv) 100 % by 31 August 2007.
- C) Construction activities within a radius of 50 km from thermal power stations shall comply with the following time schedule:
 - i) 50 % by 31 August 2004
 - ii) 100 % by 31 August 2005
- D) Construction agencies include housing boards and private sector buildings, apartments, hotels, resorts, etc.
- E) The above construction agencies have to submit a compliance report to the Government who is the enforcing authority;
- F) The authority for ensuring the use of a specified quantity of ash as per above points shall be the concerned regional officer of MPCB;
- G) All the units manufacturing fly ash bricks must obtain consent from MPCB;
- H) In case of non-compliance with the provisions of the notification, MPCB will cancel the consent and shall move the district administration for cancellation of the mining lease.

MSEB thermal power plants are the principal consumers of coal and they generate ash in large quantities. There are seven thermal power plants in Maharashtra. Coal-based thermal power generating capacity of MSEB is 6396 MW. The details of fly ash generation and utilization are given below:

Sr.No	TPS	Capacity (MW)	Ash generation In MT/Day	Ash utilization %
1	Chandrapur	2340	12000	5
2	Koradi	1080	5550	4.5
3	Khaperkheda	840	2800	21
4	Paras	58	250	35
5	Bhusawal	478	2200	47
6	Nashik	910	3300	11
7	Parli	690	3300	12

Efforts by MSEB

- MSEB is exploring all possibilities and making sincere efforts for the utilization of fly/pond ash generated by its power stations with a view to achieve the targets set by MoEF.
- MSEB has chalked out a tentative action plan for the utilization of ash generated by its various thermal power stations.
- MSEB has taken various steps to promote fly ash utilization as per the action plan. The success of the steps taken will largely depend upon the co-operation and co-ordination among the various government agencies such as CPWD, PWD, MPCB, various municipalities and local bodies, etc.
- Key users of ash at present include brick and cement manufacturers.
- There has been no response from PWD, CPWD or the Irrigation Department.
- Ash generated at all thermal power stations is made available free of cost and given free to entrepreneurs for use.
- MSEB is also in the process of looking at bulk users of dry fly ash with the usual promotion activity for the utilization of dry fly ash/pond ash in the field of brick manufacturing, manufacturers of other building material, in agriculture, etc.

As per the MoEF GOI notification issued on 14.09.1999 and amended on 27.08.2003, brick manufacturers must use 25% fly ash. Accordingly, brick kilns that are located within a 25 km radius have to use 25% of fly ash by weight.

To encourage the use of fly ash, MSEB along with MPCB and the Vidarbha Industries Association organized workshops at Nagpur and Chandrapur on 14 and 15 February 2004, in

which a number of entrepreneurs from these areas participated. During these meetings, the MPCB emphasised the need to utilize fly ash as raw material for brick kilns, for the manufacture of pozzallana cement, etc. Since there are four cement plants located in the Chandrapur district, they have been asked to continue the use of fly ash at the maximum level. The collection of fly ash by thermal power plants in the ash pond itself shows that air pollution control measures provided by these plants i.e. ESP are working satisfactorily. The ESP is able to arrest 99% of the ash which would otherwise have been emitted into the atmosphere and created great nuisance/air pollution in and around these plants. The responsibilities of the MPCB as per the notification on fly ash utilization are listed below:

MPCB

- 1) To carry out a survey and identify brick manufacturing units that are located within 100 km radius from coal/lignite-based thermal power plants;
- 2) To verify compliance with the provisions of the fly ash notification;
- 3) To grant consents under the Air and the Water Act;
- 4) In case of non-compliance with the provisions of the notification, MPCB will cancel the consent and shall move the district administration for cancellation of the mining lease.

Responsibilities of thermal power stations:

- 1) Thermal power plants should make fly ash available free of cost;
- 2) They shall maintain monthly records of fly ash made available to brick units;
- 3) They shall constitute a dispute settlement committee comprising of the member secretary of the MPCB and the GM of the thermal power station, and a representative of the Brick Manufacturing Association. This committee will ensure unhindered loading and transport of ash without undue loss of time;
- 4) The thermal power station shall make available ash for at least 10 years without any payment or any other consideration;
- 5) The thermal power station must ensure the availability of a fair quality of ash to each user, including brick kilns;
- 6) An action plan for the full utilization of ash within nine years shall be submitted within six months to the CPCB and the MPCB;
- 7) Phasing out dumping of fly ash
Action plan shall cover:
 - i) 20% of fly ash utilization within 3 years;
 - ii) 100% of fly ash utilization within 12 years;

- 8) Thermal power stations are required to submit their action plans to CPCB, MPCB and the regional office of the Environment Ministry within six month of the publication of the notification.

The Board is keeping in close touch with the MSEB and following up these matters periodically.

Common effluent treatment plants (CETP) for industrial clusters

Industrial waste water collection and treatment is considered a negative externality by industries. In the case of small and medium enterprises (SMEs), the viability of pollution control systems is inhibited by technical and financial problems. Moreover, the quantity of effluent is small but highly toxic and/or non-biodegradable. The presence of persistent organic compounds in the waste water from SMEs manufacturing chemicals and petrochemicals is also of much concern due to the high content of refractories. Common effluent treatment plants have therefore been promoted to address the water pollution problems due to SSIs located in the industrial estates.

The formation of a CETP is often seen as a collective action for a cooperative solution involving stake holders for pollution control.

Unfortunately, CETPs can neither be defined as a fully voluntary negotiation nor a direct result of regulation by MPCB. In fact, CETPs are the outcome of a cohesive collective response from industries under the influence of:

- a) World Bank finance
- b) Government acceptance of such a scheme
- c) Judicial pronouncement in some cases
- d) Various area specific factors

Merely providing a CETP does not ensure its sustainable and robust operation. In most cases, there is a divergence between the initial proposal for a CETP and the actual commissioning of the CETP. The factors considered at the time of planning and implementation of the project do not always hold good just after completion of the project. There is a need to explore and analyze various failures of CETPs. On one side we continue to promote CETPs and grant them capital subsidies, but the desired results are not seen in reality. CETPs have become a major source of water pollution and hazardous waste generation.

In view of the above, the Board is going to undertake a performance evaluation of the CETPs as they exist today and also analyze various reasons for their failure or even success as the case may be. This exercise should lead to certain recommendations and actions that could be taken up systematically over a period of time. This is with the objective of ensuring proper collection, treatment and disposal of waste water in industrial estates.

Studies will be conducted for the evaluation of CETPs at Tarapur, Lote-Parshuram, Mahad, TTC, Taloja, Patalganga-Rasayani, Dombivali and Badlapur.

Proposed project on environmental improvement at religious places

Religious places, generally, are in small cities or towns with a population of less than two lakhs. Due to the huge conglomeration of people at these small places, several environmental problems are created which adversely affect public health and environment. The pollution problems arising out of such activities are water pollution of rivers/lakes, pollution due to disposal of municipal solid waste, disposal of plastic bags and containers, noise pollution, dust pollution, contamination of drinking water. Adequate civic/sanitary amenities are generally lacking at these places.

Projects at Shirdi Devasthan, Shani-Shinghanapur Devasthan, Alandi Devasthan and Bhima Shankar Devasthan were considered in the first phase.

The DPR shall be prepared with inputs from various experts/agencies/organizations. There will also be interaction with the local authorities. After completion of the DPR, the project shall be submitted to the Central Government for financial assistance and the counter part contribution shall be provided by the Board from cess funds. There will also be appropriate contribution and commitment from the local bodies towards maintaining the facilities created under this project. In case of small projects up to Rs.75 lakhs, the Board may take up the project implementation from its own funds in collaboration with the local authorities, with or without central assistance. A suitable agreement in this regard is also required to be signed for proper implementation of the project and for delineating the responsibilities of stake holders for successful implementation.

Computerization of activities in MPCB for enhanced efficiency and for transparent operations

The Board has undertaken computerization of various activities in order to enhance efficiency in its work as well as bring in transparency in its operations. The MPCB is responsible for the implementation of several environmental laws and regulations. The Board is also required to sanction/grant various clearances for development projects based on environmental considerations. Laboratories are required to provide services for sample analysis, monitoring, survey and environmental surveillance. The process is sometimes lengthy as it is cumbersome due to the multi-disciplinary nature of work. Since Maharashtra is a highly developed state, the volume of work is also very large. In order to keep pace with the development and expectations of the public, it is necessary to expedite the process of grant of clearances. A target of a 30 days to grant clearances is necessary. For this networking, it is necessary to establish a wide area network with connectivity of MPCB, HQ with its regional offices and also with CPCB/ Ministry of Environment and Forests, New Delhi. There is also a need to modify the existing

website of the Board and upgrade the information displayed there on a regular basis. Applications for consent management should be handled by e-mail and the Board should consider the granting of e-consents. It should also be possible to monitor on-line, the progress of various applications. For this purpose the consent management needs to be web-based and manual involvement should be minimized for efficiency and transparent operations.

The major time delay in the consent procedure occurs during the time gap between the receipt of application and verification/visit report by the concerned officer of the Board. For this purpose, it is proposed to involve processing of applications by a chartered engineer. The application, along with the report of the chartered engineer in the prescribed format, shall be submitted to the Board through the internet. The Board shall then consider grant of consent accordingly. Further compliance monitoring/surveillance shall be made by the Board's field officials. This one act itself will reduce the time factor by three months. Based on the software used by the Ministry of Environment and Forests for grant of environmental clearances, suitable software will be developed for the functioning of the MPCB.

In view of the above, a system requirement study has been undertaken. The expenditure in this regard can be covered by cess funds.

Strengthening and reorganization of the functional structure of MPCB

The Board approved the proposal for the strengthening and reorganization of its functional structure. The Board also considered the need for the creation of additional posts. It was decided that proposals regarding the creation of the posts of senior Law Officer (2), Materials Officer (1) and Executive Engineer (Civil) (1) should be prepared and pursued with the State Government. We may also request the State Government to expedite its sanction of the Board's proposal (already submitted) regarding the creation of the post of PRO.

As regards other requirements, it was decided that a study of the performance of the Board in terms of its mandate and duties under the law needs to be done. Such a study should also include financial and technical aspects relating to infrastructure, manpower, revenue generation, creation of new posts, etc. The Member Secretary suggested that a specialized agency such as Crisil Advisory Services (CRISIL) may be considered for the purpose. The Board was informed that M/s. CRISIL has considerable expertise and experience in conducting such studies. In addition, the organization has technical and economical expertise. M/s. CRISIL has done techno-economic feasibility studies for MIDC, CPCB, U.P. Pollution Control Board, Haryana Pollution Control Board and Delhi Pollution Control Committee for development of CHWTSDF. CRISIL is also working with the Maharashtra Government in the power sector and has an MoU with the MSEB. Thus, it was decided that it would be appropriate to engage CRISIL for the MPCB work study. Both the Chairman and Member Secretary were authorized by the Board to take further steps in this regard. Expenditure on this account shall be made

from cess funds.

Continuation of zoning atlas activity during Tenth Five Year Plan

Proper siting of industry/industrial estates plays a vital role in sustainable development as well as in protection and conservation of natural resources in the surrounding environment.

In 1994, the Ministry of Environment and Forests (MoEF), Government of India (GOI) announced the need to introduce a development concept that was environmentally sound and compatible with economic policy. In 1995, the MoEF introduced a programme popularly known as the 'zoning atlas' with the financial assistance of the World Bank through the Central Pollution Control Board (CPCB), Delhi and technical assistance of GTZ, Germany.

The MoEF with the Gol sanctioned the first project under the programme for the MPCB in the year 1994 for preparation of a 'Zoning Atlas for Siting of Industries] (ZASI) for Ratnagiri district. The project was outsourced to M/s. MITCON Ltd., Pune. In the second phase, Pune and Aurangabad districts were allotted projects for preparation of ZASI along with provision of project staff and funds under the World Bank project. Accordingly, in March 2000, the MPCB decided to create a separate cell within the Board from the available manpower with it for the programme.

In August 2001, MPCB deputed two full-time scientists from its available staff to the project. In October 2001, CPCB Delhi communicated its approval for the appointment of staff on contract through direct appointment at Board level after following due procedures prescribed by CPCB/MoEF. MPCB accordingly appointed three planners, one accounts assistant and one data entry operator for the project from January-February 2002.

For capacity building under the project, CPCB/MoEF provided software and hardware such as a light table, computer (PC), laser printer, LCD projector, GIS software, internal connection for telephone, colour xerox copier, plotter, high end computer, digitizer, UPS system, miscellaneous cartographic items, etc. worth Rs.26.25 lakhs (approx.). Recently, the MPCB created separate infrastructure on an area of 1000 sq. ft. for a zoning atlas cell at Raigad Bhavan, Navi Mumbai.

CPCB has approved the zoning atlas programme and sanctioned financial assistance for

Sr.No.	Activity	Cost (Rs. Lakhs)
1	Contractual staff	5.50
2	Travel	0.50
3	Operational costs, including data procurement, stationary, etc.	0.35
4	Miscellaneous	0.15
TOTAL		6.50

the period July 2003 to March 2004 under the tenth plan as below:

MPCB and CPCB have entered into an agreement on 29.09.03 for continuation of the project till the end of the Tenth Five Year Plan. As per the terms of the agreement, it is proposed to share the expenditure of project staff salary as given below. CPCB has agreed to continue staff and reimburse the salary of two assistant environmental planners, two junior environmental planners, and one data entry operator.

Sr.No	Designation	Total No. of Posts	Posts to be covered with CPCB Funds	Posts to be covered with MPCB Funds
1	Project Leader	1	-	1 (Part Time)
2	Asst. Env. Planner (Sci.)	2	2 (2)	-
3	Asst.Env. Planner (Engg.)	2	-	2
4	Jr. Env. Planner	4	2 (2)	2 (1)
5	Data Entry Operator	1	1 (1)	-
6	Account Assistant	1	-	1
7	Asst. Draughtsman	1	-	1 (1)
8	Peon	1	-	1 (1)
TOTAL		13	5 (5)	8 (3)

Figures in brackets indicate the present deployment of manpower.

The Chairman, CPCB, had convened a meeting of Chairmen/Member Secretaries of all SPCBs to discuss the utility and need of continuing zoning atlas activity as an activity of the SPCB after the Tenth Five Year Plan period. During the meeting, all SPCBs agreed in principle to continue the activity and to extend partial financial assistance towards salary of staff from cess/Boards' funds till the tenth plan, and to subsequently continue the activity from cess funds with the approval of the State Governments.

During the meeting, it was decided to re-organize the priority areas for zoning atlas activity to ensure immediate implementation of zoning atlas results. The following activities were proposed:

- 1) Preparation of district environmental atlas
- 2) Preparation of state environmental atlas
- 3) Creation of state industrial siting guidelines
- 4) Environmental management plans for urban areas, mining, tourism, religious places and ecologically fragile areas
- 5) Eco-industrial estate planning

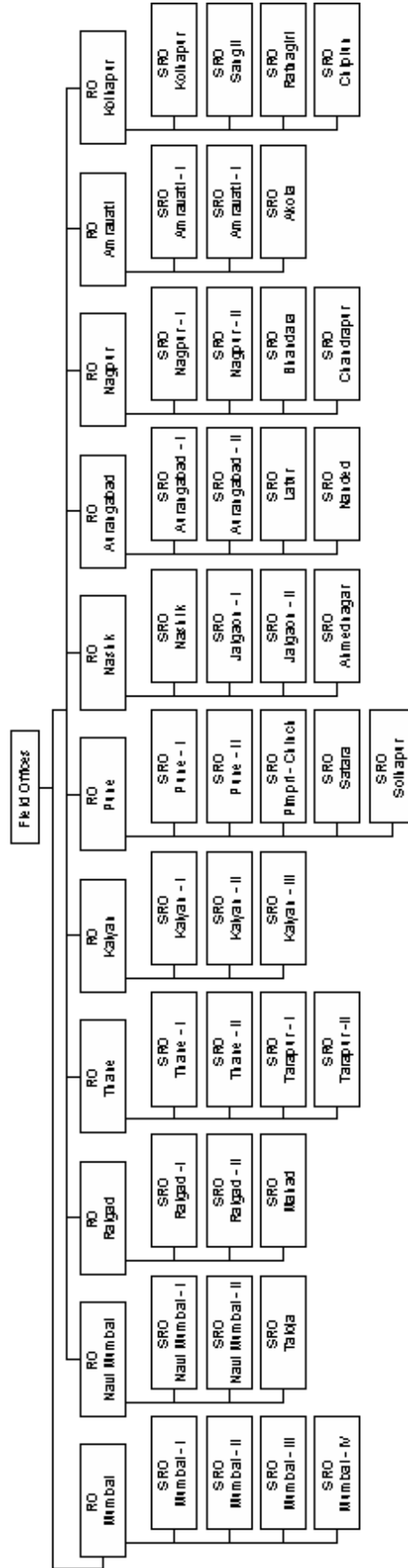
Annexure I

List of Board Members

Sr.No	Name	Designation
1	Shri Mushtaq Antulay	Chairman
2	Principal Secretary, Environment Department, Government of Maharashtra	Member
3	The Secretary, Public Health Department, Government of Maharashtra	Member
4	Principal Secretary, Urban Development Department, Government of Maharashtra	Member
5	The Secretary, Home (Transport) Department, Government of Maharashtra	Member
6	The Chief Executive Officer, Maharashtra Industrial Development Corporation	Member
7	Managing Director S.I.C.O.M	Member
8	Shri. Suresh Deshmukh	Member (w.e.f. 14.03.2001)
9	Shri. Vijay Kurtadkar	Member (w.e.f. 14.03.2001)
10	Shri. Hemant Takle	Member (w.e.f. 14.03.2001)
11	Shri Saleem Patel	Member (w.e.f. 17.05.2002)
12	Shri Rajeshwar Niture	Member (w.e.f. 11.03.2003)
13	Shri Amol Patil	Member (w.e.f. 02.01.2004)
14	Shri Pandurang Tayade	Member (w.e.f. 01.06.2004)
15	Shri Vipin Chokhawala	Member (w.e.f. 14.06.2004)
16	Dr.D.B.Boralkar	Member Secretary (w.e.f. 14.11.2003)

MAHARASHTRA POLLUTION CONTROL BOARD

Field Offices Chart



Annexure III

Staff strength as on 31.03.2004

Sr. No.	CADRE	Sanctioned	Filled in	Vacant	REMARKS
I	A - TECHNICAL				
1	Air Pollution Abatement Engineer	1	1	0	
2	Water Pollution Abatement Engineer	1	1	0	
3.	Regional Officer	13	13	0	
4	Sub-Regional Officer	53	53	0	
5	Deputy Engineer	1	1	0	
6.	Field Officer	96	96	0	
7.	Statistical Officer	1	1	0	
8.	Statistical Asst.	1	1	0	
9.	Draughtsman	1	1	0	
10.	Field Inspector	8	8	0	
11.	Asst. Draughtsman	2	2	0	
12.	Field Asst.	42	42	0	
13.	Tracer	7	7	0	
14.	Electrician	2	2	0	
15.	Instrument Fitter	1	0	1	
TOTAL		230	229	1	
II	B-LEGAL				
1.	Law Officer	2	2	-	
2.	Asst. Law Officer	2	2	-	
3.	Legal Asst.	4	4	-	
TOTAL		8	8	-	
III	C-SCIENTIFIC – A				
1.	Principal Scientific Officer	1	1	0	
2.	Senior Scientific Officer	3	3	-	
3.	Scientific Officer	9	9	-	
4.	Junior Scientific Officer.	26	22	4	
5.	Junior Scientific Asst.	36	36	-	
6	Laboratory Asst.	7	7	-	
TOTAL		82	78	4	
IV	D- ACCOUNTS & ADMINISTRATION				
1.	Chief Accounts Officer	1	0	1	
2.	Accounts Officer	2	2	0	
3.	Administrative Officer	1	1	0	
4.	Asst. Secretary	1	1	0	
5.	Asst. Accounts officer	2	2	0	
6.	Head Accountants	15	15	0	
7.	Senior Auditors	1	1	0	
8.	Inspector of stores	1	1	0	
9.	Store Superintendent	1	1	0	
10.	Office Superintendent	1	1	0	
11.	Library Asst.	1	1	0	
12.	Senior Steno	5	5	0	
13.	Junior Steno	26	26	0	
14.	First Clerk	15	15	0	
15.	Senior Clerks	50	50	0	
16.	Junior clerks	54	54	0	
17.	Cashier	1	1	0	
18.	Daftari	2	2	0	
19.	Drivers	54	54	4	
20.	Roneo Operator	1	1	0	
21.	Naik	2	2	0	
22.	Chowkidar	20	20	0	
23.	Peons	153	105	48	
24.	Storekeeper	2	2	0	
25.	Store Clerk	8	8	0	
26.	Sweeper	3	3	0	
TOTAL		423	371	52	

Abstracts

A	Technical	230	229	1
B	Legal	8	8	0
C	Scientific	82	78	4
D	Accounts & Administration	423	371	52
TOTAL		743	686	57
	Member Secretary	1	1	0
	Chairman	1	1	0
TOTAL		745	688	57

Annexure IV

Seminars/Workshops & Training Courses attended by the Board Staff/Officers (2003-2004)

Sr. No.	Name & Designation	Training Programme	Place	Period
1	Shri N.A. Mogal, S.O.	Training in operation and maintenance on mass spectrometers	U.S.A.	20.5.2003 to 23.5.2003
2	Dr. A. R. Supate, S.S.O.	Overseas training Programme: Environmental management and case studies of implemented projects	Germany	19.5.2003 to 20.6.2003
3	Shri V. V. Shinde, S.R.O. Shri H.D. Pardeshi, S.R.O. Shri S.P. Patil, F.O. Shri S.M. Reddi, F.O.	Training in preparation of air quality management plans	IIT Mumbai	21.4.2003 to 25.4.2003
4	Shri B.P. Kalme, S.R.O. Shri A.D. Gore, S.R.O. Shri D.M. Chokunde, S.R.O. Shri S.S. Kotwal, S.R.O.	Training in reviewing plants for air pollution control devices	IIT Mumbai	7.4.2003 to 11.4.2003
5	Shri. N.S. Loalkar, F.O. Shri S.R. Bhosale, F.O. Shri A.V.Patil, F.O. Shri S.R. Said, F.O.	Training Programme: Continuous (automatic) and manual sampling of ambient air	NPC Chennai	14.4.2003 to 18.4.2003
6	Shri B.D. Kude, R.O. Shri V.N. Munde, R.O.	Training Programme: Polices and strategies for air quality management	IIT Mumbai	14.4.2003 to 18.4.2003
7	Shri S.V. Aavati, F.O. Shri P.M. Bhosale, F.O.	Training Programme: Air pollution from mobile source.	NEERI Nagpur	14.4.2003 to 18.4.2003
8	Shri N.S. Loalkar, F.O. Shri A.V. Patil, F.O. Shri Sachin Hadkar, F.O. Shri A.G. Jadhav, F.O.	Training in continuous (automatic) and manual sampling of ambient air	N.P.C Chennai	21.4.2003 to 25.4.2003
9	Shri S.S. Gadave, S.R.O. Shri B.J. Khale, S.R.O.	Training Programme: EIA of industrial projects	NEERI Nagpur	28.4.2003 to 2.5.2003
10	Shri N.G. Nihul, S.R.O. Shri P.M. Patil, S.R.O.	Training in the preparation of air quality management plans	NEERI Nagpur	5.5.2003 to 9.5.2003
11	Shri B.S. Gadari, J.S.A.	Training Programme: Sampling and analysis methods of ambient air pollutants and resource emissions including site selection guidelines and statistical analysis and interpretation of air quality data	TNPCB Chennai	12.5.2003 to 23.5.2003
12	Shri S.Y. Aivale, S.R.O. Shri Y.B. Sontake, R.O.	Training Programme: Air pollution from mobile sources	IOC Faridabad	19.5.2003 to 23.5.2003
13	Shri P.M. Mahiare, F.O. Shri R.S. Dapade, F.O. Shri M.D. Bivapurkar, F.O.	Training for review of EIA reports	NEERI Nagpur	26.5.2003 to 30.5.2003
14	Shri V.L. Korade, S.O.	One-day seminar on waste incineration	Delhi	30.4.2003
15	Shri B.D. Wadde, S.R.O.	Training Programme: Characterization of hazardous waste, its pretreatment and methodology for assimilatory capacity of hazardous waste disposal site	NEERI Nagpur	27.5.2003 to 30.5.2003
16	The list of officers and employees of the Board.	Training in administration and accounts	Pune	23.6.2003 to 27.6.2003
17	Shri V. L. Khorde, S.O. Shri A.V. Mandvakar, J.S.O.	Seminar on hospital clinical waste Hazard Management and Infection control	Bangalore	18.6.2003 to 21.6.2003

18	Revised list of offices and employees of the Board.	Training in Administration and Accounts	Pune	23.6.2003 to 27.6.2003
19	Shri M.T. Gupta, J.S.O. Shri T.P. Chovan, J.S.A.	Training in Characterization of Hazardous Waste, its Pretreatment, and Methodology for Assimilatory Capacity of Hazardous Waste Disposal Site	Nagpur	28.7.2003 to 31.7.2003
20	The list of officers and employees of the Board.	Training in Administration and Accounts	Pune	15.9.2003 to 19.9.2003
21	Shri N.B. Choudhari, S.R.O. Pune 1 Shri K.L. Hasabnis, F.O. Pune	Training in Air Monitoring	Pune	10.9.2003 to 12.9.2003
22	Shri D.K. Khedkar, S.R.O. Pune 2 Shri R.A.Rajput, F.O.	On source Apportionment Training	Pune	17.9.03 to 19.9.03
23	Officers and staff members of the Board	Administrative and Accounts training (Yashada)	Pune	15.9.03 to 19.9.03
24	Shri B.S. Gadhari, J.S.A.	Asian Conference on Environmental Education and Civil Society	Delhi	7.11.03 to 9.11.03
25	Officers and staff members of the Board	Administrative and Accounts training	Pune	27.10.03 to 31.10.03
26	Shri B.B. Nimbarte, R.O.	Workshop on Oil Spills and Claims by International Oil Pollution Compensation Fund (IOPC) London	Kochi, Cochin	20.11.2003 to 21.11.2003
27	Shri D.M.Choukhande, S.R.O.	Training on Climate Technology.	Delhi	10.11.2003 to 13.11.2003
28	Officers and staff members of the Board	Administrative and Accounts training	Pune	17.11.2003 to 23.11.2003
29	Shri Mirase . Shri S.A. Deshpande, Shri S.R. Bande	Administrative and Accounts training	Pune	17.11.2003 to 23.11.2003
30	Shri D.B. Boralkar, M.S.	National Seminar on Zero-cost Fuels	Hyderabad	26.11.2003
31	Shri D.B. Boralkar, M.S. Shri R.G. Pethe, W.P.A.E.	Attending a meeting convened by the Ministry of Environment & Forests, Govt. of India	Delhi	27.11.2003
32	Shri A.R. Supate, P.S.O.	Training in Hazard Identification and Risk Assessment in Chemical Industries.	Bhopal	15.11.2003 to 19.11.2003
33	Shri A.R.Supate, P.S.O..Shri V.L. Korde. Shri S.S.Kotval . Kum Smita Gaikwad	National Conference on Advances in Environmental Science and Engineering	IIT, Powai	8.12.2003 to 9.12.2003
34	Shri A.D.Mohekar, S.R.O.	Training in Hazard Identification and Risk Assessment in chemical industries	Bhopal	15.12.2003 to 19.12.2003
35	Shri C.A.Sawant, J.S.A.	Training in Effective management of emergencies due to Hazardous Materials incidents	Mumbai	18.12.2003 to 19.12.2003
36	Shri D.M. Chaukhande, S.R.O.	Training in Ecocities Area-wide Environmental Improvement through Comprehensive Urban Management Systems	IIT Kharagpur	12.01.2004 to 31.01.2004
37	Officer and staff members of the Board	Administrative and Accounts training	Pune	27.01.04 to 31.01.04
38	Shri J.H.Patil , S.R.O. Nasik Shri N.N.Gurav, S.R.O. Chiplun	Environmental Management Strategies for pollution control and implementation of standards in petrochemical plants	Calcutta	19.01.04 to 23.01.04
39	Shri S.R.Bhosale, F.O. Shri A. M. Joshi F.O.	Training on Management of Hazardous chemicals	Mohali	22.1.04 to 23.1.04 26.1.04 to 27.1.04

40	Shri M.N.Jadhav F.O.	Training in Hazardous Waste Management	Mumbai	10.2.04 to 13.2.04
41	Shri A.V.Reddy, J.S.O. Shri K.V. Gavankar, J.S.A.	Workshop on Ambient Air Quality Measurement methods	Delhi	9.2.04 to 13.2.04
42	Smt. S.S.Patil F.O.	National conference on Emerging Pollutants' Impact on Health, Agriculture and Environment	Aurangabad	29.1.04 to 31.1.04
43	Shri P.V.Patil, F.O. Shri S.L.Waghmare, F.O.	Workshop on Cleaner Production in electroplating	Delhi	27.2.04
44	Smt. C.P. Kamble, S.O. Shri A.P. Kolhe, J.S.A.	Workshop on Quality Assurance for laboratories engaged in Air Quality testing (under the Canada India Institutional strengthening project)	Head Office, Sion	9.2.04 to 10.2.04
45	Shri K.B.Shinde, S.R.O. Shri S.J.Adkar, F.O.	Training in Environment-based Urban Renewal	Delhi	23.2.04 to 27.2.04
46	Shri A.V. Patil, F.O. Shri T.G.Yadav, F.O.	Short course on Monitoring & Management of Emissions	Bhuvaneshwar	19.2.04 to 21.2.04
47	Shri A.M. Deshpande, A.P.N.P.	Workshop on Fly Ash Utilization	Nagpur and Chandrapur	14.2.04 to 15.2.04
48	Shri R.B. Andhale, F.O.	National Training-cum-Workshop in Incorporation of Spatial Environmental Planning into Environmental Impact Assessment studies & Procedures	Bhopal	23.2.04 to 27.2.04

Annexure V

Consents/Authorizations granted to industries (2003-2004)

Region	Consent Granted TO		Consent Granted for 15 Yrs.	Simplified Consent Granted
	Establish	Operate		
Mumbai	44	482	18	-
Navi Mumbai	189	504	14	-
Thane	306	561	3	6
Kalyan	138	398	26	9
Raigad	64	167	-	-
Pune	455	1113	6	1
Nasik	442	722	12	121
Aurangabad	259	542	-	-
Kolhapur	385	629	3	6
Amravati	335	364	28	-
Nagpur	237	423	26	-
TOTAL	2854	5905	136	143