5. 'The wholesomeness of water'

WATER IS A RENEWABLE natural resource.

Due to the ever increasing industrialization, population and urbanization, this precious resource is continually under stress. There are multiple dimensions to water quality and its deterioration.

Lack of awareness and civic sense, and use of inefficient methods and technology lead more than 50% of water wastage in the domestic, agriculture and industrial sectors.

Water pollution is rendering much of the available water unsafe for consumption.

There is heavy extraction of water for domestic, industrial and agricultural purposes.

Age-old customs and habits of community and cattle bathing and washing in rivers are responsible for rampant pollution of river water. The release of domestic waste water, agricultural runoff water and industrial effluents promote excessive growth of algae in water bodies, which results in their eutrophication.

Pathogenic pollution or microbiological contamination of water due to its mixing with untreated /inadequately treated domestic sewage/waste water is another cause for concern. Unfortunately, the inability of the authorities to keep a check on the issue is also to blame for this state of affairs.

Depending upon the best designated use of water, the river waters in the State are classified into four classes: A-I, A-II, A-III and A-IV. Water quality is judged through physical, chemical and biological tests conducted by the Board in its well equipped central laboratory at Navi-Mumbai and the regional laboratories established across the State. (*The sections that immediately follow report mainly on municipal sewage and its handling. Chapter six deals with pollution of water from industrial sources.*)

MPCB posters for water conservation

5.1 Municipal Sewage

About 42% of the State's population (9.69 crores) live in urban areas. There are now 22 Municipal Corporations, 221 Municipal Councils and seven Cantonment Boards in the State. The volume of effluent generated from Municipal Corporations is approximately 45,62,680 m^3/day.

Due to rapid urbanization, municipal bodies face many problems like collection, treatment and disposal of waste water, solid wastes, biomedical waste, plastic waste, etc. Most of the waste water generated by local bodies is disposed off either on land or into surface water. Land disposal causes ground water pollution whereas the disposal into surface water affects the aquatic life. In order to measure and record the concentration of pollutants present in sewage, sewage samples are also collected for analysis. To control pollution, actions are initiated under relevant provision of Water Act, the Environment Protection Act and the Rules made thereunder.

There is no adequate sewerage system in any of the municipal bodies in the State. However, the Board is attempting to ensure that this issue is solved in the long-term. Sixteen corporations have

Water monitoring at municipal nalla near Colourchem, Thane

arrangements for partial treatment of sewage, while nine corporations have arrangements for the treatment and disposal of solid waste. Sewage Treatment Plants (STPs) have been provided by Mumbai, Pune, Thane, Pimpri-Chinchwad, Navi-Mumbai, Nagpur and Nashik Municipal Corporations. Although these plants are in operation; their capacity to treat the influent is inadequate. The Board regularly checks these STPs for adequacy of the effluent characteristics with the prescribed standards.

The construction work for the STPs for the Jalgaon and Akola corporations is in process. The Cantonment Boards of Pune, Kirkee and Lonavala Municipal Council have adequate STPs, but their operation and maintenance is very poor. The Aurangabad Municipal Corporation has been provided with a STP by City and Industrial Development Corporation of Maharashtra (CIDCO). Under the NRAP (National River Action Plan), the construction of STPs at Nanded, Nasik, Sangli and Karad are under progress, under the jurisdiction of the Maharashtra Jivan Pradikaran.

The Board has also prosecuted noncompliant local bodies in the courts of law. For instance, a case was filed against the Kolhapur Municipal Cor-

Water monitoring at Rabodi nalla, Thane

poration due to noncompliance with effluent standards and bank guarantee of Rs.10 lakhs was forfeited. Directions have also been issued to the Kalyan-Dombivli Corporation under Section 5 of the Environment Protection Act, while a bank guarantee of Rs.3 lakhs was taken from Ambernath Municipal Council for operation of its STP.

The status of municipal corporations in terms of generation and treatment of effluents in the State as on March 2005 is given in table 1.

Table 1: Generation and treatment of effluents of municipal corporations

Sr. No	Region	No. of corporations	Total population	Qty. of water consumption M3/D	Qty. of effluent generated M3/D	No. of corporations having partial treatment & disposal arrangement for sewage
1	Mumbai	1	12500000	4510000	2250000	1
2	Navi Mumbai	1	703000	237000	190000	1
3	Thane	2	2020300	336500	269200	1
4	Kalyan	3	2264169	422000	334000	3
5	Pune	3	5008722	1001000	667000	3
6	Nagpur	1	2600000	500000	400000	1
7	Nashik	5	2770489	237975	190380	3
8	Amravati	2	1250000	107000	76600	-
9	Aurangabad	2	1430558	102000	80500	1
10	Kolhapur	2	920740	159000	105000	2
	Total	**22**	**31467978**	**7612475**	**4562680**	**16**

5.2 Water Quality Monitoring

For the rational planning of a water pollution control programme, it is imperative to understand the nature and extent of pollution control required.

To achieve this, a scientific water quality monitoring programme was done in Maharashtra during the year 2004–05.

The rivers in the state are generally monsoon-fed. Only a few rivers – Godavari, Krishna, Bhima and Tapi – are perennial in nature. There is extremely low flow in the rivers after monsoon. The river water quality depends on the extent of pollution as well as water flow in the river. The dilution factor, which is crucial to dilute the effect of pollutants being discharged, is also not available after monsoon. Domestic waste water without sufficient treatment from the cities, towns and villages located on the bank of rivers finds its way into rivers. As a result, water quality in the rivers near Nasik, Bhusawal, Pune, Pimpri Chinchwad, Sangli, Karad, Kolhapur, Ichalkaranji, etc., is therefore not good during lean flow period . Parameters such as BOD, coliform count, etc., indicate pollution due to domestic waste/sewage.

Under the MINARS (Monitoring of Indian National Aquatic Resource System) and GEMS

Water sampling by MPCB officers

(Global Environmental Monitoring System) projects, water quality is being monitored through 48 monitoring stations. Monitoring at these stations is being done as per norms fixed by CPCB/WHO. The frequency of monitoring of the stations under the MINARS project is also as per CPCB guidelines. The number of stations have increased from 33 to 43. Earlier out of 33 stations in the State, 14 stations were monitored quarterly and the remaining monthly, but now out of 43 sanctioned locations, quarterly monitoring is conducted at 21 locations, while the other locations are monitored monthly. The details of the monitoring stations, frequency of monitoring is given in the following tables 2 and 3.

Table 2: GEMS project

Sr.no.	River	Monitoring station	Station code	Frequency of monitoring
1	Bhima	Takli	28	Monthly
2	Godavari	Dhalegaon	12	Monthly
3	Krishna	Sangli	37	Monthly
4	Krishna	Karad	36	Monthly
5	Wainganga	Ashti	11	Monthly

Forty-six rivers, including main rivers like Godavari, Krishna, Bhima, Tapi and other rivers with tributaries, were monitored for water quality through 141 locations set up along these rivers. The number of locations monitored for A-I, A-II and A-IV class of waters were eight, 115 and 18 respectively. It has been observed that at 64% of the locations the water quality has deteriorated, as indicated by elevated (higher than prescribed) biochemical oxygen demand (BOD) levels, thus indicating organic pollution in the river. The dissolved oxygen (DO) levels at five locations located on the Godavari, Mutha and Nag rivers did not conform to the standard.

Table 3: MINARS project

Sr. No.	River	Monitoring station	Station code	Frequency of monitoring
01	Godavari	Nashik	1211	Quarterly
02	Godavari	Ramkund	1096	Monthly
03	Godavari	Gangapur dam	1095	Monthly
04	Godavari	Raher	1209	Monthly
05	Godavari	Jaikwadi	1312	Monthly
06	Godavari	Nanded	1210	Monthly
07	Krishna	Rajapur weir	1151	Monthly
08	Krishna	Kurundwad	1310	Monthly
09	Krishna	Dhom dam	1194	Quarterly
10	Krishna	Islampur	1906	Monthly
11	Panchganga	Ichalkaranji	1311	Quarterly
12	Panchganga	Kolhapur	1904	Monthly
13	Bhima	Band garden	1190	Quarterly
14	Bhima	Vithalwadi Pune	1189	Quarterly
15	Bhima	Narsingpur	1188	Monthly
16	Bhima	Pandarpur town	1911	Quarterly
17	Bhima	Pandarpur town	1912	Quarterly
18	Bhima	Daund	1192	Quarterly
19	Bhima	Porgaon	1191	Quarterly
20	Tapi	Ubad village	1314	Monthly
21	Tapi	Bhusaval	1251	Monthly
22	Tapi	Ajand village	1313	Monthly
23	Girna	Jalgaon	1252	Quarterly
24	Girna	Malegaon	1253	Quarterly
25	Patalganga	MIDC w/w	1462	Monthly
26	Patalganga	Shilphata bridge	1151	Monthly
27	Wardha	Rajura bridge	1212	Quarterly
28	Wardha	Pulgaon	1315	Monthly
29	Kalu	Atale village	1092	Quarterly
30	Nira	Sarola bridge	1463	Monthly
31	Kundalika	Roha bridge	1152	Quarterly
32	Kolar	Kampthee bridge	1908	Quarterly
33	Kanhan	Asegaon	1909	Quarterly
34	Kalu	Atale village	1092	Quarterly
35	Purna	Dhupeshwar	1913	Quarterly
36	Wainganga	After confluence with Kanhan	1910	Quarterly
37	Rangavali	Navapur	1907	-
38	Ulhas	Mohane NRC bund	1093	Monthly
39	Ulhas	Badlapur W/W	1094	Monthly
40	Bhatsa	Pise dam	1461	Quarterly
41	Mahim creek	Mahim	1318	Quarterly
42	Thane creek	Elephanta island	1317	Quarterly
43	Basin creek	Thane	1316	Monthly

In the current year, maximum water quality deterioration has been observed at Ubhad village, Bhusaval, and Ajanad on the Tapi river, at Gangapur dam, Ramkund and downstream of Nasik on the Godavari river, at Karad on Krishna river, Pandharpur on the Bhima river and Asoli bridge on the Nag river. The highest BOD (333 mg/l) and chemical oxygen demand (COD) levels (368 mg/l) were recorded at Asoli bridge on the Nag river. The reading for total coliform (TC) count was found very high (45,629 MPN/100), i.e., exceeding the standard at Bhusaval on the Tapi river.

The water quality assessment of rivers in the Pune region shows that BOD values have significantly reduced at the stations monitored under MINARS programme. However, the DO levels are not satisfactory, and a slight increase in the TC count has also been noticed at Daund and Paragon on the Bhima river. The Pawana river has shown deterioration in water quality at Pimprigaon and Dapodi. Alandi, located on the Indrayani river (a tributary of Bhima river) also showed increase in COD. However, the BOD levels have reduced compared to those recorded in the previous year. Water quality analyses results have shown an increase in BOD level at almost all locations along

Ground water monitoring station at Mira Bhayander, Thane

the rivers flowing through Satara and Solapur Districts (part of Krishna and Bhima rivers). Though the DO levels were found satisfactory at Narsingpur and Takli on the Bhima river, the TC count has increased in the current year.

Krishna, Panchganga, Vashishti, Murchkadi are the rivers flowing through Kolhapur region. The results of water quality analysis, when compared with the last year's result, reveal that DO levels are satisfactory at all stations. However, the concentration of TC is slightly increased at Ichalkaranji on the Panchganga river and Rajapur on the Krishna river. The water quality of Vashishti and Jagbudi rivers in Chiplun was also found satisfactory. At one spot (near the nalla on the Muchkundi river, Ratnagiri region), the BOD level was found to be elevated as compared to last year's result. In sum, the overall water quality in the Kolhapur region remains more or less within the standard except at Karad on the Krishna river.

In the Nagpur region, river water quality has been assessed at 13 stations set up along the rivers Wainganga, Wardha, Nag and Kahhan. The COD and BOD concentrations at Asoli bridge on the Nag river were very high. Kamptee Road, on Pilli river, has also shown elevated BOD levels. Water

Drinking water source monitoring at Pehlar riverwater works.

quality at Pulgaon bridge on the Wardha river was found to be in conformity with the standards. At the other locations, COD and DO levels have not changed much from the previous reporting year.

In Amravati region, deterioration in water quality was observed at Kund, Haturna, and Bhatkali on Pedhi river. Compared to last year, there was an improvement in the water quality of Pedhi and Purna rivers, except at Kolhapur. High deterioration in water quality was observed at Amravati on Amba river, where the concentrations of BOD and COD were 135 mg/l and 251 mg/l respectively. The water quality of Penganga river deteriorated at Belkhed and Umarkhed. Comparison with data of the past two years reveals that DO levels have not changed in the Penganga river. However water quality at Akola on the Morna river and Lakhpuri and Dhupeshwar on the Purna river have deteriorated.

Drinking water source monitoring at Bhatsa river

5.3 Rivers of the coastal belt

Patalganga river

Industries have been prohibited from discharging treated effluent in the A-II zone of the Patalganga river. However, the Khopoli Municipal Council located in A-II zone of the river is a major source of river water pollution since it discharges domestic effluent to the tune of 11 MLD into the river without any treatment. The fish farms of Khopoli also discharge untreated effluent into the river.

In saline water zone, treated industrial effluent from the industries located in MIDC, Patalganga and Rasayani is discharged at one point near Kharpada bridge. However, there is inadequate dispersal and mixing of pollutants with the river water at this spot, thus leading to pollution of the river water.

Another major source of pollution in this river is from the tail race water released by the Tata Power Company. The quantity of this discharge is dependent on the production capacity, which varies from day to day. Even the lowest recorded discharge of tail race water causes pollution.

Water quality monitoring on Ulhas creek near Bhayandar

Other reasons for pollution along the river include the following:

- Neglect in cleaning the gravity channels through which the water from various dams at Lonavala passes;
- Unauthorized disposal of hazardous waste along the bank of river;
- Frequent accidents of tankers carrying chemicals/oil etc., at Bor Ghat, upstream of Khopoli.

Kundalika river

Pollution in this river is caused by the discharge of industrial effluent from Roha, MIDC into its saline zone at Are Khurd village, as well as the discharge of municipal sewage through open gutters. At times, accidental discharge of industrial effluent has also been known to occur.

Savitri river

MIDC developed an industrial area adjacent to the Savitri and Kalu rivers in the year 1980. An effluent collection and disposal facility was also provided with the discharge point upto the saline zone of the Savitri river at Ambet. The episodic discharge of waste water leads to pollution along the river and also affects riparian rights. Discharge of untreated domestic sewage by the Mahad Municipal Council (which lacks a sewage treatment plant) has also led to pollution of the river Savitri.

The Patalganga, Kundalika, Kalu and Savitri rivers have been monitored by the Raigad Region. The monitoring result reveals that except for Kharpada on Patalganga, Are Khurd on Kundalika and Wakan bridge on Amba river, water quality remain more or less within the standards.

Ulhas river

Although the DO concentration and TC count in the Ulhas, Bhatsa, Tansa Kalu and Vaitarna rivers were found to be satisfactory, the BOD levels exceeded the limits at all stations. There are 4 locations where the water is classified under the A-I category. However, due to the rise in BOD levels, the designated category of water classification has not been adhered to. When compared to last year's result, it is seen that there is slight increase in BOD, COD and TC count at a few locations.

Efforts are being made to reduce pollution along the river. The Ulhas Nagar Corporation has prepared a proposal to provide for the treatment and diversion of the Khemini nalla and tenders have been called from various parties for the same. The Badlapur Municipal Council also prepared proposal for a STP. The Waldhuni nalla carries the industrial effluent from the industrial estates of Badlapur and Ambernath, as well as domestic effluent from the Ambernath Council and Ulhasnagar Municipal Corporation. This nalla flows through a residential area and there have been numerous complaints concerning foul odours and pollution of the creek. Consequently, the MPCB and the Ulhasnagar Municipal Corporation have initiated the Waldhuni Cleaning Programme – i.e. 'Green bridge and Green Lake' – using cheap but innovative technology. The Ulhasnagar Corporation will work as the nodal agency for this project.

The pollution level of major rivers expressed in terms of range of pollutants is presented in table 4 below:

Table 4: Pollution levels of major rivers

River	BOD mg/l	COD mg/l	DO mg/l	Total coliform MPN/100 ml
Godavari	2.1–56	8–154	4–7.3	199–18823
Krishna	5–49	28–36	5–7	180–365
Bhima	5.1–23	25–33	3.2–6.8	170–356
Tapi	4.7–16.9	24–40	6.0–6.7	169–45629
Mula-Mutha	5.6–28.9	29–44	1.8–6.5	30–312
Wainganga/ penganga	2.9–8.6	2.9–62	5.4–6.7	280–460
Wardha	3.1–9.9	21*	5.5–6.1	220–254
Purna	2.5–6.6	17–61	3.5–6.2	700*
Patalganga	5.5–50	26–130	5.5–6.3	214–349
Ulhas	5.3–6.9	19–28	6.4–6.8	197–206
Kundalika	5.1–17.7	23–118	5.3–7.2	196–203

'*' indicates analysis carried out at one location only.

The water quality observed during 2004–05 in terms of parameters BOD and DO for Godavari and Krishna rivers is presented in figures 1 (a) – (d).

In order to improve the water quality and minimize water pollution of the rivers, the following steps have been taken:

1) On the Godavari river at Nashik, an additional STP was constructed under the NRAP (in addition to the three existent STPs at different locations in Nashik city). The STP at CIDCO Aurangabad is already in operation. The work of the STP at Nanded, under the aegis of the NRAP, is also under progress. Paithan city is also included under this programme.

2) Similarly, for the Krishna river which is included in the NRAP, two stretches at Sangli and Karad were selected for the programme. The Wai Municipal Council on the Krishna river is also included in the programme. A full-fledged STP is being constructed at Sangli, which is expected to start by 2007. A sum of Rs.3.87 crores was also sanctioned for installation of a STP in Karad city.

3) A new HDPE pipeline discharging into the creek has been installed at Lote in order to prevent accidental leakage of effluent.

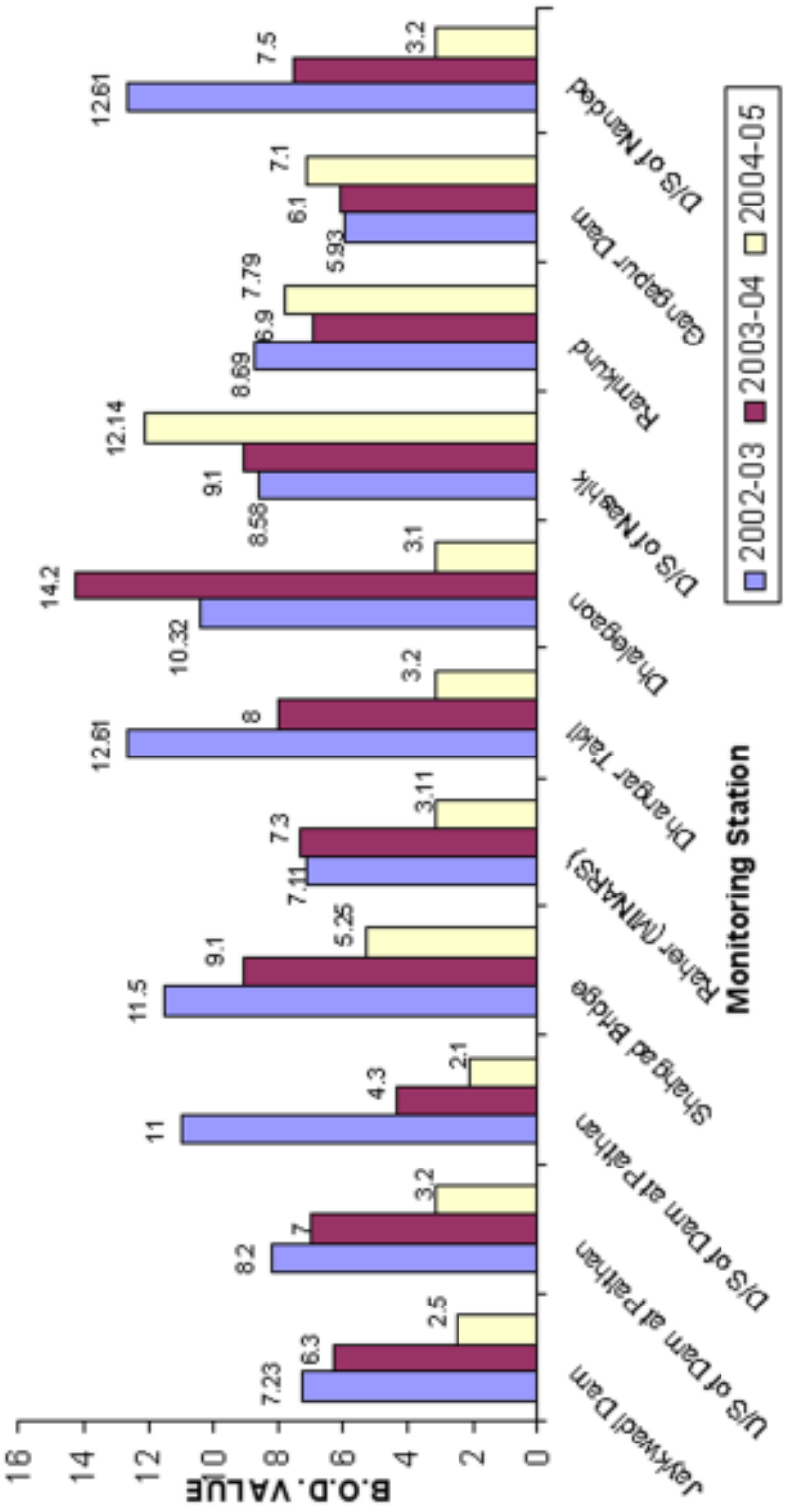


Fig.1a: BOD profiles of Godavari river

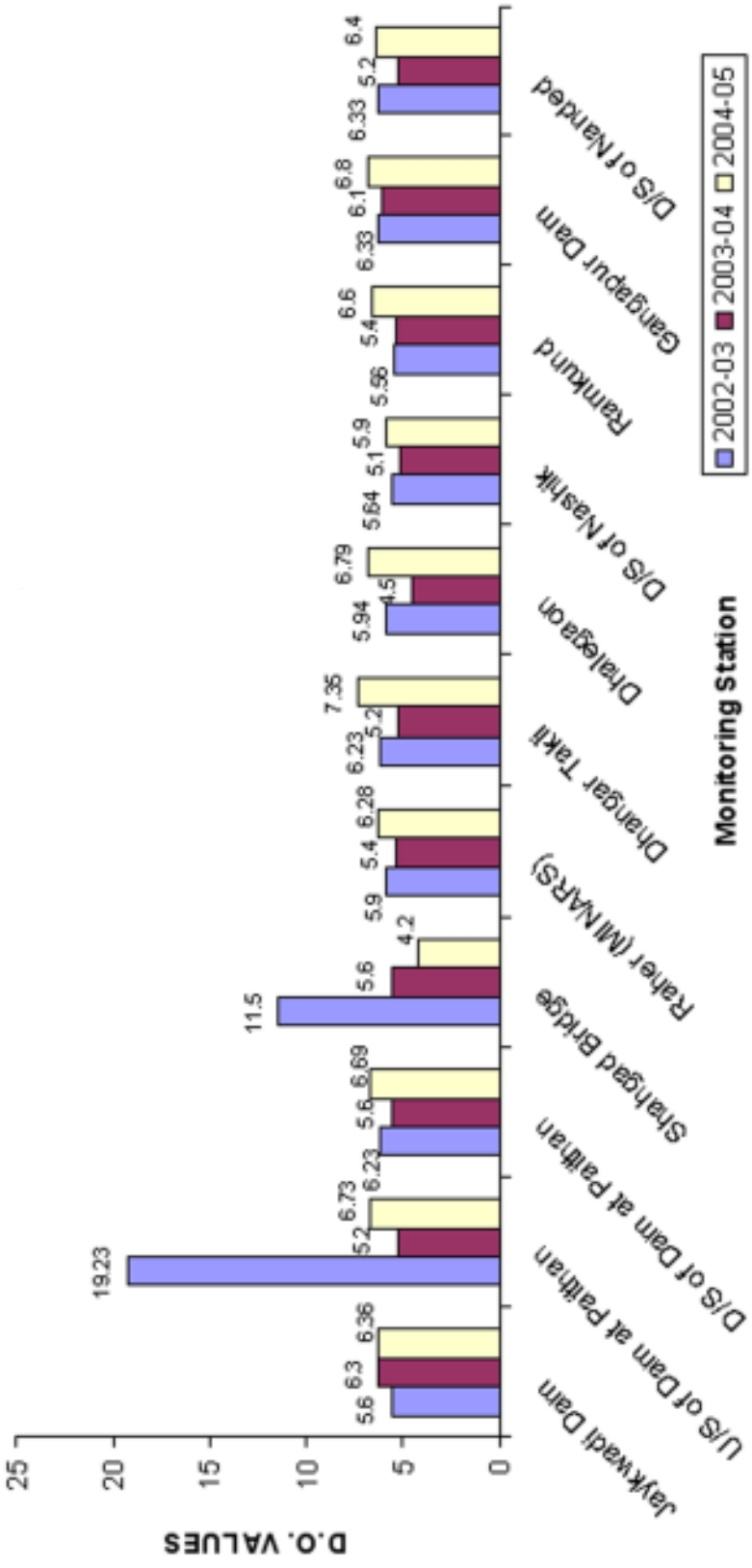


Fig.1b: DO profiles of Godavari river

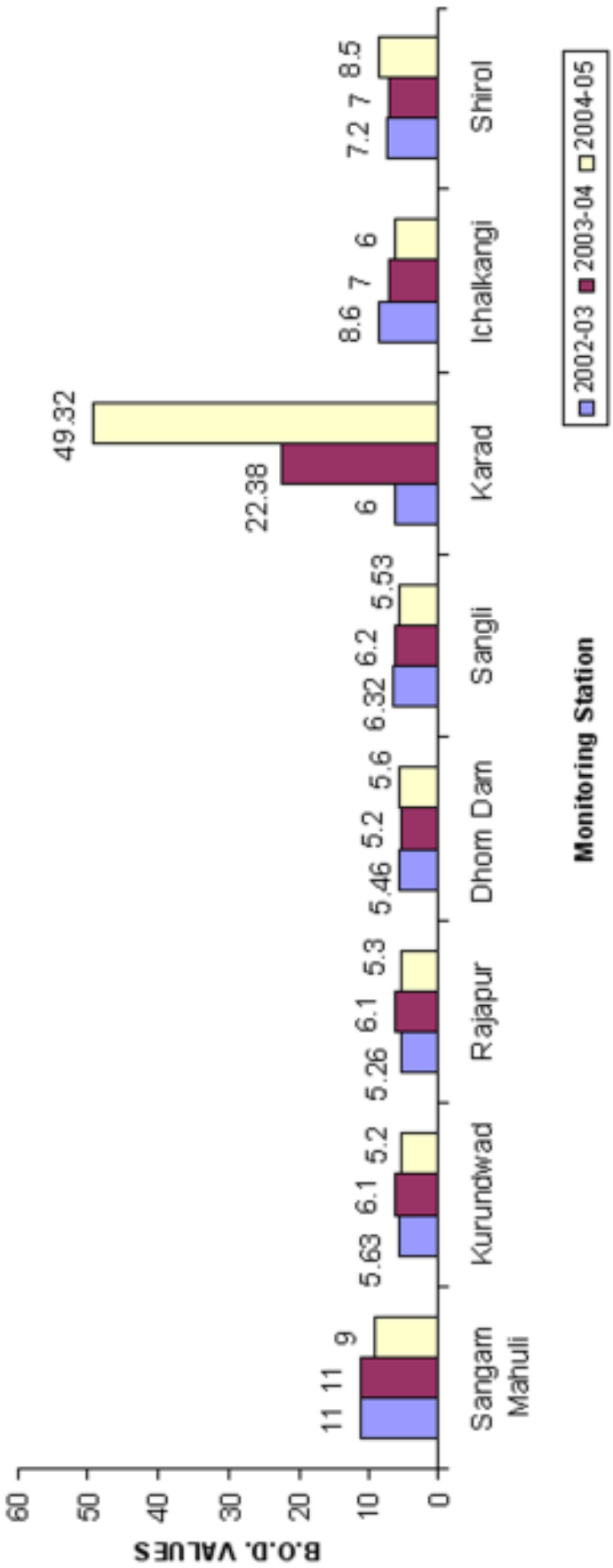
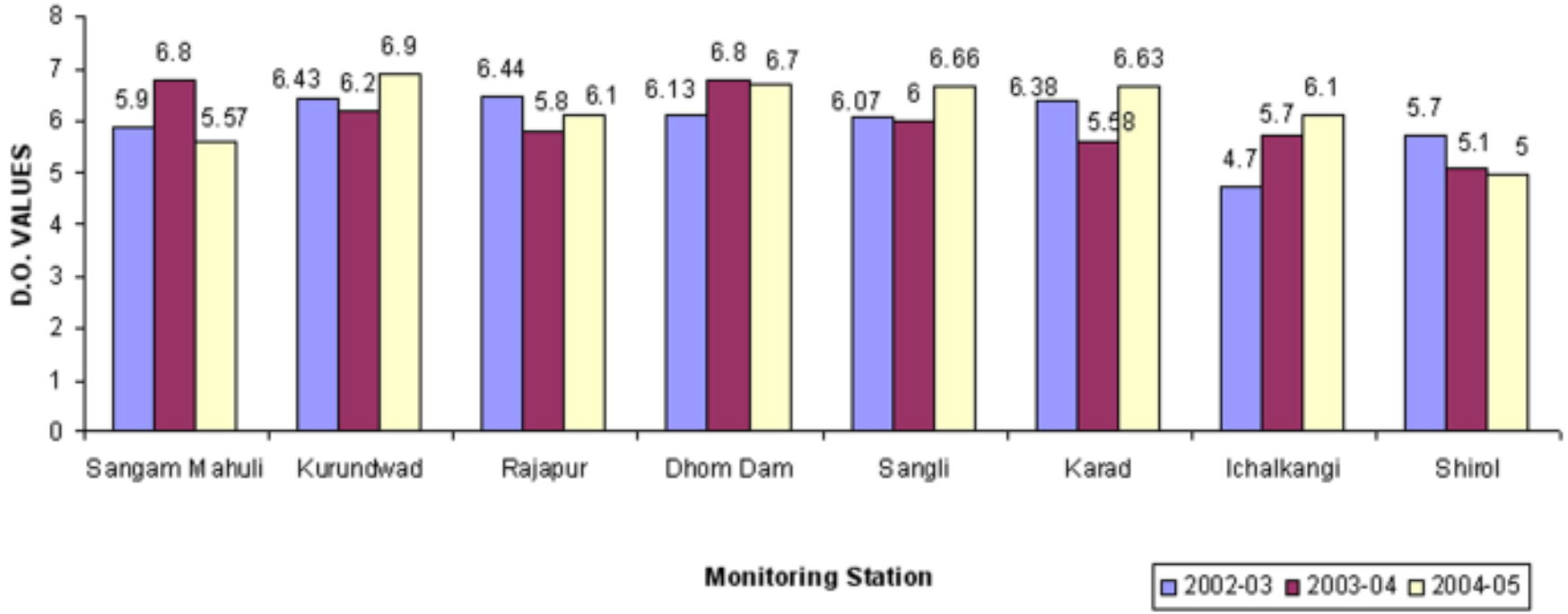


Fig.1c: BOD profiles of Krishna river

Fig.1d: DO profiles of Krishna river



4) The Board has also been actively pursuing offenders by filing cases in the court of law, such as those against the Kolhapur Municipal Corporation and Ichalkaranji Municipal Council.

5) Directions have been issued to upgrade the STP and the CETP at certain places. Forfeiture of bank guarantees and refusal to grant consents have been resorted to in order to prevent the discharge of effluent into the rivers.

6) Complaints regarding water pollution were received from villagers of Kurkumbh and Pandharewadi of Daund taluka in Pune district. The Board has taken concrete steps to minimize water pollution in this area. The MS of MPCB has discussed this issue with the Collector of Pune. Directions have been issued to industries and MIDC to take suitable steps to control water pollution. The Board has also proposed to undertake a study to improve the ecosystem surrounding the MIDC Kurkumbh area.

5.4 Lake water pollution

During the year, lake water samples were collected from Thane region only. Water samples from 12 different lakes were analysed. The analysis of water samples reveals that organic pollution is much higher than the prescribed standard in BPT tank and Ganesh talao. The BOD, COD and DO profiles of the monitored lakes are represented in the following graph. The Deo talao and Papdy talao (lakes) were also monitored in the last year. Comparisons with the results obtained during the previous year indicate that although the COD levels have decreased, the values of BOD increased during the year. An improvement in the DO level was noticed in the water of Papdy talao. Plans are being prepared to include a larger number of lakes in the state for monitoring of water quality, commencing next year.

5.5 Coastal water pollution

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 discharge their effluents into marine waters. Besides, 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. Activities like aquaculture, salt pans and ship breaking yards also contribute to some extent to the poor quality of coastal waters. The local municipal bodies situated along the coastal belt do not have sufficient treatment and disposal facilities for waste water; hence, the discharge from local bodies also causes coastal pollution.

During the year, the Board monitored sea water quality at 42 different locations. Reports reveal that as compared with the previous year, there has been an improvement in DO and COD concentrations in the waters of Mumbai coast. The highest concentration of BOD (69.8 mg/l) was observed in the Mithi river while the highest COD concentration (865.3 mg/l) was observed at Mandavi creek in Ratnagiri. DO levels were not found to be satisfactory at Dharamtar creek in Raigad, Shivaji Park in Mumbai, Vasai fort and Uttan Sea in Thane, and Airoli bridge and Kopra bridge in Navi-Mumbai. BOD levels were satisfactory only at Ambet in Raigad and Bhagvati Port in Ratnagiri.

The number of locations where the BOD and DO exceeded the limits is shown in the following table 5.

Table 5: Monitoring of coastal waters

Region/Area	No. of locations monitored	No. of locations where BOD exceeds the limit	No. of locations where DO is below the limit
Mumbai	12	6	1
Raigad	6	4	1
Thane	8	8	2
Tarapur	7	7	-
Navi-Mumbai	3	3	2
Ratnagiri	2	1	-
Kalian	2	2	-

Besides these monitoring programmes, the Board has also monitored the water quality of rivers, ground water, lake water and coastal water in the State during the year through a network of selected locations. The region wise break-up of the number of locations monitored for the year 2004–05 is given below in table 6:

Table 6: Locations monitored for water pollution

Region	No. of locations monitored for			
	River	Lake	Ground water	Coastal water
Mumbai	-	-	-	11
Thane	1	12	20	13
Navi-Mumbai	1	-	1	2
Kalyan	6	-	-	2
Raigad	5	-	8	6
Nashik	3	-	-	-
Pune	9	-	8	-
Kolhapur	4	-	5	3
Aurangabad	3	-	2	-
Amravati	6	-	6	-
Nagpur	9	-	3	-

A complaint was filed regarding pollution of Mula-Mutha river due to discharge of sewage from Pune City and its inadequate treatment provided by the Pune Municipal Corporation. The issue of immersion of Ganapati idols during the Ganesh festival and the resulting pollution was also brought up in the complaint. A public interest litigation was also filed in this regard in the Bombay High Court, Mumbai. In response, after conducting an intensive study, the Board prepared a report on the status of the water quality in the river which has been submitted to the High Court. A short summary of the findings of the study are provided below:

1) At Vithalwadi, minimum and maximum BOD levels were observed to be 6 mg/l and 24 mg/l respectively. At Mundhawa , the corresponding readings were 6 mg/l and 26 mg/l respectively.

2) The BOD level of Mula-Mutha river downstream of Pune city was higher than upstream of it.

3) BOD levels were in the range of 6.0 mg/l to 72.0 mg/l between the Vithalwadi and Sangam bridge catchments.

4) The STP of Pune Municipal Corporation treats domestic effluent to the tune of 305 MLD,

Coastal waters near Tarapur

while the remaining 146 MLD of effluent is discharged directly into the river without treatment.

5) During the Ganesh festival, i.e., in the month of September 2004, the concentration of sulphate, suspended solids and total dissolved solids were found to exceed the prescribed standards. Rainfall and the release of water from the Khadakwasla dam during this period was found to affect the quality of water in the river. Continuous monitoring of the river water during the Ganesh festival for three to four years is needed in order to arrive at a definite conclusion concerning the possibility of long-term river pollution due to immersion of the Ganapati idols.

5.6 Bio-monitoring

Considering the importance of water quality and biodiversity of surface water bodies, it was proposed to initiate bio-monitoring studies of water bodies subjected to hydroelectric power generation in the country. Bio-monitoring is an emerging tool for integrated water quality assessment comprising of studies of physicochemical as well as biological water quality parameters. In short, bio-monitoring can provide comprehensive information about the overall health of a water body.

Coastal waters near Mumbai

The proposal presented by the CPCB for bio-monitoring of water bodies connected to major dams used for hydroelectric power generation was discussed at a meeting held by the Board. Dr. D.B. Boralkar expressed his willingness to take an active part in implementation of this programme. However, specific training in bio-monitoring was required for the scientists of the MPCB. The Chairman, CPCB suggested that the scientists from the MPCB be deputed for 'hands-on' training to CPCB for bio-monitoring and that they may be involved in one of the rounds of bio-monitoring of the Yamuna river by the CPCB. Accordingly, a follow-up proposal for the same was submitted to the CPCB. As a result, ten scientists of the MPCB were trained in bio-monitoring of water bodies during 7–11 March, 2005. Monitoring of river Godavari is planned next year.

5.7 Improvements to the water monitoring network

As proposed by the MPCB, CPCB sanctioned 10 new stations under NWMP for the rationalization and optimization of the water monitoring network. The list of parameters to be analysed in surface

Microorganisms found during bio-monitoring

water (rivers, lakes, ponds, drains and creeks) and groundwater (tube wells, dug wells and hand pumps), the frequency of sampling and the specific months for monitoring, along with methods of analyses, charges for sampling and analyses, etc., were specified by the CPCB.

5.8 Mission Waldhuni nalla

Waldhuni nalla originates in the hills near Ambernath. The nalla receives domestic waste water from Ambernath, Ulhasnagar and Kalyan area. The MIDC areas at Badlapur, Ambernath (Chikloli Morivali, and Additional Ambernath) are located in the catchment area of Waldhuni nalla. There are also major chemical industrial units located at Ambernath and Shahad which discharge treated waste water into the Waldhuni nalla. About 120 MLD of waste water is being discharged through this nalla into the Ulhas creek.

The polluted Waldhuni nalla is creating a nuisance for nearby residents as the same flows through densely populated urban areas. This polluted stretch gives out offensive odours, particularly during night time and in the winter season, creates insanitary conditions and is also an eyesore for the commuters of Central Railway.

The polluted Waldhuni nalla

It is estimated that a collection system for the waste water from urban areas and industries through an under ground drainage system, its treatment and safe disposal will cost a sum of approximately Rs.100 crores. As the local bodies are unable to provide the necessary funds for an effluent collection, treatment and disposal system, the MPCB has taken the lead in selecting a natural system for cleaning up of the Waldhuni nalla. A meeting with various stakeholders was called by the MPCB in December 2004 to initiate a dialogue on the issue.

The proposal based on the natural system was prepared by M/s. Shrishti Eco Research Institute, Pune. Ten green bridges and four green lakes are proposed to be provided along the course of Waldhuni nalla. The total cost of the project (including operation and maintenance charges for one year) is estimated at Rs.50 lakhs. A meeting was held in Ulhasnagar Municipal Corporation on 17 February 2005 and it was decided to implement the project for the clean up of the nalla. The cost of the project will be shared by the Board, Ulhasnagar Municipal Corporation, Ambernath Municipal Council, Kalyan-Dombivali Municipal Corporation and major industrial units in the area. The MLA from Ulhasnagar constituency has also consented to contribute to the project from the 'MLA Fund'. The successful implementation of this project is expected to go a long way in solving pollution problems such as this one, in urban areas in other parts of the State. The project will be implemented in the year 2005–06.