

Achievements of PAMS Division during 2008- 09

Environmental Monitoring

MPCB is conducting environmental monitoring for Ambient Air and Water in the state under National and State Monitoring Programmes (NAMP, SAMP & NWMP, SWMP). In recent past, Board has augmented the water & Air monitoring network in the State and presently having about 250 Water quality monitoring stations & 76 Air quality monitoring stations in the state, including 8 CAAQM Stations. Presently data generated through these monitoring programs is collected at the Pollution Assessment Monitoring Surveillance (PAMS) Division in HQ. Soft data is compiled and up loaded to Environment Data Bank(EDB) of Central Pollution Control Board (CPCB) and hosted on MPCB website. Daily Ambient Air Monitoring data of 5 major cities i.e. Mumbai, Pune Aurangabad, Nashik & Nagpur are sent to ZEE TV & ETV for display in public interest.

Water Quality Monitoring Network

For planning a water pollution control program, it is imperative to understand the nature, extent of pollution and control measures required. Water Quality Monitoring is an important exercise, which helps in evaluating the nature and extent of pollution control required, and effectiveness of pollution control measures already in existence. It also helps in assessing the water quality trends and prioritizing pollution control efforts. To understand the prevalent water quality in Maharashtra, MPCB has taken up the task of assessing the water quality through programs such as Global Environmental Monitoring System (GEMS) and Monitoring of Indian National Aquatic Resources System (MINARS) under National Water Quality Monitoring Program (NWMP) , funded and guided by CPCB. It started in the year 1978 with 3 stations and increased to 38 stations by 1992. In 2004, 10 more surface water stations and in April, 2006, 25 Ground water stations were added to the project, taking the total to 73. Water (Prevention and Control of Pollution) Act, 1974, covers both surface water as well as ground water pollution. To tackle the hazards of faster deterioration of surface and ground water quality due to uncontrolled urbanization, industrialization and agricultural activities, Board has decided to expand the existing water quality monitoring network in Maharashtra, covering all stretches such as drains, river basins, sea water etc. Accordingly, a Project Implementation Plan was prepared and expanded the existing water quality network of surface water to 200, and ground water network to 50 locations. This is done by identifying and commissioning additional 152 surface water and 25 ground water locations under State Water Quality Monitoring Program (SWMP). Monitoring of all these stations are being carried out as per the Uniform Protocol for water quality monitoring issued by MoEF and CPCB. In February, 2008, CPCB has sanctioned 50 new stations under NWMP from existing SWMP stations - 45 surface water stations with monthly monitoring frequency & 5 ground water stations with half yearly monitoring frequency. Presently, WQM network consists of 123 stations under NWMP and 127 stations under SWMP. (Total= 250).

Augmentation of Water Quality Monitoring Network- at a glance

Sr.No	Water Quality Monitoring Programs	No. of Water Quality Monitoring stations in during operation			
		2005-06	2006-07	2007-08	2008-09
1	NWMP	48	73	123	123
2	SWMP	---	177	127	127
	Total	48	250	250	250

Air Quality Monitoring Network

MPCB, as the regulatory agency in the state, require the information of air quality levels at different locations for planning the pollution control strategy, for dissemination of information & other related matters. Considering the urbanization and industrialization in the state and also public awareness towards the subject, it is necessary for MPCB to collect air quality data at important locations across the state. MPCB is monitoring the air quality at various locations all over Maharashtra under National Ambient Air Quality Monitoring Programme (NAMP) and State Ambient Air Quality Monitoring Programme (SAMP). MPCB had taken over 28 air monitoring stations under National Ambient Air Quality Monitoring programme (NAMP) in Maharashtra w.e.f.01.07.2005 from CPCB and further strengthened the air quality monitoring network in Maharashtra. The strengthening also included developing a systematic State Air Monitoring Program (SAMP) to support the NAMP. In this direction, MPCB has started NAMP stations at Kolhapur, Tarapur, Lote, Amravati and Navi Mumbai. In the same way SAMP stations are also initiated in different industrial cities. In May 2008, three SAMP stations were started at Latur and in June, 2008 three SAMP stations were initiated at Sangli. 3 SAMP stations at Mahad & 2 SAMP stations at Roha were commissioned on 25.09.2008 & 3 stations at Jalgaon started operation in Jan. 2009. In March, 2009 CPCB has sanctioned 8 new NAMP stations, by converting the already operational SAMP stations at Roha, Mahad & Sangli. Presently, there are 53 NAMP stations (47 operated by MPCB and 6 operated by NEERI), 15 SAMP stations and 8 Continuous Ambient Air Quality Monitoring Stations (CAAQMS) in operation in Maharashtra (Total= 76). Apart from this 3 stations at Akola, are under initial stages of operation process.

Augmentation of Air Quality Monitoring- at a glance

Sr.No	Air Quality Monitoring Programs	No. of Air Quality Monitoring stations in operation during			
		2005-06	2006-07	2007-08	2008-09
1	NAMP	28	45	45	53
2	SAMP	---	10	09	15
3	CAAQMS	4	4	7	8
	Total	32	59	61	76

Noise Pollution Monitoring:

- Fire crackers of different make/ manufacture were tested for noise levels in the open space at Wadala Truck Terminal before Diwali Festival during 2004 , 2005 , 2006 &2008, in association with Mumbai Police and the NGO "Awaaz Foundation" The results of noise levels observed during the testing along with the names of the manufacturers were communicated to the Chief Controller of Explosives, Nagpur. Results are hosted at MPCB website.
- Ambient Noise level monitoring surveys in Mumbai & other major cities were carried out during Ganesh Festival & Diwali Festival in the year 2004, 2005 & 2006 &2007. Most of the survey reports are displayed at MPCB website.
- MPCB had invited tenders for carrying out the ambient noise monitoring during Diwali and Ganpati Festivals, as per the monitoring protocol given by CPCB. Accordingly, the work of noise level monitoring during Ganesh and Diwali festival,2008, in Maharashtra is awarded to M/s.Ashwamedh Engineers & Consultants, Nashik.
- In order to assess the impact of traffic noise exposure on residents living adjacent to major roads, MPCB has conducted an extensive noise monitoring study covering 25 locations in 6 metro cities of Maharashtra during December, 2008 for two days i.e. on working day and Sunday. Report is available on MPCB website.
- During festivals, mass awareness campaigns were being organised through print and electronic media. Involved the services of police authorities, NGOs, representatives of fire cracker manufacturers association etc, for effective implementation of the campaign.

Other Projects :

- I. Volatile Organic Compounds (VOCs) Monitoring survey at industrial areas such as Taloja and Mahad was conducted in February, 2009, in collaboration with SGS Laboratories, Chennai. Final report will be ready by the end of April, 2009. Taloja & Mahad are critically polluted areas identified in Maharashtra by CPCB, because of huge pollution caused by industries. Action Plan for these problem areas had been prepared and various efforts have been made to implement the action plan. The industrial areas at Taloja & Mahad, which are mostly having chemical industries, attract public complaints and receive attention from media primarily because of effluent problems as well as strong odour & colour in final discharge from the

industrial estate. Monitoring was carried out in 3 ways- emission monitoring (Fugitive & Ambient), waste water monitoring and hazardous waste monitoring. MPCB has carried out VOC monitoring as a step towards knowing which VOCs as Hazardous Air Pollutants (HAPs) are found in the ambient air in the Chemical Industrial Area of Taloja & Mahad. This study was carried out in order to prioritize some potential HAPs , for development of standards and subsequently enforcement.

- II. Maharashtra Pollution Control Board (MPCB) is executing the project on **“Assessment of Status of Riverine fisheries and linking with water quality Restoration programme”** through Central Institute of Fisheries Education (CIFE), Mumbai. Initially, Godavari River stretch is taken-up for the study and the Project has received financial assistance from Central Pollution Control Board, New Delhi. In order to link water quality improvement programs with biotic assessments, CPCB has proposed to undertake river wise surveys.

Today, the water in the bathing ghats are considered unfit for even washing and waterborne diseases are spreading, especially among the populations that use river water for household purposes. The biochemical oxygen demand has exceeded the limits prescribed. The high demand for oxygen, and the limited inputs by way of production and diffusion have reduced the fish fauna in these stretches. Though there are reports of over 150 species of fishes in Godavari, only 69 species including one endemic (*Cirrhinus macrops*) and one introduced (*Cyprinus carpio carpio*) have been listed in *Fishbase* as occurring in Godavari.

It is well known that the fish abundance as well as the diversity has decreased considerably due to pollution, the resultant decrease in oxygen levels and habitat degradation. The situation necessitates an investigation into the abundance of the fish fauna in the selected stretches of Godavari within the state of Maharashtra.

Keeping in view of the above facts, it is proposed to carry out a study on the fish faunal diversity in 10 stretches of Godavari at Nashik & Aurangabad and to correlate with the observed physicochemical parameters. The study is in progress.

- III. Coastal Monitoring project in collaboration with National Institute of Oceanography, Mumbai. Coastal water monitoring survey was carried out over the stretch of Maharashtra coast from Sindhurg to Dahanu at the various locations covering 720km (approx). Sampling locations were decided considering the sites of effluent discharge points and natural drains which are carrying polluted water in to the coast. Main objectives of the study as under:

- Ecological monitoring of inshore & coastal areas to identify changes, if any, in water quality, sediment quality and biological characteristics and utilize the findings for corrective measures.
- Monitor for indicator pollutants and assess recovery of the ecosystems.
- Undertake predictive modeling of selected marine areas for planned disposal of industrial & domestic effluents.

IV. MPCB has prepared a Statistical Analysis Report on Water Quality in association with NEERI, Mumbai. This document contains compilation and statistical analysis of water quality monitoring data collected through National Water quality Monitoring Program during 2005-07. Various statistical tools have been used for useful interpretation of the data. This analysis will help to prioritize the areas of concern and then facilitate future actions such as minimization of pollution loads and also development of preventive action plan. This is the first initiative of the Board to effectively use the statistical tools as a part of pollution control management. It is noticed that there are multiple principles and practices for analysis of water quality data and therefore attempts have been made to use the most widely used practices to compare the findings and arrive at most practicable analytical tools. The study has also identified various areas for strengthening the methodologies. MPCB has already initiated improvements in water quality monitoring and taken corrective steps. Major Conclusions & Recommendations of the report are as under:

1. At most of the sampling locations in the rivers, and creeks, BOD values have exceeded the CPCB standards for class 'B' and SW-II respectively.
2. Non-compliance to standards is mainly with BOD values.
3. Many townships are located at the bank of the rivers viz.

River	Major towns along the bank of the river
Godavari	<i>Nashik, Ahemadnagar, Osmanabad, Bhir, Nanded, Parbhani, Jalna, Nagpur, Wardha, Yavatmal, Chandrapur, Bhandara, Amravati, Akola, and Bundana.</i>
Krishna	<i>Satara, Karad, Narsinpur, Islampur, Sangli, Kolhapur.</i>
Bhima	<i>Daund, Ujani, Pandharpur.</i>
Tapi	<i>Bhusawal, Burhanpur, Raheer, Shirpur.</i>
Panchganga	<i>Kolhapur and Ichalkaranji</i>
Patalganga	<i>Khopoli, Khalapur, Turade</i>

All these townships and urban areas like Mumbai are the major sources of pollution of rivers and creeks.

4. Heavy Pollution in the downstream stretch of the river at major cities is observed indicating non-existence or poor performance of domestic wastewater treatment. The locations close to these cities invariably show non-compliance of standards.
5. Statistical analysis in terms of water quality index and trend analysis indicates that trend in WQI change was insignificant when four parameters were used. This trend shifted to significant when WQI was calculated using two or one parameter.
6. Microbial quality in terms of TC and FC varied greatly in monsoon and non-monsoon period and was not meeting the standards on many occasions in Krishna and Bhima rivers.
7. Detailed analysis for metals, pesticides etc. had indicated either absence meager pollution of industrial; origin at selected sampling locations.
