

## ❖ Annual Report 2000-2001

### INTRODUCTION

The Central Pollution Control Board (CPCB) was constituted in September, 1974 under the provisions of The Water (Prevention & Control of Pollution) Act, 1974. The main functions of CPCB, as spelt out in The Water (Prevention and Control of Pollution) Act, 1974, and The Air (Prevention and Control of Pollution) Act, 1981, are: (i) to promote cleanliness of streams and wells in different areas of the States through prevention, control and abatement of water pollution; and (ii) to improve the quality of air and to prevent, control or abate air pollution in the country.

### FUNCTIONS OF THE CENTRAL BOARD

- 
- Advise the Central Government on any matter concerning prevention and control of water and air pollution and improvement of the quality of air;
  - Plan and cause to be executed a nation wide programme for the prevention, control or abatement of water and air pollution;
  - Co-ordinate the activities of the State Boards and resolve disputes among them;
  - Provide technical assistance and guidance to the State Boards, carry out and sponsor investigations and research relating to problems of water and air pollution, and for their prevention, control or abatement;
  - Plan and organise training of persons engaged in programmes on prevention, control or abatement of water and air pollution;
  - Organise through mass media, a comprehensive mass awareness programme on prevention, control or abatement of water and air pollution;
  - Collect, compile and publish technical and statistical data relating to water and air pollution and the measures devised for their effective prevention, control or abatement;
  - Prepare manuals, codes and guidelines relating to treatment and disposal of sewage and trade effluents as well as for stack gas cleaning devices, stacks and ducts;
  - Disseminate information in respect of matters relating to water and air pollution and their prevention and control;
  - Lay down, modify or annul, in consultation with the State Governments concerned, the standards for stream or well, and lay down standards for the quality of air; and
  - Perform such other functions as and when prescribed by the Government of India.

### CONSTITUTION OF THE CENTRAL BOARD

According to the provisions of The Water (Prevention & Control of Pollution) Act, 1974, the Central Board consists of the following members :

- a full-time Chairman, being a person having special knowledge or practical experience in respect of matters relating to environmental protection or a person having knowledge and experience in administering institutions dealing with the matters aforesaid, to be nominated by the Central Government;
- such number of officials, not exceeding five, to be nominated by the Central Government to represent Government;
- such number of persons, not exceeding five, to be nominated by the Central Government, from amongst the members of the State Boards, of whom not exceeding two shall be from amongst the members of the local authorities;
- such number of non-officials, not exceeding three to be nominated by the Central Government, to represent the interest of agriculture, fishery or industry or trade or any other interest which, in the opinion of the Central Government, ought to be represented;
- two persons to represent the companies or corporations owned, controlled or managed by the Central Government, to be nominated by the Government; and

- a full-time Member Secretary, possessing qualifications, knowledge and experience of scientific, engineering or management aspects of pollution control, to be appointed by the Central Government.

The organisational structure of the Central Board is provided in Annexure-I.

Staff strength as on March 31, 2001 is furnished in Annexure-II.

List of Board Members during 2000-2001 is provided in Annexure-III.

### **MEETINGS OF THE CENTRAL BOARD**

#### **MEETINGS OF THE BOARD**

During the reporting period (i.e. April 1, 2000 to March 31, 2001), two meetings of the Central Board were held as under :

<b>S.No.</b>	<b>Meeting No.</b>	<b>Date</b>	<b>Place</b>
1.	117	July 3, 2000	Delhi
2.	118	December 11, 2000	Delhi

#### **MAJOR DECISIONS TAKEN BY THE BOARD**

The Board in its 117th meeting approved the Annual Action Plan of CPCB for the year 2000-2001.

- The Board approved the proposal of enhancement of number of Ambient Air Quality Monitoring Stations (AAQMS) and Water Quality Monitoring Stations (WQMS) and the fund allocation for the purpose. The name of the National AAQMS was changed to National Air Monitoring Programme (NAMP) and its budget allocation is Rs. 4,83,369/year. The Board also approved the new proposal for Water Quality Monitoring Programme and sharing of cost with State Pollution Control Boards/Pollution Control Committees.
- The Board approved the approach set out for reviewing the water quality criteria for Indian Aquatic Resources.
- The Board approved the standards recommended by the Peer and Core Committee on industrial effluent and emission standards.
- The Board approved the recognition of 7 Environmental Laboratories and 13 Government Analysts, under section 12 and 13 of the Environment (Protection) Act 1986. The list of approved laboratories and analysts is presented in Annexure IV.
- The Board approved to adopt extension of the Assured Progression Scheme (APS) for the Central Government civilian employees to CPCB employees and constituted the Screening Committee.
- The Board approved the implementation of action points for control of air pollution in urban areas.
- The Board approved the report of the consultant on creation of various post in CPCB amending/revising the pay scale of some post in CPCB.
- The Board approved the release of funds sanctioned by the Ministry of Environment and Forests regarding the project on Green Belt for abatement of pollution and environmental improvement in five cities/town of Tamil Nadu.
- The Board approved the creation of one post of Assistant Engineer (Building) in the pay scale of Rs. 6500-200-10500.

## COMMITTEES CONSTITUTED BY THE BOARD AND THEIR ACTIVITIES

### NATIONAL COMMITTEE ON NOISE POLLUTION CONTROL

7th Meeting of the National Committee on noise Pollution Control was held on 13th September, 2000. Major decisions arrived at or issues discussed were:

- finalisation of noise limits for generator sets run on petrol/kerosene
- finalisation of noise limits for motor vehicles
- proposal for revision of noise limits for new diesel gensets upto 1000 KVA.
- Noise labeling of some domestic/office appliances.
- Necessity of a comprehensive Noise Rules/Act in the country.

### EXPERT/STANDING COMMITTEE ON GENSET EMISSION

1st Meeting of the Standing Committee on Genset Emission was held on November 21, 2000, followed by the 2nd meeting held on 17th March, 2001.

The representatives of Indian Diesel Engine Manufacturers Association (IDEMA), made a presentation on the emission test results for various diesel engines upto 260 KW. The test results as submitted by the manufacturers are as follows:

NOx	:	9.50 - 19.40 g/kw-hr
HC	:	0.41 - 3.50 g/kw-hr
CO	:	1.00 - 5.30 g/kw-hr
PM	:	0.35 - 0.68 g/kw-hr

The emission limits proposed by the manufacturers are as follows:

Range	Emission limit (g/kw-hr) for				Exhaust Smoke	Effective Date
	NOx	HC	CO	PM		
5-15 KW	9.2	1.1	6.5	0.85	-----	April, 2005
> 15-260 KW	14.4	2.4	11.2	-----	R24	April, 2002
	9.2	1.1	6.5	0.85	-----	April, 2005

The test data submitted by IDEMA, was based on measurements done by ARAI and other test agencies. It was found that most of the results for exhaust CO and PM are lower than the emission limits proposed in the previous meeting.

During discussions it was felt that for small size engines considerable R&D effort will be needed to reach a particulate matter value of 0.3 g/kw-hr, hence more time may be given to achieve that. The Committee recommended PM limits of 0.5 g/kw-hr and 0.4 g/kw-hr for engines upto 10 KW and for engines more than 10 KW upto 50 KW, respectively.

The Committee, after thorough discussions and considering the time required by notification, development of compliance procedure etc., finalised following emissions limits and effective date of implementation.

Range	Emission Limit (g/kw-hr) for				Date of Implementation	Test Cycle
	NOx	HC	CO	PM		
Upto 260 KW	9.2	1.3	1.0	0.3*	January 1, 2002	D2, ISO 8178

\* The PM limits for engines upto 10 KW and from 10 KW upto 50 KW shall be 0.5 g/kw-hr and 0.4 g/kw-hr respectively, till May 31, 2003. After that, PM limit for all engines upto 260 KW shall be 0.3 g/kw-hr.

## NATIONAL TASK FORCE FOR THE IMPLEMENTATION OF ENVIRONMENTAL STANDARDS IN INTEGRATED IRON & STEEL INDUSTRY

CPCB constituted the National Task Force (NTF) for the implementation of Environmental Standards in Integrated Iron & Steel Industry under the Chairmanship of Prof. J. M. Dave. Other Members are from CPCB, MoEF, Ministry of Steel and representative of Steel Industries.

NTF held meetings and visited Tata Steel Plant, Rourkela Steel Plant and M/s Jindal Vijayanagar Steel Ltd. NTF submitted its report to the concerned industry and State Pollution Control Board for compliance.

### MONITORING NETWORK FOR AIR AND WATER QUALITY

#### AMBIENT AIR QUALITY MONITORING

The Central Pollution Control Board (CPCB) in collaboration with the State Pollution Control Boards (SPCBs) has established a National Ambient Air Quality Monitoring (NAMP) network, comprising 290 stations in 92 cities/towns, under the Air (Prevention and Control of Pollution) Act, 1981 to collect, compile and disseminate information on air quality.

The ambient air quality is monitored by CPCB, SPCBs, Pollution Control Committees, some Universities and Institutes. The data, thus generated, are transmitted to CPCB for scrutinization, analysis, compilation and publication as a consolidated report.

The air quality of different cities/towns with respect to three critical pollutants has been compared with the respective National Ambient Air Quality Standards and has been categorized into four broad categories based on an Exceedence Factor. The Exceedence Factor (EF) is calculated as follows:

$$\text{Exceedence Factor} = \frac{\text{Observed annual mean concentration of criteria pollutant}}{\text{Annual standard for the respective pollutant and area class}}$$

The four air quality categories are:

- Critical pollution (C) : when EF is more than 1.5;
- High pollution (H) : when the EF is between 1.0 - 1.5;
- Moderate pollution (M) : with and EF between 0.5 - 1.0; and
- Low pollution (L) : where the EF is less than 0.5.

The air quality assessment was done for 139 monitoring locations (in 64 cities/towns), out of which 68 are in residential, 68 in industrial and 3 in sensitive areas. At 57 locations (27 residential + 30 industrial), data were insufficient (< 50 monitoring days in the year) with respect to gaseous pollutants and at 72 locations (41 residential + 31 industrial) with respect to SPM. Such locations have not been considered for air quality assessment.

**Table 5.1 Classifications of monitoring stations**

Area type	Number of monitoring stations with adequate data	Number of locations with inadequate data	
		Gaseous Pollutants	SPM
Residential	68	27	41
Industrial	68	30	31
Sensitive	3	-	-
Total	139	57	72

An overview of the relative air quality situation in the different cities/towns of the country is presented in Table 5.2.

**Table 5.2 Ambient air quality status of various cities/towns**

Pollution level	Annual Mean Concentration Range ( $\mu\text{g}/\text{m}^3$ )			
	Industrial (I)		Residential (R)	
	SO <sub>2</sub> & NO <sub>2</sub>	SPM	SO <sub>2</sub> & NO <sub>2</sub>	SPM
Low (L)	0-40	0-180	0-30	0-70
Moderate (M)	40-80	180-360	30-60	70-140
High (H)	80-120	360-540	60-90	140-210
Critical (C)	>120	>540	>90	>210

STATE / CITY	SO <sub>2</sub>		NO <sub>2</sub>		SPM	
AREA CLASS	I	R	I	R	I	R
Andhra Pradesh						
Hyderabad	L	L	L	M	H	H
Vishakhapatnam	L	L	L	L	L	C
Bihar						
Jharia	M	-	M	-	H	-
Dhanbad	-	H	-	M	-	C
Jamshedpur	M	M	M	M	M	C
Patna	-	L	-	L	-	C
Sindri	M	-	M	-	L	-
Delhi						
Delhi	L	L	M	M	M	C
Gujarat	</fo					

### STATE OF THE ENVIRONMENT

#### STATUS OF AIR POLLUTION IN INDIA

Air Quality, with respect to sulphur dioxide (SO<sub>2</sub>), oxides of nitrogen (NO<sub>x</sub>) and suspended particulate matter (SPM) are presented below.

#### Sulphur Dioxide (SO<sub>2</sub>)

The locations having highest top ten values of annual mean concentration of Sulphur Dioxide are listed in Table 6.1. The annual mean concentration of Sulphur dioxide exceeded the standards in the city of Jharia and Dhanbad.

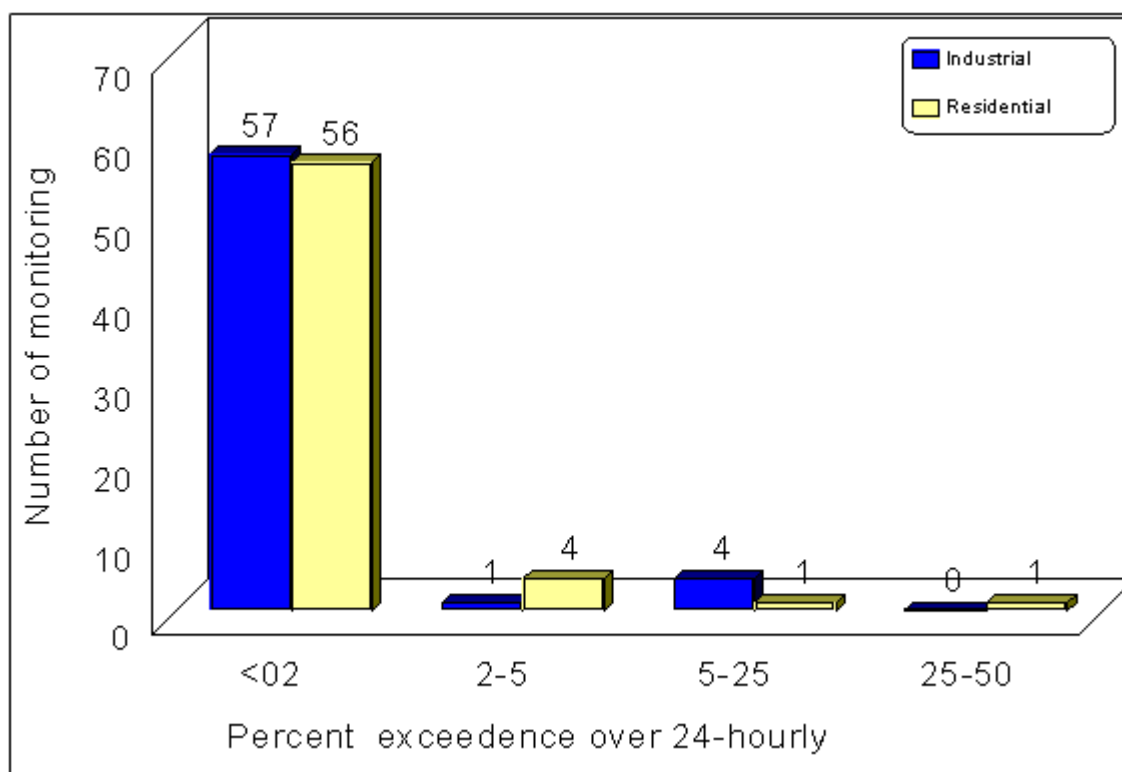
**Table 6.1 Ten locations having highest concentration of Sulphur Dioxide during 1999**

S. No	Industrial			Residential		
	Location	State	Annual mean conc. ( $\mu\text{g}/\text{m}^3$ )	Location	State	Annual mean conc. ( $\mu\text{g}/\text{m}^3$ )

1.	MADA, Jharia	Bihar	80*	Regional Office, Dhanbad	Bihar	84*
2.	Near Police Station (FCI Main Hospital), Sindri	Bihar	69	Sakchi water tower, Jamshedpur	Bihar	55
3.	Cossilpore, Calcutta	West Bengal	67	Lal Bazar (Dalhousie), Calcutta	West Bengal	51
4.	Anpara Colony, Anpara	U.P.	59	Anand Rao Circle, Bangalore	Karnataka	44
5.	Renusagar Colony, Anpara	U.P.	59	University Gate, Pune	Maharashtra	44
6.	Burmamines Water tower, Jamshed pur	Bihar	47	Nasik Municipal Corpn. Building, Nasik	Maharashtra	37
7.	PCMC, Chinchwad, Pune	Maharashtra	41	M/s Chemiquip Ltd., Ambarnath	Maharashtra	35
8.	Poud phada (Kothrud), Pune	Maharashtra	40	RTO Colony Tank, Nasik	Maharashtra	34
9.	AMCO Batteries, Bangalore	Karnataka	38	Bapatnagar, Chandrapur	Maharashtra	33
10.	M.I.D.C. Chandrapur	Maharashtra	34	Regional Office, Udaipur	Rajasthan	27

\* - Locations, where Annual mean concentration of SO<sub>2</sub> exceeded the respective standard of 80 µg/m<sup>3</sup> for industrial and 60 µg/m<sup>3</sup> for Residential areas.

The number of locations, where either annual mean concentration (AMC) or 24-hourly concentration exceeded the standards for more than 5% of the times, are listed in Table 6.2. Percent violation with respect to 24-hourly standards is depicted in Fig. 6.1. During 1999, at four industrial and two residential locations, either AMC or 24-hourly or both the values exceeded the respective standards.

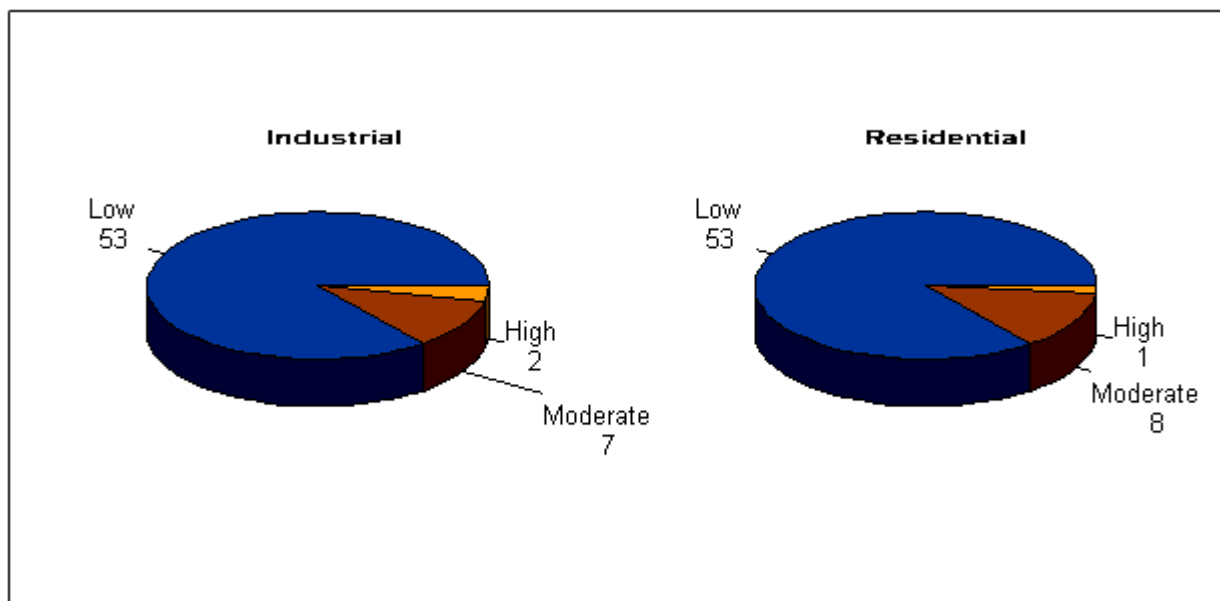


**Fig 6.1 Percent violation of 24-hourly standards (Sulphur dioxide)**

**Table 6.2 : Locations where either annual mean or 24-hourly concentration of Sulphur dioxide violated respective standards**

Location	State	Area Class	Annual Mean Conc. ( $\mu\text{g}/\text{m}^3$ )	% Exceedence Over 24-Hourly Standards
M.A.D.A. Jharia	Bihar	Industrial	69	10
FCI Main Hospital, BIT, Sindiri	Bihar	Industrial	67	19
Cossipore, Calcutta	West Bengal	Industrial	80	12
R.O. Dhanbad	Bihar	Residential	84	43
Lal Bazar (Dalhousie), Calcutta	West Bengal	Residential	51	20

Based on the analysis of air quality data (AMC) at all the monitoring stations and pollution level categorization, the status of SO<sub>2</sub> levels during 1999 is presented in the Fig 6.2. The AMC of SO<sub>2</sub> is reported high at two industrial and one residential location in the country.



**Fig 6.2 Status of Sulphur Dioxide (SO<sub>2</sub>) levels in terms of high, moderate and low pollution**

#### Oxides of Nitrogen (as NO<sub>2</sub>)

The locations where annual standards of industrial areas, exceeded in the city of Udaipur, Pune and Kota (one sensitive). Alwar is a satellite town of Delhi with a high concentration of industries. Due to inadequate power supply, the industrial, commercial and residential activities often resort to captive power generation resulting in high emissions of Oxides of Nitrogen. Table 6.3 enlists locations having top ten highest values of annual mean concentration of Nitrogen dioxide.

**Table 6.3 Ten Locations Having Highest Concentration of Nitrogen Dioxide**

S.No	Industrial			Residential		
	Location	State	Annual mean conc. (µg/m <sup>3</sup> )	Location	State	Annual mean conc. (µg/m <sup>3</sup> )
1.	RIICO Pump House, Alwar	Rajasthan	79	Regional Office, Udaipur	Rajasthan	98*
2.	Gaurav Solvex, Alwar	Rajasthan	75	Regional Office, Alwar	Rajasthan	74*
3.	Renusagar Colony, Anpara	U.P.	62	University Gate, Pune	Maharashtra	61*
4.	Anpara Colony, Anpara	U.P.	62	S. Water Tower, Jamshedpur	Bihar	60
5.	Poud Phata (Kothrud), Pune	Maharashtra	56	Town Hall, Delhi	Delhi	55
6.	Burmamines Water tower, Jamshedpur	Bihar	55	R.O. Dhandbad	Bihar	54
7.	M.I.D.C, Chandrapur	Maharashtra	55	Bapat Nagar, Chandrapur	Maharashtra	53
8.	PCMC, Chinchwad,	Maharashtra	52	PHED, Gandhinagar,	Rajasthan	51



	Pune			Jaipur		
9.	M.A.D.A, Jharia	Bihar	51	RC School, High School, Ahmedabad	Gujarat	51
10.	ESI Disp., Nazafgarh Road, Delhi	Delhi	47	Chitale Clinic, Solapur	Maharashtra	46

\* - Locations where annual mean concentration of NO<sub>2</sub> exceeded the respective standards of 80 µg/m<sup>3</sup> for Industrial and 60 µg/m<sup>3</sup> for Residential areas.

Percent violations with respect to 24-hourly standards is depicted in Fig. 6.3. The number of locations where either annual mean or 24-hourly concentration exceeded the standards of NO<sub>2</sub> for more than 5% times are listed in Table 6.4 During 1999, one sensitive and nine residential locations violated the 24-hourly standards of NO<sub>2</sub> for more than 5% of the times.

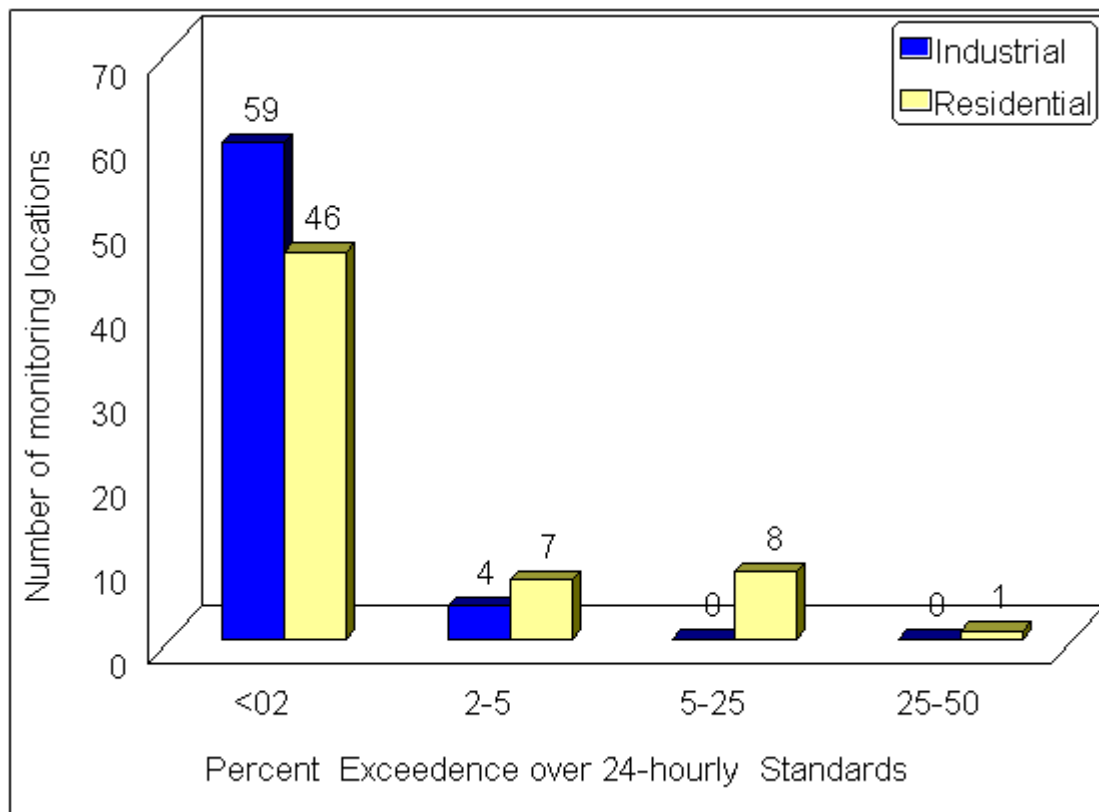


Fig 6.3 Percent violation of 24-hourly standards (Nitrogen Dioxide)

Table 6.4 : Locations where either annual mean or 24-hourly Nitrogen Dioxide concentration violated respective standards

Location	State	Area Class	Annual Mean Conc.(µg/m <sup>3</sup> )	% Exceedence Over 24-Hourly Standards
R.O. Dhanbad	Bihar	Residential	53.6	8
Town Hall, Delhi	Delhi	Residential	54.5	8
R.C. High School, Ahmedabad	Gujarat	Residential	50.6	18
Tripolia Bazar, Jaipur	Rajasthan	Residential	45.4	10

PHED, Gandhi Nagar, Jaipur	Rajasthan	Residential	50.7	16
Maskasath, Nagpur	Maharashtra	Residential	44.1	6
243	.	Residential	74.3	11
University Gate, Pune	Maharashtra	Residential	60.9	9
Regional Office, Udaipur	Rajasthan	Residential	98.1	51

Based on the analysis of air quality data (AMC) at all the monitoring stations and pollution level categorization, the status of NO<sub>2</sub> during 1999 is presented in the Fig 6.4. NO<sub>2</sub> is reported to be high at two residential and one critical locations in the country. It is observed that NO<sub>2</sub> violation is mainly in the state of Rajasthan (Udaipur & Alwar ) and Maharashtra (Pune).

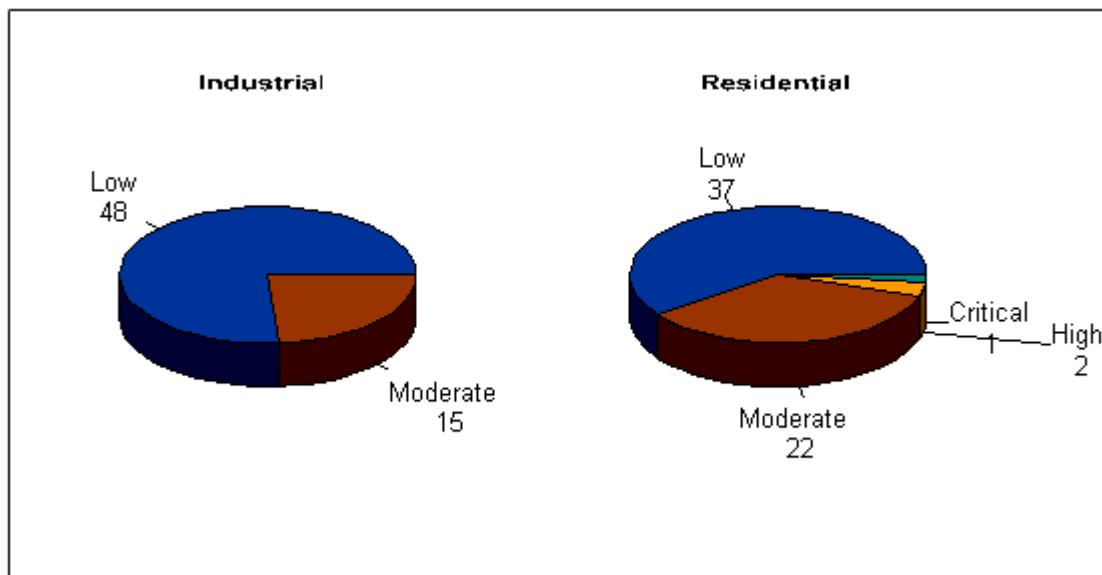


Fig 6.4 Status of Nitrogen Dioxide levels in terms of high, moderate and low pollution

## ENVIRONMENTAL RESEARCH

Research and development activities play an important role in assessment and control of pollution. The important research activities carried out during the year 2000-2001 in various fields like environmental monitoring, pollution assessment, pollution control, treatability studies, standardisation of analytical techniques, analytical quality control (AQC); continuous monitoring of air and water quality and meteorological studies are summarised below.

### STANDARDIZATION OF METHODOLOGY FOR ANALYSIS OF ADSORBABLE ORGANIC HALOGENS (AOX) IN ENVIRONMENTAL SAMPLES

To propose standard procedure for Adsorbable organic halogen (AOX) analysis and to develop the capability for estimation of AOX in different types of environmental samples, the project on standardization of methodology for analysis of AOX in environmental samples had been taken up in during 1998-99 and 1999-2000, within the frame work of project work plan following main activities have been carried out.

- Identification of laboratories
- Compilation of basic information for development of AOX analysis
- Intra laboratories studies

Data generated by participating laboratories are compiled and processed for repeatability, reproducibility and spike studies. Under intra-laboratory study, analysis for four standards of 50,100, 200 & 250 mg/l was carried out by each participating laboratory to assess the recovery and repeatability of results by the methodology adopted.

After preliminary period data has been generated satisfactorily by each of the participating laboratory. The continuous check on accuracy was followed during the analysis of synthetic and field samples by analysis of control sample, so that time related deterioration of data could be checked. For this purpose, quality control chart had been established based on the data generated during analysis of one of the standard viz.100 mg/l. The estimate of standard deviation from preliminary period data was used to calculate the warning and action limit of the chart. Control chart based on the preliminary period and control sample data provided by the participating laboratories were plotted. Common practice is used  $\pm 2 S$  and  $\pm 3 S$  limits for the warning limit (WL) and control limit (CL) respectively, where S represents standard deviation.

### **DEVELOPMENT, STANDARDIZATION AND PREPARATION OF AQC SAMPLES FOR TOTAL COLIFORM AND FAECAL**

#### **COLIFORM PARAMETERS FOR CONDUCTING AQC EXERCISES**

CPCB is conducting AQC exercises since 1991 covering 20 physico-chemical parameters. So far 8 full rounds of exercises in 17 slots were conducted. In this endeavour, bacterial parameters like Total Coliform and Faecal Coliform are not yet started which are very much essential from the water quality assessment point of view. The constraints in preparation of bacterial AQC samples are preservation and despatch of samples in ice cold condition. To overcome these problems it was decided to prepare lyophilized bacterial samples in solid form like the one developed for BODSEED in collaboration with Centre for Biochemical Technology(CBT), CSIR, Delhi.

The main objectives of the proposed project are :

- To introduce the bacteriological parameters like Total Coliform and Faecal Coliform in AQC scheme.
- To improve the analytical efficiency of concerned laboratories with reference to bacteriological parameters.
- To get accurate and reliable data on Total coliform and Faecal coliform.

Bacterial samples developed by CBT were tested in CPCB laboratory . Further studies in this project work is in progress.

### **DEVELOPMENT OF CERTIFIED REFERENCE MATERIAL (CRM) OF TOXIC METALS USING INDUSTRIAL EFFLUENTS**

Trace metals constitute significant health hazard to human beings and occupies an area of particular concern and priority in environmental research. Some of the metals such as Fe, Cu, Zn, Mg, Ca are essential nutrients to aquatic life as well as to human being upto some extent but some other metals are toxic to plants and animals. The need for accurate analytical measurements of metals during environmental monitoring is well recognized and accomplished with use of reference material.. Standard Reference Materials (SRM's) are well characterized material used to maintain the quality of measurements.

The use of certified reference material (CRM) during routine measurement of trace metals is quite expensive therefore it has become necessary to develop economical and indigenous Certified Reference Material (CRM). Central Pollution Control Board has undertaken project for preparation of Reference Material for toxic metals in industrial effluents under sponsorship of Department of Science & Technology (DST). During first phase of the project (Year 2000-2001). The Certified Reference Material for Nickel, Chromium and Copper were proposed to developed. For preparation of CRMs using electroplating industrial effluent, the samples and standard solutions for the metals Nickel, Chromium and Copper had been distributed to 32 reputed environmental and R&D laboratories in the country for analysis. In order to certify it as Reference Material, the analytical data as obtained from 32 laboratories have been compiled, statistically processed and computed in order to certify its use as reference material and to certify its reference value. During second phase of the project, the stability of the developed CRM's have been thoroughly studied at room temperature in order to assess the stability, degradability (if any) in the solution and consequent changes in CRM due to storage. These samples have been analysed regularly for about an year on monthly frequency. The change in the metal

contents, summary of observations on analytical values made on the basis of the results are presented in Table 7.1.

**Table 7.1 Stability Test of Developed CRMs and Control Samples stored at Room temperature**

S.No	Month	Reference Concentration			Sample Average Concentration		
		Certified Average (mg/l)	Cromium(mg/l)	Material Copper (mg/l)	Control Nickel(mg/l)	Cromium (mg/l)	Copper(mg/l)
1.	April,2000	4.25	6.50	2.10	2.53	1.45	1.97
2.	May, 2000	4.39	5.16	1.83	2.30	1.43	1.71
3.	June, 2000	4.20	5.06	1.92	2.36	1.49	1.78
4.	July, 2000	4.06	5.18	1.87	2.27	1.45	1.73
5.	August, 2000	4.06	5.25	1.96	2.23	1.43	1.79
6.	September,2000	4.14	5.77	1.92	2.16	1.37	1.76
7.	October, 2000	3.80	7.12	1.85	2.16	1.62	1.72
8.	November, 2000	3.73	7.74	1.81	2.14	1.54	1.72
9.	December, 2000	3.86	7.52	2.06	2.27	1.40	1.89
10.	January, 2001	3.74	6.35	2.12	2.02	1.56	1.94
11.	February, 2001	3.72	6.52	2.06	1.99	1.39	1.93
12.	March, 2001	3.87	5.57	2.02	2.16	1.31	1.84
Minimum Value		3.72	5.06	1.81	1.99	1.31	1.71
Maximum Value		4.39	7.74	2.12	2.53	1.62	1.97
Average Value		3.99	6.14	1.96	2.22	1.45	1.82
Average Recovery		93.88%	94.62 %	93.33%	87.75%	100%	92.39 %

#### DEVELOPMENT OF TOXICITY BASED STANDARD FOR TEXTILE INDUSTRIES

For the development of toxicity based Minimum National Standards (MINAS), a collaborative project had been initiated by CPCB involving five laboratories viz. Gujarat Pollution Control Board, Gandhinagar; National Institute of Occupational Health, Ahmedabad; National Environmental Engineering Research Institute, Nagpur and two laboratories of CPCB located at Kanpur and Delhi. The project work has been undertaken at seven ETPs and one CETP. The selected treatment plants treat effluents generated from synthetic and natural fabric processing units and are located in the states of Gujarat, Uttar Pradesh, Haryana and Rajasthan.

The treated and untreated wastewater samples were jointly collected thrice from the selected ETPs by all the five participating laboratories. The samples thus collected were analyzed for toxicity independently by the laboratories adopting the BIS approved method based on dimensionless toxicity factor (TF). The Toxicity Factor (TF) is the minimum dilution required for the hundred percent survival of test fish during a period of 48 hours.

The analytical results indicates that the range of toxicity factor in the untreated effluents ranged between 4 to 16, whereas in treated effluent its value ranged between 1 to 2. Thus the range of percent toxicity reduction after treatment varied from 75 to 100 percent.

On the basis of results, the Toxicity factor as one (TF=1) recommended as toxicity standard for textile industries, under MINAS, the standard indicates that the treated effluent should not cause any fish mortality, if exposed in the effluents for a period of 48 hrs.

## DEVELOPMENT & STANDARDIZATION OF SPORE TESTING METHODOLOGY FOR EFFICIENCY TESTING OF AUTOCLAVES USED FOR HOSPITAL WASTE TREATMENT

The increasing Bio-medical waste generation has become a matter of serious concern for safe disposal of hospital waste in recent years due to increasing health facilities & number of hospitals, nursing homes in metropolitan cities. The Biomedical Waste (Management & Handling) Rules, 1998 notified by Govt. of India, has stipulated rules for proper collection, storage, transportation, treatment and disposal of bio-medical waste. As per Bio-medical Waste Rules, 1998 the hospitals have to install treatment facilities like incinerators, autoclaves, etc. for treatment of bio-medical wastes generated to ensure safe treatment & disposal of infectious hospital waste. These treatment facilities should operate at designed efficiency level.

A project has been undertaken during the years 1999-2000 & 2000-2001 to develop spore-testing methodology for assessment of efficiency of autoclaves used in hospital waste treatment. The major objectives of the project are:

- To standardize the spore testing methodology for assessment of the efficiency of autoclaves used in hospital waste treatment.
- In-situ assessment of the efficiency of autoclaves installed at various hospitals within NCT-Delhi using biological indicator.

The standardization of spore testing methodology has been undertaken using *Bacillus Streothermophilus* as biological indicator with a view for its application for efficiency testing of autoclaves used for hospital waste treatment. The standardized methodology has been tested at autoclaves installed at various hospitals within NCT-Delhi for testing their efficiency. The observations & findings of field-testing are presented in Table 7.2.

**Table 7.2 Efficiency Testing/Validation of Hospital Autoclaves in NCT-Delhi by Spore Testing Methodology**

S.No.	Autoclave Location	Sampling Month	Location inside Autoclave	Observations	Efficiency Validation
1.	Autoclave I Dilshad Garden	June, 2000	Exposed spore strips in 12 tubes in bags inside autoclave	No turbidity developed in any tube	Satisfactory
2.	Autoclave II Hari Nagar	September, 2000	Exposed spore strips into tubes in bags inside autoclave	Turbidity developed in one tube	Partially satisfactory
3.	Autoclave-III Najafgarh	September, 2000	Exposed spore strips in 5 tubes in bags inside autoclave	No turbidity developed in any tube	Satisfactory
4.	Autoclave-IV Sarita Vihar	March, 2001	Exposed spore strips in 8 tubes in bags inside autoclave	No turbidity developed in any tube	Satisfactory

**Remarks:** *In case the spore testing strips do not develop turbidity after exposure and incubation, then the efficiency of autoclave is considered satisfactory (i.e. acceptable sterilization).*

The results indicate that the Bio-medical waste treatment autoclaves installed at the hospitals are satisfactory with respect to sterilization of bio-medical waste undertaken at these autoclaves.

## ENVIRONMENTAL TRAINING

### INTRODUCTION

Manpower development and work efficiency is achieved by providing proper training to the officials of an organization. Environmental awareness among the public and imparting current knowledge to the officers working in the Pollution Control Boards are essential steps to have a sound environmental management in any country. Hence the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution), Act, 1981 are also emphasizing that imparting training is one of the functions of the Central Pollution Control Board. Training in various aspects of prevention, abatement and control of pollution to the identified target groups is important. The target groups include officials dealing with planning, funding and implementation of programmes for prevention and control of pollution in the Central and State Governments, the Central and State Pollution Control Boards, the local bodies, operators of industrial and municipal wastewater treatment plants and NGO's engaged in management of pollution control programmes.

## TRAINING NEED

Pollution control is an inter-disciplinary subject. Graduates, post-graduates in the fields of chemical/civil engineering and sciences, do not have any formal training in the field of prevention, abatement and control of pollution. When appointed in Pollution Control Boards, they face a gigantic task before them. Therefore, it is necessary to have them trained and oriented for discharging their responsibilities smoothly and efficiently in areas, such as consent management, and implementation of effluent and emission standards. In addition, there is a need to improve the capabilities of persons already working with pollution Control Boards. It is necessary that uniform methods of analysis of pollutants and consent granting are adopted and ensured through training for proper and effective implementation of the provisions of the Acts. To summarize, training is needed in the following fields.

Operation and maintenance of wastewater treatment plants and air pollution control devices

- Management, routine analysis, quality assurance and analytical quality control and maintenance of environmental laboratories
- Water and air quality monitoring system
- Consent management including setting of standards
- Environmental audit, Environmental Impact Assessment and environmental management system
- Specific subjects, such as management of hazardous waste, air/water quality modeling, data processing and legal aspects.
- Computer application for data processing and Internet surfing for literature collection.

## CENTRAL POLLUTION CONTROL BOARD SPONSORED / ORGANISED TRAINING PROGRAMMES / WORKSHOPS / SEMINARS / CONFERENCES

1. CPCB sponsored training programme on 'Particulate air pollutants and their role in lung diseases' was organised by Industrial Toxicological Research Centre, Lucknow during July 31st - 4th August 2000. Eleven officials of CPCB and State Pollution Control Boards/Committee participated.
2. User training workshops on Zoning Atlas for Siting of Industries were organised for nine districts mentioned below:

S. No.	District	Month and venue	No. of participants
1.	Cuttack district	April, 2000, Cuttack	45 nos.
2.	Bangalore	August, 2000, Bangalore	45 nos.
3.	Hasan district	August, 2000, Hasan	40 nos.
4.	Mysore district	August, 2000, Mysore	40 nos.
5.	Sambalpur district	October, 2000, Sambalpur	45 nos.
6.	Patna district	December, 2000, Patna	40 nos.
7.	Bhubaneswar district	December, 2000 Bhubaneswar	50 nos.
8.	Panchamahar district, Gandhinagar	December, 2000, Gandhinagar	44 nos.
9.	Kamrup and Guwahati district, Assam	February, 2001, Guwahati	50 nos.

- 3.
4. A training programme on 'Adventure in Attitudes' organised by NIS Sparta, New Delhi, during September 26-29, 2000 was sponsored by CPCB. Seventeen officials of CPCB have participated.
5. An orientation-training programme on 'Environmental Management and Pollution Control' was organised for the officials of CPCB during August 28- September 8, 2000. Twenty-five nos of officials participated.
6. An orientation-training programme for the newly appointed officials of J & K Pollution Control Board was organised during February 5-9, 2000. Twenty-five nos of scientific/technical officials have participated.
7. Three nos of training programme on 'Ambient Air Quality Monitoring' was organised for the officials involved in National Air Quality Monitoring programme during December, 11-18, 2000, February 5-10, 2001 and March 12-17, 200. Twenty-two officials from Central and different State Pollution Control Boards have attended the programme.
8. Two training programmes on Inter-laboratory comparison study for measurement of SO<sub>2</sub> and NO<sub>x</sub> was organised under Analytical Quality Control (Air) Programme in the month of February and March. Officials of different State/Central Pollution control Board laboratories attended the programme.

#### **CENTRAL POLLUTION CONTROL BOARD CO-SPONSORED TRAINING PROGRAMMES / WORKSHOPS / SEMINAR / CONFERENCES DURING 2000-2001**

1. Co-sponsored an International conference on "Environmental & Occupational Respiratory Diseases" organized by Industrial Toxicological Research Centre (ITRC), Lucknow from October 29- November 2, 2000.
2. An International Seminar on Analytical Techniques in Monitoring the Environment held during December 18-20, 2000 at S.V. University, Tirupati was co-sponsored.
3. National Conference on Environmental Pollution Prevention & Control for healthy living held on 21st November, 2000 organised by University College of Medical Sciences (UCMS) & GTB Hospital was co-sponsored by CPCB.
4. National seminar on 'Recent Trends in Waste Management' held at Banaras Hindu University (BHU) during February 23-24, 2001 was co-sponsored by CPCB.

#### **CENTRAL POLLUTION CONTROL BOARD OFFICIALS ATTENDED TRAINING / WORKSHOP / SEMINAR / CONFERENCES DURING 2000-01**

Central pollution Control Board has nominated more than 120 officials for attending various trainings, workshops, conferences, seminars etc, during the year 2000-2001. Both scientific/technical and administration/finance/law related subjects were covered and officials from all divisions have attended the programmes to improve the quality of work and for further knowledge in the relevant subject areas. Name of the programmes, officials attended, organisation, duration of the programmes and national and international programmes are presented in the Annexure VIA and VIB, respectively.

### **ENVIRONMENTAL AWARENESS AND PUBLIC PARTICIPATION**

#### **ACTIVITIES OF NGO CELL**

Prior to reporting period 605 NGOs were enlisted with the Central Pollution Control Board, and 20 more NGOs were additionally enlisted during 2000-2001. Financial assistance of a total amount of Seventy five thousands Rupees was provided to 15 NGOs as financial assistance to organise mass awareness programmes in different parts of the country.

Two training programmes were organised at Shillong and Pune for local NGOs. The NGOs from Gujarat, Maharashtra, Dadra & Nagar Haveli and Daman & Diu participated at Pune and the NGOs from Assam, Manipur, Meghalaya and Tripura took training at Shillong.

A meeting with regional NGOs was organised at Lucknow in September 2000. The meeting was organised in collaboration with the State Pollution Control Boards of Northern region for coordination of activities and promotion of the public participation in the pollution control programmes. The NGOs from

Uttar Pradesh, Himachal Pradesh, Jammu & Kashmir, Delhi and Chandigarh participated in coordination meeting.

An interaction meet of NGOs in western part of the country was conducted by University of Pune. The financial support has been extended to them by CPCB.

### **DISTRIBUTION OF WATER TESTING KIT**

Environmental awareness plays a vital role in prevention and control of pollution in industrial as well as at community levels. Assessment of water quality in a particular water body to understand any impact of water pollution, needs laboratory facility, which is not readily available everywhere. Providing Water Laboratory at every location is not possible for the developing countries like India. A mobile and cost effective laboratory is required to assess the characteristic of water and wastewater all over India. Keeping this fact in view, the Central Pollution Control Board has developed a Water Testing Kit (WTK) to assess the water quality of surface, ground and potable water bodies in field conditions. The kit designed and developed by a team of scientists of the Board is intended for students, NGOs and public. The WTK is a portable mini laboratory equipped with the apparatus and chemicals needed for testing of water samples. The required apparatus and chemicals are kept in the kit box made up of Rexine lined wooden case having dimension 45 x 30 x 20 cm and weighing 6.5 kg. An instruction manual is provided with the WTK, which includes the details of program components, instruction sequence, sampling and analysis procedure, preparation of reagents, glossary of terms and related standards. The WTK has been designed and explained in a simple way so that any person having the understanding of the basic science can use it effectively for the intended purpose.

The main objectives of this WTK are to create mass awareness and to provide low-cost Water Testing facility. The kit has been designed not only to test water samples but also to serve as a scientific, informative, thought-provoking and educative tool to the students, NGO's and the public. The kit is useful in providing the information, whether pollutants are above or below the permissible limit based on quantitative as well as qualitative analysis.

The following analytical tests can be performed using the water testing kit:

- |                                                                                                                                                                                    |              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| A. <i>PHYSICAL</i>                                                                                                                                                                 | <i>TESTS</i> |
| 1. Colour 2. Odour 3. Temperature 4. Turbidity 5. Suspended solids                                                                                                                 |              |
| B. <i>CHEMICAL</i>                                                                                                                                                                 | <i>TESTS</i> |
| 6. pH 7. Alkalinity 8. Dissolved Oxygen 9. Total Hardness 10. Calcium 11. Magnesium 12. Chloride 13. Fluoride 14. Nitrate 15. Ammonia 16. Phosphate 17. Iron 18. Residual chlorine |              |
| C. <i>BIOLOGICAL</i>                                                                                                                                                               | <i>TESTS</i> |
| 19. Total Coliform 20. Primary Productivity 21. Benthic Organisms.                                                                                                                 |              |

During the reporting period (2000-2001) about 750 Water Testing Kits were distributed to various NGOs, schools, and for other Mass Awareness Programme.

### **CPCB PUBLICATIONS DURING 2000-2001**

The Central Pollution Control Board continued to collect, compile and publish scientific, technical and statistical reports relating to pollution and the measures to be taken for its effective prevention, control and abatement. CPCB has published following technical documents during the year 2000-2001:

- Prevention & Control of Marine Pollution : Legislations, Impact Assessment & Management
- Annual Action Plan 2000-2001
- Technology Development and Control of Pollution in Caustic Soda Industry
- Air Quality Overview Status and Trends in India
- Systems & Procedure for Compliance to Regulations for Petrol and Kerosene Run Generator Sets upto 19 kW
- Basin Sub-basin Inventory of Water Pollution - The Brahmaputra Basin
- A Report on State of Environment - Varanasi
- Development of Emission Factors for Cement Industry
- Status of Pollution and Environment Management in Ports and Harbours
- The Status of Coastal Sea of West Bengal



- Ambient Noise Level Status in Delhi During 1995 & 1999
- Biological Treatment of Textile Mill Effluent - A Case Study
- Bio-technologies for Treatment of Wastes
- Proceedings of the Workshop on Environmental Risk Analysis due to Storage and Handling of Hazardous Chemicals.
- Guidelines for Duckweed based Wastewater Treatment System
- Water Quality Assessment during Solar Eclipse Mass Bathing at Brahma Sarovar, Kurukshetra (Haryana)
- Water Quality Status of Yamuna River
- Standards for Liquid Effluents, Gaseous Emissions, Automobile Exhausts, Noise and Ambient Air Quality
- Fuel Quality Specifications 2005
- Guidelines for Development of Greenbelts
- Manual on Hospital Waste Management
- Optimisation of Combustion Efficiency & Control of Emission from Small (<2TPH) Boilers
- Monitoring of Human Exposure to Air Pollution in an Industrial Area
- Basin Sub-basin Inventory of Water Pollution - Pennar Basin
- Pollution Assessment of Kosi River
- Case Study on Coastal Fragile Areas
- Environmental Status of Nicobar
- Bio-Assessment of Water Quality
- Adsorbable Organic Halogens (AOx) : An Introduction
- Proceedings Second National Workshop on Development and Use of Reference Materials
- Water Quality Status & Statistics - 1998
- Noise Pollution Regulations in India Criteria for Hazardous Waste Landfills
- The Hazardous Waste (Management & Handling) Rules, 1989 As Amended

Apart from these publications, the newsletter "Parivesh" was brought out on different themes, Viz. Polluting Industries, Environment Management System, Biomonitoring of Water Quality in Problem Areas, Clean Coal, Environmental Management Plan Kanpur, Common Effluent Treatment Plants and Highlights 2000.

Booklet on Noise (in Hindi) was also published for free distribution.

### **QUERY RESPONSE SERVICE**

A Distributed Information Centre (DIC), as a network partner of the Environmental Information System (ENVIS) was established in CPCB with a Memorandum of Understanding reached and signed between the Ministry of Environment & Forests, Government of India and CPCB. Query response service (QRS) is the regular activity of the ENVIS centre. Queries are received from the schools, colleges, NGO's, consultants and technical institutions, government organisations in the field of air pollution, water pollution, noise pollution, solid/hazardous waste, consultancy and mass awareness. During the year, more than 200 queries were received and answered. In addition to queries through letters, a lots of queries were received in the form of telephonic conversations, fax messages and E-mail. These queries were also entertained and answered.

### **PARTICIPATION IN EXHIBITIONS**

Participation in exhibitions is an important means for direct interaction with the general public. With this objective, CPCB had put up stalls/pavillion at various exhibitions during the year. The main items displayed at CPCB pavillion were air monitoring devices, blow ups on Zoning Atlas Programme and other major activities, pollution information booklets and technical publications. Films on pollution control and nature conservation were the major attraction of exhibition pavillion. Mass Awareness literature giving general information on pollution control in form of pamphlets, newsletters etc. were distributed. The important exhibitions, in which CPCB participated during the year are :

- Clean-Tech Environment at Pragati Maidan, New Delhi
- India Habitat Centre, New Delhi
- MTNL Perfect Health Mela, New Delhi

## KANPUR

## PARYAVARAN-2000

A three day mass awareness camp was organized at Brijendra Swaroop Park, Kanpur, during 6th to 8th April 2000. The objective of the camp was to educate the people of Kanpur regarding environment and its components.

The camp was inaugurated by Sh. Satish Mahana, Hon. Minister of State for Urban Development, Government of Uttar Pradesh. This camp was a collaborative effort of different government/non government organisations.

Different kinds of techniques/tools were used to disseminate the information among the people including school children. The main activities performed during the camp were;

- Street play
- Drawing and painting competition
- Quiz competition
- Display of posters, banners, charts, models etc.
- Display of films
- Ground water monitoring by mobile laboratory of ITRC, Lucknow
- Vehicular exhaust monitoring
- Kavi Sammelan

## ECO-FRIENDLY SCHOOLS IN BHOPAL

Earlier CPCB organised a competition for best Eco-friendly School in Bhopal to commemorate Silver Jubilee Year of Enactment of Water Act, 1974. The Eco-friendly school competition was organized for the year 2000-2001 for the schools in Bhopal city. The Carmel Convent School was adjudged the best school again and the running trophy was awarded by Prof. G.K. Lehri, Principal, Regional Institute of Education, Bhopal.



Financial assistance of Rs 5,000 each was given to the following NGOs in M.P. & Rajasthan under mass awareness & public participation programmes. These NGOs are enlisted with CPCB and the financial assistance was given on the basis of the merit of the project proposals submitted by NGOs.

- Anupama Education Society, Satna (Madhya Pradesh)
- Pragati Avam Prerna Sansthan, Ramnagar, Distt.-Jaipur (Rajasthan)
- Rajasthan Gram Vikas Evam Pashu Samvardhan Trust, Jaipur (Rajasthan)
- Narmada Valley Research Centre, Hoshangabad (Madhya Pradesh)

## WORLD ENVIRONMENT DAY CELEBRATION AT VADODARA

World Environment Day on 5th June 2000 was celebrated at Vadodara. As a part of celebration, video shows on several pollution control programmes were organised to the students of M.S. University, Vadodara. A lecture on "Conservation of Natural Resources" has also been delivered to the public and students at M.S. University. A lecture on "Legislation and Pollution Control Laws" has also been arranged for the officials of West Zone Office of the Central Pollution Control Board at Vadodara.

Central Pollution Control Board in association with SOCLEEN, a leading NGO in Vadodara has conducted a mock drama on Green Bench with the help of school children. The theme of the drama was "Who is responsible for the pollution"? Can they be punished? Total 6 schools from Vadodara have participated and best 3 participants were given prizes.

## ENVIRONMENTAL STANDARDS INCLUDING TIME SCHEDULE FOR THEIR ENFORCEMENT

### DEVELOPMENT OF STANDARDS

One of the mandates assigned to CPCB under the Water (Prevention & Control of Pollution) Act, 1974; the Air (Prevention & Control of Pollution) Act, 1981; and the Environment (Protection) Act, 1986, is to lay down effluent and emission standards. The standards formulated during the year are given below:

#### Standards/Guidelines evolved during the year 2000-2001

- *Noise limits for motor vehicles at the manufacturing stage*  
These limits were notified under EPA, 1986 vide GSR 742(E), dated September 25, 2000.
- *Noise Limit for Generator Sets run on Petrol/Kerosene*  
These limits were notified under EPA, 1986 vide GSR 742(E), dated September 25, 2000.
- *National Environmental Standards for Coal Mines*  
These limits were notified under EPA, 1986 vide GSR 742(E), dated September 25, 2000.
- *Fuel Quality and Vehicular Emissions*  
CPCB actively participated to lay down the following standards/guidelines with respect to fuel quality and vehicular emissions:

#### Emission norms for motor vehicles

- a. Draft Bharat Stage-II norms issued on February 2001 for transport vehicles.
- b. Road map for emission norms for all types of vehicles upto 2005 evolved.

**Fuel quality specifications**

Road map for fuel quality upto 2005 evolved.

#### Emission Norms for 2/3 Wheelers from 2005

Petrol 2-Wheelers	
CO (g/km)	HC + NO <sub>x</sub> (g/km)
1.5	1.5

Diesel 2 & 3 - Wheelers (g/km)			Petrol 3 - Wheelers (g/km)	
CO	HC + NOx	PM	CO	HC + NOx
1.0	0.85	0.11	2.25	2.0

#### EURO - III Emission Norms for Passenger Cars & LCV Effective from 2005

Ref. Mass (Rw) kg	CO		HC		NOx		HC + NOx	PM
	Petrol	Diesel	Petrol	Diesel	Petrol	Diesel	Diesel	Diesel
All	2.3	0.64	0.20	--	0.15	0.50	0.56	0.05
Rw<1350	2.3	0.64	0.20	--	0.15	0.50	0.56	0.05
1305 <1760	4.17	0.80	0.25	--	0.18	0.65	0.72	0.07
1760<Rw	5.22	0.95	0.29	--	0.21	0.78	0.86	0.10

#### EURO - III Emission Norms for Diesel HCV Effective from 2005

Test Cycle	CO (g/kwh)	HC (g/kwh)	NOx (g/kwh)	PM (g/kwh)	Smoke (m-1)
ESC & ELR	2.1	0.66	5.0	0.10 - 0.13	0.8
ETC	CO (g/kwh)	NMHC (g/kwh)	NOx (g/kwh)	PM	
Euro - III	5.45	0.78	5.0	0.16 - 0.21	

#### Standards/Guidelines under Finalisation

- Development of emission standards for liquid fuel based power plants/large gensets (>1000 KVA).
- Development of emission standards for diesel generator sets upto 260 KW.
- Revision of noise standards for diesel generator sets.
- Noise labeling of domestic/office appliances.

#### Review of stack height regulations for thermal power plants

Presently, emission of sulphur dioxide and some other gaseous pollutants is regulated through stack height guidelines. Considering the improvement in power generation technologies such as AFBC, PFBC and IGCC in terms of efficiency and emission control, there is a need to review the present stack height regulations. A study has been initiated with IIT, Kanpur which likely to be completed by June 2001.

#### Development of emission standards for Liquid fuel based Power Plants/Large Gensets (>1000 KVA).

This project aims at assessing the emission levels of pollutants from standby power plants / large generator sets, which have mushroomed all over the country for captive power generation. Accordingly, the study aims at evolving necessary control technologies and suitable emission standards from such power plants. CPCB is conducting the study in association with M/s Sriram Environment & Allied Services, Gurgaon.

#### DEVELOPMENT OF STANDARDS - AN EXTERNAL FUNDING PROJECT

The Central Pollution Control Board (CPCB) has been allocated a fund of US \$ 1.00 million by the Ministry of Environment & Forests for the sub-component: Development of Standards under the World Bank funded Environmental Management Capacity Building Technical Assistance Project (EMCBTA). CPCB has identified the projects to be taken-up for execution in phases till March, 2003. Under this sub-component, various projects have been taken-up and brief write-up on each is given below:

#### Pesticides Manufacturing Industry

Pesticides industry being critical in terms of raw material usage and final products/by-products, demand special care/attention. It is well established that the process of development of industry-specific standards considers techno-economic feasibility as the criteria. This criteria demands the review of technologies for control of pollutants emanating from the industries and cost implications due to such pollution control equipment and bearing on health & environment. Therefore, looking at the complexity, a local consultant was engaged to provide basic information/data, which has been completed, then a foreign consultant has been engaged to review the findings of the study conducted indigenously and to suggest the best practices being followed in advanced countries, and options for improvement in terms of technologies (*best available & best practicable*) suitable to Indian pesticides industries. The foreign consultant in association with the Central Board's officials visited various pesticides industries and conducted a workshop at Central Board to share the experiences in control of pollution in pesticides industry. The final report is under preparation. The exercise will yield the national emission standards for pesticides manufacturing industries.

### **Petrochemical Industries**

Petrochemical plants involve cracking of different feedstock to separate various petrochemicals. These petrochemicals are further reformed to get desired end-use products. As number of petrochemicals are being produced in India in varying capacities, the emission arising from the processes are also varying in characteristics and in general the process-vents are either let-out or subjected to flaring or incineration depending upon the pressure. Besides these process-vents, a considerable amount of emissions escape the system in the form of fugitive emissions. It has been considered that the process equipment can be modified to restrict the fugitive emissions and the process-vents shall be collected to box-flaring/incineration. Precisely, it is aiming for the review of process technologies, equipment besides conventional approach of providing end of the pipe pollution control equipment, their efficiencies, monitoring etc. Considering these, consultants having experts (including foreign) have been engaged for assessing the status of indigenous petrochemical plants and to explore the options for equipment modifications, control of emissions etc. and retrofitting of developed criteria.

The above exercise will result in development of national emission standards for petrochemical plants.

### **Total Dissolved Solids in Industrial Effluents**

The detailed studies have been conducted by engaging the National Chemical Laboratory (NCL), Pune, to identify i) sources of TDS in industrial effluents; ii) alternative options to eliminate/minimise TDS in effluent; and iii) techno-economic feasibility of the available control technologies for small to medium-scale industries.

To accomplish the task, selected industries in each sector viz. pesticides, bulk-drugs, tanneries and dye & dye intermediate, have been studied by CPCB & NCL teams. It is noticed during the industrial visits that TDS is a critical problem, which demands not only feasible control system but also process modifications to avoid or reduce the generation of TDS.

It has been seen that when the control technologies available for TDS are compared, each system has their merits as well as demerits. Therefore, it has been concluded that the issue of TDS management should be seen holistically *i.e.*

- Control at the source by process modifications & control equipment, as far as possible;
- Utilising available dilution due to other wastewaters as long as not impairing any treatment systems. It implies that the available dilution in sewerage network may be explored such that mixing with sewage can be attained to such a level where there is no interference in treatment of sewage;
- Wherever, such sewerage facilities are not available, the minimum possible dilution available in natural water bodies may be explored. It implies the discharge of TDS containing effluents to rivers/ lakes to the extent such that the TDS level of the water body is maintained within the potable limits, with a cushion; and
- Where there are no options of either sewerage system or natural streams (*which can take-up TDS load*) available, the industries shall relocate their principle activities causing generation of TDS, near coasts so that after required treatment, effluent may be disposed into sea.

Such a strategy, exploring all the possibilities to relieve the industries from economic burden due to control of TDS and to protect receiving environment, has been proposed and is being debated in order to yield national standards.

## **REVIEW OF ENVIRONMENTAL STATEMENTS PROGRAMME**

The Ministry of Environment and Forests, Government of India, issued the notification in April, 1992 and further amended in April, 1993, for submission of 'Environmental Statements' (ES) by the industries to the respective State Pollution Control Boards (SPCBs). ES is a pro-active tool for self-examination by the industry so as to reduce or minimise pollution by adopting process modifications, recycling and reusing of the resources. The regular submission of ES will indicate the systematic improvement made by the industries in achieving environmental pollution control. Besides, ES may be used as an environmental performance indicator and to promote better practices.

In order to assess the effect of ES programme in achieving the environmental protection and resource conservation, a national project has been taken-up by the Ministry of Environment & Forests and is being implemented through Central Pollution Control Board. In this project, thirteen major industrial sectors have been identified for collation and compilation of information received through ES which are submitted by the industries to the State Pollution Control Boards, so as to assess the trend of improvements and constraints, each sector wise, and to draw national programmes.

The Central Pollution Control Board has already entrusted the work of following sectors to expert institutes/organisations/individuals or in the process of awarding the work:

- i. tanneries
- ii. bulk-drug industries
- iii. thermal power stations
- iv. distilleries
- v. sugar industries
- vi. cement industries
- vii. iron & steel plants
- viii. textile industries
- ix. fertiliser industries
- x. pesticides industries
- xi. petrochemical plants
- xii. pulp & paper industries
- xiii. oil refineries.

## **PROSECUTIONS LAUNCHED, CONVICTIONS SECURED AND DIRECTIONS GIVEN FOR CLOSURE OF POLLUTING INDUSTRIES**

### **IMPORTANT DECISIONS OF THE SUPREME COURT**

#### **Taj Pollution Matter**

**Writ Petition(Civil)No.13381 of 1984 (M.C.Mehta Vs. UOI & Others), the further progress in the case during the year has been as follows :-**

- The Hon'ble Court on 13.9.2000 directed the Central Pollution Control Board to make an inspection of the Taj Trapezium and find out the levels of various types of pollution having relevant not only public health but also to the Taj monument. It was further directed that the Central Pollution Control Board will also visit the Foundary Nagar industries to verify whether these industries are meeting the prescribed standards. The Central Pollution Control Board will again inspect these industries after one week by way of surprise check. In compliance of the Hon'ble Court's orders, the Central Pollution Control Board after carried out inspection in Agra, submitted its report before the Hon'ble Court for their consideration. On the basis of the recommendations of the Central Board, the Hon'ble Court vide its orders, dated 18.10.2000, 07.11.2000 and 14.11.2000 directed the various departments to take action in accordance with the recommendation of the CPCB.
- The Hon'ble Court while accepting the recommendations of the inspection report of the Central Pollution Control Board has directed vide its order, dated 7.11.2000 that four Air Quality Monitoring Stations be installed in Agra Region and these stations be run continuously for one year all the seven days in a week. These Air Quality Monitoring Stations are to be run by the

Central Pollution Control Board and monitoring report of these stations must be submitted in the Court every month. In order to comply the Hon'ble Court's Order, the Central Pollution Control Board has submitted a detailed proposal for setting up four Air Quality Monitoring Stations in Agra Region to the Hon'ble Court by an affidavit dated 4.12.2000. The proposal of the Central Pollution Control Board has been considered by the Hon'ble Court on 4.5.2001 and accordingly directions have been given for setting up of four Air Quality Monitoring Stations in Agra Region.

### **Ganga Pollution Matter**

**Writ Petition(Civil)No.3727/1985(M.C.Mehta Vs. UOI & Others), the further progress in the above matter during the period is detailed below :**

- In response to Hon'ble Court's notice, dated 9.5.2000 regarding mercury pollution in Singrauli area. The Central Pollution Control Board after in depth investigation in Singrauli area in U.P. submitted its detailed reply on 18.10.2000 for consideration of the Hon'ble Court. In its reply the Central Pollution Control Board stated that after CPCB has identified Singrauli as one of the problem area in the Country. The Central Pollution Control Board has taken action by framing of time targeted action plan and also follow-up action for its implementation besides other measures.
- Further on 12.12.2000, the Hon'ble Court directed the Central Pollution Control Board to carry out inspection jointly with the West Bengal Pollution Control Board of M/s Standard Casting, Baltikuri, Bakultala, Hawrah, West Bengal to ascertain the efficiency of the Pollution Control Devices of the said foundary. The Central Pollution Control Board has submitted the status report of the foundary after joint inspection carried out on 29.12.2000. The foundary has failed to achieve the stipulated standards. The Hon'ble Court after consideration of the joint inspection report on 13.2.2001 dismissed the application of the said foundary.
- In the matter of Interlocutory Application (IA) filed by the Central Pollution Control Board seeking direction from the Hon'ble Court in respect of the municipalities/nagar palikas/local bodies located in the State of Uttar Pradesh and Bihar, to maintain properly and operate the sewage treatment plant/ sewerage systems, pumping stations, crematoria, low cost toilets or any other assets/infrastructure created under the Ganga Action Plan(GAP). The Hon'ble Court on 28.3.2001, after consideration of the replies of the States of Uttar Pradesh, Bihar and West Bengal directed that it is appropriate that the Central Pollution Control Board jointly with the respective State Pollution Control Board, examine and inspect the functions in different States of Bihar, West Bengal, Uttar Pradesh and Uttranchal and submit a comprehensive report indicating to what extent the orders of the Court have been complied with by the respective authorities. The joint inspection report is to be submitted by 31.7.2001. The Hon'ble Court has further directed that each of the State shall deposit a sum of Rs.1.5 lacs each within 3 weeks from the date of the order to meet the expenses of inspection.

### **POLLUTION FROM INDUSTRIES IN NCT-DELHI**

**Writ Petition(Civil)No.4677 of 1985 (M.C.Mehta Vs. UOI & Others), the further progress during the year has been as follows**

- On 29.8.2000, the Hon'ble Court has modified their earlier order, dated 26.11.98 regarding closure of brick kilns and clarified that with the closure of the brick kilns or the change in use to fly-ash technology, the owners of the land on which they were situated would not be under any obligation to surrender any land. It was made clear that this order will not apply to those brick kiln owners who have availed and benefited in the matter of relocation.
- On 12.9.2000, the Hon'ble Court in the matter of relocation/shifting of F-Category industries from residential areas directed that it is appropriate to appoint the Ministry of Urban Development to act as a nodal agency. The said Ministry will create a Cell to see the implementation of various orders passed by the Court as well as the implementation of the Master Plan. The nodal agency so created shall have all the powers under section 3(3) and 5 of the Environment (Protection)Act,1986.
- On 7.12.2000, the Hon'ble Court directed that under the supervision of the Nodal Agency, the Government of National Capital Territory of Delhi, Municipal Corporation of Delhi and Delhi Development Authority will close all the polluting units functioning in non-conforming/residential areas or zones. This should be done within four weeks from the date of the order. The Chief Secretary, NCT of Delhi, the Commissioner, MCD, Vice Chairman, DDA as well as Commissioner of Police, Delhi shall render all assistance to and comply with the directions issued by the nodal agency in compliance of the orders of this Court regarding closure and/or

re-location. The nodal agency will be at liberty to direct closure of the polluting units under their supervision.

- Special Leave Petition(Civil)No(s) 8767/2000 and 10356/2000 (Delhi Pollution Control Committee Vs. National Chemicals and Delhi Pollution Control Committee Vs. Payal Chemicals Industry and Others)

These Special Leave Petitions were filed by the Delhi Pollution Control Committee(DPCC) against the order of the High Court of Delhi passed on 1.11.1999. The DPCC earlier identified these industries as 'H' Category under the Master Plan of Delhi-2001. These industries are manufacturing plasticizers Di-butyl Phthalate (DBP) by using chemical (N-Butyl alcohol and Phthalic anhydride) as raw material. Against the categorization these industries got stay orders from the High Court of Delhi. On 13.12.2000, the Hon'ble Court after consideration of the joint inspection report of the Central Pollution Control Board and the DPCC, has vacated the stay granted by the Delhi High Court and directed that the manufacturing activities of both the industries shall be closed within ten days from the date of the order. The matter is under consideration of the Hon'ble Court.

### **Yamuna River Pollution Matter**

**Writ Petition(Civil)No.725/1994, (News Item 'HT', dated 18.7.1994 titled "And Quite Flows Maili Yamuna" Vs. CPCB & Others). The further progress in the case during the year has been as follows :**

### **Monitoring Of River Yamuna By CPCB**

- In compliance of the Hon'ble Court's orders, the Central Pollution Control Board has carried out monitoring of water quality of the river Yamuna and drains joining it in Delhi. The reports of the Central Pollution Control Board have been submitted vide affidavit dated 29.9.2000, 9.11.2000 and 11.1.2001 for the consideration of the Hon'ble Court.
- In its reports the Central Pollution Control Board recommended that there should be proper collection of waste water generated in Delhi by augmenting sewage facilities, laying down trunk sewer lines. Untreated sewage should not be allowed to flow into the storm-water drains. Sewage treatment plants are required to be operated to their full capacity. The existing sewerage network should be appropriately maintain using three tier maintenance schedule. Adequate sanitary arrangements for slums and J.J.Colonies. Use of Waste Water after treatment for irrigation, gardening and other uses. To exchange treated waste water to fresh water with Haryana.
- On 11.5.2000, the Hon'ble Court has observed that the report of the Central Pollution Control Board indicated that the quality of the water in the river Yamuna was worse than that of a drain. There was no dissolved oxygen in the river at the Okhla Barrage. In view of the non-compliance of earlier orders, a nominal fine was imposed on the Delhi Administration while the realization of the fine was suspended.
- On 11.7.2000, the Hon'ble Court has observed that the latest report of the Central Pollution Control Board does not indicate any substantial improvement in the water quality, the dissolved oxygen in the Yamuna river at Okhla after meeting the Shahdara drain continues to be nil with the total coliforms ranging between 11 lacs 70 thousand to 3 crores 47 thousand, the normal being 5 thousand maximum. The Hon'ble Court directed the Delhi Administration that if the water quality does not improve not only the earlier penalty be directed to be realized but further action may also be undertaken.
- On 11.10.2000, the Hon'ble Court directed the Ministry of Environment & Forests and Ministry of Urban Development, Government of India to study the problem with regard to the treatment of sewage in Delhi and give their positive and concrete suggestions. So that with effect from March,2003, no untreated sewage should go to the river Yamuna.

## **FINANCE AND ACCOUNTS**

The amount of grant-in-aid sanctioned by the Ministry of Environment & Forests, Government of India, to the Central Pollution Control Board for Plan and Non-plan expenditure for the financial year 2000-2001 is as under



Sanctioned Budget for 2000-2001

Rs. in lacs

Plan-Projects/Programmes

Rs.

Non-plan

Rs.

The broad details of the expenditure incurred out of the aforesaid amount of Rs.1,500.00 lacs released to the Central Pollution Control Board and from other deposit projects are given below :

Receipt		Amount (Rs. in lacs)		Payments	Amount (Rs.in lacs)
<b>OPENING BALANCE</b>		<b>1493.56</b>			
I.	GRANTS RECEIVED		I.	CAPITAL EXPENDITURE	
	From government	1590.00		a) Fixed assets(Building)	-
				b) Other assets	102.34
II.	FEES		II.	REVENUE EXPENDITURE	
	Consent fee	-		a) Administration	669.09
				b) Board's laboratory	138.80
				c) Running and maintenance of vehicles	2.03
				d) Maintenance and repairs including rent	59.70
				e) Legal charges & fee to consultants	
III.	FINES/FORFEITURES	-	III.	PROJECT REVENUE EXPENDITURE	
				a) Project (Revenue Exp.) (Project I to IX) <sup>3</sup>	613.56
IV.	INTEREST ON INVESTMENT	-	IV.	FEE FOR AUDIT <sup>1</sup>	1.60
V.	MISCELLANEOUS RECEIPTS	153.36	V.	MISCELLANEOUS <sup>2</sup>	188.06
VI.	MISCELLANEOUS ADVANCES	0.52	VI.	ADVANCES	1330.61
VII.	DEPOSIT	0.48	VII.	DEPOSITS/CASH AT BANK/CHEQUES IN TRANSIT	936.49
VIII.	OTHER DEPOSITS <sup>4</sup> (Outside projects)	804.36	VIII.	CASH IN HAND	-
	<b>Total</b>	<b>4042.28</b>		<b>Total</b>	<b>4042.28</b>

**Notes:**

- Audit Fee: The Audit fee for the year 2000-2001 amounting to Rs. ....was paid to M/s Gupta & Gupta, Chartered Accountants (Statutory Auditor of the Board) in December 2000 and Rs. 13,125.00 was paid to M/s Pawan Kumar Gupta & Associates towards CPF Audit for the financial year 1990-91.
- Miscellaneous: The amount reflects the payments made against the funds received for

outside projects as noted below (Note No. 3)

3. Other Deposits: Other deposits include the deposits for the following projects from other Govt. Deptts/Institutions namely:

(i)		Indo-Dutch		Project
(ii)		Indo-Norwegian		Project
(iii)	World	Bank	(Procurement	- NTPC)
(iv)		AWQMS		(NRCD)
(v)		GPD		(NRCD)
(vi)	Zoning	Atlas	(World	Bank)
(vii)	Training		(World	Bank)
(viii)	Orissa	Board	(Procurement	- GTZ)
(ix)		Environmental	Atlas	Project
(x)		ENVIS		Project
(xi)	Survey of	Medium & Minor	Rivers	Project (GPD)
(xii)	Development	of National	Standards	(MoEF)
(xiii)		JETRO		Project
(xiv)		UNEP		Project
(xv)	Survey	of 61	Towns	(NRCD)
(xvi)				DST-CRM
(xvii)				DUREM
(xviii)	World	Bank	Development of	Standards
(xix)	Coastal	Monitoring	Project	- Calcutta
(xx)	DOD	- Project	Oceanography	- Calcutta
(xxi)		Gas		Mixture
(xxii)		EPA	-	NCR
(xxiii)		UNEP		(MALE)
(xxiv)	Comprehensive	approach on	Environmental	Audit (CAEA)
(xxiv)		World		Bank
(xxv)				CESS-EM
(xxvi)	Delhi	Jal	Board	- STP
(xxvii)		TDSM	-	DBT
(xxviii)	WHO	-		BMHW

## ANNUAL PLAN FOR THE FOLLOWING YEAR

### ANNUAL PLAN

The Annual Action Plan (AAP) for the year 2001-2002 is a mix plan of on-going activities which are to be continued and several new activities. New activity have been identified after reviewing their importance of national level. An outlay of Rs. 900 lakhs has been sanctioned by the Ministry for 2001-2002.

### MAIN THRUST AND ACTIVITIES

The year 2001-2002 has been identified as one of the important year, as during this period various on-going programmes are to be consolidated before approach for the Tenth Five Year Plan is finalised. The Annual Action Plan (AAP) of 2001-2002 is an effort to achieve the targets set in the Coimbatore Charter on Environment and Forests and to observe effects of implemented programmes dfor improvement of environment. The important programme areas identified for implementation includes :

- State of Environment for States/major cities;
- management of municipal wastes (sewage and solid waste)
- management of bio-medical wastes
- hazardous waste management
- vehicular and noise pollution control
- Fuel Quality improvement
- epidemiological study
- performance evaluation of CETP/STP
- plastic waste management
- Clean technologies in small scale industries

- Strengthening measures to improve exchange of information on various activities among CPCB, SPCBs/PCCs.
- monitoring & updating of state of environment in problem areas
- monitoring of specific pollutants in ambient air

### **CAPACITY BUILDING THROUGH FOREIGN FUNDING**

CPCB, in addition to the activities planned in the Annual Action Plan is also executing schemes under World Bank, Indo-GTZ programme and projects sponsored by National River Conservation Directorate (NRCD). The project under operation are:

- Zoning Atlas - Environmental planning (World Bank)
- Environmental standards (World Bank)
- Ambient air quality monitoring (World Bank)
- Water quality monitoring of river Yamuna (NRCD).

### **UTILISATION OF CESS AMOUNT**

From 1999-2000, as per the Order dated 28.12.98 issued by the Ministry of Environment and Forests, cess amount up to 20% is to be utilised for executing schemes of national importance. These schemes are to be executed through CPCB. During the year 2001-2002, schemes taken up by CPCB and schemes sanctioned by MoEF and co-ordinated through CPCB under cess fund are as follows:

- Environmental monitoring in problem areas of Kala-Amb, Parwanoo, Gobindgarh, Jodhpur, North Arcot and Najafgarh Drain Basin, Delhi;
- Oxidative stress bio-marker of aquatic pollution in Indian fishes;
- An epidemiological study on prevalence of pulmonary & extra pulmonary silicosis in quarry workers;
- Impact of environmental pollution on eye - an experimental clinical study;
- Greenbelt for abatement of pollution and environmental improvement in five cities/towns of Tamil Nadu; and
- Drinking water pollution due to fluoride and health hazards in Palam area.

### **BUDGET ALLOCATION**

The MoEF has sanctioned an outlay of Rs. 900.00 Lacs for 2001-2002 and project-wise allocations are summarized in a statement given below:

	<b>PROJECT</b>	<b>ALLOCATION (RS.IN LACS)</b>
I	Pollution Assessment - Survey & Monitoring	208.70
II	Laboratory Management	231.25
III	A. Development of Standards & Guidelines B. Ecomark	75.91 7.00
IV	Training	15.85
V	A. Information (Date Base) Management B. Library	26.50 9.60
VI	Pollution Control Enforcement	223.71
VII	Pollution Prevention & Control Technologies	39.78
VIII	Mass awareness, Publication & activities related to NGOs	38.20
IX	Hazardous Waste Management	23.50
	<b>TOTAL</b>	<b>900.00</b>

## OTHER IMPORTANT ACTIVITIES

### BIO-MEDICAL WASTE MANAGEMENT

#### Implementation of Bio-medical Rules in Kolkata

The Eastern Zone Office of the Central Pollution Control Board carried out bio-medical waste management study in 9 hospitals in Kolkata having bed capacity more than 500. During the study it was observed that there was barely any biomedical waste segregation as per the Biomedical Waste Rules. No pre-treatment is given to the wastes. Salient observations of the study are as follows:

- The needle cutting kits for the syringes are hardly used.
- None of the hospitals have incinerator and biomedical wastes are disposed at Dhapa by Calcutta Municipal Corporation.
- No pre-treatment is given to biomedical waste.
- There is no provision to quantify the waste.
- There is no regular lifting of biomedical waste from the hospitals.

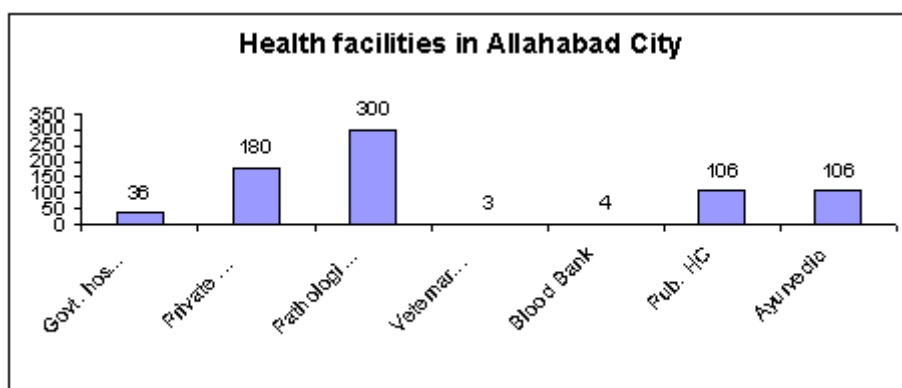


#### Hospital Waste

- The Calcutta Municipal Corporation uses vats for carrying the waste from the hospitals. These vats overflow with wastes.
- The waste collection areas do not have sealed enclosures, as a result ragpickers and animals and birds spread the waste.
- Biomedical wastes are hoarded within the wards in some of the hospitals.
- Almost all of the hospitals are providing human placenta to a pharmaceutical unit.
- The colour scheme adopted by hospitals (black and pink) have little value, as their use is dependent on their availability in the hospital store.
- The thickness of polythene bags is not proper, as they rupture easily.
- The liquid wastes from operation theatres goes to municipal sewer without any pretreatment.

#### Biomedical Waste Management in Allahabad, Uttar Pradesh

Allahabad is an important religious and historical city in Uttar Pradesh. As per the inventorisation carried out the city has about 36 Government/Government aided hospitals, 180 private nursing homes, about 300 pathological laboratories, 3 veterinary hospitals, 16 community health centres and 4 blood banks. Total bed capacity in private hospitals is 2,600 and in Government hospitals is 2,850.



Only 4 hospitals - Swaroop Rani, Jeewan Jyoti, Nazarath and Kamla Nehru Memorial Hospital - are equipped with incinerators. Among these only Kamla Nehru Memorial Hospital has functional incinerator. The general practice is to mix infectious wastes with garbage and finally disposed of to outskirts of the city at Phaphamau and Kareli. Many hospitals were found storing the infectious wastes along with other wastes for more than 3 days. A large number of pathological laboratories discharge infectious effluents directly into sewer. Veterinary hospitals dispose animal tissues, body parts and bleeding parts openly on roadside.

At present 25 nursing homes dispose of their un-segregated waste on open land near Jhusi. Under this scheme, unsegregated waste is being lifted from nursing home and transported to open land for disposal. The cow dung and soil is spread over it. The waste is allowed to disintegrate over a period of time. No leachate collection system is provided.

The average waste generation/bed is 250 gram/day, therefore having a bed capacity of 5450, the city of Allahabad generates 1.3 MT/day of biomedical waste, which deserves segregation followed by prescribed treatment and safe disposal.

Recently, Allahabad Nagar Nigam has allotted a land to Allahabad Nursing Home Association for installation of Common Treatment Facilities for small nursing homes. Allahabad Nursing Home Association is in process to contract the management and handling of biomedical waste to private party.

### **Biomedical Waste Management in Gujarat and Maharashtra**

There are 8 hospitals in Gujarat having more than 500 beds. Information for these hospitals related to biomedical waste management was collected through a questionnaire.

In Maharashtra, out of the 25 hospitals having bed capacity of more than 500, only 9 hospitals responded to the questionnaire. In addition to these hospitals, 7 hospitals were also visited to verify the implementation of Biomedical waste Rules.

The wastewater generated from Mayo Hospital, Nagpur; Acharya Vinoba Bhawe Hospital, Wardha; and SSG Hospital, Vadodara were collected and analysed.

### **Workshop on Bio-Medical Waste Management**

A workshop on bio-medical waste management was organized by CPCB Zonal Office Kanpur jointly with UPPCB at Lucknow during month of December 2000. The objectives of the workshop were (i) to increase awareness about rules, regulation and procedures (ii) to discuss various treatment options for waste generated which can help in guiding in technology selection for waste treatment (iii) to discuss the status of Bio-medical Waste at few selected cities in UP and to formulate an action plan for major cities in UP (iv) to present related cases studies to motivate the hospitals. Altogether 80 delegates from Nagar Nigam, Nursing Home Association, Medical establishments and NGOs concerned to respective cities/towns including Regional Officers of UP Pollution Control Board, participated in the workshop. The faculties were invited from reputed medical institutions, NGOs and representatives from reputed equipment manufacturers of the hospital waste treatment.

The following major recommendations were made in the workshop:

- To organize follow up meetings at regional levels by all regional offices UPPCB in association with CPCB and to prepare a definite action preferably in different phases. Active attention is required to be paid at all KAVAL towns (Kanpur, Allahbad, Varanasi, Agra and Lucknow) in UP.
- To organize training at regional levels for doctors/nurses/safaiwala engaged in collection/segregation and management of bio-medical waste.
- CPCB and concerned regional offices of UPPCB will pursue with Nagar Nigam/ Nagar Palika.
- Mayor Lucknow Nagar Nigam has agreed to convene a meeting of 11 Mayors and MNAs of all-important towns.
- The segregation as prescribed in the management is too complicated. It should have been started with simpler system.

### **Achievements of the workshop**

#### **Kanpur**

- Organized meeting with the Hon'ble Mayor, Mukhya Nagar Adhikari of Kanpur Nagar Nigam; representatives of major hospitals, medical association, ICDP, Indian Medical association and UPPCB, wherein the following decisions were taken;
- Formation of local committee
- Development of common facility in Kanpur
- Free allotment of land for common treatment by Nagar Nigam
- Review meeting by Nagar Nigam in near future

#### **Allahabad**

- Constantly pursuing with Allahabad Nagar Nigam and Regional Office of UPPCB for organization of Regional level meeting. Also participated in meeting organized at Regional Office of UPPCB wherein following decisions were taken:
- Constitution of local committee of nursing home association that will look after options of treatment for small nursing homes.
- Pursuing with Regional Office of UPPCB for development of common facility for small nursing homes.
- Allahabad Nagar Nigam will allot the required land to local committee for common treatment.

### **WEB-SITE AND SOFTWARE DEVELOPMENT**

#### **Up-gradation of CPCB Web-site**

The web-site of CPCB has been continuously upgraded and updated. During the year, information on recognised environmental laboratories, report of High Power Committee on Hazardous Waste Management, report on Tajmahal case, Newsletters of CPCB (Parivesh), training programmes under Zoning Atlas Programme and ambient noise levels on Deepawali day in Delhi have been added. Besides information on air and water quality, industrial pollution along the rivers and lakes, pollution control in 17 categories of industries and weekly and daily air quality data for Delhi have been updated. A project on redesigning of web-site has also been initiated.

#### **Development of Software**

A software has been developed for compilation and easy and quick retrieval of the information on the inspections carried out under Environmental Surveillance. In addition, a software has also been developed for issuing computerised slips to visitors.