❖ Annual Report 1999-2000

INTRODUCTION

The Central Pollution Control Board (CPCB) constituted in September, 1974 under the provisions of The Water (Prevention & Control of Pollution) Act, 1974 has completed twenty five years of its existence.

FUNCTIONS OF THE CENTRAL BOARD

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 (at the national level)

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.

Functions of the Central Board as State Board for the Union Territories

- Advise the Governments of Union Territories with respect to the suitability of any premises or location for carrying on any industry which is likely to pollute a stream or well or cause air pollution;
- Lay down standards for treatment of sewage and trade effluents and for emissions from automobiles, industrial plants, and any other polluting source;
- Evolve efficient methods for disposal of sewage and trade effluents on land;
- Develop reliable and economically viable methods for treatment of sewage, trade effluents and air pollution control equipment;
- Identify any area or areas within Union Territories as air pollution control area or areas to be notified under the Air (Prevention and Control of Pollution) Act, 1981; and
- Assess the quality of ambient air and water, and inspect wastewater treatment installations, air pollution control equipment, industrial plants or manufacturing processes to evaluate their performance and to take steps for the prevention, control and abatement of air and water pollution.

As per the policy decision of the Government of India, the Central Pollution Control Board, delegated its powers and functions under The Water (Prevention and Control of Pollution) Act, 1974, The Water (Prevention and Control of Pollution) Cess Act, 1977 and The Air (Prevention and Control of Pollution) Act, 1981 with respect to Union Territories to respective Pollution Control Committees under the local Administration.

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, 2000 is furnished in ANNEXURE-II.

List of Board Members during 1999-2000 is provided in ANNEXURE-III.

MEETINGS OF THE CENTRAL BOARD

MEETINGS OF THE BOARD

During the reporting period (i.e. April 1, 1999 to March 31, 2000), two meetings of the Central Board were held as under :

S.No.	Meeting No.	Date	Place
1.	115	August 9, 1999	Bangalore
2.	116	February 25, 2000	Delhi

MAJOR DECISIONS TAKEN BY THE BOARD

- The Board in its 115th meeting approved the Annual Action Plan of CPCB for the year 1999-2000 with a total allocation of Rs. 800.00 lakhs.
- The Board adopted the report of Prof. Dinesh Mohan Committee on Review of Activities and Organisation Structure of CPCB.
- The Board approved the re-designation of Assistant Law Officer as Law Officer Grade III.
- The Board approved the revised lease entitlement with enhancement by 25% of the existing lease entitlement, w.e.f. 1.9.1999, subject to availability of funds.
- The Board approved monitoring allowance for scientific and technical staff as Rs.130/- (8 hrs & more) for Group A officers and Rs.100 (8 hrs. & more) for others.
- The Board approved the amendments to the Medical Reimbursement Scheme of CPCB.
- The Board approved the creation of four posts of Data Processing Assistant in the pay scale of Rs.5500-9000.
- The Board in its 116th meeting approved the recognition of environmental laboratories (14 nos.) and Government Analysts (39 nos.) under section 12 & 13 of the Environmental (Protection) Act, 1986. Annexure IV is the list of recognised environmental laboratories.

- The Board approved/ratified ex-post facto, the expenditure incurred on project on the inventory of Ozone Depleting Substances in industrial and commercial Refrigeration and Air Conditioning sector in NCR - Delhi.

COMMITTEES CONSTITUTED BY THE BOARD AND THEIR ACTIVITIES

A National Committee on Noise Pollution Control was constituted. The Committee has made recommendations for implementing the following issues:

- Noise standards for portable generator sets
- Noise Standards for Automobiles
- Noise labelling of consumer products

An Expert Committee on Generator sets emissions was constituted to finalise systems and procedures for compliance to regulations on petrol or kerosene run generator sets up to 19 kw.

An Expert Committee to establish fuel quality up to 2005 AD was constituted. The study includes the effect of different vehicle technologies and fuel quality on emissions of all categories of vehicles.

MONITORING NETWORK FOR AIR & WATER QUALITY

AMBIENT AIR QUALITY MONITORING

The air quality surveillance and monitoring is undertaken to detect any deterioration in air quality arising from residential, industrial and vehicular sources of pollution, as there are large seasonal variations in the concentration of various air pollutants. It is important for assessing air quality trends in order to maintain air quality as well as for air quality management. The needs and necessity of air quality monitoring are basically due to following reasons:

- *To generate database in air quality for rapidly growing urban areas*

  It is essential to keep the record of development of urban area to assess its impact on general trend of air quality and its change.
- *Compliance with air quality standards*

  The regular monitoring of air quality is necessary to assess concentration, that exceeds the stipulated air quality standards and their exposure to general population. The monitoring network is therefore set up for regular assessment before the control measures are adopted.
- *Data base for land use planning*

  The development of new land use is assessed from pollution angle to develop plan for its proper development for new developing activities. The air quality monitoring is necessary to register the quality of air at its initial state, later the regular monitoring in the area provide assessment of air quality trends.

The major objectives for ambient air quality monitoring are as below:

(i)	**Background Data** In order to generate background data, air quality monitoring is conducted to assess existing level of contamination and possible effects occurring in future.
(ii)	**Status and Trend Evaluation**

	To determine sources of pollution status and trend information from any continuously ongoing air quality monitoring programme. The information is used to determine, whether programme control activities are providing measurable lowering of pollution levels or new or additional control are required to achieve acceptable levels.
(iii)	**Environment Exposure level Determination** The air quality monitoring and survey concern itself with systematic study of considerable segment of environment to define inter relationship of source of pollution, atmospheric parameter and measurable manifestations, in order to evaluate the character and magnitude of existing problem.
(iv)	**Correlation Between Air Quality and Health** To assess the effect of various air pollutants, their intensity and duration of exposure and health status of the exposed population in order to strategic air pollution control for the protection of human health.
(v)	**Scavenging Behaviour of Environment** To understand natural scavenging or cleansing process undergoing in the environment through pollution dilution, dispertion, wind movement, dry deposition, precipitation and chemical transformation of pollutants generated.
(vi)	**Air Quality Management** To assess the present status to adjudge effectiveness of air pollution control strategies and long term management of air quality.

National Air Quality Monitoring Programme (NAMP)

The processes of urbanization and industrialization are intimately related in an urban environment. The high density of population and industries in the cities lead to vehicular, domestic and industrial emissions affecting adversely the health and prosperity of population. Air quality monitoring is the measurement of various pollutants to study the pattern and movement of air masses and deterioration of air quality. Monitoring programme help in estimating the dynamic concentration levels of various pollutants from time to time, based on dispersal mode of original concentration at sources and at receptor end. The organization of systematic programme of air quality monitoring is a complex task and require inputs at every stage as per the scope of work. Air quality monitoring programme is a continuous operation for generation of valid information on various air quality aspects for interpretation in long run.

To gather information about nature, sources and extent of air pollution, the Central Pollution Control Board (CPCB) had initiated National Air Quality Monitoring Programme (NAMP) during 1984-85 at national level. The monitoring programme help in:

- Identification of areas in need of restoration of air quality and their priortization
- Identification of nature and extent of pollution control need
- Assessment of effectiveness of pollution control programme

Objective

The objectives of air quality monitoring programme are as below:

- To continue ongoing process of producing periodic evaluation of air pollution situation in urban areas of the country.
- To determine status and trend in ambient air quality and effects of air pollution in urban environment as well as on the health of exposed populations.
- The air quality monitoring and survey concern itself with systematic study of considerable segment of environment to define interrelationship of sources of pollution, atmospheric parameters and measurable manifestations in order to evaluate the character and magnitude of existing problem
- To estimate the future worsening or improvement of air quality and to obtain the knowledge and understanding necessary for developing preventive and corrective measures.

- The status of air pollution data and trend provide valuable information on which air pollution control strategies and objective decisions may be planned for long term management of air resources.
- To understand the natural cleansing process undergoing in the environment through pollution dilution dispersion, wind based movement, dry deposition, precipitation and chemical transformation of pollutants generated.
- To ascertain whether the prescribed ambient air quality standards are violated and to assess health hazard, damage to materials and to control and regulate pollution from various sources.

PRESENT STATE OF ENVIRONMENT, ENVIRONMENTAL PROBLEMS AND COUNTER MEASURES

AMBIENT AIR QUALITY

Air Quality Status

Air quality, with regard to Sulphur Dioxide (SO_2), Oxides of Nitrogen (NO_2) and Suspended Particulate Matter (SPM) in industrial and residential locations in various cities/town was monitored during the reported period and evaluated on the basis of Exceedence Factor (EF) in terms of low, moderate, high and critical.

Sulphur Dioxide (SO_2)

The annual mean concentration of SO_2 vis-à-vis number of monitoring stations is depicted in Fig 6.1. It is observed that at one residential location in the city of Dhanbad, high level of SO_2 is reported, whereas rest of the locations conformed to the respective National Ambient Air Quality standard (NAAQS).

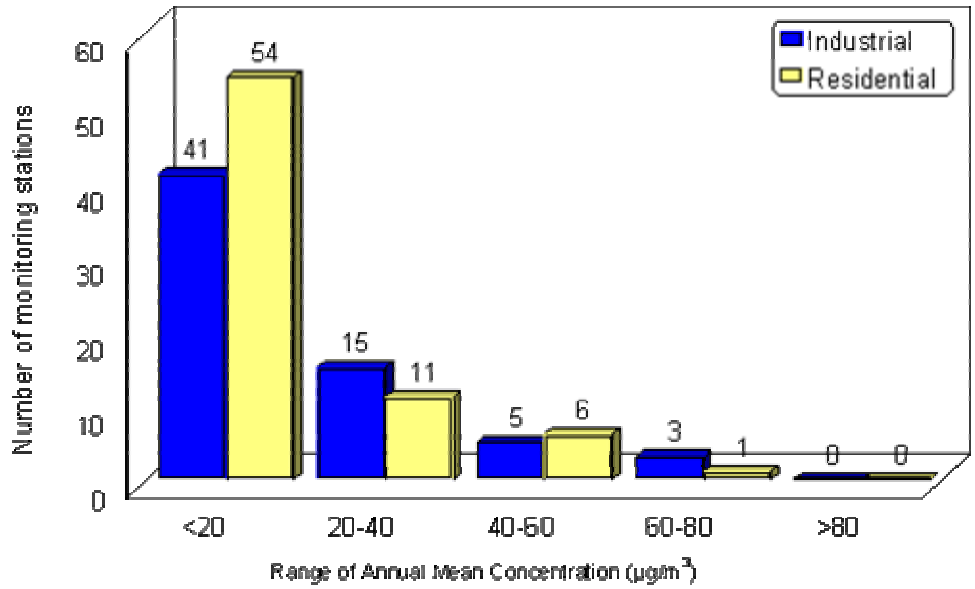

Fig 6.1 Range of Annual mean concentration of Sulphur Dioxide Vis-à-vis Number of monitoring stations

The ten locations depicting highest values of annual mean concentration of Sulphur Dioxide are listed in Table 6.1. The annual mean concentration of Sulphur dioxide in the city of Dhanbad violeted the standards.

Table 6.1 Ten locations having highest concentration of Sulphur Dioxide during year 1998

S. No	Industrial			Residential		
	Location	State	Annual mean SO_2 conc. ($\mu g/m^3$)	Location	State	Annual mean SO_2 conc. ($\mu g/m^3$)
1.	MADA, Jharia	Bihar	76	Regional Office, Dhanbad	Bihar	66 *
2.	M.I.D.C. Chandrapur	Maharashtra	67	Grasim Kalyan Kendra, Nagda	M.P.	56
3.	Near Police Station (FCI Main Hospital), Sindri	Bihar	65	S.R Off., Bapat Nagar, Chanderpur	Maharashtra	54
4.	Renusagar Colony, Anpara	U.P.	59	University Gate, Pune	Maharashtra	48
5.	Anpara Colony, Anpara	U.P.	58	Chemiequip Limited, Ambarnath	Maharashtra	43
6.	Chemical Division Labour Club, Nagda	M.P.	55	Anand Rao Circle, Bangalore	Karnataka	42
7.	Poud Phata (Kothrud), Pune	Maharashtra	51	Nasik Municipal Corporation Building, Nasik	Maharashtra	41
8.	PCMC, Chinchwad, Pune	Maharashtra	49	Housing Board's Office, Pondicherry	Pondicherry	38
9.	AMCO Batteries, Bangalore	Karnataka	37	RTO Colony Tank, Nasik	Maharashtra	37
10	Escorts Medical Centre, Faridabad	Haryana	36	Municipal Office, Rourkela	Orissa	32

* - Annual mean concentration of SO_2 exceeded the standard of 60 $\mu g/m^3$ for Residential areas.

The number of locations, where either annual mean concentration or 24-hourly concentration of sulphur dioxide exceeded the standards for more than 5% of the times, are listed in Table 6.2. Percent violations with respect to 24-hourly standards is depicted in Fig. 6.2. During 1998, at three industrial and four residential locations, either Annual Mean Concentration or 24-hourly or both the values exceeded the respective standards.

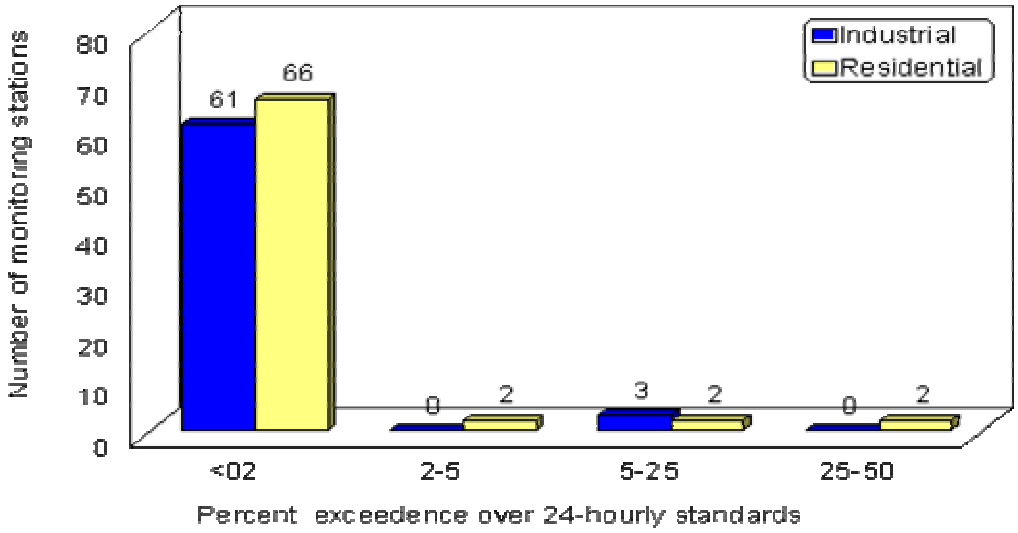

Fig 6.2 Percent violation of 24-hourly standards (Sulphur Dioxide)

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. ($\mu g/m^3$)**	**% Exceedence over 24-hourly standards**
M.A.D.A., Jharia	Bihar	Industrial	76	13
Near Police Station (FCI Main Hospital), BIT, Sindri	Bihar	Industrial	65	12
M.I.D.C., Chandrapur	Maharashtra	Industrial	67	13
Regional Office, Dhanbad	Bihar	Residential	66	27
M/s Chemiequip Ltd, Ambarnath	Maharashtra	Residential	43	14
Sub-Regional Office, Bapat Nagar, Chandrapur	Maharashtra	Residential	54	28
Grasim Kalyan Kendra, Nagda	M.P.	Residential	56	24

Based on the analysis of air quality data at all the monitoring stations and pollution level categorization, the status of SO_2 levels during 1998 is presented in the Fig 6.3. The Annual Mean Concentration of SO_2 has been well within the National Ambient Air Quality Standards limit at all the locations except at one residential location i.e. Dhanbad (Bihar).

Fig 6.3 Status of Sulphur Dioxide (SO_2) levels in terms of high, moderate and low pollution

Oxides of Nitrogen (as NO_2)

The annual mean concentration of Nitrogen dioxide vis-à-vis number of monitoring stations is presented in Fig. 6.4. It is observed that at one sensitive, two industrial and three residential locations, the NO_2 level exceeded the annual Mean Ambient Air Quality standards limit of NO_2.

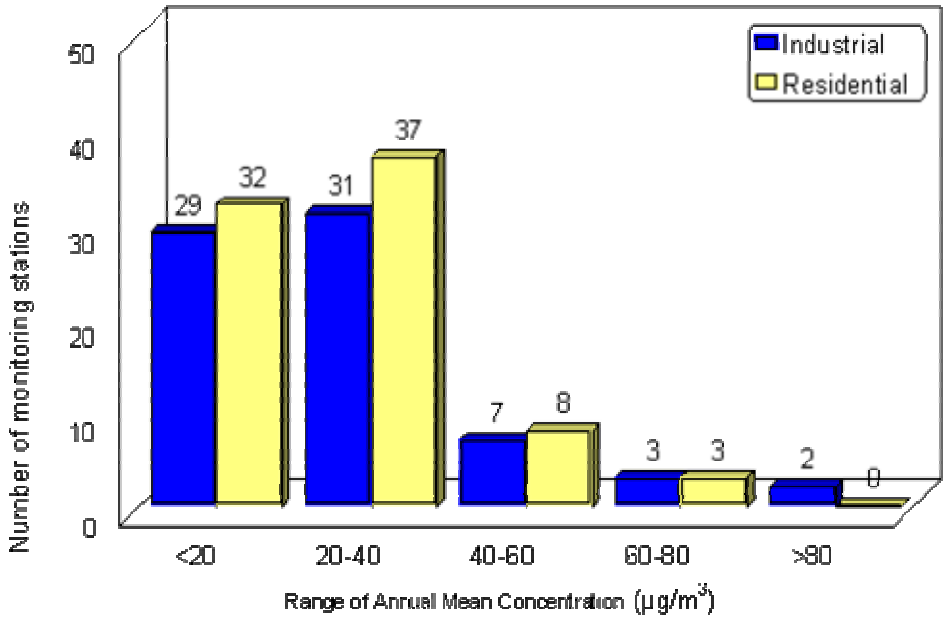

Fig 6.4 Range of Annual mean concentration of Sulphur Dioxide Vis-à-vis Number of monitoring stations

The locations where annual Mean Air Quality standards exceeds are in the city of Alwar (one industrial and one residential), Udaipur (one industrial and two residential) 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 ten locations depicting highest values of annual mean concentration of Nitrogen dioxide.

Table 6.3 Ten Locations Having Highest Concentration of Nitrogen Dioxide (NO_2)

S.No	Industrial			Residential		
	Location	State	Annual mean conc. (µg/m^3)	Location	State	Annual mean conc. (µg/m^3)
1.	RIICO Pump House, Alwar	Rajasthan	80 *	Regional Office, Alwar	Rajasthan	75 *
2.	DIC, Udaipur	Rajasthan	80 *	Town Hall, Udaipur	Rajasthan	69 *
3.	Gaurav Solvex, Alwar	Rajasthan	76	Regional Office, Udaipur	Rajasthan	62 *
4.	Renusagar Colony, Anpara	U.P.	62	Regional Office, Dhanbad	Bihar	58
5.	Anpara Colony, Anpara	U.P.	60	Housing Board's Office, Pondichery	Pondichery	57
6.	PCMC, Chinchwad, Pune	Maharashtra	60	University Gate, Pune	Maharashtra	57
7.	Poud Phata (Kothrud), Pune	Maharashtra	59	R.C. High School, Hyderabad	Karnataka	57
8.	FCI Main Hospital, Sindri, Dhanbad	Bihar	58	Abids, Hyderabad	Karnataka	55
9.	M.A.D.A, Jharia	Bihar	54	R.O.,Bapat Nagar, Chandrapur	Maharashtra	51

10	M.I.D.C, Chandrapur	Maharashtra	51	Chitale Clinic, Solapur	Maharashtra	46

*Locations where annual mean concentration of NO_2 exceeded the respective standards of 80 µg/$m^3$for Industrial and 60 µg/m 3 for Residential areas.

Percent violations with respect to 24-hourly standards is depicted in Fig. 6.5. The number of locations where either annual mean or 24-hourly concentration exceeded the standards of NO_2 for more than 5% times are listed in Table 6.4 During 1998, one sensitive and eight residential locations violated the 24-hourly standards of NO_2 for more than 5% of the times.

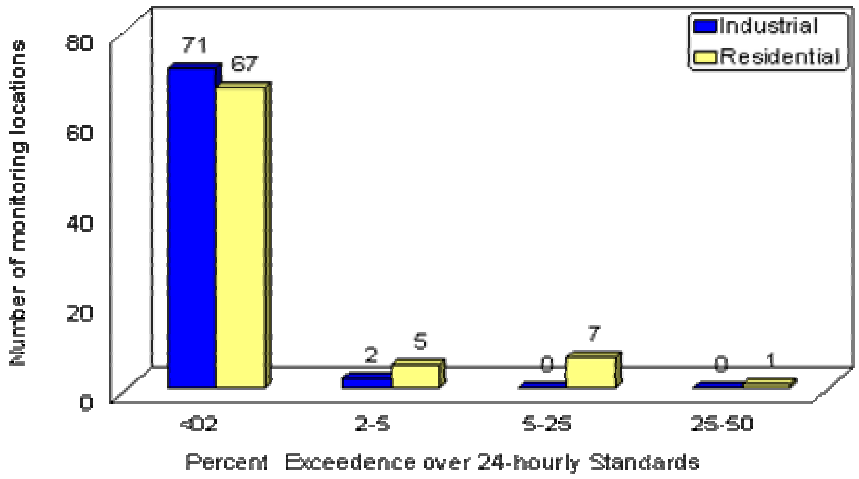

Fig 6.5 Percent violations of 24-hourly National Ambient Air Quality standards for Nitrogen Dioxide

ENVIRONMENTAL RESEARCH

Research and development activities play a major role in assessment and control of pollution. The important research activities carried out during the year 1999-2000 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.

Analytical Quality Control (AQC/Water) for the Laboratories of Pollution Control Boards/ Committees and EPA Recognised Laboratories

A particular Water Quality study or any organized water quality monitoring programme involves the collection, comparison and interpretation of analytical data, which leads to a decision - making approach. The correctness of decision or action depends largely upon the accuracy of the analytical results. If the errors of the analytical results are high, the manpower, material and money spent on any monitoring programme or study would be futile and further leads to wrong decision and improper action plans. Since the success and usefulness of all these information systems derived from analysis results, depend on the quality of input data, it is essential to ensure that adequate comparability and accuracy of analytical results are maintained. Keeping this fact in view, Central Pollution Control Board (CPCB) initiated regular and organised Analytical Quality Control (AQC) programme for the laboratories of State Pollution Control Boards (SPCBs), Pollution Control Committees (PCCs) and laboratories recognised under Environment (Protection) Act from 1991 onwards as a continuous project activity with the following objectives.

- To assess the status of analytical facilities and expertise of the participating laboratories.
- To identify the serious constraints (random & systematic) in the working environment of laboratories.

- To provide necessary assistance and guidance to the concerned laboratories to overcome the difficulties in the analytical methods.
- To validate the Water Quality Monitoring data.
- To promote the scientific/analytical competence of the participating laboratories to the level of excellence for better output.
- To improve the internal and external quality control of the laboratories of Central and State Pollution Control Boards and also others in an organised manner.

Under this project, 15 slots of AQC exercises were carried out upto March, 2000.

There are 20 parameters, covered in 2 slots of exercises to reduce analytical work load, in one year period, to make it as one full round. Thus, so far, as on 31st March 2000, seven rounds of exercises were completed covering 15 to 20 parameters.

The acceptable limits for various parameters are arrived using *"youden 2 sample plot"* method. The analytical data is processed using software "PROLAB" developed by Dr. S. Uhlig, Professor in Statistics, Germany for various applications using ISO, DIN, Q- method/ Huber estimator, Youden, Z- scores and other robust statistical methods. This software has been procured under Indo-GTZ bilateral Programme and offered to CPCB for use in Quality Assurance programme.

In general, the performance of the laboratories for various parameters in the decreasing order of magnitude is as follows:

Chlorides, Total Hardness, Calcium, Boron, Potassium, Total Dissolved solids, Conductivity, Chemical Oxygen Demand, Sodium, Ammonical Nitrogen, Chromium, Magnesium, Fluoride, Sulphate, Total Kjeldahl Nitrogen, Nitrate-N, Biochemical Oxygen Demand, Fixed Dissolved solids, Total Suspended Solids, Phosphate-P

The AQC exercises are conducted routinely by Central Pollution Control Board for improving the analytical capabilities of the concerned laboratories besides enhancing integrity of generated analytical data.

ENVIRONMENTAL TRAINING

OBJECTIVES

The Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 emphasize 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 programmes for prevention and control of pollution in the Central Government and State Government, the Central and State Pollution Control Boards, the local bodies, operators of industrial and municipal wastewater treatment plants and NGOs 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 on applied aspects in the field of prevention, abatement and control of pollution. Therefore, it is necessary to orient them 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 for manpower development to improve the capabilities of officials working with Pollution Control Boards. It is necessary that uniform methods of analysis of pollutants and consent management are adopted and ensured through training for proper and effective implementation of the provisions of Environmental Acts. To summarise, training is needed in the following fields:

- Operation and maintenance of wastewater treatment units and air pollution control devices;
- Management, routine operation and maintenance of environmental laboratories;
- Water and air quality monitoring systems;
- Laboratory analytical methods, quality assurance and analytical quality control;
- Consent management including setting and implementation of standards;
- Environmental audit, environmental impact assessment and environmental management systems; and
- Specific subjects, such as management of hazardous waste, air/water quality modelling, data processing and legal aspects

TRAINING PROGRAMMES/WORKSHOPS ORGANISED BY CPCB DURING 1999-2000

Training programme on Bio-monitoring of Water Quality

Central Pollution Control Board (CPCB), Delhi has conducted training programme on **`Bio-monitoring of Water Quality'** at Shillong, Meghalaya in collaboration with Meghalaya State Pollution Control Board , Shillong for participants of East and North-East State Pollution Control Boards between 15th to 21st January, 2000. The training programme was attended by seventeen senior, middle and junior level biological scientists of various State Pollution Control Boards (SPCB's).

The objective of the training programme was to provide exposure to State Pollution Control Boards's officials of North East and Eastern Pollution Control Boards about the need and importance of bio-monitoring, employing various sampling procedures for water quality assessment and evaluation. The training programme incorporated a blend of theoretical and practical exposure in order to strengthen the bio-assessment competence of the officials of State Pollution Control Boards and has been extremely successful as per the ratings provided by participants in training evaluation form. The bottlenecks in initiation of biological assessment of water quality in respective East and North East State Pollution Control Boards and ways and means to overcome these have been discussed in concluding session of the training programme. The training programme has received extraordinary media coverage and news items have appeared in five newspapers of North-Eastern region.

Workshop on Hospital Waste Management

A workshop was organised on “Bio-medical Waste Treatment (Incineration)” in Delhi during November 01-02, 1999. Various hospitals, regulatory bodies, local bodies, and manufacturers participated in the workshop. The major recommendation of the workshop are as under:

- To check the mushrooming of small incinerators, it is necessary that common facilities are set up for the benefit of small and medium waste generators. It should be the responsibility of local bodies/municipal corporations to establish the Common Facilities. The local bodies either can set up the facility on their own or through the private entrepreneurs by providing guarantee of waste stream and incentives such as land, electricity and on income tax excise/custom duty etc.
- The installation of incinerators by individual hospitals shall be discouraged by the concerned prescribed authorities.
- As concluded from the stack emission analysis study conducted by CPCB, all the existing incinerators should be retrofitted with the necessary air pollution control device or the combination of various air pollution control devices;
- Operate and maintain the incinerators properly and ensure immediate repair or replacement of faulty parts, such as burners, temperature indicators, temperature sensors, door seals etc.;
- The incinerator should only be operated by skilled and qualified persons preferably having certificate from ITI in the relevant field. The incinerator manufacturers shall also impart necessary training in this regard to the operators;
- A log book for the operation and maintenance of incinerators shall be kept in the incinerator room and be available for inspection at any time;
- All new incinerators in the country should be installed with all the required combination of air pollution control devices.

ENVIRONMENTAL AWARENESS AND PUBLIC PARTICIPATION

ACTIVITIES OF NGO CELL

The role of NGOs for pollution control activities can hardly be over emphasised. An NGO cell has been set up in CPCB to coordinate the following tasks:

- enlist environmental NGOs involved in activities related to pollution control with CPCB;
- establish NGO network in consultation with State Pollution Control Boards/Zonal Offices;
- provide training to the NGOs and equip them with facilities, like water testing kits, analytical instruments, books, literature etc., in order to enhance their capabilities in the field of pollution control; and
- organize mass awareness programmes and pollution control activities through NGOs

During 1999- 2000, 35 NGOs were additionally enlisted with CPCB subject to concurrence of concerned State Pollution Control Boards apart from 590 NGOs enlisted during the previous years. A rebate @ 50% is extended over the purchase of CPCB publications to NGOs enlisted with CPCB and several NGOs availed the facility during 1999-2000. Financial assistance of Rs.60,000/- was provided to 12 NGOs for organizing mass awareness programmes in different parts of the country.

During the reporting year (1999-2000) two training programmes for the local NGOs in the area were organized at Chennai and Bhubaneshwar to educate them in the field of environment and pollution control.

A National conference on “Pollution, Man and Environment” was sponsored under supervision of CPCB Zonal Office, Shillong.

A Regional meeting with NGOs was organised at Vadodara on December 16, 1999, in collaboration with the west zone SPCBs for coordination of the activities and promotion of the public participation/awareness in the pollution control programmes in the country.

Meeting No.	Date	Place
14	December 16, 1999	Vadodara

Interaction has been made with NGOs of Gujarat, Maharashtra, UT of Dadra & Nagar Haveli, Daman & Diu, Andhra Pradesh, West Bengal, Orissa, Tamil Nadu, Karnataka, Bihar, Sikkim, Madhya Pradesh, Kerala, Goa, Pondicherry through co-ordination meetings held, so far, with the following objectives:

- to take uniform and concerted approach towards pollution control;
- to have public participation for abatement of pollution through community action;
- to identify the major localised environmental problems; and
- to identify the areas of mutual co-operation among NGOs themselves as well as Pollution Control Boards

TESTING AND VALIDATION, DEVELOPMENT AND 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. PHYSICAL TESTS

1. Colour 2. Odour 3. Temperature 4. Turbidity 5. Suspended solids

B. CHEMICAL TESTS

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. BIOLOGICAL TESTS

19. Total Coliform 20. Primary Productivity 21. Benthic Organisms.

During the reporting period (1999-2000) Sixty Water Testing Kits were distributed to various NGOs, schools, and for other, Mass Awareness Programme.

ENVIRONMENTAL STANDARDS INCLUDING TIME SCHEDULE FOR THEIR ENFORCEMENT

DEVELOPMENT OF STANDARDS/ GUIDELINES

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 reporting period are given below.

Environmental Standards/Guidelines Evolved

I. Characterisation of Noise from Portable Generator Set and Development of Acoustic Hood

The studies were carried out in association with Indian Institute of Science, Bangalore. Noise levels of portable generator sets manufactured by M/s Honda Siel Power Products Ltd., M/s Birla Yamaha Ltd. and M/s Greaves India Ltd., were measured using survey method (ISO 3746).

Based on these results, the following noise standards have been recommended by Central Pollution Control Board, for portable generator sets,

	Noise Limit (dBA) from	
	June 1, 2001	June 1, 2004
Sound Power Level, L WA *	86	83

*For getting sound pressure level at 1 m distance subtract these values by 13.3 dBA

II. System & Procedure for Compliance to Regulation for Petrol and Kerosene run Generator Sets up to 19 kw

The details of certification system & procedure and testing equipment & procedure for compliance to emission standards for petrol and kerosene run generator sets up to 19 kw prepared by the Central Pollution Control Board were notified by MoEF vide notification no: G.S.R. 682 (E), dated 5 th October, 1999.

III. Fuel Quality Specifications for Motor Vehicles

1. Fuel quality is directly responsible for the quantity & quality of vehicular emissions. To improve fuel quality, the Central Pollution Control Board has played a major role. The specifications for emission related fuel quality are developed as given below:

Table 10.1 Emission Related Fuel Quality Specifications

Fuel	Parameters	Pre 1996	1996	2000
Motor-gasoline	Lead,g/litre (Max)	0.56	0.15	0.013
	Benzene, % V/v (Max)	No limit	5	3
	Sulphur, % W/w (Max)	0.25	0.20 (leaded) 0.10 (unleaded)	0.10
Diesel	Sulphur, % W/w (Max)	0.5	0.5	0.25
	Cetane Number (Min)	42	45	48
	Density, Kg/M 3	No limit	820-880	820-860

2. Draft notification on low sulphur diesel with maximum 0.05% sulphur from 1.4.2000 in National Capital Region, Delhi has been promulgated in October 1999 under Central Motor Vehicle Rules, 1989.
3. Low smoke 2T oil for 2/3 wheelers has been notified under Environment (Protection) Act, 1986, which is effected from 1 st April, 1999 throughout the country.
4. The emission standards for CNG fitted vehicles have been notified in August 1999.
5. Unleaded petrol was introduced in 45 cities from 1.9.98. Leaded petrol has been phased out from Delhi in September 1998 and NCR in January 1999. From Feb, 2000 leaded petrol has been phased out in entire country.
6. As per Hon'ble Supreme Court's direction only Private vehicles conforming to Euro I or Euro II norms are being registered in NCR from June 1999 and from April 2000 only private vehicles conforming to Euro II norms will be registered. In Mumbai Euro II norms for private vehicles (four wheelers) will be applicable from 2001. In Calcutta India 2000 norms (Euro I) has been made applicable from Nov. 1999.
7. Study on Environmental Standards for automobiles for the year 2010 completed and report circulated.

IV Hospital Wastes

1. Manual on Hospital Waste Management was brought out which includes the characterisation, quantification and treatment technologies for bio-medical wastes.
2. In order to ensure proper treatment to the bio-medical wastes in autoclaves installed in various hospitals in Delhi, an efficiency test using Bacillus Streothermophilus was performed. The results were recorded satisfactory.
3. Inspection of 40 major hospitals in Delhi have been carried out. Report on the same has been prepared and circulated to Ministry of Health and other agencies for implementation of the recommendations.

V. The Ambient Air Quality Standards for coal mining were developed and finalised. The standards have been forwarded toMinistry of Environment & Forests for notification under Environment (Protection) Act, 1986.

VI. The Central Pollution Control Board in association with NEERI, Mumbai initiated a study on "Standardisation of method for benzene monitoring in ambient air". The study has been completed. The second phase of the study to estimate the benzene level in ambient air its impact on health in Mumbai is in progress.

VII. The Environmental Standards for the following categories were notified during the year:

- Noise standards for fire crackers
- Emission Standards for new generator sets (up to 19 kilowatt) run on petrol and kerosene with implementation schedule

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 :

1. The Central Pollution Control Board has filed report on inspection regarding the development of green belt in and around the Taj Mahal in Agra. As per the Court's order the report have to be submitted every three months, a total number of twelve reports have been submitted through affidavit.
2. The Hon'ble Court on 17.12.1999 and 16.3.2000 directed the Central Pollution Control Board to inspect M/s General Traders 'Glass Works', Firozabad to ascertain whether they are running the plant by using gas supplied by GAIL. The CPCB and U.P.Pollution Control Board has jointly inspected the industry and submitted its report on 20.1.2000 where it was verified that the industry has made arrangement for using the gas supplied by GAIL. Further inspection is being carried out.
3. In compliance of Hon'ble Court's order, dated 10.1.2000, CPCB has inspected the premises of Agra Slaughter House and submitted the Status Report on 24.1.2000 and unhygienic conditions were observed.

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 as follows :

1. The Central Pollution Control Board has been directed to inspect M/s P.V.K Distillery vide Order, dated 28.9.1999 and 16.11.1999 particularly with regard to discharge of effluents on land.
2. In the above matter, the Central Pollution Control Board has also filed an Interlocutory Application (IA) on 19.4.1999, so that the Municipalities/Nagar Palikas located in the State of Uttar Pradesh and Bihar to maintain and operate Sewage Treatment Plants (STPs) and other assets created under the Ganga Action Plan. On 26.10.1999, the Hon'ble Court directed the State of West Bengal, Uttar Pradesh and Bihar to submit details of the action taken in the matter
3. Further on 4.11.1999, the Hon'ble Court directed the Central Pollution Control Board and West Bengal Pollution Control Board to carry out joint inspection of M/s Standard Casting, Baltikuri, Howrah to ascertain the efficiency of pollution control devices installed by the industry. The Joint inspection report has been submitted before the Hon'ble Court on 31.1.2000. The matter is still counting.

Pollution from Industries in NCT-Delhi

Writ Petition(Civil)No.4677 of 1985(M.C.Mehta Vs. UOI & Others).

1. In I.A.No. 20 & 21 filed in the above Writ, the Hon'ble Court vide its order, dated 22.9.1999 directed the Central Pollution Control Board to give its suggestions for expeditious commissioning of all the 16 Sewage Treatment Plants (STPs) and Water Treatment Plant, Nangloi. The Central Pollution Control Board submitted an inspection report on 26.10.1999 on all the 16 STPs and also on the Water Treatment Plant at Nangloi.

Pollution in Gomti River

Writ Petition (Civil) No. 327/1990 (Vineet Kumar Mathur Vs. UOI & Others)

The further progress during the period under report has been that Hon'ble Court vide its order, dated 4.11.1999 directed the Central Pollution Control Board to carried out fresh inspection of three industries namely M/s Shree Acids & Chemical, M/s Chaddha Rubbers and M/s Insilco. The report of inspection has been filed on 12.1.2000 indicating the present Status and the measures taken by these industries.

Pollution in Medak District, Andhra Pradesh

Writ Petition (Civil) No.1056 of 1990 (Indian Council for Environ Legal Action & Others Vs. UOI & Others)

In the aforesaid matter a joint action plan prepared by Central Pollution Control Board and Andhra Pradesh Pollution Control Board has been earlier filed before the Hon'ble Supreme Court. The progress and follow up action in pursuance of the action plan is being monitored by the Hon'ble Court. During the hearing on 27.7.1999 the Hon'ble Court has further directed the Central Pollution Control Board to submit the follow up action taken report. The report of the action taken has been filed by the Central Pollution Control Board on 31.3.2000.

Yamuna River Pollution Matter

Writ Petition (Civil) No.725/1994 (News Item “HT”, dated 18.7.94 titled “And Quite Flows Maili Yamuna Vs. CPCB & Others)

The further progress during the period under Report is as follows :

Pollution by the industries and municipalities in River Yamuna :

1. On 27.8.1999, the Hon'ble Supreme Court directed Central Pollution Control Board, Haryana State Pollution Control Board and Delhi Pollution Control Committee to setup monitoring stations at Palla, where the river enters Delhi and Agra Canal the point at which it leaves Delhi and enters Haryana to monitor the quality of water at regular intervals initially everyday. The CPCB and DPCC were also directed to setup the monitoring stations prior at the point to discharge into river Yamuna at each of the 19 drains in Delhi for assessing the effluent quality and pollution load. Accordingly, the CPCB, DPCC and HSPCB have set up the monitoring stations. The Joint sampling has been carried out and report thereon submitted on 9.9.1999. The analysis report revealed poor quality of river water.
2. Further on 13.9.1999 the Hon'ble Court directed that with effect from 1.11.1999 no industry will be permitted to discharge any effluent into River Yamuna directly or indirectly, which do not conform to the parameters prescribed by CPCB. The Hon'ble Court has further directed the Government of NCT - Delhi to submit report, which contains proposals to minimize or reduce the pollution emanating from the unauthorized colonies and slum clusters. These directions have also been given to the State Governments of Haryana and Uttar Pradesh.
3. Central Pollution Control Board has conducted further monitoring of drains and three additional drains identified subsequently which are joining river Yamuna in Delhi. The analysis results have been submitted before the Hon'ble Court on 7.1.2000 and on 29.2.2000, pursuant to the Order, dated 17.12.1999 of the Court.

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 1999-2000 is as under

Sanctioned Budget for 1999-2000	**Rs. in lacs**
Plan - Projects/Programmes	Rs. 800.00
Non-Plan	Rs. 700.00

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)**
Opening Balance	1849.62	i. CAPITAL EXPENDITURE	
(i) GRANT RECEIVED		(a) Fixed assets (Building)	0.03
From government	1500.00	(b) Other assets	116.22
(ii) FEES		ii. REVENUE EXPENDITURE	
Consent fee	-	(a) Administration	757.27
(iii) FINES/FORFEITURES	-	(b) Board's laboratory	139.33
(iv) INTREST ON INVESTMENT	-	(c) Running and maintenance of vehicle	7.62
(v) MISCELLANEOUS RECEIPTS	83.40	(d) Maintenance and repairs including rent	56.71
(vi) MISCELLANEOUS ADVANCES	9.25	(e) Legal charges & fee to consultants	0.07
(vii) DEPOSIT	1.88	(iii) PROJECT REVENUE EXPENDITURE	
(vii) OTHER DEPOSITS (Outside projects)	554.03	(a) Project (Revenue Exp.) (Project 1 to IX) 3	432.48
		(iv) FEE FOR AUDIT	
		(v) MISCELLANEOUS	709.60
		(vi) ADVANCES	301.06
		(vii) DEPOSITS/CASH AT BANK/CHEQUE IN TRANSIT	1477.79
		(viii) CASH IN HAND	-

Notes:

1. Audit Fee: The Audit fee for the year 1998-99 amounting to Rs. 70,000/- was paid to M/s Gupta & Gupta, Chartered Accountants (Statutory Auditor of the Board) in May 2000.

2. Miscellaneous: The amount reflects the payments made against the funds received for outside projects as noted below (Note No. 3)

3. Projects:
i. Pollution Assessment Survey & Monitoring
ii. Laboratory Management (Operation Maintenance & R&D)
iii Development of Standards & Guidelines & Ecomark
iv. Training
v. Information (Data Base Management) & Library (net)
vi. Pollution Control Enforcement
vii. Pollution Prevention & Control Technology
viii Mass Awareness, Publication & NGO Activities
ix. Hazardous Waste Management

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

1. Indo-Dutch Project

2. Indo-Norwegian Project
3. World Bank (Procurement – NTPC)
4. AWQMS (NRCD
5. GPD (NRCD
6. Zoning Atlas (World Bank)
7. Training (World Bank
8. Orissa Board (Procurement – GTZ)
9. Environmental Atlas Project
10. ENVIS Project
11. Survey of Medium & Minor Rivers Project (GPD)
12. Development of National Standards (MoEF
13. JETRO Project
14. UNEP Project
15. Survey of 61 Towns (NRCD)
16. DST-CR
17. DUREM
18. World Bank Development of Standard
19. Coastal Monitoring Project – Calcutta
20. DOD – Project Oceanography - Calcutt
21. Gas Mixture
22. EPA - NCR
23. UNEP (MALE)
24. Comprehensive approach on Environmental Audit (CAEA)

ANNUAL PLAN FOR THE FOLLOWING YEAR

ANNUAL PLAN

The Annual Action Plan (AAP) for the year 2000-2001 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 2000-2001

MAIN THRUST AND ACTIVITIES

At the beginning of 21 st Century, the year 2000-2001 has been identified as one of the important year as during this period various on-going programmes are to be consolidated and new schemes are to be introduced to meet the challenge of the new millennium. The Annual Action Plan (AAP) of 2000-2001 is an endeavour to prioritise the activities and set targets to be achieved. The main thrust of the plan is to lay more stress on proper implementation of programmes through environmental surveillance squad (ESS) and other programmes through State Pollution Control Board and Committees. The important programme areas identified for implementation includes :

1. control of air and water pollution in urban areas
2. management of municipal wastes (sewage and solid waste)
3. management of bio-medical waste
4. hazardous waste managemen
5. vehicular and noise pollution contro
6. preparation of action plans (location specific) for prevention and control of pollution in the states (Metro cities and State Capital)
7. to effectively carry out mass awareness programmes
8. to improve public/NGOs participation in various pollution abatement programmes
9. Pollution control in 17 categories of highly polluting industries and industries discharging waste water into rivers/lake
10. strengthening measures to improve exchange of information on various activities among CPCB, SPCBs/PCCs.

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 includes :

i. Zoning Atlas - Environmental planning (World Bank)
ii. Environmental standards (World Bank)
iii. Ambient air quality monitoring (World Bank)
iv. 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.

BUDGET ALLOCATION

The MoEF has sanctioned an outlay of Rs. 900.00 Lacs for 2000-2001 and project-wise allocations are summarized in a statement given below:

PROJECT	ALLOCATIONS (RS. IN LACS)
1. Polllution Assessment - Survey & Monitoring	166.80
2. Laboratory Management	210.25
3. A. development of Standards & Guidelines	63.70
B. Ecomark	6.00
4. Training	11.75
5. A. Information (Data Base) Management	41.50
B. Library	17.15
6. Pollution Control Enforcement	250.04
7. Pollution Prevention & Control Technologies	43.08
8. Mass awareness, Publication & activities related to NGOs	56.13
9. Hazardous Waste Managemet	33.60
Total	**900.00**

OTHER IMPORTED MATTER DEALT BY THE CENTRAL BOARD

ZONING ATLAS FOR SITING OF INDUSTRIES

A nation wide environmental planning and mapping programme for sustainable development of industries called Zoning Atlas programme was started in 1995. The pilot phase during 1995-97 covered 19 districts in 14 states. With the success of the pilot phase the programme has been extended till 2003 under the World Bank funded 'Environment Management Capacity Building Project'.

The programme has been further widened and several environmental planning activities at various levels have been taken up. The programme is receiving technical support from the German Agency for Technical Cooperation (GTZ) under the project on "CPCB/SPCBs Strengthening of Environmental Quality Assessment and Control" under the Indo-German Bilateral Programme. Various other agencies including the National Atlas and Thematic Mapping Organisation (NATMO), Calcutta; National Remote Sensing Agency, Hyderabad, (NRSA); National Environmental Engineering Research Institute (NEERI), Nagpur are also involved in this project.

The rapid assessment studies are called as "District-wise Zoning Atlas" Studies and the microlevel studies as "Industrial Estate Planning".

1. District - wise Zoning Atlas:

This zones and classifies the environment in a District and presents the pollution receiving potential of various sites/ zones in the District and the possible alternate sites for industries, through easy-to-read maps (1:250,000 scale). The studies will help to make decision making on site clearance transparent, faster and reliable.

Local Level

1. Industrial Estate Planning :

In continuation of the Zoning Atlas study, these studies are taken up at micro-level (1:50,000 and lower) to finally come up with sites for industrial estates, to suggest wastewater disposal points and to provide suggestions on control of surrounding land uses.

2. Environmental Management Plan for Urban Areas:

The activity is targeted to provide planning solutions for the urban areas wherein the problems are becoming more complex and the environmental risks are increasing. The activity is also intended to train the planners from the planning/development authorities of the urban areas for incorporating environmental considerations in urban planning.

- The mapping and digitisation work for 39 Districts out of the 42 taken up during 1997-1999 has been completed.
- District wise atleast have so far been published for 12 Districts
- Preparation of the base for 38 districts to be covered during the year 2000-2001 has been completed by NRSA
- The State Pollution Control Boards were instructed to use the Atlases for issuing site clearances to the industries/development projects.
- The structuring of the digital data of the Zoning Atlases has been streamlined with the support from GTZ.
- Printing of PC Arc/Info data had been a constraint so far in publishing the Atlases. This had often caused delays in publishing the Atlases. From the Hands-on-Training in Germany conducted in June/July, 1999 for two members of the Zoning Atlas team, solutions for improving mapping quality and printing the maps had been finalised. GTZ had also subsequently produced the needed supportive software. The team at CPCB has been trained on the job.
- The feedback on putting the Atlases to effective use for issuing site clearances was obtained from the presentation made to the officials at MoEF from Impact Assessment Division, Control of Pollution Division and Hazardous Waste Management Division. During the current year, a Digital Atlas with CD-based query system is being prepared to make Zoning Atlas information user-friendly.
- Training workshops were conducted in various States for the Officials from the Government Departments (Town & Country Planning Department, Industries Department, SPCBs etc.), NGOs, industrial associations, public, media etc.
- The Zoning Atlas unit of CPCB participated in various seminars/conferences and exhibitions to bringing awareness on the programme.
- To ensure that the data inputs used for the Atlases are accurate, latest and reliable, the base maps for all the future works of Zoning Atlas (District-wise work and industrial estate planning studies) are being generated through the National Remote Sensing Agency, Hyderabad. Remote sensing techniques with three season data are being used supported by adequate ground-truthing.
- SPCBs had been instructed to collect the printed Atlases for sale/use by them and other concerned agencies in their State.

Industrial Estate Planning

- The Industrial Estate Planning studies have been taken up in the following Districts:

State	District
AP	East Godavari

Bihar	East Singhbhum
Gujarat	Amreli
Himachal Pradesh	Solan
Karnataka	Mysore
Kerala	Palakkad
Madhya Pradesh	Sagar
Manipur	Imphal
Meghalaya	Ri-Bhoi
Orissa	Undivided Cuttack
Punjab	Ludhiana
Rajasthan	Alwar
Tripura	North Tripura
Uttar Pradesh	Bulandshahr
West Bengal	Bankura

-
- Work completed for the preparation of base maps, drainage and watershed maps, village maps, location maps, slope maps and environmental related maps for 9 sites. Draft report for the sites at UP, Punjab and Andhra Pradesh are ready and have been are placed before the IA division of MoEF for the comments. Work for other sites is in progress and is targeted for completion by 2000.

Mapping of Environmentally Sensitive Zones And Industrial Sites (ESZIS) - State-Wise

- The work is being done using conventional cartography through the National Atlas and Thematic Mapping Organisation, Calcutta. The states covered in this activity and the status of work is as follows:

S.No.	STATES	REMARKS
1.	Bihar	Published
2.	Meghalaya	Published
3.	Kerala	Published
4.	Goa	Published
5.	A.P.	Published
6.	Orissa	Published
7.	Gujarat	Final Printing In Progress
8.	Karnataka	Final Printing In Progress
9.	Assam	Final Printing In Progress
10.	J&K	Final Printing In Progress
11.	M.P.	Work In Progress
12.	Rajasthan	Work In Progress
13.	Punjab	Work In Progress
14.	U.P.	Work In Progress
15.	W.B.	Work In Progress
16.	Tamil Nadu	Work In Progress
17.	Manipur	Work In Progress

18.	Maharashtra	Work In Progress