

UPGRADATIONS IN CPCB LABORATORIES

Establishment of National Reference Laboratory for Analysis of Trace Organics and Persistent Organic Pollutants (POPs)

The Persistence Organic Pollutants are of concern globally for high persistence in the environment, have ability to transport through various pathways. These do not disintegrate easily causing various serious short-term and life-long health affects. The Persistent Organic Pollutants as identified for priority action globally under Stockholm Convention include Pesticides - Aldrin, Dieldrin, Endrin, Chlordane, Heptachlor, DDT, Toxaphene, Mirex, HCB; Poly-chlorinated Biphenyls (PCB's); Polychlorinated dibenzo - para - dioxin (PCDDs) and Polychlorinated dibenzo-furan (PCDFs). There exists legal framework in the country dealing with POP's under The Hazardous Waste (Management & Handling) Rules. However, there is need for upgradation and strengthening of monitoring facilities for POPs. Being a signatory nation of the Stockholm Convention, India is committed to assessment of production and stockpiles of persistent organic pollutants (POPs), their release from possible sources of various industrial activities into the environment and levels in various environmental matrices.

Central Pollution Control Board has developed the National Referral Trace Organic Laboratory at its Head Quarters in Delhi to facilitate the monitoring of trace levels of POPs specially 17 toxic congeners of dioxin-furan and polychlorinated biphenyl (PCBs) congeners with dioxin like toxicity in collaboration with GTZ-ASEM. The experts from USA, Canada and Consultant from ERGO Forschungsgesellschaft GmbH, Hamburg, Germany have provided basic input for planning and establishment of laboratory. The laboratory upgraded its existing analytical facilities for other significant semi-volatile organic compounds (SVOCs) and facilities extension for analysis of herbicides/carbamates/2,4-D and volatile organic compounds.

Analytical Capabilities of the Laboratory

Group	Analytes	Instrument
Pesticides	Organo-chlorine Pesticides (OCPs) Aldrin, α -BHC, β -BHC, γ -BHC, Chlordane, Dieldrin, p,p'-DDE, o,p-DDT, p,p'-DDT, Endrin, α -Endosulfan, β -Endosulfan, Heptachlor, Mirex, Toxaphene	GC-ECD,
	Organo-phosphorus Pesticides (OCPs) Chlorpyrifos, Malathion, Methyl Parathion	GC-FPD/NPD
	Herbicides, 2,4-D and Carbamates	HPLC
	Hexachloro Benzene (HCB)	GC-ECD
PCBs	Dioxin like (coplanar) congeners, Indicator congeners, Mono-ortho and Di-ortho congeners	GC-ECD, GC-LRMS, HRGC-HRMS
Dioxin & Furan	7 Dioxin congeners and 10 Furan congeners	HRGC-HRMS
Trihalomethanes	Hexa-chlorobenzene, Trihalomethanes	GC-ECD, GC-LRMS
Hazardous Pollutants	Polynuclear aromatic Hydrocarbons (PAHs), Volatile Organic Compounds (VOCs),	GC-LRMS
Carbonyls	Carbonyl Compounds (Aldehydes and Ketones)	HPLC

The Salient Features of the Laboratory

- Specially designed dedicated Centralized Air conditioning and Air Handling Unit
- HEPA (High Efficiency Particulate Absorption) Filtered and Activated Charcoal treated laboratory Air Supply
- Positive Pressure Air supply in selected rooms
- Dedicated Vapour Collection Treatment and Exhaust System
- Low Constant Volume (LCV) Fume Hoods with Digital Flow Monitor, Control Panel in Sample Pre-treatment & Processing Rooms
- Elephant Trunk and Flexible Robo arm Hoods for exhausting Vapours from laboratory area
- Carrier Gas and Fuel Gas piped supply lines
- Occupational Safety Equipments – Emergency Showers, Eyewashes, Face shield, Goggles, Respirators, Aprons
- Sensitive Fire Alarm & Fire Fighting System. Fire Proof Electrical Gadgets in selected rooms
- High Capacity Uninterrupted Power Supply (UPS) System for Instrument and Lighting
- Dedicated 100% Captive Power backup through High Capacity DG Set

- Convenient and elegant Cable Management System (CMS) with channels for electrical and Data / communication system
- Country's First Dioxin & Furan Sampling and Analytical facilities in ambient air and source emissions
- Restricted Laboratory Access System
- Advanced Sophisticated Latest Instrumentation
- Trained Manpower at German & Canadian laboratories

Procurement of Equipments for CPCB Laboratories under Japanese Debt Relief Grant Assistance Project

The Central Pollution Control Board has been allocated the amount of Rs.4.84 crores under Japanese Debt Relief Grant Assistance for procurement of various equipments. CPCB undertook an MOU with NTPC Consultancy Wing, Noida for various procurement procedures through International Bidding. Notification inviting tender have been published in various newspapers for 11 packages of equipments and the bidders have submitted earlier their bids in two stages – Technical bid and Financial Bid.

Department of Economic Affairs, Ministry of Finance issued Authorization to Pay (A/P) to Office of Controller of Aid Accounts & Audit with respect to eight (8) finalized packages. The Office of Controller of Aid Accounts & Audit issued A/P to Bank of India, Tokyo which issued A/P to Principal suppliers of equipments with respect to finalized eight packages. Most of the equipment have been installed till December, 2006 and are operational.

The three packages viz. TOC Analyzer, GC-Methanizer and PM_{2.5} Dichotomous Sampler System have been re-tendered by NTPC and Bids have been technical evaluated. Out of three packages, the GC-Methanizer and PM_{2.5} Dichotomous sampler have been dropped from procurement due to limitations of funds, while TOC Analyzer has been finalized.

Development of CPCB's North Zonal Office cum Laboratory at New Premises

CPCB Zonal Office – North, having been shifted from Kanpur to Lucknow, the work pertaining to complete the interiors was handed over to CPWD. The Zonal Office itself has completed the basic designing of the lab. Rigorous follow up with CPWD resulted into the actual execution of the interiors and the entire laboratory and office have been completed in Jan 2007. The lay-out plans for ground floor (Incharge, Officers, Admn., Training hall, Library, Computer Room & future expansion) and first floor (Complete laboratory set-up) have been prepared by keeping in view ventilation, sunlight and security aspects. In laboratory, Separate rooms are provided for Air laboratory, Conditioning Room, HVS/ RDS room,

Fresh water lab., Waste water Lab., Microbiological lab., Toxicological lab., Hot room , Digestion chambers, Calibration room, Instrumentation lab., AOX Room, GC Room, BTX Room, AAS Room, Maintenance room, glass ware washing room, distilled water room, record room, sample receiving room, laboratory In-charge room, staff sitting room etc.

Shifting of CPCB's South Zonal Office cum Laboratory to New Premises

The South Zonal Office **cum Laboratory** shall be shortly shifting to new premises constructed by Karnataka Pollution Control Board at Saraguruvanahalli. The Approximate super-built-up area in the new building where Zonal office is to be housed is 16000 sq.ft. on 1st and 2nd Floor. The architect and other consultants have been identified to prepare design and tender document. The designing work is in progress. The office will be shifted and made operational in the new premises during 2007.

Front Elevation of New Building



I & II Floor earmarked to CPCB



Environment Laboratories Approved for Recognition by Central Pollution Control Board under The Environment (Protection) Act, 1986

Central Pollution Control Board, Delhi had been delegated powers by Government of India vide Gazette Notification No. S.O. 145 (E) dated February 21, 1991 for recognizing environmental laboratories of Govt/ Semi-Govt organizations / Public Sector Undertakings & Educational Institutions to carry out the functions entrusted to the Environmental laboratories under Section 12 (1) (b) & 13 of Environment (Protection) Act, 1986. In exercise of powers conferred, Central Pollution Control Board has approved the new recognition / renewal of

recognition to following environmental laboratories during the reported period January to December, 2005:

137th Board Meeting (27th March, 2006):

1. Central Laboratory
H. P. State Environment Protection & Pollution Control Board
SCF 6, 7, 8, Sector-IV Parwanoo
Distt. Solan-173 220
Himachal Pradesh
2. Analytical Laboratory
Ore Dressing Division, Indian Bureau of Mines
L-8, MIDC, Industrial Area
Hingna Road
Nagpur-440 016
Maharashtra
3. Environmental Laboratory
National Productivity Council
5-6, Institutional Area
Lodi Road
New Delhi-110 003
4. Regional Laboratory
Madhya Pradesh Pollution Control Board
17, Bharatpuri
Ujjain-456 010
Madhya Pradesh
5. Centre for Environmental Studies
Anna University, Chennai-600 025

138th Board Meeting (20th June, 2006):

6. Central Laboratory
Kerala State Pollution Control Board
Gandhi Nagar
Kochi-682 020, Kerala
7. Hindustan Organic Chemicals Limited
P.O. Rasayani
Distt. Raigad-410 207

Maharashtra

139th Board Meeting (November, 2006):

8. Research & Development Department
Hindustan Copper Limited
Khetri Copper Complex
P.O. Khetri Nagar
Distt. Jhunjhunu, Rajasthan-333 504
9. Delhi Pollution Control Committee
4th Floor, ISBT Building
Kashmere Gate
Delhi-110 006

140th Board Meeting (23rd December, 2006):

10. Projects & Development India Limited
CIFT Building
P.O. Sindri-828 122
Dhanbad, Jharkhand

Participation in International Proficiency Testing (PT) Programme

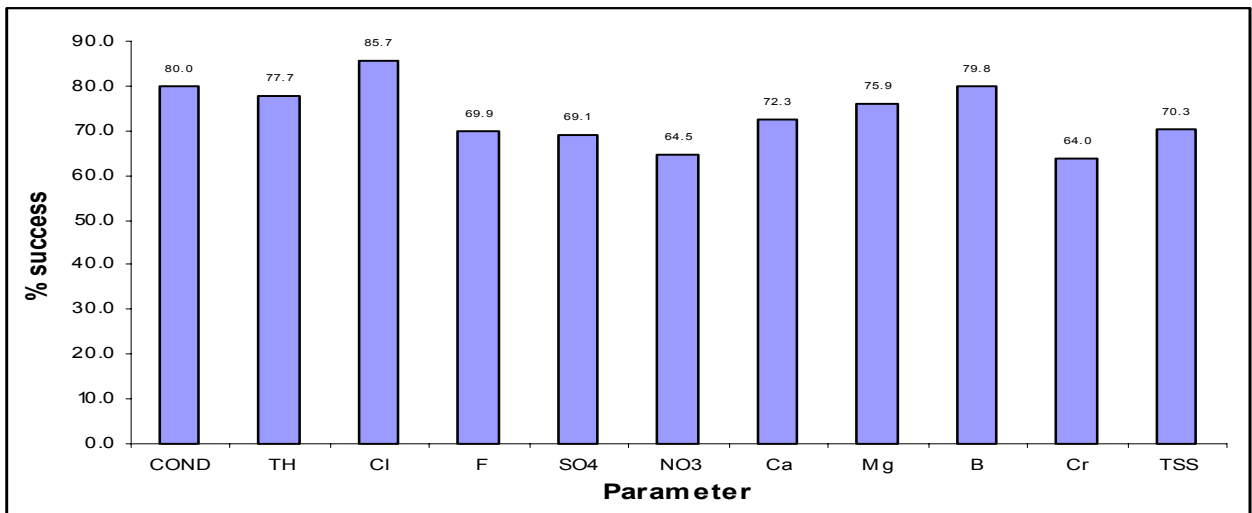
In order to ensure analytical quality, CPCB laboratories have been participating in International PT programmes. During the year, Water laboratory has participated in four PT programme for various physico-chemical parameters viz. Alkalinity, Ammonia-N, BOD, Calcium, Calcium Hardness, Chloride, COD, Conductivity, Cyanide, Fluoride, Magnesium, Nitrate-N, Nitrite-N, Oil and grease, Orthophosphate-P, pH, Phosphate - P, Potassium, Sodium, Sulphate, Total Dissolved Solids, Total Dissolved Solids, Total Hardness, Total Kjeldahl Nitrogen, Total Organic Carbon, Total Solids, Total solids, Total Suspended Solids and Total suspended solids.

Analytical Quality Control (AQC) Exercise for the Water/Wastewater Laboratories of PCBs / PCCs and EPA Recognized Laboratories

Analytical Quality Control (AQC) is one of the main tools by which the performance of a laboratory can be assessed in terms of accuracy and reliability of analytical data generated by the laboratory. Any particular water quality study or any organized water quality monitoring program involves the collection, comparison and interpretation of analytical data, which leads to some a decision - making. The correctness of decision or action depends largely upon the accuracy of the analytical results.

The Central Pollution Control Board (CPCB) is monitoring 784 water quality monitoring stations under GEMS, MINARS, GAP and YAP Programmes comprising rivers, lakes, wells, and ground waters through various State Pollution Control Boards (SPCB). In order to obtain reliable and accurate analytical data, CPCB has been organizing regular and organized Analytical Quality Control (AQC) exercises. The 22nd AQC exercise was organized by CPCB Head Quarter Laboratory covering 11 physico-chemical parameters in which 138 laboratories including laboratories of State Boards / Pollution Control Committees, CPCB Zonal Offices and EPA recognized laboratories participated.

Performance of 138 Participant Laboratories in the 22nd AQC Exercise



On-Job Training of Students from Various Universities / Colleges

A total of 36 students of undergraduate and postgraduate of Science and Engineering stream from various universities/ colleges have undergone on-job training at CPCB HQs Laboratories including Air, Water, Bioscience and Instrumentation Laboratories.