



# TELANGANA STATE POLLUTION CONTROL BOARD

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## NOTE ON ACTIVITIES OF LABORATORIES OF TSPCB

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One of the major objectives of TSPCB is monitoring of pollution sources and ambient environmental quality includes air, soil, solid waste and water. Laboratory plays a vital role in carrying out these tasks.

The Central Laboratory of TSPCB has the following Divisions at Hyderabad.

- 1) Water and Wastewater Laboratory
- 2) Air Laboratory
- 3) Bio Laboratory
- 4) Instrumentation Laboratory
- 5) Hazardous Waste Laboratory

### **A. OBJECTIVES OF THE TSPCB LABORATORIES:**

- To carryout monitoring of water, waste water, air, soil and solid wastes.
- Supporting services for various projects with regard to sampling, analysis and reporting.
- To carry out research and development project studies.
- Standardization of new methodology for analysis of specific pollutants.
- To conduct laboratory oriented training programmes for Zonal and Regional Laboratories.

### **B. MONITORING ACTIVITIES OF THE LABORATORIES:**

#### **1. National Air Quality Monitoring Programme (NAMP):**

The Board is monitoring ambient air quality at 23 stations situated across the Telangana State under NAMP Programme with CPCB & SPCB sharing of funds. In this instruments were kept at selected placed and monitored manually for 9 days per month (3 shifts per day). The parameters are: PM10, SO<sub>2</sub>, NO<sub>x</sub>, CO, Ammonia, Heavy metals, etc.

#### **2. State Ambient Air Quality Monitoring Programme:**

In addition to the above, the Board is monitoring ambient air quality in 22 additional stations situated in all the districts of Telangana for assessing ambient air quality with the Board funds.

### **3. Continuous Ambient Noise Monitoring programme:**

The CPCB has established five real time Ambient Noise Monitoring stations in Hyderabad at Punjagutta, Abids, Jeedimetla, Jublee Hills and Zoo Park to monitor the noise levels at important places. The data can be accessed by citizens through internet to know the noise levels at the above stations / places.

In addition to the above, the SPCBs has also installed 5 stations at Tarnaka, JNTU, Paradise, Gaddapotharam, Gachibowli for continuous noise monitoring. The data obtained at above 10 stations is being displayed at 5 prominent places at (1)Rajiv Gandhi International Air Port, (2)Yashoda Hospital, Somajiguda, (3) Hyderabad Public School, (4) Head Office, Sanathnagar and (5) Server room, Central Lab.

### **4. Continuous Ambient Air Quality Monitoring Station (CAAQMS):**

TSPCB has installed 5 CAAQMS stations at (1)Sanathnagar, Head Office, (2)HCU, (3)Punjagutta, (4) Zoo Park and (5) Pashamylaram IDA. The CAAQMS has been provided with sophisticated analyzers for NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, O<sub>3</sub>, BTX and CO, instant data generation, on line data dissemination, meteorological parameters, etc.,

### **5. Water Quality Monitoring:**

The TSPCB is monitoring rivers and its tributaries, lakes, ground water, drains and cheruvus under National Water Quality Monitoring Programme (NWMP) sponsored by CPCB. Currently, under this programme there are 90 stations across the State and are being monitored regularly.

### **6. Other Monitorings:**

The Central Laboratory, TSPCB is receiving all types of industrial effluents, hazardous waste samples, soil samples, air samples, source emission monitoring samples and other water samples which are not a part of central Schemes from the respective Zonal and Regional Offices.

The number of samples received and analysed by the Central Laboratory are 3074 for 4 months period (Oct 2014 to January 15), after refurbishing and it will be likely to be increased from March 2015 onwards.

### **C. ACCREDITATION AND RECOGNITION:**

- The TSPCB Central Laboratory has obtained Laboratory Accreditation through the National Accreditation Board for Testing and Calibration Laboratories (NABL), Department of Science & Technology as per ISO/IEC 17025. The accreditation covers 103 parameters.

#### **D. SOPHISTICATED INSTRUMENTATION:**

The TSPCB Laboratory at Hyderabad is equipped with sophisticated instruments and equipment for analysis of water, air, soil and solid wastes.

The sophisticated instruments procured under World Bank CBIPMP Project are as follows:

<b>S.No.</b>	<b>Name of the Instrument</b>	<b>Use of the instrument</b>
1	GC-MS/MS	Analysis of organics including trace organics
2	ICP-OES	Analysis of all heavy metals
3	ED-XRF	Analysis of elements in solid samples / PM2.5 air samples
4	Microwave accelerated reaction system	Digestion of samples for heavy metal analysis
5	Flash point analyzer	To know the flash point of hazardous samples
6	Cyanide / Sulphide distillation assembly	Estimation of Cyanide / Sulphide in hazardous waste samples
7	TCLP Apparatus assembly for POPs and VOCs	Extraction assembly for organic samples from hazardous waste
8	Accelerated solvent extraction assembly	Solvent extraction or GC/MS
9	Isokinetic stack sampling assembly with volatile organic sampling train	For collection of volatile organics from stacks / chimney
10	High volume samplers with PUF sampler	Ambient air sampling unit for dioxins / furans
11	Bomb calorimeter	For analysis of calorific value of hazardous waste samples

#### **E. REFURBISHING OF CENTRAL LABORATORY INFRASTRUCTURE UNDER WORLD BANK CBIPMP PROJECT:**

The existing Central Laboratory was refurbished under CBIPM Project for overcoming the limitations / designs of the earlier laboratory so as to provide good laboratory environment for the working staff. The advanced facilities are fume hoods, safety equipment, modular furniture, seating system, electrical systems, DG Set, UPS system, fire detection alarms, building management system, ventilation and scrubber system, HVAC facility and public address system in emergency, so that the Central Lab is totally OSHA compliant.

## **F. STRENGTHENING OF CENTRAL AND ZONAL LABS WITH BOARD FUNDS FOR RECOGNITION UNDER EP ACT FROM MOEF:**

The TSPCB has established 2 Zonal Laboratories at the following places:

- Warangal
- Ramachandrapuram (Medak Dist.)

After formation of TSPCB, the facilities of zonal labs were reviewed for recognition of laboratories under EP Act from MoEF and found that the laboratories lacking some of mandatory infrastructure facilities and suggested for further strengthening of laboratory as very old instruments exists.

Accordingly, it was decided to strengthen the Zonal Labs and Central Lab by procuring the following equipment with Board funds with an estimated cost of Rs.91.00Lakhs(Approx.), after approval from the Chairman, TSPCB.

<b>S.No.</b>	<b>Name of the instrument</b>	<b>Qty.</b>
1	Turbidity meter	3
2	UV-Vis.Spectrophotometer	3
3	BOD Incubator	3
4	Laminar flow systems	3
5	Ultrasonic bath	1
6	Handy samplers	6
7	Conductivity meter (Table top)	3
8	pH meter (Table top)	3
9	Mercury analyser	3
10	Autoclave	3
11	Deep freezer	2
12	Bacteriological incubator	3
13	Muffle furnace	1
14	Rotary evaporator (Buchi type)	3
15	Flue gas analyser	3
16	Atomic absorption spectrophotometer	1
17	Thermal disorber with purge and trap	1

The purchase orders for supply of 11 nos. of above instruments was placed on suppliers and will be installed by end of March 2015. It is proposed to re-tender for 5 items for which response is not received.

## **G. STRENGTHEN OF THE CENTRAL AND ZONAL LABORATORY WITH 13<sup>TH</sup> FINANCE COMMISSION BUDGET FOR ADVANCED INSTRUMENTS / FIELD MONITORING ONLINE INSTRUMENTS:**

The 13<sup>th</sup> Finance Commission recommended an amount of Rs.20.0 Crores for state specific needs under the scheme of strengthening of pollution control boards for the period 2011-12 to 2014-15. After bifurcation, the TSPCB was allotted Rs.9.0 Crores. Out of the above, instruments worth Rs.5.03 Crores were already purchased and being installed in TSPCB. Now, it is proposed to spend the balance Rs.3.935 Crores of instruments / equipments. The Chairman, TSPCB already accorded permission

and tenders were finalized recently after obtaining the latest specifications from the CPCB. The tender schedule is ready and to be uploaded in the eprocurement shortly.

**i. Instruments already procured with 13<sup>th</sup> Finance Commission funds of Rs.5.035Crores during 2012-2013:**

1. CAAQMS installed at HCU, Zoo Park and Pashamylaram
2. CAAQMS installed at Punjagutta
3. Realtime noise monitoring stations at MRO Office, RC Puram
4. COD Digestors (Hyd-2, RCP-2 and WGL-2)
5. Water purification system at Hyderabad, RC Puram, Warangal
6. Multi parameter water quality system at Hyderabad, RC Puram and Warangal
7. Karl fisher titrator at Hyderabad and RC Puram

**ii. Proposed instruments to be procured with 13<sup>th</sup> Finance Commission funds of Rs.3.935 Crores in 2014-15:**

1. PM2.5 sampler – 25Nos.
2. CAAQMS Stations – 2Nos. (1. Bollaram / Patancheru and 2.Ramagundam) for the stations identified by CPCB under non-attainment cities.
3. Realtime water quality monitoring system – 2Nos. in critically polluted areas
4. Networking of NWMP 90 stations and procurement of servers / software / computers for continuous load of data as per CPCB norms – 1No.
5. TKN Analyser – 3 Nos.
6. Specific Ion Meter – 3 Nos.

Proposals have been already approved and the procurement through e-tender is under process.

**H. CERTIFICATION OF ISO 9001 & OHSAS 18001 FOR ZONAL LABORATORIES OF RC PURAM & WARANGAL AND OHSAS 18001 FOR CENTRAL LABORATORY**

As per the mandatory requirement of CPCB for recognition of laboratories under MoEF, the above certificates are mandatory. Hence, the TSPCB has placed work order on M/s.Professional Management Consultants. The consultants has already started auditing work and certification will be completed by end of March, 2015.

**I. ROAD MAP FOR 2015-16:**

The following proposals for further activities:

- a. Strengthening of Regional offices by providing field infrastructure
- b. Purchase of mobile vans so as to take-up monitoring at complainant sites
- c. Strengthening of field air monitoring facilities specially to tackle issues of smell nuisance in IDAs.
- d. Proposal to procure Universal software with server to collect CAAQMS/CEMS/RTWQMS data from all industries including PCB sites for data management
- e. Proposed to procure an exclusive Laboratory Information Management System (LIMS) software for efficient management of laboratory data and inventory management, infrastructure management.