



**CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE (CENTRAL)
PARIVESH BHAWAN, PARYAVARAN PARISAR,
E-5, ARERA COLONY, BHOPAL (MP)**

**Report on On-line Training Programme on
“Understanding Real Time Monitoring for Industries and its Audit
Methodology”**

The online training programme on the topic “Understanding Real Time Monitoring for Industries and its Audit Methodology: was organised by Centre of Science and Environment (CSE), New Delhi between 17.09.2020 and 30.09.2020. The training programme was scheduled for 15 days and was divided into 2 weeks covering all the aspects related to real-time monitoring technology. The duration of daily training session was between 10:00 AM to 12:30 PM. The undersigned participated in the training programme herewith submitting the training report.

The training module was designed for capacity building of participants by providing insight to available rules and legislation, guidelines, technologies for real time monitoring for industries in India and its application, challenges in implementation and audit methodology. In view of COVID-19 pandemic throughout the world, the complete training was organised by virtual media through recorded lectures, on-line presentations and virtual interaction sessions covering wide range of topics such as-

- Overview of CEMS and CEQMS
- CPCB guidelines for CEMS and CEQMS
- Pollution monitoring regulations in developed and developing countries
- Implementation of CEMS in India
- PM-CEMs technologies and its assessment
- Gaseous-CEMS technologies and its assessment
- CEQMS technologies and its assessment
- Regulatory aspects of CEMS and CEQMS
- Data Acquisition and Handling System (DAHS)
- CEMS and CEQMS audit methodology

To attend the training sessions a separate User ID and password was provided by the organisers to each participant. The day 1 (17.09.2020) of training programme was inaugurated with introduction to all the participants and an overview about the training module was provided by the convener of the program Ms. Shreya Verma, Senior Research Associate, Centre for Science and Environment. The first technical session was opened with the deliberation by Sh. S.K. Tyagi, Ex. Add. Director, CPCB. A well-explained presentation on Overview of CEMS and CEQMS was given to the participants and the roadmap required to be followed to achieve the success was also briefed by him. He also stated the advantages of real-time monitoring and new technologies over manual monitoring and how they actually work. Afterwards, Ms. Shreya Verma presented on Basics of CEMS and CEQMS and; emission and effluent parameters to be monitored in industries.

On day 2 (18.09.2020) Mr. Digvijay singh presented on the topic Pollution Monitoring Regulations in Developed and Developing Countries where detailed explanation was given on regulatory aspects for real time pollution monitoring and challenges faced in its application and implementation in India. The challenges being faced by industries and other missing links in proper implementation of real-time monitoring technology in the country were also highlighted by him during the talk.

On day 3 (19.09.2020), PM-CEMs sampling technologies (extractive and in-situ system) and different measurement technologies based on the sampling system for PM-CEMS and suitability check of the technique and its limitations were well explained by Mr. Sankar Kanan from SICK India. He shared views regarding chronological background of real-time monitoring system (RTMS), need of RTMS, areas covered under RTMS, components of RTMS, benefits of RTMS etc.

On day 4 (21.09.2020), Mr. Ranjit Roy from HORIBA presented on various available measurement technologies for Gaseous CEMS and its suitability and various issues involved in implementation of these technologies. The regulatory aspects of the correct installation of CEMS and CEQMS as well as identification of the location and points to be considered during installation of OCEMS were also explained in detail. CEMS methodologies were quite absorbing and informative to the participants.

Live Session-1 was held on day 5 (22.09.2020) on skype to interact with the participants and discuss on their queries and view on covered topics. An assignment was also given to the participants to ensure their understanding on the training sessions.

On day 6 (23.09.2020) and day 7 (24.09.2020) Mr. Suresh Kumar Sadasivan, Chief Technical Director, Knowledge Lens Pvt. Ltd., Bangalore shared knowledge on principle and procedure of Data Acquisition and Handling System and on CEQMS

technologies & quality assurance respectively. He also deliberated on schematics of data management, current protocol followed by CPCB for management of real-time data, data analysis, its validation & interpretation, data tempering threats & counter measures. He highlighted on data integrity issue, its reliability and data flow mechanism.

On day 8 (25.09.2020), Live Session-2 on Q & A was organised for participants to share their inputs regarding the training and to clear their doubts. A quiz session was also held to cater the involvement of participants.

Dr. Abhijeet Pathak from CPCB, HO- Delhi presented on Protocol for installation and performance check of CEMS and about the technical issues which need immediate attention for implementation of CEMS. He also deliberated about where India stands as far as compliance of international norms is concerned, performance check, status of certification and approval of real-time monitoring system & lab accreditation and shared his experience on CEMS and CEQMS guidelines implementation and monitoring on the day 9 (26.09.2020).

On day 10 (28.06.2020) Dr. Chirag Bhimani, Senior Legal Expert at Adelphi, presented on the topic Audit Methodology for assessment of technology installed, CEMS and CEQMS location, operation maintenance and calibration practices. He informed the participants about international protocols which are already in-place for this purpose. The European norms EN15267, EN14181, which talk about CEMS calibration and checks, were also discussed by him. He also explained on available legislative framework for implementation of CEMS and CEQMS guidelines.

On the day 11 (29.09.2020), there was Q & A session and recap of various topics discussed during the technical sessions was briefed by the convener of the programme Ms. Shreya Verma, (CSE). The assignment submission by all participants was also done on the day.

On the last day (30.09.2020), valedictory session was organised online where name of all the participants awarded with certificates were announced and link to download the certificate was mailed to all the participants.

The training programme was found fruitful for complete understanding of real-time monitoring system and its effective implementation. All the presentations were very well delivered and were very informative and found to be useful in future for my work in CPCB.

Dr. Ranu Chouksey Verma
Scientist-B

ANIL AGARWAL ENVIRONMENT TRAINING INSTITUTE

(A Unit of Centre for Science and Environment)

CERTIFICATE OF PARTICIPATION

Online Training on
**Understanding Real Time Monitoring for
Industries and its Audit Methodology**

This is to certify that Mr./Ms. Dr. Ranu Chouksey Verma
has participated in the training programme on “**Understanding Real Time Monitoring for
Industries and its Audit Methodology**” organised by the Centre for Science and Environment,
New Delhi from **17 – 30 September 2020**.

With best wishes,



Sunita Narain
Director General



Centre for Science and Environment
41, Tughlakabad Institutional Area
New Delhi-110 062 INDIA



