CEMS
Status of Implementation & Strategy

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• **CEMS started with CPCB’s direction** in Feb 2014.
  ✓ Installation of real time effluent quality monitoring- March 2014
  ✓ **Draft notification** by MoEF&CC on CEMS- April, 2015. On hold.

• **Nearly 80% of 2764 (remaining differed) plants have already installed** or in process of installing (March 2016). CPCB issued closure notices to around 500 units for not following direction.

• Most of the 17 categories industries have installed CEMS, **monitoring & reporting is yet to improve. Compliance and enforcement are further away.**
• Installation is still incomplete.
  ✓ Nearly 20% installation was not complete. Some or other equipments—camera, dust monitors etc. were missing.
  ✓ 15% of installed CEMS were not working due to equipment failure.
  ✓ Another 15% claiming for installation had no installation at site.

• Industries lack clarity on suitable technology selection. Tend to just comply the direction; prefer cheaper devices irrespective to their suitability

• Many installations are wrong. No clear idea on where to install CEMS— which stack? Which location?

Challenges in Implementation
Disturbance: Duct joining the stack

Real time monitoring device

Disturbance: Bent and joining of two ducts
Devices installed in dry effluent channel

Treated effluent going further for sprinkling
• **Lack of adequate knowledge and skills** even with the larger industries. **Insufficient knowledge base** in stakeholders is one of the biggest issues.

• **No tool for quality assurance of CEMS.** Neither Device certification system exists nor the system for performance check during installation.

• **No regular maintenance.** calibration, performance check and verification of CEMS which ideally should be done by empanelled labs don’t exist.

• **Tamperproof data reporting, transfer and validation system is missing.**

• **Many SPCBs are disinclined towards CEMS.** Many haven’t installed centralised server for data collection.

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**Challenges in Implementation**
• Team interacted with TUV Rheinland, TUV SUD, UBA and visited CEMS manufacturing and calibration facilities of SICK, ABB and waste to energy facilities of EGK and TREA.

• A generalized approach of technology selection is not effective. It is based on the type of industry, process and flue gas characterization.

• Sector-specific directives and clear standards/ regulations is a necessity.

• Certification and quality assurance of a CEMS device by a competent agency is mandatory.

• Industries install CEMS devices before and after pollution control equipments. Installing before treatment checks for any malfunction and level of treatment required.

• The data acquisition and handling software is provided with the device as a package.

Key Learnings from Germany
Probes installed in duct before flue gas treatment
• **CEMS data is seen in conjugation with plant’s key operational data.** German industries consider CEMS data complementary to a plant’s operational data as it helps in optimization of the process.

• **Roles and responsibilities are clearly defined.**
  - Quality of the product and certification - Manufacturer
  - Installation, O&M - Supplier and Industry
  - Compliance - industry
  - Compliance check - Regional environmental agency.

• **Environment, health and safety are prime concerns for German industries.**

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**Key Learnings from Germany**
CEMS data in plant’s operation control room
Well designed pollution-monitoring house/platform

CEMS analyser house below the monitoring house

Team checking CEMS installation inside the monitoring house
• **A set of guidelines and protocols** on selection of right device, correct installation, operation & maintenance and reporting.
  ✓ **Draft prepared and open for public comment** - CSE has provided important inputs through series of meetings/conferences/feedback/recommendations to give it a shape. Further updation is required to finalize.

• **Quality assurance** is crucial. *A device certification system or a performance assurance guideline for installation needs to be developed*

• **Create a self-sustainable lab empanelment system** for performance check, certification, verification. Accredited labs can be trained meanwhile.

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What is needed in India
• A uniform and full proof data transfer and validation process is required before data is used for compliance. The CEMS data can be seen with some relevant operational parameters to bring credibility.

• Skill and capacity building for all the stakeholders. Trainings and hands on experience must be assured.

• Define clear roles & responsibilities for stakeholder. In case of non-compliance provisions for strict actions should be laid down.

What is needed in India
Working closely with MoEF&CC, CPCB and SPCBs to facilitate proper CEMS implementation

• Developing a CEMS a technology and guidance manual in consultation with European Experts. This will help stakeholders to develop and knowledge base on CEMS. The report is being finalized.

• CEMS experts committee involving CPCB, SPCB, CEMS manufacturers, industry service providers to support CEMS initiatives.

• Survey of CEMS implementation to understand the improvement in CEMS implementation.
  ✓ Engaged with KSPCB and MPPCB for CEMS implementation survey of CEMS implementation in collaboration with MPPCB and KSPCB.

CSE supports the initiative
• Capacity building
  ✓ Tripartite agreement between MoEF&CC, CSE and CPCB for capacity building since 2010
  ✓ First regulators’ training on CEMS was held at JSW steel, Bellary
  ✓ A training cum exposure visit to Germany for regulators to understand the best practices and framework for CEMS.

• Organising an International CEMS conference and exhibition in Sep. 2017 in collaboration with International Labmate, UK
Training on CEMS is needed for state regulators as well as industries. CSE can collaborate and work with interested SPCBs/PCCs for successful implementation of CEMS....

Thank you