

Laboratory Accreditation/ Empanelment for CEMS

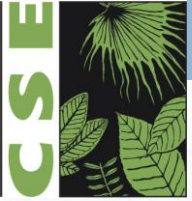
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Independent third party testing, verification and certification brings credibility to the results and system.

Accreditation gives a laboratory formal recognition for its potential to carry out specific tasks and processes.

Accreditation gives confidence and justifies the quality of results by ensuring they are valid, easy to trace, compare, and modify.

An authorized governmental/ non-governmental/ private body can accredit the labs on the basis of internationally recognized standards.

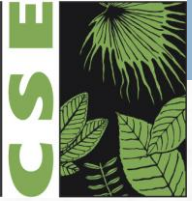
Economies like EU and USA have recognized/accredited laboratories especially for CEMS.

Lab Accreditation/ Empanelment ?

Lab Accreditation/ Empanelment for following key CEMS related tasks:

- to carry tests in order to certify the CEMS device
- to check the CEMS performance during installation
- to carry tests and calibration during maintenance
- to perform third party verification

Why needed ?



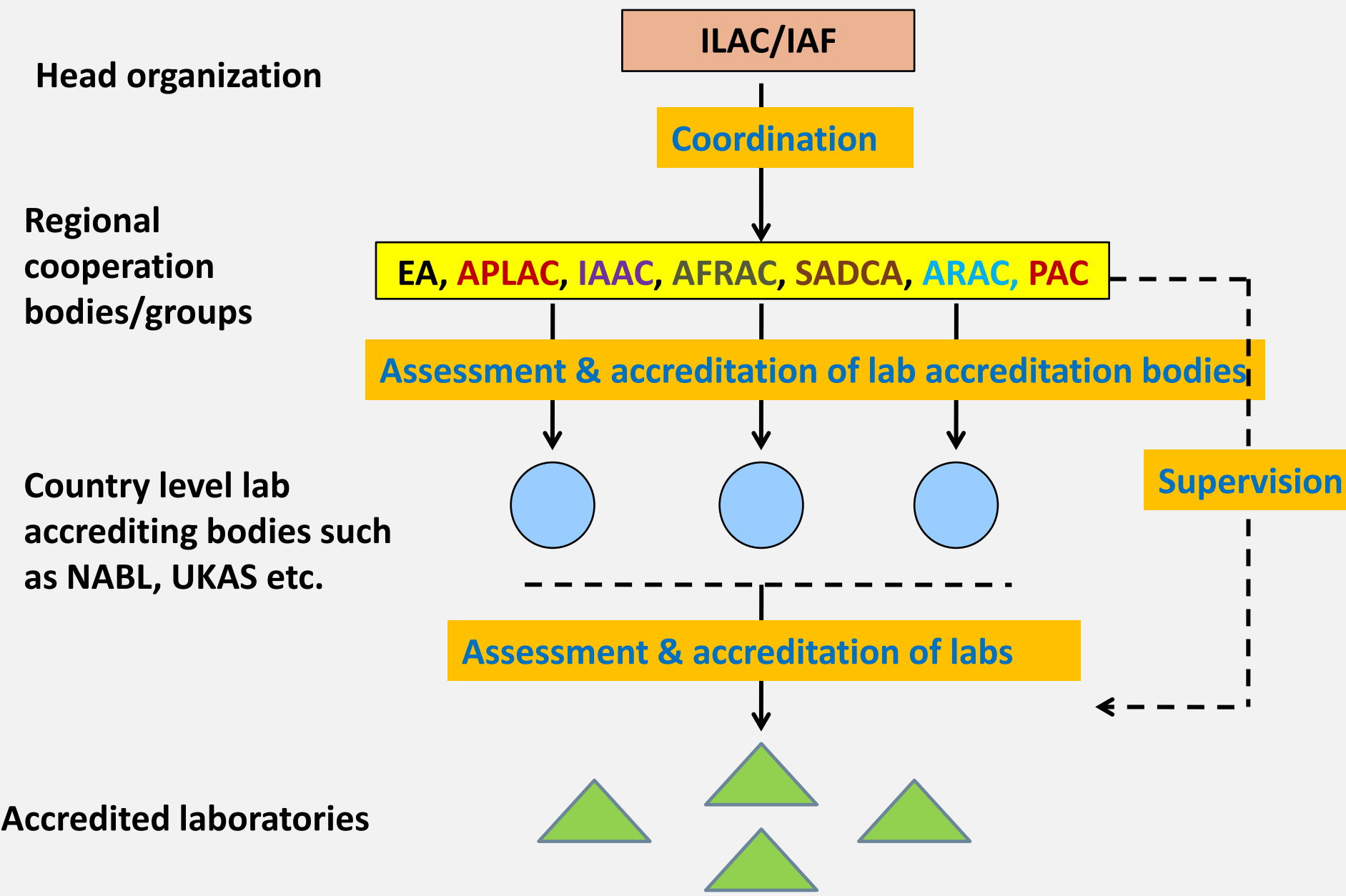
Global system of accreditation headed by two organizations:

- 1. International Laboratory Accreditation Committee (ILAC)**
Accreditation of conformity assessment (certifying) bodies or calibration labs (ISO/IEC 17025), testing labs (ISO/IEC 17025), medical testing labs (using ISO 15189) and inspection bodies (using ISO/IEC 17020)

 - 2. International Accreditation Forum (IAF)**
Carries out conformity assessment in the fields of management systems, products, services, personnel and other such similar programs.
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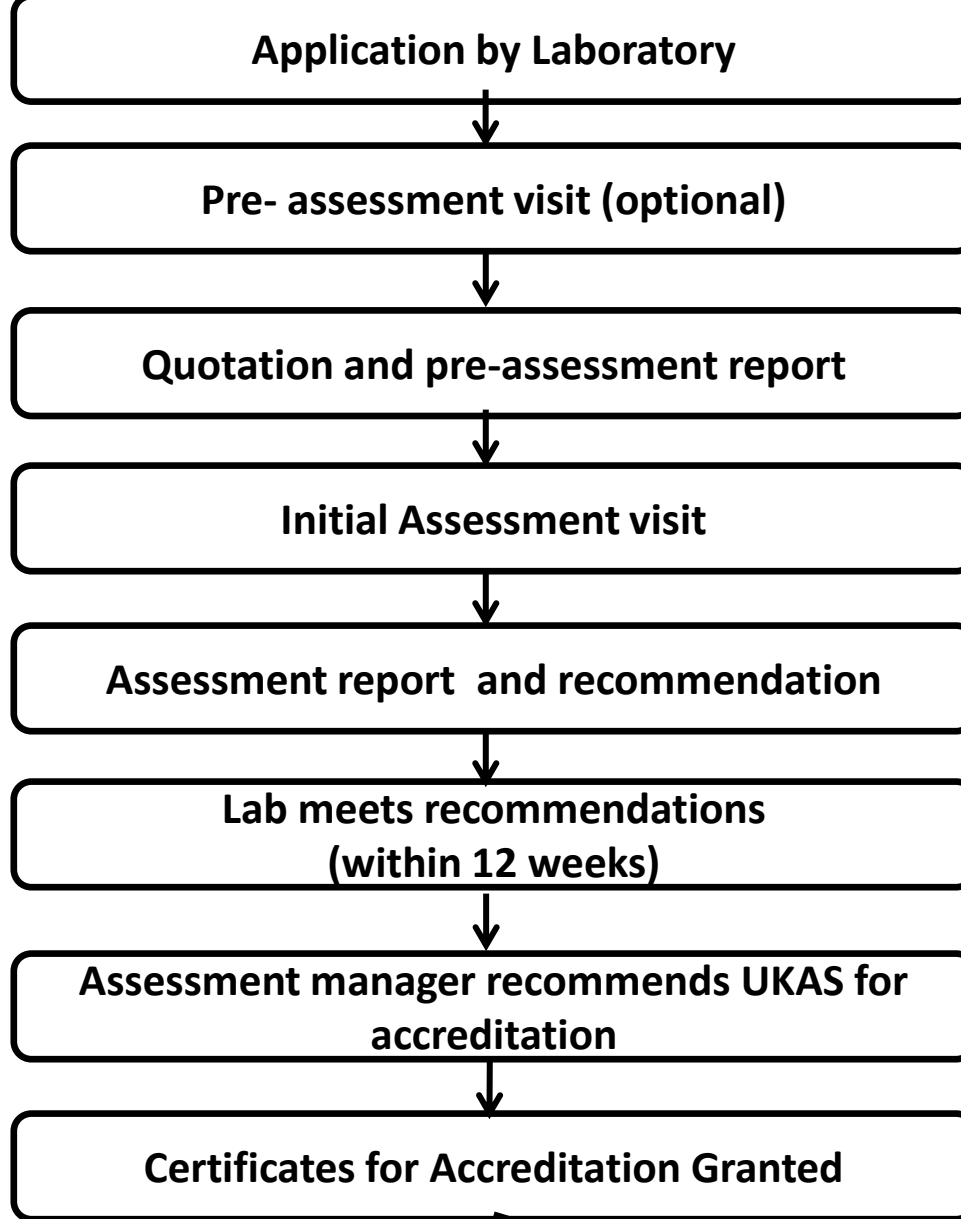
ILAC evaluates, recognizes and then links regional cooperating bodies for lab accreditation in respective regions.

- ✓ International American Accreditation Cooperation (IAAC)
 - ✓ European co-operation for Accreditation (EA)
 - ✓ Asia Pacific Laboratory Accreditation Cooperation (APLAC)
 - ✓ African Accreditation Cooperation (AFRAC)
 - ✓ Southern African Development Community Cooperation in Accreditation (SADCA)
 - ✓ Arab Accreditation Cooperation (ARAC) in the Arab region.
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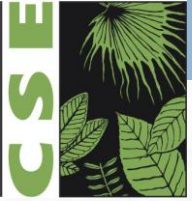
International Accreditation System

Process of Lab Accreditation in UK



Surveillance visit (first 6 months, later yearly)

Full assessment (Every fourth year)

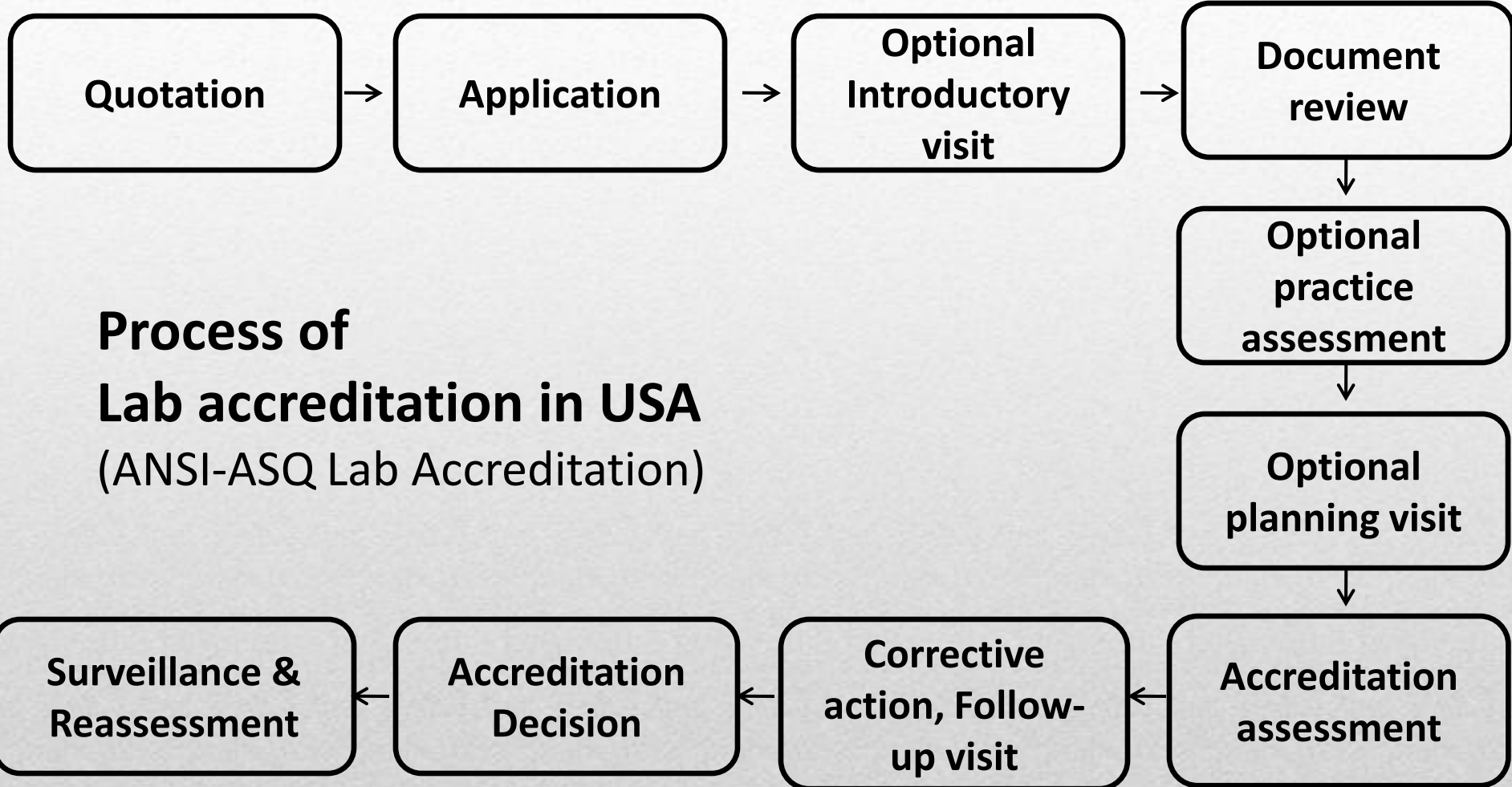
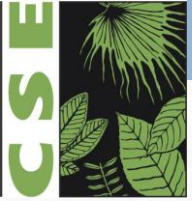


Multiple laboratory accreditation bodies recognized by different regional cooperation bodies like IAAC, APLAC etc. under ILAC.

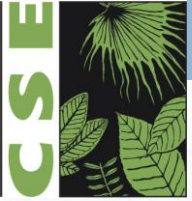
- American Association for Laboratory Accreditation (A2LA),
- ANSI-ASQ National Accreditation Board (ANAB),
- National Voluntary Laboratory Accreditation Program (NVLAP),
- AIHA's Laboratory Accreditation Programs, LLC,
- American Society of Crime Laboratory Directors / Laboratory Accreditation Board (ASCLD/LAB) etc.

Others recognized by APLAC like..

- Perry Johnson Laboratory Accreditation, Inc. (PJLA),
- Laboratory Accreditation Bureau (L-A-B)



**Process of
Lab accreditation in USA**
(ANSI-ASQ Lab Accreditation)



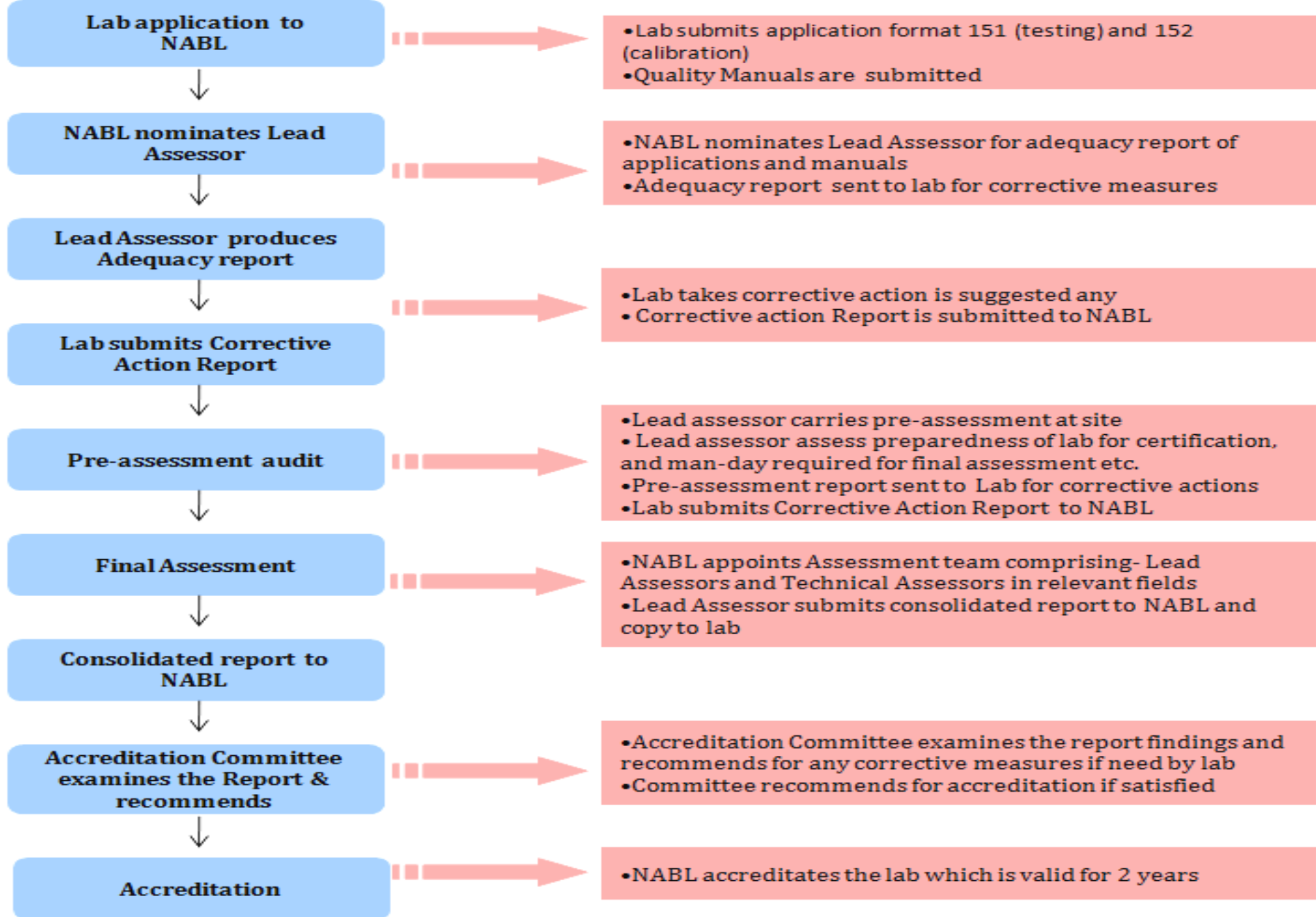
No accreditation or empanelment system for CEMS

India has accreditation system for traditional pollution monitoring

- NABL accreditation
- EPA/CPCB accreditation

NABL is an accredited by APLAC under ILAC and is in the process of becoming a signatory to the APLAC mutual recognition arrangement.

In India ?



Laboratory Accreditation in India (By NABL)



To perform the tasks related to the CEMS, a lab needs to be equipped with the basic infrastructure and skilled manpower.

Requirements depend on the scope of the jobs it wants to perform. A number of components need to be tested each with different physical measuring principle which requires specific test equipments.

For Lab tests: key infrastructures requirements such as

- ✓ Climatic Chamber, large enough to test 2 whole analyzer cabinets
- ✓ Controlled transformer to examine influence of voltage fluctuations
- ✓ Vibration simulations stand
- ✓ Data collecting system (mA and maybe digital data transmission)

Lab infrastructure needed for CEMS job

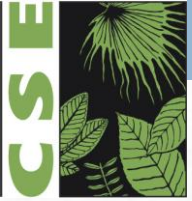
Climatic Chamber



Controlled transformer



Data processing system



Additional requirement for testing gaseous CEMS

- ✓ Different calibration and test gas cylinders/bottles
- ✓ Sys. for production of test gas mixtures with mass flow controller
- ✓ Sample gas pressure measuring unit
- ✓ Sample gas flow measuring unit

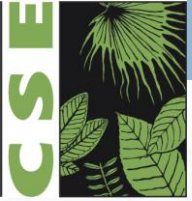
Additional requirement for testing PM CEMS

- ✓ Dust emissions simulation facility

Additional requirement for testing flow measurement

- ✓ Flow emissions simulation facility (comes with dust simulation facility)

Additional requirement for Lab tests for CEMS



For field tests

- ✓ Component specific equipment for QAL 2 test
- ✓ Equipment for lack of fit test (for example: test gas mixtures with precise mass flow controller, gray filter for dust etc.)
- ✓ Data collecting system (mA and maybe digital data transmission)

Any other equipment/facility required

- ✓ Specific test equipment belongs to the CEMS like filter etc.
- ✓ A lot of small parts and measurement units for temperature, pressure and humidity etc.

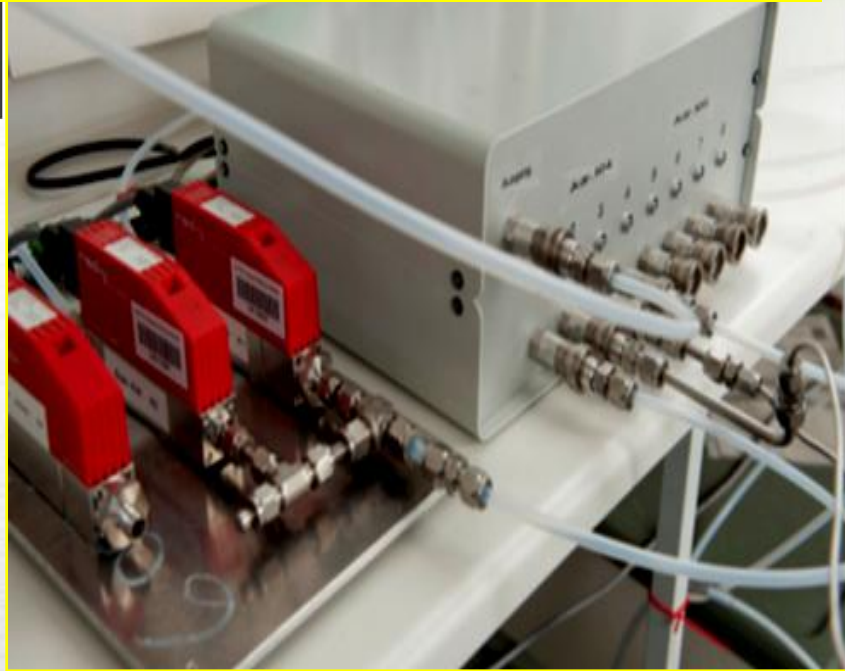
Skilled manpower

Certifications requirement- for recognition and traceability.

- ✓ Lab need ISO 17025 certification under ILAC/IAF
- ✓ Any other accreditation mandated by national government

Additional requirement for Field tests for CEMS

Mass flow controller



High precision instruments and test facility equipments



Equipments and skilled manpower for field testing





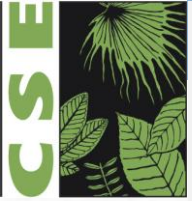
NABL appears a suitable org. for lab accreditation. Already follows the international std. ISO/IEC 17025 for lab accreditation for testing and calibration. CEMS to be included in its scope.

The expert laboratories such as TUV Rheinland, TUV SUD etc. can be approached.

As happens in Europe and other countries, other governmental, non-governmental and private agencies can be allowed to become a certification agency by developing required infrastructure.

The existing laboratories recognized by NABL and EPA, can be invited to build the required infrastructure and given opportunity for easy recognition or empanelment for CEMS

What can be done ?



The laboratory accreditation system should be financially self-sustainable.

- ✓ A constitutional/legal set-up, group of experts for evaluation of labs, develop guidelines, protocols, SOP, defining role & responsibilities of every stakeholders etc.
- ✓ The regulations/standards mandating tasks/tests for CEMS, similar to EN 14181 of Europe for certification
- ✓ The regulation/standards mandating tasks/tests for CEMS for performance tests, similar to USA.
- ✓ Guidelines/instructions to perform the tasks need to be laid down. These are well established in the Europe and USA which can be customized as per the competency, suitability and need in India.

What can be done ?