



Role of Accreditation in Metrology

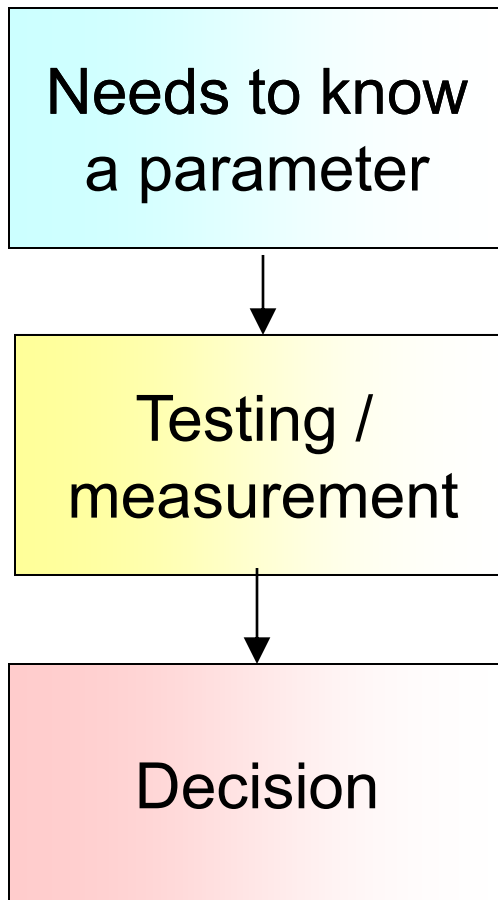
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Use of Test / Measurement



To support decisions on health, safety, regulations, research, design, trade, manufacturing, etc.

Are the results accurate and reliable?

Will inaccurate result reduce the quality of decision?

Value of Accreditation

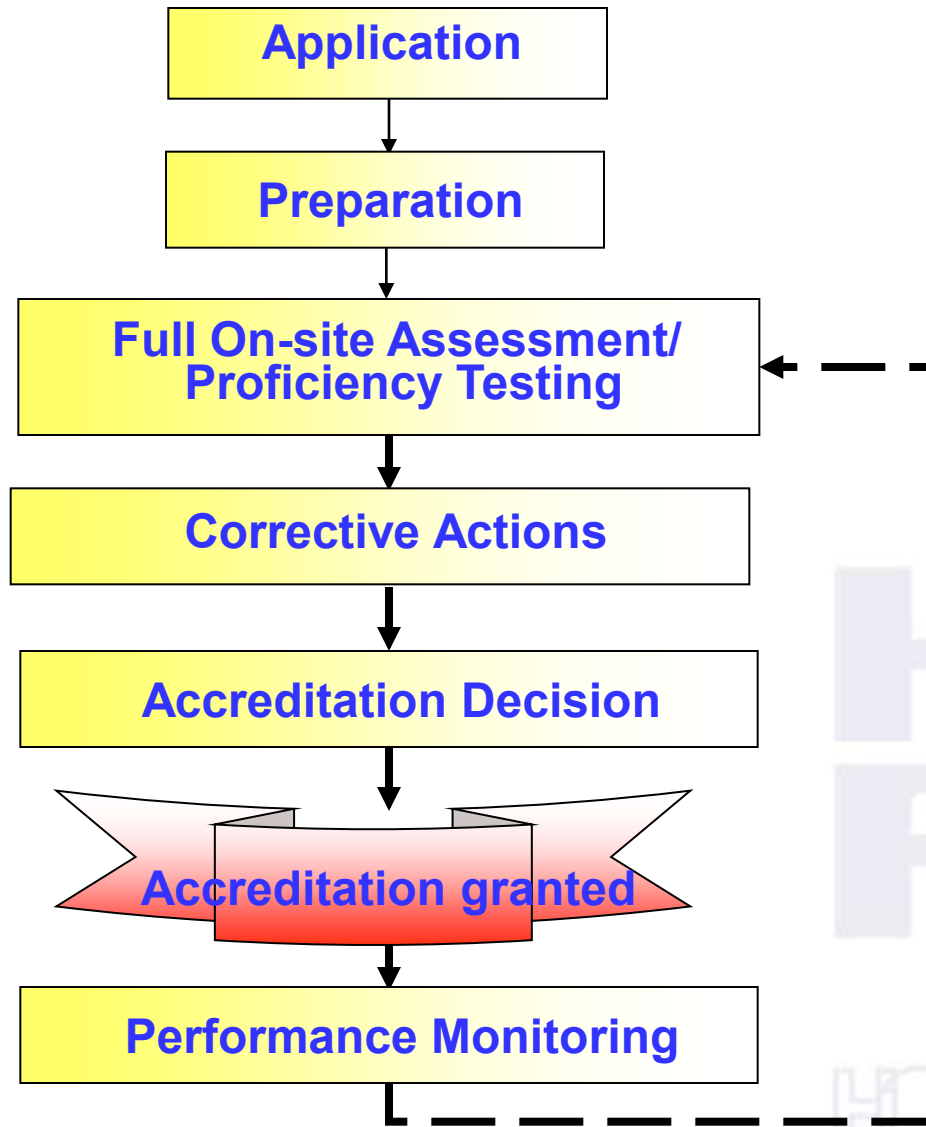
Assess the competence of a laboratory for performing specified test/measurement

Basis:
International Standards,
e.g. ISO/IEC 17025,
ISO 15189

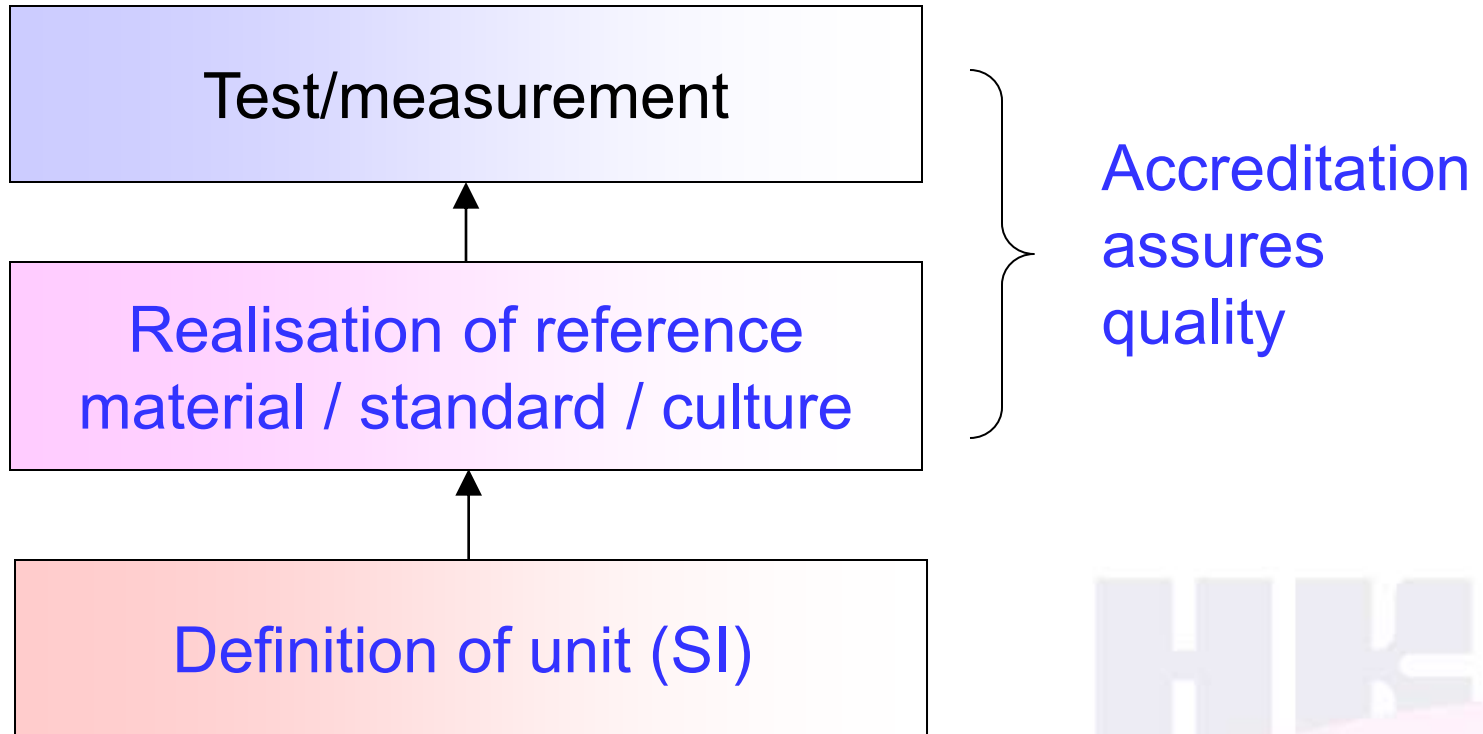
Grant accreditation to the competent laboratory for specified test/measurement

Effect:
Declare to the public that the laboratory is competent in performing the specified test

Accreditation Process



Measurement Traceability Links



Relationship of measurement result with definition of relevant measurement unit is measurement traceability




Means to Achieve Traceability

- Direct measurement using an instrument
 - The instrument must be calibrated by a traceable source
- Comparison method
 - The reference standard/material/culture must be traceable



Source of Traceability

- Top level
 - Realisation of units is carried out by NMIs and provided as calibration service and reference standard/material/culture
 - Comparability is maintained through intercomparison, e.g., BIPM and APMP intercomparison
- Working level
 - Using traceable calibration service and reference standard/material/culture
 - Participating in proficiency testing activities



Role of Accreditation Body in Dissemination of Measurement Traceability

- Ensure accredited laboratories comply with the traceability requirements in accreditation standards (ISO/IEC 17025, ISO 15189)
- Identification of reliable sources of measurement traceability through providing accreditation of
 - calibration
 - production of reference materials



Implementation of Traceability Requirements

- Traceability policy
 - HOKLAS 003, clause 5.6.H
 - ILAC traceability policy, ILAC P10:2002
- Assessment conducted by competent assessors/experts

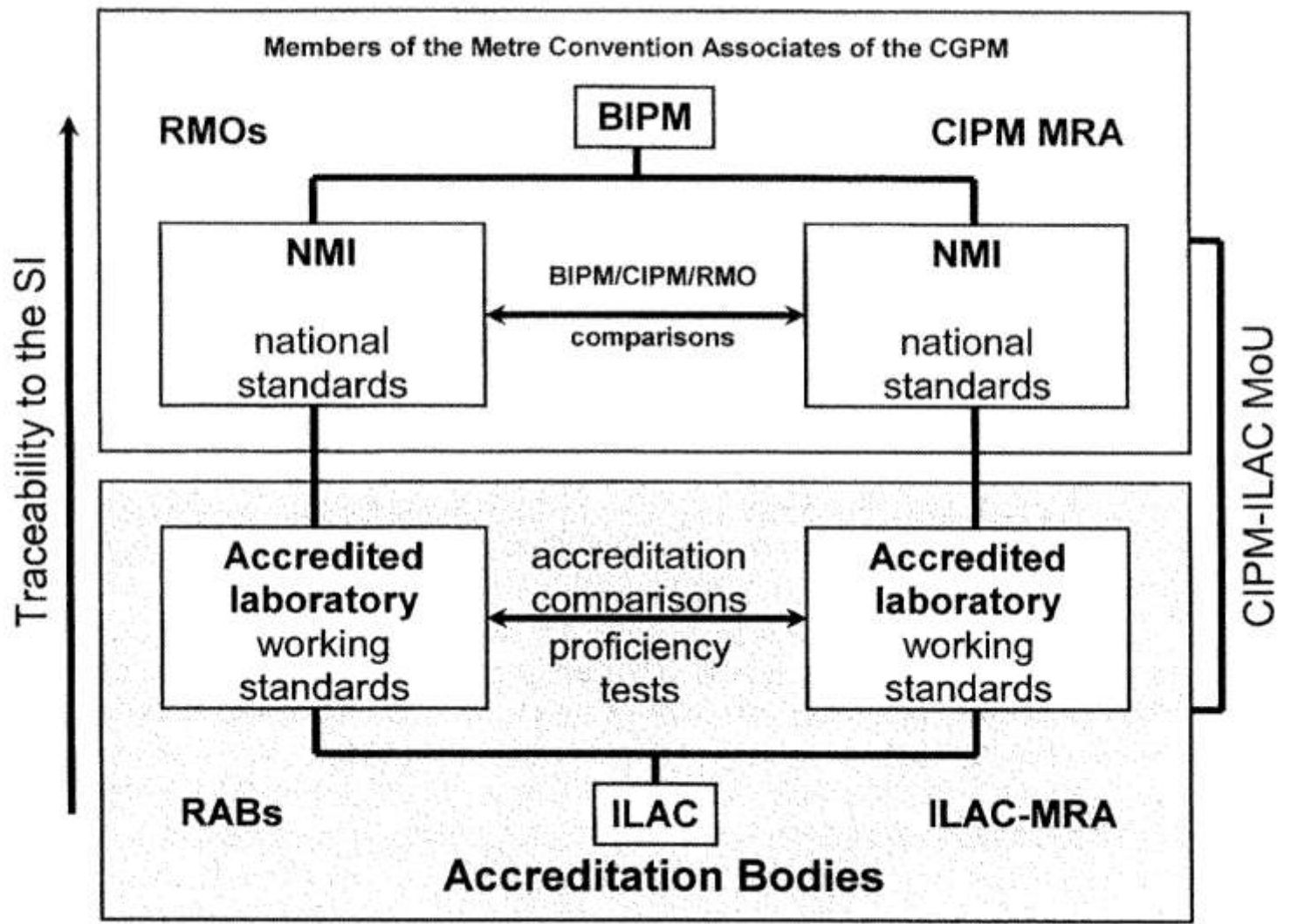
ILAC Traceability Policy

- Traceability of calibration to SI through
 - National metrology institutes (NMIs)
 - Competent calibration laboratories, e.g. accredited laboratories
- Traceability of testing to
 - Accredited calibration laboratories
 - NMIs
 - Certified reference materials (CRMs)
 - Mutual consent standards
 - Agreed methods

International Cooperation

- Required for exchange and mutual acceptance of data across borders
- Accreditation body MRAs
 - International Laboratory Accreditation Cooperation (ILAC)
 - Asia Pacific Laboratory Accreditation Cooperation (APLAC)
- NMIs MRAs
 - International Committee on Weights and Measures (CIPM Global MRA)
 - Asia Pacific Metrology Programme (APMP) supports the global MRA
- CIPM – ILAC MoU
- APLAC – APMP MoU
- Well developed for calibrations, mainly for physical measurements

Global Traceability



MRA on Accreditation of Reference Material Producers

- The MRA supports traceability, notably for chemical measurements
- APLAC is the pioneer
- Working group under the APLAC MRA Council led by a staff member of HKAS
- Current signatories for RMP: CNAS, IAJapan, A2LA and ACLASS
- HKAS will expand its MRA scope to cover RMP
- Similar global MRA being discussed in ILAC

Summary

- Accreditation helps identify acceptable sources of metrological traceability
- Accreditation assures the competence of an accredited laboratory or RMP through confirming that its measurement are traceable
- Accreditation increases the value of tests by promoting acceptance of results through mutual recognition arrangements



Thank you

