

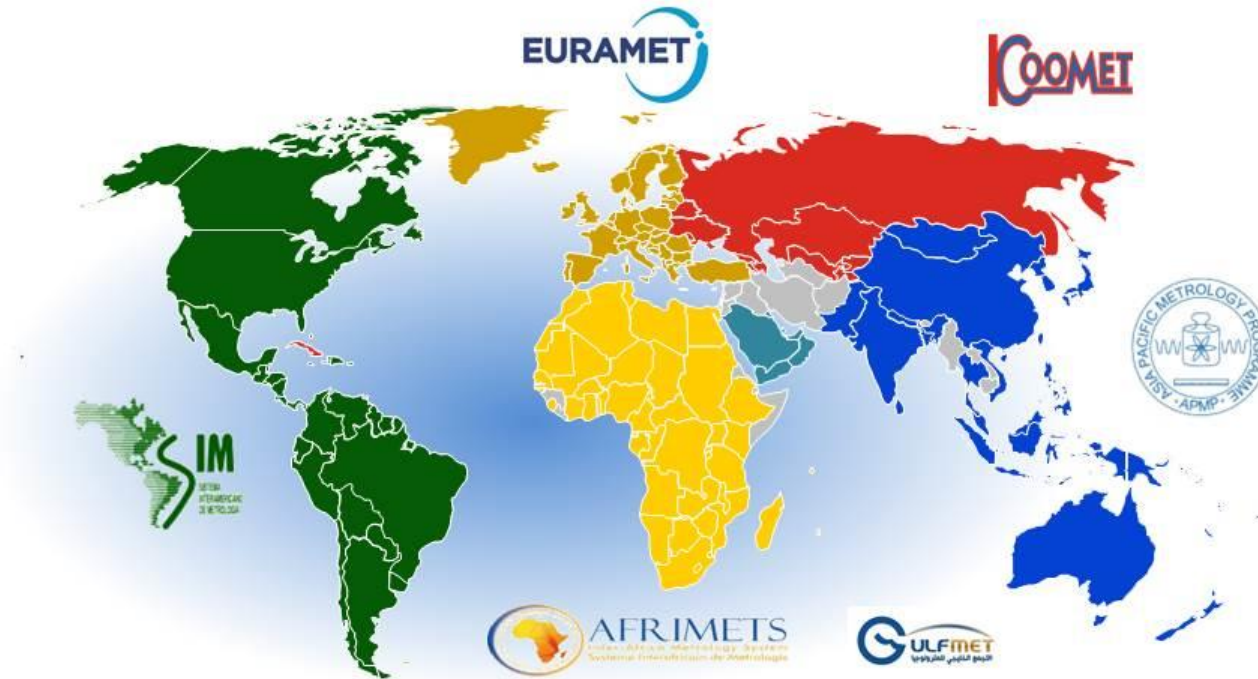
The impact of the CIPM MRA in the Americas

Dr.-Ing. Héctor Laiz
SIM President
CIPM Member



Bureau
International des
Poids et
Mesures

Regional Metrology Organizations



Sistema Interamericano de Metrología



Vision

A representative, transparent, competent, and worldwide-recognized regional metrology organization.

Mission

To promote and support an integrated measurement infrastructure in the Americas which enables each member national measurement institutes to stimulate innovation, competitiveness, trade, consumer safety and sustainable development by effectively participating in the international metrology community.

Sistema Interamericano de Metrología



Strategic Objectives

- I. Development of NMIs in the SIM Region**
- II. Building a Strong SIM Organization**
- III. Fulfill Regional Metrology Organization Obligations under the CIPM MRA**



Treaty of the Meter/CIPM-MRA

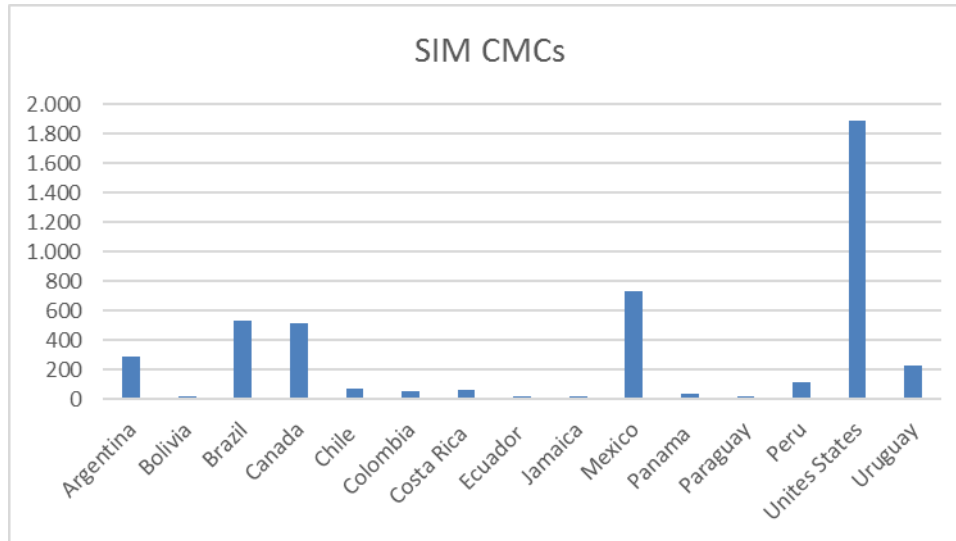
- ◆ 9 member states
- ◆ 8 Associate members of the CGPM (including CARICOM which represents 11 Institutions)
- ◆ 17 MRA signatories (including CARICOM)



RMO's role in the CIPM-MRA

- ◆ Review and approve of the Quality Systems of the NMIs
- ◆ CMC's intra and interregional review
- ◆ Key and supplementary comparisons

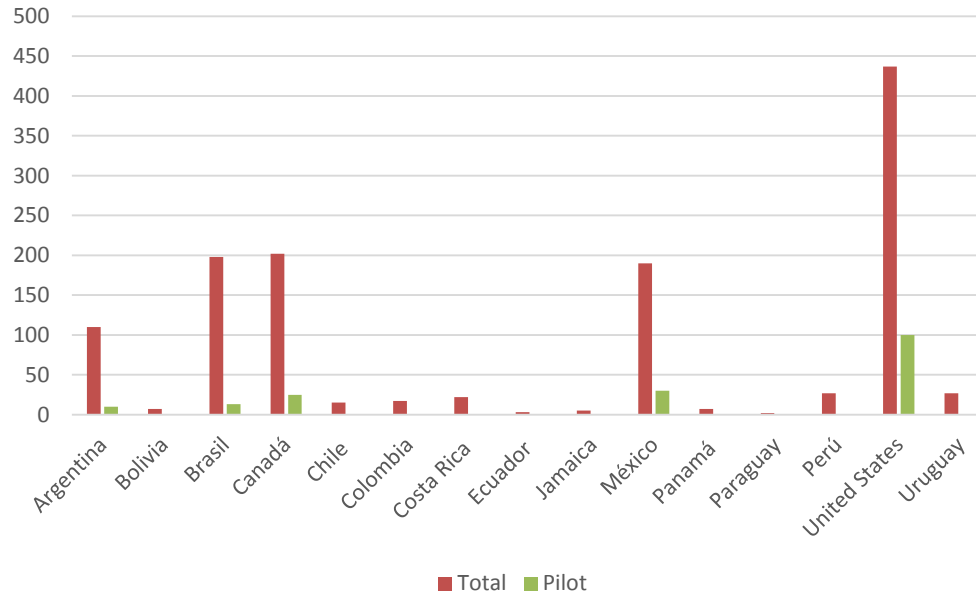
Calibration and Measurement Capabilities



Total: 25221

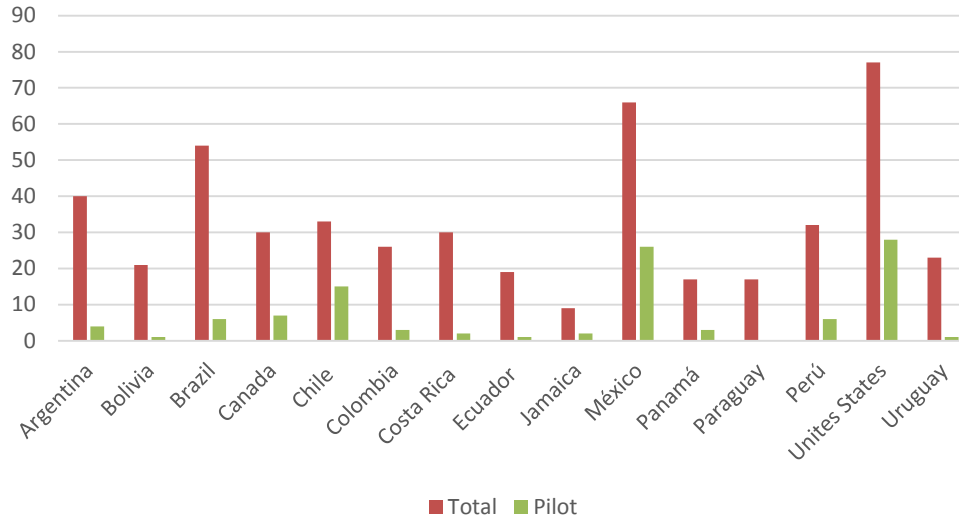
SIM: 4727

SIM Key Comparisons



SIM KCs link to the CIPM KCs and involve the top NMI's in the region

SIM Supplementary Comparisons



SCs address additional regional needs with wider participation

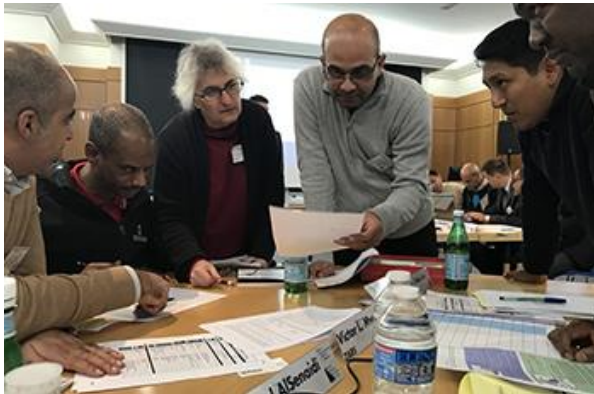
MRA Review

- ◆ The MRA should continue to maintain its high levels of quality and integrity so as not to undermine the effort invested over 15 years.
- ◆ **The MRA should continue to be inclusive** and be built on the appropriately demonstrated and documented assessment of capabilities between the NMIs.
- ◆ The total effort required to operate all aspects of the MRA should not rise above the present levels and should be reduced where possible. **Steps should be taken to spread the load more widely.**
- ◆ **The KC/CMC processes should be tailored according to the risk** and complexity of the issues being handled.
- ◆ There is a need to upgrade the KCDB and the JCRB databases using new modern IT tools.

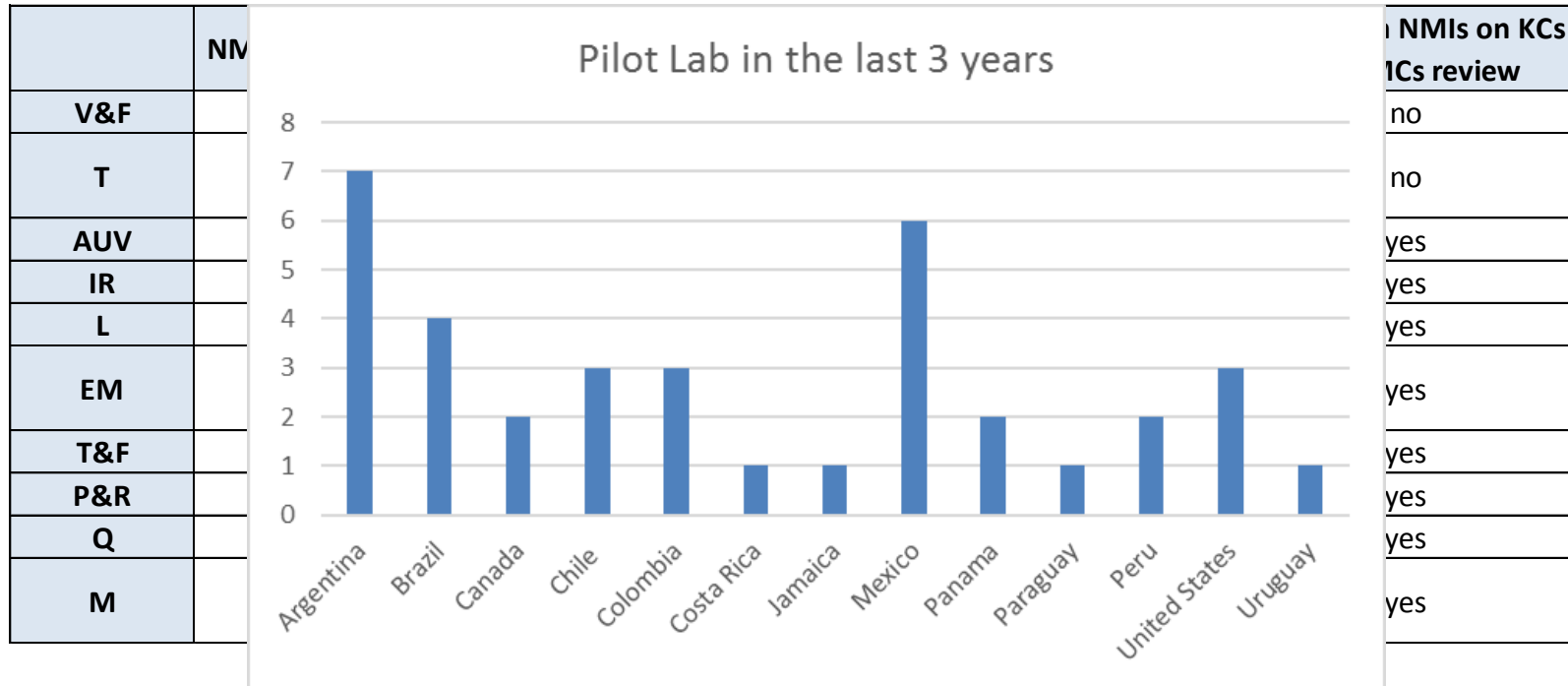
MRA Review

BIPM Capacity Building & Knowledge Transfer SIM Involvement:

- ◆ "Sound beginning in the CIPM MRA" (7 SIM)
- ◆ "Leaders of Tomorrow" (7 SIM)



SIM progress – CIPM MRA Review



	NM
V&F	
T	
AUV	
IR	
L	
EM	
T&F	
P&R	
Q	
M	

NMIs on KCs ICs review
no
no
yes
yes
yes
yes
yes
yes
yes
yes
yes

CIPM MRA Impact – Air Transport Industry



Before the CIPM-MRA the FAA requires “traceability to NIST” for all the measurements involved in maintenance of aircrafts manufactured in the US. After the CIPM-MRA traceability to an NMI with proper CMCs in Appendix C is accepted

The CIPM MRA signatories are acceptable to the Federal Aviation Administration

Safety Assurance System: Inspect a Part 145 Repair Station's Tools and Equipment

B. Review Calibration/Record. Review the part of the RSM or QCM describing the system and the procedures used for calibrating MTE.

1) The ASI should verify:

a) The repair station is calibrating MTE per intervals, procedures, and the system described in the RSM or QCM.

b) All MTE are calibrated and traceable to a standard acceptable to the Federal Aviation Administration (FAA), to include those recommended by the manufacturer, and the National Institute of Standards and Technology (NIST) or other national authority.

NOTE: The part 145 rule states that tooling used to make airworthiness determinations must be calibrated to a standard acceptable to the FAA. Those standards may be derived from the NIST, to a standard provided by the equipment manufacturer, or other recognized standards. The International Bureau of Weights and Measures (BIPM) is a recognized authority that maintains a global list of National Metrology Institutes (NMI). The BIPM Web site lists the NMI signatory countries that participate in the International Committee for Weights and Measures (CIPM). **The CIPM Mutual Recognition Arrangement (MRA) signatories are acceptable to the FAA** and can be found at <http://www.bipm.org>. There are many accreditation bodies that provide third-party laboratory accreditation. The International Laboratory Accreditation Cooperation (ILAC) establishes a global network for accreditation of laboratory and testing facilities. Signatories to the ILAC MRA are in full conformance with the standards of International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC) 17011. ILAC MRA signatories are acceptable to the FAA and can be found at <http://www.ilac.org>. Accredited laboratories have already established traceability through the assessment and accreditation process under ISO/IEC 17025. No further documentation is required once traceability is confirmed to a recognized accredited laboratory. Additionally, for foreign equipment, the standard of the country of manufacture may be used if acceptable to the Administrator.

CIPM MRA Impact – SOLAS



International Convention for the Safety of Life at Sea (SOLAS) container weight verification requirement (2016)

CENAMEP (Panama NMI) was recognized as competent technical body for the implementation of this requirement based on its CMCs included in the Appendix C

CIPM MRA Impact – ISO/IEC 17025:2017

◆ Quality Infrastructure (Metrology <-> Accreditation)

A.3 Demonstrating metrological traceability

- a) Calibration and measurement capabilities provided by national metrology institutes and designated institutes that have been subject to suitable peer-review processes. Such peer-review is conducted under the CIPM MRA (International Committee for Weights and Measures Mutual Recognition Arrangement). Services covered by the CIPM MRA can be viewed in Appendix C of the BIPM KCDB (International Bureau of Weights and Measures Key Comparison Database) which details the range and measurement uncertainty for each listed service.
- b) Calibration and measurement capabilities that have been accredited by an accreditation body subject to the ILAC (International Laboratory Accreditation Cooperation) Arrangement or to Regional Arrangements recognized by ILAC have demonstrated metrological traceability. Scopes of accredited laboratories are publicly available from their respective accreditation bodies.

Outlook



- ◆ It has improved the quality of national standards,
- ◆ It has improved the quality of services of NMIs and DIs,
- ◆ It has made visible and transparent the measurement capabilities of NMIs and DIs,
- ◆ It has made bilateral agreements unnecessary,
- ◆ It has increased the knowledge and mutual trust amongst NMIs and DIs,
- ◆ It has contributed to removal of TBTs,
- ◆ The review aims to improve efficiency and maintain high quality and inclusion

Thank you

laiz@inti.gov.ar

Bureau
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♦ **P**oids et
♦ **M**esures

