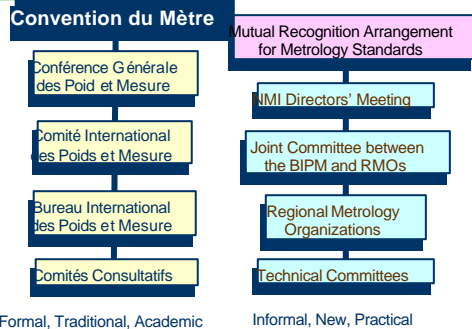


Status of QS of NMIs in the APMP Region

SETA Katuo

APMP Secretary
 Director, International Metrology Cooperation Office
 National Metrology Institute of Japan / AIST, Japan



Formal, Traditional, Academic

Informal, New, Practical

APMP and other RMOs



Objectives of the APMP

- A) Information exchange on measurement standards and capabilities
- B) **International credibility for measurement traceability and competence as a basis for global Mutual Recognition Arrangement (MRA) for metrology standards and calibration certificates issued by National/Territorial Metrology Institutes**
- C) Training of personnel to upgrade measurement capability within the region
- D) Traceability of measurement through calibration and comparison of national/territorial standards
- E) Extend collaboration with BIPM and also with other counterpart Regional Metrology Organizations, e.g., EUROMET, SADC MET, SIM(NORAMET, SURAMET etc.), COOMET, MENAMET
- F) Support APEC objectives

Organization of the APMP



The objectives of the global MRA:

1. to establish *the degree of equivalence* of national measurement standards maintained by NMIs,
2. to provide for the mutual recognition of *calibration and measurement certificates* issued by NMIs,
3. thereby to provide governments and other parties with a secure technical foundation *for wider agreements related to international trade, commerce and regulatory affairs.*

Mutual Recognition of Arrangement (MRA) for national metrology standards and certificates issued by the National Metrology Institutes (NMIs)

48 economies and 2 international organization participate (Dec,01)

How to Participate ?

- 1) Members of the Convention du Mètre
- 2) Associate Members of CGPM

Requirements to NMIs

- To Demonstrate 1) Equivalence of Metrology Standards
- 2) Quality System of Calibration Services

refer to <http://www.bipm.fr/pdf/mra.pdf>



Clause 7.3 of the CIPM MRA calls for a quality system and demonstration of competence to underpin:

- the process of establishing and maintaining traceability from the key comparison reference values to the calibration values provided in calibration certificates, and
- the delivery of an effective and reliable calibration service.

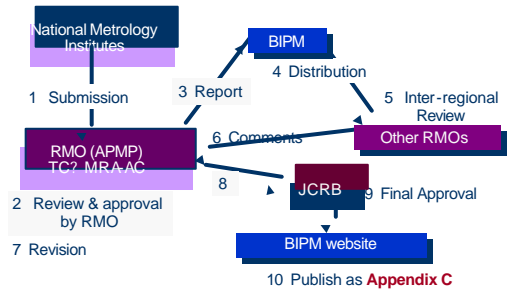


APMP Members agree that

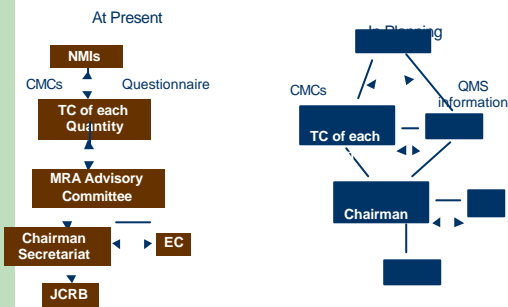
- ISO/IEC 17025 provides the best basis for establishing a quality system, and
- third party accreditation is the preferred means of demonstrating this.



Review Process of Calibration & Measurement Capability



CMC Review process in the APMP



QUESTIONNAIRE

- 1. Do you operate a Quality System in accordance with:
 - a) ISO Guide 25? (yes/no)
 - b) ISO 17025? (yes/no)

Name of Accreditation Body: Self Declaration

Please note that, if the answer to Q.1(a) or (b) is 'yes', the remainder of this questionnaire is optional.

- c) ISO 9000? (yes/no)
- Name of Certifying Body:

- 2. Have you undergone peer assessment? (yes/no)
- Names and affiliations of assessors:



3. Do you have documented procedures supporting the traceability of your measurements and your measurement methods?
(The provision of relevant details will assist claims.)
4. Provide brief details of the technical experience and qualifications of the staff in this area:
5. Provide details of exchange or training visits undertaken by these staff to other NMIs
NMI: Dates: Nature of visit:
6. Where no published reports of comparisons are available, provide details of informal comparisons with another NMI and supporting documentation of results, including the level of agreement:
7. List journal publications which may be used to substantiate claims or methods:



APMP Technical Committee on Quality Systems (TCQS)

- Established – November 2001
- Main task - to review the APMP procedures and to establish more rigorous and more clearly defined criteria for accepting quality systems of APMP NMIs.



Aim:

To establish criteria and a process that would give APMP members the confidence

- to accept calibration and measurement certificates issued by the MRA signatories, and
- to recommend acceptance by governments and accreditation, regulatory and other relevant agencies.



Basic criterion:

- Implementation of a quality system complying with ISO/IEC 17025
(if necessary, ISO Guide 34 for reference material producers)



Compliance to be demonstrated by one of three possible pathways:

1. Third party accreditation to ISO/IEC 17025
2. Certification to ISO 9001 and Review and attestation by technical peers
3. Review and attestation by a team consisting of quality system experts and technical peers, organised through APLAC or a recognised accreditation body



Additional criteria:

- (i) Third party accreditation must be from an accreditation provider that operates to ISO Guide 58 and is a signatory to the APLAC or ILAC MRAs.



Additional criteria (contd)

- (ii) **Certification to ISO 9001 must be from a certification provider that operates to ISO Guide 62 and is accredited by a member of the IAF.**

**Additional criteria (contd)**

- (iii) **Quality system experts and technical peers must be completely independent of the NMI being assessed/reviewed.**

**Additional criteria (contd)**

- (iv) **Technical assessors/peer reviewers must be acceptable to the relevant TC.**
Assessors/reviewers may be deemed to be acceptable, if they
 - (a) *have relevant technical competence,*
 - (b) *have had some formal training in laboratory assessments, and*
 - (c) *have laboratory assessment experience.*

**Additional criteria (contd)**

- (v) **Changes in key personnel at the NMI must be informed to the APMP.**
- (vi) **Review/assessment visits for a given area must be conducted at least once every three years.**

**Evidence required to demonstrate compliance:
Pathway 1**

- a) **Copies of accreditation certificate(s).**
- b) **Scope of accreditation.**
- c) **Names and affiliations of technical assessors.**

**Evidence required to demonstrate compliance:
Pathway 2**

- a) **Quality certificate(s) with details of areas covered by the certification.**



Evidence required to demonstrate compliance: Pathway 2 (contd)

b) Report(s) by the technical peers.

These must be made after review visits made for assessment against the relevant technical requirements of ISO/IEC 17025 or ISO Guide 34.



Evidence required to demonstrate compliance: Pathway 2 (contd)

- c) The report must state whether the NMI has a quality system satisfying these requirements and list any non-conformities found.**
- d) The reports must also list measurement/calibration ranges and associated uncertainties that the NMI has the technical capability to realise**



Evidence required to demonstrate compliance: Pathway 2 (contd)

- e) Details of corrective actions undertaken by the NMI to address the non-conformities and agreement by the peers that these actions are acceptable.**
- f) Names and affiliations of the technical peers.**



Evidence required to demonstrate compliance: Pathway 3

Similar to evidence required for pathway 2, but

- reports must cover both technical and management requirements of ISO/IEC 17025.



In Summary:

APMP NMIs can choose to follow one of three possible pathways, all based on quality systems complying with ISO/IEC 17025



APMP Membership

20 Full Member economies with 27 member laboratories

and

5 Associate Member economies with 5 member laboratories



Of the 20 laboratories:

13 already have ISO/IEC 17025 based quality systems in place,

and

the other 7 are in the process of doing so.



Detailed quality system information is available on 20 member laboratories.

Australia (3)	Japan (2)	Sri Lanka
China	Korea	Thailand
Chinese Taipei (2)	Malaysia	Vietnam
Hong Kong China	New Zealand	South Africa
India	Philippines	
Indonesia	Singapore	



Of the 20 laboratories:

13 already have ISO/IEC 17025 based quality systems in place,

and

the other 7 are in the process of doing so.



All the laboratories have used or will use technical assessors or peer reviewers from other NMIs.

The APMP strongly support proposals for drafting JCRB Guidance Protocols:

- Use of international peers
- Regular reviews
- Provision of information

Submitted to the 7th JCRB in Oct.2001



Economy	Laboratory	Quality System			Pathway	Status
		17025	9001	other		
Australia	NML	√			1	C
	NARL	√	√	√	1	C
	ARPANSA	√			1	
China	NIM	√			1 & 3	C
Chinese Taipei	CMS/ITRI	√	√		1	C
	TNER	√			1	C
Hong Kong China	SCL	√			1	C
India	NPL	√			1	
Indonesia	KIM-LIPI	√			1	
Japan	NMIJ	√		√	1	
	CRL	√			1	
Korea	KRISS	√	√		2	C
Malaysia	SIRIM	√			1	
New Zealand	MSL/IRL	√	√		2 or 1	C
Philippines	NML/TFDI	√			3	
Singapore	PSB	√			3	
Sri Lanka	MUSSD	√			3	
Thailand	NIMT	√			1 & 3	C
Vietnam	VMI	√			1	C
South Africa	NML/CSIR	√			1	C



APEC-TILF Projects for the global-MRA

1. PROJECT CTI 01 / 2001 T: APMP Expert Training for APEC Member Economies in Indonesia, the Philippines, Thailand and Viet Nam to assist participation in global MRA in Measurement Standards
2. Project CTI 10/2000 T : Quality Systems for Calibration Services at National Metrology Institutes
3. Project CTI 21/2001T: SCSC Workshop on Evaluation of Measurement Uncertainty
4. Project CTI 11/2002T: Peer Review and its Criteria of Quality System in National Metrology Institutes
5. A Joint APMP-SIM Workshop Addressing the Implementation of Quality Systems in NMIs (proposal)



How to keep balance between

*Confidence
&
Transparency*

*Cost
&
Load*



*Evidence
by
Comparisons*

*Review
or
Assessment*



How many categories of calibration services

could be covered by a reviewer ?

*could be shined by light of a
comparison ?*

