



**22nd Asia-Pacific Legal Metrology Forum
and Working Group Meetings**

Minutes

27-30 October 2015

**Held at Moana Surfrider Hotel, Honolulu,
Oahu Island, Hawaii, USA**



22nd Asia-Pacific Legal Metrology Forum Meeting

Hosted by International Legal Metrology Program, National Institute of Standards and Technology (NIST), the 22nd APLMF Working Group and Forum meetings were held from 27 October through 30 October 2015 at the Moana Surfrider Hotel, Honolulu, Oahu Island, Hawaii, USA.

The meetings were attended by delegates from full member economies and representatives of the international and regional organisations.

27-30 October 2015

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1 Participants

1.1 Hosts – USA

Dr Charles Ehrlich	National Institute of Standards and Technology (NIST) US Department of Commerce
Mr Ralph A. Richter	National Institute of Standards and Technology (NIST) US Department of Commerce
Dr Jerry Buendel	NCWM and Washington State Department of Agriculture
Ms Carol Hockert	National Institute of Standards and Technology (NIST) Office of Weights and Measures
Ms Jeri Kahana	State of Hawaii, Weights and Measures Office

1.2 President and Secretariat

Mr Pu Changcheng President	General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ)
Mr John Birch Honorary President	Former APLMF President
Ms Zheng Huaxin Secretariat	General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ)
Mr Guo Su Secretariat	General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ)

1.3 Full Member Economies

Australia	Mrs Marian Haire	National Measurement Institute Australia
Cambodia	Mr Ngi Polineavith	National Metrology Centre of Cambodia
Cambodia	Mr Ker Sary	National Metrology Centre of Cambodia
Cambodia	Dr Laim Kimleng	National Metrology Centre of Cambodia
People's Republic of China	Mr Du Yuejun	General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ)

People's Republic of China	Mr Han Jianping	General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ) International Cooperation Department
People's Republic of China	Mr Song Wei	National Institute of Metrology, China
Japan	Mr Hiroyuki Miura	Ministry of Economy, Trade and Industry Metrology Policy Office
Japan	Ms Junko Taniguchi	Ministry of Economy, Trade and Industry Metrology Policy Office
Japan	Dr Yasuhiro Koyano	National Metrology Institute of Japan (NMIJ) AIST Research Institute for Engineering Measurement
Japan	Dr Tsuyoshi Matsumoto	National Metrology Institute of Japan (NMIJ), AIST International Metrology Cooperation Office
Japan	Dr Toshiyuki Takatsuji	National Metrology Institute of Japan (NMIJ), AIST, Research Institute for Engineering Measurement
Korea	Ms EunJung Kim	Metrology and Measurement Division Koranic Agency for Technology and Standards Republic of Korea
Korea	Mr Lee Sangook	Korea Association of Standards and Testing Organizations(KASTO)
Korea	Dr Na Kiyong	Korea Association of Standards and Testing Organizations(KASTO)
Korea	Dr Chunkang Cho	KATS (Korean Agency for Technology and Standard)
Korea	Mr Seong Boo Jeong	KTC (Korea Testing Organization)
New Zealand	Mr Stephen O'Brien	Ministry of Business, Innovation and Employment (MBIE)
New Zealand	Mr Kevin Gudmundsson	Ministry of Business, Innovation and Employment (MBIE)
New Zealand	Ms Alli Smith	Ministry of Business, Innovation and Employment (MBIE)
Philippines	Mr Manuel Ruiz	Industrial Technology Development Institute (ITDI)
Singapore	Ms Lena Soh	Weights and Measures Office (WMO), SPRING
Chinese Taipei	Dr Liou MJ	Bureau of Standards, Metrology and Inspection
Chinese Taipei	Dr Yang Cheng-Tsair	Centre for Measurement Standards
Chinese Taipei	Mr Jin-Hai Yang	Bureau of Standards, Metrology and Inspection

Thailand	Mr Jarin Suttanarak	Central Bureau of Weights and Measures
Thailand	Mr Sakchai Hasamin	Central Bureau of Weights and Measures
Thailand	Ms Khemsai Rahannok	Central Bureau of Weights and Measures
Viet Nam	Mr Nguyen Trong Loi	Directorate for Standards, Metrology and Quality (STAMEQ)
Viet Nam	Mr Vu Van Hong	Directorate for Standards, Metrology and Quality (STAMEQ)
Viet Nam	Mr Tran Van Vinh	Directorate for Standards, Metrology and Quality (STAMEQ)
Viet Nam	Mr Vu Khanh Xuan	Directorate for Standards, Metrology and Quality (STAMEQ)
Viet Nam	Mr Tran Quy Giau	Directorate for Standards, Metrology and Quality (STAMEQ)

1.4 Observers

OIML	Mr Stephen Patoray	OIML (International Organization of Legal Metrology)
Germany	Dr Kristin Kiesow	PTB International Technical Cooperation
SADCMEI	Ms Suscilia Maree	National Regulator for Compulsory Specifications (NRCS)
SADCMEI	Mr Nundkisun Dhiresh	National Regulator for Compulsory Specifications (NRCS)
USA	Mr Dmitri Karimov	Liquid Controls LLC

2 Working Group Meeting

8am – 4pm, Wednesday, 28 October 2015

2.1 Working Group on Goods Packed by Measure – Mr Kevin GUDMUNDSSON – New Zealand

Developing of guidance for specific product types

Glazed Seafood & Growing Media Products

- Complete and has been peer reviewed by the members of the Package Goods working group
- Document has been rebranded with the APLMF logo
- Available as a word document on the APLMF website

Ice-cream

- Prototype displacement bath for small ice lollies has been developed
- Larger displacement bath for ice cream tubs up to 2 Litres to be designed and developed
- Draft procedure circulated in the next 6 months

Carbonated Liquids

- A scientific metrologist from New Zealand is researching a suitable method for determining the density of a carbonated beverage. This procedure will then be forwarded to the OIML working group on package goods (TC6), for inclusion into the OIML G14 document on density
- The intent is to develop this procedure into an APLMF guidance document
- Further information is available within the New Zealand economy report

Aerosols

- Communication has been taken place with package foods experts from the UK and South Africa. South Africa has recently purchased test equipment for determining the density of aerosols and intends to draft a report following an initial testing programme. The report will be supplied to TC6 members and detail the performance of the test equipment including, accuracy, repeatability and usability
- The Package Goods Working Group chair will circulate this report to APLMF members

MEDEA - training course on prepackage goods, May 2015, Indonesia

The Working Group Chair and a New Zealand Trading Standards Officer provided a four day training course on prepackage goods on the 18 to the 22 May 2015 in Bandung, Indonesia.

The course was part of the MEDEA project and was primarily based on the OIML R79 Labelling requirements for prepackaged products and OIML R87 Quantity of product in prepackages. The training included the process required to conduct sampling, a reference test, good regulatory practice, issues to be considered when conducting a reference test, practical exercises and an onsite demonstration.

The four day course was attended by 20 delegates with the highlight of the course being the onsite visit to the Nestle manufacturing site to conduct a full reference test. This was extremely beneficial as participants were able to put into practice the knowledge learned in the classroom and apply it to a real life situation. The outcome of the onsite visit was not only positive for the participants, but also the manufacturer, who was advised that both products tested (100 g and 165 g chocolate bars) passed.



All training material developed, pictures and reports will be made available on the APLMF website.

Report on the work of OIML Technical Committee 6 (TC6) – Pre-packaged Products

Developing OIML R79 and R87

Committee Drafts for both documents have been submitted to the OIML for preliminary ballot. CIML members were afforded 3 months to vote and submit comments. The deadline for this was 24 September 2015.

The draft publication will be considered to have passed the CIML preliminary ballot stage if the majority of votes cast by CIML Members are in favour and there are no proposals or objections requiring substantial amendments of the text.

Once the draft publication has passed the CIML preliminary ballot, the BIML shall consult the convener of the Project Group to incorporate any comments received which do not require substantial amendments of the text. The BIML will then send the results of the ballot and the comments received to all CIML Members and register the publication as a 'Final Draft' publication and post it onto the OIML website.

OIML TC6 Project 5 'Guidance for Defining the System Requirements for a Certification System for Prepackages'

The purpose of the document is to provide guidance to national authorities on the establishment and maintenance of certification schemes for the control of the quantity of product in prepackages and associated labelling. An overview of this document was provided to the APLMF in the 2014 meeting in Wellington.

There has been no progress with this document since the 2014 meeting in Korea. The TC6 Secretariat has been focused on preparing R79 & R87 for the OIML preliminary ballot.

Date of next meeting

A TC6 meeting has been proposed for 2016 to progress the guidance document and to discuss developing test procedures for both carbonated liquids and aerosols.

Working Group Actions for 2016

1. TC6 Secretariat due to send out Committee Draft 2 of the guidance document for 'Defining the System Requirements for a Certification System for Prepackages' during the next year. Once received, it will be distributed to all APLMF members and comments requested.

The chair of the working group will collate the responses and submit them on behalf of APLMF.

2. In consultation with members of this working group, continue to develop guides for determining the actual quantity of specific product types.
3. This group will continue collaboration and reporting to economies on the work of OIML Technical Committee 6; Pre Packaged Products in relation to:
 - Further developments of the guidance document for '*Defining the System Requirements for a Certification System for Prepackages*'
 - Revision OIML R79: Labelling for Pre-packaged Products
 - Revision OIML R87: Quantity of Product in Pre-packages

2.2 Working Group on Utility Measures – Mr Alan JOHNSTON – Canada

Update and discussion on OIML activities related to utility meters

Electricity Meters – TC 12

- R46 – no activity in 2015. R46 latest revision was issued in 2012.
- OIML model requirements are now up-to-date for electricity meters.
- No training delivered on utility meters in 2015

APLMF Members

- Australia (P) – convener
- Canada (P)
- PR China (P)
- Indonesia (P)
- Japan (P)
- Rep of Korea (P)

Water Meters – TC8/SC5

- R49 – no activity in 2015. R49 latest revision was issued in 2013.
- OIML model requirements are now up-to-date for water meters and are harmonised with ISO.

APLMF Members

- Australia (P)
- Canada (P)
- PR China (P)
- Indonesia (P)
- Japan (P)
- Rep of Korea (P)

Natural Gas Meters - TC8/SC7

- R-137 – Revised R137 issued in 2014. No activity in 2015
- R-139 – Compressed gaseous fuel measuring systems for vehicles
 - Meeting in June 2010 in the Netherlands
 - 1CD issued in April 2012
 - 2CD issued in December 2012
 - Draft Recommendation adopted by CIML in 2014
 - R139-1 and R139-2 issued in April 2015
 - R139-3 was approved at the 50th CIML meeting, October 2015
- R-140 – Measuring Systems for gaseous fuels
 - New project approved by CIML 2014
 - Work Group creating

APLMF Members

- Australia (P)
- Canada (P)
- PR China (P)
- Japan (P)
- Rep of Korea (P)

Application of Statistical Methods – TC3/SC4

Surveillance of utility meters in service on the basis of sampling inspections

- 1CD issued in April 2004
- 2CD issued in February 2006
- Meeting in November 2006
- 3CD issued in July 2010
- Information Session held at 2011 CIML meeting
- Survey sent in July 2013 to obtain information from members and re-start the project.
- 4CD issued in June 2014 for TC Vote

APLMF Members

- Australia (P)
- Canada (P)
- PR China (P)
- Indonesia (P)
- Japan (P)
- Rep of Korea (P)

Working Group Actions for 2016

1. Develop and organise training as per the agreed APLMF training plan.
2. Follow and/or participate in OIML Technical Committee work that is related to utility meters and inform APLMF members.

2.3 Working Group on Mutual Recognition Arrangement – Mr Charles EHRlich – USA

2014-15 Work Items – Working Group Objectives

Continue supporting the OIML work on implementation of the MAA (Mutual Acceptance Arrangement) and not develop a regional MAA;

- There has been no direct request or inquiry from an APLMF Member Economy to look into a regional Mutual Recognition Arrangement.
- The ongoing work in implementing the OIML MAA has been the focus of the APLMF WG activity, while keeping in mind ways that all interested APLMF Member Economies might participate.
- MAA (OIML-CS) discussions and report at last week's CIML meeting in Arcachon, France.
- Refer to 50th CIML Meeting Addendum 9.2 OIML Basic Certificate System & MAA (slides 1-3 – presented by Mr Luis Mussio) – for update of charts on number of certificates issued through July 2015 certificates issues. Key details as follows:

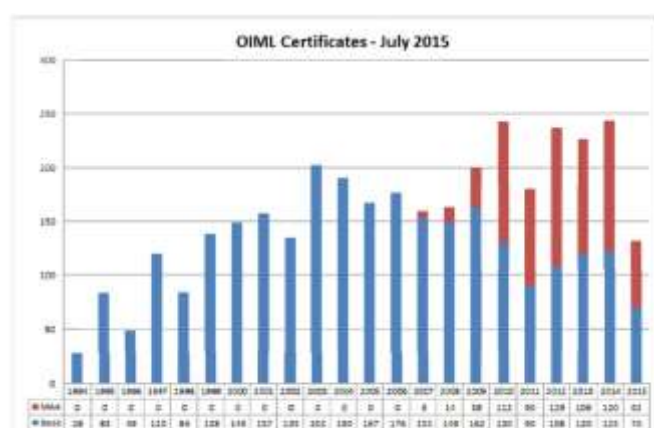


Figure 1
Number of Basic and MAA certificates registered (per annum)

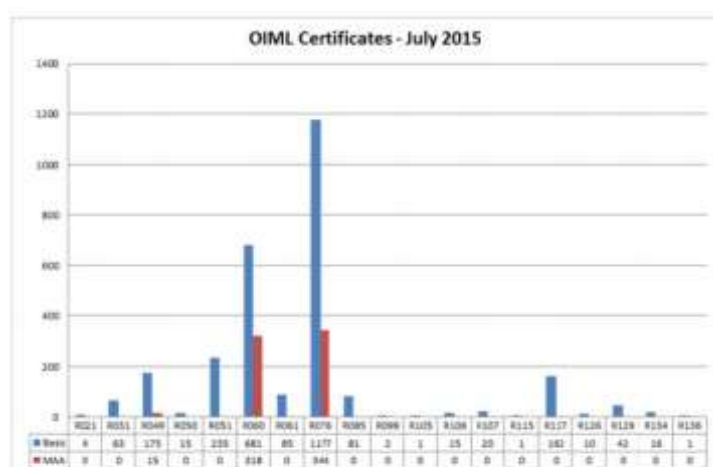


Figure 3
Number of Basic and MAA certificates registered (per OIML Recommendation)

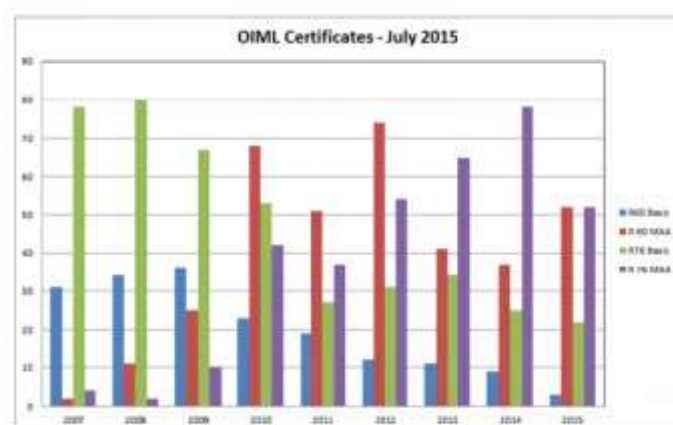


Figure 4
Number of Basic and MAA certificates for R 60 and R 76 (per annum)

OIML Ad hoc working group Review of OIML Mutual Acceptance Arrangement (MAA)

Closely follow the work of the OIML ad-hoc working group that is reviewing the structure of the OIML Committees on Participation Review (CPRs), the rules and procedures governing the operation of the OIML MAA, and the role of MAA Utilizing Participants with a view to increasing the efficiency of the operation of the MAA, and, if necessary, amending the OIML MAA documents.

Refer to 50th CIML Meeting Addendum 9.1 (presented by Prof Roman Schwartz) – for report on the proposed new OIML-CS - key slides and details from the presentation set out as follows:

a) Present status (MAA):

MI Cat./ OIML R		MS1	MS2	MS3	MS4	MAA
R 76	MAA	IP	IP	UP	-	DoMC 1
R 60	MAA	IP	UP	UP	-	DoMC 2
R 49	MAA	IP	UP	-	-	DoMC 3
R 51	Basic	IA	IA	-	-	-
R 117	Basic	IA	IA	-	-	-
R 61	Basic	IA	-	-	-	-
R 85	Basic	IA	-	-	-	-
R 31	Basic	IA	-	-	-	-
R 129	Basic	IA	-	-	-	-

b) The proposed OIML-CS:

MI Cat./ OIML R	Scheme	MS1	MS2	MS3	MS4	MAA
R 76	B	IA	IA	UI	-	DoMC 1
R 60	B	IA	UI	UI	-	DoMC 2
R 49	B	IA	UI	-	-	DoMC 3
R 51	A	IA	IA	-	-	-
R 117	A	IA	IA	-	-	-
R 61	A	IA	-	-	-	-
R 85	A	IA	-	-	-	-
R 31	A	IA	-	-	-	-
R 129	A	IA	-	-	-	-
New:		Declar. of Scope	Declar. of Scope	Declar. of Scope	user	

c) The proposed OIML-CS in the future:

MI Cat./ OIML R	Scheme	MS1	MS2	MS3	MS4	
R 76	B	IA	IA	IA	UI	
R 60	B	IA	IA	IA	UI	
R 49	B	IA	IA	IA	UI	
R 51	B	IA	IA	UI	UI	
R 117	B	IA	IA	UI	UI	
R 61	B	IA	UI	UI	UI	
R 85	B	IA	UI	UI	UI	
R 31	B	IA	UI	UI	UI	
R 129	B	IA	UI	UI	UI	
R xxx	A	-	-	-	-	
		Declar. of Scope	Declar. of Scope	Declar. of Scope	Declar. of Scope	

Key principles of the OIML-CS

1. The OIML-CS is a **voluntary system** which aims to facilitate, accelerate and harmonize the work of national and regional bodies that approve types of measuring instruments that are subject to legal control
2. The OIML-CS is a single certification system with **two schemes**:
 - Scheme A - The OIML Basic Certificate Scheme
 - Scheme B - The OIML MAA Certificate Scheme
3. A category of measuring instrument is either in Scheme A or in Scheme B. Transition from Scheme A to Scheme B is subject to defined criteria. This is the preferred direction and also the intention of the OIML-CS.
4. The "DoMCs" for each category of measuring instrument will be replaced by "declarations of scope" signed by each participant. Participants are "Issuing Authorities" or "Utilizers"; they declare their scopes for issuing and acceptance.
5. The requirements for participation in Scheme A or Scheme B are the same, i.e. compliance with ISO 17025 and OIML D 30.

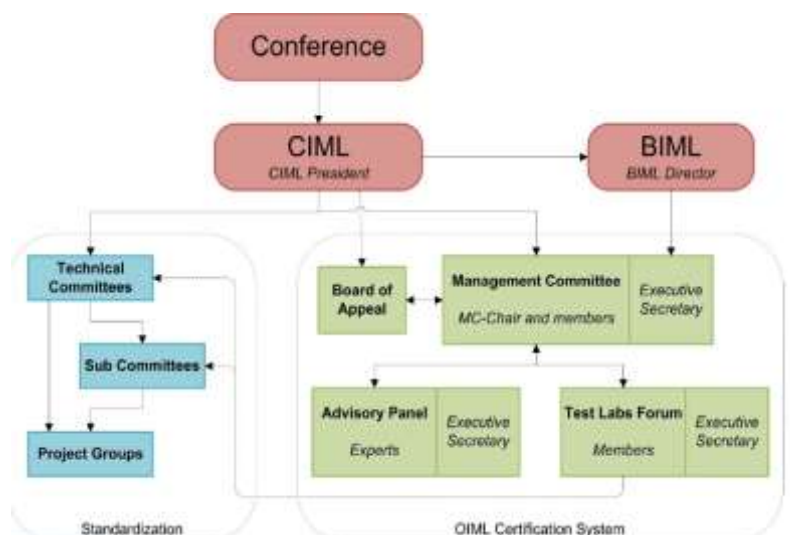
- For participation in Scheme A, it is sufficient to demonstrate compliance on the basis of “self-declaration” with additional supporting evidence; -
- For participation in Scheme B, compliance is demonstrated by peer evaluation, on the basis of accreditation or peer assessment.

Evidence of competence of the Issuing Authority will be required even under the Basic scheme (Scheme A).

6. The CIML Member nominates one or more organizations to become an Issuing Authority under the OIML-CS. The decision on participation is under the responsibility of a Management Committee (MC).
7. There is a Management Committee (MC) to manage the operation of the OIML-CS:
 - Small enough to be effective (proposal: maximum of 12 members)
 - Members act in the best interest of the OIML-CS; they do not primarily represent the interests of their countries.
 - It has a balanced representation of Issuing Authorities and Utilizers
 - A nomination process ensures that certain criteria are fulfilled (e.g. balanced representation, qualification). The CIML Member of each Member State may propose candidate(s) there should be no more than one member, including the Chair, from any one country; the Chair and each member has one vote. Potential members are elected by the CIML for a fixed period
 - The MC Chair is appointed by the CIML, and the MC has an Executive Secretary (without a vote) who is a BIML staff member and will be supported by an Advisory Panel of technical experts
8. The advisory panel consists of experts nominated by CIML Members and appointed by the MC for certain categories of measuring instruments. Experts are called upon by the Executive Secretary when needed to provide advice, e.g. acceptability of assessment reports for new participants, expansions to scope, etc.

Proposed OIML Certification System (OIML-CS)

9. To support the exchange of information between test laboratories there is a **forum for test laboratories**. The forum also provides a platform for on-going discussions on issues confronting the laboratories and a mechanism to feed in to the OIML Technical Committees.
10. There is a **Board of Appeal** (BoA) to deal with appeals against decisions of the MC. The BoA is independent of the MC, with membership decided by the CIML. The BoA is not a standing committee and is called upon only when required. The appeals mechanism will be described in the OIML-CS Framework document.



11. The work of the MC, advisory panel, forum and BoA is done primarily by correspondence (email), using facilities of the OIML web site (distribution of documents, voting, etc.), although the MC meets annually.
12. The OIML-CS will have an Executive Secretary (a BIML staff member) who will be responsible for the day-to-day operation of the MC, including the advisory panel and the test labs forum.
13. The operation of the OIML-CS will not lead to an increase in the OIML membership fees. Under the proposal, the costs of running and administering the OIML-CS will be accounted for separately. This will enable the OIML to fully understand the costs associated with running the system and will enable a clear comparison with the income that will be generated through the registering of certificates.

Timeline and procedure for the implementation of the OIML-CS

	AHWG/ CIML/ Conference	CSPG: Bxx	CSPG: MC documents
2015-10-20	50th CIML Meeting approves resolutions drafted by the AHWG	CSPG established by the CIML	
2015-11-01		CSPG starts work on Bxx by correspondence to develop First Draft, based on Working document	CSPG starts work on MC docs and nomination procedure for the MC by correspondence
2016-03-xx		CSPG approves First Draft Bxx	
2016-04-01		First Draft Bxx circulated to CIML Members for comment	
2016-06-01		Deadline for CIML Members to comment on First Draft Bxx	
2016-06-xx		Meeting of the CSPG (if necessary)	
2016-07-01	Deadline for submitting proposals to the 51st CIML meeting	Final Draft Bxx circulated to CIML	Draft MC docs and MC nomination procedure available
2016-10-xx	51st CIML approves Bxx		
2016-10-xx	15th Conference sanctions Bxx and formally establishes the OIML-CS		
2016-10-xx	51st CIML (cont.)	CSPG disbanded	MC members elected, MC chair appointed, Executive Secr. appointed by BIML Direct.
2016-12-xx			MC considers, modifies, approves procedures and operational documents; appoints members of the Advisory Panel
2017-01-01	Start of the OIML-CS / Basic system and MAA terminated		

Working Group Actions for 2016

1. Continue supporting the OIML MAA (Mutual Acceptance Arrangement) and not develop a regional MAA.
2. Closely follow and report on the progress and work of the OIML-CS Project Group (CSPG) that is preparing a new Framework Document and other more detailed documents, for proposing at the CIML Meeting and OIML Conference in 2016, in anticipation of a new OIML-CS.

2.4 Working Group on Medical Measurements – Jin-Hai Yang – Chinese Taipei

Look back on 2013's presentation

- The health agency's main concerns about Medical devices: Safety and Effectiveness
- Legal measures taken by health agency:
 - Registration - Products
 - Quality Management System, Good Manufacturing Practices - Manufacturers
 - Adverse Events Report-Manufacturers & User Facilities
- The standards of documents to be chosen:
 - ISO (International Standards Organisation)
 - GHTF (Global Harmonisation Task Force)

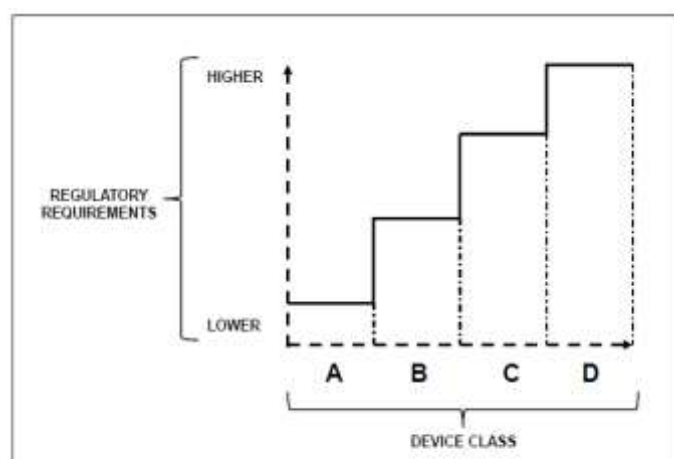
Definition of Medical Devices

ISO 14155:2011	(GHTF) SG1(PD)/N71R04
<p>Any instrument, apparatus, implements, machine, appliance, implant, software, material or other similar or related article:</p> <p>A. Intended by the manufacturer to be used, alone or in combination, for human beings for one or more of the specific purpose of:</p> <ol style="list-style-type: none"> i. diagnosis, prevention, monitoring, treatment or alleviation of disease; ii. diagnosis, monitoring, treatment, alleviation of or compensation for an injury, iii. investigation, replacement, modification, or support of the anatomy or of a physiology process, iv. supporting or sustaining life, v. control of conception, vi. disinfection of medical devices <p>B. Which does not achieve its primary intended action in or on the human body by pharmacological, immunological or metabolic means, but which may be assisted in its function by such means.</p>	<p>Any instrument, apparatus, implement, machine, appliance, implant, <i>in vitro</i> reagent, software, material or other similar or related article:</p> <p>A. Intended by the manufacturer to be used, alone or in combination, for human beings for one or more of the specific purpose(s) of:</p> <ol style="list-style-type: none"> i. diagnosis, prevention, monitoring, treatment or alleviation of disease; ii. diagnosis, monitoring, treatment, alleviation of or compensation for an injury, iii. investigation, replacement modification, or support of the anatomy or of a physiological process, iv. supporting or sustaining life, v. control of conception, vi. disinfection of medical devices, vii. providing information for medical or diagnostic purposes by means of in vitro examination of specimens derived from the human body; <p>B. Which does not achieve its primary intended action in or on the human body by pharmacological, immunological or metabolic means, but which may be assisted in its function by such means.</p>
<p>Note: The term "medical device" is usually defined by national regulations. For the purposes of this International Standard, this definition does not list "<i>in vitro</i> diagnostic medical devices".</p>	<p>Note 1: Products which may be considered to be medical devices in some jurisdictions but for which there is not yet a harmonized approach, include:</p> <ul style="list-style-type: none"> • disinfection substances, • aids for persons with disabilities, • accessories to a medical device (see Note 2), • components of a medical device, • devices incorporating animal and/or human tissues. <p>Note 2: Some jurisdictions include accessories to a medical device within the definition of a medical device. Other jurisdictions do not adopt this approach but still subject an accessory to the regulatory controls (eg classification, conformity assessment).</p>

Classification of Medical Devices

Class	Level	Device Examples
A	Low Hazard	Bandages / Tongue Depressors
B	Low-Moderate Hazard	Hypodermic Needles / Suction Equipment
C	Moderate-High Hazard	Lung Ventilator / Bone fixation Plate
D	High Hazard	Heart Valves / Implantable Defibrillator

GHTF/SG1/N77:2012



GHTF/SG1/N77:2012

Australia ^b	Class I , II a, II b, III, Active implantable medical devices
Canada	Class I , II , III, IV
P.R. China	Class I , II , III
Hong Kong, China ^a	Class I , II , III, IV
Japan	Class I , II ,III, IV
Rep of Korea	Class I , II , III, IV
Malaysia ^a	Class A, B, C, D
Indonesia	Class A, B, C, D
New Zealand ^b	Class I , II a, II b, III, Active implantable medical devices
Singapore	Class A, B, C, D
Chinese Taipei	Class I , II , III
Thailand	Class I , II , III
U.S.A	Class I , II , III

Definition of Adverse Events

ISO 14155

Any untoward medical occurrence, unintended disease or injury or any untoward clinical signs including an abnormal laboratory finding) in subjects, users or other persons whether or not related to the investigational medical device.

- Note 1 to entry: This definition includes events related to the investigational medical device or the comparator.
- Note 2 to entry: This definition includes events related to the procedures involved.
- Note 3 to entry: For users or other persons, this definition is restricted to events related to investigational medical devices.

GHTF/SG2N54R8

The events which have occurred with device including:

- A malfunction or deterioration in the characteristics or performance;
- An incorrect or out of specification test result;
- The discovery of a design flaw during design review;
- An inaccuracy in the labelling, instructions for use and/or promotional materials.
Inaccuracies include omissions and deficiencies. The discovery of a serious public health threat.
- (This can include an event that is of significant and unexpected nature such that it becomes alarming as a potential public health hazard, e.g. HIV or Creutzfeldt-Jacob Disease);
- Use Error.

Classification of Adverse Events

ISO 14155

- Non-medical complaint
- Adverse Event (AE)
- Serious Adverse Event (SAE)
- Adverse Device Effect /Unanticipated Adverse Device Effect (ADE/UADE)
- Serious Adverse Device Effect/Unanticipated Serious Adverse Device Effect (SADE/USADE)
- Serious
 - Led to a death
 - Led to a serious deterioration in the health of the subject that:
 - ◆ Resulted in life-threatening illness or injury; or
 - ◆ Resulted in a permanent impairment of a body structure or a body function; or
 - ◆ Required in-patient hospitalization or prolongation of existing hospitalization; or
 - ◆ Resulted in medical or surgical intervention to prevent life threatening illness or injury or permanent impairment to a body structure or a body function.
 - Led to fetal distress, fetal death, or a congenital abnormality or birth defect

GHTF/SG2/N54R8

- Death of a patient, User or Other Person,
- Serious Injury of a patient, User or Other Person (Serious injury is either:
 - a life-threatening illness or injury; or
 - permanent impairment of a body function or permanent damage to a body structure; or
 - a condition necessitating medical or surgical intervention to prevent permanent impairment of a body function or permanent damage to a body structure.
- No Death or Serious Injury Occurred but the Event Might Lead to Death or Serious Injury of a patient, User or Other Person if the Event Recurs.

Report of Adverse Events

What to report- GHTF/SG2/N21R8

- a) A malfunction or deterioration in the characteristics or performance.
- b) An inadequate design or manufacture.
- c) An inaccuracy in the labelling, instruction for use and/or promotional materials.
- d) A significant public health concern.
- e) Other information becoming available.

What to report- Annex 7 of Directives 90/385/EEC and Annex X of 93/42/EEC

- a) Any SAE.
- b) Any investigational Medical Devices Deficiency that might have led to a SAE if
 - i. suitable action had not been taken; or
 - ii. intervention had not been made; or
 - iii. if circumstances had been less fortunate.
- c) New finding/updates in relation to already reported events.

What to report-Australia

- a) An adverse event is an event that led to:
 - i. death,
 - ii. a serious injury or deterioration to a patient, user, or other person, including:
 - a life-threatening illness or injury,
 - permanent impairment of a body function,
 - permanent damage to a body structure,
 - a condition necessitating medical or surgical intervention to prevent permanent impairment of a body function or permanent damage to a body structure.

What to report-P.R. China

Any type of event that occurs in the course of normal use of an approved medical device, which is made in accordance with quality standards, and the event causes or could cause bodily harm to humans.

What to report-United States of America

An adverse event is any undesirable experience associated with the use of a medical product in a patient. The event is serious and should be reported to FDA when the patient outcome is:

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Working Group Actions for 2016

Collecting the Medical Instruments Adverse Report framework information in Asia Pacific region.

Objective

- To construct a picture of the system of adverse report of medical instruments in Asia Pacific region;
- To address the threatening of malfunction/inaccuracy of medical measurement instruments;
- To bridge the dialogue between metrology authority and health authority.

Approach

Design and disseminate a survey to collect the mechanisms of the system of adverse report of medical instruments in Asia Pacific region.

2.5 Working Group on Quality Measurement of Agricultural products – Mr Tsuyoshi MATSUMOTO – Japan

Conducted training courses on grain (rice) moisture measurement

APLMF agreed to accept the support from PTB in Germany in 2013. This is a joint project participated by PTB, APLMF and APMP (Asia-Pacific Metrology Programme) called “Metrology: Enabling Developing Economies within Asia (MEDEA)”. The training program for grain moisture measurement is included in this project.

In reply to the request from the WG, Indonesia and Thailand hosted training courses. Great thanks to their support, two APLMF Training Courses on Traceability in Rice Moisture Measurement were conducted in Indonesia (May, 2012) and Thailand (November 2013). These courses were support by the host economy, the trainers and APLMF.

Planned a training course on rice moisture measurement in Cambodia in 2015

With dedicated support by NMC (National Metrology Centre) in Cambodia and the MEDEA project, the next training course is planned in Phnom Penh on 16-20 November, 2015 (see separate program). NMII (National Metrology Institute of Japan) and Kett Electric Laboratory Co. Ltd. will provide five trainers.

Completed the 1st draft of an APLMF guide on rice moisture measurement

The WG has provided the first draft of a new “*APLMF Guide Document on Rice Moisture Measurement*” at this Forum Meeting (see separate draft). This document aims to provide practical procedures to establish a regional traceability system and calibrate/test grain moisture meters, which are not covered by the OIML recommendations or ISO documents. Materials used in the previous training courses on rice moisture measurement are used as the basis of this guide document. The WG calls for any comments on this draft by the member economies. The WG hopes the final version would be approved by the secretariat and uploaded on the APLMF website for benefit of the member economies.

Contributed to OIML TC 17/SC 1 and TC 17/ SC 8

The WG has been continuously monitoring the activities of OIML TC 17/SC 1 (humidity) and TC 17/SC 8 (instruments for quality analysis of agricultural products) in regard to the two OIML documents shown below.

- **TC 17/SC 1 R 59** “*Moisture Meters for Cereal Grains and Oilseeds (1984)*”:
Discussion for revising the present recommendation is in progress by the joint secretariat of USA and PR China. CD7 (7th committee draft) of R 59 was sent to the P members of SC1 in December, 2014. The WG, as Japan, submitted comments on CD7 in March, 2015.
- **TC 17/SC 8** on “*Protein Measuring Instruments for Cereal Grains and Oilseeds (New)*”:
Discussion in SC8 to draft a new recommendation has been almost finished with a dedicated effort by the secretariat in Australia. DR (Draft Recommendation) was sent to all CIML members in August 2015 (deadline of reply: 13 November). The WG is preparing comments on DR.

In Japan, the WG chair attended a domestic mirror committee of OIML TC17 and exchanged information between the manufacturers of moisture meters and protein measuring instruments.

Cooperation with BIPM and APMP on moisture measurement

The WG exchanged information regarding the grain moisture measurement with the experts in metrology in NMJJ, who cooperate BIPM and APMP.

Working Group Actions for 2016

1. Planning the next training course on grain moisture measurement

Many participants in the training courses on rice moisture measurement requested to continue a training program in this field. The WG therefore will continue to call for host economies in the future in the scheme supported by the MEDEA project. Please inform any proposals or requests to the WG at any time. There is an important policy for selecting the host economy that one economy cannot host two training course consecutively. This is because the WG hopes that all member economies will have an equal chance to host the training course.

2. Drafting of the APLMF guide document on grain moisture measurement

The WG will continue to draft the “APLMF Guide Document on Rice Moisture Measurement” in cooperation with WG on Training Coordination and WG on Metrological Control System. WG calls for comments to the first draft and continue the revision procedure of the draft. The WG hopes that comments to this draft would be submitted to the chairperson preferably by the end of January, 2016.

3. Contributing to the OIML TC 17/SC 1 and TC 17/SC 8

The WG continue to contribute to OIML TC 17/SC 1 and TC 17/SC 8 by submitting comments and sending delegates to their meetings. The WG aims to contribute to harmonize between the activities of OIML and APLMF in agricultural measurements.

4. Monitoring activities of BIPM and APMP on grain moisture measurement

The WG continues to monitor activities in scientific metrology including BIPM and APMP, regarding the traceability and uncertainty in grain moisture measurements. These organizations recognize the importance of grain moisture measurement as an important application of scientific metrology.

5. Supporting MEDEA training courses

Although this is not included in the scope of the WG, the chairperson will support planning of APLMF/MEDEA training courses to be conducted in 2016 on

- a) bulk flow meters for petroleum in Yokohama, Japan and
- b) mass, volume and length in Indonesia.

2.6 Working Group on Metrological Control Systems – Mr GUO Su – China (on behalf of Yang Youtou)

‘Train the Trainer’ Course on the Verification of Taxi Meters, Shanghai, China



New Guideline Draft

- Guide to the application of pressure metrology in industry safety under legal metrological system
- Guide on Rice Moisture Measurement

The concept and application background of the pressure metrology

Nowadays, lots of pressure instruments are installed for industrial process. Some of them measure the pressure in pipes; carry out controlling movement, alarm while the pressure is abnormal. Others are applied to simulating a pressure environment in the test equipment. They are also the main units of an important leakage detected test which named “negative pressure test”.

The performance of these pressure instruments relate strongly to the industry safety, meanwhile, as a component in production process the broken gauges themselves would be dangerous as a leaking resource. The implementation of “Pressure metrology” is an efficient way of ensuring these pressure instruments work well and the indications are reliable and accurate by means of a series of technical tests and scientific managements. Being lack of “Pressure metrology” means slack managements in industry safety and leads to a “disaster”.

The industry technology has been gotten a great achievement, but “Pressure metrology” is still the necessary safeguard of industry safety. The BP “Deepwater Horizon oil spill” is the best example.

Significance of the Guide

This guide recommends that completing a scientific and systemic “Pressure metrology” in industry sites under legal metrological system for reducing the risk of production process, strengths the industry safety management, detecting and preventing the accident in time.

Pressure metrological traceability

1. Technical foundation
 - The technical foundation of pressure gauges metrological traceability
 - pressure transmitters metrological traceability
 - pressure controllers metrological traceability
2. Reference condition
 - The reference condition of pressure gauges metrological traceability
 - pressure transmitters metrological traceability
 - pressure controllers metrological traceability
3. Reference equipment
 - The Reference equipment of pressure gauges metrological traceability
 - pressure transmitters metrological traceability
 - pressure controllers metrological traceability
4. Laboratory requirements
5. Metrologic traceability diagram

Working Group's Actions for 2016

1. Associate with other Working Groups to draft the guidelines
2. Plan to hold a workshop of the Metrological Control System in China.

2.7 Working Group on Training Coordination – Ms Marian HAIRE - Australia

Training delivery by APLMF

At 21st APLMF meeting (held in Wellington New Zealand from 9-12 November 2014) members agreed to deliver the following training courses as part of the MEDEA project sponsored by PTB.

Course	Venue/host	Trainers	Delivery dates
Pre-packaged goods,	Bandung, Indonesia	New Zealand	18-22 May 2015
Verification of Fuel dispensers	Pitaya City, Thailand	Australia	15-19 June 2015
Verification of Taxi Meters	Shanghai, China	China	7-10 July 2015
Verification of CNG dispensers	Kuala Lumpur, Malaysia	Malaysia	18–21 Aug 2015
Verification of Rice Moisture	Phnom Penh, Cambodia	Japan	16–20 Nov 2015

The first 4 training courses have been delivered and the final one on rice moisture is organized and will be delivered in November. All economies involved have delivered on their commitment in a very professional manner. Very comprehensive reports have been produced for the first 2 training program. Copies are included at Appendix 1 and 2.

Each training course is expected to include a topic on traceability to demonstrate the importance of traceability to verification.

Trainers have been asked to identify suitable trainers from developing economies who are willing and capable of delivering the training course again at a future date. During the fuel dispenser training our hosts in Thailand demonstrated they have the capacity to deliver the fuel dispenser training. There were also several other trainees who were very capable. PTB have agreed to fund a new course to be delivered in 2016 which will be presented by staff from developing economies and Thailand have agreed to host this training in July 2016. The table below outlines the training programs scheduled for delivery in 2016. At the upcoming forum meeting we will need to assign delivery dates for each of these courses.

MEDEA Training

This report also provides an update on the MEDEA project from the perspective of the MEDEA Coordination Committee.

The MEDEA project has provided very positive outcomes for APLMF. The MEDEA coordination committee (CC) has been meeting regularly using the internet and one face-to-face meeting in PTB in March 2015. As a result the procedures for planning and implementing a training program are well documented. All activities are being evaluated and comments are reviewed by the CC. The MEDEA procedures have been updated for clarity. All action plans will be followed up by PTB to ensure participants are doing what they agreed to do. The procedures clearly outline the responsibilities of PTB, the host, Secretariat and the trainers. A copy is included at Appendix 3.

2016 MEDEA Project Schedule

Course	Host Economy	Trainers	Schedule
Verification of Bulk Flow Meters for petrol and diesel	Japan	Japan/Thailand	July 2016
Verification of Standards: mass, volume, length	Indonesia	Japan	August 2016
Verification of NAWI: supermarket scales	Malaysia	Australia, Indonesia,	2016
Verification of Fuel Dispensers	Thailand	Thailand, Australia + two more Trainers from DEs	2016

MEDEA website

The description of the work packages and a list of past and planned activities conducted under the MEDEA project are provided on the PTB-website: <https://www.ptb.de/lac/index.php?id=medea>. Logging in with login: “medea” and password: “apmp_aplmf_2014” gives additional access to invitation brochures, nominations sheets, and training reports for the individual activities. Further, the tab “international cooperation group” provides information about the institutes that offer training programs and support the area of metrology for developing economies in Asia.

Guide documents for Test Procedures

For some years now the forum has been discussing the concept of adopting APLMF Test procedures. At the meeting in 2014 it was mentioned that a better idea would be to have guide documents. All working groups agreed to start work on developing documents that would be suitable guides for developing economies. To gain agreement from the forum on regional test procedures would be a very involved and lengthy process. A more effective measure would be to try to capture a snapshot of the importance each economy places on tests and publish these results on our website.

This concept has been included in the MEDEA project by asking all trainers to draw up a survey which lists all test procedures required to carry out the verification of a specific set of instruments. The Secretariat will then distribute the survey to all member economies and collate the results. This will provide information for further discussion at WG meetings. See Appendix 4 and 5 for two examples of surveys which have already been sent to the Secretariat.

MEDEA Joint Programs

Joint 1 – Updating Guide – National metrological infrastructure for developing economies

With the advent of the MEDEA project, the decision was taken to prepare a second edition of APLMF’s *Guide I document: National Metrological Infrastructure for Developing Economies* with an expanded scope that included both general metrology and legal metrology, to take account of recent international developments in both metrologies and provide guidance for the development of a national quality infrastructure. Dr Grahame Harvey, representing APLMF, and Abdul Rashid Zainal Abidin, representing APMP have been working together to develop this document. There is still work

to be completed but they would like feedback from the forum regarding their progress. In addition the forum is requested to make suggestions about how best to promote this document amongst developing economies and APLMF and APMP. The aim of this document is to have one easy spot where developing economies can understand the full spectrum of opportunities available when establishing a measurement infrastructure. Appendix 6 has a copy of the current document.

Joint 2 – Raising awareness of metrology

This project is about raising awareness of metrology in the region and will consist of the following three activities:

Program	Activity	Anticipated outcomes
Joint 2.1	Development of a joint APMP-APLMF web portal for information sharing	A high-quality web portal that provide members with easy access to various information resources related with metrology capacity building
Joint 2.1	Studies on best practices of improving stakeholder relations	Members' enhanced understanding, development and use of mechanisms, measures and information resources in developing and improving their stakeholder relations
Joint 2.3	Studies on contributions of metrology to economic growth and society	<ul style="list-style-type: none"> • Learning of methodologies of doing impact studies • Sharing of information and data that manifest the economic and social impact of metrology • Enhanced stakeholder awareness on contributions of metrology to economic growth and society.

Unfortunately to date this work package has not progressed very much. Stephen O'Brien will provide more feedback as he is the project coordinator.

Joint 3 – International cooperation

This project was about establishing an expert group for international cooperation. Participants from Australia, China, Chinese Taipei, Hong Kong, India, Indonesia, Japan, Korea, Malaysia and Thailand attended a study week at PTB in March 2015. The objectives of this project were to:

- establish a group of representatives of the different international offices at National Metrology Institutes (NMIs) and Legal Metrology Authorities (LMAs) that offer or plan to offer technical cooperation programs in Asia;
- create a better understanding of the different technical cooperation programs offered by these NMIs and LMAs within the group;
- ensure early stage coordination between the different technical cooperation programs to avoid overlaps and create synergies;
- provide support to those NMIs/LMAs that are only starting to set up technical cooperation programs.

The participants had the opportunity to visit laboratories within PTB and to meet with key funding organisations within Germany leading to an understanding of why Germany provides support for

developing economies throughout the world. The week was very successful in establishing a sound network willing to support developing economies. All economies attending are better aware of the constraints we each face and also about how we can better support developing economies.

Joint 4 – Strategic and performance management for directors

This project provides strategic and performance management for directors using the Balanced Score Card (BSC) technique. It was kicked off at a meeting on 8-10 July 2015, in Malaysia. Directors who attended have tasks to complete over the next 12 months.

Kristin Kiesow, from PTB is the new project coordinator for the MEDEA project and will provide more information about what MEDEA has achieved in 2015.

Supplementary Information – Report on Training Course for Prepackage Goods

Dates	18 May 2015 to 22 May 015
Host	Indonesia – Directorate of Metrology
Trainers	Kevin Gudmundsson and Ben Aitken
Venue	Holiday Inn Hotel Bandung, Indonesia

Objective of training course

The training course will provide participants with the skills and knowledge necessary to carry out the inspection of pre-packaged products using the AQS and internationally accepted labelling requirements. Participants will be encouraged and provided with the resources to enable them to apply what they have learnt on this course when they return to their respective economies.

The training is primarily focused on the practical application of AQS through the presentation of the International Organisation of Legal Metrology's (OIML) international requirements in both classroom style learning and through practical exercises. We will cover OIML International Recommendations *R79 Labelling requirements for prepackaged products* and *R87 Quantity of product in prepackages*. The training will include the process required to conduct a reference test, good regulatory practice, issues to be considered when conducting a reference test, practical exercises and an onsite demonstration.

The intent of this training is to help improve and harmonise metrology capability in the Asia-Pacific region and facilitate trade development through the removal of technical barriers.

Target Group

The target group for this training course was for participants:

- To be from developing economies within Asia
- To have experience in the area of pre-packaged products
- To be able to introduce learnings from this course in their organisation
- To have a willingness to train others within their economy or within the framework of future APLMF courses

Description of the Training Course

A Project titled 'Metrology – Enabling Developing Economies in Asia' (MEDEA), is being coordinated by the 'Asia Pacific Legal Metrology Forum' (APLMF) and the 'Asia Pacific Metrology Programme' (APMP) with sponsorship from 'Physikalisch-Technische Bundesanstalt' (PTB) in Germany. The objective of the project is *"The ability of the regional metrology specialist networks in Asia to promote the metrological systems of developing economies has improved"*. The MEDEA project consists of eleven training courses that will be provided over a three year period. The first training course; on pre-package goods, took place between the 18 to 22 May 2015.

The training venue was in Bandung, which is a four hour shuttle east from Jakarta. The trainers arrived a day in advance of the first training session, which allowed an opportunity to collect product samples from the local supermarket that would be used during the training. This also allowed the trainers the opportunity to meet members of the host economy that were there to provide support and assistance where necessary and to ensure the IT support in the meeting room was functional.

During registration each participant was provided a course folder that included all relevant material that was to be referenced during the course and an envelope containing their daily allowance.

The training course was formally opened by the Indonesian Ministry of Trade, Directorate of Metrology, Priyo Syamsul N. and the APLMF Secretariat, GUO Su.

Following introductions and an icebreaker, a spokesperson from each economy provided a presentation on how prepackage goods are controlled in their economy. Presentations were provided by Bangladesh, China, Indonesia, Malaysia, Mongolia, Myanmar, New Zealand, Papua New Guinea, Philippines, Sri Lanka, Uzbekistan and Vietnam.

The training for the remainder of the first day focused on the requirements of OIML R79, which details the labelling requirements for prepackages, and misleading packages. The delivery of the training material included two Quizzes; where the participants put the requirements of OIML R79 into practice. The participants all performed well and appeared to be well engaged and enthusiastic.

The second days training focused on OIML R87. This document provides detail on how to determine the quantity of products in prepackages and whether a batch of products complies with the average and individual quantity requirements. Initial focus was on products with a stated quantity in mass. A working example (500g packaged rice) was used as the relevant reference exercise which enabled all the sections of the days training; included equipment and traceability, random sampling, metrological controls and testing to be clearly demonstrated.

The afternoon session included preparing for the onsite visit to a 'Nestle' factory on the morning of third day. This provided an opportunity for the participants to practise using the bespoke computer software that would be utilised when completing the average quantity inspection.

Also included in the afternoon session were a number of short training sessions on the specific requirements of; hygroscopic products, goods sold by length, area or count as well as guidance on providing advice to manufacturers on due diligence and dealing with non-compliant batches.

Working Group's Actions for 2016

Four training courses proposed for 2016 as part of the MEDEA / AMPLF joint project (as listed in the table below).

The Working Group is planning a survey to assist in developing a guide for verification of measuring Instruments

Course	Host Economy	Trainers	Schedule
Verification of Standards: mass, volume, length	Indonesia	Japan	May 2016
Verification of Bulk Flow Meters for petrol and diesel	Japan	Japan/Thailand	June 2016
Verification of Fuel Dispensers	Thailand	Thailand, Australia + two more trainers from DEs	July 2016
Verification of NAWI: supermarket scales	Malaysia	Australia, Indonesia	2016

2.8 Overview of APLMF Website Refresh – Mr Stephen O'BRIEN

The transfer of presidency to New Zealand provided an opportunity to refresh the website, and Stephen O'Brien outlined the proposed layout of the new APLMF website. He noted that it would be mobile friendly and enable videos and sound files to be uploaded (particularly useful in relation to sharing training events). Details of the site:

- Main page will include upcoming events and training to enable members to easily keep up-to-date with activities of APLMF.
- Who we are: Details of the Secretariat were also on the site and Stephen took the opportunity to introduce the Forum on the new Secretariat members, which included himself, Phil Sorrell from Trading Standards, New Zealand and Alli Smith (New Zealand). He noted that the Secretariat would be drawing on technical expertise from other economies, as required.
- Members only section of the site, which will include details of the economy, members' contacts etc. The Secretariat would be contacting all members shortly to get them to update their profile details. Other areas would include
- "What is metrology" and development of a metrology portal and link to more detailed description of metrology, using the new APLMF Guide 1 with links through to the relevant resources in OIML etc.
- Training section, with details of courses, training material, and MEDEA project and links to key documents.
- Working groups which will highlight the work of the various groups, which will be open to the public. There will also be a working group site in the 'members only' section to enable working groups to share documents in the development stage.

The website refresh will be a two-stage approach– the basic website will be launched shortly, and over the next six months, the Secretariat will add in the extra features and information. There is also a workshop session at the Forum this afternoon, which will provide members with the opportunity to provide feedback on further modifications or design for the website.

2.9 Completion of Measuring Instrument Survey – Mr Ralph RICHTER

The final two sections of OIML R117, Dynamic measuring systems for liquids other than water, were published in April 2015 (Parts 2 and 3). It is the official international standard for almost all dynamic liquid measuring systems, which include those used for fuel dispensers, oil pipelines, ship loading, aircraft fuelling, and liquid foods such as juice and vegetable oil.

A quick survey of member economies relating to the instruments/systems covered by OIML R117 was distributed to meeting participants and responses were due back later that morning. Mr Richter undertook to have the results back to participants in the morning – providing survey results in a day and with 100 percent completion, instead of the normal six month time lag to undertake a survey of member economies.

The questionnaire presented to attendees covered the following **five questions**:

1. What applications of flow and complete metering systems require type approval in your economy? (For example, some member economies will require approval of retail systems which are selling directly to the consumer (such as, fuel dispensers or road tankers distributing heating oil), while some economies may require type approval for a wider variety of wholesale and retail systems (such as, pipelines, ship loading, bulk plants, aircraft fuelling, etc.)
2. What type approval certificates does your economy accept (eg OIML, NTEP (US), NMI Australia, Measurement Canada, MID, etc) ?
3. Is your economy anticipating any changes in their policies regarding these types of systems in the next five years, as a consequence of OIML R117?
4. Does your economy have their own type evaluation testing for these types of systems and how similar or different are these tests from the type of testing in OIML R117-2
5. Does your economy require these types of products (ie petroleum, LPG, LNG, bunker fuel, aviation fuel and cryogenics) to be sold by volume or mass?

The survey results from this questionnaire were distributed to members on the following morning of the conference, and are set out below.

APLMF Questionnaire on Instruments/systems covered by OIML R117													
	Australia	Cambodia	Canada	China PR	Chinese Taipei	Japan	Korea	New Zealand	Philippines	Thailand	USA	Viet Nam	South Africa
1 - Require type approval													
Fuel Dispensers	X	X	X	X	X	X	X	X	X	X	X	X	X
Road Tankers	X	X	X	X		X		X	X	X	X	X	X
Bulk Plants/Loading Racks	X		X	X				X		X	X	X	X
Pipelines	X									X			X
Ship Loading	X		X						X	X	X		
Aircraft Fueling	X		X	X	X				X	X	X		X
Bunker Fuel	X		X	X					X	X	X		
Retail	X		X	X	X			X	X	X	X		X
Wholesale	X		X	X				X	X	X	X		X
2 - Accept type approval from													
OIML *	X				X	X	X	X	X	X		X	X
NTEP (USA)											X		
Measurement Canada			X										
NMI Australia	X												
MID													
New Zealand	X							X					
NMI Netherlands	X												
3 - Any upcoming changes to this policy?													
YES		X											
NO	X		X	X	X	X	X	X	X	X	X	X	X
4 - How similar type approval to OIML?													
Identical	X			X			X	X					
Mostly the same		X			X					X		X	X
Very different **			X			X					X		
5 - Measure by mass													
Petroleum products		X						X					
LPG		X	X					X	X	X	X	X	X
Cryogenics						X		X			X		
Aviation fuel								X					
LNG	X		X	X		X		X		X	X		X
Bunker Fuel		X						X					
6 - Measure by volume													
Petroleum products	X	X	X	X	X	X	X	X	X	X	X	X	X
LPG	X	X	X	X	X	X	X	X		X	X	X	X
Cryogenics	X		X					X	X		X		X
Aviation fuel	X		X	X	X	X		X	X	X	X	X	X
LNG								X	X		X		
Bunker Fuel	X	X	X	X		X		X	X	X	X	X	X

* Korea: only under MAA

** Canada: tolerances, instruments/systems, product selection, size selection

** USA: tolerances, instruments/systems, product selection, size selection

** South Africa: new meters are allowed only positive errors but plan to move to R117 completely

** Cambodia: moving towards OIML

2.10 Discussion of Metrology Enabling Developing Economies in Asia (MEDEA) – Dr Kristin KIESOW

Work Packages:

WP APMP2 – Instrument Bank

- DEC acts as a bank for used equipment to be distributed to developing NMIs
- MEDEA provides support for transportation

ACTIVITIES SINCE APLMF21

Donated Instrument	Donated to	Donated By	Donation dates
Gauge Block, 600mm, No.84289, TSUGAMI	NIMT, Thailand	NMIJ, Japan	15 May 2015
Gauge Block, 300mm, PTW79931, TSUGAMI	RCM-LIPI, Indonesia	NMIJ, Japan	23 June 2015
Set of Cylindrical Weights, Chyo Balance (1 mg to 1kg, 38 pieces)	NML, Philippines	NMIJ, Japan	28 Sep 2015
Set of Cylindrical Weights, Chyo Balance (1 mg to 1kg, 38 pieces)	NPSL, Pakistan	NMIJ, Japan	28 Sep 2015

WP APMP3 – Technical Trainings

- Mass (Introductory Level)
- Pressure (Intermediate Level)
- Volume (Introductory Level)
- Electricity (Intermediate Level)
- Temperature (Introductory Level)

ACTIVITIES SINCE APLMF21

Workshop	Venue	Trainers	Delivery dates
Workshop on the Calibration of Laboratory Scales	Beijing, China	Germany, China	28-30 Sept 2015
Concluding Workshop for Internat. Supplementary Comparison on Digital Multimeter (P1-APMP.EM-S8)	Beijing, China	Australia	05-07 Nov 2015

WP APMP4 – Metrology in Chemistry

- Training Courses on MU, Method Validation, MiC in General (Beginner Level)
- Attachment Trainings on I, O, pH, Gas, Purity, Bio (Intermediate Level)

ACTIVITIES SINCE APLMF21

Attachment Trainings	Venue	Delivery dates
I1: Cd/As in Apple Juice	HSA, Singapore	15 Jun – 14 Aug 2015
I2: Cd/Pd in Leather + Fe/Zn in Soil	NIM, Beijing, China	15 Jun – 14 Aug 2015
O2: Purity Assessment of Org. Comp.	NMIA, Sydney, Australia	15 Jun – 15 Sep 2015
O3: Veterinary Drug Residue in Food	NIM, Beijing, China	17 Aug – 16 Oct 2015
O1: Preservatives in Food	HSA, Singapore	17 Aug – 16 Oct 2015
pH Measurement using Harned Cell	NIMT, Bangkok, Thailand	24 Aug – 18 Sep 2015
MiC Symposium (APMP/TCQM WS)	NIM Beijing, China	31 Oct 2015

I = Inorganic, O = Organic

WP APMP5 – CMC Publication

- APMP QA Approval Process based on ISO 17025
- CMC Preparation
- Publication of CMCs in KCDB

ACTIVITIES SINCE APLMF21

Workshop	Venue	Trainers	Delivery dates
NMI Quality Management System Based on ISO/IEC 17025:2005 and CMCs Preparation in Electrical Measurement	Manila, Philippines	Thailand New Zealand Hong Kong	20-24 Jul 2015

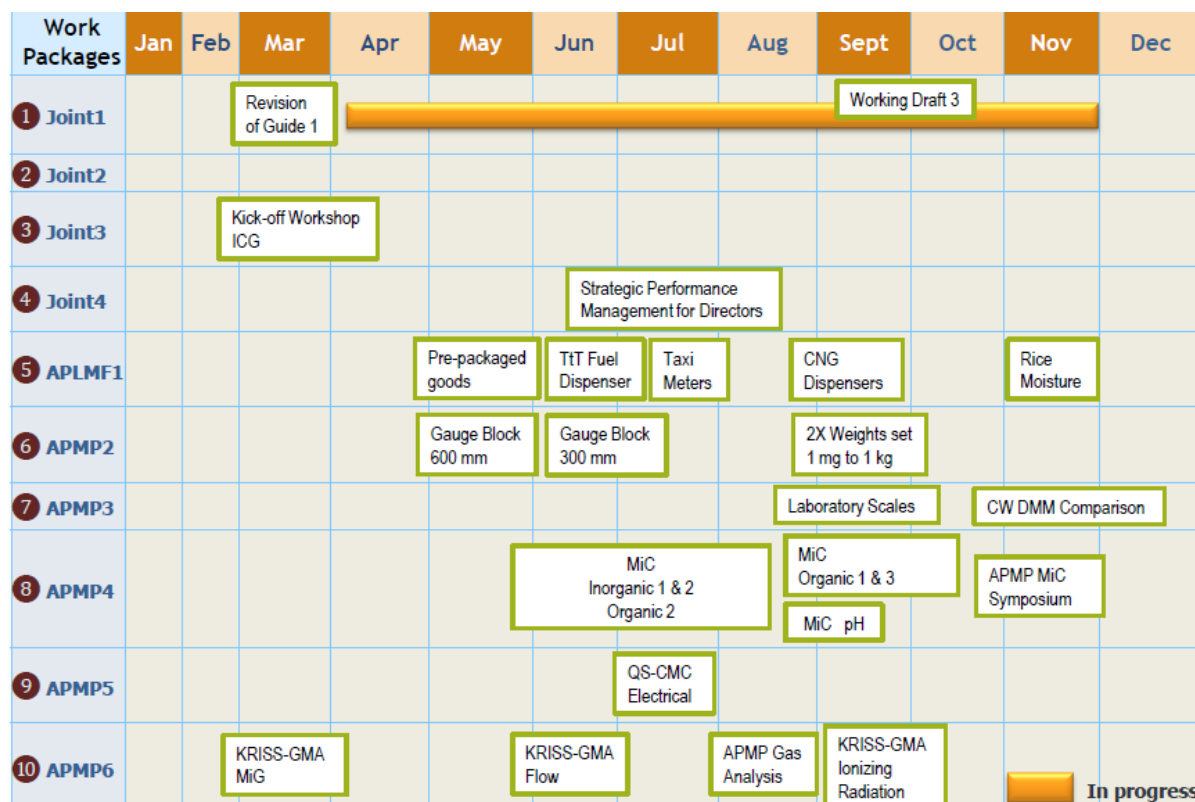
WP APMP6 – Standalone Initiatives

Training Courses organized by APMP, KRISS-General Metrology Academy

ACTIVITIES SINCE APLMF21

Workshop	Venue	Trainers	Delivery dates
KRISS-GMA: Metrology in General	Daejeon, Korea	Korea	23-27 Mar 2015
KRISS-GMA: Flow Measurement and Calibration	Daejeon, Korea	Korea	01-12 Jun 2015
13th Workshop of APMP/TCQM Gas Analysis Working Group "Metrology demands and measurement priorities in gas analysis"	Bangkok, Thailand	NIMT / APMP	03-05 Aug 2015
KRISS-GMA: Ionizing Radiation	Daejeon, Korea	Korea	31-11 Sep 2015

Accomplished Activities in 2015



Planned Activities 2016

Work Package	Activities	Date
Joint1	Revision of APLMF Guide 1	2016
	Promotion workshop for joint APLMF/APMP Guide 1	2017
Joint2	Awareness raising measures	2016 – 2017
	Seminar on best practice examples	
Joint3	Extension of list of contacts for international tech. cooperation	TBC
	Collection of links to training programs offered by NMIs/LMAs	
Joint4	1-year consultancy for directors in strategic management	Jan 2016- Jan 2017
	Concluding workshop	
APLMF1	Traceability of Standards: mass, volume, length	May 2016
	Verification of Bulk Flow Meters for petrol and diesel	Jun 2016
	Verification of Fuel Dispensers	11-13 July 2016
	Verification of NAWI: supermarket scales	Oct/Nov 2016
APMP2	Call for Proposals to DEC Instrument Bank also from APLMF	TBC
APMP3	Start new hydraulic pressure intercomparison	24-28 Jan 2016
APMP4	Seminars MiC (Beginner level) General Introduction into MiC, MU, Method Validation	2016
	Attachment Training (Intermediate Level)	
APMP5	Workshop on ISO/IEC 17025:2005 and CMCs Preparation in new area of measurement (mass,force,dimension)	2016
APMP6	Call for Standalone Proposals to MEDEA CC	TBC

Survey on Participation

Survey conclusions:

- It is worthwhile to apply for MEDEA activities
- Developing economies are very active in seeking capacity building
- High demand in training activities.

MEDEA Statistics for 2015

Number of Workshops/Trainings (all WPs)	17
Number of Nominees (all WPs)	260
Number of Beneficiaries (all WPs)	218
Admission Rate	84%
Rejection Rate	16%

Distribution of Participants by Economy – 2015

All Work Packages

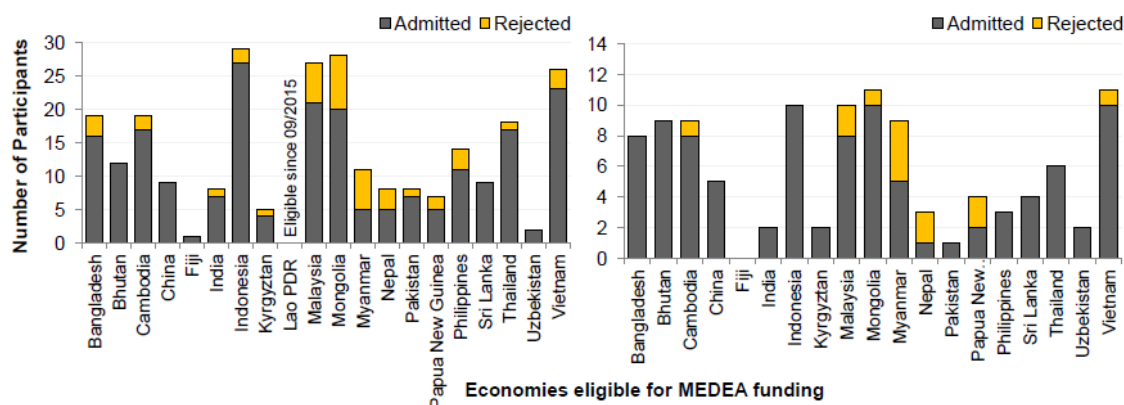
Total 218 / 260 beneficiaries

84% application success rate

WP APLMF1

Total 96 / 109 beneficiaries

88% application success rate



Distribution of Trainers and Hosts by Economy – 2015

Trainers

All Work Packages



Hosts

All Work Packages



All WPs		
Number of different	Trainers	Host
Developed Economies	24	4
Developing Economies	15	6

Survey on Legal Metrology Systems

- Purpose
 - designed to periodically capture and evaluate the developmental status of LMAs in Asia (APMLF + potential new members) in different technical areas.
 - monitor the impact of regional cooperation
 - identify the needs for new services / activities (within MEDEA and beyond)
 - identify opportunities for cooperation between members
 - provide data to DEs for self-evaluation and planning
 - generate data for impact monitoring of the MEDEA project against the funding agency BMZ, Federal Ministry for Economic Cooperation and Development Germany

- Scope of MEDEA project
 - continuous improvement of survey (revised 2015 by Dr Grahame Harvey)
 - repeated annually to monitor the progress of the DEs in legal metrology
- Differences to the 2014 Survey
 - in many economies legal metrology tasks are divided between different institutions: Provision is made for different experts to complete each section
 - Participation in the survey is a prerequisite to receive MEDEA funding
- Analysis Results

Yes	Average 80-100 %
No	Average 50-79 %
	Average 1-49 %
	Average 0 %
	Service information is missing

Summary of results

- Overall, high participation in the survey - great increase in the participation of developing economies: 11 (2014) to 14 (2015)
- Five newcomers now eligible for MEDEA funding: Bangladesh, Bhutan, Fiji, Indonesia, Kyrgyztan
- Limitation – Revision of the survey does not allow to easily compare the progress from 2014 to 2015
- **Take-Home Message**
 - Developing economies need to annually provide full data to monitor the progress
 - LMAs are free to approach MEDEA anytime to provide additional data.

Three greatest Impediments

Bangladesh	Technical capability will be developed by attending training and workshop programme outside Bangladesh.	Consultancy service will be required to build up our practical knowledge.	Infrastructure development and equipment will be needed to develop legal metrology by funding from international donor organization.
Bhutan	No Legal Metrology Law, we carry out legal metrology services based on the acts of different agencies.	Legal Metrology is a new subject to the people of Bhutan.	Still to develop the Capacity in this field.
Cambodia	Human resources	Metrological instruments	Budget
Indonesia	Decentralization	Lack of Human Resources and geographic condition	People awareness
Kyrgyztan	Does not provide for the allocation of funds for organizing the supervision of prepacked products from market	Government verification offices are self-financed	Verification system is harmonized with the one in Russia

Mongolia	Verification of high capacity truck scales /100 to 250 tons/ and high capacity flow meters	Budget deficit	Improvement of verification standards
Myanmar	No metrology law		
Nepal	Lack of relevant metrology law	Lack of Infrastructure and budget	Lack of qualified manpower
Pakistan	Usage of obsolete and international simultaneously by traders	Usage of sub-standards instruments	Tempering of instruments
PNG	Lack of collaboration between government agencies responsible for Legal Metrological activities in PNG	There is no specific legislation on Legal Metrology	Lack of manpower and staff retention incentives thus resulting in high turnover of technically competent metrologists
Philippines	Absence of central legal metrology authority though some activities are taken on by the different relevant departments and no existing national legal metrology system.		
Sri Lanka	Insufficient of measurement Standards	Insufficient of technical staff	Difficulties of getting overseas trainings for new fields
Vietnam	Cost to establish and maintain accuracy of primary and working standards especially for metrological control	Cost to establish and maintain infrastructure and personnel according to ISO 17025 in metrological organizations	Shortage of technologies implemented in administrative procedures of metrological control for simplification and efficiency

Three greatest initiatives

Bangladesh	Attempt to purchase high accuracy measuring equipment to develop legal metrology department.	Employing more technical experts serving metrological service countrywide.	Technical capacity building by participation in training programs
Bhutan	Awareness programme.	Verification of fuel dispensers and commercial weights & balances.	Development of capacity in the field of Legal Metrology.
Cambodia	Verification of metrological instruments (Water Meter Testing Bench, Electricity Meter Testing, Fuel Dispenser etc.)	Verification of pre-package goods	Verification of NAWI (Truck Scale, Weight, etc.)
Indonesia	To harmonize, innovate, and mutual acceptance through cooperation and coordination between stakeholders of legal metrology	To ensure the accuracy of the measurement results for trading, health, safety, environment and consumer protection;	Funding Support for RVO on Standards Procurement and their equipment
Kyrgyzstan	Development of the system of control of prepackages	Development of the system of continued competence government and private verifiers	Harmonisation of the verification system with OIML requirements

Mongolia	Law of Guarantee on Measurement Uniformity, that is drafting according to OIML D1:2013 and being discussed in 2015.	Training personnel of organization	Improving technical capacity of verification laboratories
Myanmar	Metrology law		
Nepal	National Legal metrology law review is in progress	Infrastructure for Legal metrology offices are required	Laboratory for Legal metrology offices are required
Pakistan	Establishment of Inspectorate of weights and measures in each province.	Spot and surprise inspection of instruments	Standardization of weights and measures
PNG	NISIT has initiated collaborative activities between government agencies responsible for legal metrological activities	NISIT has proposed for a new legislation for Legal Metrology to be introduced	
Philippines			
Sri Lanka	Verification of Taxi meter	Verification of Sphygmomanometer	Verification of Moisture meter
Vietnam	Metrological control of fuel dispensers, watt-hour meters, taximeters	Implementation of quantity control of prepackaged goods	Metrological control of physio-chemical measuring instruments as well as reference materials and CRM.

Survey on Legal Metrology Systems in Asia-Pacific – Detailed results of Regional Capability 2015

	Bangladesh	Bhutan	Cambodia	Fiji	Indonesia	Kyrgyzstan	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	PNG	Philippines	Sri Lanka	Thailand	Vietnam
Extent of harmonisation with OIML recommendations for controlled instrument types	51%	5%	100%	61%	73%	0%		41%	0%	0%	100%	5%	0%	41%		34%
Legal traceability infrastructure																
Legal dissemination of traceability	3	2	3	2	2	3		2	0	1	3	3	1	3		3
Appointment of Authorities	2	2	3	0	1	2		3	0	1	3	3	2	2		2
Does your legislation provide for your courts of law to accept the following measurement evidence in certificate form:	3	2	3	2	2	3		3	0	2	3	3	0	3		3
Metrological control of trade measuring instruments																
Extent of pattern approval (extent of metrological control)	51%	5%	100%	61%	73%	95%		44%	0%	0%	100%		0%	41%		44%
Total number of approvals issued	0	66	0	63	260	0		252	0	0	0	0	0	69		0
Extent of harmonisation with OIML recommendations for controlled instrument types	51%	5%	100%	61%	73%	0%		41%	0%	0%	100%	5%	0%	41%		34%
Extent of harmonisation with OIML test procedures	44%	8%	100%	0%	88%	4%		60%	0%	0%	100%	8%	0%	40%		52%
Extent of harmonisation with OIML test report format	44%	8%	100%	0%	88%	0%		40%	0%	0%	100%	8%	0%	40%		64%
Number of instrument types for which MAA accepted	8	0	12	0	0	12		2	0	0	12	12	0	0		0
Number of instrument types for which overseas approvals accepted	17	2	41	0	0	41		0	0	0	41	41	0	1		0
Verifying Authorities: Government	19	2	0	0	41	40		14	0	4	0	41	0	15		0
Verifying Authorities: Private	0	0	0	0	0	0		0	0	0	0	0	0	0		0
Verifying Authorities: Both government and private	0	0	41	0	0	1		0	0	0	41	0	0	0		21
Percentage of instrument types for which there are verification periods	46%	5%	100%	0%	100%	100%		34%	0%	0%	100%	100%	0%	100%		34%
Metrological control of regulatory and community measurements																
Extent of pattern approval	8%	0%	92%	0%	33%	92%		25%	0%	0%	92%	92%	0%	33%		67%
Total number of approvals issued	0	0	0	0	2	0		482	0	0	0	0	0	13		0
Extent of harmonisation with OIML recommendations	0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%	0%		0%
Extent of harmonisation with OIML test procedures	0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%	0%		0%

	Bangladesh	Bhutan	Cambodia	Fiji	Indonesia	Kyrgyzstan	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	PNG	Philippines	Sri Lanka	Thailand	Vietnam
Extent of harmonisation with OIML test report format	0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%	0%		0%
Number of instrument types for which overseas approvals accepted	1	0	11	0	0	11		0	0	0	11	11	0	0		4
Verifying Authorities: Government	1	0	0	0	4	0		3	0	0	0	11	0	3		0
Verifying Authorities: Private	0	0	0	0	0	0		0	0	0	0	0	0	0		0
Verifying Authorities: Both government and private	0	0	11	0	0	11		0	0	0	11	0	0	0		8
Percentage of instrument types for which there are verification periods	8%	0%	92%	0%	33%	92%		25%	0%	0%	92%	92%	0%	33%		58%
Metrological control of packaging																
Labelling	1	2	3	3	3	1		3	0	1	3	3	0	2		3
Types of packaging systems allowed by legislation	1	2	2	1	1	1		2	0	1	3	2	0	1		2
Packaging system: Harmonisation with OIML R87	No	No	Yes	Yes	Yes	No		Yes		No	Yes	Yes		Yes		Yes
Legislation for drained weights	0	0	1	0	2	0		2	0	0	2	0	0	2		1
Market Surveillance																
Is it an offence to falsely represent that the pattern of a measuring instrument is approved?	Yes	Yes	Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes		Yes		Yes
Is it an offence to falsely represent that a measuring instrument is in accordance with an approved pattern?	Yes	Yes	Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes		Yes		Yes
Is there a conformity-to-type (CTT) program to ensure production instrument compliance prior to use?	No	No	Yes	Yes	Yes	Yes		No		No	Yes	Yes		Yes		Yes
Is there a market surveillance program to ensure the continued accuracy of production measuring instruments in use?	Yes	Yes	No	Yes	Yes	No		No		Yes	Yes	Yes		Yes		Yes
Is there a database to monitor the performance of measuring instruments in the field and allow the efficient allocation of inspector resources?	No	Yes	No	No	No	Yes		Yes		No	Yes	Yes		Yes		No
Is utility metering within the ambit of legal metrology in your economy?	No		Yes	Yes	Yes	No		Yes		No	Yes	Yes		No		Yes
Is the in-field performance monitoring of utility meters within the ambit of legal metrology?	No		Yes	No	No	Yes		Yes		No	Yes	Yes		No		No
If so, is the monitoring carried out on a statistical sampling basis?	No		Yes	Yes	No	Yes				No	Yes			Yes		No

	Bangladesh	Bhutan	Cambodia	Fiji	Indonesia	Kyrgyzstan	Malaysia	Mongolia	Myanmar	Nepal	Pakistan	PNG	Philippines	Sri Lanka	Thailand	Vietnam
Infra-technologies																
Is there a system to ensure the competence of government inspectors?	No			No	Yes	No				No	Yes	Yes	No	Yes		Yes
Are there private bodies appointed (licensed) as verifiers in your economy?	No			No	No	Yes				No	No		No	No		Yes
Is the appointment of private bodies to verify measuring instruments for trade based on third-party accreditation?	No				No	Yes					No					No
Is the appointment of private bodies to verify measuring instruments based on an assessment of competence?	No				No	Yes					No			No		Yes
Is there a system to ensure the continued competence of private, licensed verifiers in your economy?	No				No	No					No			No		Yes

2.11 Workshop Session

This was the President Elect's session to gain feedback from members to inform the Secretariat on their views on three specific topics. Delegates were split into three groups and moved around to each Group station to give their feedback on the questions.

Group 1 – Facilitator – Ms Marian HAIRE

Do you have any ideas on how we can change and potentially improve the way in which APLMF undertakes its Working Group activities and the annual Working Group Forum meetings?

Suggested improvements to working group activities

- Better access to expertise, with options of setting-up an 'experts database', formal links to the OIML Technical Committees, and even delivering training via Working Groups
- Reviewing topics covered by the Working Groups at regular intervals, and undertaking a regular needs assessment to determine what activities are undertaken and whether there needs to be new Working Groups set up for any new issues that need to be tackled
- Expanding the membership of Working Groups, to improve the progress that can be made and build collaboration across economies, as often the Working Groups have a Chair and just one or two members
- Improving the process for agreeing the activities of the Working Group to ensure resources are allocated to accomplish the proposed work plans, including distributing the Working Group minutes two months before the annual Forum meeting, and incorporating the proposed activities into the APLMF work programme with approval by the Executive.
- Greater use of existing technology solutions to enable better collaboration by Working Groups, including use of videoconferencing, Centra, Team Viewer, updating the APLMF website on activities

Suggested improvements to Annual Working Group and Forum Meetings

- Greater sharing of knowledge at the meeting by adding in training or seminars for 1-2 days, or inviting manufacturers or industry associations or businesses to attend and present, co-ordinating with ASEAN, APEC Standards and Conformance
- Improvements in the administrative processes to make the meeting itself function more effectively for attendees, including a later start to the day (9.00 am), introducing all participants (particularly useful for those attending their first APLMF meeting), providing some material or a short video to explain meeting processes and protocols, allow the use of proxies so that economies can send comments/feedback to the Secretary for inclusion in discussion
- Improving the style of presenting, particularly for those participants who have English as a second language, by keeping presentations/slides simpler (less information on the slide) and speaking more slowly
- Increasing more active engagement and participation by attendees during the meeting, through mechanisms that enable participants to be better prepared and engaged by
 - identifying crucial issues that should be addressed at the Forum (this will also facilitate attendance as it can be included in the invite to assist economies better determine representation and make a case for different levels or additional representation)

- providing Working Group agenda and papers one month in advance for pre-reading
- provide a zip-file of all meeting papers (or making these available on the website) to enable preparation for sessions
- encouraging participants to review material pre-meeting and email questions to the Secretary before Forum Meetings
- Funding – if training session was provided as part of Forum, then other funding may be available to support attendance. Also whether APLMF can provide funding to support attendance by developing economies

Group 2 – Facilitator – Mr Alan JOHNSTON

Are there any additional features or functionality you would like incorporated into the updated APLMF website?

A large number of suggestions were made to improve the APLMF website functions including:

- **Improving the current content** - Up-to-date Directory and key contact points in individual countries, metrology calendar which includes main events, link to other legal metrology organisations (OIML, RMLO's), upcoming meeting documents (one month prior) and archived meeting documents, table of References (acronyms), links to training material, APLMF templates (Economy Reports, Working Group Reports, Surveys), technical and training documents easily accessible,
- **Changes to the type of content provided** – for example, providing on-line training modules, an on-line forum/blog to provide question/answers, social networking, video content, ability to provide feedback on draft documents, hot topics or news (preferably interactive), matrix of regulated instruments (OIML, APLMF), instrument info, identification or notification facility of devices or short measure, directory that sets out the differences in regulations across economies, petroleum tables
- **Improving functionality of the site** – better search function, user friendly, introductory video 'how to use the website', use pictures (not bullets), better use of graphics and videos, ensure statistics are provided in easy to use graphs, but backed by the raw numbers that are accessible (Excel), able to access site on portable devices, different languages available, material that is accessible to industry and consumer.

Group 3 – Facilitator – Mr Stephen O'BRIEN

What do you consider to be the critical activities that APLMF should be undertaking for the benefit of member economies with emerging metrology systems and with developed metrology systems?

- Building capability in Asia Pacific, through
 - Training - Measuring equipment and inspection, evaluating training outcomes, delivering training is a development opportunity
 - Sharing ideas and expertise

- a. Guidance/documents that support harmonisation, by providing practical interpretation of OIML Documents, video – pictures – to support English as second language, step by step guides
- Improving trade through standardise certification process
- Enhancing international linkages and improving communication between APLMF and others
 - Europe focus – voice for Asia
 - APEC – submissions to raise awareness
 - ASEAN connections – improve communication
 - Links to OIML/RMLO
 - ISO – general assembly
 - Links to international and regional industry bodies/associations
- Improving quality and technical infrastructure linkages, as well as identifying and addressing any overlaps in technical areas
 - BIPM – APMP
 - OIML – APLMF
 - ISO- APLAC
 - Global – Regional
- Identifying emerging areas and issues of interest that are relevant to Asia Pacific region, focus on both known and unknown areas of expertise/knowledge (eg medical measurements versus chemical biological/environment)

3 Forum Meeting

8am – 4pm, Thursday 29 October 2015

3.1 Welcome and Official Opening of Forum

The welcome address was made by Mr Charles (Chuck) EHRLICH for the host economy, United States, and the address to officially open the 22nd Forum was made by Mr PU Changcheng, President of APLMF, China.

- **Mr Charles EHRLICH** noted the USA was honoured to be hosting this meeting in the beautiful State of Hawaii, particularly as this meeting was also a key meeting in terms of the transition of the presidency of APLMF from China to New Zealand. He noted they were honoured by some special attendees, including APLMF founding member, Mr John BIRCH of Australia, Mr Stephen PATORAY from OIML, Dr Kristin KIESOW from PTB in Germany, two observers from South Africa and Mr Dmitri KARIMOV from Liquid Controls LLC who is hosting today's lunch. He also acknowledged the hard work of Mr GUO Su and Mr Ralph RICHTER in putting together this Forum.
- **Mr PU Changcheng** officially opened the 22nd APLMF meeting. He thanked the members and observers and expressed a warm welcome to all members attending and noted that their cooperation and participation will make this meeting a success. He thanked the hosts for their hard work and the beautiful city and people of Hawaii for hosting this meeting. Since the last meeting of APLMF in New Zealand, the Forum had made great efforts in undertaking the work programme activities, and he noted the efforts in training provided to developing economies that have arisen from the collaboration with PTB and the joint MEDEA/APLMF training courses.

3.2 Roll Call

A roll call of the member economies was taken, with 13 member economies present from the 19 economies who are full members. There were 43 delegates as well as four observers. The member economies attending were: Australia, Cambodia, Canada, PR China, Japan, Republic of Korea, New Zealand, Philippines, Singapore, Chinese Taipei, Thailand, United States of America and Vietnam. Representatives from OIML, PTB in Germany and South Africa also attended the meeting.

3.3 Confirmation of the Report of the 21st APLMF and Working Group Meetings

The report of the 21st APLMF was approved without modification.

3.4 Report of the APLMF President - Mr PU Changcheng

APLMF Structure and Membership

- Seventeen APLMF members & APEC members - Australia, Canada, PR China, Hong Kong, Indonesia, Japan, Republic of Korea, Malaysia, New Zealand, Papua New Guinea, Philippines, Singapore, Chinese Taipei, Thailand, USA, Vietnam
- Five APLMF and APEC Corresponding members – Brunei Darussalam, Mexico, Peru, Chile, Russia
- Three APLMF members and non-APEC members – Mongolia, DPR Korea, Cambodia
- One APLMF Corresponding member and non-APEC member – Laos
- APLMF Working Groups
 - Training coordination
 - Goods packed by measure
 - Utility meters
 - Mutual acceptance arrangement
 - Medical measurement
 - Quality measurements of agricultural products
 - Metrology control systems

Good financial situation as at October 2015 with 17 of 19 member economies having paid their 2015 membership fee or processing the payment

2015 Activities – Summary

- March Coordination Committee Meeting and Kick-off Workshop for International Cooperation Group Training
- May Training course on pre-packaged goods
- June Training course on verification of fuel dispensers
- July Training course on verification of taxi meters
- August APLMF Transfer meeting
- September Training course on the verification and calibration of CNG dispensers
- October RLMO and 50th CIML Meeting and 22nd APLMF Meeting

Guide development - Draft APLMF Guide on the application of pressure metrology and Draft APLMF Guide on rice moisture measurement

The President acknowledged the contributions from all member economies, the host economies, New Zealand (who is taking over the presidency), Working Group chairs, the CC of MEDEA and the efforts of the APLMF Secretariat.

3.5 Report of the APLMF Secretariat – Mr GUO Su

Training – APLMF/MEDEA Project

MEDEA Coordination Committee Meeting & Kick-off Workshop for International Cooperation Group Training was held at PTB, Braunschweig, Germany on 23-27 March 2015. Over 22 participants from 10 economies participated.

MEDEA Training Course on Pre-packaged Goods was held in Bandung, Indonesia on 18 -22 May 2015. The trainer was New Zealand and over 23 participants from 11 economies participated.

MEDEA Training Course on Verification of Fuel Dispensers in Pattaya, Thailand, on 15-19 June 2015. The trainer was Australia and over 22 participants from 13 economies (and 10 observers) participated.

MEDEA Training Course on Verification of Taxi Meters in Shanghai, China on 7-10 July 2015. The trainer was China and over 19 participants from nine economies participated with 10 observers.

MEDEA: Training Course on the Verification and Calibration of CNG Dispensers in Kuala Lumpur, Malaysia on 8 – 11 September 2015. The trainer was Malaysia and over 24 participants from 11 economies participated with 10 observers.

MEDEA: Training Course on Traceability in Rice Moisture Measurement in Phnom Penh, Cambodia on 16– 20 November 2015. The trainer was Japan.

Other activities

- Funding Application Proposal - Support for developing economies. Seeking USD150,000
- Survey on Metrology Capability (MEDEA)
- Guide – Draft APLMF Guide to the application of pressure metrology and draft APLMF guide on rice moisture measurement.
- APLMF Transfer – New Zealand will assume the next Presidency for APLMF for 2016, for four years. Secretariat met with New Zealand officials in Wellington this year to ensure the transition with introduction, discussion on the finances and APLMF leadership, and arranging the website transfer.
- APLMF 22nd Meeting – In preparation for this meeting, the Secretariat has met with the host, NIST, USA, to develop the programme and agenda, set up the website for the 22nd APLMF meeting, arrange invitations, the EC topics, registration and collection of various reports and the financial aspects of hosting the meeting.
- Published the minutes of the 21st APLMF Meeting, held in New Zealand on 9-12 November 2014.
- Liaison with other organisations – the Secretariat went to Arcachon, France in October 2015



Question whether APLMF attended the APEC SCSC meeting in 2015, given that APLMF attended in 2014. Secretariat advised it didn't attend this year as it was not putting forward any funding proposals to APEC in 2015.

Mr Stephen O'Brien also acknowledged the good work of China Secretariat staff in arranging the transfer of APLMF presidency responsibilities to New Zealand.

3.6 Presentations from the Host Economy – United States of America

Mrs Carol HOCKERT, Office of Weights and Measures, National Institute of Standards and Technology (NIST)

Measurement Traceability

One of NIST key goals is to maintain the traceability of measurement throughout the commercial chain, as shown on this slide. As you know, traceability begins with the realization of a fundamental constant, or with the prototype kilogram in France. So in the case of mass, the prototype kilogram is compared to national standards – at NIST these are K4 and K20. NIST calibrates mass standards for the States. I won't discuss in any detail the links from the SI to NIST or to the state laboratories, except to say that they play an important role in the overall health of the system. We, in our office, focus on the quality of measurements coming out of the state laboratories, the accuracy of devices used for commercial sales, and the accuracy of net content for packaged products.

Weights and Measures Regulation in the US

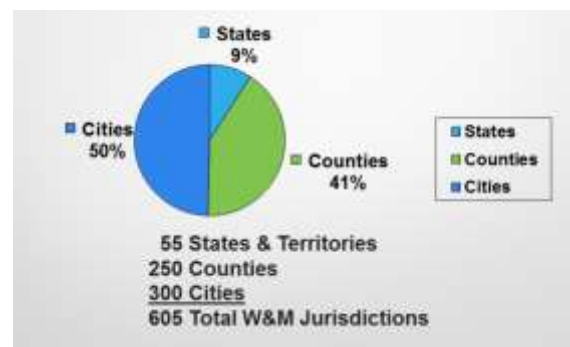
Weights and measures regulations are largely enforced by state and local jurisdictions. An exception to this is the regulatory function of the US Department of Agriculture (USDA), which has responsibility for the accuracy of livestock scales, packaged meat products and the import and export of grain and devices associated with these commodities. The USDA depends on local weights and measures regulation to supplement its control over meat products, so local officials test livestock scales and will conduct package inspections on USDA regulated commodities. USDA Grain Inspection, Packers, & Stockyards Administration (GIPSA) regulates import and export of grain and related weighing and measuring equipment and regulates livestock sales involved in interstate commerce.

US Weights and Measures Jurisdictions

When the United States was formed, it was made up of very independent States, all with their own laws and governments, so we have multiple levels of regulation.

In addition to the State weights and measures programs, many large cities have their own regulatory officials, and in some States, every county also has one or more regulators. This distribution makes for a challenge when assuring uniformity across the country and makes the need for a central coordinator such as our office vital to the system. While it may seem like so many jurisdictions would be problematic to uniformity, it is also advantageous in the sense that localized control and enforcement are more economical and successful than a federally operated system.

Distribution of jurisdictions in the USA (Estimated)



NIST's role

NIST's promotes and help facilitate uniformity in legal metrology, especially in regard to standards and practices used in commerce, and to provide traceability to national standards.

It is important to note that NIST has no enforcement authority over weights and measures and other legal metrology areas, though a few other federal agencies do, as I'll cover later. When NIST receive complaints, reports of fraud or abuse, or requests for investigation into a questionable trade practice, we normally refer the complainant to the appropriate authority. This could be another federal agency, a state jurisdiction, or a local (city or county) jurisdiction.

Every State has a weights and measures program with laws in place to assure compliance in the marketplace. These programs vary in their scope and size based on the demographics and industry of the individual States. For instance, western States spend more time testing scales weighing coal and minerals, and livestock scales. In Los Angeles, they don't have any of those type of devices. It's very urban and so the types of devices and the priorities of the officials are different.

Office of Weights and Measures (OWM)

Mission - To improve the accuracy of measurements, enhance consumer protection, foster fair competition, and facilitate economic growth and trade through technical activities that promote uniformity in national and international legal metrology laws, regulations, standards, test procedures, and enforcement.

Customers

- State Weights and Measures Programs (regulators)
- Federal agencies (regulators from FDA, FTC, USDA)
- Manufacturers of commercial products
- Retail establishments (Walmart, grocers, etc.)
- Instrument/Device manufacturers
- Service companies (scale or meter repair)
- Consumers and consumer groups
- Educators (Metric outreach)
- Industry Associations

Key Activities

- Coordination of responses to regulatory issues to promote uniformity and fair trade.
- Technical Support to Stakeholders
 - Regulatory officials
 - Business & industry
 - Standards Committees
 - Federal Agencies
 - Laboratories
- Training
 - Laboratory Metrology
 - Field Officials
 - Administrators
 - Industry

- Information Dissemination
 - Publications and NIST Handbooks
 - Website
 - Outreach
- Representation - OIML, SIM, APLMF and other international organizations

OWM Activities – Metric Program

OWM is also responsible for moving the United States to become a more metric society. The US was an original signatory to the Meter Convention, and the metric system has been declared by law the preferred system of units in trade and commerce since the 1970s. However, the law also stated that the conversion to metric would be a voluntary one, so progress is slow.

Since 1994 the Federal Fair Packaging and Labeling Act, a Federal law, has required dual labeling on consumer packaging, ie both metric and inch-pound units on their principal display panel. When this law was written, it was to require the use of metric units so consumers would become familiar with them. Now the law is a barrier to going “metric only” by still requiring customary units in addition to metric units.

Our goal is to eliminate this barrier to allow metric only labeling on packages, but not require it. The States have already modified their laws, with most State laws currently permitting a variety of labeling formats including metric only. 49 States allow metric only labeling for products regulated at the State level

The metric program also provides resources to industries that are moving to metric, and resources to teachers who want to teach children about the metric system.

OWM Technical Support

- OWM provide technical support to stakeholders:
 - Field Officials, Business & Industry
 - NCWM Committees (including NTEP)
 - Other Federal Agencies (FDA, USDA, FTC, DoC)
 - Laboratories
- Study issues regarding new technologies and applications and provide assistance with interpretations of NIST HB 44, 130, 133 and with field and laboratory test procedures
- Develop inspection procedures
- Upgrade state lab capabilities

OWM Information Dissemination

- Publications and Standards
 - NIST Handbooks 44, 130, 133
 - NIST Handbook 105 Series
 - OWM Newsletter
 - Technical interpretations and guidance documents
 - Standard Operating Procedures (SOPs)
 - Field Manuals

- Website
- Presentations

Key publications

NIST Handbook 44 'Specifications, Tolerances, and Other Technical Requirements for Commercial Weighing and Measuring Devices' <http://www.nist.gov/pml/wmd/pubs/h44-14.cfm>

- Handbook 44 is adopted into State law and used by enforcement officials when taking legal action and is the most widely adopted of our handbooks, providing the specifications and tolerances for devices used in commercial transactions, such as various scales, and meters. It is adopted by all 50 States into law, and accordingly there is uniformity in weights and measures laws across the US (A key part of NIST's mission of securing uniformity of weights and measures laws and applications (also applies to law enforcement equipment.)
- A product of the weights & measures community, and published annually by NIST to promote uniformity and used in Type Evaluation, Initial and Subsequent Verification
- Developed through the National Conference on Weights and Measures (NCWM) – refer below

Handbook 130 'Uniform Laws and Regulations in the areas of legal metrology and engine fuel quality'

- NIST Handbook 130 is a conglomeration of Uniform Laws and Regulations covering everything from engine fuels to methods of sale of products. . Handbook 130 contains the model laws and regulations a state would need in place to properly regulate measurements in commerce.
- The Handbook is published by NIST to promote uniformity, and like Handbook 44, it is adopted by a number of States, or used as a reference/template or model when enacting state laws. Some States use it as a guideline
- Developed through the National Conference on Weights and Measures (NCWM) – refer below

Handbook 133 'Checking the Net Content of Packaged Goods'

- NIST Handbook 133 is the document adopted by both Federal and State agencies for checking net content of packaged products. Published by NIST to promote uniformity in package inspections
- Statisticians at NIST provided input into the procedures and formulae used in this document, and when followed properly, its methods can be used to justify enforcement action. It contains test procedures for checking packages sold by weight, volume, length, area, and count, including difficult to measure products, such as ice cream, paint, and firewood, among others.
- Developed through the National Conference on Weights and Measures (NCWM) – refer below
- Adoption by 44 States or territories adopt in its entirety and by Federal Agencies

Other Publications

Our office publishes a number of other handbooks, manuals, special publications and guidelines. Laboratory metrology publications are essential to the state metrologists in providing procedures, report templates, analytical spreadsheets and more.

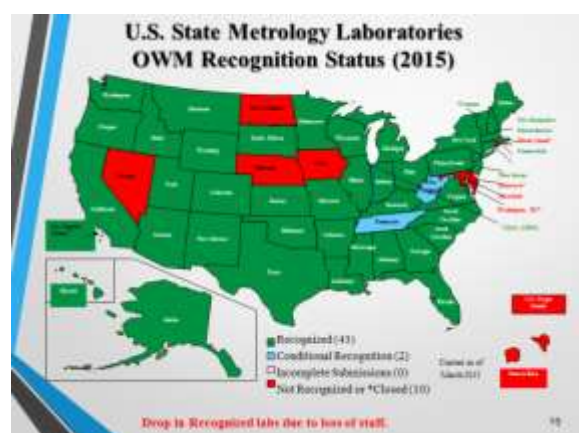
- NIST Handbooks 105 Series Specifications for standards used to test commercial devices (field standards)
- NIST Handbook 143, NISTIR 6969 & IR 7383 - Laboratory metrology procedures and standards
- NIST Special Publications include - Interpretations (SP 330 and SP 811) both of which are used to provide guidance in the use of the International System of units (SI). More accurately, SP 330 is the US version of the BIPM document published most recently in 2006.
- Guides
- Manuals

All of our publications are available for download on our website, and I encourage you to visit us at www.nist.gov/owm.

State Metrology Laboratories

The state metrology laboratories are the first link down the traceability chain from NIST so it is important to have a strong system in place to support and maintain these labs.

We are very proud of the quality of measurements coming out of our State metrology laboratories. The State metrologists are all trained at NIST in our training laboratory in the parameters of mass, volume and length. In addition to technical training, we provide them training in maintaining a management system that complies with ISO 17025, and over 40 States are recognized by us as meeting or exceeding the requirements in NIST Handbook 143 for certificate of traceability. This handbook has all of the requirements of ISO 17025, with additional guidance and requirements associated with legal metrology.



There are 47 State legal metrology labs plus some county, Federal and territory labs in the US. These labs provide measurements for their state/county/city weights and measures programs and for industry. OWM provides extensive training for metrologists, including annual refresher training and webinars. We operate a measurement traceability recognition program for the States that includes an assessment of the labs' management systems and technical competence against the requirements in NIST Handbook 143, similar to accreditation. All State labs are required to participate in proficiency tests for all parameters on their scope of accreditation or recognition certificate. These are coordinated during the regional meetings held throughout the year and around the country (6 regions).

OWM Activities – International Trade

We represent the US interests in the international legal metrology arena, and work to harmonize national and international standards. We work with international standards developing organizations, including International Organization of Legal Metrology (OIML), ISO, API, ASTM, others.

We work to eliminate trade barriers for US industry, promoting harmonization of US and international standards, promoting US standards internationally, and facilitate participation of US industry in international standards development.

OWM Activities - Training

OWM conduct training for field and laboratory personnel, and for industry, other federal agencies, and even other NMIs. We conduct training at NIST and around the country.

We have held Administrator workshops for State directors, and have launched a train the trainer effort in the last three years, which I will cover in more detail later. Uniform and consistent training leads to uniform application of weights and measures laws and regulations, so we have spent a considerable amount of time ensuring that our training meets international standards as spelled out by the International Association of Continuing Education and Training (IACET). We became accredited by IACET in June of 2013, which allows us to issue accredited CEUs for the classes we offer.

Training	2013	2014	2015
Total number of students	633	499	718
in Webinars	110	133	190
Total number of courses	47	37	27
Webinars offered	16	14	14

National Conference on Weights and Measures (NCWM)

The NCWM is one way the United States achieves uniformity between its weights and measures jurisdictions. A unique collaboration between industry and government to further cooperation with States and encourage uniformity.

This National Conference was established by NIST in 1905 as a forum for the States, Federal agencies and industry to collaborate to develop model laws and standards (at the time NIST was NBS). In 1999, NCWM became a private organization that still provides the same functions as it did at its inception.

The Handbooks mentioned above (*Handbook 44*, *Handbook 130* and *Handbook 133*) are updated through the NCWM's development process. They use both committees and public hearings to assure due process as changes to the handbooks are proposed, considered and approved. Uniformity is achieved through the adoption of the handbooks by state legislatures. NIST publishes these handbooks once changes are approved.

NIST Role in NCWM

Even though the standards development process and national type evaluation are functions of NCWM, NIST continues to play an important role in United States Legal Metrology. NIST and NCWM work closely together to avoid duplication of efforts in this unique metrology system. Here is a lengthy list of NIST activities:

- provides Metrology Laboratory Training and Laboratory Certification for the States
- provides Technical Advisors to NCWM Committees, Workgroups and Sectors
- publish NIST Handbooks 44, 130, and 133
- publish NCWM Annual Reports
- serves as liaison between NCWM and Federal Agencies
- provides United States representation internationally
- authorized by NCWM as a NTEP Laboratory for load cells
- NIST serves as Executive Secretary to NCWM
- provide excellent training for State and local Weights and Measures Officials
- provide training for US industries

Legal metrology responsibilities of Federal agencies

NIST has no enforcement power but other Federal agencies do, for example, the Food and Drug Administration, the Department of Agriculture and the Treasury Department have responsibilities for various products as listed here.

- Food and Drug Administration (FDA) - Foods & drugs (human & animal), cosmetics, & medical devices
- United States Department Agriculture - Meat and poultry and produce (quality and grades)
- Treasury Department - Tobacco, wine, beer, distilled spirits & alcohol.

NIST coordinates between federal and state agencies to resolve problems. For instance, there are various types of aerosols, one of which expels a propellant along with the product, and another, called “bag on valve” that does not expel anything but the product. Some manufacturers of these BOV aerosols were selling product by volume, even though *NIST Handbook 130* requires aerosols to be sold by weight. NIST brought together the industry associations, the EPA, the FTC, the FDA, and state regulators in order to address the issue and come to resolution.

Additional federal agencies with enforcement authority in metrology are the Environmental Protection Agency, Federal Trade Commission and the Department of Transportation. Our office frequently works with these agencies to coordinate efforts with the States to assure compliance with state and federal laws. In some instances, federal agencies rely on state regulators to enforce federal laws that supersede state regulations.

- Environmental Protection Agency - Pesticides and herbicides.
- Federal Trade Commission - Packaging and labeling of most consumer products sold at retail.
- Department of Transportation - Compressed gases & hazardous materials.

One example is in the case of short weight in wholesale seafood products. Both the FTC and the FDA have been involved in working with the States (through NIST) to reduce the incidence of seafood fraud in the marketplace. The US seafood industry association came to NIST asking for help in getting the problem under control. We conducted a training session for state regulators on how to inspect ice glazed seafood for accurate net content. In this example, *NIST Handbook 133* is used to determine the method for deglazing seafood prior to testing, and in calculating the maximum permissible variation in the packages. The States conducted inspections across the country and took enforcement action on short weight product.

Mr Jerry BUENDEL, Chairman, National Conference on Weights and Measures (NCWM)

With so many regulatory programs in the United States, the need for uniformity in standards and enforcement became paramount. In 1905, the National Bureau of Standards (now known as NIST) called for a meeting of state officials to discuss this need. At that meeting, attendees discussed the severe lack of uniformity in weights and measures. In many cases there was enforcement, but the standards varied from city to city and state to state. Attendees agreed to meet again the next year and the meeting became an annual event. This was the formation of the National Conference on Weights and Measures, known as NCWM.

NCWM is a private, volunteer organization. In 1998 it restructured as a nonprofit corporation. This year, NCWM conducted its 95th Annual Meeting.

- NCWM's Mission
 - Advance a healthy business and consumer climate
 - Develop, publish and implement uniform and equitable weights and measures standards
 - Use a consensus based standards development process
- Governance – Board of Directors, membership approvals, by-laws and policies
- Board of Directors – elected to five year terms, represent regions and industry. NIST and Measurement Canada are ex-officio members
- Membership – 2251 members – About half of the members are State and local regulatory officials. The remaining membership consists of manufacturers of weighing and measuring instruments, manufacturers and retailers of consumer products, trade association representatives, federal agencies, foreign agencies, and consumers.
- Funding - Membership dues, NTEP program, sales of handbooks
- Full time staff – Lincoln, Nebraska

Standards: Adopted by NCWM and Published by NIST

- NCWM serves to develop model standards for voluntary adoption by the States. The Annual Reports of the NCWM reflect that international harmonization has been a key consideration, even in those earliest years.
- The first model standards for commercial weighing and measuring instruments were adopted by NCWM in 1915 and published by the National Bureau of Standards, (now NIST). Those standards were the predecessor to what we know today as NIST Handbook 44 (*Specifications, tolerances and technical requirements for weighing and measuring devices*).
 - Used as a field enforcement manual by inspectors
 - Used by NTEP for certification standards

NIST Handbook 44 serves as the standard in the United States for the specifications, tolerances, test procedures, installation requirements, and suitability requirements for weighing and measuring instruments. Each state voluntarily adopts Handbook 44. The statutes in some States are written such that annual adoption of new publications is automatic. In other States, adoption is not automatic. In these instances, there must be a deliberate act of the state legislature to update to newer versions.

- The NCWM also develops a set of model laws and regulations known as NIST Handbook 130 (*Uniform laws and regulations in the area of legal metrology and fuel quality*). This handbook contains such things as the Model Weights and Measures Law, Uniform Packaging and Labeling Regulation, and the National Type Evaluation Program Regulation. Used as regulations for method of sale, labeling, fuel quality and more
- A third model standard developed by NCWM is NIST Handbook 133 (*Checking the net content of packaged goods*). This contains the uniform procedures for inspecting packaged commodities to verify accuracy of net quantity declarations.
- These NIST Handbooks
 - Developed by a legislative like process at NCWM
 - Published annually by NIST – available on Internet
 - Serve as model standards and laws
- Voluntary adoption by States – various editions and modifications of handbook provisions

- Every member of the NCWM receives a complimentary set of Handbooks 44, 130, and 133 each year from NIST.
 - Additional copies of the handbooks are offered for sale on the NCWM web site www.ncwm.net
 - Electronic versions may be downloaded from the NIST web site at no charge <http://ts.nist.gov>

Amending Standards

- The standards development system of NCWM works from the bottom-up, rather than a top-down approach utilizing independent regional associations. The most common and acceptable method of introducing proposals is through one of the four regional associations. The regions are the Western, Central, Northeastern and Southern.



- Any person, including any of you here today, may submit a proposal to a regional association to amend the national standards.
- The committees of the regional associations forward new proposals to NCWM for national consideration if the proposals are deemed to have merit.
- Proposals submitted to regional organizations by regulators or industry members
- Emergency proposal provisions – direct to NCWM
- Regional organizations deliberate and make recommendations
- Proposals considered at NCWM Interim Meeting – January
- Proposals further deliberated at NCWM Annual meeting - July
- Failed proposals may be reconsidered next year
- Proposals to amend Handbooks assigned to standing committees
 - Specifications and Tolerance Committee – HB 44
 - Laws and Regulations Committee – HB 130 & HB 133
 - Committees voluntarily staffed by regulators and industry. Terms are limited and chairmanship rotated
- At the **NCWM Interim meeting** each January, the **Specifications and Tolerances Committee** addresses all carry-over items and new proposals that have come forward from the regional associations.
- At that meeting, the committee holds open hearings and work sessions to deliberate on all agenda items. Attendees of the Interim Meeting offer their comments to the committee during those open hearings. Following the open hearings, the committee deliberates over the

items to determine which are sufficiently developed for a vote of the NCWM at its annual meeting in July, which items will be carried over another year for additional development, and which items will be withdrawn from consideration

- Support for decision makers in considering proposals to amend Standards
 - NIST provides technical support to regional and NCWM standing committees
 - NCWM or NIST workgroups, task groups and sub-committees appointed to study and make recommendations on special topics
 - NCWM facilitates communications between jurisdictions and interest groups
 - Board of Directors oversee processes

National Type Evaluation Program (NTEP)

For many years, type evaluation was not included in the model laws and regulations developed by NCWM. By 1967, there were various forms of type evaluation requirements in existence in 14 States, 2 cities, and 1 county. Meeting the needs of so many type evaluation requirements posed additional expenses and trade barriers for manufacturers within the United States.

In 1975, to facilitate one program that could be recognized by all States, the National Bureau of Standards, began conducting an evaluation program, often utilizing state regulatory programs in the conduct of evaluations. If the evaluation demonstrated compliance to Handbook 44, a test report was issued. This test report satisfied the needs of some States by serving as the basis to issue a type approval certificate

- Purpose – to assure buyers and sellers that devices are suitable for use in commercial transactions and assure buyers and sellers of permanence and perform under influence factors

By the early 1980's it became clear that an even more efficient national program was necessary, but it would have to be recognized by the States to be effective. In 1984, NCWM adopted a model regulation known as the Uniform National Type Evaluation Regulation.

The NTEP Certificate of Conformance Indicates that the device(s) described are capable of meeting *NIST Handbook 44 requirements*. It would have no legal value unless States adopt some form of regulation recognizing NTEP.

Since 1984, 46 States have voluntarily adopted requirements for NTEP certification for commercial weighing and measuring instruments. The NIST originally administered NTEP Program from 1984-1999 but in 2000 the NCWM assumed administration of NTEP. NCWM authorizes a combination of State and Federal laboratories to evaluate the instruments. Upon successful evaluation, NCWM is the organization that issues the *NTEP Certificate of Conformance* that is recognized by the States.

The NCWM develops the administrative policies, technical procedures, checklists, and test procedures for type evaluation and publishes those policies and procedures in NCWM Publication 14 (available for order from the NCWM website in either hardcopy or electronic format). *Publication 14*, simply provides the method to evaluate compliance to the standard and is based on the requirements found in NIST Handbook 44, which remains the standard in the United States for weighing and measuring instruments. The NCWM is responsible for the development of both the NIST Handbook 44 and NCWM Publication 14.

NCWM maintains a database of approved devices – available on NCWM website and conducts conformity assessment programs. The NCWM Board of Directors oversee policy and administration

Conformity Assessment Program

In 2004, NCWM approved new Administrative Policy for a Conformity Assessment Program. In the years since, NCWM has worked out many of the details for enacting the program. The result is a three-pronged approach to Conformity Assessment.

- **Initial Verification** is the first official examination of a new device after it is installed. By definition, it has been occurring for as long as inspection programs have existed. Regulatory officials have the option of reporting these verification results to the NTEP Administrator.
- **Administrative Certificate Review** is the second element. In policy, the certificate holder would verify that the information presented on the certificate continues to represent the devices in production. Some certificates have not been amended for many years, yet production practices may have changed. The policy calls for NTEP to establish a time table to complete the reviews. That process has not been implemented yet. Meanwhile the NTEP Administrator continues to respond to feedback related to the accuracy of information on certificates from various sources.
- The third and final element of Conformity Assessment is the **Verified Conformity Assessment Program**, or VCAP. Under VCAP, the manufacturer will demonstrate they have a quality system in place and they are sampling and testing production for compliance to influence factors as part of that system. They will also demonstrate that they follow the plan in the quality system to address deficiencies in production quality.



The pilot for VCAP is already underway for load cells. When this pilot program is complete, NCWM anticipates expansion of VCAP as originally intended to cover other types of weighing instruments that are subject to influence factor testing in NTEP

International and USA System

The system in the United States has very similar methods and mission as OIML, because both organizations, NCWM and OIML were created for the same purpose.

There are many governments, but without uniformity of standards, trade barriers are established making cost of production high and access to markets difficult. These governments come together under one organization to develop uniform standards and type evaluation criteria to meet those standards.



Because NCWM understands these basic concepts, we continue to focus on harmonization of international and US standards where practical. One significant example of our efforts to harmonize

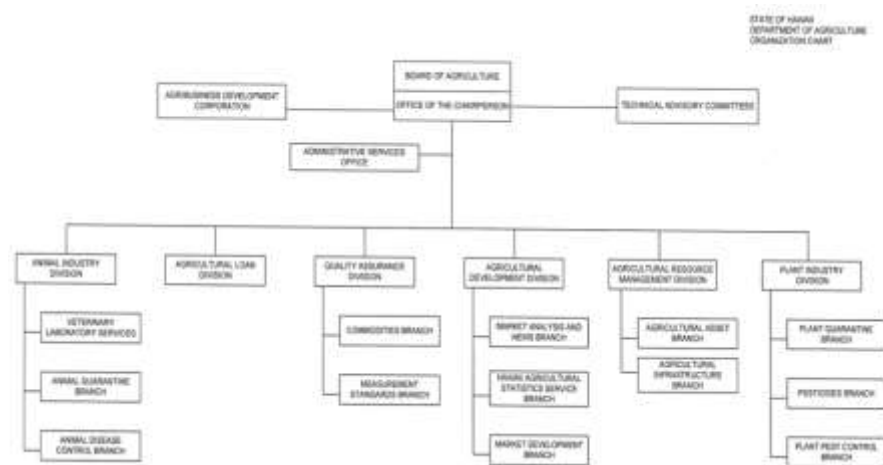
was the adoption of new national standards for non-automatic weighing instruments over 30 years ago. These standards are published in the Scales Code of NIST Handbook 44. This new set of standards incorporated step tolerances and performance requirements under influence factors such as temperature, barometric pressure, power supply, radio frequency interference, and electromagnetic interference.

More recently, NCWM entered into the Mutual Acceptance Arrangement for R 60 as a utilizing participant. We are striving to enable our participation for R 76 as an issuing participant. The Board of Directors has agreed the NCWM will sign the DoMC for R 76 when it is prepared to do so as an issuing authority

Ms Jeri KAHANA, Quality Assurance Division, Hawaii Department of Agriculture

Measurement Standards Branch

- Works to protect consumers, businesses, and manufacturers from unfair practices, which are based on a measurement process or subject to a standard of quality.
- Minimize losses and inaccuracies due to incorrect or fraudulent commercial measuring equipment, processes, or substandard products.



Regulatory Authority

- Chapter 486, Hawaii Revised Statutes
 - Provides authority to promulgate administrative rules
 - Provides power to investigate complaints, empower to subpoena witnesses, examine them under oath, and required the production of books, papers, documents, record or objects relevant to the inquiry
 - Provides powers and duties to the Administrator to enforce the Hawaii Administrative Rules and administer the Branch
- Hawaii Administrative Rules
 - Chapter 4-86, Brake Fluids, Coolants, Petroleum Products, and After-Market Additives
 - Chapter 4-87, Voluntary Registration of Service Persons or Service Agencies
 - Chapter 4-89, Measurmasters
 - Chapter 4-91, Unit Pricing of Consumer Commodities
 - Chapter 4-93, Packaging and Labelling
 - Chapter 4-94, Method of Sale of Commodities
 - Chapter 4-96, Schedule and Fees for Licensing Devices Susceptible of Commercial Usage and Measuring Devices and Measurement Standards for Testing or Certification
 - Chapter 4-101, Weighing and Measuring Devices

- Adopted NIST Handbook 44, Specification, Tolerances and Other Technical Requirements for Weighing and Measuring Devices
- Adopted NIST Handbook 130, Uniform Laws and Regulations for Method of Sale of Commodities
- Utilize procedures set forth in NIST Handbook 133 Checking of Net Contents of Packaged Goods

Standards and Technical Services

- Assures that the State measurement standards conform to national standards.
- Performs traceable metrological calibration on mass and volume standards for the enforcement standards used by the Branch and the field standards used by Registered Service Agency personnel in the repair, calibration, or placing into service commercial devices.
- NIST Laboratory Recognition
 - Measurement assurance on making accurate measurements
 - Control Charts for all measurement parameters on scope
 - Quality Manual for Laboratory
 - Standard Operating Procedures
 - Laboratory Calibration Procedures
 - Technical Audits of all Laboratory Activities
 - Proficiency Tests and assessment for calibrations on scope
 - Uncertainties for all calibrations on scope
 - Software Verification and Validation
 - Compliance to ISO 17025 standard assessment
 - Laboratory environmental controls
 - Metrologist training summary with completion of LAP problems
 - Annual Management Review
 - Annual WRAP attendance and training
 - Traceable standards to NIST standard
 - Document Control Log
 - Showing continuous Laboratory improvement
 - Annual submission between Oct 1 and Nov 1
- Metrology laboratory is NIST recognized but not accredited by National Voluntary Laboratory Accreditation Program (NVLAP) or American Association for Laboratory Accreditation (A2LA)

Standards and Trade Practices Enforcement Section

- Responsible in assuring the consumer and businesses that transactions involving measuring instruments, labelling, content of packaged commodities, and pricing are accurate and fair to all parties.
- Weighing or measuring devices shall have had its type evaluated and certified by an approved NTEP laboratory in accordance with the requirements of NIST Handbook 44 and issued a Certificate of Conformance
- All weighing and measuring devices shall be currently registered and licensed by the State
- Licenses are valid for one year, and license fees must be paid annually

Registered Service Agencies

- A person, who for consideration or payment of any kind, alters the state of any component of a measure or measurement standard or its performance
- Each service person may apply for registration and when fully executed, shall entitle the applicant to demonstrate knowledge and ability regarding the measure and laws governing the measure
- Each service person is issued a Certificate of Registration upon satisfactory demonstration of qualifying ability, technical competence and thorough knowledge of applicable legal requirements
- Annual registration fee is required
- Registered service person may place into service devices, or remove an official State rejection tag and return the device into service when correction is completed
- Apply a seal, supplied by the State to indicate the date device is placed back into service
- Each Registered Service Person shall submit a Placed-In-Service Report to the State for each device that has been placed into service within 72 hours of installation or return of the device into service
- The department may periodically check the effectiveness of the Registered Service Person by follow-up investigations and tests in accordance with the applicable specifications, tolerances, and other technical requirements.
- The State may suspend or revoke a Registered Service Person's Certificate of Registration privileges when it is determined that the actions by the Registered Service Person is contrary to requirements specified in Chapter 4-87.1 Hawaii Administrative Rules

Enforcement Actions

- May issue citations, stop-sale, or stop-use orders when a measure, measurement standard, packages or consumer commodities, when found to be in violation with the Hawaii Revised Statutes or Hawaii Administrative Rules
- Criminal offense for possession of device has been altered to facilitate fraud, counterfeit
- Criminal offense for possession of device has been altered to facilitate fraud, counterfeit
- Civil offense for use or possession an incorrect device, measure or measurement standard, for not more than \$2,000 for each separate offense
 - Sell of offer to expose for sale, less than the quantity represents
 - Fail to submit a weighing or measuring device for inspection at a time and place specified
 - Violate any provision the law or rule
- May apply for a temporary or permanent injunction restraining a person from violating any provision of the law or rule.

3.7 Report of APEC SCSC and other Special Regional Bodies (SRBs)

Report of Asia Pacific Metrology Programme (APMP) – Dr Toshiyuki TAKATSUJI

Strategic developments

APMP ‘Focus Groups’ Strategy:

- Energy Efficiency (NIMT, Thailand)
- Food Safety (NIM, China)
- Medical Diagnostic Equipment (CMS/ITRI, Chinese Taipei)
- Climate Change (KRISS, Korea)

Next Steps:

- Work plans in development
- APMP NMI Directors Workshop 2015 on “Focus Groups”: Membership, responsibilities, communications with other APMP groups and external, and funding

Support for developing NMIs

- Mid-year meetings, Cambodia, June: Meeting with senior government officials, and technical workshops in electrical and mass metrology
- PTB MEDEA Project, 2nd Year, joint program with APLMF - APMP-specific activities include training attachments in chemical metrology, and training workshops in:
 - quality systems & CMC preparation (July, Philippines),
 - strategy and performance management (July, Malaysia),
 - mass (September, China);
 - electrical (November, China)
- KRISS Global Metrology Academy <http://gma.kriss.re.kr/jsp/program.jsp> and <http://www.apmpweb.org/main/eventinmember.php>

Stakeholder engagements

- APMP-APLAC Cooperation (Joint PT WG) – two new programs identified for 2015/16 (food safety) in lead and cadmium in wheat flour and pesticides in fruit or vegetable juice.
- APMP’s linkages with APEC
 - APEC SCSC – SRBs provide expert advice and inputs to APEC projects
 - APEC Food Safety Cooperation Forum (FSCF) – APMP co-representative of SRBs to FSCF Partnership Training Institute Network (PTIN)
 - APMP representative attended August 2015 FSCF meetings, Philippines
 - APEC-funded “Regional Workshop on Measurement Challenges in Renewable Energy and Climate Science”, Oct 2015, Beijing, China
- BIPM-led review of CIPM MRA – the global mutual recognition arrangement in scientific measurement. APMP input addressed the following questions:
 - What outcomes do your NMI and your stakeholders require from the CIPM MRA?
 - What is the value of the CIPM MRA to you and your stakeholders?
 - What changes to the CIPM MRA would increase that value?
 - What are your views on proposals for changes to the CIPM MRA made by other bodies?

Two workshops held in September and October 2015 and Review Working Group established and Terms of Reference re being finalised

Status of Quality System

Economy	Laboratory	Quality System				Pathway	Status	Participation 2014 meeting	2014 QMS Report
		17025	9001	Guide 34	17043				
Australia	NMIA	✓	✓	✓	✓	a	C	N	Y
	ARPANSA							N	Y/N
	ANSTO							N	Y/N
Bangladesh	NML-BSTI							N	Y/N
	DRICM							N	Y/N
Cambodia	NMC	✓		✓		a,c	O	Y	N
China	NIM	✓		✓		a,c	C	Y	Y
	CMS/ITRI	✓	✓	✓	✓	a	C	Y	Y
Chinese Taipei	INER	✓				a	C	N	N
	Chunghwa T	✓				a	C	N	N
DPR of Korea	CIM							N	Y/N
Fiji	NML							N	Y/N
Hong Kong, China	SCL	✓			✓	a	C	Y	Y
	GL							N	Y/N
India	NPLI	✓			✓	c	C	N	Y/N
	BARC							N	Y/N
Indonesia	KIM-LIPI	✓				a	C	Y	Y
	RCChem-LIPI	✓		✓	✓	a	O	Y	Y
Japan	NMIJ/AIST	✓		✓		a	C	Y	Y
	NICT	✓				a	C	Y	Y
	CERI	✓		✓		a	C	N	Y
	JEMIC	✓				a	C	N	Y
(the Republic of) Korea	KRISS	✓	✓	✓		b	C	Y	Y
Malaysia	NML-SIRIM	✓				a	C	Y	Y
	NUCLEAR MALAYSI A	✓	✓			a	C	N	N
Mongolia	MASM	✓	✓		✓	a	O	N	Y/N
Nepal	NBSM							N	Y/N
New Zealand	MSL	✓				a	C	N	Y
Pakistan	NPSL							N	Y/N
Papua New Guinea	NISIT	✓				a	C	Y	N
Philippines	ITDI*	✓				a	C	Y	Y
Russia	VNIM							COOMET	n/a
Singapore	A*STAR	✓				c	C	Y	Y
	HSA	✓		✓	✓	c	C	Y	Y
Sri Lanka	MUSSD	✓				a	O	N	Y/N
	NIMT	✓	✓			a,c	C	Y	Y
Thailand	DSS							N	Y/N
	TISTR	✓	✓			a	O	Y	Y
	OAP	✓				a	C	N	Y
Vietnam	VMI	✓				a,c	C	Y	N
Egypt	NIS							AFRIMET	n/a
Jordan	JNMI	✓	✓			a		N	N
Kazakhstan	KazInMetr							COOMET	n/a
South Africa	NMISA							AFRIMET	n/a
Syria	NSCL**	✓				a	O	Y	Y
Kenya	KEBS							AFRIMET	n/a
United Arab Emirates	DCL							GULFMET	n/a

KEY

Pathway

- Third party accreditation.
- Certification to ISO 9001 and attestation by technical peers.
- Attestation by a team consisting of quality system experts and technical peers.

Status

C = Confirmed establishment of QMS (Currently accredited / certified and/or have been reviewed.)

O = On-going accreditation

* Only physical metrology areas. The status of chemical metrology in ITDI is "O" and not submitted with its annual report.

** Suspended due to the current circumstances in the economy.

Updates

- No changes to personnel for the Executive Committee and TC Chairs
 - Dr Tim Armstrong's term extended by 1 year (until GA2015)
 - Dr Peter Fisk, APMP Chair's term extended by 1 year (until GA2016)
 - APMP Secretariat – Ms Anne Davoren - apmpsecretariat@measurement.gov.au, anne.davoren@measurement.gov.au
 - Next APMP meeting - 31st APMP GA 2015, Beijing, China
 - Hosted by NIM, Beijing, China, 1-7 November 2015
 - Meetings of GA, Executive Committee, Technical Committees, Developing Economies' Committee
 - 6th NMI Directors' Workshop
 - National Symposium organised by hosts, NIM
 - APEC-funded Regional Workshop on Measurement Challenges in Renewable Energy and Climate Science
 - TC Workshops
 - Laboratory Tours
 - APMP-APLAC PT Working Group meeting
-

Report of Asia Pacific Laboratory Accreditation Cooperation (APLAC) – Michael Fraser, APLAC Secretary

Membership

Since the last report to APLMF, APLAC has welcomed the following new members:

- Full Members
 - Diagnostic Accreditation Program of the College of Physicians and Surgeons of British Columbia, Canada;
 - Accreditation Office for Standards Conformity Assessment Capacity (AOSC), Viet Nam.
- Associate Members
 - Cambodia Accreditation National Council Department of Accreditation, CANC-DA (NAFP).
- Since the last report to APLMF, the following members have withdrawn from APLAC:
 - Accreditation of Vietnam, Joint Stock Company AoV, Viet Nam;
 - National Institute of Environmental Research, Republic of Korea;
- Full details of APLAC members (42 Full members; 11 Associate members) can be found on the APLAC website: www.aplac.org

APLAC Mutual Recognition Arrangement

Since APLAC's last report to the APLMF two meetings of the APLAC MRA Council have been held.

- **Hong Kong, PR China** - The APLAC MRA Council met on 8 January 2015 and we are pleased to advise that BAB (Bangladesh) was accepted into the APLAC MRA as a signatory for testing.

The scope of recognition of CNAS (China) was extended to include PTP. The signatory status of the following members was also continued:

- Standards Malaysia (Malaysia) for testing, calibration and ISO 15189;
- A-S-B (USA) for testing and calibration.
- **Colombo, Sri Lanka** - The APLAC MRA Council met on 17 June and we are pleased to advise that BAB (Bangladesh) was accepted into the APLAC MRA as a signatory for calibration. The scope of recognition of:
 - BLQS DMSc (Thailand) was continued for testing and ISO 15189, and was extended to include RMP;
 - BLA DSS (Thailand) was continued for testing, and was extended to include PTP and RMP;
 - IANZ (New Zealand) was continued for testing, calibration, ISO 15189 and inspection, and was extended to include PTP and RMP;
 - Standards Malaysia (Malaysia) was extended to include inspection.

There are now 37 signatories to the APLAC MRA from 23 economies including 34 for testing, 27 for calibration, 17 for inspection, 16 for ISO 15189, 13 for RMP and 10 for PTP. Full details of the scopes of recognition for each of the APLAC MRA signatories can be found on the APLAC website:

www.aplac.org

Second Joint APLAC General Assembly and PAC Plenary

The second joint APLAC General Assembly and PAC Plenary was held in Colombo, Sri Lanka from 13 to 20 June 2015 and was successful.

The 21st APLAC General Assembly was held on 18 and 19 June and the main issues from that meeting are as follows:

- elections of APLAC office bearers (for details see below);
- endorsement of funding for a RMP and PTP training workshop in 2016;
- endorsement of funding for six proficiency testing schemes due for completion and six proficiency testing schemes due for commencement in 2016;
- endorsement of the APLAC budget for 2016;
- amendment to APLAC's voting rules to allow for one vote per Full Member.

Administration of APLAC

Mr Barry Ashcroft, IANZ, New Zealand tendered his resignation from the Board of Management in May 2015 and Ms Jennifer Evans was elected unopposed to fill the casual vacancy on the Board of Management created by his resignation.

Following the elections held in June 2015, the members of the APLAC Board of Management are as follows:

- Mr Nigel Jou (Chair) TAF (Chinese Taipei)
- Ms Roxanne Robinson (MRA Council Chair) A2LA (USA)
- Ms Jennifer Evans NATA (Australia)
- Mr Isao Fujita* IAJapan (Japan)
- Mr Anil Relia+ NABL (India)
- Mr Shaharul Sadri Alwi* Standards Malaysia (Malaysia)

- Mr Yoshinobu Uematsu+ JAB (Japan)
- Mr Wong Wang Wah HKAS (Hong Kong, China)
- Mr Yannapat Uthongsap+ NSC-ONSC (Thailand)

* The terms of Messrs Isao Fujita and Shaharul Sadri Alwi commence on 1 January 2016.

+ The terms of Messrs Yoshinobu Uematsu and Yannapat Uthongsap end on 31 December 2015.

The APLAC Committee Chairs remain as:

- Proficiency Testing - Dr Koichi Nara (IAJapan, Japan)
- Public Information - Ms Tadako Yamamoto (IAJapan, Japan)
- Technical - Mr Trace McInturff (A2LA, USA)
- Training - Ms Zhang Mingxia (CNAS, People's Republic of China)

APLAC Secretariat

- Trudi Charlton commenced work for the APLAC Secretariat in March 2015 as Administrator APLAC Secretariat. Trudi resigned from APLAC on 15 September 2015 and we are currently seeking a replacement.
- Janet Clark is currently on extended leave from the APLAC Secretariat.
- Michael Fraser, APLAC Secretary can be contacted through the APLAC Secretariat's email address: secretariat@aplac.org Trudi can also be contacted at the same email address.

APLAC Training Activities

A successful Workshop on Best Practice of Implementing ISO/IEC 17011 was held in Singapore from 18 to 20 November 2014, hosted by SAC. Please note that there are no training courses or workshops currently scheduled for 2015.

Interaction with APLMF

APLAC's cooperation with APLMF has largely been through participation, wherever possible, in APLMF's meetings and through joint work on APEC's Specialist Regional Body (SRB) Forum that meets once a year in the margins of APEC SCSC 1.

Mr Llew Richards of IANZ, New Zealand represented APLAC at the 21st APLMF Forum meeting in Wellington, New Zealand.

Unfortunately APLAC is unable to send a representative to attend the 22nd APLMF Forum meeting in Hawaii, United States of America.

Future APLAC Events

APLAC MRA Council meeting	6 and 7 (am) January 2016	Bangkok, Thailand
APLAC Extraordinary General Assembly meeting	7 (pm) January 2016	Bangkok, Thailand
APLAC Board of Management Meeting	8 and 9 January 2016	Bangkok, Thailand

Report of SADC MEL to APLMF – SADC Cooperation in Legal Metrology

Key Personnel

Chair – Ms Tolawantee Bagha, Mauritius

Vice-Chair – Mr Victor Mundembe, Namibia

Secretariat – Mr Jaco Marneweck (Regional Coordinator) and Mr Kabelo Tshele, South Africa

2015 General Assembly

SADC MEL General Assembly held at the time of the SADC SQAM, Kinshasa, DRC from 15-20 March 2015. It was attended by 12 member countries and 1 associate member.

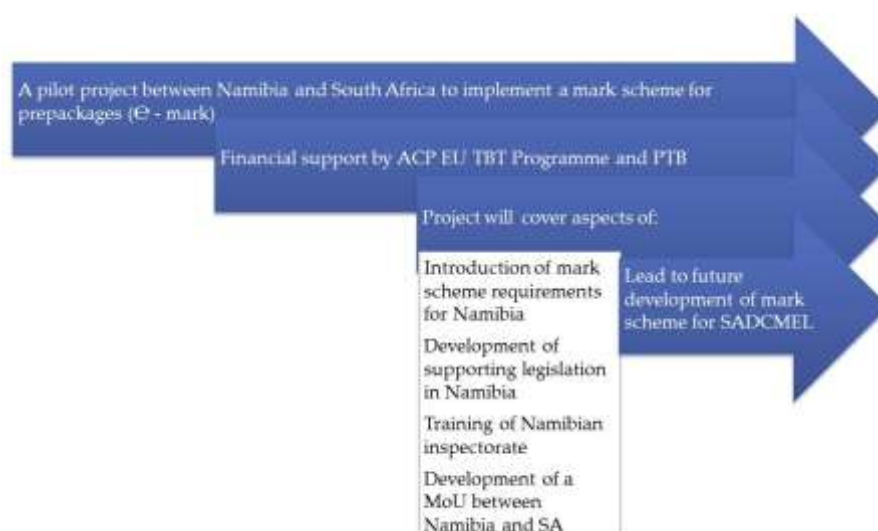
- *TC1 – Packaging of Goods*: Received request from Mozambique to include requirements for various products in the document dealing with the expression of quantity and prescribed requirements for prepackages
- *TC 3 – Code of Procedure (COP)*: The SADC MEL COP will be aligned with that of other structures within SADC with respect to the succession of the chairperson and vice-chairperson
- *TC 4 – Training*: TC will be reviewing training needs of member countries in view of motivating proposals for funding to donor organisations

Considered country reports from member countries to monitor harmonization and the development of legal metrology in region, specific activities noted include:

- Celebration of World Metrology Day
- Implementation of legislation aligned to OIML D1
- Legal metrology activities that took place in member countries

TC 1 and TC 2 to develop requirements for identifying, monitoring the movement of non-compliant goods within the region. To ensure that non-compliant goods or instruments are returned to the country of origin and do not find their way into member States.

SADC MEL Supported Pilot Project for mark scheme



SADC Quality Infrastructure Workshop - Gaborone, Botswana

Workshop considered the legal metrology responses to SADC *Industrial Development Policy Framework (IDPF)* and associated work programme. Developed legal metrology strategy in support of agro-processing, mineral beneficiation, pharmaceuticals, and chemical and forestry areas.

AFRIMETS Legal Metrology School - Hammamet, Tunisia

Held in Four SADCMEI experts participated by delivering papers and facilitating various practical training sessions. Twenty-one legal metrologists from 11 SADCMEI member countries attended.

3.8 Report of the Physikalisch-Technische Bundesanstalt (PTB) – Dr Kristin KIESOW – PTB International Technical Cooperation:

Mandate, profile and current regional projects in Asia-Pacific

NMI of Germany has existed for over 125 years, and for 50 years, PTB has shared its core competence in international development cooperation. We support developing and emerging economies in the comprehensive field of **quality infrastructure**. The Federal Ministry for Economic Cooperation and Development has provided PTB with a mandate as an **Implementing Organisation**,

- to support trade and regional integration
- to contribute to sustainable development
- to foster consumer protection and good governance

Evolution of PTB's Technical Cooperation

- 1959 Study on establishing a central laboratory for metrology and materials testing (Egypt/Syria)
- 1963 Special grant to translate legal metrology regulations (English / French)
- 1970s Start of technical cooperation in Asia (India, Korea)
- 1986 First BMZ sector concept on MSTQ published
- 1988 Division "Technical Cooperation" with regional structure

Our Profile - Multi-Level Approach

We advise governments and ministries, promote institutions of quality infrastructure, and support smaller and medium-sized enterprises.



Our Team - Interdisciplinary.

Professional Background

- Natural and engineering sciences
- Economics and social sciences
- Humanities and linguistics

Qualification

- Development policy orientation
- International work experience
- Project management

Development of the PTB Project Approach

1960

Metrology and Calibration

- Twinning of specialist laboratories
- Activity oriented



- Central labs in Egypt, Syria

1980

Metrology and Calibration

- Working group for Technical Cooperation (project management, lobbying)
- Intensive dialog with BMZ (staff secondment)
- Intensified networking



2000

National Quality Infrastructure

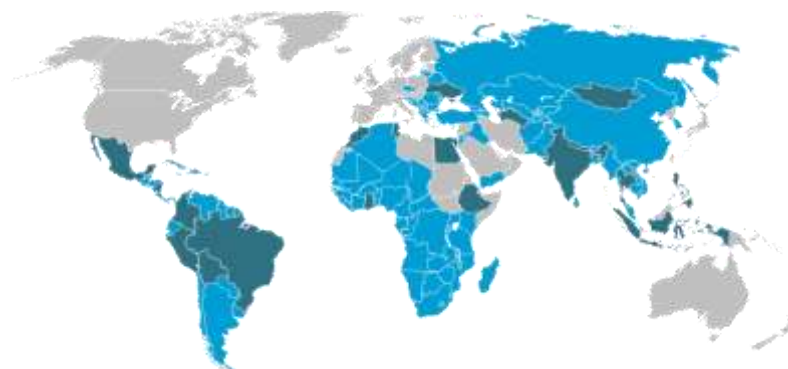
- Systematic and systemic approach
- Effect-oriented
- Integrated into a regional approach (RMO)



- bilateral / regional project portfolio

Our Project Partners - Worldwide

- 43 projects in 81 countries, with 18 bilateral projects and 24 regional projects, and one supra-regional project
- Financial volume € 8 – 10 million annually, 50 employees
- Clients: - Federal Ministry for Economic Cooperation and Development (BMZ), Federal Ministry for Economic Affairs and Energy (BMWi), European Union (EU), development banks, and direct orders



Organizational Structure of the Q.5 Department



Project Portfolio in Asia

India	2012–2016	Strengthening quality infrastructure in environmental analytics
India	2014–2018	Strengthening quality infrastructure in the solar industry
Indonesia	2010–2016	Quality assurance in environmental and food analysis in Indonesia
Mongolia	2012–2015	Support to Mongolia's quality infrastructure with particular regard to the energy sector
Mongolia	2014–2017	Promotion of quality infrastructure with emphasis on the mining sector
Myanmar	2015–2018	Strengthening quality infrastructure in Myanmar
Nepal	2013–2017	Support to Nepal in the field of quality infrastructure
Philippines	2014–2017	Strengthening quality infrastructure in the Philippines
ASEAN	2015–2018	Improving quality infrastructure in ASEAN (Association of Southeast Asian Nations)
SAARC	2013–2017	Support to SAARC (South Asian Association for Regional Cooperation) in strengthening regional integration and cooperation in the field of quality infrastructure
Asia Pacific	2014–2017	Metrology: Enabling Developing Economies in Asia (MEDEA)
Asia Pacific	2015–2018	Strengthening Accreditation Networks in Asia-Pacific



- Bilateral
 - India (Solar Energy, Chemistry)
 - Nepal (Food Safety, Health)
 - Philippines (QI Policy & Services)
 - Indonesia (Food Safety, Environment)
 - Mongolia (Mining, Energy)
 - Myanmar (SME promotion)
 - Sri Lanka (under preparation)
- Regional
 - ASEANSAARC
 - Central Asia
 - Regional QI Networks
- Topics
 - QI Knowledge Transfer
 - Networking
 - Harmonization
 - Partnering
 - Shared Services
 - Training Programmes

Strengthening Regional Cooperation and Integration in QI in SAARC

Goal / Approach

- Strengthen regional collaboration and capacity development of LDC in SAARC
- Raise awareness and disseminate information on trade-related QI issues
- Meet the increasing demand for supplementary QI support (national and regional level)

Implementation Partners: SAARC Secretariat, SARSO
 Implementation Phase: 04/2013 – 03/2017
 Project Coordinator: Dr Christian Stärz & Daniel Böhme
 Project Assistant: Stefanie Schwiedel

Highlights in 2015 and plans for 2016

- Support annual SEGA , Metrology Coordination Meetings
- Support National Accreditation Focal Points in Nepal and Bhutan
- Implement awareness raising events
- Provide trainings and regional ILC for the SAARC states
- Support development of SARSO as RSO

Strengthening Accreditation Networks in Asia-Pacific (SANAP)

Goal / Approach

- Assist APLAC and PAC to improve their ability to support the accreditation systems of DEs
- Develop a joint APLAC/PAC strategy to address the needs of their DE members

Implementation Partners: APLAC, PAC
Implementation Phase: 04/2015 – 03/2018
Project Coordinator: Simon Heisig
Project Assistant: Silke Schierding

Highlights in 2015 and plans for 2016

- Training on Information Security Management System (ISMS)
- Joint APLAC/PAC GA (assistance to non-members)
- Training on ISO/IEC 17020
- PAC/PTB Training on ISO/IEC 17021, ISO 9001, ISO 14001
- Attachment training on ISMS and ISO/IEC 17020
- Joint strategy to support members from DEs

Promoting Regional Cooperation in Metrology

Goal / Approach

- Improve the ability of APMP & APLMF to provide needs-oriented instruments for capacity building to promote the metrological systems of DEs
- NMIs / LMAs implement international good practices
- Mutual support & cooperation: APMP and APLMF

Implementation Partners: APMP, APLMF
Implementation Phase: 01/2014 – 12/2017
Project Coordinator: Dr Kristin Kiesow
Project Assistant: Stefanie Scheschinski

Highlights in 2015 and plans for 2016

- International Cooperation Group
- Strategic Management for Directors of NMIs & LMAs
- Quality Management for NMIs & CMC Preparation
- Legal Metrology Training Courses
- Attachment Training in MiC

Improving Quality Infrastructure in ASEAN

Goal / Approach

- QI institutions are to take into account international good practices when implementing the ASEAN goals in the fields of standards, technical regulations, accreditation, conformity assessment and legal metrology

Main Implementation Partners:
ASEAN Consultative Committee on Standards and Quality (ACCSQ); Related bodies, Horizontal & Product Working Groups
Implementation Phase: 2015 – 2018
Project Coordinator: Andrea Ulbrich
Project Assistant: Barbara Frisch

Highlights in 2015 and plans for 2016

- Support to the ASEAN Consultative Committee on Standards and Quality + WG on Conformity Assessment to develop its own Post-2015 strategy + Work Plan
- Benchmark Metrology Laws of the 10 ASEAN Member States to international best practices
- Support to Cambodia, Lao PDR + Myanmar to establish their own accreditation services based on NAFP concept
- Facilitated Accreditation Partnerships between Viet Nam and Lao PDR and between Thailand and Cambodia

PTB Technical Cooperation Website - <https://www.ptb.de/tc>

MEDEA Project

- Login: medea
- PWD: apmp_aplmf2014

3.9 Report of the Bureau International de Métrologie Légale (BIML) – Mr Stephen PATORAY

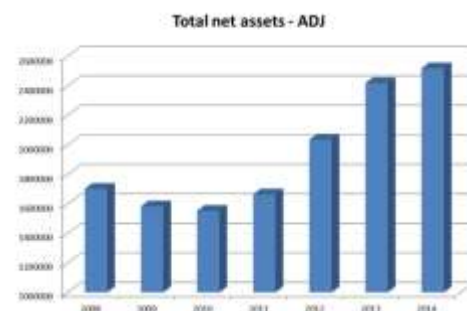
The main focus for the presentation is to update participants on the items that were discussed and resolved at the CIML meeting, which took place last week in France, with 20 resolutions passed at the meeting. Some of these resolutions have been included in this presentation.

Report on BIML Activities

- World Metrology Day – 50,000 hits on 20 May, which was a new record
- Key items leading up to CIML:
 - Continuing development of the new website
 - Project for countries and economies with emerging metrology systems (CEEMS)
 - OIML B 6:2013 Directives for OIML technical work project
 - Certificate System project
- Progress with the new OIML website, with the following features since the last CIML meeting
 - CD voting
 - Written procedures
 - PG workspace
 - CIML registration
 - Review of publications
 - Additional work (Agenda Item 3.2) includes
 - PC Workspace
 - CPR Workspace
 - Review and make improvements to the entire site
 - Collation of comments from a standard comments form
 - Workspaces – CS, B6, RLMO, CEEMS,
 - Reappointment of Convenors
- Personnel – Reappointment of Assistant Director, Willem Kool; Reappointment of Director, Stephen Patoray for a three year term from 1 January 2016 (Resolution 2015/5)
- Membership in OIML – 60 member States and 68 corresponding members



- Financial matters – 2014 Accounts approved and OIML continues in a very solid financial situation. A resolution will be presented at the 51st CIML meeting to close the Translation Centre



Developing countries matters and International Liaison

BIML activities with liaison with other international organisations (BIPM, UNIDO, ACP EU TBT).

Advisory group on countries and economies with emerging metrology systems CEEMS and the Committee resolved at 2015 meeting (Resolution 2015/10, Agenda Item 6.3) to:

- Recognise the continued efforts that are needed to assist in building the capacity of legal metrology institutions and their staff in countries and economies with emerging metrology systems (CEEMS),
- Instruct the Bureau to continue its efforts to participate in capacity building activities through training courses and other regional activities organized by other organizations,
- Express its support for the work of the DCMAS Network,
- Instruct the Bureau to continue to work with the constituent bodies of the DCMAS Network, in particular the BIPM, in identifying new initiatives where the OIML can make a direct contribution
- Instruct the Bureau to further develop the OIML website such that it may be used as a source of up-to-date information on capacity-building initiatives, including training materials and, if feasible, a database of experts available to contribute to such work,
- Endorse the proposal of the advisory group, set up by Resolution no. 2013/9, to establish a “pilot training center” and encourages the authorities in P.R. China to give their full support to this initiative,
- Urge other Member States to study the results of this first pilot and to consider, in the light of an evaluation of the pilot, whether they are able to initiate something similar,
- Urge both Member States and Corresponding Members to consider opportunities to second staff to the Bureau in order to develop the skills and experience of appropriate individuals,
- Request relevant Technical Committees and Subcommittees to take note of the demand from CEEMS to ensure Recommendations take more account of the needs of CEEMS,
- Instruct the Certificate System Project Group (CSPG), established by Resolution 2015/18, to ensure that the needs of CEEMS are addressed in the OIML Certificate System,
- Instruct the Bureau to take account of the need for greater involvement of CEEMS in OIML technical work when further developing the OIML website’s functionality in supporting the technical work,
- Instruct the Project Group for the revision of OIML B 6:2013 *Directives for OIML technical work* (see Resolution no. 2015/13) to take account of the need for greater involvement of CEEMS in OIML technical work when drafting the revision of B 6,
- Urge the conveners of project groups TC 3/SC 6/p 1 Premarket surveillance activities and TC 6/p 5 Guidance for defining the system requirements for a certification system for prepackages to bring their work to a conclusion as soon as possible,

- Urge Member States to be ready to propose conveners for projects to produce other documents proposed during the two seminars organized in 2015,
- Instruct the Bureau to pay particular attention to the role of the OIML Bulletin and the OIML website in facilitating the exchange of new ideas, and in particular new approaches to legal metrology,
- Note the particular contribution that research can play in promoting and evaluating new approaches to legal metrology, and instructs the Director to take this into account when considering projects which can be supported by the special fund created by the 14th Conference,
- Request its President, Vice Presidents and the Bureau to take particular account of the needs of CEEMS when involved in activities related to Objective 5, OIML Strategy (OIML B15:2011).

Liaison – Information regarding the RLMO Roundtable

Technical Activities

- Proposal for a new project to revise B 6. The Committee approved as a new project, the revision of OIML B 6:2013 *Directives for OIML technical work* to be conducted as specified in the project proposal provided in **variant 1** in Addendum 8.2 to the working document for this meeting (Resolution no.2015/13, Agenda Item 8.2).
- The category of OIML publications known as “Basic Publications” (B), which set out the general operating rules of the Organization, are not regarded as representing technical work, however, the rules set out in this document shall apply to the development, revision or amendment of Basic Publications if the CIML so decides for a particular Basic Publication.
- The Committee approved the following draft recommendations (Resolution no. 2015/14, Agenda item 8.3.2):
 - Recommendation: OIML R 139-3 Compressed gaseous fuels measuring systems for vehicles - Part 3: Test report format,
 - Revision of OIML R 79: Labeling requirements for prepackages,
 - New Recommendation: Ophthalmic instruments - Impression and applanation tonometers.
 - The BIML has begun a review process for “out of date and not under revision” Recommendations and Documents
 - There are 65 Recommendations and 10 Documents that are published over 5 years ago and are not currently under revision
 - Three reviews have been completed with the TC or SC--R 76, R 111 and R 18
 - Priority will be given to those in the certificate system and in the MAA

OIML systems

In relation to the report of the ad hoc working group and proposal for new project, (Agenda item 9.1), the Committee:

- Recalled its resolutions nos. 2013/15, 2013/16, 2013/17 and 2014/18,
- Noted the report of the chair of the ad-hoc working group on the review of the MAA (AHWG-MAA),

- Approved the principles for a single OIML certification system (OIML-CS) and the proposal for the structure and organization of such a system, contained in document AHWG-MAA-Doc-1 dated 2015-07-07 (part B of Addendum 9.1 to the working document for this meeting),
 - Thanked the chair and members of the AHWG-MAA for their work,
 - Disbanded the AHWG-MAA,
 - Instructed the Bureau to continue to operate the existing Basic and MAA systems until such time as the CIML approves the OIML-CS and it becomes operational,
 - Encouraged all participants in the existing Basic and MAA systems to fulfill their obligations.
- (Resolution no. 2015/17)**

In addition, recalling its Resolution no. 2015/17 (above), the Committee,

- Considered the proposal of the ad-hoc working group on the review of the MAA,
- Decided to establish a certification system project group (CSPG) to prepare the relevant
 - documents for the single OIML certification system (OIML-CS):
 - a B-type OIML publication containing the framework for a single OIML certification system (OIML-CS),
 - the procedures and operational documents for the single OIML certification system (OIML-CS),
 - the nomination process for membership of the OIML-CS Management Committee
- Requested its first Vice-President to chair the CSPG,
- Requested interested members to participate in the CSPG, or to designate expert representative(s),
- Instructed the Bureau to provide secretarial support to the CSPG
- Instructed the CSPG to take appropriate actions so that the proposed single OIML certification system may become effective 1 January 2017, subject to CIML approval and Conference sanctioning of the B-type OIML publication *OIML-CS Framework Document*,
- Instructed the CSPG to work in accordance with the procedures laid down in the proposed terms of reference (*AHWG-MAA-Doc-5, part F, Addendum 9.1 working document for this meeting*),
- Requested the CSPG to submit the final draft of the framework document for approval at the 51st CIML meeting in 2016, with a view to having the approved publication sanctioned by the Conference in 2016.

(Resolution no. 2015/18)

Other key activities undertaken was also updating website links and approval of project for single OIML Certification System

Awards

The Committee congratulated this year's recipients of the OIML Medal (*Resolution no. 2015/20, Agenda item 12*), for their contribution to the work of the OIML

- Mr. Ngo Quy Viet, Vietnam, and
- Mr. Cartaxo Reis, Portugal

The Committee also congratulated this year's recipients of the *OIML Award for Excellent Achievements in Legal Metrology in Developing Countries*:

- Mr. Nam Hyuk Lim, Director of Korea Testing Certification, and
- The Metrology Department, Saint Lucia Bureau of Standards.

4 Full Member Session

8am – 12pm, Friday 30 October 2015

4.1 APLMF Secretariat – Financial Report

ASIA-PACIFIC LEGAL METROLOGY FORUM FINANCIAL STATEMENT

November 1, 2014 - December 31, 2014

	Estimated Budget Nov.1,2014- Dec.31, 2014 USD1=6.3RMB	Project Total Accounts Nov.1,2014- Dec.31, 2014 USD1=6.3RMB
Income		
Membership Fee 2014	19,475	0
Transmitted Fees	19,575	0
Handling fee & Exchange loss	-100	0
Total balance till Oct.31, 2014	44,803	44,803
Membership Fee 2015		10,800
Transmitted Fees		10,800
Handling fee & Exchange loss		0
Total income	64,278	55,603
Expenses		
APLMF meeting		
21 st Meeting in Wellington	15,000	0
Meeting package		
Travel expenses	7,500	6,623
21 st Meeting in Wellington	5,000	4,494
RLMO and CIML meeting in Auckland	2,500	2,129
Administration	5,081	11,359
Secretariat fees		
Publication	500	8,571
Communication & postal expenses	800	248
Supplies	500	0
Equipment & Rentals	500	0
Hosting	200	0
Personnel	2,581	2,540
Training Course/Seminars	0	0
Total expenses	27,581	17,982
Balance to be reserved	36,697	37,621

1 The 1st column lists the specific income and expenditure items. While the individual items may change.

2 The 2nd column is the budget proposed for 2014.

3 The 3rd column is the total accounts.

ASIA-PACIFIC LEGAL METROLOGY FORUM FINANCIAL STATEMENT

1 January 2015– 30 September 2015

	Estimated Budget 1 Jan- 30 Sept 2015 USD *	Project Total Accounts 1 Jan – 30 Sept 2015 USD *	Project to Dec 31 2015 USD *	Total Account 2015 USD *
Income				
Membership Fee 2015	69,900	50,529	19,475	70,004
Transmitted Fees	70,200	50,625	19,575	
Handling fee & Exchange loss	-300	-96	-100	
Total balance forward from 2014	37,621	37,621		37,621
Total income	107,521	88,150	19,475	107,625
Expenses				
APLMF meeting	25,000	9,553	15,447	25,000
22 nd Meeting in Hawaii				
Meeting package				
Travel expenses	18,000	5,852	12,000	1,7852
22 nd Meeting in Hawaii	7,000	0	7,000	
RLMO & CIML meeting, Arcachon	5,000	0	5,000	
CC Kick-off Workshop for International Cooperation Group	1,000	930		
APLMF Secretariat Transfer Meeting	5,000	4,922		
Administration	25,000	21,155	7,262	28,417
Secretariat fees				
Publication		1,587	500	
Communication & postal expenses		837	800	
Supplies		1,048	500	
Equipment & Rentals		3,397	500	
Hosting		0	200	
Personnel		14,286	4,762	
Training Courses/Seminars	5,000	5,453	1,000	6,453
MEDEA: Training Course on Prepackaged Goods in May- in Indonesia	1,000	837		0
Publication		0		
Supplies		137		
Equipment & Rentals		0		
Meals & Reception		700		
Travel expenses		0		
Services				
MEDEA: Train the Trainer Course on the verification of Fuel Dispensers (June, Thailand)	1,000	949		0
Publication		149		
Supplies				
Equipment & Rentals				
Meals & Reception				
Travel expenses		800		
Services				
MEDEA: Trainer Course on the Verification of Taxi Meters (Julian China)	1,000	2,833		
Publication				
Supplies				
Equipment & Rentals		124		
Meals & Reception				
Travel expenses				
Services		2,709		

	Estimated Budget 1 Jan- 30 Sept 2015 USD*	Project Total Accounts 1 Jan – 30 Sept 2015 USD*	Project to Dec 31 2015 USD*	Total Account 2015 USD*
MEDEA: Training Course on Verification Calibration of CNG Dispensers(September, Malaysia) Publication Supplies Equipment & Rentals Meals & Reception Travel expenses Services	1,000	834 167 667		
MEDEA: Training Course Traceability in Rice Moisture Measurement (November, Cambodia) Publication Supplies Equipment & Rentals Meals & Reception Travel expenses Services	1,000	0	1,000	1,000
Total expenses	73,000	42,013	35,709	77,722
Balance to be reserved	34,521	46,137		29,903

* **Exchange rate** used USD1=6.3RMB

Structure of the APLMF Membership Fees 2015

Category	Fees	Economy
1	US\$675	Cambodia (Lao PDR)
2	US\$1,350	Indonesia, Malaysia, Mongolia, Papua New Guinea, Philippines, Thailand, Vietnam, DPR of Korea (Chile, Columbia, Mexico, Peru)
3	US\$2,700	Hong Kong China, New Zealand, Singapore
4	US\$5,400	Australia, Canada, People's Republic of China, Republic of Korea, Chinese Taipei (Russian Federation)
5	US\$10,800	Japan, USA

NOTE1: Corresponding member not yet categorized: Brunei Darussalam.

NOTE2: Parentheses: Corresponding member economies.

Payments of the APLMF Membership Fees 2015 *as of September 30, 2015*

Category	Annual Fees (USD) 2014	Number of Full Member Economies	Fees (USD)	
			Projected	Received
1	675	1	1,350	675
2	1,350	8	17,550	9,450
3	2,700	3	8,100	8,100
4	5,400	5	32,400	21,600
5	10,800	2	21,600	21,600
Total			81,000	61,425

* Unpaid membership fees of the past years USD\$19,575 are included in the projected amount.

4.2 APLMF Secretariat – Work Programme

Work Plan Summary of Proposed Activities of Working Groups 2016

Working Group on Training Coordination

Four training courses proposed for 2016 as part of the MEDEA / APLMF joint project (as listed in the table below).

Course	Host Economy	Trainers	Schedule
Verification of Standards: mass, volume, length	Indonesia	Japan	May 2016
Verification of Bulk Flow Meters for petrol and diesel	Japan	Japan/Thailand	June 2016
Verification of Fuel Dispensers	Thailand	Thailand, Australia + two more trainers from DEs	July 2016
Verification of NAWI: supermarket scales	Malaysia	Australia, Indonesia	2016

The Working Group is planning a survey to assist in developing a guide for verification of measuring instruments

Working Group on Goods Packed by Measure

1. TC6 Secretariat due to send out Committee Draft 2 of the guidance document for 'Defining the System Requirements for a Certification System for Prepackages' during the next year. Once received, it will be distributed to all APLMF members and comments requested.
2. The chair of the working group will collate the responses and submit them on behalf of APLMF.
3. Continue to develop guides for determining the actual quantity of specific product types.

4. This group will continue collaboration and reporting to economies on the work of OIML Technical Committee 6; Pre Packaged Products in relation to:
 - Further developments of the guidance document for 'Defining the System Requirements for a Certification System for Prepackages'
 - Revision OIML R79: Labelling for Pre-packaged Products
 - Revision OIML R87: Quantity of Product in Pre-packages

Working Group on Utility Meters

1. Training delivery in accordance with outcome of the 2015 APLMF meeting.
2. Follow and/or participate in OIML TC (Technical Committee) work related to utility meters and inform APLMF members of progress and issues.

Working Group on Mutual Recognition Arrangement

1. Continue supporting the OIML MAA (Mutual Acceptance Arrangement) and not develop a regional MAA.
2. Closely follow and report on the progress and work of the OIML-CS Project Group (CSPG) that is preparing a new Framework Document and other more detailed documents, for proposing at the CIML Meeting and OIML Conference in 2016, in anticipation of a new OIML-CS.

Working Group on Medical Measurements

Collecting the Medical Instruments Adverse Report framework information in Asia Pacific region.

Objectives

- To construct a picture of the system of adverse report of medical instruments in Asia Pacific region
- To address the threaten of malfunction/inaccuracy of medical measurement instruments;
- To bridge the dialogue between metrology authority and health authority

Approach

Design and disseminate a survey to collect the mechanisms of the system of adverse report of medical instruments in Asia Pacific region.

Working Group on Quality Measurements of Agricultural Products

1. Plan the next training course on grain moisture measurement and call for another host economy
2. Drafting of the APLMF guide document on grain moisture measurement
3. Contributing to the OIML TC 17/SC 1 and TC 17/SC 8
4. Monitoring activities of BIPM and APMP on grain moisture measurement
5. Supporting MEDEA training courses

Working Group on Metrological Control System

1. Associate with other Working Groups to draft the guidelines.
2. Plan to hold a Workshop of the Metrological Control System in China

Work Plan of the new APLMF Secretariat in 2016 – Mr Stephen O’Brien,

1. Complete the transfer of the APLMF website and bank account to New Zealand in close collaboration with Chinese Secretariat (November 2015).
2. Complete review and update the APLMF website, which will be in two stages. The initial stage will be the transfer of the material and uploading any updated information and is expected to be completed by November 2015. The next stage will involve a more detailed update and refresh of the website to be completed in mid-2016, based on feedback and reaction from APLMF members on the initial website.
3. Contact APLMF member economies to update their directory information on legal metrology and contact details. This information will be kept up to date and published on the APLMF website so it can be a useful reference for member economies and industry.
4. Document and consolidate the member comments and suggestions collected during the short workshop held during the 22nd APLMF Working Group meeting. Document will be circulated to all APLMF members and considered by APLMF Secretariat and Executive Committee for possible inclusion in future APLMF work programme or strategic plan.
5. Develop and circulate bi-monthly electronic newsletter to be sent to all APLMF members, BIML and the secretariats of APMP and Regional Legal Metrology Organisations.
6. Continue to represent APLMF on MEDEA Development Project Steering Committee and support planned project work stream activities.
7. Maintain and strengthen our working relationships with OIML, APMP, regional legal metrology organisations, APEC, and other organisations. In terms of attendance at international meetings, such as representing APLMF at upcoming APEC meetings, Mr O’Brien advised that no decisions had yet been made, and he would be seeking advice from the current Secretariat on what meetings is appropriate to attend during the first year.

5 Member Economy Reports

5.1 Australia

National Measurement Legislation -

Recent minor amendments to the *National Measurement Regulations 1999* (Cth) have increased the fees levied for the examination and certification of patterns of measuring instruments by the National Measurement Institute (NMI). These reflect the increased costs of providing these services. These amendments were in two parts. The first increased the fees by 2.9% from the 1st July 2014. The second, completed at the end of 2014, included a fee indexation provision: fees will increase by an amount based on the annual change in the Consumer Price Index in Australia over the previous twelve months on the 1st July each year commencing from 2015.

Amendments were also made to the *National Trade Measurement Regulations 2009* (Cth):

- The amendments established a servicing licensee competency framework by prescribing a condition that applied to all servicing licensees from 1 January 2015. The new condition requires all verifiers under each servicing licence to hold a Statement of Attainment for any measuring instrument they verify. This is similar to the condition that was previously on servicing licences.
- There was also a new regulation that applied to all public weighbridge licences from 1 January 2015. The new regulation requires at least one person under the public weighbridge licence to hold a Statement of Attainment in order to operate a public weighbridge.

Government's Regulatory Reform Agenda

The Australian Government is committed to a regulation reform agenda that will drive productivity and efficiency gains within the economy. Key features of this agenda include:

- reducing the regulatory burden for individuals, businesses and the community by at least \$1 billion per year; and
- examining opportunities for greater acceptance of trusted international standards and risk assessments as part of the Government's Industry Innovation and Competitiveness Agenda.

In the first year of the Government's regulation reform agenda, Commonwealth portfolios reported over 600 decisions which, when fully implemented, will elicit net savings in compliance and delay costs of approximately \$2.3 billion.

To help achieve this, NMI has been actively pursuing reforms to reduce compliance costs on businesses. NMI ran a public consultation process to seek feedback from stakeholders on the scope for reducing regulation around the National Instrument Test Procedures (NITPs) system and what net savings for industry, Government and consumers any reform may deliver.

The consultation sought stakeholder input on the use and effectiveness of the NITPs, as part of the trade measurement system and the scope for improvements that may reduce the regulatory burden on business and servicing licensees.

The consultation process involved the release of a consultation paper outlining the issues under review on the Department's consultation website. The consultation was open for a period of 30 days, from 27 May to 25 June 2015.

The majority of respondents were servicing licensees, accounting for 72 per cent of submissions, with the balance from businesses using trade measuring instruments (14 per cent) and government agencies or individuals (14 per cent).

In line with stakeholder feedback, the NITPs will remain mandatory. As such, servicing licensees will continue to be required to follow the test procedure detailed in the relevant NITP.

Utility Metering

Australia commenced consultation in August 2015 on the pattern approval standards for electricity meters. This consultation is considering the adoption and scope of OIML R 46 and also other trusted international standards for various types and uses of electricity meters. Different types and uses include electric vehicle charging, individual street light metering, solar power purchase agreements and sub-metering.

Australia has adopted OIML R 137 as the national pattern approval standard for gas meters. Australia is currently developing verification requirements and test procedures for gas meters.

Australia has now adopted the 2013 edition of OIML R 49. This replaces the adopted 2006 edition of OIML R 49 as the national pattern approval standard for water meters for cold potable and hot water. Previous restrictions on the approval of hot water meters have also been removed. Australia will now pattern approve hot water meters in accordance with the new standard.

The exemption in the *National Trade Measurement Regulations 2009* was lifted on 1 July 2014 for all cold water meters with a maximum continuous flowrate of less than or equal to 16,000 litre per hour. As a result, pattern approval and verification is now mandatory for these water meters.

NMI will soon commence a review of the verification requirements of utility meters. This will involve a review of NITP 14 as well as the conditions and requirements regarding the appointment of Utility Meter Verifiers.

Conformity to Type (CTT)

Within Australia, NMI continues to promote the introduction of CTT in sectors where few companies buy large number of measuring instruments. Considerable progress has been made in the water utility area where a joint industry-NMI code of practice has been developed with the Water Services Association of Australia.

Australia has now completed the 2014/2015 CTT testing program with industry members in accordance with the codes of practice. The results were reviewed and consolidated by NMI and supplied to participating industry members. The program was reviewed at an industry workshop in July 2015, where it was agreed to continue to run the program into the future. NMI will coordinate the next CTT testing program which is expected to commence in 2016. It is anticipated that CTT will flow on to other classes of utility meters in due course.

Quality Measurements

OIML TC 17/SC 8 is responsible for the development of a new OIML Recommendation on protein measuring instruments. Australia, as the convener of TC17/SC8/p1, submitted the Draft Recommendation to the International Bureau of Legal Metrology (BIML), for a preliminary ballot by all OIML member States. The Draft Recommendation has been uploaded on the OIML website and votes are due by 13 November 2015.

Training

Australia continues to require evidence of competence from verifiers and weighbridge operators. Since 1 January 2015 as a change to the national legislation, all verifiers must hold a Statement of Attainment in order to verify measuring instruments. Most existing verifiers are now compliant; almost 300 new applications for competency assessment have been received this year. Industry members are aware that they are required to ensure their employees are competent.

Attendance at NMI training courses is reducing as most employees of licensees have attended training already. Our eLearning (online) programs continue to be successful and a new program for verifiers of fuel dispensers will be available early in 2016.

The servicing licensee and public weighbridge industries have given overwhelming support for the competency assessment program and acknowledge the program is adding value to their businesses and the national system of trade measurement. Statements of Attainment are increasingly being stipulated as a prerequisite for contracts or for employment.

The majority of licensees and their verifiers now comply with the competency requirements.

Trade Measurement Services (Inspectorate)

Since July 2010, NMI has trained and appointed 29 new officers as trade measurement inspectors. It is anticipated that an additional five assistant officers will be employed during this financial year.

Trade Measurement Services (TMS) acquisition of the new weighbridge test unit with a capability of carrying 22 tonne of 1 tonne weights and a forklift to test weighbridges throughout Australia has significantly reduced the time on-site to conduct the test and the downtime disruption to industry. TMS has three test units all carrying the same design weights.

NMI is currently in the process of leasing and fitting out new premises in Adelaide and Perth moving. Both these new sites will include a measurement laboratory accredited by the Australia's National Association of Testing Authorities and a training room suitable for up to 12 attendees.

NMI is currently in consultation with the Waste Industry in Australia as recent environment legislation amendments have caused charges changing from a charge per pick up or volume rates to a weight based system. This has resulted in the waste industry fitting on-board weighing system to the trucks and the need for trade approved weighing system to be installed on the trucks. At present there is a small number of trade approved systems available in the market which meet the Industry's requirements.

In May 2015, NMI launched a program targeting the remote areas of Australia with an emphasis on visiting remote indigenous communities. The scope of the program, (which is on-going) is to reach

remote communities providing the community members with the same levels of consumer protection and education as is afforded to the rest of the Australian population. To the end of July 2015 trade measurement inspectors have visited 259 traders within 126 indigenous community sites and their surrounding areas. The visits have included testing measuring instruments, check measuring pre-packed articles, conducting trial purchases, conducting verifier instrument audits and conducting tobacco plain packaging inspections (on behalf of the Australian Department of Health). While a number of minor breaches have been identified, education has been the approach taken to date.

Between July 2014 and June 2015, trade measurement inspectors continued inspections of imported prepackaged items at retail outlets and importers premises. During this period, 151 traders were visited, including 45 follow-up visits in relation to legislative breaches identified during the initial visit. The shortfalls were all low range however, of sufficient significance to issue around 20 infringement notices and warning letters (13 percent serious non compliance). This program is continuing in the financial year 2015-16.

5.2 Canada

Authorized Service Providers for device inspections

As of August 31, 2015, there were 207 organizations authorized to perform inspections of mass, volume, electricity and natural gas measuring devices on behalf of Measurement Canada (MC), which represents an increase of 29 compared to last year. This significant increase is a direct impact of amendments to the Weights and Measures Act and Regulations which came into force on August 1, 2014.

The vast majority of these organizations are located across Canada but 9 are located in the United States and Mexico due to the North American Free Trade Agreement. All authorized organizations were closely monitored and subject to audits and follow up inspections.

Timber Dimensional Measuring Devices (TDMD)

Measurement Canada (MC) published the Terms and Condition (T&C) for the Evaluation of Timber Dimension Measuring Devices in the early summer of 2014.

So far, Measurement Canada and industry have run several tests of existing scanners in order to better understand their operation and use and to develop appropriate test procedures and standards. Manufacturers are using this information to help them make the necessary modifications to the devices so that they may be submitted for approval examination.

Measurement Canada is ready to evaluate TDMD for type approval. As of October 2015, no type approval has yet been issued by MC for a TDMD.

Liquefied Natural Gas (LNG)

Interest in LNG has waned slightly over the last year or so. Speculation is that this may be due to the worldwide drop in conventional crude prices. A major engine manufacturer in Canada has ceased production on a high horsepower commercial engine as well which may have tempered interest in

LNG fuel use for commercial applications. However, MC has evaluated several LNG dispensers against MC requirements (Terms and Conditions) and continues to work on test procedures to address issues which have arisen during these evaluations. No decisions have been made as how to address subsequent on-site inspections of LNG measuring devices, especially larger installations where suitable test equipment becomes increasingly difficult to obtain and product handling is a concern.

National Technical Training Program

Through its National Technical Training Program, Measurement Canada continued to create videos on best inspection practices. Presently, thirteen (13) such videos have been produced as follows:

- *Fair Measure for All* (2012), video DVD, 15 minutes in length, presents Measurement Canada's history, mission, and mandate.
- *Signed, Sealed, Delivered*, interactive CD, 12 minutes in length, training module on the sealing of devices inspected under the *Weights and Measures Act*.
- *The Device Inspection Certificate*, interactive CD, 60 minutes in length, training module on how to fill out a Device Inspection Certificate in an accurate and concise manner under the *Weights and Measures Act*.
- *Retail Computing Scales: Standard Test Procedures (STPs) Demonstrated*, interactive CD, 40 minutes in length, training module on the application of standard test procedures for the certification of retail computing scales inspected under the Non-Automatic Weighing Device Specifications (NAWDS) pursuant to the *Weights and Measures Act*.
- *Retail Petroleum Dispensers with ATC: Standard Test Procedures (STPs) Demonstrated*, interactive CD, 40 minutes in length, training module on the application of standard test procedures for the certification of retail petroleum dispensers with automatic temperature compensation (ATC).
- *Vehicle Scales: Standard Test Procedures (STPs) Demonstrated*, interactive CD, 40 minutes in length, training module on the application of standard test procedures for the certification of vehicle scales pursuant to the *Weights and Measures Act*.
- *Truck-Mounted Petroleum Metering Assembly: Standard Test Procedures (STPs) Demonstrated*, interactive CD, 40 minutes in length, training module on the application of the Standard Test Procedures to be accomplished before certifying a Truck-Mounted Petroleum Metering Assembly pursuant to the *Weights and Measures Act*.
- *Electricity Metering Installation Inspections: Recommended best practices demonstrated*, interactive CD, 45 minutes in length, training module on the application of the best practices to adopt while inspecting a complex electricity metering installation pursuant to the *Electricity and Gas Inspection Act*.
- *Gas Measuring Apparatus Certification*, interactive CD, 43 minutes in length, training module on the application of the best practices to adopt while undertaking the certification of gas measuring apparatus pursuant to the *Electricity and Gas Inspection Act*.
- *Practical Evaluations: A "how-to" guide*, interactive CD, 45 minutes in length, a guide for evaluators and those being evaluated on the application of Standard Test Procedures (STPs) for devices inspected pursuant to the *Weights and Measures Act*.
- *Class III Weighing Devices: Standard Test Procedures (STPs) Demonstrated*, interactive CD, 40 minutes in length, training module on the application of standard test procedures for the

certification of Class III platform (electronic and mechanical) scales inspected under the Non-Automatic Weighing Device Specifications (NAWDS) pursuant to the *Weights and Measures Act*.

- Electricity Metering Installation Inspections of Multiple Customer Metering Systems (MCMS): Recommended best practices demonstrated, interactive CD, 45 minutes in length, training module on the application of the best practices to adopt while inspecting MCMS installations pursuant to the Electricity and Gas Inspection Act.
- Authorized Service Provider Training: The basics: A 20 minute DVD that walks Authorized Service Providers and their candidates through the training process leading to technician recognition.

The target audience for all of the videos are Measurement Canada inspectors and technicians employed by Authorized Service Providers recognized by Measurement Canada. All the materials are delivered in both official languages and pertain exclusively to Canadian legislation.

5.3 People's Republic of China

Metrology law

The core is to amend "Metrology Law" thus to promote steady progress of metrology regulatory system. Continue to carry out and the revision of rules and regulations after revision of "Metrology Law", and adjust the scope and management method of mandatory verification.

Technical regulations

Systematic consolidate metrology technical regulations (MTR), and to expedite the revision of MTR which lag in technology and with heavy demand. Seminars of MTR on economic development, national security and key issues in people's daily life were held. Further strengthen the management of the Technical Committee, and increase the publicizing work of MTR.

Legal metrology work

With the target of enhance the quality of measuring instruments, improvements the examination rate of measuring instruments and promote the ability of risk prevention of measurement, series of measuring instruments product quality supervision and inspection, and further work of mandatory verification and metrology risk assessment were carried out. A comprehensive survey and recording of key measuring instruments was implemented. Fuel dispensers, scales, taxi meter and utility meters and such mandatory verification measuring instruments which closely related to daily life was strengthened. A series of supervision and inspection of food and cosmetics packages was carried out.

Legal units

On the occasion of "Measuring Law" was issued 30 years, coordinated with relevant departments to supervise and inspect the implementation of legal units in press, radio, television and other publication area. Continued promoted the reform of quantity and unit in the field of ionizing radiation national wide.

Metrology system

Energy metrology service system

The inspection of national urban energy metrology centre was completed followed by relevant check and acceptance standards, 24 of them were recognized. Overall inspection reports were organized to draft.

Supervision and inspection of energy metrology

Completed review on key energy consumption units, continued organized special supervision and inspection on energy efficiency, organized inspection agencies to track energy efficiency labelling on energy conservation products.

Credible metrology system

Continued carried out project on "Metrology benefit people's livelihood, credible benefit harmony". Research of credible metrology system action plan (2015-2020) was developed and implemented with the way of explore the establishment departments including administrative, technology institutions, manufacture, retailer and end user.

National industrial metrology service system

Strengthened basic research on development of industry metrology test centre (IMTC) construction, further improved the relevant rules of reporting, inspection, etc. of IMTC. Strengthened the guidance for the preparation of IMTC, and promoted acceptance of units which requirements are mature.

Metrology service to industrial

Organized metrology institutions to go depth in to manufacture to understand the needs and improve service capabilities. Promoted classification guidance to pursued certification of "Metrology management system" for big & medium sized enterprises, and helped small and micro enterprises to consolidate the basis of metrology.

National traceability system

In order to promote the improvement of traceability of key unit, research on more scientific and effective management of traceability system was launched. Also activities were carried out to strengthen management of reference standard, management and assessment of measurement standards and verification officer.

Technical institution

Setting of metrology technical institutions and agencies was reformed with the cooperation by local government and AQSIQ. A guide on "Promote the reform, innovation and development on metrology technology institutions of quality and inspection system" was issued.

Calibration measurement capability

National calibration measurement capabilities (CMCs) were strengthened. Existing CMCs are 1224.

Information technology

Strengthened the use of cloud computing, big data and other information method to integrated and analysis information resources, thus to establish and improve pilot basic services platform of metrology information. The role of testing and sensor technology was enhanced to support infrastructure of "Internet of Things".

International & regional cooperation

Continue to cooperation with Germany, Britain, Switzerland, Netherlands, and other European countries, to implement bilateral cooperation agreements. Deepen mutual cooperation and interconnection with neighbouring countries, support Cambodia, Kazakhstan and other neighbouring countries. Work actively on OIML Advisory Group and APLMF secretariat and made contribution on above organization.

- OIML Seminar on "Legal Metrology in daily life" held in Chengdu in May.
- Workshop on redefinition of SI held in Xian in June.
- MEDEA: Training Course on verification on Taxi Meters held in Shanghai in July.
- Chinese-Russian Meeting on Energy Metrology held in Chengdu in June.
- Chinese-Japanese Regular meeting of Metrology will held in Tokyo in December.
- Chinese-Japanese-Korean Conference on Metrology will held in Jeju in November.

Publicizing and culture

First metrology stamp was issued in "World metrology day". Activities with the theme of World Metrology Day were organized actively. Theme activity "Metrology people around me" was carried out.

5.4 Japan

Technical requirements of measuring instruments in JIS

The technical requirements in Measurement Law have been transferred into JIS (Japan Industrial Standard) in order to catch up with up-to-date technological development. Most of these standards are based on OIML Recommendations although some of them include our original requirements. Table 1 shows current situation of these activities.

TABLE 1: TECHNICAL REQUIREMENTS TRANSFERRED INTO JIS

OIML Recommendations used as the basis of JIS	JIS numbers correspond to the OIML Recommendations
R 49-1/2 Water meters	JIS B 8570-2:2013
R 80-1 Road and rail tankers with level gauging	JIS B 8573:2011
R 101 Recording pressure gauges with elastic sensing elements	JIS B 7505-2:2013
R 16-1 Mechanical non-invasive sphygmomanometers	JIS T 4203:2012
R 117-1 Dynamic measuring systems for liquids other than water	JIS B 8574:2013 (covers only LPG dispensers for motor vehicles)

R 21 Taximeters	JIS D 5609:2014
R 7 Clinical thermometers, mercury-in-glass with maximum device	JIS T 4206:2014
R115 Clinical electrical thermometers with maximum device	JIS T 1140:2014
R 75-1/2 Heat meters	JIS B 7550:2014
R 76-1 Non-automatic weighing instruments	JIS B 7611-2:2015
R 107-1 Discontinuous totalizing automatic weighing instruments (totalizing hopper weighers)	JIS B 7603:2015

Participation in the OIML Activities

Since October 2013, Dr Yukinobu Miki, as Director of National Metrology Institute of Japan (NMIJ), has served as the second CIML Vice President. As a part of its responsibility, he also chairs the RLMO (Regional Legal Metrology Organization) Round Table attended by the APLMF representatives.

Regarding OIML MAA, NMIJ has been an Issuing Participant for OIML R60 (Load Cell) and R76 (Non-automatic Weighing Instruments) since 2006. Japan recognizes the significance of MAA in order to facilitate the international harmonization in legal metrology. At present, NMIJ is actively submitting comments to the AHWG (Ad-hoc Working Group) to review and reform the current OIML certificate system which is in progress in CIML.

As a domestic activity, there are many mirror committees corresponding to OIML TCs/SCs which are composed of the members of Ministry of Economy, Trade and Industry (METI), NMIJ and manufacturers belonging to the Japan Measuring Instruments Federation (JMIF). These committees actively support OIML through discussing approximately thirty issues of revisions (or new drafts) of OIML documents in one year. The committees submit our comments and votes to most of these issues.

Cooperation with APLMF

Since 2001, we have supported the APLMF WG on Quality Measurement of Agricultural Products. This WG will be conducting the next training course on rice moisture measurement in Phnom Penh in November. Since 2013, Japan provided two members for the CC (Coordination Committee) of the MEDEA project supported by PTB in Germany. These members attended the workshop in PTB in March in this year as well as many online meetings. We will also support training programs of MEDEA to be conducted in 2015-2016.

Other training activities

The multi-lateral training program of JICA (Japan International Cooperation Agency) in legal metrology has been suspended since 2011. Instead, a new bilateral program with India was accepted by JICA for FY2014-2015.

As original activities organized by NMIJ, we conducted three programs in the past year. (1) A chemical metrology seminar was conducted in Bangkok in November 2014 in collaboration with TISTR and NIMT that targeted trace elements analysis in brown rice. (2) A short-term training course was conducted in NMIJ in December 2014 on electricity and water meters with two trainees from NMC (National Metrology Centre) of Cambodia. (3) A seminar titled “collaboration in advancement

of manufacturing technology utilizing Digital Engineering” was conducted in NMIJ in February 2015 with ten participants from Thailand.

Reorganization of NMIJ

In April, 2015, NMIJ was reorganized and now consists of the following research institutes, a division and a centre in AIST (National Institute of Advanced Industrial Science and Technology).

- 1) Research Promotion Division
- 2) Research Institute for Engineering Measurement
- 3) Research Institute for Physical Measurement
- 4) Research Institute for Material and Chemical Measurement
- 5) Research Institute for Measurement and Analytical Instrumentation
- 6) Centre for Quality Measurement of Metrology

However, the name of the entire institute (NMIJ) does not change and Dr Miki still serves as the representative of NMIJ. For activities in legal metrology, the Institute (2) is responsible for technical services and the centre (6) is in charge of management.

5.5 Republic of Korea

Legal Metrology System

The **Korean Agency for Technology and Standards (KATS)** is authorized to legislate and manage the legal metrology system of Korea pursuant to Measures Act. With a view to increasing consumer protection and fair transactions, the amendments of Measures Act and related ordinance have been finished this year. Of course, technical regulations have been harmonized with OIML Recommendation, including non-automatic weighing instruments (OIML R 76). Further, we plan to prepare the technical regulation of the meter of electric vehicle charger. Korea Testing Certification will present the electric vehicle charger meter.

KATS has also revised requirements of self-declaration to encourage the manufacturer to practice voluntary quality control.

Efforts for Development of Industry and Technology

KATS has conducted a research in collaboration with Korea Testing Certification to develop the portable test equipment for residential utility meters, including heat meter, gas meter and watt-hour meter. When an abnormality occurs in a measuring instrument on site, most performance tests are carried out in the laboratory, which costs time and money. The portable device capable of on-site inspection of meters has been developed to reduce these inconveniences as well as to increase trust in measuring performance.

Utilizing the portable test equipment is expected to gain the following benefits. First, on-site civil complaints occurring between the administrator and the user will be alleviated. This means when arguments regarding bills occur, inspection can be carried out through an on-site visit, then time and money can be saved and consumer complaints can be promptly resolved.

Secondly, accurate prediction of replacement of measuring instrument is possible so as to avoid unnecessary disposal of the equipment.

KATS also conducted a survey to study a current status of metrology industries. All related businesses were questioned to probe their conditions and situation, including the number of staff and the volume of trade. This collected data will be used to develop policy to nourish the metrology industry.

Others

KATS hold the 45th Metrology & Measurement Day last week to commend industries and individuals for their dedication for the development of metrology. Five industries and 20 persons were awarded for their contribution.

As one of KATS' ongoing efforts to promote using SI units, we had a Kids' Poster and UCC Competition.

Web-based management system for metrology initiated in 2013 is now fully operated, providing real-time information on metrology system, type approval and verification



5.6 New Zealand

New international requirements to obtain a verified gross weight of a shipping container

The International Maritime Organisation (IMO) has amended the document 'Safety of Life at Sea 1974' (SOLAS), which may have impact on an economy's legal metrology infrastructure. The SOLAS provides the minimum safety standards in construction, equipment and operation for merchant shipping.

Maritime NZ is the New Zealand organisation responsible for ensuring the requirements of the SOLAS are complied with and introduced appropriately. The amendments have introduced a new

requirement that all packed shipping containers must have a 'verified gross weight statement' provided to the 'Master of the Port' prior to being loaded onto a vessel.

The new requirements will provide a fair commercial platform for all exporters and strengthen the health and safety protection for the vessel, road vehicles transporting containers and port workers.

The requirement was introduced following a number of high profile disasters such as:

The **MSC Napoli**, which ran aground in January 2007.

Investigations found that a crack in the hull was the result of excess loading on the structure of the ship. Containers exceeding their stated capacity caused the structure to crack and forced the captain to run the vessel aground in order to save the ship. Financial cost to rectify **MSC Napoli** was US\$185 million.



The investigation to determine why the stack of containers collapsed on the **Ital Florida**, while at sea, revealed heavier containers had been stacked at the top of the stack. This was due to incorrect weight declarations provided to the port officials.

In 2013 the shipping vessel 'Mol Comfort' sank with 4500 packed containers on board off the coast of Yemen. Suspected cause was overloaded containers causing stress on vessels hull. The sinking of the **MOL Comfort** bore a financial cost of US\$523million.



New SOLAS requirements

The new SOLAS requirements come into force on 1 July 2016 and they provide two options for determining the 'verified gross weight statement', these are:

- **Method One** - weighing the packed container using calibrated and certified equipment; or
- **Method Two** - weighing all packages and cargo items, including the mass of pallets, dunnage and other securing material to be packed in the container and adding the tare mass of the container to the sum of the single masses, using a certified method approved by the competent authority of the state in which packing of the container was completed.

The verified weight must be signed by a person authorised to do so by the shipper. It must also be submitted to the Port, sufficiently in advance of loading, to be used in the stowage plan. Where an accurate verified weight is not provided, the port master or representative will be obliged to refuse to load the container.

Trading Standards has been working with Maritime NZ since January 2015 on how to best introduce these new requirements with minimum compliance costs to businesses and regulators. A consultation document has been circulated to industry providing three options for their introduction:

- Adopt the internationally recognised weights and measures requirements enforced by Trading Standards, which include weighing instruments being trade approved and verified.
- Maritime NZ to develop a parallel certification system which would run in parallel to the current Trading Standards system
- Industry to self-certify the weighing instruments to a standard they deem acceptable.

Trading Standards preferred option is to adopt the existing weights and measures system. In addition to the common weighing instruments currently available for determining container weights, such as weighbridges and an 'on-board weighing system directly installed in forklift mechanism', Trading Standards has experienced an increase in innovative instruments being submitted for approval testing. These include:

1. **Lifting Jacks** - <http://www.bison-jacks.com/>



2. **Load Shackles** – loadcells acting as the pin of a shackle



Improving the accuracy of New Zealand's milk collection instruments

Trading Standards were approached by Fonterra Co-operative Group (Fonterra), who is New Zealand's largest milk processing company. During peak season, Fonterra collects 90 million litres of milk per day, processes on average 15 billion litres of milk per annum in New Zealand and 22 billion worldwide.

Trading Standards were requested by Fonterra for assistance on a project to reduce the standard deviation from their milk measuring systems. Any improvement in accuracy would significantly reduce total variation in measurement across its operations and also result in a range of productivity gains such as improved forecasting for processing plants and global markets.

Fonterra has a fleet of 600 milk tankers for milk collection. Each tanker is equipped with a PD340 trade approved flow meters to measure the collected milk.

There were nine 2000 L and nine 400 L working standards of volume located throughout New Zealand that were used for verifying the flow meters. Each measure was constructed differently and the tolerance range applied was +/- 2L and +/- 0.4L respectively.



Following an extensive consultation period with Fonterra management the following was agreed and introduced.

- To design and develop a new indicator/controller unit and this was consequently approved by the National Measurement Institute, Australia. The SMART solutions control/indicator unit is user interactive to facilitate additional functions related to milk collection and records other useful measurement data. The measured data can be read in 0.1 L scale interval for the calibration and testing purposes.
- A new 2600 L and a 400 L volume measures were manufactured for each of the 33 processing sites located in New Zealand. The measures were identical to reduce variation. The larger measure was increased from 2000L to 2600L to take into account an increase in flow rate so that when calibrating the flowmeter, the maximum flowrate could be maintained for 1 minute, which is in line with international best practise.
- Following the manufacture, all measures were verified volumetrically so they could be put into use for calibrating the milk flow metering systems.



The next stage to reducing the standard deviation is to move from volumetric verification of the working volume standards, which provides a tolerance, to gravimetric verification that would provide a precise actual value. The gravimetric method allows the volume to be determined by weighing the volume measure on a weighing instrument against standard weights of known mass and density.

By changing from verifying the measures volumetrically using tolerances to gravimetrically where an actual value can be provided, it will minimise variations and results and improve the standard deviation value. Once established the flow meters for milk collection should provide increased confidence in measurements for both the dairy farmer and processing plant.

Once the system is set up and established in New Zealand, it is intended to be replicated in their other milk collection sites across the world, which includes Australia, China and Brazil.

Determining density for carbonated liquids

Following on from last year's economy report, developing a testing procedure for determining the density of a carbonated liquid continues to progress. New Zealand has engaged a scientific metrologist from the Measurement Standards Laboratory to research and develop a two tier approach for density determination.

1. A high level accurate method that can be used in the laboratory to determine density for enforcement purposes and to confirm the second tier method.
2. A second tier method for determining density which is:
 - a. suitable for use by economies with emerging infrastructures and smaller manufacturers (micro-breweries),
 - b. a straightforward procedure that can be used by small to medium manufacturers,
 - c. low cost,
 - d. reliable and repeatable.

As the bubbles within a carbonated drink are an integral part of the product and consumed, these will have to be included in any density calculation. Part of the research will involve determining the difference in densities between carbonated drinks with bubbles and carbonated drink that has been de-foamed using an agent like Octonol-1.

The OIML G14 document already provides a method for determining the density of a carbonated beverage that involves marking a line on the actual fill level of the bottle neck, replacing the carbonated liquid with distilled water, which then allows the density to be calculated. This method is suitable for containers that are non-deformable and transparent. It is therefore not suitable for dark bottles as the meniscus is not clear, plastic bottles which are not rigid and cans. The scientific metrologist has also concerns with the level of uncertainty introduced by the procedure, as it can be very subjective for the operator to accurately mark a line at the correct point.



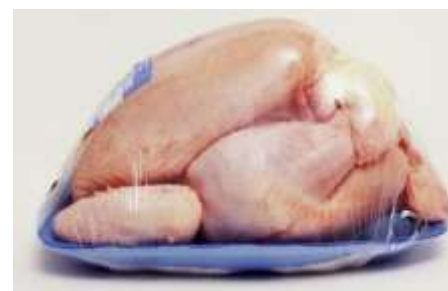
Figure 4: Marking of Level

Once complete, the procedure will then be submitted to OIML TC6 for consideration for adoption into the G14 document. An article will also be drafted for the OIML Bulletin.

Excess fluid in chicken meat

Trading Standards received a consumer complaint regarding short weight uncooked pre-packaged poultry. Following the initial complaint Trading Standards conducted a sampling project to ascertain the level of compliance across the poultry industry.

The results indicated that a number of packaged poultry were short weight which represent a breach of the legislation. Findings revealed that some whole chickens contained up to 8% fluid and chicken cuts, such as breasts, contained up to 12% fluid at the point of sale. The findings also indicated the issue to be industry wide.



The primary cause of these underweight packages would appear to be fluid which has excreted from the poultry following packaging. Many of the packages contained a 'soaker pad' which is an absorbent pad that soaked up the excess fluid and increased the weight of the packaging.

Trading Standards is of the opinion that the stated net weight of the poultry meat or flesh excludes any packaging or fluid that may have excreted from the meat following packing. The Weights and Measures Act 1987 is clear that the package is to be equal to the stated quantity at the time of sale not at the point of packaging.



Trading Standards is working with the Poultry Association to address this issue.

Trading Standards achieves ISO 9001 accreditation

Trading Standards attained ISO 9001 accreditation for all its areas of responsibility, which includes Trade Measurement, Product Safety, Fuel Quality Monitoring, Auctioneers Register, and Motor Vehicle Traders Register. In the Trade Measurement area, this involved documenting all processes and procedures relating to the accreditation system and enforcement activities. Achieving ISO 9001 complements the existing ISO 17025 accreditation in the laboratories.

Trading Standards used the accreditation body TELARC to complete the 1st and 2nd stage audits. Introducing this Quality Management System (QMS) into Trading Standards provides increased confidence in Officers' abilities and a platform for continuous improvement in the effectiveness and efficiency of Trading Standards' performance.

The QMS and Procedures, which includes all working documents, are available on Officers IPAD for use when out in the field. Introducing this system will provide consistent service delivery across all Trading Standards' three offices and introduces a level of accountability for our Officers.

Using a displacement bath for testing the volume of ice cream

At the 21st APLMF meeting, Trading Standards announced a project to develop a guidance document for industry and for legal metrology officials for determining the volume of ice cream using the displacement method. New Zealand exports 9,000 tonnes of ice cream each year and it is estimated New Zealanders consumer 23 Litres of ice cream and related products per annum.

Trading Standards utilised test procedures and equipment provided by Australia and USA during development. The prototype displacement bath is suitable for products with a height of XXml and diameter

Features of the bath include:

- A spout rising from the bottom to a sharply bent neck, which provides a quick cut off as the product under test becomes fully submerged;
- An internal cage with solid sides, grated bottom and a weighted lid,



which drops below the water line, stops water ripples and keeps the product under test fully submerged; and

- Robust stainless steel construction, which when placed in the freezer before being used, allows the temperature of the vessel to be maintained for a longer period.

A draft test procedure has been developed and it will be peer reviewed internally before being sent for industry consultation.

- Once this small displacement bath is complete, work will commence on the development of a larger displacement bath suitable for determining ice cream tub volumes of up to 2 Litres.
- The final outcome of this project is to produce a guidance document for industry and legal metrology officials, which will detail the procedures for determining ice-cream volume and include a schematic drawing of the test equipment, so it can be reproduced.
- An initial sampling project using this displacement bath has highlighted two New Zealand based ice cream manufacturers whose packing system is not in control.

A quick video has been produced to demonstrate the basic test procedure.

Metrological Society of Australasia biennial conference held in New Zealand

New Zealand hosted the Australasian Measurement Conference for the first time. The Metrology Society of Australasia (MSA) is an association of professional metrologists, engineers, scientists, technicians and measurement experts throughout Australia and New Zealand. The Society holds a biennial conference, along with other events to promote the professional development of its members and to promote the practice and interests of good measurement practice.

The society was formed in 1993 and supports its members through an internationally recognised conference every two years. The conference was held in New Zealand for the first time and took place in Queenstown on the 14th – 16th October 2015. The slogan for this year's conference was "Good Measurement – Great Business" and was to showcase how good measurement underpins great business.

This conference was a good opportunity to raise the profile of New Zealand's legal metrology system and allow an open forum for industry and metrologists to network.

Trading Standards personnel formed part of the conference committee who were tasked with organising the event and also presented two case studies and chaired a forum on "New Zealand's Place in the International Measurement System". The conference provided a mix of sixty case studies, presentations and workshops which showcased research, innovation, and success in the world of calibration and measurement.

The conference was seen as a great success. 120 delegates attended and were from a range of industries and businesses that use physical measurements, calibration and testing laboratories, national measurement institutes, accreditation services, and government organisations. Subject matters included: Measurement infrastructure, Temperature, Pressure, Electrical, Medical, Light and Lab Managers forums.

New Zealand assists in the Development of a Harmonised Quantity Mark for ASEAN

Trading Standards were asked to facilitate an ASEAN workshop on 'Harmonised Quantity Mark System for Prepackage products' at the 23rd meeting of ACCSQ-WG3 in Manila, Philippines.

The Association of South East Asian Nations (ASEAN) is in the process of developing a 'Quantity Mark' system. The intention is to harmonise and improve the legal metrology controls in manufacturing within the ASEAN region. The meeting was attended by nine ASEAN economies and to enhance the productiveness of the meeting, New Zealand sponsored an expert from South Africa to assist with facilitation. The South African facilitator is the current Secretariat for OIML Technical Committee that is tasked with the development of the 'Guidance Document for the Certification of Prepackages' (GCOP). The facilitator was also instrumental in introducing a 'Quantity Mark' system into South Africa.

This was the third ASEAN workshop focused on developing a 'Quantity Mark System' and the outcomes of this meeting would be used to develop a recommendation to be submitted for approval. The information collected during the workshop was intended to directly inform the proposal.

The morning session of the workshop involved a summary presentation of the previous two workshops and a detailed explanation of the South African Quantity Mark System along with outlining the principles of the GCOP.

The afternoon sessions consisted of group workshops. The delegates were split into four groups, with each group having the opportunity to comment on each of the following eight questions:

	Question / topic
Question 1	Impact on business and national/regional trade. Possible trade barrier or business competitive edge.
Question 2	Costing principles for the administration of a regional/national quantity mark system – Should businesses pay to apply for a quantity mark on their products; cost recovery model for the conformity assessment.
Question 3	Mechanism on handling infringement, enforcement and appeals.
Question 4	Resource requirements in relation to the varying schemes identified in GCOP.
Question 5	Testing or accepting products that have different quantity marks.
Question 6	One system or mutual recognition. ASEAN set the standard that everyone works to.
Question 7	Promotion and outreach for the quantity mark scheme.
Question 8	Recognition of Quantity Mark.

The facilitators provided the ASEAN Secretariat with a full electronic summary of the workshop findings. Feedback from the convenor and many of the participants was positive.

National Regulatory Compliance Qualifications

As part of the Government's work to improve regulatory institutions and practices, New Zealand is developing and implementing a government wide regulatory compliance qualification. This is the first time a whole-of-government approach to such qualifications has been developed.

This qualification framework is one of the many actions agreed to by Government (refer <https://www.beehive.govt.nz/release/government-drive-lift-regulatory-quality>) arising from the New Zealand's Productivity Commission review ([Regulatory Institutions and Practices](#) June 2014)

These qualifications will be available to all regulators (local and central government) and are intended to provide the following benefits:

1. Improved capability, by providing organisations with a structure around which to build a coherent programme of training (if one is not presently in place)
2. The ability for organisations to recognise staff progress within their existing training and development frameworks with a formal qualification
3. Consistency across the regulatory system, promoting trust amongst regulatory workers and higher service standards
4. Professionalisation of the regulatory workforce as a result of a common qualification framework and compliance language, and an increase in the sharing of regulatory best practice
5. The ability to monitor and steward regulatory capability at an individual agency level and at a regulatory system level (across multiple agencies).

The Ministry of Business, Innovation and Employment will play a leading role in driving this initiative, as it aligns with the Ministry's objective of achieving excellence in regulatory systems, design and delivery. The initiative contributes to this goal by facilitating learning and cooperation across both central and local government. Development of the framework and how it will be implemented across agencies will be developed and consulted on over the next 2-3 months.

5.7 The Philippines

Metrology Law Amendment

Three versions of the amendment submitted to prospective lawmakers who would sponsor the Bill. Proposed amendments incorporate elements of OIML D1. Prospective sponsors of the bill (including Committee on Science and Technology of Congress and Senate, and Committee on Government Re-organization) asking proponents for orientation on metrology and its contribution to the good and welfare of citizens:

- Presentation for legislators being prepared
- Educating and promoting metrology to policy makers always a difficult proposition; the APLMF may want to help? Develop common strategy on how to sell metrology to government; Development of Promotion / PR Materials, Video presentations
- NML has prepared own Strategy Paper for Development of Metrology Infrastructure in the Philippines (1 hard copy available here; else send me an email, for an e-copy)

- Work on Metrology Law Amendment to start after elections of May 2016 (Prospective sponsors now too busy campaigning)

Key activities

Work of Technical Working Groups (TWGs)

Guidelines for NAWI and Pre-Packaged Goods based on ASEAN Guidelines have been developed by the respective TWGs

- Resolution for adoption of the Guidelines has already been endorsed to the Chair of the National Metrology Board for the evaluation of the Board.
- Work being done in relation to ACCSQ WG3 activities; problem – ASEAN Guidelines are still in the process of constant revision and updating
- Type approval of Test weights are being partially performed for whatever tests are within capability of the NML. FPSI, manufacturer of test weights have already submitted samples to the NML and are still awaiting test results

Hosted the 23rd ACCSQ WG3 Meeting

- Day 1 - ASEAN Workshop on Quantity Mark System
- Day 2 - WG3 Planning Workshop with PTB
- Day 3 and 4 – 23rd ACCSQ WG3 Meeting

Legal Metrology Training Activities for Local Government Units

NML personnel offered training to municipal weights and measures inspectors on:

- Calibration of market Weighing Scales
- Calibration of Field Volumetric Measures
- Calibration of Fuel Dispensers

Accreditation

NML personnel have acted as technical assessors for the Philippine Accreditation Bureau on the Calibration of Test Weights and Weighing Scales

Personnel Training

NML personnel have participated in two MEDEA sponsored training programs on Pre-packaged goods and Verification of Fuel Dispensers

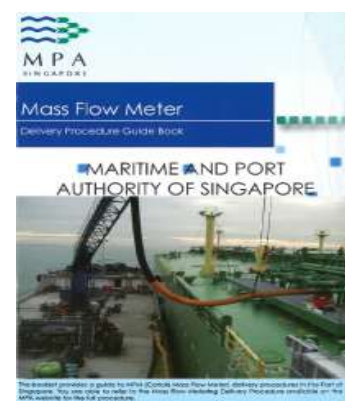
5.8 Singapore

The Weights and Measures Office (WMO) in SPRING Singapore plays an important role in protecting consumers and traders by regulating the use of weighing and measuring instruments used for trade and pre-packaged goods. It ensures that a uniform and accurate system of weights and measures is used in Singapore, thereby ensuring fair trade and correct measurement for excise tax computation.

Since 2006, WMO has made several initiatives to ensure that the Weights and Measures Programme remains relevant for consumers and businesses and aligned with international practices.

Key initiatives to the Weights and Measures Programme

1. The use of mass flowmeters in the bunkering industry is still on-going. To date, 31 bunker tankers have been fitted with mass flow metering systems and approved for use in bunkering.
2. We are also looking into developing standards in the area of liquefied natural gas (LNG) grade as a marine fuel for LNG fuelled vessels. Among other areas, the standard will also look into the guidelines in determining the quality and quantity measurement.
3. We continue to engage several local regulators with a view to collaborate in the area of weights and measures. They include
 - Singapore Customs
 - Agri-Food & Veterinary Authority (AVA)
 - Urban Redevelopment Authority (URA)
4. We continue to engage our consumers. The annual CASE (a consumer watchdog) Seminar was held on 5 September 2015. It was attended by about 200 consumers. We gave a presentation to educate consumers on consumer product safety and accurate weights and measures. There was also an exhibition booth to increase awareness about the ACCURACY Label. The newly developed educational souvenir, Kiang Family Post-it notes which feature messages about the ACCURACY Label and using products safely were also distributed at the booth.
5. We have moved to a new location at No. 2 Fusionopolis Way, #15-01, Innovis, Singapore 138628. All contact details remain unchanged. See location map below.



5.9 Thailand

Cooperation with APLMF

In 2015, Thailand in co-operation with APLMF under the MEDEA Project organized the *Train-the Trainer Course on Verification of Fuel Dispensers for Petroleum Product*. The course was held on 15-19 June 2015 in Pattaya city, Thailand. There were 22 participants from 12 economies and 10 observers from Thailand participated in this course.

In 2015, Department of Internal trade has sent weights and measures officials to attend the course on Verification of CNG dispensers on 8-11 September held in Malaysia.

Thailand will send two participants to attend the course on Verification of Rice Moisture Measurement on 16-20 November 2015 to be held in Cambodia



The Legal Metrology Improvement

- Revision of Weights and Measures Act. Department of Internal Trade revised the Weights and Measure Act B.E. 2557(2014) which has been enforced since March 2015. The gist of revision are as follows :
 - Appoint the “Weights and Measures Board.
 - Appoint the Weights and Measures Appeals Committee.
 - Develop Pattern Approval system in Thailand.
- Upgrading the inspection of Prepackaged goods - the prepackaged goods division had accredited with ISO/IEC 17020.

5.10 Chinese Taipei

Weights and Measures Legislation

Chinese Taipei keeps improving its legislation infrastructure on legal metrology. During the past year several metrology-related regulations, technical specifications and standards have been reviewed, amended and enacted. Meanwhile, the Weights and Measures Act has been reviewed for years and the review procedure is expected to be completed by the very end of 2015. All these efforts are aiming to ensure the accuracy of measuring instruments, to fulfil the needs on legal metrology issues from every sector in this economy and to harmonize domestic regulations with the international standards.

Meanwhile, Ministry of Transportation and Communication (MOTC) initiated the new type taximeters with new functions, such as toll collection for freeway, receipt, extra charge for night time and voice announcement, other than the accuracy of distance and time duration of traditional taximeters that are stressed by the BSMI. In addition, taxi fare in northern Taiwan’s metropolis area was changed since early October, 2015. Therefore, the BSMI revised relative regulations and technical specifications as listed below:

Regulations Governing Type Approval of Measuring Instrument

Because both MOTC and BSMI take legal control on taximeters, BSMI agrees to embed the requirements into the Regulations Governing Type Approval of Measuring Instruments. When applying for the type approval for taximeters, the applicant shall submit the test report issued by the testing laboratory designated by the MOTC, and the type approval shall be withdrawn when the MOTC abolished the test report. The new edition went into force on June 5, 2015.

Directions Governing Type Approval of Taximeters

As the fore-mentioned, the new type taximeters be introduced into local market, the BSMI amended the directions for the application procedure, criteria, and related documents. The new directions also re-classified the qualification of model-change and necessary documentations.

Technical Specification for Type Approval of Taximeters and Technical Specification for Verification and Inspection of Taximeters

According to the initiation of new type of taximeters, the BSMI also revised both technical specifications of taximeters for type approval and verification. Among the new specifications, new

test items, test condition and criteria have been identified. Type evaluation implemented by the laboratory designated by the BSMI, and verification conducted by the laboratories of the BSMI are conducted against the new technical specifications.

Legal metrology Affairs

Examinations for Metrological Technical Personnel

Nine examinations were held in 2015, seven in nine for Class A metrological technical personnel and two for Class B metrological technical personnel. 2364 examinees have passed the examination since the program emerged in 2010. According to weights and measures related regulations, technicians conducting verification in manufacturers or importers allowed to do self-verification and commissioned laboratories to do verification are required to pass the examinations.

License Administration

A license is needed for manufacturer, repairer and importer that engage in operating the business, of manufacturing, repairing and importing legal measuring instruments. 1214 licenses have been issued.

Self-verification Affairs

Three more manufacturers and importers have been granted to conduct self-verification on their own products. There are 11 entrepreneurs being allowed to conduct self-verification, including six on water meters and five on diaphragm gas meters by the end of September, 2015. Private companies had verified more than one millions legal measuring instruments in 2014, sharing one third verified legal measuring instruments. The number and percentage of self-verification measuring instruments are expected to be higher in 2015.

Conformity to Type (CTT)

The BSMI has been executing annual CTT scheme for years. During the last year, 13 samples in six models of measuring instruments subject to type approval were collected, 12 in 13 water meters and one diaphragm gas meter. The final results are expected to be released in early 2016 or even later.

Other Activities

Electronic Learning

An e-learning website (<http://metrology.bsmi.gov.tw/>), set up by the BSMI to provide relating metrological knowledge, was updated for adding lifelong learning sections and new interface in early 2015.

Dissemination of SI Units

The BSMI has cooperated closely with museums and schools domestically and held 44 activities in 2015 to dissemination the basic concept and importance of metrology and the SI units to students.

Training

Four sessions of training programs were scheduled to hold in 2015. These programs focused on verification skills and opened to BSMI's technicians and technicians that passed the examinations for metrological technical personnel.

Volunteering Self-management Measures on Gas Stations and Traditional Markets Post Offices

To ensure the accuracy of weighing instruments used at traditional markets and post offices and dispensers installed at gas stations, the BSMI encourages the owners of gas stations, traditional markets and post offices, based on volunteering, to adopt necessary procedures periodically. The mentioned procedures include testing the dispensers and weighing instruments regularly, keeping errors of instruments less than maximum permissible errors, keeping all maintenance records. Meanwhile, the BSMI will assess those gas stations, traditional markets and post offices and issue a certificate to honour their owners. Another requirement to those gas stations is that the number of dispensers with minus errors should be more than the number of dispensers with positive errors. Up to date, there are 1003 gas stations and 58 traditional markets and post offices having received the mark.

World Metrology Day Activities

Corresponding to the theme of 2015 World Metrology day, Measurements and Light, Chinese Taipei held a series of seminars, workshops and training courses, working with relative associates, to address the necessity and on the importance of measurement on energy. These activities lasted for nine days, started from May 12 to May 20.

Technical Specifications Enter into Force in 2016 and 2017

Vehicle Exhaust Emissions Analysers

To harmonize with OIML R99:2008, BSMI renewed the Technical Specification for Verification and Inspection of Vehicle Exhaust Emissions Analysers and will go into force on January 1, 2016. The newly published specification ruled out the analysers for motor bike and vehicles with diesel engine. Meanwhile, the requirements of repeatability are highlight and the permissible errors for different accuracy categories listed respectively. To those analysers that have passed the verification before the specification brought into force are allowed to serve per the old specification.

Corn Moisture Meters

The corn moisture meters will be subjected to verification on July 1, 2016, due to a request from the Council of Agriculture. The Technical Specification for Verification and Inspection of corn moisture meters, harmonizing with OIML R59, published in November 2014.

Sound Level Meters

According to the Weights and Measures Act, sound level meters are subject to verification. On the other hand, according to Environment Protection Administration's regulation, noise pollution shall be abandoned. However, there are some gaps between BSMI and EPA. Under the BSMI's responsibility, the sound level meters suitable for low frequency between 20 Hz and 200 Hz are ruled out subject to verification but under Environment Protection Administration's requirements, anyone responsible for causing noise pollution, including the noise frequency between 20 Hz and

200 Hz will be punished. To solve the dilemma, the BSMI reviewed the technical specification for verification during the past two years to correct some ambiguous in current specification, such as the terms and definitions, verification equipment and conditions, verification items and procedures; the new edition listed the terms, definitions, verification requirements, according to IEC 61672-1,-2. The new edition is expected to enter into force on

5.11 United States of America

Current Developments in U.S. Legal Metrology:

Outline of the major issues on the agenda of the *National Conference on Weights and Measures* (NCWM) as of November 2015 and related national initiatives of the *National Institute of Standards and Technology* (NIST).

1. Revisions to the US Taximeters Code

A new USNWG on Taximeters was formed to develop proposals to revise the current Taximeters Code in NIST Handbook 44 (HB 44), *Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices*. The purpose of this USNWG is to adequately address emerging technologies used to assess charges based on time and/or distance measurements in taxi applications and to ensure that the prescribed methodologies and standards facilitate measurements that are traceable to the International System of Units (SI).

The main body of the work group will target the completion of updating the existing Taximeters Code so that it will encompass current devices and technologies in use. In addition to this work, a subcommittee was formed to work towards the development of standards and requirements that specifically address the use of Global Positioning System (GPS) applications when they are used commercially to compute fares based upon distance and/or time measurements.

Many of the proposals for changes to the existing Taximeters Code were approved during the July 2015 NCWM Conference in Philadelphia. These changes included:

- A. Re-defining a “point-of-sale” system (as it relates to taximeters);
- B. Addressing the use of “flat” or fixed rates in some jurisdictions;
- C. Requiring that a form of receipt is capable of being produced by the taximeter system for all transactions (non-retroactively) -- and removing the existing optional provision for a recording element;
 - Transactions involving for-hire vehicles may include multiple charges and as a result be somewhat complex. Total charges resulting from taxi services in some jurisdictions can include the fare based on time and distance travelled) as well as extras and other additional charges. Those extras and additional charges may include charges for additional passengers, transportation of luggage, tolls, surcharges, taxes, and possible additional services.
 - In many instances the interchange between passenger and the taxi driver is brief and that the passenger may not immediately comprehend fully all the details regarding a transaction. With a potential total cost to the passenger comprised of numerous

charges, it is considered important that the customer (passenger) be able to receive a record/receipt (printed or electronic) to ensure that there a record of expenses paid for, and for documentation in cases where the charges may be disputed.

- Recorded Representation. – A printed receipt issued from a taximeter, whether through an integral or separate recording element, shall include as a minimum, the following information when processed through the taximeter system:
 - (a) date;
 - (b) unique vehicle identification number, such as the medallion number, taxi number, vehicle identification number (VIN), or permit number, or other identifying information as specified by the statutory authority;
 - (c) start and end time of trip;
 - (d) distance travelled, maximum increment of 0.1 kilometer (0.1 mile);*
 - (e) fare in \$;
 - (f) for multi rate taximeters, each rate at which fare was computed and the associated fare at that rate;
 - (g) additional charges/discounts in \$ (where permitted) such as extras any surcharges, telephone use, telecommunications charges, tip, discounts, credits, and taxes shall be identified and itemized; and
 - (h) total fare charge for service in \$ (total charge inclusive of fare, extras, and all additional charges);
 - (i) trip number, if available; and
 - (j) telephone number (or other contact information) for customer assistance.

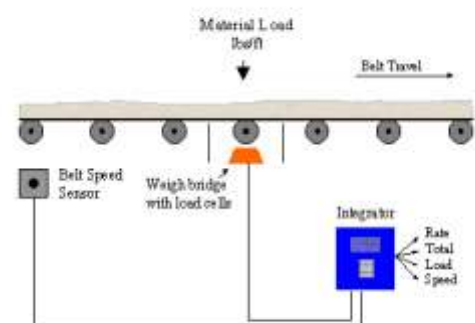
Since the major portion of the work involved in updating the existing Taximeters Code has now been accomplished and only a few changes that are needed remain, the emphasis on the standards work involving taximeters has now turned to those services using location services (e.g., GPS) and cellular telephone “apps.”

A meeting of the GPS Subcommittee was held in October 2015 in Sacramento, CA to further this effort. Members of that group considered additional changes to the existing Code to revise any portions that were not applicable to the use of location services with the more traditional-type of taximeters and have tentatively planned to continue this important work through the further development of a new separate Code for these services using GPS and cell-phone apps. Meetings of the GPS Subcommittee will continue on an aggressive schedule with the intent to have a useable standard by 2017.

2. Belt-Conveyor Scales

Recent efforts of US National Working Group (USNWG) on Belt-Conveyor Scales has been towards the further development of proposed changes to the NIST HB44 Belt-Conveyor Scale Systems Code so that it may be more appropriately applied to shorter conveyor systems known as “weigh-belts.” The conclusions from this work group have resulted in the submission of eight specific proposed changes

Figure 1 - Principle of Operation



to the HB44 Belt-Conveyor Scale Systems Code for consideration by the NCWM in July 2015.

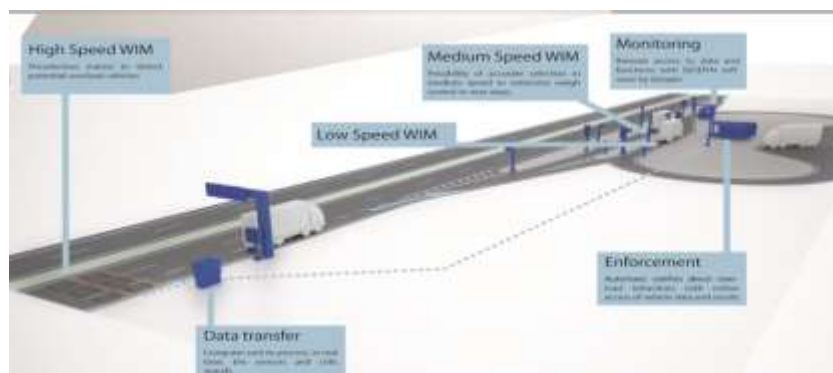
NIST Handbook 44 Belt-Conveyor Scale Systems Code language that existed prior to 2001 provided an exemption for belt-conveyor scale systems designed and furnished by the manufacturer from requirements that were related to specific details of the installation of belt-conveyor scale systems. In general, weigh-belt systems are designed and built by the manufacturer as a unit and are therefore less likely to be susceptible to malfunctions or operational defects directly caused by a variance from the manufacturer's intended installation specifications. This is in contrast to belt-conveyor scale systems that are typically installed as separate components (conveyor, weighing system, belt loading system, speed sensor, etc.) within an existing conveyor system where the details of the installation for each component may greatly influence the performance of other components in the system.

USNWG members have agreed that it is important not to impose prescriptive requirements that may restrict innovation in the design of this type of device in HB44. Requirements that place limitations on the placement of components in a conveyor system in relation to the weighing device and to other components are viewed as being arbitrary and may be invalid if the design of a system is shown to operate within performance requirements regardless of the configuration of its components.

All eight of the proposed changes that would allow the BCS Systems Code to be applied to "weigh-belt systems" were adopted by the NCWM in their Annual meeting in July 2015.

3. Truck Scales -- Weigh-in-Motion Systems

The US is drafting new requirements for Weigh-in-Motion (WIM) Systems. Some elements of these new requirements are:



- Procedures for establishing the reference weights of axle loads, axle-group loads, and total vehicle weight -- and the types of scales considered acceptable for use in establishing such test loads and their acceptable level of accuracy;
- Specific requirements applicable to the design, installation, and maintenance of approach and exit aprons of the weigh sensors of a WIM system;
- Additional accuracy classes for WIM systems (currently there is one accuracy class specified) capable of achieving greater accuracy levels or at least provide the option of adding higher accuracy classes later.

4. Legal Metrology Issues related to Alternative-Fuel Vehicles

Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) Vehicles

With the current situation of an abundant and inexpensive U.S. domestic natural gas supply, the U.S. is significantly increasing its use of natural gas as a vehicle fuel. A natural gas vehicle (NGV) uses compressed natural gas (CNG) or liquefied natural gas (LNG) as a cleaner alternative to other fossil fuels.

For the past several years, the most prevalent NGVs in the US are fleets of mass-transit local busses which are fuelled with CNG at a (non-retail) central location for the fleet.

Because of the inexpensive natural gas fuel costs, the owners/operators of many heavy-use engines that traditionally have used diesel fuel (including long-haul trucks and boats) have been buying or converting their engines to run on natural gas, especially LNG. NIST and NCWM are working to establish new requirements and test procedures for the new retail LNG fuel dispensers that will be installed to service these industries.

Electrical Vehicles

Electric vehicles run on battery power, replenished through electrical connections. In the U.S., the primary charging locations are residences, businesses, and storage locations for fleet vehicles. There are minimal legal metrology issues in these locations because the electricity has already been metered and billed by the electrical utility. In these locations, with a standard charger, recharging a typical electric vehicle battery from near-total discharge to full charge usually takes 4-8 hours, with most vehicles charging overnight.

The number of public charging sites for electric vehicles has increased dramatically in the U.S. over the past three years. These sites are usually located in city or store parking lots, and at hotels, airports, and various businesses. The installation of “DC Fast-Charging Stations” with high-speed charging capability can allow consumers to recharge a battery on their electric vehicle from 20% to 80% in about 10 minutes.

The legal metrology issues arise on how the public site is attempting to “sell” the electricity to consumers. Many sites favoured a “time-of-connection” charge, but that was found to be not very equitable because of the wide range of charging capabilities of the different types of stations/connections. The key for the weights and measures officials was that the transactions involve a measurable finite quantity of energy so that nationally-standardized requirements for the method of sale could be developed.

A US National Working Group was established to develop new legal metrology standards related to electrical vehicle charging. This USNWG held meetings in January and March 2013. In July 2013, the NCWM approved the recommendation of the USNWG and adopted the following method of sale (which was implemented in January 2014):

NCWM Handbook 130, Section 2.34.2. Method of Sale. – All electrical energy offered for sale and/or sold at retail as a vehicle fuel shall be in units in terms of the megajoule (MJ) or kilowatt-hour (kWh). In addition to the fee assessed for the quantity of electrical energy sold, fees may be assessed for other services; such fees may be based on time measurement and/or a fixed fee.

The USNWG is now developing new testing procedures for sites that sell electricity at retail as a vehicle fuel.

Development of Hydrogen Fuel Measurement Standards

As part of a national effort to promote alternative fuels for vehicles, NIST established a U.S. National Work Group (USNWG) for the Development of Commercial Hydrogen Measurement Standards in to develop a comprehensive set of legal metrology standards for commercial measurement of hydrogen for vehicle and other refuelling applications.

The tentative equipment code applies to hydrogen gas deliveries sold typically through service station dispensers for use as fuel in fuel cell and internal combustion engine vehicles. The approved method of sale stipulates that hydrogen fuel only be sold by the kilogram and that street sign pricing be shown in terms of whole cents (e.g., \$3.49 per kg, not \$3.499 per kg). The tentative code includes device design, accuracy, and installation and use requirements, and test procedures. NIST published the tentative code in its 2011 edition of NIST Handbook 44 “Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices.”

Hydrogen fuel quality requirements were approved in July 2012 and are found in NIST Handbook 130. These requirements recognize the most recent version of the US Society of Automotive Engineers (SAE) Standard J2719 “Hydrogen Fuel Quality for Fuel Cell Vehicles” that requires greater than 99.97% hydrogen purity.

This USNWG is currently continuing its work to refine and finalize the test procedures for retail hydrogen fuel dispensers and related equipment.

5. Development of a new ANSI standard for Gas Meters / Harmonization with OIML Recommendations

The American National Standards Institute (ANSI) technical committee B109, responsible for gas metering standards has developed a draft new performance-based standard for gas meters that will cover all new metering technologies. This new standard is based on the final draft of OIML R137 “Gas Meters,” and is being tentatively called “ANSI B109-point-zero.” The organization responsible for this technical committee is the American Gas Association (AGA), and a NIST engineer is leading this effort. Some of these “newer” technologies are not currently covered by a domestic US standard – creating a significant problem for the purchasers of these systems. A single performance-based standard that covers all metering technologies will serve to alleviate this issue.

The United States is also continuing the effort to harmonize its requirements in other areas of legal metrology with those of the International Organization of Legal Metrology (OIML). Because our system splits responsibility between the national government and the state governments, the National Conference on Weights and Measures (NCWM) and National Institute of Standards and Technology (NIST) are working as a team to focus attention on the need to harmonize national and international legal metrology standards.

6. Moisture Allowance

A controversial item was adopted by the NCWM concerning a 3% “moisture allowance” for pasta and noodle products. These products are packaged in paper bags, paperboard cartons, and/or

flexible plastic bags with a moisture content of 13 % or less at the time of pack. This new requirement went into effect in January 2014.

Studies indicate that moisture loss for pasta products is reasonably predictable over time. Pasta exhibits consistent moisture loss when handled in a uniform manner. However, moisture loss can vary more than 4 % due to environmental and geographic conditions. Although it eventually reaches equilibrium with the surrounding atmosphere because it is hygroscopic, this balance does not occur until long after packaging and shipping. One potential problem is that manufacturers may possibly attempt to under-fill on purpose to take advantage of the allowance; correct net weight would need to be verified at time of packaging.

In 2015, a new effort was initiated to study additional products that are affected by significant moisture loss issues.

7. Aerosols and Similar Pressurized Containers

There are a number of products in the marketplace bearing quantity statements in terms of fluid measure that utilize the Bag on Valve (BOV) technology. Packages using BOV technology are generally pressurized containers but propellant is not dispensed with the product. Consumers are not able to do price and quantity comparisons between products packaged using BOV technology (which is being typically labelled by volume in the marketplace) and similar product in traditional aerosol packaging (required to be labelled by net weight) – because the aerosol packaged product includes the propellant in the net weight and the propellant is dispensed with the product.

In July 2014, the National Conference on Weights and Measures (NCWM) unanimously approved a revision to the requirements for these products. The revision supports and further strengthens states position that the method of sale for aerosols and other pre-pressurized containers dispensing product under pressure (including those using BOV technology) must be sold by weight. This has been the traditional method of sale in the marketplace for these type products for over 50 years.

Please note that industry that have been mislabelling BOV containers by volume, were granted a 3 year time period (2014-2017) to comply with the labelling requirements.

8. Animal Bedding

Animal Bedding, also called pet or stall bedding, litter or simply bedding, is generally sold by dry volume in compressed or uncompressed packages. Based on numerous failed inspections of packaged animal bedding, the NIST Office of Weights and Measures conducted a study in which compressed and uncompressed packages of animal bedding were measured using a variety of procedures and test equipment. The results from those tests indicated that the current procedures in the 2014 Edition of NIST Handbook 133 “Checking the Net Contents of Packaged Goods,” the dimensional inspection procedure for testing compressed packages (e.g., peat moss); and the volumetric inspection procedure (e.g., mulch); were inadequate for use in testing animal bedding.

Uncompressed volume measurements of animal bedding are dependent on a number of factors, including the size and shape of the measuring container, the method of filling the measuring container, and the means used to break up the bedding prior to measuring. Based on the findings of this study, a draft procedure has been developed for testing the uncompressed volume of animal bedding. NIST OWM also designed and constructed new test measures to be used with the

procedure, and then brought these measures to several animal bedding packaging plants for on-site verification of the test methods.

Preliminary findings indicate that the draft procedure provides more consistent measurement results. Further, the study shows that there is no correlation between compressed and uncompressed volumes of animal bedding, leading to the conclusion that the requirement for compressed volume statements on the package label is unnecessary.

NIST has developed proposals that includes recommended changes to the method of sale for Animal Bedding in NIST Handbook 130 "Uniform Laws and Regulations in the Areas of Legal Metrology and Engine Fuel Quality," a revised test procedure for NIST Handbook 133 relating to the verification of the compressed volume of peat moss (which has been used with animal bedding), new test procedures for measuring the compressed and uncompressed volumes of animal bedding, suggested test equipment and a gravimetric auditing procedure that allows inspectors to avoid destroying all of the packages.

Previously, packaged animal bedding of all kinds, except for baled straw, should have been sold by volume (by the cubic meter, litre, or millilitre and by the cubic yard, cubic foot, or cubic inch). If the commodity was packaged in a compressed state, the quantity declaration should have included both the quantity in the compressed state and the usable quantity that could be recovered.

9. IACET Accreditation for NIST's Office of Weights and Measures

The International Association for Continuing Education and Training (IACET) has awarded the National Institute of Standards and Technology (NIST) Office of Weights and Measures (OWM) an "Authorized Provider" accreditation. IACET Authorized Providers are the only organizations approved to offer IACET Continuing Education Units (CEUs). In order to achieve Authorized Provider accreditation, NIST OWM completed a rigorous application process, including a review by an IACET site visitor, and successfully demonstrated adherence to the ANSI/IACET 1-2007 Standard addressing the design, development, administration and evaluation of its training program. The accreditation period extends for five years and includes courses offered or created that follow OWM procedures during that time.

Many US states require that their weights and measures officials receive training throughout their careers. Using an accredited training organization gives those officials confidence that the training they will receive is of high quality.

The NIST OWM analyses weights and measures training needs, obtains input from the weights and measures community, designs and delivers training for laboratory metrologists and weights and measures officials, measures the impact and effectiveness of training to ensure ongoing continual improvement, and consults with the weights and measures community to ensure ongoing professional development.

10. Unit Pricing Information

NIST has formed a workgroup that is developing guidelines to improve the accuracy and usability of unit pricing information offered on retail store shelves in the United States. The workgroup includes representatives from industry and trade associations (such as the Food Marketing Institute), weights

and measures officials, consumers and consumer groups (such as the National Consumer League and Consumers Reports), and other key stakeholders.

There is not a Federal Government mandate in the US that requires unit pricing. Voluntary use of unit pricing by retailers is highly recommended because of its value to consumers and businesses. Providing clear and unambiguous information about the prices of products offered for sale not only helps to guarantee transparency in the marketplace, but also serves to protect consumers by permitting them to make value and price comparisons and educated purchasing decisions.

In the US, there is currently a significant lack of uniformity in the use of unit pricing in the marketplace (from retailer to retailer). There many examples of possible improvements in the design of unit price labels, including:

- Increased Font size and readability (i.e. require a minimum font size and a requirement of the correlation between the size and proportion of retail price and unit price);
- Larger unit price labels on the bottom shelves. This will make information more clear and conspicuous;
- Greater consistency from retailer to retailer on the placement of information on the label to ensure standardization and uniformity;
- A requirement for unit pricing on sale items – considering the requirement for unit pricing on internet, sales ads and other forms of advertising media;
- Extend unit pricing to more product categories, not just food products;
- Greater adoption of the Uniform Unit Pricing Regulation by individual states to ensure retailers meet the minimum recommended national uniform requirements; and
- Recommend greater use of metric unit pricing.

This workgroup has now developed an industry “Best Practices Guide” for unit pricing that is available online for use by anyone interested in improving the presentation and accuracy of unit pricing information.

The guide built upon the existing Uniform Unit Pricing Regulation (UUPR) in NIST Handbook 130, and promotes a more comprehensive, consumer friendly and uniform approach to unit pricing. This new guide, NIST Special Publication 1181 was published in January 2015 (approximately 37 pages with good/bad examples). The workgroup may now also develop recommendations to revise the UUPR which may be submitted to the National Conference on Weights and Measures for consideration.

Next Steps in Unit Pricing

- Waiting on results from (lab study) MSU (March/April.....may be follow up field study.
- FMI Webinar scheduled for March to educate its members and solicit feedback, buy in on Draft V4. Ways to involve others to expand and broaden input and looking for some to beta test.
- Guide will be published on line. Easier to update and maintain.
- Promote educational opportunities with the membership form the various trade associations and



for consumers. How to educate consumers and create awareness in the marketplace. Utilize NCL and CR. NIST educate members of all trade associations through webinars. Industry may publish Consumer Guides.

- Find stores/retailers willing to implement not only guide, but categories using METRIC MODIFY GUIDE as necessary. Develop ONLINE guidance.
- Potentially update model Regulation in NIST HB130.
- Evaluate Impact in achieving National Uniformity and Consumer Benefits

5.12 Viet Nam

Legal documents

- The Vietnam Metrology Law approved by the Vietnam National Assembly in November 2011.
- The Decree for implementing Vietnam Metrology Law was issued by the Government and in October 2012.
- The Decree for administrative fine on violations of standardization, metrology and quality control was issued by the Government in July 2013.
- Seven Circulars for implementing the Law on Metrology were issued by Minister of Ministry of Science and Technology (MOST) included:
 - Circular on approval of National measurement standards in 2013;
 - Circular on Group 2 measuring instruments in 2013;
 - Circular on management of Verification, Calibration, Testing in 2013;
 - Circular on measurement management on trade of gold & quality management on trade of jewel in 2013;
 - Circular on State metrological supervision in 2013;
 - Circular on quantity of prepackaged goods in 2014;
 - Circular on measurement management and quality management on fuel in 2015.
- 43 more binding metrological technical specifications on metrology (based on OIML recommendations) have been issued by STAMEQ by the end of 2015, raising the total to 275.

Activities in 2015

- Ten more bodies in calibration, verification and testing have been designated by STAMEQ, raising the total to 304.
- The Celebration of the Vietnam Metrology Day (20/01/2015) and the International Metrology Day (20/5/2015) were organized in Vietnam.

Activities for 2016

- The Decree for management of Verification, Calibration, Testing.
- Issue about 40 binding metrological technical specifications (based on OIML recommendations).
- Organize the Celebration of the Vietnam Metrology Day (20/01/2016) and of International Metrology Day (20/05/2016) in Vietnam

6 Other Business and Next Steps

6.1 Other Business

Membership of APLMF

John Birch proposed to provide the Executive and Secretariat with a report on the background to membership and possible options for the future in terms of growing both membership and the income from membership. He noted the different memberships of APEC, APMP and APLMF and his report will look at the background and history of the differing memberships and also the current membership and fee structures in APLMF.

Economics of metrology

Dr Jerry Buendel, of NCWM updated the Forum on the work project that is underway on the '*Economic justification of weights and measures programs*' by NCWM.

Dr Buendel outlined briefly some of the ways of showing value to people who authorise their programmes, by showing them the results of their inspections – how many devices are approved when they inspect, how many devices are removed from service, how many rates of correction are due to the presence of weights and measures officials at the time of inspection. The statistics based on inspection results (output measures) can also be used to determine the economic impact on both the State, their businesses and consumers by translating the inspection results (averages and shortages) into dollars.

Similarly in agricultural sector, NCWM can determine the production levels in the State of a product and using a hypothetical number, we can calculate the impact of a weighing error of negative 20 pounds, and then using the market price for the product, can calculate the impact of this error for the States producers of this product. See examples in table below.

IMPACT OF ERRORS IN WEIGHTS AND MEASURES – AGRICULTURE PRODUCTION

Product	Production		Error	Market Unit Price	Total Market Value	Total Weighing Error	\$'s Lost
	Bushels	Pounds					
Wheat	360 M	21.6 B	-20 lbs	\$8.70 Bu	\$3.13 B	-180 K	\$1.566M
Corn	581 M	32.55 B	-20 lbs	\$7.64 Bu	\$4.44 B	-290 K	\$2.22 M
Soybeans	138 M	8.29 B	-20 lbs	\$14.62 Bu	\$2.02 B	- 69 K	\$1.01M
Apples	N/A	5.20 B	-20 lbs	\$0.48 lb	\$2.5 B	-149K	\$71.3 M

A small error of 20lbs on an individual basis can become a very significant dollar impact overall, and agencies can use this to communicate to their stakeholders who are interested in authorising our programmes.

Another example is the impact of errors in retail fuel sales and the impact of measurement error can eventually work through in terms of loss in tax revenue to State/Federal government, enabling

agencies to communicate to these stakeholders on the scope and scale of the economic impact for small measurement errors avoided by having these programmes. .

IMPACT OF ERRORS IN WEIGHTS AND MEASURES – FUEL SALES

Error in Cubic Inches

Fuel	Taxable Sales	Price per Gallon	Error	\$/cu in	Sales Variation	Tax per Gallon	Tax per cu in	Tax Variation
Gas	3 B	\$3.75	1 cu in	\$0.016	\$48.7M	\$0.375	\$0.0016	\$4.87M
Diesel	600 M	\$4.00	1 cu in	\$0.017	\$974 K	\$0.375	\$0.0016	\$2.22 M

277.42 cu in per gallon 1 cu in = 0.554 fl oz

Error in Fluid Ounces

Fuel	Taxable Sales	Price per Gallon	Error	\$/fl oz	Sales Variation	Tax per Gallon	Tax per cu in	Tax Variation
Gas	3 B	\$3.75	1 fl oz	\$0.029	\$87.9M	\$0.375	\$0.0029	\$8.79M
Diesel	600 M	\$4.00	1 fl oz	\$0.031	\$18.7M	\$0.375	\$0.0029	\$1.76 M

128 fl oz per gallon 1 fl oz = 1.805 cu in

The numbers can be very impactful with dealing with a range of market participants – consumers, producers, retailers, government authorities, the media, revenue, etc – but you need to tailor the various statistics to meet the needs/perceptions of the different audiences.

For example, in a beef cattle packaging facility in Nebraska, handling 5,000 cattle per week with 10,000 weightments (one side per weightment), running six days a week, 52 weeks a year. The verified average error was 4/10 lb per weightment (less than half the allowable tolerance of the weighing device). This had a huge impact, translating to 24,000 pounds out each week [(4lb x 10,000 weightments) x 6 days], and over the course of the 1,248,000 pounds, generating a \$2,620,800 cost for an error in a device operating within tolerance.

The weights and measures team implemented the test method to verify as-used, and the test method reduced errors closer to zero. Ultimately, the changes resulted in saving the company millions and gaining respect, confidence and appreciation of the work of weights and measures team. It is important to remember that this was just one scale in a vast industry.

To change the perception of the importance of weights and measures programmes, you need to identify situations and find credible market data, and use real data and facts to communicate the value and impact that weights and measures programmes to industry, consumer and producers government, media etc. Further information is available on the NCWM website <https://www.ncwm.net/resource/promotional-toolkit>

Executive Membership

It was proposed by Mr Pu that **Mr Hari PRAWOKO**, of Indonesia, be appointed as a new member of the Executive Committee of APLMF. This was supported by the Forum participants.

6.2 Future Meetings – 23rd APLMF and Working Group Meetings

2016 – 23rd Annual APLMF Meeting – Japan confirmed hosting in Tokyo in November 2016.

2017 – 24th Annual APLMF Meeting - Cambodia proposed to host in Ankor Wat

6.3 APLMF Presidency transfer

Closing remarks by Honorary Chairman – Mr PU Changcheng

Mr Pu made some observations of the past eight years that China has held the presidency of the APLMF and noting that he has greatly enjoyed working with all the participants here today and also those who are not at this meeting. He noted that he has been most impressed with the great cooperation between member economies seen over the last eight years.

Mr Pu thanked the Secretariat for all their hard work and thanked the member economies for the contributions they have made over the past eight years to make the APLMF a success. He thanked all the countries who have been so generous in hosting the annual meeting and specially thanked the United States for hosting this meeting in such a beautiful location. He noted the progress on pushing forward legal metrology that has been made over the last eight years.

Mr Pu noted he is glad and happy to be transferring the responsibility and the presidency of APLMF to New Zealand and formally transferred this with a letter presented to Mr Stephen O'Brien.



Closing remarks by President – Mr Stephen O'BRIEN

On behalf of the New Zealand Government and the New Zealand secretariat team I would like to thank Mr Pu and the APLMF member economies for the opportunity to take on the responsibility of the APLMF Secretariat and Presidency.

The role of APLMF to develop legal metrology and promote free and open trade in the region through harmonisation and the removal of technical barriers to trade, is as important today as when APLMF was formed 22 years ago.

Mr Pu and the current secretariat from China can be justifiably proud of the work that they have done in support of APLMF fulfilling this role over the past eight years.

Looking back over this period we can see the successful completion of significant training and development work around the Asia-Pacific region that has resulted in positive benefits for many developed and developing economies. Working with the Secretariat team on hosting last year's meetings in Wellington I appreciate the hard work that goes on behind the scenes to make these meetings successful.

I would like to thank Mr Pu and the secretariat from China for their dedicated service that has made the APLMF operate so effectively over the period of their leadership and administration. China leaves big shoes to fill but with the ongoing patience and support from China and all APLMF members, the New Zealand Secretariat will do its best to fill them.

In rugby terms after Australia kicking the ball off and setting APLMF up, the ball was passed to Japan, onto to China and now after a long and successful run the ball has been passed to New Zealand. We will be aiming to move the team forward before passing the ball on in the future.

It is now my very great pleasure and as my first official duty as the President of APLMF to nominate to the APLMF member economies that Mr Pu be made an honorary member of APLMF in recognition of his service and dedication to APLMF and legal metrology.

Our hosts have a special presentation in recognition of this significant event. Before closing this meeting I would like to express our appreciation to our hosts from the NIST in the United States for organising and supporting this 22nd meeting. It has been in a spectacular location and been a spectacular success. I would also like to pass on a special note of thanks to Ralph Richter for his untiring drive and dedication that has resulted in this success.

Thank you also to the staff of the Moana Surfrider Hotel and event support team.

Closing remarks by Host Economy – Mr Charles EHRLICH

Mr Ehrlich thanked everyone for their participation, and added a special thanks to Mr Guo Su and the Secretariat and Mr Ralph Richter for their hard work in preparing for this meeting and ensuring the meeting went so well.

Mr Stephen O'Brien formally closed the 22nd APLMF meeting. He thanked all the economies who participated and wished them safe travels back to their home economies.