

Report from the BIPM... to the 29th COOMET Committee Meeting

Andy HENSON

BIPM

3 - 4 April 2019

Bureau
♦ **I**nternational des
♦ **P**oids et
♦ **M**esures





Resolutions of the 26th meeting of the CGPM

- 1 On the revision of the International System of Units (SI)
- 2 On the definition of time scales
- 3 On the objectives of the BIPM
- 4 On the dotation of the BIPM for the years 2020 to 2023
- 5 On financial arrears of Member States and the process of exclusion



Watch the open session of the 26th meeting of the General Conference on Weights and Measures (16 November 2018):

<https://www.youtube.com/thebipm>

The International System of Units (SI)



**The 8th edition of
the SI Brochure is available
on the BIPM website.**

*The 9th edition of
the SI Brochure is expected
to be published on 20 May 2019.*



Results of the election of the CIPM

→ On 16 November 2018, the CGPM conducted an election for all 18 seats on the CIPM.

Twelve current members stood and were re-elected:

- Dr F. Bulygin (Russian Federation),
- Dr I. Castelazo (Mexico),
- Dr Y. Duan (People's Republic of China),
- Dr H. Laiz (Argentina),
- Dr T. Liew (Singapore),
- Dr W. Louw (South Africa),
- Dr M.L. Rastello (Italy),
- Dr P. Richard (Switzerland),
- Dr G. Rietveld (Netherlands),
- Dr M. Sené (United Kingdom),
- Dr T. Usuda (Japan),
- Prof. J. Ullrich (Germany).

In addition, the following six new members were elected and will start their term at the next session of the CIPM, scheduled for March 2019:

- Dr D. del Campo Maldonado (Spain),
- Dr N. Dimarcq (France),
- Dr P. Neyezhnikov (Ukraine),
- Dr J. Olthoff (United States of America),
- Dr S.-R. Park (Republic of Korea), and
- Dr A. Steele (Canada).

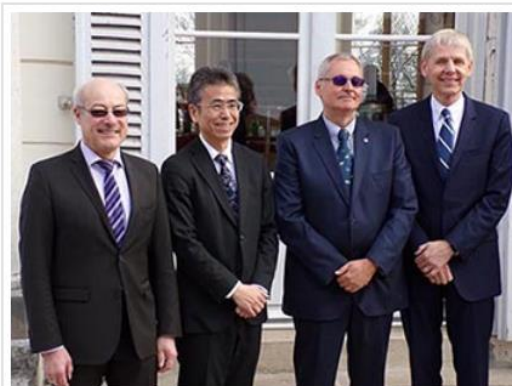
The next session will also mark the retirement of six CIPM members who did not stand for re-election:

- Dr M. Buzoianu (Romania),
- Mr L. Erard (France),
- Dr B. Inglis (Australia),
- Dr D.-I. Kang (Republic of Korea),
- Dr W. May (United States of America), and
- Dr J. McLaren (Canada).

Election of the CIPM bureau

→ During the first session of its 108th meeting (20-21 March 2019) the CIPM elected the following to form the bureau of the Committee:

- President - Dr W. Louw (South Africa)
- Secretary - Dr T. Usuda (Japan)
- Vice-Presidents - Prof. J. Ullrich (Germany) and Dr J. Olthoff (United States of America)



The CIPM bureau (left to right): Prof. J. Ullrich, Dr T. Usuda, Dr W. Louw and Dr J. Olthoff.



The six new CIPM members (left to right): Dr S.-R. Park, Dr D. del Campo Maldonado, Dr A. Steele, Dr J. Olthoff, Prof. P. Neyezhmakov and Dr N. Dimarcq.

The 108th meeting was the first to be held following the 26th meeting of the CGPM (November 2018), at which all 18 CIPM members were elected. Six of those elected participated in the CIPM for the first time:

- Dr D. del Campo Maldonado (Spain)
- Dr N. Dimarcq (France)
- Prof. P. Neyezhmakov (Ukraine)
- Dr J. Olthoff (United States of America)
- Dr S.-R. Park (Republic of Korea)
- Dr A. Steele (Canada).

Current CIPM:

→ CIPM bureau members:

		Election to the CIPM bureau (or first election)	Most recent (re)election to the CIPM by the CGPM	First election to the CIPM by the CGPM (or provisional election by the CIPM)	
↘ President	Dr W. Louw (South Africa)	20 March 2019	2018	15 May 2013	☑
↘ Secretary	Dr T. Usuda (Japan)	20 March 2019	2018	1 July 2012	☑
↘ Vice-President	Prof. J. Ullrich (Germany)	9 March 2015	2018	15 May 2013	☑
↘ Vice-President	Dr J. Olthoff (United States of America)	20 March 2019	2018	2018	☑

→ Other CIPM members:

		Most recent (re)election to the CIPM by the CGPM	First election to the CIPM by the CGPM (or provisional election by the CIPM)	
↘	Dr F. Bulygin (Russian Federation)	2018	2014	☑
↘	Dr I. Castelazo (Mexico)	2018	2014	☑
↘	Dr D. del Campo Maldonado (Spain)	2018	2018	☑
↘	Dr Y. Duan (People's Republic of China)	2018	8 March 2010	☑
↘	Dr N. Dimarcq (France)	2018	2018	☑
↘	Dr H. Laiz (Argentina)	2018	7 Dec. 2016	☑
↘	Dr T. Liew (Singapore)	2018	2014	☑
↘	Prof. P. Neyezhmakov (Ukraine)	2018	2018	☑
↘	Dr S.-R. Park (Republic of Korea)	2018	2018	☑
↘	Dr M.L. Rastello (Italy)	2018	7 Dec. 2016	☑
↘	Dr P. Richard (Switzerland)	2018	2014	☑
↘	Dr G. Rietveld (Netherlands)	2018	2014	☑
↘	Dr M. Sené (United Kingdom)	2018	7 Dec. 2016	☑
↘	Dr A. Steele (Canada)	2018	2018	☑
↘ ex officio	Dr M.J.T. Milton (United Kingdom), Director of the BIPM			☑

The CIPM appoints new Presidents of the CCQM and CCTF

→ The CIPM appointed two new Consultative Committee (CC) Presidents at Session I of its 108th meeting (March 2019).

Dr Sang-Ryoul Park, President of the Korea Research Institute of Standards and Science (KRISS), Republic of Korea, was appointed as President of the Consultative Committee for Amount of Substance: Metrology in Chemistry and Biology (CCQM) for a four-year term. Dr Park succeeds Dr Willie May, who has stepped down from the role that he had held since 2011.

Dr Noël Dimarcq, Deputy Director of the Observatoire de la Côte d'Azur, France, was appointed as the President of the Consultative Committee for Time and Frequency (CCTF) for a four-year term. Dr Dimarcq succeeds Mr Luc Énard, who had been CCTF President since 2007.

Both Dr Park and Dr Dimarcq were elected to the CIPM at the 26th meeting of the CGPM in November 2018. They took their seats at the CIPM for the first time in March 2019.

Member States and Associates

As of 14 November 2018, there are:

- 59 Member States
- 42 Associates of the CGPM (States and Economies)

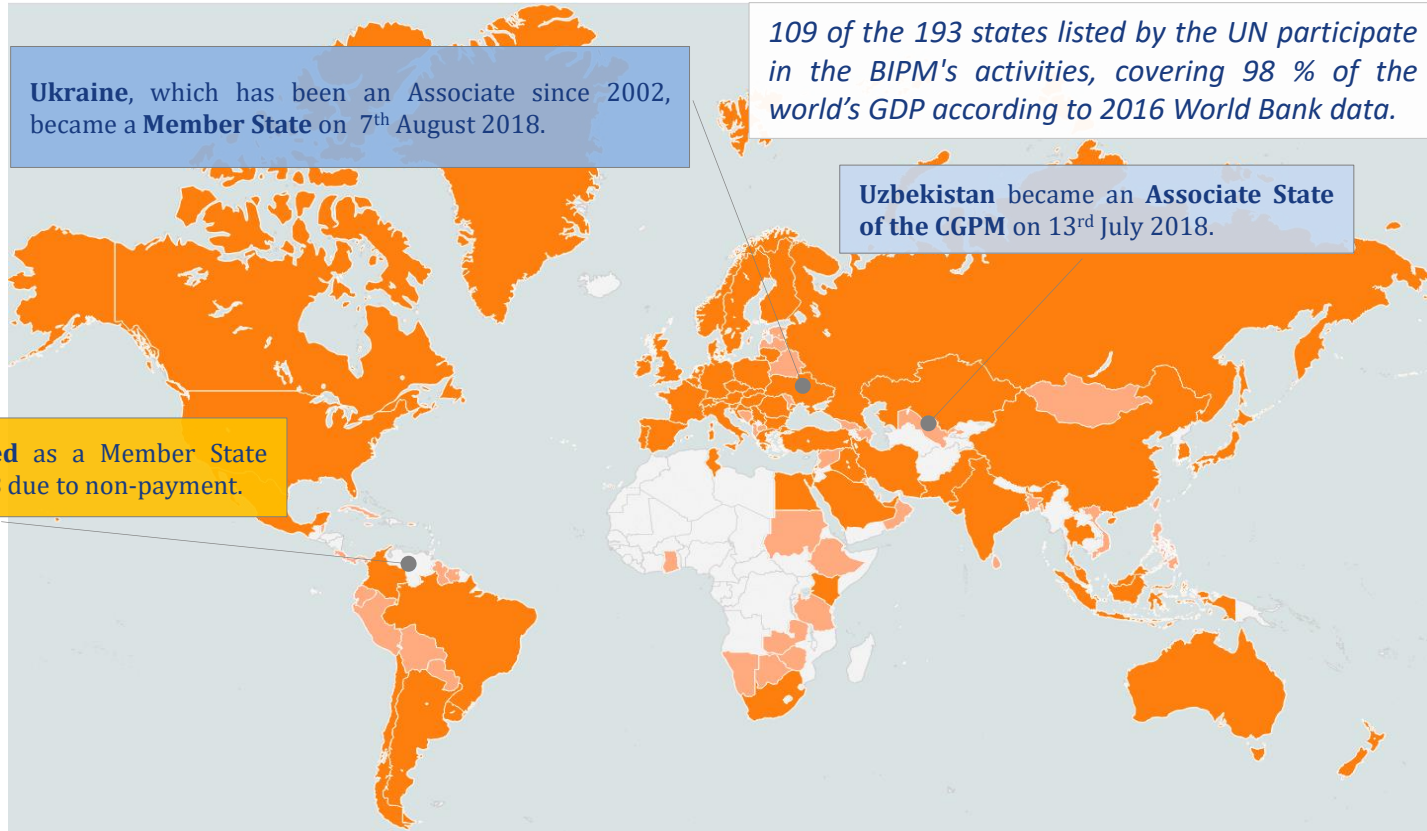
Venezuela is excluded as a Member State on 14th November 2018 due to non-payment.

Ukraine, which has been an Associate since 2002, became a **Member State** on 7th August 2018.

109 of the 193 states listed by the UN participate in the BIPM's activities, covering 98 % of the world's GDP according to 2016 World Bank data.

Uzbekistan became an **Associate State of the CGPM** on 13rd July 2018.

** The official term is "State Parties to the Metre Convention"; the term "Member States" is its synonym and used for easy reference.*

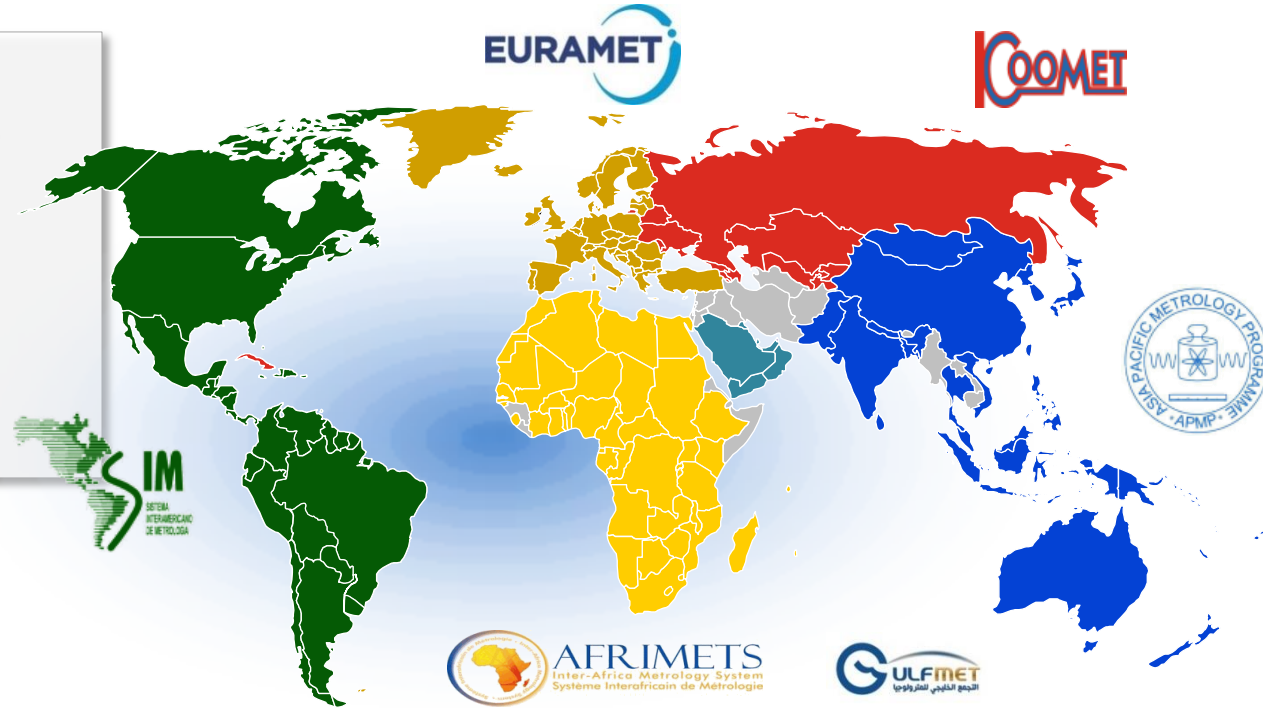


CIPM MRA participation today

Participation

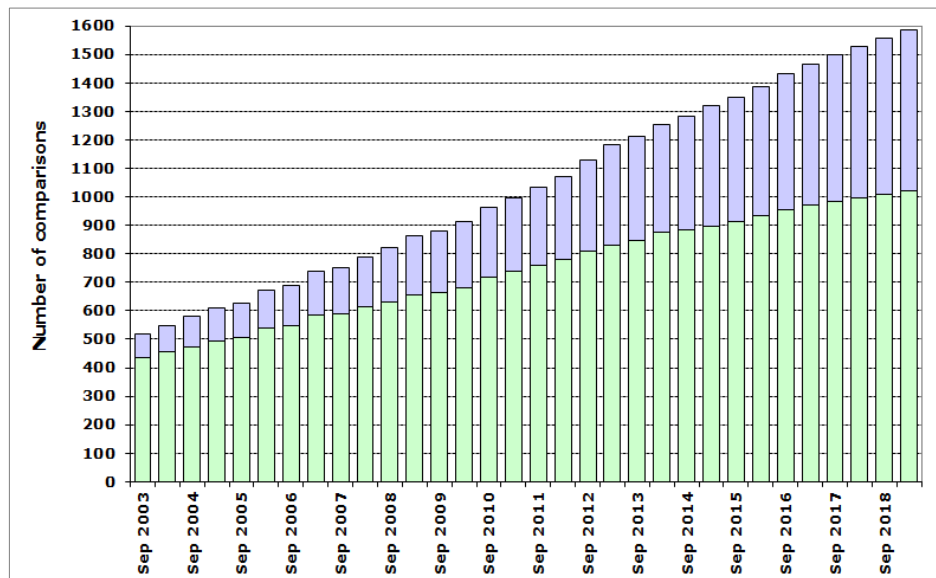
- **101 National Metrology Institutes**
 - 59 Member States
 - 42 Associates
- **4 International organizations**
(ESA, IAEA, JRC, WMO)
- **plus 156 Designated Institutes**

Total: 261 Institutes

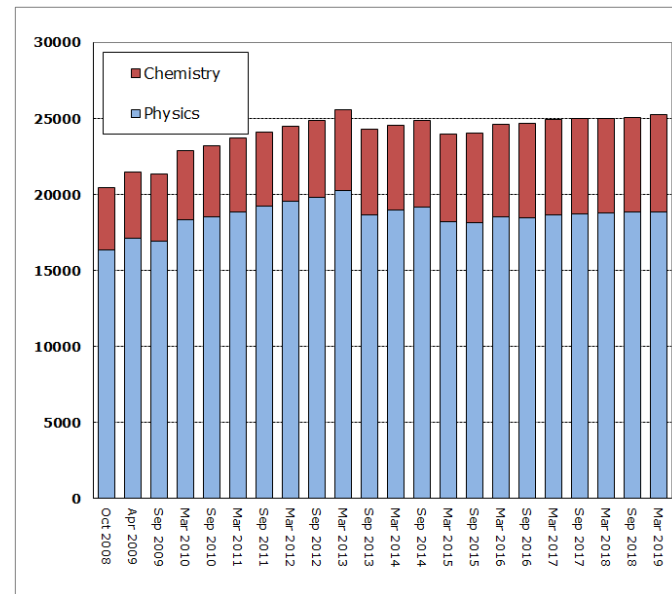


KCDB figures *(March 2019)*

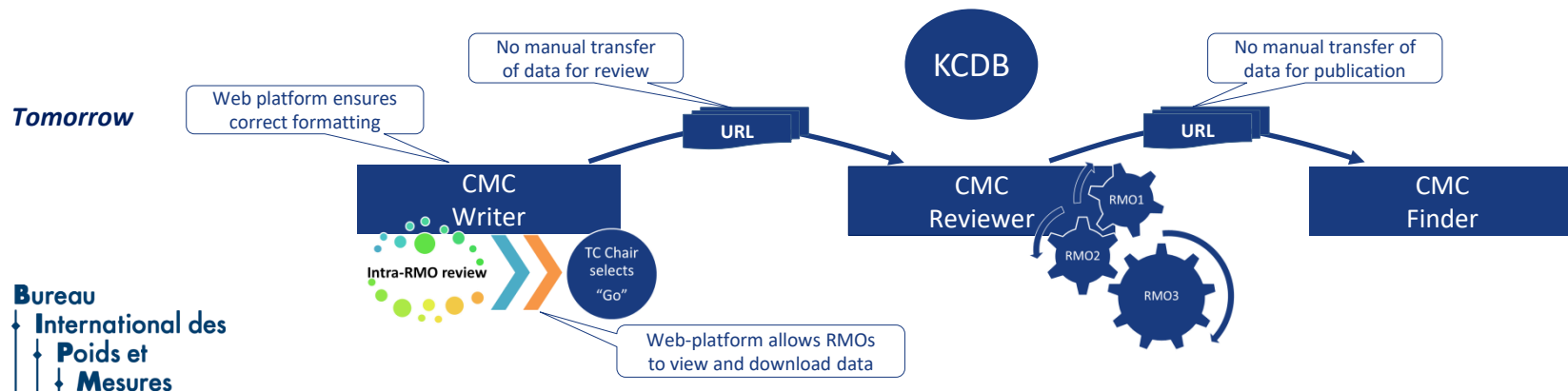
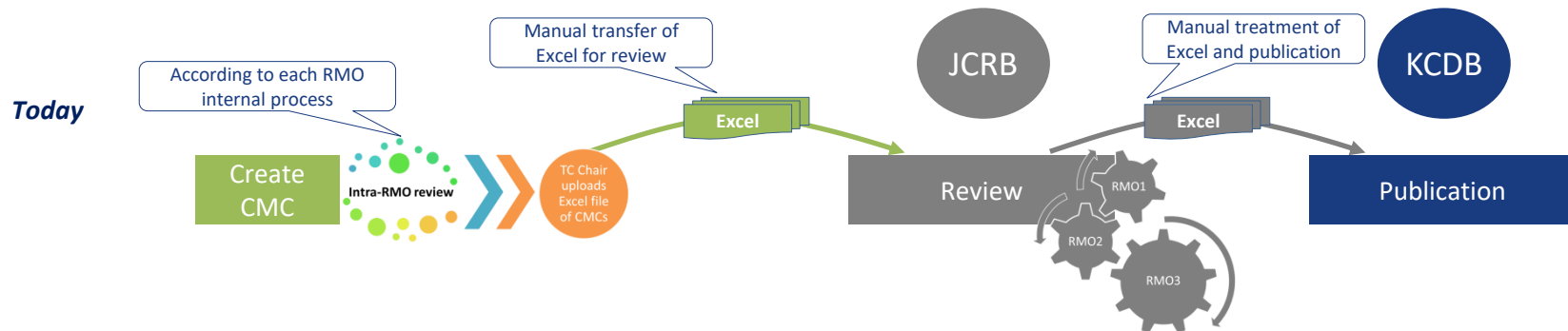
1588 comparisons :
1022 key, 566 supplementary comparisons



Total: 25 268 CMCs



KCDB 2.0 – *General concept*



CIPM MRA review

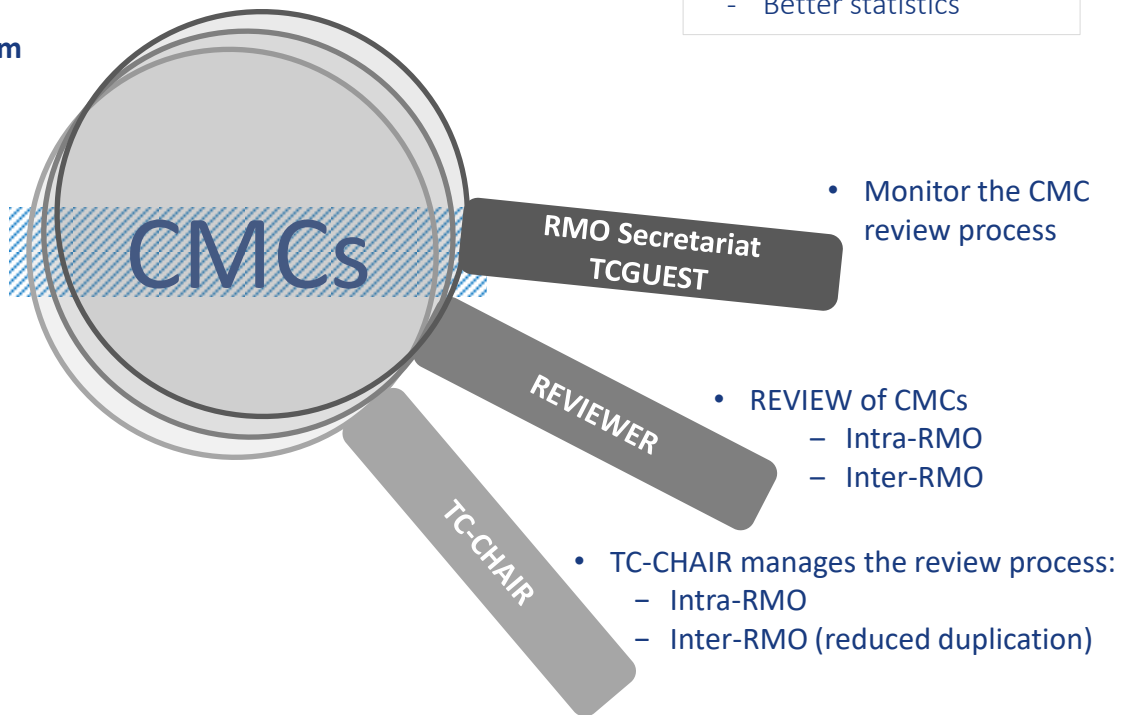
KCDB 2.0 – *General concept*

- Intra-RMO CMC review is integrated into the platform
- Review process and publication database combined

- NMI/DI drafts CMCs directly onto the platform and communicates to TC-CHAIR for review
 - No manual transfer of data for review
 - No manual transfer of data for publication

Improved user experience:

- Faster review
- Tabulated results
- Numerical search
- Greater consistency
- Better statistics



KCDB 2.0 α -demonstration

← to BIPM.org

 CIPM MRA PARTICIPANTS

→ Login



All data listed in the KCDB have been reviewed and approved within the CIPM Mutual Recognition Arrangement



CMCS

COMPARISONS

NEWS

STATISTICS

Comparison search

KCDB

What is the KCDB

Help with searching

Help on CMC edition, review and management

FAQs

CIPM MRA

Participants

About the CIPM MRA

JCRB

Policy documents

CLASSIFICATION OF SERVICES

Acoustics, Ultrasound and Vibration

Chemistry and Biology

Electricity and Magnetism

Ionizing Radiation

Mass and related quantities

Photometry and Radiometry

Thermometry

Time and Frequency

BIPM LIAISONS

Bureau
International des
Poids et
Mesures

BIPM works to foster cooperation with international organizations and promotes the world-wide comparability of measurement.



Food and Agriculture
Organization of the
United Nations



International Atomic Energy Agency



Joint BIPM, OIML, ILAC and ISO declaration



Joint declaration on metrological traceability

The Joint Declaration was refreshed and resigned in November 2018, having been first reviewed by the four parties and agreed at the Quadripartite meeting of March 2018. The revised text was circulated and agreed by the CIPM

Changes to the joint BIPM, OIML, ILAC and ISO declaration

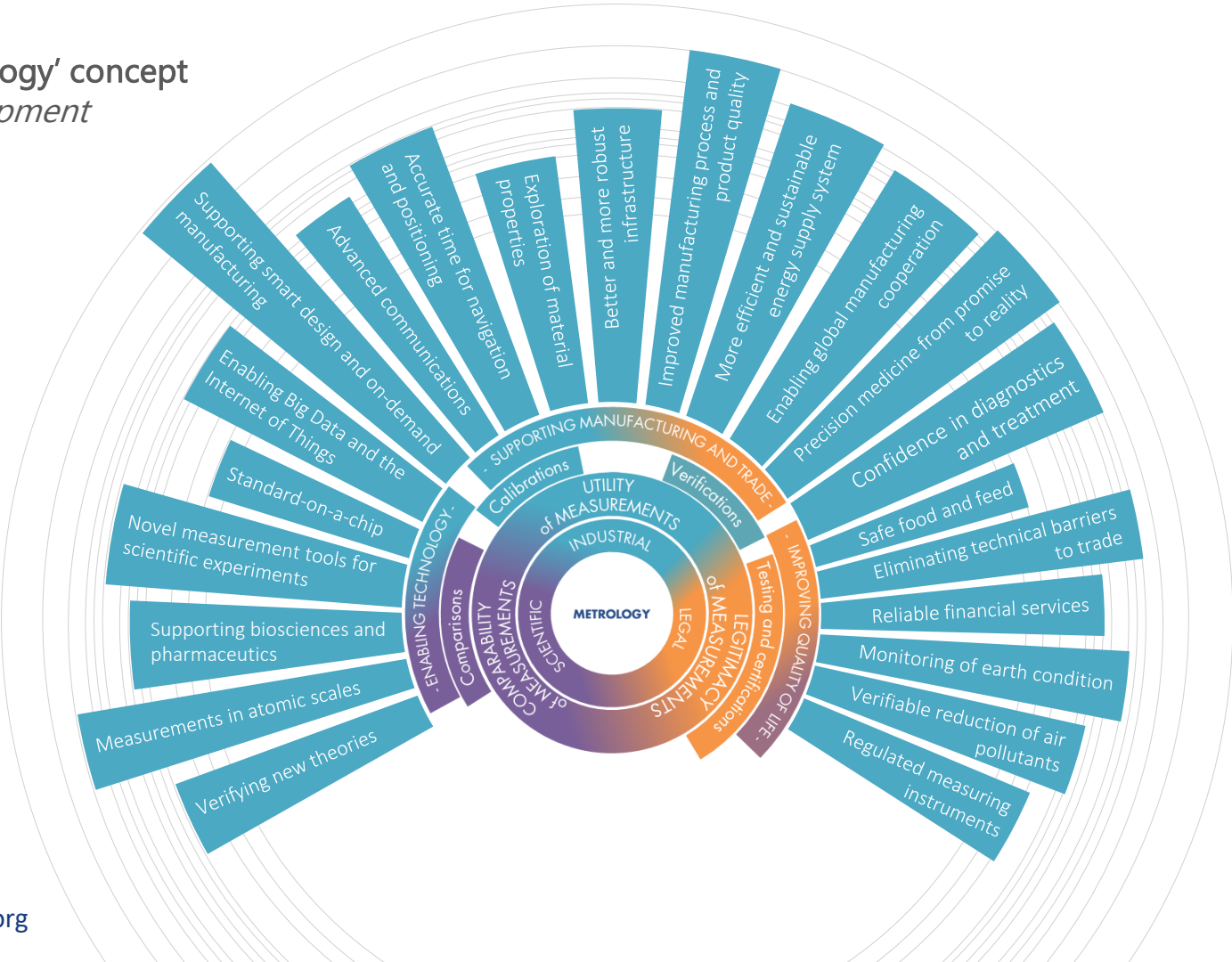
The refresh of the Joint BIPM, OIML, ILAC and ISO declaration was suggested by ISO WG44 during the revision of ISO/IEC 17025, who wanted to reference the Joint Declaration in the revised standard. The Quadripartite meeting agreed that there would be no substantive changes but the document should be reordered.

The following changes were made:

- The order was reversed such that the description of the four signatory bodies came after, rather than before, the recommendations
- The descriptions of the organizations were generalized in as much as data that changes frequently would not be explicitly quoted (e. g the exact number of members of the originations)
- The OIML-CS system was introduced and the now redundant OIML Basic Certificate System and OIML MAA deleted.
- Some small parts of the text were “polished”.

'Single metrology' concept
Under development

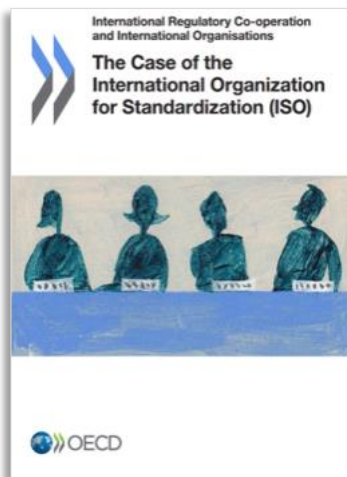
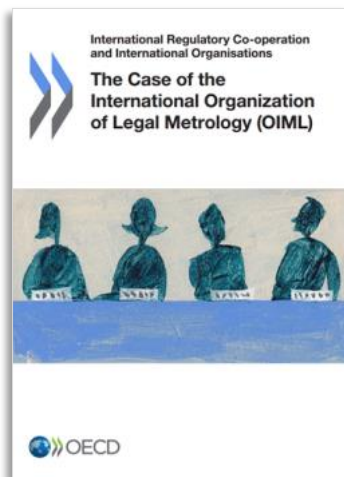
V6



BIPM LIAISONS

OECD case studies (2017-2019)

BIPM, WTO, ASTM International



The Case of the International Bureau of Weights and Measures (BIPM)



Recent changes in 'QI' world

Quality infrastructure – new definition agreed

"The system ..

comprising the organizations (public and private) together with the policies, relevant legal and regulatory framework, and practices

needed to support and enhance the quality, safety and environmental soundness of goods, services and processes".

it relies on

The quality infrastructure is required for the effective operation of domestic markets, and its international recognition is important to enable access to foreign markets.

It is a critical element in promoting and sustaining economic development, as well as environmental and social wellbeing.

- metrology
- standardization
- accreditation
- conformity assessment, and
- market surveillance" (in regulated areas)

adopted in June 2017 by the DCMAS Network
BIPM, IAF, IEC, ILAC, ISO, ITC, ITU, OIML, UNECE and UNIDO
→ the World Bank.

14

DCMAS Network was renamed to **INetQI – International Network on Quality Infrastructure**

- **BIPM** Bureau International des Poids et Mesures
- **IAF** International Accreditation Forum
- **ILAC** International Laboratory Accreditation Cooperation
- **IEC** International Electrotechnical Commission
- **ISO** International Organisation for Standardisation
- **ITC** International Trade Centre
- **ITU** International Telecommunications Union
- **OIML** Organisation Internationale de Métrologie Légale
- **UNECE** United Nations Commission for Europe
- **UNIDO** United Nations International Development Organisation
- World Bank Group and WTO joined *INetQI*



INTERNATIONAL NETWORK ON
QUALITY INFRASTRUCTURE

Customs Convention on the temporary importation of scientific equipment



WORLD CUSTOMS ORGANIZATION
ORGANISATION MONDIALE DES DOUANES
Established in 1952 as the Customs Co-operation Council
Créée en 1952 sous le nom de Conseil de coopération douanière

General Secretariat

PG0128E1a

Brussels, 25 July 2006.

POSITION AS REGARDS RATIFICATIONS AND ACCESSIONS

(as at 1 July 2006)

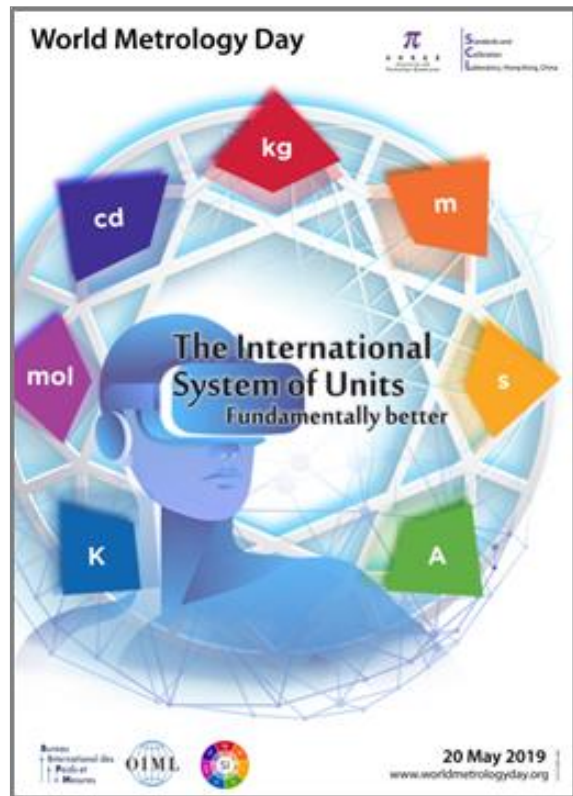
Customs Convention on the temporary importation of scientific equipment

Entered into force : 5 September 1969

World Metrology Day



World Metrology Day 2019



The theme of World Metrology Day in 2019 is ***“The International System of Units - Fundamentally better”***

Information on national WMD activities is posted on the website:
<http://www.worldmetrologyday.org>

The 2019 poster was designed by the
Standards and Calibration Laboratory,
Hong Kong, China.



Standards and
Calibration
Laboratory, Hong Kong, China

RMO poster history:

2013: EURAMET
2014: APMP
2015: AFRIMETS
2016: COOMET - VNIIMs
2017: SIM –INM Colombia
2018: EURAMET
2019: APMP
2020: AFRIMETS
2021: GULFMET

CIPM and the JCRB news

CIPM (March 2019) decisions

Decision CIPM/108-05

The CIPM supported the establishment of a Joint Task Group at an operational level to further improve the cooperation between the BIPM and the International Organization of Legal Metrology (OIML), following the proposal made by the President of the International Committee of Legal Metrology (CICLM). Dr T. Liew was appointed to act as CIPM liaison to the Task Group.

CIPM (March 2019) decisions

Decision CIPM/108-06

The CIPM thanked the members of the CIPM Task Group for Promotion of the SI and decided that it had successfully completed its tasks. It thanked the PR Expert Group and asked them to continue with their effective collaboration with the BIPM International Liaison and Communication Department and their coordination role with PR experts amongst National Metrology Institutes world-wide.

CIPM (March 2019) decisions

Decision CIPM/108-09

The CIPM thanked the Presidents of the Consultative Committees for their work and their excellent reports to the 26th meeting of the CGPM. It decided to reappoint the Presidents of the following Consultative Committees for four-year terms:

- Consultative Committee for Acoustics, Ultrasound and Vibration (CCAUV): Dr T. Usuda.
- Consultative Committee for Electricity and Magnetism (CCEM): Dr G. Rietveld.
- Consultative Committee for Length (CCL): Dr I. Castelazo.
- Consultative Committee for Mass and Related Quantities (CCM): Dr P. Richard.
- Consultative Committee for Photometry and Radiometry (CCPR): Dr M.L. Rastello.
- Consultative Committee for Ionizing Radiation (CCRI): Dr W. Louw.
- Consultative Committee for Thermometry (CCT): Dr Y. Duan.
- Consultative Committee for Units (CCU): Prof. J. Ullrich.

CIPM (March 2019) decisions

Decision CIPM/108-13

Following Decision CIPM/107-13, the CIPM confirmed the establishment of the CIPM Task Group on “unit” and asked the Chair to propose terms of reference to the next meeting of the CIPM that address the comments of CIPM members regarding the expansion of its scope. It appointed Prof. J. Ullrich as the Chair. Drs F. Bulygin, I. Castelazo, H. Laiz, A. Steele, Prof. P. Neyerzhmakov and the Director of the BIPM were appointed to be members.

CIPM (March 2019) decisions

Decision CIPM/108-17

The CIPM appointed Prof. P. Neyezhnikov to represent the CIPM at the Joint Committee for Guides in Metrology (JCGM).

CIPM (March 2019) decisions

Decision CIPM/108-19

In response to discussions held before the adoption of Resolution 3 “On the objectives of the BIPM” at the 26th meeting of the CGPM, the CIPM established a CIPM Task Group to propose terms of reference for a Working Group of Member State representatives. It appointed Dr W. Louw as its convener, assisted by Drs P. Richard and A. Steele. Drs F. Bulygin, I. Castelazo, N. Dimarcq, H. Laiz, T. Liew, Prof. J. Ullrich and the Director of the BIPM were appointed as the members.

It charged the Director of the BIPM to provide the Task Group with appropriate background information, in a concise format, as soon as possible.

It requested the Task Group:

- to identify the main issue(s),
- to determine if any of those issue(s) can be addressed by the CIPM,
- to propose terms of reference for a Working Group of Member State representatives - for agreement by the CIPM prior to circulation, and
- to establish a timeline consistent with the meeting of Member State representatives to be held in October 2019.

40th JCRB outcomes (March 2019)

Action 40/1: The JCRB decides that the informal QMS meeting after the 40th JCRB be open to all JCRB members and that minutes be taken for any recommended actions for the next JCRB. Any future QMS discussion meetings will take place before the JCRB as further preparation for the formal QS items as an integral part of the plenary agenda. Action 40/2 In order to support the restructuring of the CIPM MRA document suite, the JCRB Delegate from each RMO will assign a person to support the review of the drafts by 31 March 2019.

Action 40/2: In order to support the restructuring of the CIPM MRA documents, *Dr. Anna Chunovkina from COOMET* each RMO will assign a person to support the review of the drafts by 31 March 2019.

Action 40/4: BIPM to review existing JCRB documents for guidance relating to CIPM MRA participants that wish to cease their involvement in the CIPM MRA, and to prepare a summary and a proposal (if necessary) to be presented to the 41st JCRB.

40th JCRB outcomes (March 2019)

Recommendation 40/1: The JCRB agrees that the Hybrid Comparison scheme proposed by APMP may be used as an example of “Other available knowledge and experience” in Section 3 of CIPM MRA D-04, which underpins CMCs. It was noted that the use of Hybrid Comparisons is not an alternative to participation in key or supplementary comparisons when accessible. It was also noted that it is not intended to include Hybrid Comparisons within Appendix B of the KCDB. This agreement is to be sent to the CIPM for approval in order to expedite communication to the Consultative Committees.

CBKT FIGURES:

Over 75 % of Member States and Associates have participated in the CBKT Programme
(as trainees, lecturers and sponsors)

16 CBKT projects

- 12 Completed
- 4 Ongoing

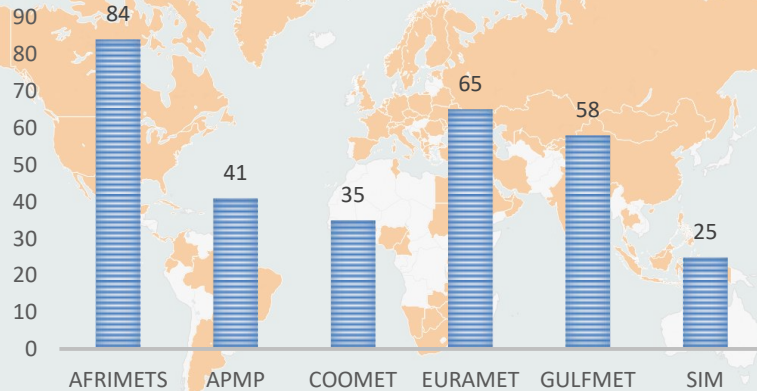
308 people

from 83 countries have
benefited

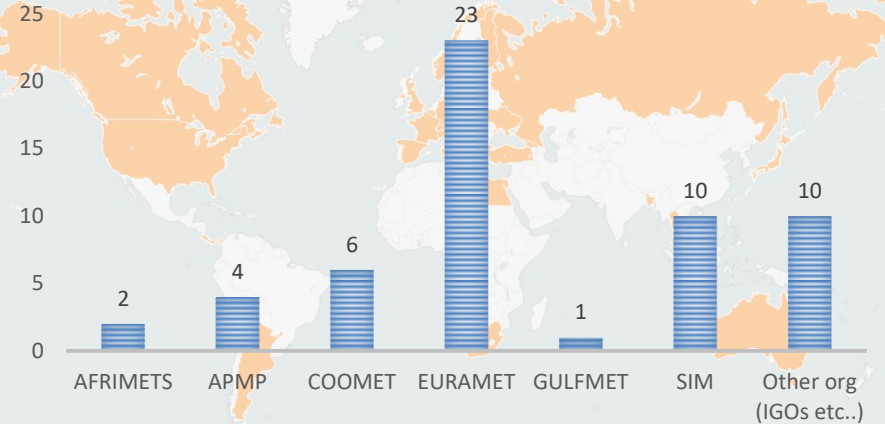
56 invited lecturers

from 27 countries supported to
deliver the projects

CBKT BENEFICIARIES



INVITED LECTURERS



DIRECT OUTCOME: *Leaders of tomorrow courses...*

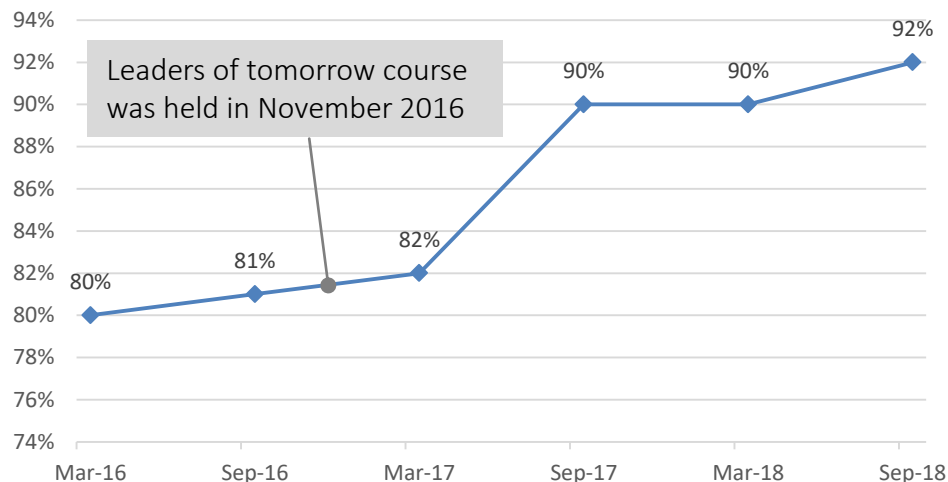
Balancing the load

- **14 new** RMO TC/WG Chairs
- **12 existing** RMO TC/WG Chairs benefited from the CBKT programme

Increasing efficiency

- **10 % increase** in CMC review performance

CMC review performance: adherence to deadlines



DIRECT OUTCOME: *Sound beginning course...*

"Right first time" CMC publication in the KCDB by 4 Associates joined after 2010.

The course was held in November 2017!


- **Zimbabwe (joined in 2012):**
13 CMCs in Thermometry - published in July 2018

- **Namibia (joined in 2012)**
7 CMCs in Mass - published in Sept 2018

- **Zambia (joined in 2010)**
11 CMCs in Thermometry – published in November 2018

- **Azerbaijan (joined in 2015)**
1 CMC in Viscosity - published in July 2018

Cc Andy Henson; Johanne

 You forwarded this m

Good day Chingis, Andy and Johanne

I hope you are well and your family in Paris. I am happy to advise that after completing the training course , "Sound Beginning in the CIPM MRA" I have managed to submit our QMS for approval to our RMO, Afrimets and it has been aproved. We prepared our CMCs for the temperature Laboratory and the are now on the stage of Inter RMO review stage. We hope to have our CMC published soon.

Thank you for the opportunity for the training course,

Regards,

B Chibaya
Head of Temperature Metrology
SIRDC-NMI Zimbabwe
+263772107300

- **Botswana (joined in 2012)**
3 CMCs in Thermometry – at the final approval

OUTCOMES: *Metrology for Safe Food and Feed*

NMIs participate in Key Comparison (Model 2)
(ZEN Calibration Solutions: 2018)

CCQM-K154.a



Key comparisons:

- ZEN (2018)
- AFB1 (2019/2020)
- DON (2021)
- PAT (2022)



AFRICA FOOD SAFETY WORKSHOP

Africa Food Safety Workshop to Promote Standards, Reliable Methods of Analysis and Interinstitutional Cooperation, for better Control of Mycotoxins and Related Contaminants

The workshop seeks to contribute to better food safety control systems in Africa while establishing and strengthening networks among food safety stakeholders.

The workshop will incorporate presentations and discussions with international experts on:

- standards and methods of analysis and control of mycotoxins;
- veterinary drugs and pesticide residues;
- food microbiology including linkage to antimicrobial use, residues and resistance;
- food traceability and authenticity


Date: 4-8 June 2018
Venue: Pretoria | South Africa
Contact: FoodSafetyWorkshop@nmisa.org

Information on Technical papers and exhibition opportunities to follow



*Over 90 delegates
from IAEA-AFRA
regional food
safety network
participated the
workshop!*

→ The Metrology Summer School is organized by the BIPM with the Italian Physical Society and will be held in Varenna, Italy.

Course outline 

The School has a modular structure, with a 3-day Core Module on the "Fundamental Metrology" and a choice of two 3-day Optional Modules: "Physical metrology" and "Quality of life":

Module I: Physical metrology (Optional)

4-6 July

The realization of the unit of mass, the Avogadro project, measuring electricity, optical clocks with trapped ions and test of the equivalence principle with optical clocks, time scale for metrology and navigation systems, radiometry, photometry.

Module II: Fundamental metrology (Core)

7-9 July

Measurement uncertainty, mathematical and statistical tools for time varying quantities, global traceability, big data, metrology at the international stage, the SI, temperature measurements beyond ITS-90.

Module III: Quality of life (Optional)

10-12 July

Applications of metrology in chemistry and biology, radiation dosimetry, global temperature measurement, clinical chemistry, atomic weights of the elements, radioactivity metrology, reference materials in chemistry, metrological application of NMR and qNMR in organic analysis.

Applications are open until 18 April 2019!!!

Support from the
IEEE UFFC society

CBKT/METAS
support

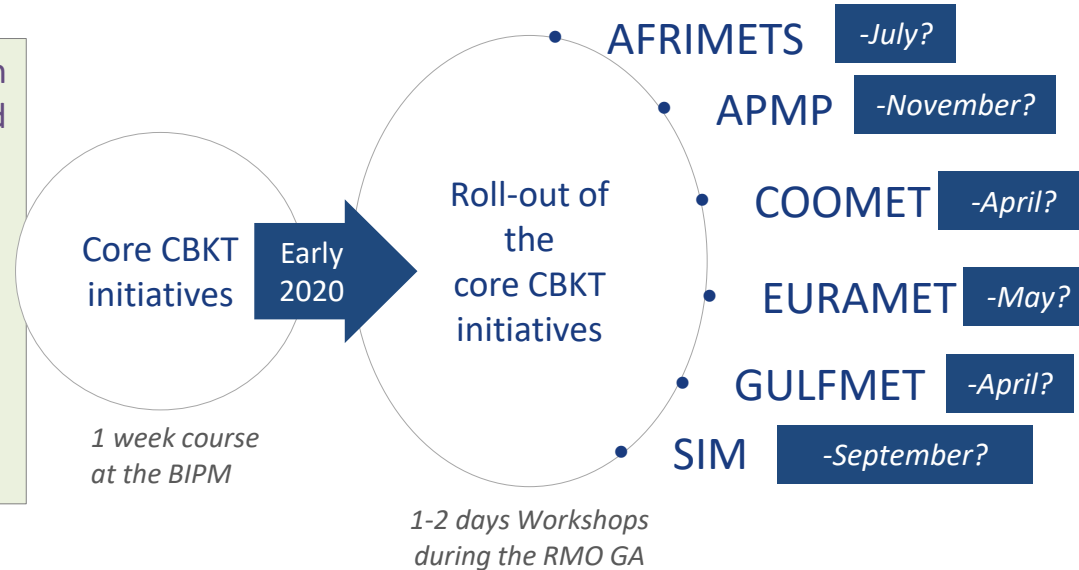
Core CBKT initiatives 2020-2023

Work Programme of the BIPM for the four years 2020-2023

The CIPM MRA support activities* have been currently identified as core financed and address the following topics:

- Participation in the BIPM activities
- Sound beginning
- Balancing the workload
- Future leaders

**Funded (or partly funded) by the BIPM dotation*

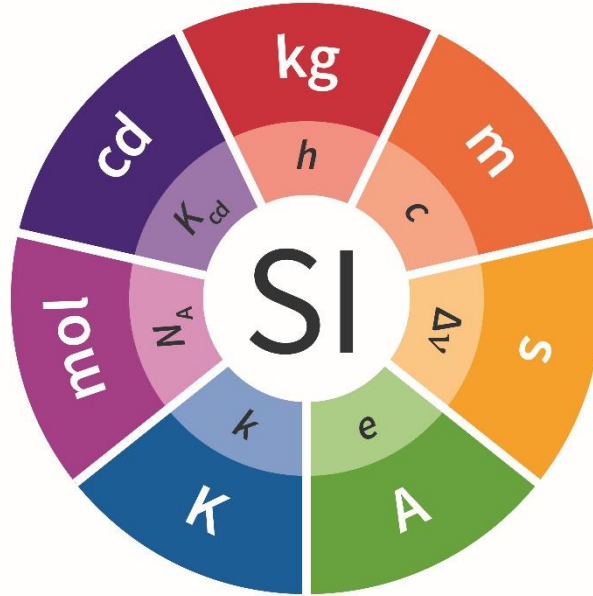


Upcoming meetings and events at the BIPM

From 6 to 12 April 2019	<i>25th meeting of the CCQM and related meetings</i>
From 13 to 17 May 2019	<i>17th meeting of the CCM and related meetings</i>
From 14 to 17 May 2019	<i>JCGM Working Group 1: GUM at Västerås, Sweden</i>
From 3 to 7 June 2019	<i>27th meeting of the CCRI and related meetings</i>
From 24 to 29 June 2019	<i>JCGM Working Group 2: VIM</i>
From 16 to 20 September 2019	<i>24th meeting of the CCPR and related meetings</i>
From 23 to 27 September 2019	<i>12th meeting of the CCAUV and related meetings</i>
From 8 to 9 October 2019	<i>24th meeting of the CCU</i>
10 October 2019	<i>BIPM Workshop ATFT: the ultimate frontier for remote comparison methods</i>
From 25 to 29 November 2019	<i>JCGM Working Group 2: VIM</i>
From 2 to 3 December 2019	<i>Meeting of JCTLM Members and Stakeholders</i>
From 3 to 6 December 2019	<i>JCGM Working Group 1: GUM</i>
4 December 2019	<i>Meeting of the JCTLM-WG-TEP</i>
4 December 2019	<i>Meeting of the JCTLM-DBWG</i>
From 5 to 6 December 2019	<i>21st meeting of the JCTLM Executive Committee</i>

Thank you.

andy.henson@bipm.org



Bureau
International des
Poids et
Mesures

