



53rd CIML Meeting - Working Document

Additional Meeting Document

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Agenda item 9.3: Updates by organizations in liaison

BIPM Update Report

BIPM Liaison Report to the 53rd CIML Meeting

Hamburg, Germany

October 2018

THE VISION, MISSION AND OBJECTIVES OF THE BIPM

The BIPM is an intergovernmental organization established by the Metre Convention, through which Member States act together on matters related to measurement science and measurement standards.

Its **vision** is to be universally recognised as the world focus for the international system of measurement.

Its **mission** is to work with the NMIs of its Member States, the RMOs and strategic partners world-wide and to use its international and impartial status to promote and advance the global comparability of measurements for:

- Scientific discovery and innovation,
- Industrial manufacturing and international trade,
- Improving the quality of life and sustaining the global environment.

THE OBJECTIVES OF THE BIPM

- **To represent the world-wide measurement community**, aiming to maximize its uptake and impact.
- **To be a centre for scientific and technical collaboration between Member States**, providing capabilities for international measurement comparisons on a shared-cost basis.
- **To be the coordinator of the world-wide measurement system**, ensuring it gives comparable and internationally accepted measurement results.

Fulfilling our mission and objectives is underpinned by our work in:

- *capacity building*, which aims to achieve a global balance between the metrology capabilities in Member States;
- *knowledge transfer*, which ensures that our work has the greatest impact.

BIPM MEMBERSHIP

As of August 2018 the BIPM had 60 Member States, and 42 Associate States and Economies of the General Conference on Weights and Measures (CGPM). Montenegro became a Member State as from 24 January 2018, after having been an Associate State of the CGPM for more than seven years. Ukraine became a

Member State as from 07 August 2018, after having been an Associate State of the CGPM for 16 years.

Ethiopia and Tanzania became Associate States of the CGPM as from 1 January 2018. Unfortunately, Yemen ceased to be an Associate State at the beginning of 2018 due to persistent non-payment of its subscriptions.

The State of Kuwait became an Associate State of the CGPM as from 23 March 2018.

The Republic of Uzbekistan became an Associate of the CGPM on 13 July 2018.

A number of other states are in discussion to participate in the BIPM activities.

REVISION OF THE SI

The BIPM is leading the international effort towards the revision of the SI. The ongoing work includes proposals for new definitions of the *kilogram, ampere, kelvin, and mole* in terms of fixed numerical values of the Planck constant, elementary charge, Boltzmann constant, and Avogadro constant, respectively. Measurement uncertainty targets have been set so that redefinition of the units should not impact the vast majority of users.

At its meeting in October 2017, the CIPM decided to take the next step towards the expected redefinition of the base units of the SI at the 26th CGPM, which will take place in Versailles in November 2018. Draft Resolution A "On the revision of the International System of Units (SI)" was submitted to the BIPM Member States in February 2018 as a part of the Convocation.

The CIPM has reviewed the work carried out by its Consultative Committees over recent years, particularly the recommendations confirming that the conditions necessary to progress to redefinition have been fulfilled.

The CIPM also agreed that the latest and final values for the constants that will be used to revise the SI should be published. These have been calculated by the CODATA Task Group on Fundamental Constants, and have been published in *Metrologia* in October 2017.

Work is well advanced on the new *mise en pratiques* that will allow the definitions to be realized in practice at the highest level. In addition, the 9th edition of the SI brochure is currently being finalized in anticipation of redefinition. In the light of differing views relating to the definition of the term "unit", as captured in a difference between the draft 9th

edition of the SI Brochure and the 8th edition, the CIPM agreed with a proposal from the CCU President to establish a Task Group to reflect on this issue in the longer term. Meanwhile, the CIPM asked the CCU President to organize a vote by correspondence among the CCU members and report back. This vote showed a majority in favour of returning to the wording of the 8th Edition.

The Task Group for the "Promotion of the SI" set up by the CIPM has prepared a range of promotional materials, including the "[SI Brand Book](#)" and [SI Logo graphic files](#).

The [Note for users](#) how this redefinition might affect different areas of measurements was prepared by the Consultative Committees of the CIPM in 2017. It was created to raise awareness of the revision of the SI.

BIPM LIAISON WORK

The BIPM has a series of ongoing institutional and technical relationship and interacts with over 30 international organizations, intergovernmental organizations and international bodies.

The BIPM works with its liaisons through a wide range of forums, including the quadripartite arrangement with the International Organization for Standardization (ISO), the International Laboratory Accreditation Cooperation (ILAC) and the International Organization of Legal Metrology (OIML) as well as via working groups (WGs), such as those operated by the Joint Committee for Guides in Metrology (JCGM). In particular, OIML can be considered as a sister organization to the BIPM. As such the BIPM staff and the BIPM have worked increasingly closely in recent years. This trend continues. Whilst the missions of the two organizations are complementary, both now present an integrated description of the worldwide metrology infrastructure, and its benefits.

The BIPM is ready to contribute to the planned update of the OIML document D 1 - Elements for a Law on Metrology and the BIPM is pleased to contribute to discussions around OIML CEEMS Advisory Group.

The BIPM is also participating in the CEEMS Advisory Group together with the organizations listed above.

The BIPM was particularly pleased to note the release of ISO/IEC 17025:2017 – General requirements for the competence of testing and calibration laboratories in November 2017. The

BIPM participated in all ISO CASCO (Committee on Conformity Assessment) WG 44 meetings and drafting group meetings that led to the revision of ISO/IEC 17025.

The BIPM also collaborates with a number of international organizations, including OIML, to support developing countries through the [DCMAS Network](#) (a network on metrology, accreditation, standardization and conformity assessment for developing countries). The name of this Network has been changed to International Network on Quality Infrastructure (INetQI) and its ToR is likely to be revised so as to not limit to only developing countries. Expectation is that World Bank and WTO will also join INetQI.

A study describing the operation of the BIPM and particularly identifies the economic impact mechanisms of the CIPM MRA, particularly those related to international trade, will be developed and published within the OECD initiative "A partnership for effective international rule-making" during 2018-2019. This study will be complementary to [a series of the OECD studies of 2014-2016](#).

WORLD METROLOGY DAY

Each year on 20 May, the world-wide metrology community celebrates the signing of the *Metre Convention* in 1875. The project is run jointly by the BIPM and OIML.

This year's theme is "Constant evolution" with the poster design being supported by METAS, the Swiss NMI and strapline was proposed by INRIM, the Italian NMI. The poster was translated into 17 languages and events were organized in 28 countries. See www.worldmetrologyday.org for more information.

The 2019 theme and design of the World Metrology Day poster are under development. It will reflect the application of the SI following its revision. The poster being designed within the APMP (Asia Pacific Metrology Programme) region, by Standards and Calibration Laboratory (SCL), Hong Kong.

THE CIPM

Among other decisions in 2017 and 2018 the CIPM:

- noted that the agreed conditions for the redefinition are now met and decided to submit draft Resolution A to the 26th

meeting of the CGPM and to undertake all other necessary steps to proceed with the planned redefinition of the kilogram, ampere, kelvin and mole.

- considered the issue of the engagement of Associate States with very-low GDP and with emerging metrology systems in the activities of the BIPM and decided to exempt a subset of very 'small' Associate States with the UN coefficient of 0.02 or less from increase over time, of their subscriptions to 90 % of that which they would pay as a Member State.
- decided that the status of liaison within the context of the Consultative Committees will be decided upon in each case by the CIPM.
- decided to establish an *ad hoc* working group to consider the role of metrology in improving the reproducibility of research data and related topics.

All [CIPM Decisions](#) are available on the BIPM webpages.

CIPM MRA AND KCDB

The CIPM MRA is the '*Mutual Recognition Arrangement of National Measurement standards and of calibration and measurement certificates issued by National Metrology Institutes*'. Participation in the CIPM MRA continues to grow: it has been signed by representatives of 100 institutes – from 59 Member States, 41 Associates of the CGPM (Kuwait is the latest signatory), and four international organizations – and covers a further 158 institutes designated by the signatory bodies. Resolution 5 adopted at the 25th meeting of the CGPM (2014), recognized 15 successful years of CIPM MRA operation and called for a review of its implementation and operation. The main challenge in the future is the workload associated with the underpinning comparisons and peer review processes, and how to take advantage of the confidence that has been established to ensure the CIPM MRA remains sustainable as participation continues to grow. A working group (WG) was established to undertake a consultation and review, including hosting workshops to ensure the widest possible input. The WG published its report, which is available on line at <https://www.bipm.org/en/cipm-mra-review/>.

In respect of implementing the WG recommendations a new database – KCDB 2.0 is

being developed and the implementation will continue through 2019.

As on 31 August 2018, the BIPM key comparison database (KCDB) included a total of 25 054 Calibration and Measurement Capabilities (CMCs):

- 14 862 in Physics,
- 6 207 in Chemistry.

As on 31 August 2018, the KCDB covered 1008 key comparisons and 550 supplementary comparisons.

CAPACITY BUILDING AND KNOWLEDGE TRANSFER (BIPM CBKT) PROGRAMME

The BIPM launched a new Capacity Building and Knowledge Transfer Programme (BIPM CBKT Programme) in 2015 aimed at countries and economies with emerging metrology systems (CEEMS).

The aim of the BIPM CBKT programme is to increase the effectiveness with which Member States and Associates engage in the world-wide coordinated metrological system.

The programme is wholly supported by sponsors and a number of CBKT projects have been held and more are planned. Already, over 75 % of the BIPM Member States and Associates have participated in the CBKT Programme. So far 308 participants (around 124 at the BIPM) from 83 countries have benefited from the CBKT initiatives.

The CBKT programme has become a great success in a short space of time, with a number of successful projects being held so far.

BIPM is grateful to OIML for the support and lecturing in the global CBKT activities held at the BIPM.

A number of other BIPM CBKT projects are under development and support from sponsors is always welcomed. Full details are available at:

<http://www.bipm.org/en/cbkt/>

BIPM ANNUAL REVIEW AND WORK PROGRAMME 2016-2019

The BIPM Annual Review 2017/2018 is available [online](#).

The BIPM Work Programme for the period 2016-2019 is publicly available on the BIPM website: <http://www.bipm.org/en/bipm/>.

The [draft of the BIPM Work programme](#) for the next period 2020-2023 has been developed and made available for consultation with NMIs and representatives of Member States on the website.

BIPM STAFF: KEY CHANGES

- Cécile De Jonckere is appointed as Secretary in the Director's Office/Secretariat as from 1 February 2018.
- Kanigui Coulibaly is appointed as Technician in the Physical Metrology Department as from 15 March 2018.
- Dr Frédéric MEYNADIER has been appointed as a Physicist in the Time Department as from 2 July 2018.
- Mr Alvaro Felipe ROJAS CEBALLOS has been appointed as Legal Advisor in the Director's Office as from 23 July 2018.

ANNEX

60 BIPM Member States (as of August 2018)

42 CGPM Associates (States or Economies*) (as of August 2018)

Argentina	Lithuania	Albania	Kuwait
Australia	Malaysia	Azerbaijan	Latvia
Austria	Mexico	Bangladesh	Luxembourg
Belgium	Montenegro	Belarus	Macedonia (former Yugoslav Republic of)
Brazil	Netherlands	Bolivia	Malta
Bulgaria	New Zealand	Bosnia & Herzegovina	Mauritius
Canada	Norway	Botswana	Moldova (Republic of)
Chile	Pakistan	CARICOM*	Mongolia
China	Poland	<i>(11 members:</i>	Namibia
Colombia	Portugal	<i>Antigua and Barbuda</i>	Oman
Croatia	Romania	<i>Barbados</i>	Panama
Czech Republic	Russian Federation	<i>Belize</i>	Paraguay
Denmark	Saudi Arabia	<i>Dominica</i>	Peru
Egypt	Serbia	<i>Grenada</i>	Philippines
Finland	Singapore	<i>Guyana</i>	Qatar
France	Slovakia	<i>Saint Kitts and Nevis</i>	Seychelles
Germany	Slovenia	<i>Saint Lucia</i>	Sri Lanka
Greece	South Africa	<i>Saint Vincent and the Grenadines</i>	Sudan
Hungary	Spain	<i>Suriname</i>	Syrian Arab Republic
India	Sweden	<i>Trinidad and Tobago)</i>	Tanzania (United Republic of)
Indonesia	Switzerland	Chinese Taipei*	Uzbekistan
Iran (Islamic Republic of)	Thailand	Costa Rica	Viet Nam
Iraq	Tunisia	Cuba	Zambia
Ireland	Turkey	Ecuador	Zimbabwe
Israel	Ukraine	Estonia	
Italy	United Arab Emirates	Ethiopia	
Japan	United Kingdom	Georgia	
Kazakhstan	United States of America	Ghana	
Kenya	Uruguay	Hong Kong (China)*	
Korea (Republic of)	Venezuela	Jamaica	



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