Bureau International des Poids et Mesures

BIPM **Liaison Report**

to the 35th ISO/CASCO Plenary to be held in January 2021

November 2020

THE VISION, MISSION AND OBJECTIVES OF THE BIPM

The BIPM is the 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.

SHORT SUMMARY OF BIPM ACTIVITIES DURING CONFINEMENT

The BIPM was able to adapt quickly to the conditions associated with the COVID-19 outbreak in order to provide maximum support to NMIs during the confinement:

- The key activities, such as the monthly *Circular T*,[1] commissioning of the KCDB 2.0, and the World Metrology Day initiative have been running without interruption – by tele-working.
- The CIPM President has asked NMIs to share examples of how their work is supporting the fight against the COVID-19 pandemic. The responses received are listed in a dedicated 'Metrology in the fight against Covid-19' repository, https://www.bipm.org/en/worldwide-metrology/covid-19-metrology.html
- The CCQM[2] developed comparison protocols for organizing scientific comparisons to underpin testing and organized webinars/workshops for the expert community. A recording of the webinar can be viewed at https://youtube/0Jh65cEPIrI
- A special edition of the JCTLM[3] Newsletter focusing on reliability of measurements in

[1] BIPM *Circular T* is the monthly publication of the Time Department that provides traceability to Coordinated Universal Time (UTC) for the local realizations UTC(k) maintained by national institutes. *Circular T* provides the values of the differences [UTC – UTC(k)] every five days, for about 80 institutes regularly contributing clock and clock comparison data to the BIPM. It includes also other information relevant to the computation of these values.

[2] The Consultative Committee for Amount of Substance: Metrology in Chemistry and Biology (CCQM) is responsible for developing, improving and documenting the equivalence of national standards (certified reference materials and reference methods) for chemical and biological measurements. It advises the CIPM on matters related to chemical and biological measurements including advice on the BIPM scientific programme activities.

[3] The BIPM together with ILAC (International Laboratory Accreditation Cooperation), the IFCC (International Federation of Clinical Chemistry and Laboratory Medicine) created JCTLM and recently the ICSH (International Council for Standardization in Haematology) joined this committee. One of its principle

COVID-19 diagnostics has been published, and summarizes submitted articles from JCTLM Members and Stakeholders. https://www.bipm.org/utils/common/pdf/JCTLM/JCTLM-Newsletter-2020-COVID-19.pdf

- The BIPM Capacity Building and Knowledge Transfer programme launched its "Remote learning support" initiative in May 2020 with the delivery of its first on-line short course for COOMET and its first on-line technical exchange for CMC writers (Q/A sessions).

THE CIPM

The CIPM appointed two new Consultative Committee (CC) Presidents at Session II of its 108th meeting in October 2019.

Dr Héctor Laiz, Director of Metrology, Quality and Environment at INTI (Argentina) was appointed as the President of the Consultative Committee for Acoustics, Ultrasound and Vibration (CCAUV). Dr Laiz succeeds Dr Takashi Usuda, who had been CCAUV President since 2014.

Dr Martyn Sené, Deputy CEO of the NPL (UK), was appointed as President of the Consultative Committee for Ionizing Radiation (CCRI). Dr Sené succeeds Dr Wynand Louw, who has stepped down from the role that he had held since 2014.

Both Dr Laiz and Dr Sené have been members of the CIPM since 2016.

The 109th meeting of the CIPM was held on 12-14 October 2020.

All CIPM Decisions are available on the BIPM webpages.

INSTITUTIONAL NEWS

Liaison with Member States and Associate States of the CGPM

As of January 2020 the BIPM had 62 Member States, and 40 Associate States and Economies of the General Conference on Weights and Measures (CGPM).

The Republic of Belarus became a Member State as from 13 January 2020, after having been an Associate State of the CGPM for more than fifteen years.

The list of Member States and Associate States of the CGPM is annexed to this report.

Liaison with international organizations

The BIPM has a series of ongoing institutional and technical interaction with over 30 international organizations and international bodies.

Links between the BIPM and the ISO:

- ISO interacts with the BIPM at senior level through an annual multipartite meeting at the BIPM (with ILAC and OIML);
- The BIPM collaborates with ISO among with a number of international organizations to support developing countries through the International Network on Quality Infrastructure (INetQI) (previously known as DCMAS Network);
- ISO is a member of the Joint Committee for Guides in Metrology (JCGM) which promotes and maintains GUM and VIM;
- ISO/TC 12: Quantities and units participates in the CCU;
- ISO/TC 43/SC 3: Underwater acoustics and ISO/TC 108/WG 34: Calibration of vibration and shock transducers participate in the CCAUV;
- ISO/TC 212 participates in the CCL;
- The BIPM has Liaison A status *(Organizations that make an effective contribution to the work of the technical committee or subcommittee for questions dealt with by this technical committee or subcommittee)* with the ISO Committees: ISO/CASCO; ISO/REMCO; ISO/TC 12; ISO/TC 43/SC 3; ISO/TC 85/ SC 2; ISO/TC 146; ISO/TC 146/SC 3; ISO/TC 212;
- Provided liaison to ISO/TC 212 WG2 on ISO 15193, 15194, 15195 and 17511;

activities is to maintain a database of reference services and materials that manufacturers in the in-vitro diagnostics industry can use to meet regulatory requirements for testing in laboratory medicine.

- Andy Henson, BIPM ILC Department Director participated in ISO CASCO Working Group 44 for the revision of ISO/IEC 17025. He remains part of the maintenance group for the standard.

World Metrology Day

Each year on 20 May, the world-wide metrology community celebrates the day the *Metre Convention* was signed in 1875. The project is run jointly by the BIPM and the OIML. The theme for 2020 was *"Measurements for global trade"*. The theme raises awareness of the important role measurement plays in facilitating fair global trade - ensuring products meet standards and regulations, and satisfying customer quality expectations.

The 2020 poster was designed in collaboration with the AFRIMETS RMO and specifically with AA&W Legal Metrology Egypt. The poster was translated into more than 20 languages and information on 23 national celebratory events is provided on the 2020 World Metrology Day Resource Website http://www.worldmetrologyday.org/.

The theme for World Metrology Day 2021 will be *'Measurement for health'* and the collaboration will be with SASO, Saudi Arabia, a member of GULFMET.

The OECD/BIPM joint study

The OECD/BIPM joint study: *The Case of the International Bureau of Weights and Measures,* study describing the operation of the BIPM was published on 6 February 2020 within the OECD initiative "Partnership of international organizations for effective international rule-making" (IO Partnership). This study is complementary to a series of the OECD studies of rule-making practices of selected IOs developed during 2014-2016 for FAO, IMO, ISO, OECD, OIML, UNECE, WHO, WTO and OIE.

The IO Partnership is currently working on a Compendium of International Organisations' Practices for Effective International Rulemaking. The Compendium will use examples from the BIPM and from many other IOs to highlight how IOs work better together and how they can learn from each other about best practices as they go forward. The BIPM shares the role of focal point of WG5 on coordination among IOs to better tailor the specific needs of IOs and address more in-depth IO coordination issues.

INETQI

Independent International Organisation for Certification (IIOC) and International Certification Network (IQNet) joined INetQI bringing the number of INetQI members to 14.

Formalization of liaisons

The BIPM formalized its long-standing cooperation with ITU and IFCC in June and September 2020 respectively through the electronic signature of MoUs.

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 102 institutes – from 62 Member States, 40 Associates of the CGPM (Morocco is the latest signatory), and four international organizations – and covers a further 152 institutes designated by the signatory bodies.

In respect of implementing the recommendations of the Working Group on the Implementation and Operation of the CIPM MRA a new database – KCDB 2.0 has been developed and was launched on 29 October 2019. It incorporates the CIPM MRA review platform and has an extended numerical search facility. The new web address is www.bipm.org/kcdb. It is now possible to search on Calibration and Measurement Capabilities (CMCs) and comparisons using a free-keyword search - quick search - or by using a predefined menu - advanced search. You may also filter on CMC approval dates, combine an advanced search with free key words, filter CMC measurand values and uncertainties numerically, sort results and export search results to a spreadsheet.

A user platform with restricted access for creating and reviewing CMCs, and registering comparisons, opened in November 2019.

A new statistical tool was also incorporated early in 2020.

A significant milestone was achieved for the BIPM and the KCDB 2.0 on 2 April 2020 with the publication of a CMC for gravimetry from CENAM (Mexico). This represents the first CMC that has been submitted, reviewed and approved entirely using the KCDB 2.0. This first publication clearly demonstrates the potential of the new system. The CMC was created and submitted for intra-regional review on 26 February 2020. Having completed the SIM review and being subjected to inter-regional review, it was approved and published just five weeks later on the KCDB on 2 April 2020.

As of 5 November 2020, the KCDB included a total of 25 724 CMCs including 6 441 in chemistry and biology, 3 853 in ionizing radiation, 810 in time and frequency, etc. There are 1062 key comparisons and 618 supplementary comparisons registered in the KCDB.

The KCDB CBKT training platform

An offline version of the KCDB 2.0 database has been developed to support the KCDB user community training events. It simulates all aspects of the CMC review and comparison registration processes. The CMC Writers and Reviewers are able to use the offline platform to practice how to create user accounts; to develop their CMCs and to submit their CMCs for intra- and inter-regional review; to act as Reviewers; to submit comparisons as a Pilot; and finally to manage the process as a TC Chair.

CAPACITY BUILDING AND KNOWLEDGE TRANSFER (BIPM CBKT) PROGRAMME

The BIPM launched a new Capacity Building and Knowledge Transfer Programme (BIPM CBKT Programme) in 2016 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.

So far, around 500 participants from 97 countries, covering all six RMOs, have benefited from the CBKT initiatives. At the time of writing, over 76 % of Member States and Associates have participated in the CBKT Programme (as trainees, lecturers and sponsors).

CBKT activities organized during the reporting period include:

- BIPM-EURAMET Workshop: "the KCDB 2.0", on 17-19 February 2020 at the BIPM;
- "Optimizing the CIPM MRA - the KCDB 2.0", on 4-8 November 2019 at the BIPM;
- "Metrology for Safe Food and Feed Organic Analysis and Standards" Workshop, on 4-6 November 2019 in Riyadh (Saudi Arabia);
- Important transitions in the CIPM MRA infrastructure, on 29-30 November in Sydney (Australia);
- EURAMET/BIPM Training Course "Organisation and Piloting of Intercomparisons in Ionizing Radiation", on 9-11 October 2019 in Teddington (UK).

In 2020 the BIPM CBKT Programme was extended to include a "remote-learning" capability, which provides on-line assistance to NMI/DI staff from Member States and Associates in their involvement in the CIPM MRA mechanisms. Since May 2020, six online projects have been organized involving more than 500 participants. Full details are available at: http://www.bipm.org/en/cbkt/

This report focuses on institutional matters during the period under review. For highlights of the BIPM scientific programme for the period, please refer to the BIPM Annual Review 2019/2020: https://www.bipm.org/en/publications/directors-report/

ANNEX

62 Member States

(as of January 2020)

Argentina
Australia
Austria
Belarus
Belgium
Brazil
Bulgaria
Canada
Chile
China
Colombia
Croatia
Czechia
Denmark
Ecuador
Egypt
Finland
France
Germany
Greece
Hungary
India
Indonesia
Iran (Islamic Republic of)
Iraq
Ireland
Israel
Italy
Japan
Kazakhstan
Kenya
Korea (Republic of)
Lithuania
Malaysia
Mexico
Montenegro
Morocco
Netherlands
New Zealand
Norway
Pakistan
Poland
Portugal
Romania
Russian Federation
Saudi Arabia
Serbia
Singapore
Slovakia
Slovenia
South Africa
Spain
Sweden
Switzerland
Thailand
Tunisia
Turkey
Ukraine
United Arab Emirates
United Kingdom
United States of America
Uruguay

40 Associates of the CGPM (States or Economies*)

(as of January 2020)

Albania
Azerbaijan
Bangladesh
Bolivia
Bosnia and Herzegovina
Botswana
CARICOM*
(11 members:
Antigua and Barbuda
Barbados
Belize
Dominica
Grenada
Guyana
Saint Kitts and Nevis
Saint Lucia
Saint Vincent and the Grenadines
Suriname
Trinidad and Tobago)
Chinese Taipei*
Costa Rica
Cuba
Estonia
Ethiopia
Georgia
Ghana
Hong Kong (China)*
Jamaica
Kuwait
Latvia
Luxembourg
Malta
Mauritius
Moldova (Republic of)
Mongolia
Namibia
North Macedonia
Oman
Panama
Paraguay
Peru
Philippines
Qatar
Seychelles
Sri Lanka
Sudan
Syrian Arab Republic
Tanzania (United Republic Of)
Uzbekistan
Viet Nam
Zambia
Zimbabwe

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