

THE CIPM MRA AND ITS IMPACT ON GLOBAL TRADE

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1. INTRODUCCIÓN

The CIPM Mutual Recognition Arrangement, operating under the Inter-Governmental Treaty of the Metre Convention is now 5 years in existence and has proven to be valuable to the users: NMIs, accreditors, regulators, measurement and test laboratories, traders and industry. In the KCDB database of the CIPM MRA (see the BIPM website www.bipm.org) the participating countries and economies can be found as well as the recognized NMIs and other designated institutes (in Appendix A) with their approved calibration and measurement capabilities and CRMs delivered as a mechanism for disseminating traceability in the field of chemistry (in Appendix C), and the results of comparisons demonstrating the validity of the MRA and indicating the degrees of equivalence between the participating institutes (in Appendix B). The economic benefit is demonstrated by different examples and economic studies.

Establishing global comparability requires cooperation with several other national, regional and global organizations, like ILAC and ISO and sector specific organizations.

Inasmuch as the amount of work to be carried out by the NMIs is huge, the NMIs have to coordinate their activities and share work internationally with their sister institutes in other countries.

2. THE NEED OF GLOBAL TRADE

Dealing in raw materials, half products or industrial products, traders don't like to be hindered by all sorts of trade barriers. Nowadays trade covers not only industrial products like machines, cars, chemical products etc., but also food, animals, agricultural products, health care products and environmental issues, like CO₂ pollution shares. One of the trade barriers often encountered is the technical barriers to trade, caused by non-harmonized technical requirements.

A fair, equal level economic playing field, global recognition of measurement and test results obtained by National Metrology and other designated Institutes and accredited laboratories, and overcoming double testing and rejection and

loss of products are essential for a careful use of available resources in the world.

Thus traders need a system where once tested means everywhere accepted.

3. LEGAL REQUIREMENTS

WTO Technical Barriers to Trade and WHO Sanitary and Phyto-Sanitary measures are addressing the taking away of these technical barriers.

This will only successfully be done when one can rely on the measurement and test results obtained and this requires that these results are worldwide comparable and traceable to long term stable internationally agreed references. In fact this means that measurement and test results have to be traceable to the International System of units SI, which operates under the Inter-Governmental Treaty of the Metre Convention. In those cases where traceability to the SI is not (yet) feasible, for example in the field of biological activity, traceability to other internationally agreed references is required, like the WHO International Units.

In the field of clinical measurements (e.g. EU In-Vitro Diagnostics Directive) and food safety more and more regulators require by law traceability to the SI or other "standards of higher order". Measures are being taken by cooperation between the CIPM/BIPM and the NMIs and the responsible organizations in the field of clinical chemistry and laboratory medicine respectively the Codex Alimentarius Commission.

4. THE METRE CONVENTION

The Inter-Governmental Treaty of the Metre Convention created in 1875 and signed by the governments of the Member States aims at the establishment of a globally harmonized and coherent system of units and measurement standards and methods, traceable to long term stable references, nowadays mainly the fundamental constants of nature. The Metre Convention has now been signed by 51 Member States, covering 95% of global trade. Apart of Member States there exist now also Associates to the CGPM.

The CIPM acts on behalf of the Member States and functions as the governing board of the BIPM.

The CIPM is assisted by 10 technical/scientific Consultative Committees covering all fields of metrology.

The BIPM is the executive office of the Metre Convention and has its offices and laboratories in Sèvres (Paris), France.

5. THE CIPM MUTUAL RECOGNITION ARRANGEMENT

The CIPM Mutual Recognition Arrangement has been established in 1999 and has been signed by the directors of the NMIs of the Member States and of the Associates of the CGPM and of two international organizations (EU IRMM and IAEA).

The CIPM MRA is based on peer reviewed capabilities and competences of the participating NMIs and other designated institutes, underpinned by the results of regular series of laboratory comparisons, while all participating institutes must have a quality system in place in compliance with ISO/IEC 17025 and ISO Guide 34 in the case the institutes claim mechanisms of delivering traceability to their clients via Certified Reference Materials. Regional and Inter-regional review of quality systems and claimed calibration and measurement capabilities takes place.

The names of the NMIs and other designated institutes, which have signed up to the CIPM MRA are published in the Appendix A of the CIPM MRA. The approved capabilities of the institutes are published in the Appendix C of the CIPM MRA, while the results of comparisons underpinning the claimed capabilities are published in the Appendix B of the CIPM MRA. These databases are accessible via the website of the BIPM: www.bipm.org

6. ECONOMIC BENEFITS

A transparent internationally recognized system of traceability is a condition for taking away technical barriers to trade. The CIPM MRA is thus the basis for internationally recognized, reliable and comparable measurement and test results. The CIPM MRA and the ILAC Arrangement are fully complementary and deliver a reliable system for international comparability of measurement and test results produced by the NMIs and other designated institutes and under the ILAC Arrangement accredited test laboratories. The economic benefits of taking away technical barriers to trade are evident, by avoiding double testing and avoiding the loss of goods, because it is not accepted at the receiving point. The existence of the CIPM MRA creates an estimated global economic benefit of at

least 4.2 billion euros a year, according to a KPMG study carried out in 1998. Several examples of refused fish, wine and honey export demonstrate the advantages of having an internationally recognized metrological system in place.

Also participation in a multilateral system of mutual recognition is much cheaper than having to sign a multiple of bilateral agreements. The KPMG study shows that the participating NMIs in the CIPM MRA save together yearly an amount of 85 million euros by their participation in the CIPM MRA.

7. FUTURE DEVELOPMENTS

It is expected that the CIPM MRA will cover more and more areas of measurement.

Not only in the "classical" field of "physical" measurements but also in all fields of "chemical" measurements, biological activity, nano-technology, materials properties, etc.. This is achieved through intensified cooperation of the Consultative Committees under the CIPM with the professional organizations in the different fields of specialism and with all other stakeholders in these different fields.

8. THE ROLES OF THE NATIONAL AND REGIONAL METROLOGY ORGANISATIONS

On the global level the CIPM and the BIPM are now cooperating with several other inter-governmental organizations, like the OIML, WMO, WHO, Codex Alimentarius Commission of the FAO/WHO, IAEA and others as well as with many other international organizations, like the ILAC, IFCC, IUPAC, IUPAP, ISO, etc.

It is essential that the same type of cooperation becomes also established on the national and regional level.

As many NMIs do not cover all the fields of metrology it is recommended to designate other expert institutes in the country to act as a NMI for certain quantities, measurands and measurement ranges. In particular in the field of metrology in chemistry rapid developments are taking place. However, this field is so wide that other designated institutes can play an important, effective and efficient role in establishing and disseminating traceability in chemical analysis in a country.

9. CONCLUSIONS

The worldwide infrastructure on metrology, operating under the Inter-Governmental Treaty of the Metre Convention established already in 1875, is more

than alive and is answering to the nowadays need of trade, industry, society and regulators.

In order to respond to all the need, the NMIs are designating also other institutes to act as a NMI for certain quantities, measurands and measurement ranges.

Global, regional and national cooperation with other organizations is needed, like accreditation, standardization, regulators, sector specific professional organizations, proficiency testing providers, quality assurance organizations, industry and calibration, measurement and test laboratories.

Moreover, as the burden of work is enormous, NMIs should work together internationally and certainly regionally and share the work to be done, avoiding unnecessary duplication of work.