

COOMET – an Overview

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Abstract:

COOMET is the regional metrology organisation (RMO) of eastern European and Asian countries; other countries may join COOMET as associated members. The paper gives a review of the history of COOMET and a description of its tasks, its members and its organisational structure. It deals with the project activities of COOMET. A focus of activities is related to the efforts of COOMET NMIs for the realization of the CIPM MRA. The paper ends with a short view on the perspective and strategy for the future of our RMO.

COOMET, as a regional metrology organisation, is not so well known in western countries. Who are the members, what are the tasks, how are their links to the international metrology community? This paper will unveil some details about our organization.

Let's start with the member-countries. The full name of COOMET, "Euro-Asian Cooperation of National Metrological Institutions", roughly defines its geographic design. At present, it

Table 1. List of COOMET member countries and their status.

Abbrev.	Country	Status of membership
BY	BELARUS	full
BG	BULGARIA	full
DE	GERMANY	associated
KZ	KAZAKHSTAN	full
KG	KYRGYZSTAN	full
KP	DPR of KOREA	associated
CU	CUBA	associated
LT	LITHUANIA	full
MD	MOLDOVA	full
RU	RUSSIA	full
RO	ROMANIA	full
SK	SLOVAKIA	full
UZ	UZBEKISTAN	full
UA	UKRAINE	full
GE	(GEORGIA)	applied

comprises 14 member-states. Eight of these are successors to former Soviet republics: Belarus, Kazakhstan, Kyrgyzstan, Lithuania, Moldova, Russia, Ukraine and Uzbekistan; Georgia has applied for membership recently and will probably join COOMET in September. Other European members are Bulgaria, Germany (associated member), Romania and Slovakia. According to its statute COOMET is open for associated members from other regions of the world – this is the reason why Cuba and North Korea are also COOMET member countries. Table 1 shows the complete list of all COOMET member countries.

In Eastern Europe, metrology has a long-established tradition. An example is the metrological research institute of St. Petersburg in Russia, which now bears the name of Mendeleyev. Founded in 1842, it is one of the oldest institutions of its kind. In the same year, the Russian Tsar issued an ordinance on the use of consistent measurement units in all parts of the Russian Empire, which entered into force as from 1 January 1845. Also it should be mentioned that Russia belonged to the initiators and signatories of the Metre Convention which was concluded in Paris in 1875.

During Soviet times a metrological system was developed which met the economic and military needs of the Soviet Union quite well. The national standards of the most important physical quantities were mostly kept in the Russian part of the USSR, although some of the measurement standards of highest accuracy as well as many secondary standards were maintained also by metrological institutions in non-Russian Soviet republics.

A metrological cooperation existed not only inside the Soviet Union. Under the Council for Mutual Economic Assistance (in the West better known as COMECON), a section called “Metrology” was responsible for the assurance of the uniformity of measurements. Although the Council was mainly governed by the interests of the Soviet government, cooperation at the expert level was quite often of real mutual benefit. A lot of working contacts and personal relations among the engineers and scientists involved developed.

In 1989, when the call for freedom became louder and louder in many central and eastern European countries, the closed, compact block of COMECON states started to decay. The newly formed, now independent countries were suddenly forced to adapt to new economic structures which had to fulfil the requirements of an open market economy. Most of these countries inherited only a small fragment – if at all – of the formerly common metrology system.

It was thus a logical step for these countries to aspire a cooperation in order to meet these new challenges. On 12 June, 1991, representatives of the national metrology institutes of Bulgaria, Czechoslovakia, Poland, Romania and the Soviet Union founded the “Cooperation M trologique”, i.e. COOMET¹. The existing relations within the Eastern metrological community endured the political changes of that time and provided a good starting base for the new organization.

The decision for the foundation of this organization was supported by the attitude of the EUROMET committee. Their members recommended the east European countries to cooperate in a regional organisation of their own instead of joining EUROMET.

¹ The full name of COOMET has been changed to its present name, as mentioned above, by a decision of the COOMET Committee in 2000.

A special and important role was allocated to Germany. After the re-unification of the two parts of the country, also the two national metrology institutes – PTB in West Germany and the ASMW² in GDR – were united. Many ASMW experts became staff of the PTB, and the PTB management was familiar with the problems which arose within the scope of the transformation of the East German metrological infrastructure. PTB was thus predestined to assume a bridge function between the two European RMOs, and consequently Germany joined COOMET as an associated member just about one month after its foundation.

According to a PTB conception from 1991 and in agreement with the EUROMET policy, the main task of PTB in COOMET is to support the setting-up of the organization and its working capability. This includes the establishment of contacts between metrology organizations and institutes all over the world and COOMET in its entirety and for its individual members.

A major principle of the German activities within COOMET is to provide help for self-help: the tasks and problems should be identified and formulated by the member-countries themselves. PTB experts offer advice and participate in special projects – as far as this is desired and, as far as this is possible within the scope of resources being available.

What are the areas of COOMET cooperation? The main goal refers to measurement standards of all physical quantities. This structure is similar to that of other metrology organisations, including most of the abbreviations of the related quantities, as shown in Table 2.

Table 2. Physical quantities dealt with in individual COOMET Technical Committees (TCs).

Abbrev.	Physical Quantity	Note
AUV	Acoustics, ultrasound, vibration	<i>(Quantity of <u>M</u>atter = amount of substance)</i> in other organizations often included under <i>Quantity of Matter</i>
EM	Electricity and magnetism	
F	Flow measurement	
L	Length and angle	
M	Mass and related quantities	
PR	Photometry and radiometry	
QM	Physical chemistry	
RI	Ionising radiation and radioactivity	
RM	Reference materials	
T	Thermometry and thermal physics	
TF	Time and frequency	

In addition, there are several further TCs, which are peculiar for COOMET, see Table 3. Especially the fields of Legal Metrology and Accreditation are dealt with by special organisations

² Board for Standardization, Metrology and Testing of Goods

in other regions of the world, e.g. APLMP and WELMEC (for legal metrology) or IAAC and EA (for accreditation issues).

Table 3. COOMET-specific Technical Committees.

Abbrev.	Name of the TC
LM	Legal metrology
AQ	Accreditation and quality systems
GM	General metrology
IT	Information and information technology
TR	Training and raising the proficiency level of experts

The complete organizational structure of COOMET is shown in fig. 1. The organization is headed by the Committee, which consists of one delegate from each member country. They meet on a regular basis once a year and elect the COOMET President from among them for a period of three years. The president is assisted by the Secretariat – which usually comprises two or three staff members of his national NMI who are appointed by him – and by the Presidential Council whose members are approved by the Committee Meeting according to the president’s proposal.

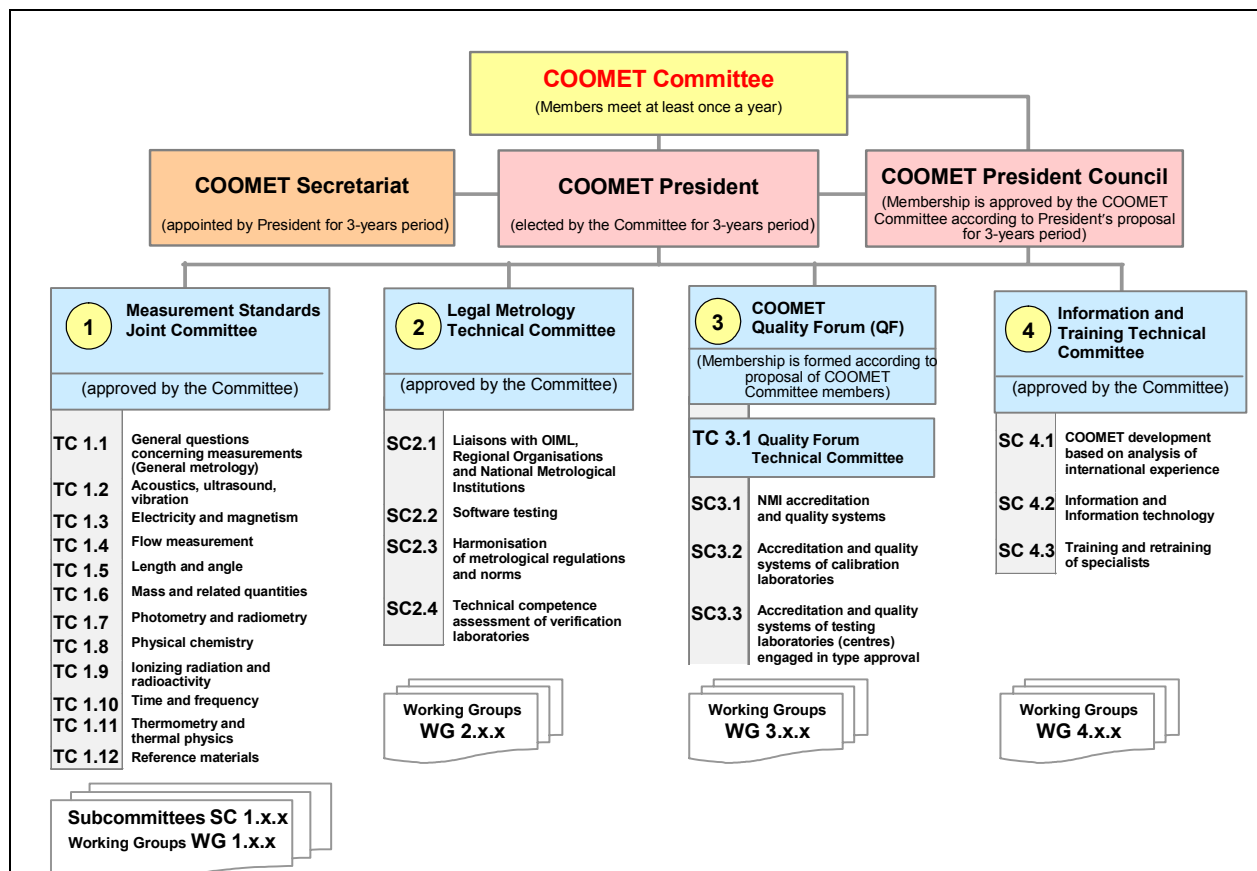


Figure 1. Organizational structure of COOMET

In general, the activities of COOMET are similar to those of other organisations of this type: there are regular meetings of their structural bodies, and cooperation projects are proposed by the respective TCs and, after agreement between interested NMIs, they are performed by the participating NMIs or in other cases the project proposals are cancelled. The majority of projects are dedicated to technical or scientific tasks, as shown in fig. 2.

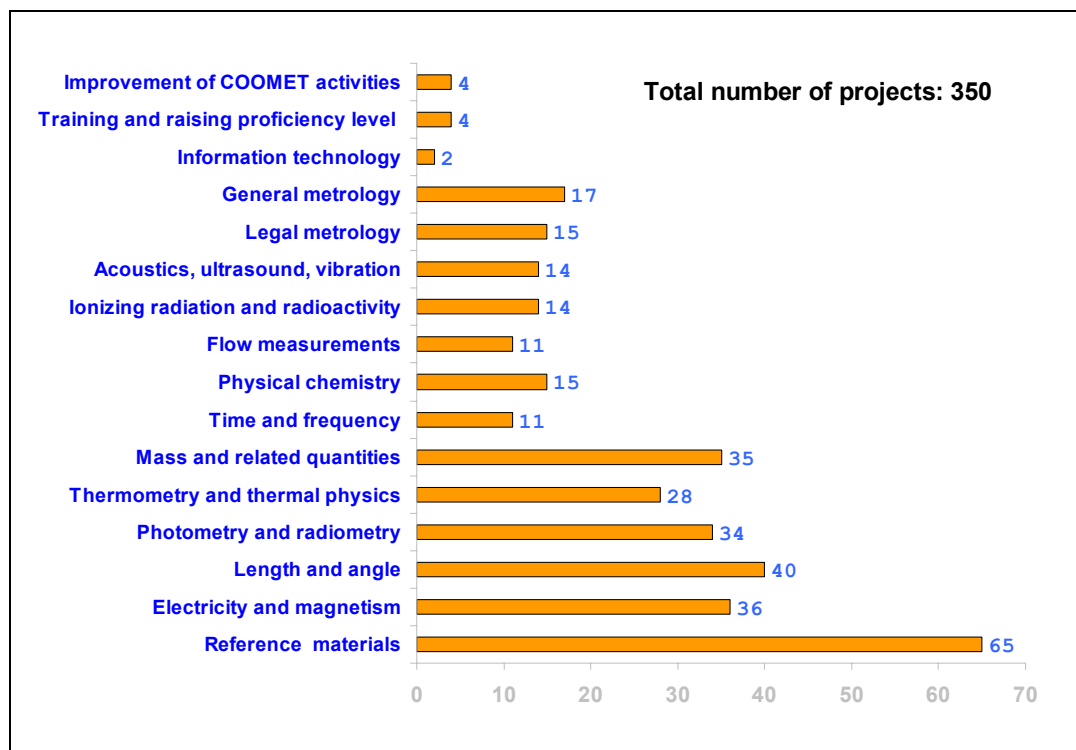


Figure 2. Distribution of projects in the various fields of cooperation.

Many of the projects are carried out as part of the process towards a global mutual recognition of measurements, i.e. the fulfilment of the CIPM MRA requirements. At present, ten COOMET members have signed the MRA, the remaining four are going to sign. The MRA requires

- participation of the NMIs in international Key Comparisons (KC) and in Supplementary Comparisons,
- review of the Calibration and Measurement Capabilities (CMC) of an NMI by experts from NMIs of other RMOs,
- implementation of Quality Systems in the NMIs according to international standards, e.g. ISO 17025,
- participation in the Joint Committee of RMOs and the BIPM (JCRB).

At present, the COOMET signatory members take part in 26 intercomparisons and more than 2850 CMC have been entered into the BIPM database (by April 2006). About half of them originate from the NMIs who enter their CMCs via COOMET (i.e. Belarus, Cuba, Kazakhstan, Russia, Ukraine). The Quality Systems of the NMIs are reviewed by the COOMET Quality Forum. In 2005, peer reviews of the NMI laboratories by experts from other RMOs were started. Representatives of COOMET take part in the JCRB meetings regularly. It was a special highlight when COOMET hosted the 14th JCRB meeting on 12 May, 2005, and, in connection with that

meeting, a joint BIPM-JCRB-COOMET workshop. Fig. 3 gives an impression of the meeting in Minsk last year.



Figure 3. 14th JCRB meeting with representatives of CIPM, BIPM, APMP, COOMET, EUROMET, SADC MET and SIM. Minsk, 12 May 2005.

For about two years, strategies for the future of COOMET have been widely discussed among the president, the vice presidents and the committee members. The increasing demands of the society in many fields – globalization of manufacturing and trade, requirements of WTO membership, global climate changes, saving and efficient use of natural resources and energy, protection of health, consumer rights, environment – cannot be met without reliable measurements. These challenges require a cooperation of metrological institutions across national borders, and regional metrology organizations provide a basis for this cooperation. While the measurement standards and procedures have to be provided by each individual NMI, the reliability and traceability of the measurement results require an intensive exchange of experience and comparisons of measurements.

The above-mentioned fields of activity and the development of science and manufacturing also led to an extension of the scope of metrological tasks. Measurements in the field of micro- and nanotechnology and the huge area of chemical metrology – to mention only two of these tasks – are new challenges for the NMIs of industrialized countries and just as well for developing and transitional economies. Even wealthy nations cannot afford to purchase and maintain all the new

and sophisticated measurement standards on their own, and it is here where a regional cooperation makes sense.

Another question refers to the future members of COOMET. Several COOMET countries are also members of other RMOs, e.g. Bulgaria, Germany, Lithuania, Romania, and Slovakia are EUROMET members. In the long run it will not be possible to be equally active in two RMOs at the same time, and one can expect one or the other of these countries to withdraw from active participation in COOMET. On the other hand there are several other countries, e.g. the Caucasian or the central Asian countries, which can be seen as potential members.

As in this region, Russian is still widely known and spoken – even though it is more and more replaced by English as the language of international communication, especially among the younger specialists – the possibility of communicating easily in Russian will ease the cooperation among these countries for another few years. The well-established and stable relations with West European member countries will continue also in future even if one or the other of them should leave COOMET.

Today, COOMET is an RMO which is recognized by all international and regional metrology organizations. Its international acceptance and reputation will ensure its integration into the international metrological community.