

OIML - OVERVIEW

# The history of the International Organization of Legal Metrology

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## 1 The gestation period, up to 1956

Despite the fact that the International Organization of Legal Metrology is relatively young (it is not yet 50 years old), in fact discussions concerning its establishment started at the dawn of the 20<sup>th</sup> century.

When the Meter Convention was signed in 1875, participants in the founding Conference referred to National Weights and Measures Offices, which were in fact legal metrology bodies since at that time National Measurement Institutes did not yet exist. It was the opinion of these participants that the harmonization of national measurement standards for the kilogram and the meter would be sufficient to eliminate barriers to trade resulting from divergences in measurement results, but in fact it was quickly realized that this harmonization was far from sufficient. Divergences in measurement results exist not only when primary standards are different, but also when the traceability schemes between primary standards and measuring instruments are different or when the accuracy requirements for measuring instruments and verification procedures are not harmonized. This is why the participants in several General Conferences of Weights and Measures (CGPM) discussed, during the first decades of the 20<sup>th</sup> century, the possibility of enlarging BIPM responsibilities to cover practical and legal metrology aspects, these being mainly matters of calibration and verification of measuring instruments.

Following decisions made by the CGPM and by the CIPM (International Committee of Weights and Measures) in 1933 and 1935, a first *International Conference on Practical Metrology* was convened by the French Government in July 1937, in the context of the Paris Exhibition. This Conference, which was attended by representatives from forty countries, was intended to establish a Permanent International Consultative Committee for Practical Metrology acting as an advisory body to the CGPM. Very quickly however, it was decided that the objectives of the Conference should cover “legal

metrology” and the main output of three days of discussions was to create a *Provisional Committee of Legal Metrology* aimed at preparing the establishment of a permanent international body for legal metrology. The *Provisional Committee* should have met in Berlin in 1938. Owing to the prevailing international situation, it was only in 1950 in Paris that it was able to meet for the first time, to start developing the layout of a *Convention Establishing an International Organization of Legal Metrology*. Then during two years the *Provisional Committee* pursued its activities by correspondence and met again in 1952 in Brussels. This meeting and the intense activity which followed resulted in two essential steps in the life of the OIML:

- in 1955, the signature by 24 countries of the *Convention Establishing an International Organization of Legal Metrology*,
- in 1956, the *First International Conference of Legal Metrology*, held in Paris.

## 2 The OIML Founder Fathers

It is not possible to retrace the history of the OIML without mentioning the names of those who contributed significantly to its establishment and first steps. This is however a difficult task owing to the risk of forgetting specific persons whose names do not explicitly appear in the archives of the OIML although they may have positively influenced - sometimes just at the national level - the existence of the OIML.

To diminish this risk, the names given below are extracted from the addresses delivered at the First OIML International Conference and the attendance list of this Conference.

Amongst the participants in the 1937 Conference on Practical Metrology, those who were able to contribute to further steps were mainly Messrs.:

Kösters (Germany)  
 Jacob (Belgium)  
 Nielsen (Denmark)  
 Viaud and Costamagna (France)  
 Rauszer (Poland)  
 Statescu (Rumania)  
 Volet (Switzerland)  
 Chatelain (USSR)  
 Kargacin (Yugoslavia) and  
 Perard (Director of the BIPM).

The Provisional Committee also benefited from the experience of Messrs. Stulla-Götz (Austria), Dolimier (France), Idema (The Netherlands) and Zalutsky (USSR).

Most of these names were referred to in various addresses delivered on the occasion of the First OIML Conference. Special emphasis was put on the role of Messrs. Jacob, who chaired the International Committee of Legal Metrology (CIML), and Costamagna, who had acted as Secretary of the 1937 Conference, of the Provisional Committee, of the First Conference and of the CIML, before being appointed Director of the International Bureau of Legal Metrology (BIML).

In addition, the First Conference was attended by a number of “new” persons who subsequently played a role in the development of the OIML, especially Messrs.:

Vieweg (Germany)  
Christiansen (Denmark)  
de Artigas (Spain)  
Honti (Hungary)  
Koch (Norway)  
König (Switzerland) and  
Bourdoun (USSR).

The Conference was chaired by Mr. Perard with Messrs. de Artigas and Honti as Vice-Presidents. The CIML, chaired by Mr. Jacob, elected Mr. Bourdoun as its First Vice-President.

Most if not all of the persons mentioned above have now passed away. At least three participants in the First Conference are nevertheless still alive. One of them is Mr. Koch, from Norway, who went on to be CIML Member. The other two were members of a unified German Delegation including representatives from both Western and Eastern parts of Germany: those are Messrs. Mühe and Liers who thereafter also represented the Federal Republic of Germany and the Democratic Republic of Germany on the CIML, up to the re-unification of this country.

It should also be noted that two countries which had participated in the 1937 Conference and in the Provisional Committee attended the First Conference as Corresponding Member and Observer respectively: the United Kingdom (represented by Mr. Poppy) and the United States of America (represented by Messrs. Crittenden and then Astin) which joined as Member States in 1962 and 1972 respectively. Other countries became active within the OIML following its establishment: certain of those are mentioned below.

### 3 The first years, 1956–1968

During its first twelve years the OIML simultaneously benefited and suffered from a number of characteristics inherent to its role as defined by the OIML Convention, to the profile of national legal metrology experts, to its membership, and to the economic and political situation which prevailed at this time.

Most of the national legal metrology services in OIML Member States were well established administrations, with relatively numerous technical staff, eager to cooperate at international and, for certain of them, regional levels. For example the regulatory developments within the European Common Market, including the drafting of legal metrology Directives, took place exactly at the same time as the development of the first OIML Recommendations, with practically the same experts from Western European countries working at both levels. Similarly, cooperation within the Council for Mutual Economic Assistance included the development of verification and calibration specifications for measuring devices and the OIML benefited from this activity carried out by Eastern European countries.

However, these beneficial characteristics also had an adverse aspect: the OIML was not really an international body, since most of the human resources were provided by European countries. In addition, Western and Eastern European countries had different views concerning the scope of legal metrology: it was limited to measuring instruments used for trade (and to some extent for medicine, safety and pollution) in Western Europe whereas practically all measuring instruments were covered by mandatory specifications in Eastern Europe. In addition, most of the metrology administrations in this part of the world were included in larger national committees covering standardization and quality control, which in certain cases made the life of legal metrology services somewhat difficult.

The OIML also had to face a problem of acceptance by other international bodies working in fields connected with legal metrology. The cooperation with the bodies of the Meter Convention and the BIPM was nearly non-existent whereas a close cooperation would probably have been useful to promote metrology at the international level. Conflicts appeared mainly with certain standardization spheres; it was considered that OIML work overlapped the responsibilities of ISO/IEC in fields such as the measurement of petroleum products, water meters, electricity meters, gauge blocks, electrical thermometers, etc.

Despite these difficulties the OIML was able to establish its basis and prove its usefulness through its technical output. At the time of the Third OIML Conference held in Paris in 1968, 18 Recommendations had already been approved, 8 were at the level of final drafts and some 33 texts were being developed within the relevant technical secretariats. An extremely important OIML publication had also been approved: the *Vocabulary of Legal Metrology* (developed under the chairmanship of Mr. Obalski from Poland) which was to remain (together with the IEC Vocabulary) the international basis for metrology terminology up to the issuing, some twenty years later, of the *International Vocabulary of Basic and General Terms in Metrology*, the

now well known *VIM* developed through the cooperation of seven international bodies, including ISO, IEC, the BIPM and the OIML.

The growth of the OIML during its first twelve years was also made evident by other parameters such as the number of Member States (36 in 1968) and the more frequent meetings of the International Committee which was chaired by Mr. Stulla-Götz (Austria) from 1962 (date of the Second OIML Conference in Vienna) through 1968 and then by Mr. van Male (The Netherlands).

In parallel with its technical activity, the OIML had from its very beginning initiated actions aimed at encouraging the establishment of sound legal metrology resources in Developing Countries. Amongst the main actors of this activity were Representatives of India, Indonesia and Morocco (Messrs. Putera and Benkirane acting as CIML Members for Indonesia and Morocco over some twenty years), actively supported by other Member States such as Sri Lanka and Cuba, as well as by more industrialized Members e.g. Germany, France, United Kingdom and USSR. Cooperation with UNESCO, UNIDO and ISO/DEVCO was effective and it is unfortunate that at this time the BIPM had not developed any action in favor of development since the needs of Developing Countries in fact cover all aspects of metrology.

#### 4 The planning and internationalization period, 1968–1980

From 1968 it appeared that the OIML work should be re-organized with a view to better utilizing the human and financial resources that the Member States would allocate to this work, coping with the various needs expressed by countries or regions in the field of legal metrology, and diminishing as far as possible the technical conflicts that might exist with other international bodies, especially with ISO.

A complete restructuring of OIML technical bodies, including new working methods and a strict planning of the work was developed at the initiative mainly of the USSR (represented by Mr. Ermakov as CIML Member). This action, in which the Presidential Council and the BIML actively participated, resulted in decisions made by the Fourth OIML Conference (London, 1972), with an implementation over the period 1973–1974 (i.e. the time at which Mr. Costamagna retired as BIML Director). The new OIML work program, operated by a number of Pilot and Reporting Secretariats, represented a significant growth in the OIML activities which would have exceeded the current possibilities of the Organization without a significant growth in its membership (e.g. the USA in 1972) and in parallel a more active technical

participation of certain Member States such as Australia and Japan. This also made OIML work more international and even if most Pilot and Reporting Secretariats continued to be under the responsibility of European Countries, their *international working groups* gradually became truly international.

In order to solve certain conflicts with other international scientific, technical and standardizing bodies as well as with certain regional bodies with legal metrology connected activities, the Fifth OIML Conference (Paris, 1976) which was attended by the Representatives of ten such international and regional bodies, encouraged the development of cooperative agreements which were then implemented (in a rather satisfactory manner) by both the BIML and the OIML Technical Secretariats, under the supervision of the Presidential Council and the CIML.

At the end of the second twelve-year period in the life of the OIML, i.e. at the time of its Sixth Conference (Washington D.C., 1980) the OIML included 46 Member States (two countries, Canada and the People's Republic of China, attending this Conference as observers before joining the OIML as Member States) and 18 Corresponding Members. It had established liaisons with more than 50 international and regional bodies and had issued over 60 publications.

#### 5 The globalization, deregulation and regionalization period, 1980–2000

During this period several economic, social and political aspects of our world deeply influenced the life of the OIML. The first symptoms appeared at the beginning of the eighties to become more and more obvious during the nineties. The so-called "globalization" of our world resulted in the obligation for international and regional bodies to increasingly coordinate their activities and carry out their tasks, bearing in mind what is done within other spheres. Much of this coordination is now conducted under the umbrella of the WTO, and especially its TBT Committee which gives the opportunity to ten or so *international standard-setting organizations* (including ISO, IEC, OIML, etc.) to explain their respective roles and demonstrate to WTO Members that the existing cooperation is effective. In parallel the OIML has developed a closer cooperation with the BIPM (a merger of the two intergovernmental metrology organizations being impossible for the time being) and with ILAC.

The last twenty years have also been an opportunity for many countries to reflect about the need for regulations, especially in technical fields. This evolution appeared clearly in countries which already had a

market-oriented economy, and even more in countries moving from the planned to the market economy. Legal metrology is by definition a regulatory activity and it has been necessary to initiate actions with a view to demonstrating the economic and social role of legal metrology (in connection with that of metrology as a whole) in order to convince Governments that they should continue to support this activity at the national, regional and international levels. A first step was an International Seminar organized in Germany in 1998, with further actions being planned for 2002 or 2003. However, this deregulation tendency connected with economic difficulties in many countries resulted in a significant decrease in the financial resources allocated to national legal metrology services and therefore a decrease in the human resources available within the OIML technical bodies.

The third main aspect (from the point of view of the OIML) was the development of regional activity. This is not specific to legal metrology: scientific metrology, accreditation, standardization and many other activities are also the subject of closer regional cooperation. For the OIML, this resulted in the fact that the already decreasing human resources from Member States had to be shared with regional activities, with a tendency for many people to focus on regional work to the detriment of the international level.

In order to cope with these movements and to maintain worldwide OIML leadership in the field of legal metrology, several important decisions were made by the OIML Conferences in 1984 (Helsinki), 1988 (Sydney), 1992 (Athens), 1996 (Vancouver) and 2000 (London), and by the CIML which, under the chairmanship of Messrs. Birkeland (Norway) from 1980 through 1994, and Faber (The Netherlands) from 1994, met every year (it should be noted that, in response to the increasing rapidity of the events that affected our world, the periodicity of the OIML Conferences was reduced from 6 years to 4 years and that of CIML meetings from two or one and half years to one year).

These decisions mainly dealt with:

- the definition of a general long-term policy for OIML activities;
- as already mentioned, the participation in the organization, in cooperation with the BIPM, IMEKO and the German PTB, of an International Seminar on the economic and social role of metrology (Braunschweig, June 1998);
- the implementation of a study made by Mr. Birkeland concerning the orientations the OIML should follow, including the development of a medium-term *Action Plan*;
- a drastic revision of the OIML technical work program in order to focus on those work items which

are considered as priority topics by a number of OIML Members or the study of which is requested by another international or regional body;

- a restructuring of OIML technical bodies (Technical Committees and Subcommittees) with new work methods (inspired from ISO/IEC rules) in order to introduce better efficiency, rapidity and flexibility in the work;
- a new layout for OIML Recommendations to be developed in terms of performance requirements and supplemented by test procedures and a format to report test results;
- the definition of new responsibilities for the Presidential Council, to better advise the CIML President and Vice-Presidents;
- a restructuring of the OIML Development Council;
- the establishment of a certification system (the *OIML Certificate System for Measuring Instruments*) through which certificates may be issued for types of instruments that meet the requirements specified in the relevant OIML Recommendations;
- a re-evaluation of the liaisons between the OIML and international and regional bodies, especially Regional Legal Metrology Organizations;
- the development of modern communication and information tools (OIML Bulletin, OIML web site, use of electronic communication means, etc.);
- the modernization of work facilities at the OIML headquarters, the *International Bureau of Legal Metrology* (BIML) the staff of which has remained at practically the same level (9 staff members in 1974, 10 in 2001) whereas its workload has considerably increased during the same period, with more publications, more liaisons with international and regional bodies, more Member States and Corresponding Members, and the quasi systematic use of English and French as working languages whereas only French was used up to the mid-seventies.

As at mid 2001, the OIML has 57 Member States, 51 Corresponding Members, liaisons with over 100 international and regional bodies; the number of publications amounts to more than 160 and that of issued certificates to more than 800.

## 6 At the dawn of the twenty-first century

The division of the life of an international body such as the OIML into well-identified periods of time is of course artificial - or at least subjective. There are

however signals which show that the OIML could now enter a new period of its life with, beyond the necessary continuity, new developments in its role and its activities.

The extension of the certification system to cover initial verification of measuring instruments, the enforcement of mutual acceptance agreements of test results associated with OIML certificates, the international marking of prepacked products, evolutions in the cooperation between the OIML and international and regional bodies, an acceleration in the production of

OIML technical publications and perhaps a new approach in their content, all these developments will probably change the OIML deeply during the next ten years.

At the end of September 2001, a new Director took over the responsibility of leading the BIML in such a way that the OIML will be able to follow the new directions defined by its Members, in order to contribute to better satisfying the needs of our society. ■