

FUTURE DEVELOPMENT OF IMEKO CONCERNING NON-GOVERNMENTAL COOPERATION IN MEASUREMENT AND INSTRUMENTATION

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Abstract: IMEKO is a non-governmental federation of 35 national Member Organisations, individually concerned with the advancement of measurement technology and instrument engineering. The Member Organisations are scientific/technical societies or committees. The membership consists of the representatives of metrological institutions, higher education, industry and the users of instruments. The paper deals with the objectives of the Confederation, informs on the structure and financial background, on IMEKO publications and on the activities of 21 active Technical Committees. Finally, the future World Congress, different scientific services, membership development, events and co-sponsorships are discussed.

Keywords: Measurement, Metrology; Instrumentation.

1. DEFINITION

The year 2006 marks the 48th anniversary of the birth of IMEKO. Founded in 1958, IMEKO is a non-governmental federation of 35 Member Organisations individually concerned with the advancement of measurement technology. Its fundamental objectives are the promotion of international interchange of scientific and technical information in the field of measurement and instrumentation and the enhancement of international co-operation among scientists and engineers from research and industry. The logo of IMEKO is depicted in Fig. 1.

With a different approach, IMEKO is a global network, a forum where instrument makers, users, research and development experts, legal metrology scientists and university professors meet and exchange ideas.

IMEKO's responsibility is to consider the challenges of measurement science and technology coming from important application areas and to form visions for the future development of human society.



Fig. 1. The official logo of IMEKO

2. STRUCTURE

2.1. Member Organisations (MO-s)

Though the participation in IMEKO activities is available to anybody without restriction, the work is based on using the human resources and knowledge base of the MO-s, in favour of the improvement of the MO-s.

Albania	Greece	Russia
Austria	Hungary	Slovakia
Belgium	Israel	Slovenia
Bulgaria	Italy	South Africa
Brazil	Japan	Spain
China	Kenya	Sweden
Croatia	Korea	Switzerland
Czech Republic	Nigeria	Thailand
Egypt	Mexico	The Netherlands
Finland	Poland	Turkey
France	Portugal	United Kingdom
Germany	Romania	

Table 1. Nations of the Member Organisations

MO representatives constitute the General Council, MOs pay a modest contribution to the general expenses, MOs undertake to organise IMEKO events and mainly MOs delegate members to Technical Committees. The 35 MOs are representing four Continents. IMEKO is continuously looking for new Member Organisations, to support the global understanding of the disciplines.

IMEKO's future actions and measures related to the membership policy for the coming years are:

- Regain USA as MO (to be finalised in 2006)
- Approve the memberships of Canada and Morocco (full application received and will be decided during GC 2006)
- Attract new MOs from Latin and South America (in course; ensured by World Congress organisation, period 2005-2008), such as Ecuador, Paraguay and many others e.g. Argentina, Chile, Bolivia, Peru, etc.
- Improve penetration in Africa through the set-up of a Regional Development Centre and co-operation with CAMET (2006-2009)
- Improve membership from Austral-Asia region through future IMEKO Officers (planning for 2006-2012)

2.2. Officers, Boards and Committees

2.2.1. Officers (term 2003-2006)

- **President** – Prof. Dr. ir. Leo Van Biesen (Belgium: 2003-2006)
- **Immediate Past President** – Prof. Dr. Manfred Peters (Germany: 2003-2006)
- **President Elect** – Prof. Dr. António da Cruz Serra (Portugal: 2005-2006)
- **Vice President in charge of XVIII World Congress** – Prof. Dr. Mauricio Frota (Brazil: 2003-2006)
- **Vice-President for External Relations** – Prof. dr. Mladen Boršić (Croatia: 2005-2006)
- **Secretary General** – Prof. Dr. Tamás Kemény (Hungary: 2003-2006)
- **Treasurer** – Prof. Dr. P. Herbert Osanna (Austria: 2003-2006)
- **Information Officer** – Dr. Dirk Röske (Germany: 2003-2006)
- **General chair of IMEKO XVIII World Congress** – Prof. Dr. Humberto Brandi (Brazil: 2005-2006)

2.2.2. Officers (term 2006-2009)

The future Officers for the term 2003 to 2006 will be decided during the General Council meetings preceding the IMEKO XVIII World Congress in Rio de Janeiro in September 2006. During the meeting of the Advisory Board

in November 2005 in Brussels, following candidates have been nominated:

- **President** – Prof. Dr. António da Cruz Serra (Portugal)
- **Immediate Past President** – Prof. Dr. ir. Leo Van Biesen (Belgium)
- **President Elect** – Dr. Dae-Im Kang (South-Korea)
- **Vice President in charge of XIX World Congress** – Dr. Maguelonne Chambon (France)
- **Vice-President for External Relations** – Dr. Hidetaka Imai (Japan)
- **Secretary General** – Prof. Dr. Mladen Boršić (Croatia)
- **Treasurer** – Prof. Dr. P. Herbert Osanna (Austria)
- **Information Officer** – Dr. Dirk Röske (Germany)

The General Council, however can receive other candidatures and will have to vote finally in the 49th session on this matter. In Fig. 2, impressions of the session of the 48th session of the General Council held in Brussels are depicted.



Fig. 2. Impressions of the of 48th General Council Session of IMEKO in November 2005 in Brussels

2.2.3. Permanent organs

The permanent organs consist of the general council, boards and committees:

- **General Council** – the supreme governing body. The GC consists of one or two delegates from each Member Organisation and holds yearly sessions.
- **Secretariat** – the executive body headed by the Secretary General. It carries out the decisions of the GC in accordance with the resolutions passed at the sessions.

- **Advisory Board** – to formulate proposals on the policy and strategy of IMEKO, chaired by the Immediate Past President.
- **Technical Board** – to analyse and to support the activities of the Technical Committees, chaired by the President Elect.
- **Drafting Committee** – responsible for the Resolutions and Minutes of GC sessions.
- **Credentials and Membership Committee** – to confirm the validity of credential letters of GC delegates and to examine applications for membership.

2.2.4. Technical Committees (TC-s)

The activity of IMEKO is basically carried out through the Technical Committees, which organise symposia, conferences, workshops, seminars on specific topics at regular intervals; publish proceedings of events, textbooks, glossaries, studies, etc. to realise the objectives set out in the Constitution and By-Laws.

TC-s are traditionally numbered by the sequence they have been set up. IMEKO is striving to cover all important fields and follows the new trends, yet the picture is rather uneven. Some TC-s are really centres of world excellence, some others still have limited activities. Being a non-governmental organisation, the success depends on finding active and widely recognised chairmen and members.

The current Technical Committees are listed below:

- **TC1** - Education and Training in Measurement and Instrumentation
- **TC2** - Photonics
- **TC3** - Measurement of Force, Mass, Torque and Density
- **TC4** - Measurement of Electrical Quantities
- **TC5** - Hardness Measurement
- **TC6** - Vocabulary Committee (activity suspended)
- **TC7** - Measurement Science
- **TC8** - Traceability in Metrology
- **TC9** - Flow Measurement
- **TC10** - Technical Diagnostics
- **TC11** - Metrological Infrastructures
- **TC12** - Thermal and Temperature Measurement
- **TC13** - Measurements in Biology and Medicine
- **TC14** - Measurement of Geometrical Quantities
- **TC15** - Experimental Mechanics
- **TC16** - Pressure and Vacuum Measurement
- **TC17** - Measurement in Robotics
- **TC18** - Measurement of Human Functions
- **TC19** - Environmental Measurement
- **TC20** - Measurement Techniques for the Construction Industry
- **TC21** - Mathematical Tools in Measurements
- **TC22** - Vibration Measurements

The aims, scopes, members, past and future activities of the TC-s can be found on the website of IMEKO [1].

Numerous TC-s have already organised over 20 international conferences, some having over 400 participants from over 40 countries and producing proceedings of about 500 pages each. A royalty of 5% (10% in case of a World Congress) of the registration fees helps to reduce the financial burden of MO-s to cover the overall expenses of the Confederation.

The Technical Board in the meeting of the 48th session in November 2005 in Brussels decided to investigate the creation of 3 new TCs:

- **TC23** - Nutrition, Food and Pharmaceutics Metrology
- **TC24** - Chemical Metrology
- **TC25** - Artificial Intelligence in Measurements

3. WORLD CONGRESSES

As reflected by the titles of the last World Congresses, these global events select noble, humanitarian scopes, to demonstrate how these fields can serve the improvement of the quality of life. Primarily, the TC-s are determining the main chapters, yet the difference between a TC event and a World Congress is, that while TC events are concentrating on a narrow topic in full depth, the Congresses offer cross-fertilisation of different fields and a possibility to the participants to achieve an overall view on the progress as a whole and a vision of further development.

The hosting countries and cities and the chosen themes of the last 3 World Congresses, the current one, and the future planned one are listed below:

IMEKO XV in Osaka, Japan, June 13-18, 1999

- **Measurement to Improve the Quality of Life in the 21st Century**
- **Measurement Helps to Coordinate Nature with Human Activities**

IMEKO XVI in Vienna, Austria, September 25-28, 2000

- **Measurement Supports Science, Improves Technology, Protects Environment**
- **Provides Employment Now and in Future**

IMEKO XVII in Dubrovnik, Croatia, June 22-27, 2003

- **Metrology in the 3rd Millennium**

IMEKO XVIII in Rio de Janeiro, Brazil, September 17-22, 2006

- **Metrology for a Sustainable Development**

IMEKO XIX in Paris, 2009

4. PUBLICATIONS

It is the strength of IMEKO that almost 100 % of nearly 50 years of activity is fully documented in the following publications:

- **ACTA IMEKO** – Proceedings of the World Congresses

- **IMEKO TC Events Series** – Proceedings of TC events
- **MEASUREMENT** – Journal, published by Elsevier Science Ltd, Oxford [2]
- **IMEKO BULLETIN** – Semi-annual newsletter, downloadable from the website of IMEKO [1]

The showpiece product of IMEKO is undoubtedly the Journal of the Confederation, published by Elsevier [2]. A picture of a cover is shown in Fig. 3.

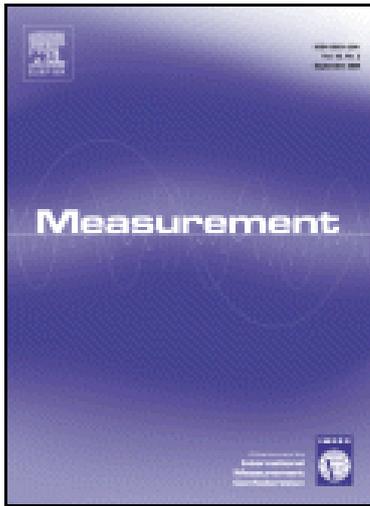


Fig. 3. Cover of the Journal of IMEKO published by Elsevier

5. INTERNET

Thanks to outstanding voluntary work almost total information is available from the web. The main entrance is www.imeko.org. This official IMEKO homepage is based on a relational database system. The main structure of the latter is depicted in Fig. 4.

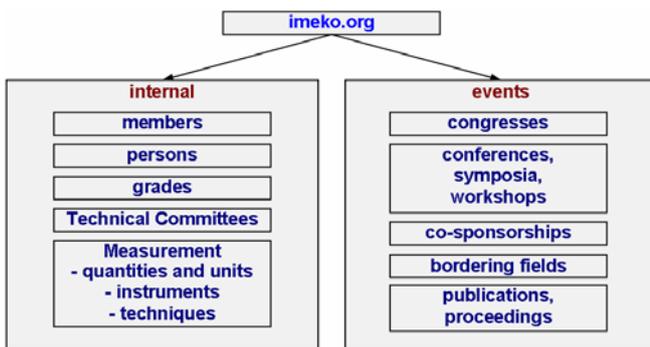


Fig. 4. Databases of the IMEKO website

The general structure of the IMEKO website is shown in the Fig. 5.

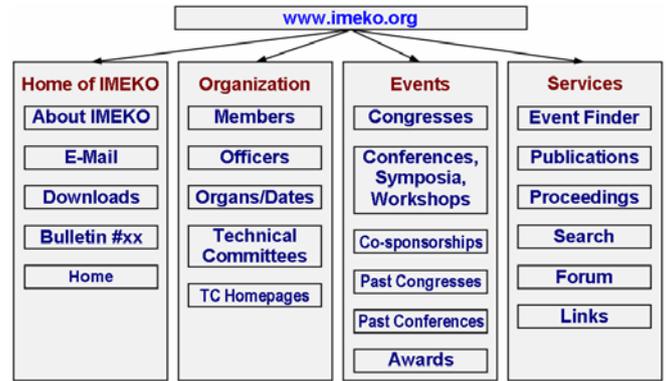


Fig 5. General structure of the IMEKO website

All papers (approximately 500) of the last IMEKO XVII World Congress in 2003 in Dubrovnik, Croatia, are available for download from the IMEKO website as PDF files. The new papers from the current congress will be made available in the near future too for download from the IMEKO website [1].

6. AWARDS

Traditionally the following awards are festively handed over at the closing ceremony of World Congresses:

Distinguished Service Award - to be bestowed upon persons for their outstanding services to IMEKO, who have been active for many years as well-known specialists in the field of measurement science and metrology.

György Striker Junior Paper Award - donation of the Founder and first Secretary General of IMEKO and his wife, to be given to a junior scientist under 35 years of age, whose paper reflects a deep understanding knowledge of the theme of the World Congress.

7. IMEKO NATIONAL COMMITTEES

As a best practice, IMEKO encourages the MO-s to establish a National IMEKO Committee, involving the one or two GC delegates, the TC and other IMEKO Committee members and representatives of the member society and other non-member societies who may wish to get enriched by IMEKO information. This is the most efficient way of exhausting network efficiency.

8. IMEKO REGIONAL COMMITTEES

During the TC3 Conference in Cairo in February 2005, discussions have been held on the setting-up of regional centres for the development in metrology. NIST in Egypt expressed the desire to develop such a centre for the North-African region.

Also TC11 has conducted intensive investigations on the cooperation of IMEKO on a regional level. The official set-up of the African Committee on Metrology (CAMET) by now is an excellent opportunity to strengthen the envisaged cooperation, and therefore further discussions and negotiations are to be conducted to propose common activities and mutual contributions for the next future. Co-operation with CAMET (African Committee of Metrology – Comité Africain de Métrologie) hereto will be further investigated.

9. INTERNATIONAL CONTACTS

IMEKO is one of the five Sister Federations within FIACC (Five International Associations Coordinating Committee, further consisting of IFAC (International Federation of Automatic Control), IFIP (International Federation for Information Processing), IFORS (International Federation of Operational Research Societies) and IMACS (International Association for Mathematics and Computers in Simulation).

IMEKO also maintains friendly working contacts with OIML, BIPM, the IEEE Instrumentation and Measurement Society and the IEEE Engineering in Medicine and Biology Society. The way of cooperation is organising joint events, co-sponsoring events and inviting keynote speakers to each other.

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The authors would like to express their gratitude to the International Program Committee and especially to the Local Organising Committee of the IMEKO XVIII World Congress for their outstanding job in preparing the first IMEKO World Congress ever organized in the Southern Hemisphere, in the wonderful country of Brazil, in the most enchanting and attracting metropolis of Rio de Janeiro. The opportunity granted to IMEKO to explain newcomers the way the Confederation operates and develops is appreciated and it is hoped to attract new MO-s from Central and South America. They will surely add vital representative links to the well lubricated chain of IMEKO.

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