

# **Metro Trade - Metrological Support to International Trade**

Speaker/Author: Preben Howarth  
Danish Institute of Fundamental Metrology (DFM)  
DK-2800 Lyngby, Denmark  
Tel: +45 4525 5886, Fax: +45 4593 1137, email: pho@dfm.dtu.dk

## **Abstract**

Technical barriers to trade still exist and MetroTrade focuses on the trading aspects of metrology between Europe and its trading partners. Amongst these are USA, Canada and Australia. MetroTrade aims at identifying metrological impediments to trade, remove them as well as disseminate and exploit the obtained results. The aims to do this are analyses, finding cases, conducting workshops, establish a metrological framework and relevant guidelines. The first 18 month progress of doing this is presented.

This paper is a part of the MetroTrade exploitation and dissemination activities.

## **1. MetroTrade partners**

1. DFM, Danish Institute of Fundamental Metrology, Denmark
2. EC-JRC-IRMM, Institute for Reference Materials and Metrology, European Commission
3. PTB, Physikalisch-Technische Bundesanstalt, Germany
4. BNM, Bureau National de Métrologie, France
5. NPL, National Physical Laboratory, United Kingdom
6. EUROLAB, European Federation of National Association of Measurement, Testing and Analytical Laboratories
7. SP, Swedish National Testing and Research Institute, Sweden
8. MIRS, Metrology Institute of the Republic of Slovenia
9. NRC, National Research Council of Canada
- A. NIST, National Institute of Standards and Technology, United States of America
- B. CSIRO, Commonwealth Scientific and Industrial Research Organisation, Australia

## **2. Background**

One of the key issues in world trade is the still existing non-tariff barriers to trade - despite the fact that measurement results provided by metrological institutions are, for all practical purposes, equivalent world-wide if properly conducted. National metrology institutes and other interested organisations such as EA or EUROLAB as well as similar organisations from major trading partners are collectively known as stake-holders in the metrological sector. Discussion between and with stake-holders over existing impediments to mutual acceptance was up to now conducted in an ad-hoc manner. An analysis of the current metrological infrastructure and impediments to trade should improve the metrological system in Europe and result in a consistent and transparent

information system inherently open and accessible to all stakeholders, and thereby reduce the friction between trading partners inside the EU and on a world-wide basis. MetroTrade is co-ordinated with the CIPM MRA-initiative and benefit its implementation.

A key element in the development and implementation of international trade agreements is the existence of a robust framework. Trading partners should rely on the results of measurement and testing carried out in the involved countries. The MetroTrade project will support essential networking activities within the EU which will significantly improve cohesion both within the EU as well as between EU and its trading partners, through provision of a framework in which there will be mutual acceptance both of national measurement standards and of calibration certificates issued by national metrology institutes.

MetroTrade is a follow-up on the general study a few years ago on the acceptance of calibration certificates - including chemical analysis - between the NIST and EUROMET members [3], and focuses on the trading aspects of metrology between Europe and its formal trading partners.

### **3. Objectives of MetroTrade**

It is the objective of MetroTrade to

- 1) analyse the current metrological infrastructure and reveal impediments to trade,
- 2) remove impediments to the successful development and implementation of international trade agreements caused by
  - lack of knowledge of the degree of equivalence of national measurement capability,
  - absence of a framework for the mutual acceptance of calibration certificates,
  - de facto requirements to repeat traceable calibrations.

Means to remove the impediments are a proper infrastructure based on the following outputs of MetroTrade:

- a) Information site on the Internet,
- b) demonstrated degree of equivalence in the maintenance of national standards,
- c) workshop for regulatory bodies and national metrology institutes,
- d) initiatives to harmonise test and calibration methods,
- e) harmonisation of the concepts of traceability and quality system.

### **4. Progress of MetroTrade**

This paper describes the progress of MetroTrade made the first 18 months. The progress is described task by task.

#### **4.1. Analysis of current metrological infrastructure**

Objectives: Identifications of impediments to mutual acceptance between the EU and major trading partners based on a) de facto requirements to repeat traceable calibrations due to lack of mutual acceptance and b) lack of knowledge of the degree of equivalence of test and calibration methods.

### **Case studies – test and calibration methods - task 2.2**

The draft case-study report, which includes 8 cases should be completed by June 2002. The impediment is identified for each case and suggestions are made as how to remove this impediment. If possible, the economic or other benefits are estimated.

The 8 cases are:

Case A Optical measurement in the paper industry

Case B Artefact calibration in electrical metrology

Case C Impact testing

Case D Measurement in aviation

Case E “Intrinsic” standards

Case F Optical spectrum analyser

Case G Classification of thermal insulation materials used in the construction industry

Case H Measuring Instrument Directive (MID) and Metrological CE-marking

### **4.2. Metrological support**

Objectives: To establish an appropriate metrological framework to ensure that there are no impediments to the successful development and implementation of international trade agreements.

#### **Web-site “[www.metrotrade.dk](http://www.metrotrade.dk)” - task 3.1**

The web-site is common with the RegMet project and information is continuously added. The structure will be developed with focus on increasing user-oriented aspects rather than simply presenting information. Following this development the web-site will be market in non-internet media.

#### **Guideline to initiate new intercomparisons - task 3.2**

The guideline will describe the interactions with the BIPM Consultative Committees, Regional Metrology Organisations (RMOs), and proficiency testing schemes when initiating missing comparisons needed for the demonstration of equivalence in support of trade. The guideline concept is now agreed: To identify selected fields where intercomparisons are missing and work out the guideline on how to improve the situation. The guideline will be on an operational level based on project experience.

#### **MetroTrade interaction with the BIPM key comparison database - task 3.3**

The BIPM database focus on the NMIs. It will be combined with MetroTrades focus on regulators, trade associations and industrialists in selected sectors. A survey is under preparation, by MetroTrade in cooperation with the BIPM, identifying the database is used and who is using it. The relevant needs that the database could fulfil in the future will be explored.

The obtained information will be used by BIPM in the work to develop further the database according to user needs. MetroTrade will suggest ways to exploit the database to other metrology users than the NMIs.

The results from a study of “the Potential Economic Impact of the MRA” made by KPMG Consulting on behalf of BIPM among NMIs, will be looked at when it is published by the end of April 2002.

#### **Study on quality of measurement results - task 3.4**

“A study on the quality of measurement results, across various metrological levels: Pb in wine” is made in a draft version. The study is a part of the technical realisation of the CIPM-MRA concept “Measured once, accepted everywhere”. The final version will also address the metrological relevant trade problems with this worldwide commodity.

### **4.3. Training and Education**

Objectives: Training and education of regulatory bodies, national metrology institutes and professional organisations to a) ensure a uniform understanding of common issues like traceability chains and quality system and b) improving the dialogue between the parties.

#### **Workshop on traceability and quality systems - task 4.1**

20th September 2002 in Ljubljana, Slovenia.

MetroTrade and the Initiation project are organising a workshop on regulatory and quality systems. This that may lead to successful metrological support to the traceability of measurement in the private and the public sector in a country, and their adequate international credibility and recognition. Slovenia is an example of a EU candidate member state with strong international trade relations. A case study from Slovenia will be presented to illustrate the deregulation processes in scientific metrology and the introduction of quality systems.

#### **Workshop on regulatory issues - task 4.2**

30-31 May 2002 at the IRMM facilities in Geel, Belgium.

MetroTrade and RegMet, in conjunction with EOTC - the European Organisation for Conformity Assessment, are organising a workshop on metrology connected with regulations and their enforcement and issues related to technical barriers to trade. The workshop will cover topics such as the structure of world metrology, traceability, accreditation, uncertainty and conformity assessment, development of best practice.

The workshop is open to all interested parties. In particular, those involved with regulations, their enforcement and those on whom regulators depend, parties for whom measurement related to technical barriers to trade is an issue, metrologists, key members of the conformity assessment community including notified bodies, senior officials group for standardisation, legislators, market surveillance authorities, instrument manufacturers, high-tech companies and all interested parties from the European Union, EFTA and EU Candidate countries.

### **Workshop on traceability and uncertainty in testing - task 4.3**

30-31 January 2003 at BAM facilities in Berlin.

MetroTrade in conjunction with Eurachem are organising a workshop where the focus will be: Fit for purpose and practical oriented. The target groups are laboratories and trade people attracted by examples from their fields. The workshop will follow up on the Eurachem workshop in June 2002 in Lucern.

## **5. Dissemination and exploitation**

Objectives: To disseminate and exploit the results of the MetroTrade project.

### **Participation in international conferences - task 5.1**

One of the MetroTrade dissemination activities is presentation of the project and its results on conferences. The MetroTrade partners made the following presentations:

- the EUROMET Metchem Bratislava meeting, February 2001
- the IRMM workshop 'Improving the scientific basis for metrology in EU-accession states' held at IRMM, Belgium, February 2001
- the Market Access Symposium in Brussels chaired by DG Trade, November 2000
- Approaches to explaining traceability and uncertainty issues were disseminated to the professional organisation EURACHEM, via their working group on traceability and uncertainty
- the 2001 NCSL International Workshop & Symposium in Washington, July 2001

## **6. Acknowledgments**

We would like to acknowledge the participation of our project partners from the participating institutes. This work is funded partly by the European Commission [2].

## **7. References**

[1] MetroTrade first year progress report, 2001.

[2] European Commission, DG Research, GROWTH contract G7RT-CT2000-05004, Annex 1, Description of work, 2000.

[3] Mutual acceptance of calibration certificates between EUROMET and NIST (DFM-98-R25), 1999.