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Measurements & Testing Newsletter

THE BULLETIN OF INFORMATION OF THE MEASUREMENTS AND TESTING
GENERIC ACTIVITY IN THE COMPETITIVE AND SUSTAINABLE GROWTH
PROGRAMME

FOREWORD

Orientations for the future



Many environment, health and safety issues are of major public concern at the moment: Bovine Spongiform Encephalopathy (BSE), doping in sport, oil and chemical spills at sea, genetically modified organisms, to name just a few. As a result, the attention of industry, decision-makers, politicians and the general public has been drawn more than ever to the necessity of sound data for proper forecasting and decision making. Such data are produced by measurement sciences - metrology - and in particular by analytical chemistry. Analytical chemistry is an expression of several fundamental scientific disciplines which nowadays range from biology and basic chemistry, to fundamental physics of particles, mathematics and statistics. A recent report to the French Academy of Science¹ has highlighted once more the importance of this discipline to our modern and rapidly changing world.

Research in metrology, and in particular for measurements in chemistry and biology, has for a long time been supported by the EC Framework programmes. The many successes amongst the activities supported originated in particular from the interdisciplinary and multi-sectorial approach that was adopted. One very important outcome was that many young scientists benefited considerably from the projects and are nowadays leaders in their field in industry and research institutions across Europe.

Now, with a view to the next Framework programme, the recent communication of the Commission on the European Research Area has laid out the challenges for Europe in the future. All of the areas that will be tackled - nanotechnologies, genomics and postgenomics, food safety, protection of the environment, and many others - will need strong support in the field of measurement science and, in particular, analytical chemistry.

Prof. Guy OURISSON
Président de l'Académie des Sciences, Paris



COMPETITIVE AND
SUSTAINABLE GROWTH

**The staff of The Measurement and Testing,
Infrastructure unit wish you
a happy New Year!**



The Measurements and Testing Newsletter is the bulletin of information of the Measurements and Testing generic activity of the Competitive and Sustainable Growth programme in the European Union's fifth Framework programme for research and technological development.

The Measurements and Testing generic activity is managed by the Measurement and Testing, Infrastructure unit of Directorate C-II of the Research Directorate General of the European Commission.

For questions or further information about the Competitive and Sustainable Growth programme please contact the Growth infodesk at growth@cec.eu.int or visit the Growth internet web site at <http://europa.eu.int/comm/research/growth>

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MO 75 3/23
Rue de la Loi 200/Wetstraat 200
1049 Brussels
Belgium

Editor:
E-mail: thomas.fairley@cec.eu.int
Fax: + 32 2 295 80 72

Measurement and Testing, Infrastructure helpline:
E-mail: anna.damaso@cec.eu.int
Fax: + 32 2 295 80 72

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**Contact Persons
in the Measurement and
Testing, Infrastructure Unit**

Head of Unit
Wiktor Raldow

Instrumentation
Peter Breger
Enma Calvet Micas

**Methodologies for Measurements
and Testing**
Paolo Salieri
Eddie Maier

Certified Reference Materials
Dyanne Bennink

**Research in Support of
Standardisation**
Carlos Saraiva Martins

Fight against Fraud
Christos Profilis
Christine Bernot

Support for Research Infrastructure
Søren Bøwadt
Paolo Salieri

Accompanying Measures
Thomas Fairley

Thematic Networks
Søren Bøwadt

CRAFT and Innovation
Manuel Carbajo Monje
Christine Bernot

Marie Curie Fellowships
Anna Damaso

Information/Communication
Thomas Fairley

**Measurements and Testing,
Infrastructure Helpline**
Anna Damaso

Note from the editor:

The "Measurement and Testing, Infrastructure" unit says farewell to four colleagues: Anne-Marie Morrissey has moved to the Joint Research Centre, Ispra, Italy; Isabelle de Froidmont-Görtz has joined the thematic programme "Improving the quality of life and management of living Resources"; and Vinciane Vandermeulen and Michèle-Anne Rego have both moved on to new horizons. We thank them all for their contributions to the unit and wish them much success in the future.

At the same time, we would like to welcome to the unit Christine Bernot, who will manage projects in the area of chemical measurements, and welcome back Anne Delwart, who is once again the unit secretary.



NEWS

Orientation document for the sixth Framework programme adopted

On 4 October 2000, the Commission adopted a document that sets out how the sixth Framework programme for the period 2002-2006 will be orientated towards the development of the *European Research Area*. The Commission considers that EU research activities are reaching the limits of what can be achieved with them in their present form and that the Framework programme needs to be revamped in terms of both its design and how it is implemented. The new approach will be based on the following principles:

- focusing on areas where Community action can provide the greatest possible "European added value";
- a closer partnership with the Member States, research institutes and companies in Europe;
- greater efficiency by channelling resources to bigger projects of longer duration.

Mr. Busquin, the European Commissioner for Research, presented the orientation document for the sixth Framework programme to the European research ministers at a meeting of the Research Council on 16 November 2000. A resolution was adopted at the meeting inviting the Commission to continue its development of the *European Research Area* and to send its formal proposal for a decision on the sixth Framework programme to the Council during the first trimester of 2001.

Making a reality of The European Research Area: Guidelines for EU research activities (2002-2006)
COMMUNICATION FROM THE COMMISSION TO THE COUNCIL, THE EUROPEAN PARLIAMENT, THE ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS - COM (2000) 612 final

The full text of the document is available on EUROPA at:
<http://europa.eu.int/comm/research/area.html>

New version of the proposal evaluation manual adopted

A new version of the manual of proposal evaluation procedures was adopted by the Commission on 14 July 2000. There are two particularly important changes concerning the eligibility of proposals received, which should be noted by all potential participants in the fifth Framework programme:

- 1) Proposals must be received at the address specified in the call for proposals on or before the deadline published in the call for proposals. Any proposal arriving after the deadline will be declared ineligible. This is a major change from the procedure applied previously, which allowed ten working days for postal deliveries to arrive.
- 2) It is no longer necessary for the Commission to be in receipt of original signatures of the proposal partners and/or the proposal co-ordinator at the proposal stage. In other words, copies of complete signed proposals will now be accepted.

The new version of the evaluation manual is available on CORDIS:
<http://www.cordis.lu/fp5/src/evalman.htm>

Growth magazine launched



Growth in Action is the new magazine of the Competitive and Sustainable Growth programme. It presents the results of research projects and other activities funded by the programme and is aimed at a broad public audience. It will be published twice yearly together with occasional special editions dedicated to specific themes.

Growth in Action is free. If you would like to receive it please send your full contact details to the Growth Infodesk: fax: +32 2 296 67 57 or e-mail: growth@cec.eu.int

Call for experts for the evaluation of proposals

More experts are still needed for the evaluation of proposals received in connection with the specific research programmes of the fifth Framework programme. Anybody who wishes to participate must submit an application form. The call for applications remains open throughout the full period of the 5th Framework programme and all properly completed applications are accepted. It is possible to submit applications electronically.

Information on how to apply to be an expert for the evaluation of proposals is on CORDIS at:
<http://www.cordis.lu/expert-candidature/>



UPDATE

Call for expressions of interest

The fourth evaluation of expressions of interest took place in July 2000. Of the 66 topics that were evaluated, 21 were recommended for publication and were included in the fourth dedicated call for proposals that was published on 13 October 2000. The results of the evaluation, together with the cumulative results of all evaluations to date, are summarised in the table.

The present call for expressions of interest for Measurements and Testing and Support to Research Infrastructures closes on 30 April 2001 (deadline for receipt by the Commission).

Expressions of interest can be submitted by any interested parties to suggest needs for research in areas of Measurements and Testing covered by the dedicated calls (see page 6), as well as for all activities under Support for Research Infrastructures (see page 12).

The text of the call for expressions of interest is on CORDIS at:
<http://www.cordis.lu/growth/calls/199901a.htm>

Results to date of the evaluation of expressions of interest for the Measurements and Testing generic action

| Research objective | 4th evaluation (July 2000) | | All evaluations to date | |
|---|----------------------------|---------------------------|-------------------------|---------------------------|
| | No. of topics evaluated | No. of topics recommended | No. of topics evaluated | No. of topics recommended |
| (6.2.1) Methodologies for support to standards | 27 (+9)* | 13 | 151 | 48 |
| (6.2.2) Methodologies for the fight against fraud | 16 | 5 | 46 | 17 |
| (6.3) Certified reference materials | 14 | 3 | 69 | 20 |
| TOTAL | 66 | 21 | 266 | 86 |

* Due to budgetary limitations, 9 topics from the January 2000 evaluation were carried over

How does the expression of interest/dedicated call mechanism work?

The *expression of interest/dedicated call* mechanism enables the Competitive and Sustainable Growth programme to focus on well identified research or infrastructure needs in Europe, providing a flexible and efficient approach both for targeting resources and for assisting proposers in directing their efforts.

The call for expressions of interest gives all interested parties the opportunity to suggest ideas for topics in areas of the work programme covered by the dedicated calls. The topics submitted are evaluated by independent experts at periodic intervals.

On the basis of the results of the evaluation of the expressions of interest, the Commission then publishes a dedicated call for proposals that is restricted to a number of specific topics. For each of the topics, supporting documents are made available to specify in depth the objectives of the required activities.

Fourth dedicated call for proposals published

The fourth dedicated call for proposals for the Measurements and Testing generic activity and for Support for Research Infrastructures was published in the Official Journal of the European Communities on 13 October 2000. For the Measurements and Testing generic activity, proposals are invited for 21 topics (see table). For each of the topics, a supporting document has been produced that details precisely the objectives to be met and should be consulted before attempting to develop a proposal.

Proposals must be received by the Commission at the address specified in the call text on or before 15 March 2001 at 5 p.m. (Brussels local time).

The full text of the fourth dedicated call for proposals is on CORDIS at:
<http://www.cordis.lu/growth/calls/200003.htm>

The supporting documents can be downloaded from CORDIS at <http://www.cordis.lu/growth/calls/topics-200003.htm> or requested from the Growth helpdesk: e-mail: growth@cec.eu.int or fax: +32.2.2966757.



TOPICS FOR THE FOURTH DEDICATED CALL FOR THE MEASUREMENTS AND TESTING GENERIC ACTIVITY (INDICATIVE BUDGET 11 M€)

(i) Methodologies to support Standardisation and Community policies

Subjects related to standardisation activities of CEN

- Cyclic oxidation testing - development of guidelines for high temperature materials (topic IV.1)
- Non-destructive testing - time of flight diffraction method (topic IV.2)
- Minimally invasive method for toughness, tensile and creep measurements (topic IV.3)
- Shear and torsion interaction of hollow core slabs (topic IV.4)
- Noise characterisation of domestic boilers (topic IV.5)
- Alkali reactivity tests on aggregates (topic IV.6)

Subjects related to standardisation activities of CENELEC

- Electromagnetic compatibility testing methods for advanced rail transport (topic IV.7)
- Thermal specifications and properties of electronic components and materials (topic IV.8)
- Protective clothing for use in the manufacturing of electrostatic sensitive electronics (topic IV.9)
- Quantitative characterisation of electronic noses (topic IV.10)

Subjects related to standardisation activities of ISO

- Assessing long term durability of bonded automotive metallic structures (topic IV.11)
- Airborne transmission of noise in automotive vehicles (topic IV.12)
- Spectral luminous efficiency functions for the intermediate luminance levels (topic IV.13)

(ii) Measurements and Testing Anti-fraud Methodologies

Protecting European economic interests

- Euro coin authentication technology (topic IV.14)

Protecting the health and the safety of European citizens

- Detecting abuse with growth hormone and related substances in sport (topic IV.15)
- Determination of the origin of hormones in cattle (topic IV.16)
- Detection and prevention of adulteration in the EU fruit juice market (topic IV.17)
- Ear-prints in criminal investigation (topic IV.18)

(iii) Support to the Development of Certified Reference Materials (CRMs)

Technical support for health and safety protection

- Organic contaminants in water (topic IV.19)
- Environmental contaminants in food and animal feed (topic IV.20)
- Azo dyes in leather (topic IV.21)

Periodic call published

At the time of writing, it is expected that a periodic call for proposals for Measurements and Testing will be published on 15 December 2000 with a deadline for the receipt of proposals of **15 March 2001**.

For RTD, demonstration and combined projects, the call will be open for "Instrumentation" (research objectives 6.1.2 and 6.1.3) and for "Measurement and testing methodologies in support of quality" (research objective 6.2.3). For thematic network and concerted action proposals, the call will be open for all Measurement and Testing research objectives.

This will be the last periodic call for RTD, demonstration and combined project proposals for Measurements and Testing as the June 2001 periodic call will only be open for thematic networks and concerted actions.

*The text of the December 2000 periodic call for proposals is on CORDIS at:
<http://www.cordis.lu/growth/calls/calls2.htm>*

Growth work programme modified

The Competitive and Sustainable Growth programme's work programme has been modified. The purpose of the revision was to specify the strategies and priorities of the remaining calls for proposals.

For the Measurements and Testing generic activity there have been very few changes. The most significant change is that there will only be one periodic call for RTD proposals, not two as was originally foreseen at the start of the programme. At the time of writing, this single periodic call is expected to be published on 15 December 2000 as described above. As originally intended, it will only cover some of the research objectives for Measurements and Testing (see on next page). One change, however, is that proposals related to the fight against fraud which cover both instrumentation and methodologies in a balanced way are now considered to be within the scope.

*The text of the revised Competitive and Sustainable Growth work programme is on CORDIS at:
<http://www.cordis.lu/growth/src/library.htm#wp>*



Summary of the Measurements and Testing work programme

The Measurements and Testing generic activity has three socio-economic objectives:

- Prenormative research and technical support to standardisation
- The fight against fraud
- Improvement of quality

The three main research objectives addressing these socio-economic objectives are:

- the development of instrumentation;
- the development of methodologies for measurements and testing;
- the development of the know-how needed to produce and certify reference materials.

RTD activities (excluding CRAFT) covering these objectives are implemented either by periodic calls or by the expression of interest/dedicated call mechanism depending on the research objective (see table). CRAFT projects and accompanying measures are implemented by permanently open calls and cover all the research objectives. Network projects and concerted actions are implemented by periodic calls and cover all the research objectives.

CRAFT

Small and medium-sized enterprises (SMEs) are the cornerstone of Europe's competitive position and job creation. SME specific measures (exploratory awards and co-operative research projects) in the fifth Framework programme are designed to encourage and facilitate the participation of SMEs in RTD, demonstration and combined projects. The implementation of these measures follows the common rules established in the horizontal programme "Innovation and the participation of SMEs", popularly known as the "CRAFT" programme.

As many measurement instrument manufacturers and testing laboratories are SMEs, it is not surprising that there is a strong participation of SMEs in research projects related to measurements and testing. Statistics from the fourth Framework programme show that about 15% of all the partners involved in measurement and testing projects were SMEs. With the increasing number of CRAFT proposals currently being received, the level of participation of SMEs is likely to be even higher in the fifth Framework programme.

The last evaluation of CRAFT proposals took place in October 2000. At this mid-way point in the programme, more than 400 SMEs from 25 countries have submitted 60 exploratory awards and 35 co-operative research projects related to Measurements and Testing. Altogether, more than 200 SMEs participate in projects that are receiving, or expect to receive, EC funding. Due to this successful participation, the budget initially foreseen for Measurements and Testing CRAFT projects has been recently increased.

For more information about CRAFT see:
<http://www.cordis.lu/sme>

Modalities for RDT activities (excluding CRAFT) for the Measurements and Testing generic activity

| Socio-economic objective | Prenormative research and technical support to standardisation | The fight against fraud | Improvement of quality |
|--|--|--|--|
| Main research objective | | | |
| Instrumentation | <i>Not covered</i> | Objective 6.1.2 Periodic call | Objective 6.1.3 Periodic call |
| Methodologies for measurements and testing | Objective 6.2.1 Expression of interest + dedicated call | Objective 6.2.2(*) Expression of interest + dedicated call | Objective 6.2.3 Periodic call |
| Support to the development of certified reference materials (CRMs) | Objective 6.3.1 Expression of interest + dedicated call | Objective 6.3.2 Expression of interest + dedicated call | Objective 6.3.3 Expression of interest + dedicated call |

(*) Proposals for the fight against fraud which address at the same time and in a balanced way objectives 6.1.2 and 6.2.2 may be submitted to the periodic call covering objective 6.1.2.



SUMMARY OF CURRENT AND FUTURE CALLS

The dates for current and future calls for Measurements and Testing and Support to Research Infrastructures are summarised below. For calls that are not yet published, the information given is only indicative and may change: potential proposers should always consult the full text of the relevant call when it is published.

Full, up-to-date information on all calls that have been published can be found on CORDIS at:
<http://www.cordis.lu/growth/src/callmain.htm>

Periodic calls for proposals:

| Publication Date | Scope | Deadline |
|------------------|---|-------------------|
| 15 December 2000 | <ul style="list-style-type: none"> • RTD, demonstration and combined projects: "Instrumentation" (research objectives 6.1.2 and 6.1.3) and "Measurement and testing methodologies in support of quality" (research objective 6.2.3). • Thematic networks and concerted actions: all Measurements and Testing research objectives. | 15 March 2001 |
| 1 June 2001 | Expected to be limited to thematic networks and concerted actions | 15 September 2001 |

Dedicated calls for proposals:

| Publication Date | Scope | Deadline |
|------------------|---|---------------|
| 13 October 2000 | <ul style="list-style-type: none"> • RTD projects: restricted to specified topics for areas of Measurements and Testing that are implemented by the expression of interest/dedicated call mechanism • Thematic networks: restricted to specified topics for Support to Research Infrastructures | 15 March 2001 |
| 15 October 2001 | As above. | 15 March 2002 |

Call for expressions of interest:

| Publication Date | Scope | Deadline |
|--|--|---------------|
| Continuously open until the final deadline | Interested parties can suggest needs for research in areas of Measurements and Testing covered by the dedicated calls (research objectives 6.3 and 6.2.1 and 6.2.2) and for all activities under Support for Research Infrastructures. | 30 April 2001 |

Calls for proposals for SME specific measures (CRAFT):

| Publication Date | Scope | Deadline |
|--|-----------------------|---------------|
| Continuously open until the final deadline | Exploratory awards | 18 April 2001 |
| | Co-operative research | 17 April 2002 |

Calls for accompanying measures and Marie Curie fellowships:

| Publication Date | Scope | Deadline |
|--|-------------------------|---------------|
| Continuously open until the final deadline | Accompanying Measures | 15 March 2002 |
| | Marie Curie fellowships | 20 March 2002 |



Measurements and Testing on EUROPA and CORDIS

As the amount of information available on the Internet continues to expand exponentially, it is easy for users to lose themselves in it all. Two web sites that endeavour to provide information on the Competitive and Sustainable Growth programme, which includes the Measurements and Testing generic activity, are found on EUROPA and CORDIS.

EUROPA is the official web service of the EU and one of the most extensive web sites in cyberspace. The web site of the Competitive and Sustainable Growth programme hosted on EUROPA is aimed at a wide audience. It provides information on the results of research carried out under the programme and includes extensive links to other web sites.



The Measurements and Testing generic activity is on EUROPA at:
<http://europa.eu.int/comm/research/growth/gcc/ga03.html>

CORDIS is the European Commission's on-line Community Research & Development Information Service. The CORDIS web site contains all the official information concerning the fifth Framework programme. It is the key site for existing and potential participants in the fifth Framework programme and provides users with comprehensive up-to-date information on the various possibilities offered by the different programmes and how to apply.



The Competitive and Sustainable Growth programme is on CORDIS at:
<http://www.cordis.lu/growth/>

Marie Curie fellowships

Marie Curie fellowships are aimed at supporting the training and mobility of researchers throughout Europe. There are two types of application for a Marie Curie fellowship: individual fellowships, where individual researchers apply to the Commission for a fellowship; and host fellowships, where institutions apply to the Commission to host a number of researchers. Only three fellowships for Measurements and Testing have so far been recommended for funding. The cut-off date for the next proposal evaluation round is 21 March 2001.

For more information about Marie Curie Fellowships in the Competitive and Sustainable Growth programme see:
<http://www.cordis.lu/growth/src/mcf.htm> and
<http://www.cordis.lu/improving>

New certified reference materials

The first meeting of the review panel for certified reference materials (CRMs) was held on 3-6 October 2000. Seventeen of the twenty CRM reports reviewed were approved. The materials that are expected to be available in due course from the Institute for Reference Materials and Measurements (IRMM) are shown in the table.

The catalogue for existing BCR certified reference materials can be found on the IRMM web site:
<http://www.irmm.jrc.be/mrm.html>

Call for experts for the certified reference materials review panel

A call for applications for inclusion in a list of experts for the constitution of review panels on activities of the Competitive and Sustainable Growth programme, including certified reference materials, was published on 23 May 2000. Applications will be accepted up to 30 September 2002.

The call text is on CORDIS at:
http://www.cordis.lu/growth/src/call_exp.htm



CERTIFIED REFERENCE MATERIALS (CRMs)

What are CRMs?

CRMs are one of the tools a laboratory can use for the calibration of measurement methods and instruments (using normally pure materials) or for the validation and verification of the accuracy of a measurement method (using normally matrix materials). They are materials which have a specific, guaranteed value for one or more physical, chemical or biological properties or quantities. They are accepted as a common point of reference not only across the European Union but also world-wide.



Examples of the applications of CRMs are:

- the calibration of equipment for measuring the strength of materials
- the detection of wine enrichment with ethanol
- the measurement of dioxin in milk.

The history of CRM production in EC research programmes

Through the Bureau Communautaire de Référence (BCR) programme and its successors, Measurements and Testing and Standards, Measurements and Testing, the European Commission has developed more than 400 CRMs since 1973. With this activity, the Commission is one of the world's largest producers of reference materials. The materials are available from the Institute for Reference Materials and Measurements (IRMM) at the European Commission Joint Research Centre and its recognised distributors (world-wide) under the label BCR-CRM.

Research on CRMs in the 5th Framework programme

In the 5th Framework programme, research on CRMs is carried out under the responsibility of the Measurements and Testing generic activity within the Competitive and Sustainable Growth programme. The research covers the development of the ability to produce CRMs in support of standardisation and Community policies (including the fields of agriculture, food, healthcare and the environment), for the fight against fraud, and for the improvement of quality. Projects are implemented via the expression of interest / dedicated call mechanism. The production of the CRMs is part of the exploitation of the results of the research.

FORTHCOMING CERTIFIED REFERENCE MATERIALS

- BCR 190R, 366R and 367R The total glucosinolate and sulphur contents of three rapeseed (colza) materials.
- BCR 502 - 504 Clenbuterol and salbutamol concentration in lyophilised bovine urine.
- BCR 593 Reference film for its film thickness and for its mass fraction of a fat-soluble additive.
- BCR 608 Mass concentration of human creatine kinase 2 (CK-MB) in a reconstituted lyophilised material.
- BCR 628, 630 and 631 Reference plasmas for the prothrombine time.
- BCR 629 Reference plasma for factor VIII.
- BCR 644 and 645 Free sugars and starch as well as starch degradation products in two artificial food materials.
- BCR 646 Buthyltins (TBT, DBT, MBT) and phenyltins (TPhT, DPhT, MPhT) in freshwater sediment.



- BCR 647 Catalytic concentration of human adenosine deaminase (ADA 1) in a reconstituted lyophilised material.
- BCR 665 and 666 Asbestos fibres in lung tissue.
- BCR 679 Contents of As, B, Ba, Cd, Cu, Fe, Hg, Mn, Mo, Ni, Sb, Sr, Tl and Zn in white cabbage.
- BCR 680 and BCR 681 Mass fraction of As, Br, Cd, Cl, Cr, Hg, Pb and S in two polyethylene CRMs.
- BCR 682 Eight chlorobiphenyls IUPAC No 28, 52, 118, 138, 149, 153, 170 and 180 in fresh mussel tissue.
- BCR 684 Extractable contents of phosphorus in sediment following a five-step extraction procedure.
- BCR 691 Arsenic, lead, tin and zinc in five copper alloys.
- BCR 700 The EDTA- and acetic acid- extractable contents of Cd, Cr, Cu, Ni, Pb and Zn in an organic-rich soil.
- BCR 701 Extractable contents of Cd, Cr, Cu, Ni, Pb and Zn in sediment.



MEASUREMENTS AND TESTING

A European research area orientated activity

"There is no science without measurements, no quality without testing and no global market without standards"

**High Level Expert Group
Brussels, October 27, 2000**



The High Level Expert Group for the Measurements and Testing generic activity consists of experts that are invited in an individual capacity to advise the Commission. The group has sixteen members from twelve Member States and two Associated States and is chaired by Mr. Claes Bankvall of the Swedish National Testing and Research Institute. This short paper from the group looks at the importance of Measurements and Testing in the context of the European Research Area initiative. The group has also prepared a paper on metrology in chemistry which will be published in the next issue of the newsletter and is also available on the Growth web site (<http://europa.eu.int/comm/research/growth/>). It will be followed by further short papers that the group are currently

preparing on research needs related to the fight against fraud, support to standardisation, and emerging technologies (nanotechnologies). The views presented in all these papers are entirely those of the group and do not reflect any official position of the Commission.

Vision

The Measurements and Testing activity (M&T) contributes to the vision of a united, competitive, sustainable and safer Europe by supporting research activities that expand the ability to measure and make the mutual acceptance of measurement and testing results possible. The M&T activity underpins the very development of society: scientific progress, industrial development, globalisation of trade and policy making.



A unique activity

The main strands are directed towards harmonisation in Europe and providing important input to the scientific base for policy creation and implementation. The aims of the activity are inherently European. In this respect, it has a uniquely high European added value.

The activity is:

- **horizontal**, in the sense that M&T expertise is needed in many sectors of society;
- **generic**, since the methods developed can be used in many areas of technology.



Often, measurements are taken for granted since they are such an integral part of daily life. Their importance becomes apparent when a trade dispute arises, a product or system fails, or a health or environmental scare emerges.

Orientations for the future

To become even more effective, future efforts within the activity should concentrate on the support to the following three priority areas:

Trade A common structure for measurements and testing is a prerequisite for the functioning of the single market and world trade. The M&T activity supports, among other things, the development of mutual recognition agreements in order to lift trade barriers and resolve trade disputes.

Competitiveness Measurements and tests are needed for industrial product and process development, control of production processes and quality assurance including conformity assessments. Additional important areas for industry are monitoring compliance with legislation, e.g. environmental, and fight against product counter-



feiting and illegal imports (the latter is also of great interest to customs laboratories). Progress in measurement sciences, development of validated procedures and measurements standards are crucial for the industrial development of emerging technologies, such as nanotechnologies.

Safety (Protection of the citizen) Measurements and harmonisation play an important role in health care, food safety, consumer protection, improving safety at work, monitoring environmental hazards, improving product safety, etc. They are also important for legal



safety by contributing to detection and prevention of a range of criminal and other illegal activities such as doping in sport, food adulterations, sale of fake and inferior products, etc. As for customs laboratories mentioned above, support is needed both in terms of

research and infrastructure improvements for forensic investigations.

Experience to build upon

The Measurements and Testing activity has considerable experience in funding research in support of policies. This type of research needs to have a strong top-down element: targeted or dedicated calls have to be used to ensure that the most important research needs in pursuit of the Community objectives are addressed¹

The activity has developed a modality suitable for identifying research needs and optimising the matching between these needs and the available resources: "Expressions of interest/dedicated call". It has created links with other DGs² in charge of Community policies, as well as with many relevant national (e.g. US NIST), European and international organisations.



The scientific officers of M&T are able to initiate and to participate in the dialogue between standardisers, regulators, etc., and the research community. Such a dialogue is crucial for the social and economic potential of research activities to be fully

explored and exploited.

External assessments: "an inherent European added value"

Previous monitoring and assessment panels have commented upon the high European added value of the

¹ An additional benefit is the increased success rate for proposers and thus an overall reduction in the initial costs for participating in the programme.

² Enterprise, Information Society, Trade, Health and Consumer Protection, Environment, Taxation and Customs Union, Education and Culture, and the European Anti-fraud Office - OLAF.

programme. For example, the Davignon report stresses the importance of metrology underlining at the same time the added value of research in support of European standards.



Various assessment panels have recommended to the Commission to raise the budget of this activity due to the increasing demand for standards and harmonised measurements in Europe. "...It is of utmost importance that sufficient resources are allocated to develop a strategy for a unified structure for European Metrology and

to ensure consequent globalisation.."

A "European research area" orientated activity

The activity is "European research area" orientated in essence. It has for example introduced a new concept in Community research: the "virtual institutes". In many cases, it has contributed to European consensus building and harmonisation while ensuring the impact of obtained results on the development and correct implementation of Community policies and regulations. An effort is being made to prepare the laboratories in the candidate member states for their tasks in adopting and implementing European directives. Also, innovative new developments are underway to contribute to a unified chemical metrology infrastructure in Europe covering e.g. industrial, environmental, food and health sectors.

The definition of research tasks to be undertaken in the area of measurements and testing requires a proactive way of working. It has to include consultations with a wide range of stakeholders: other DGs, standardisation bodies, in particular CEN, regulatory authorities, industrial and trade organisations, other international bodies such as EUROPOL, the International Olympic Committee, etc.

The research networks created by the activity will be capable of giving scientific advice, whenever asked. A strong European M&T infrastructure will be a basis for early warning systems. Finally, feedback of results is crucial in policy related work. The results of funded research have to be fed back to the relevant DGs, standardisation and regulatory bodies and all the other stakeholders.

In the future, implementing the tasks described above should be as an integral part of the services responsible for initiating and funding research in support of European policymaking. In this context, **it is advisable to reinstate within the next framework programme the (Standards,) Measurements and Testing activity as a horizontal and co-ordinating action with a larger budget**, a conclusion common to the recent five-year assessment of the Growth programme.



RESEARCH INFRASTRUCTURE

What is Support for Research Infrastructures?

Support for Research Infrastructures is an important element of the Competitive and Sustainable Growth programme. There are four types of activities:

- Support activities to medium and large scale facilities
- Setting-up virtual institutes
- Reference databases
- Measurement and quality management infrastructures

For the remainder of the programme, priority will be given to the latter three types of activities.

The activities are implemented exclusively by means of the expression of interest/dedicated call mechanism and the thematic network modality. The EU funding only covers the management and co-ordinating activities, not the research activities themselves.

Any interested parties can submit ideas for topics via the call for expressions of interest that remains open until 30 April 2001.

*For more information on Support to Research Infrastructures see the Competitive and Sustainable Growth work programme on CORDIS:
<http://www.cordis.lu/growth/src/library.htm#wp>
or contact Søren Bøwadt, e-mail:
soren.bowadt@cec.eu.int*

Workshop on virtual institutes

A workshop on "virtual institutes" was held in Brussels on 28 September 2000. Approximately 125 people, from all the EU member states and most of the associated states, participated.

To date, there has been a slow take-up of the virtual institutes activity in the Competitive and Sustainable Growth programme. The workshop aimed to address this problem by increasing awareness of the concept of virtual institutes. Lectures were given by six invited experts who presented their views on virtual institutes from different perspectives. Commission officials provided information on the modalities used for the implementation of vir-



*Megan Richards from the Research DG
speaking about contractual issues related to virtual institutes*

tual institutes. In the conclusions from the workshop it was emphasised that a successful virtual institute needs:

- a strong scientific and technical consortium with a wide range of connections
- strong management with a "project champion"
- a good business plan and a sound legal structure
- appropriate information and communication technology tools
- good contacts with potential customers in order to establish the trust necessary for good business relations.

*The full conclusions from the workshop, including guidance notes for the preparation of a virtual institute proposal, are available on CORDIS at:
<http://www.cordis.lu/growth/src/ev-work.htm>*

What are virtual institutes?

A virtual institute is defined as a new capability that is created by linking geographically scattered complementary research and industrial expertise in order to rapidly transfer and implement research results into (primarily) industrial applications. After the setting up period, the virtual institute should become an independent and self-financing legal entity, carrying out services for European customers. Virtual institutes are implemented exclusively by means of the *expression of interest/dedicated call mechanism*.



Topics for Support for Research Infrastructures in the fourth dedicated call that are relevant to Measurements and Testing

Setting up of virtual institutes:

- The European virtual institute for geometric measurements (topic IV.29)
- The European virtual institute for industrial chemometrics and metrology (topic IV.30)

Reference databases:

- Access to research spectroscopic data and associated chemical knowledge (topic IV.32)
- Inter-operability of existing materials database (topic IV.33)

Measurement and quality management infrastructures:

- Implementation of measuring instrument directives according to the New Approach (topic IV.34)

The full text of the fourth dedicated call for proposals, with all the topics that have been published for Support for Research Infrastructures, is on CORDIS at: <http://www.cordis.lu/growth/calls/200003.htm>

Reference databases for Measurements and Testing

Projects to develop reference data bases within in the Support to Research Infrastructures activity could help to organise the wealth of measurement and testing data that is currently available across Europe and help to make calibration via internet a reality.

With the rapid emergence of dynamic web-based techniques, the necessary platform-independent technologies to make databases interoperable exist. What is needed now is for the various groups formed around individual databases to join together. Some of the most important issues to be addressed are:

- cataloguing of existing dispersed resources
- dealing with ownership of data and software tools
- ensuring data quality
- guaranteeing a reliable and secure service
- providing both public and restricted access levels
- interacting with complementary e-services (libraries, electronic fora and e-publishing)
- catering for different user profiles
- providing on-line customer and technical support.

A project on reference data bases addressing the above issues could be a market-oriented network aiming to establish an independent, self-financing, legal entity at the end of the funding period.

For further information on reference data bases contact Peter Breger, e-mail: peter.breger@cec.eu.int

STUDIES

Standardisation and intellectual property rights

When it comes to the exploitation of the results from research projects, there can be a conflict between standardisation and the protection of intellectual property rights. If the results from a research project are transferred to the standardisation bodies (CEN, CENELEC and ETSI) and incorporated into a written standard, they immediately become available for everyone to use. On the other hand, the industrial partners in a project will normally want to protect their results, by means of patents for example, so that they can exploit them directly themselves.

This problem is being investigated in a study that is being carried out by the Fraunhofer Institute for Systems and Innovation Study. The study will compare the situation in Europe with that in the USA and Japan, and examine the different strategies that are adopted to find a correct balance between private and public interest. It is hoped that the results will provide a basis for developing a strategy to deal with the interaction between standardisation and intellectual property rights in future European research projects.

The study is co-ordinated by: Dr. Knut Blind, Fraunhofer Institute for Systems and Innovation, e-mail: kb@isi.fhg.de

Importance of measurements for modern society

Measurements and testing enter our lives in a multitude of ways. We often take them for granted, but they have a very important impact on the economy, trade, health, safety and the environment. Indeed, confidence in their results is crucial for the very functioning of our society.

With this background, the European Commission has awarded a contract to Pembroke College, Oxford, to produce a detailed study entitled "Assessment of the economic role of measurement within modern society". The study will take two years and aims to quantify the impact, both direct and indirect, of metrology on the European economy, international trade and society as a whole.

The study is co-ordinated by Dr. G. Williams, Pembroke College, Oxford, e-mail: Geoffrey_Williams@msn.com



Certified reference materials for the future

In order to realise the full benefit of its certified reference material (CRM) policy over the medium and long term, the European Commission has engaged technology consultants from PricewaterhouseCoopers to identify key CRMs for future research and production activities. All stakeholders in the field of CRMs are urged to participate in the study.

If you interested in participating in the study please register at the following web site: <http://www.certifiedreferencematerial.org/>

PROJECTS

Using lasers to assess the condition of fragile works of art

Frescoes and icons are particularly fragile works of art because they consist of layers of water-based paint applied to either plaster or wood. At present, diagnosing the structural condition of such works of art relies on the expertise of the restorer. Visual inspection is one of the main diagnostic methods, but skilled restorers can also identify defects by tapping the surface of a painting, feeling the resultant vibrations through their fingertips and listening to the sound. Clearly the latter technique is neither objective nor repeatable - and on a large fresco, it can be extremely time-consuming.

Now, thanks to a research project funded by the Measurements and Testing programme, art restorers have a number of high-tech alternatives. LASERART, a three-and-a-half-year project that finished in March 2000, was set up to develop non-intrusive measurement techniques using lasers to diagnose the state of frescoes and icons. Laser-based techniques offer a number of advantages over the tap-the-surface method. For a start, it is not necessary for the equipment to be in contact with the artwork, which not only eliminates the possi-



bility of accidental damage but also avoids the need for restorers to work on scaffolding. The techniques are also cheaper and quicker than the manual approach, plus the measurements are completely automated and can be stored in a computerised database.

Project SMT4-CT96-2062 " Non-intrusive laser measurement techniques for diagnostics of the state of conservation of frescoes, paintings and wooden icons (LASERART)"

For further information see:
<http://europa.eu.int/comm/research/growth/gcc/in-action-laser.html> or contact: Prof. E. Tomasini, University of Ancona, Italy, e-mail: Tomasini@mehpl.cineca.it

Project on fire safety of cables supports the Construction Products Directive

Electric cables are used extensively in buildings. As they can be a serious fire risk, it is very important to choose cables with the appropriate fire performance. Unfortunately, current fire assessment techniques are not sensitive enough to differentiate between cables with reasonable fire performance and those with the very high fire performance needed for high-hazard installations or high-density telecommunication installations.



In order to solve this problem, the FIPEC project developed new small-scale and large-scale test methods for the measuring the fire performance of electric cables. The test methods developed are based on

sound engineering principles, rather than prescriptive tests. The parameters measured are rate of heat release and smoke production.

The results of the project will provide a sound, scientific basis for the implementation of the Construction Products Directive (89/106/EEC) with respect to the fire performance of electric cables. A draft proposal for a European classification system for cables based on the full-scale test method developed in the FIPEC project has already been put forward by EUROPACABLE representing European cable manufacturers. It will be presented to the standing committee of the Construction Products Directive and will become a Commission decision if it obtains a positive vote. Protocols for the test methods have been passed to IEC TC 20.



The final report has been published as a book and the main results of the project were presented to cable manufacturers, material suppliers and end-users at a seminar that was held in London on 15 September 2000.

Project SMT4-CT96-2059 "Fire performance of electric cables (FIPEC)"

*For further information contact: Mr. S. Grayson,
Interscience Communications:
<http://www.intercomm.dial.pipex.com/>*

PAST EVENTS

1st Conference of European Customs Laboratories

The 1st Conference of European Customs Laboratories was held in Fiuggi, Italy on 18-20 October 2000. About 300 people attended from 34 different countries. Topics addressed included:

- the fitness for purpose of analytical methods used in chemical control of various types of products;
- promotion of the EN 45000 Quality System in all customs laboratories;
- the development of new analytical methods, technologies and instruments;
- the role of customs laboratories in protecting the health of European citizens and protecting the environment;
- strengthening the confidence between customs and industry.

The conference highlighted the necessity for clear legislation and standards, the harmonisation of methods, and the exchange of information between customs chemists. The major achievement of the conference was the establishment of the Association of European Customs Chemists during the event.

The proceedings of the conference are available from the organiser: Dr. S. Incitti, Direzione servizi Chimici delle Dogane, e-mail: serginc@tin.it

National Conference of Standards Laboratories

One of the sessions of the 2000 "National Conference of Standards Laboratories" (NCSL), Toronto, Canada, 17-19 July, was dedicated to metrology and regulations world-wide. It was organised and chaired by Dr. Andrew Wallard, deputy director and

chief metrologist of the National Physical Laboratory in the UK. The participants came from all over the world and included legislators as well as scientists and industrialists. Topics discussed included:

- the recent CIPM (Comité International des Poids et Mesures) Mutual Recognition Agreement;
- measurements and testing in the context of the Transatlantic Economic Partnership and current EU-US trade agreements;
- future activities in relation to the implementing arrangement for co-operation between the USA and the EU in the fields of metrology and measurement standards that was signed in Brussels on 5 October 1999.

For further information contact: Dr. Andrew Wallard, National Physical Laboratory, e-mail: andrew.wallard@npl.co.uk

FUTURE EVENTS

Metrology in support to environment policies

An international conference on metrology in support to environmental policies will be held 14-15 June 2001 at the Palais de l'UNESCO in Paris. It will be organised by the Institut National de l'Environnement Industriel et des Risques (INERIS). More than 300 participants are expected including top scientists in the field of metrology and the environment, representatives of national and European standardisation bodies, representatives of national authorities and officials of the European Commission. The conference will examine in detail the importance of sound metrology for developing and implementing environmental policies and the role of standardisation for implementing regulations. Needs for future research will be discussed in the context of the European Research Area.



For more information contact: Eddie Maier, e-mail: eddie.maier@cec.eu.int

If you would like to announce an event of interest to the measurements and testing community, please send the relevant details to the editor at: thomas.fairley@cec.eu.int



NATIONAL CONTACT POINTS

<http://www.cordis.lu/fp5/src/ncps.htm>

EU Member States

Austria

Ms. B. Tiefenthaler
Tel: 43 1 5811616 130
Fax: 43 1 5811616 18
tiefenthaler@bit.ac.at

Belgium

Mr. Herman Voorhof
Tel: 32 2 2064111
Fax: 32 2 2065713
herman.voorhof@mineco.fgov.be

Denmark

Mr. P. Petersen
Tel: 45 3332 7278
Fax: 45 3332 7478
ppe@schultz.dk

Finland

Mr. Raimo Pulkkinen
Tel: 358 10 521 5840
Fax: 358 10 521 5904
raimo.pulkkinen@tekes.fi

France

Mr. A. Quévieux
Tel: 33 1 55 35 25 70
Fax: 33 1 55 35 25 55
croissance@anrt.asso.fr

Germany

Dr. J. Lexow
Tel: 49 30 8104 1003
Fax: 49 30 8104 3037
juergen.lexow@bam.de

Greece

Mr. N. Melanitis
Tel: 30 1 32 22 059
Fax: 30 1 32 51 877
nikos@orfeas.praxis.forth.gr

Ireland

Mr. D. Carroll
Tel: 353 1 808 2320
Fax: 353 1 808 2296
donal.carroll@enterprise-ireland.com

Italy

Dr. E. Fiore
Tel: 39 06 5992639
Fax: 39 06 59912368
emanuele.fiore@murst.it

Luxembourg

Mr. G. Schlessler
Tel: 352 43 62 63 1
Fax: 352 43 81 20
gilles.schlessler@luxinnovation.lu

The Netherlands

Dr. M. Soede
Tel: 31 70 3610250
Fax: 31 70 3562811
m.soede@egl.nl

Portugal

Ms. B. Ribeiro
Tel: 351 2 619 72 30
Fax: 351 2 610 33 61
bribeiro@adi.pt

Spain

Dr. J.M. Albella
Tel: 34 91 3349080
Fax: 34 91 3340623
albella@icmm.csic.es

Sweden

Ms. Anna Sundin
Tel: 46 8 454 64 44
Fax: 46 8 454 64 51
anna@eufou.se

United Kingdom

Mr. J. Sillwood
Tel: 44 20 8943 6660
Fax: 44 20 8943 2989
csghelp@npl.co.uk

States Associated with the 5th FP

Bulgaria

Prof. D. Kushev
Tel: 359 2 625 6740
Fax: 359 2 962 5276
kushevdb@phys.uni-sofia.bg

Cyprus

Mr. S. Zavros
Tel: 357 2 867 243
Fax: 357 2 375 120
mcindust@cytanet.com.cy

Czech Republic

Mrs. J. Kubatova
Tel: 420 2 203.90.706
Fax: 420 2 209.22.698
kubatova@tc.cas.cz

Estonia

Mr. H. Toomiste
Tel: 372 7 300 320
Fax: 372 7 300 336
growth@femirc.ee

Hungary

Ms. Z. Mokry
Tel: 36 1 318 4061
Fax: 36 1 318 4064
Zsuzsa.mokry@om.gov.hu

Iceland

Mr. G. Kjartansson
Tel: 354 515 58 00
Fax: +354 552 98 14
grimur@rannis.is

Israel

Dr. N. Soffer
Tel: 972 3 511 81 20
Fax: 972 3 517 00 20
neomy@iserd.org.il

Latvia

Mr Alexei Katashev
Tel: 371 708 93 83
Fax: 371 708 93 83
katashev@latnet.lv

Lichtenstein

Ms. Hermine Haug
Tel: 423 236.68.71
Fax: 423 236.68.89
Hermine.Haug@avw.llv.li

Lithuania

Dr. A. Sutkus
Tel: 370 2 313 763
Fax: 370 2 626 720
asutkus@uj.pfi.lt

Malta

Dr. Michael A. Saliba
Tel: 356 3290 2924
Fax: 356 343577
masali@eng.um.edu.mt

Norway

Mr. P. F. Sorensen
Tel: 47 2 203 73 01
Fax: 47 2 203 73 07
pfs@forskningsradet.no

Poland

Mr. Z. Turek
Tel: 48 22 826 1281 ext 218
Fax: 48 22 828 5370
zturek@ippt.gov.pl

Romania

Mr. V. Vulturescu
Tel: 40 1 210 9275
Fax: 40 1 210 9275
vvultur@scou1.mct.ro

Slovakia

Mr. P. Ondrejcek
Tel: 421 7 654 21 826
Fax: 421 7 645 20 308
ondrejcek@sarc.sk

Slovenia

Dr. B. Jenko
Tel: 386 61 1784 633
Fax: 386 61 1784 719
bojan.jenko@mzt.si

Not yet Associated with the 5th FP

Switzerland

Mr. G. Van de Goor
Tel: 32 2 549 09 80
Fax: 32 2 549 09 89
van.de.goor@swisscore.be

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