Guide 5: EUROMET Co-operation in Research

This document describes co-operation in research within EUROMET and is one out of four types of collaborative efforts taking place in EUROMET. The document lists recommendations for Technical Committee (TC) meetings, Project co-ordinators, TC Chairmen, Convenors and the treatment of results of such co-operations.

The version 01.0 of Guide no 5 corresponds to the original version of April 1998. The version 01.1 takes into account minor amendments and the changes due to the introduction of Technical Sub-Committees (Convenors) at the EUROMET General Assembly in June 2000 as well as the new EUROMET names adopted at the EUROMET General Assembly in May 2001.

1 Introduction

National Metrology Institutes (NMIs) are among other things concerned with providing traceability to national measurement standards, maintaining these standards and performing research related to existing standards or to the development of new standards. For many NMIs part of their research is performed in collaboration with other NMIs within the framework of EUROMET. The most popular type of EUROMET collaboration has been co-operation in research which covers the above mentioned research areas, but also includes the exchange of information between partners (not aiming at particular development tasks) in expert meetings and a multitude of other activities. The results have in the past varied with the nature of the project, from publications in professional journals and presentations at conferences to practical designs of hardware.

Typical projects have four to five partners and last four years. Few are “ongoing”, such as expert meetings which are expected to continue for several years. The distribution of research projects with Subject Field vary, dependent upon the general organisation of research within each field.

Apart from specific results, EUROMET co-operation in research has brought together scientists from all European countries. This has greatly improved the harmonisation and efficiency of European metrology and paved the way towards a common European approach to the SI, building on the composite knowledge of all members.

With regard to the EU-framework programmes, some EUROMET research projects have been precursors of EU-financed projects, and sometimes a EUROMET project has been formulated subsequent to the conclusion of a EU-project in order to ensure dissemination of the results to non-member states.

2 Objectives and Scope

This guidance serves to clarify, align, ease and promote scientific research activities within the EUROMET collaboration as arising from different reasons. These include the need or desire to complement or partition research activities among EUROMET member institutes, to establish the necessary metrological redundancy and confidence in new research fields and to strengthen Europe’s overall metrology position with regard to the needs of European industry and economy. The note does not formulate objectives and/or strategies but offers practical guidance with regard to EUROMET co-operation in research.

This is done by a number of recommendations, which are based on research considerations and on the EUROMET strategy document.

3 Considerations

EUROMET research projects[1] are concerned with developments that have a technical and scientific content. The participants are limited to partners which can contribute towards a solution of the problem identified in need of an answer.

[1] Comparisons undertaken to investigate and demonstrate equivalence in established fields with established methods should be formulated and treated as ‘Comparison of measurement standards’ projects.
Comparisons undertaken to establish traceability, e.g. from primary to a secondary metrology levels, should be formulated and treated as ‘Traceability’ projects.
Projects where one partner seeks the advice from another should be formulated as ‘Consultation on facilities’. This include disseminating research results to less favoured regions.

There are several reasons to continuously pursue research in metrology. Among them are the "symbiotic interaction" of metrology and progress in science and technology, the need for improved fundamental constants, and the requirement of developing and perfecting the Système International d'Unités (SI).

With regard to the requirements for mutual recognition of equivalence of national standards and certificates at the highest level, NMIs have an increased need for broader and more efficient research and intercomparison activities. This means more often adequate competence at the required - mostly primary - metrology level.

NMIs often have formulated metrology research objectives together with strategies to achieve them. This is not the case within the EUROMET collaboration, i.e. common research objectives and strategies are not present at this time. Most of the EUROMET research co-operation projects do not evolve from such a general planning.

There is currently no systematic evaluation of the quality of EUROMET research projects. However, project co-ordinators are requested to list the publications that have resulted from a project together with the final report. From this it emerges that the research is relatively poorly documented and that NMIs have a tradition of publishing less than other research institutions.

EUROMET gives its members the possibility to collaborate in research projects and thereby to share the cost of expensive work. EUROMET does not provide any funding for projects, so the individual partner must finance its own contribution. The contribution from partners in a EUROMET research project may vary[2]. Some partners may contribute scientifically whereas other may contribute by testing the practicality of a solution. It is important that roles are well defined.

4 Recommendations

Given the above considerations, the following recommendations apply to EUROMET projects of type 'co-operation in research':

Technical Committee (TC) meetings:

- should systematically analyse and document for subsequent updating the important research needs in their respective metrology fields as they might arise from progress or requirements in science and technology, fundamental constants, international system of units, international equivalence of national standards and certificates, etc.
- should identify research projects which are most successfully and efficiently tackled by EUROMET co-operation. The meetings should recommend that NMIs seek funding and initiate them.

Project Co-ordinators:

- must submit progress reports annually to the TC Chairman (and the Convenor, if any).
- should investigate if Community or other funding for a project is possible and if so seek such funding.
- are responsible for publications and must report to the TC Chairman (and the Convenor, if any), about published work.

Results of co-operation in research:

- should in general be refereed and published in professional and popular journals with the aim of "penetrating" the scientific world as well as the general public with the existence of metrology and its important role in the modern society.
- should in general result in contributions at metrology conferences.
- in the form of experts meetings should be reported as Reports from meetings in Metrologia
- published in the open literature should where possible make reference to the relevant EUROMET project numbers.

[2] EUROMET members that cannot participate actively in a project can seek information of the progress and results from that project through the above mentioned publications and at Technical Committee meetings. This may be supplemented by Newsletters which exist in some subject fields.

- can include comparisons if they are part of the research work.

Convenors:

- must report to the TC Chairman in order that the TC Chairman can write his/her annual report.
- should inform the TC Chairman about important research related matters or problems in their Sub-Fields.

TC Chairmen:

- must annually by 1 May report to the EUROMET Chairman and be prepared to report on research projects within their Subject Field in his/her annual report to the EUROMET Committee. The report should cover the period from 1 April to 30 March of the subsequent year.
- should inform the EUROMET Chairman and/or the EUROMET Executive Committee about important research related matters or problems in their Subject Field.