

NMIs AND OTHER DESIGNATED INSTITUTES

1. The current situation

1.1 Paragraphs 1.4 and 1.5 of the CIPM MRA introduced the concept of "designated institutes" as responsible for certain national standards and associated services that are not covered by the activities of the "traditional" NMI. As the importance of metrology grows in chemistry, medicine and food, so traditional concepts of traceability to the SI are less clear than in physics and engineering and it is rare to find all these competencies in a single, clearly identifiable NMI. This also applies to more traditional areas such as time or ionizing radiation. In general, Governments, an appropriate authority, or in some cases the NMI itself when it is authorized to do so, have therefore identified and appointed specialist institutes to deal with metrological responsibilities in many of these new areas.

1.2 In some countries the approach is to form "umbrella" co-ordinating organisations that bring together the work of different but complementary organisations with the competencies needed to address the full range of metrological requirements of the country concerned. Annex 1 lists some of the current arrangements.

1.3 In most countries^{*}, an established or "co-ordinating" organisation, often an NMI or group of equal status NMIs is the focus for activities linked with the Metre Convention. Governments have generally made arrangements to designate this organisation and have appointed it as the signatory of the CIPM MRA.

Other designated institutes are themselves responsible, usually in co-operation with the "co-ordinating organisation", for demonstrating that they comply with the relevant requirements of the CIPM MRA.

Designated institutes include a wide variety of bodies, some of which do not have the same, essentially public, nature of NMIs and may, for example, be in the private sector. This is a rapidly changing picture and national arrangements for NMIs and other designated institutes are developing in a variety of ways. We are, therefore, faced with a number of different arrangements and it is timely to offer further guidance on the role and responsibilities of signatory and other designated institutes as participants in the CIPM MRA.

^{*} Country is taken as meaning a Member State of the Metre Convention or an Associate States and Economies of the Conférence Générale des Poids et Mesures – CGPM and of which the co-ordinating organisation is a signatory to the CIPM MRA which may also have signed on behalf of a co-ordinating NMI or other designated NMIs and other designated institutes in that country.

1.4 This note therefore clarifies what is required from the point of view of the Metre Convention and the CIPM MRA. It relates in particular to participation in key comparisons, the entry of Calibration and Measurement Capabilities (CMCs) into the Key Comparison Data Base (KCDB) and the subsequent responsibilities and activities that the international metrology community expects of designated institutes.

2. Guidelines

2.1 The organisation that signs the CIPM MRA is generally regarded as the co-ordinating organisation or institute at national level and signs on behalf of all other designated organisations (e.g. NMIs) and other designated institutes in the country. This is subsequently referred to as the co-ordinating organisation. In the context of the MRA, for the results of key comparisons and for CMCs to be entered into Appendices B and C of the KCDB, the name of the participating institute itself (and not just the name of an umbrella policy body) must be in Appendix A. The co-ordinating organisation must therefore notify the BIPM of all existing or new designated institutes. Designated Institutes should confirm to the Director of the BIPM that they accept designation, that they intend to participate in Consultative Committee and/or RMO activities and key comparisons so that their CMCs can be entered in Appendix C of the KCDB under the name of the participating institute itself. The BIPM will ensure that all designated institutes are entered into Appendix A of the KCDB. The co-ordinating organisation then takes responsibility for establishing an appropriate mechanism so that the CMCs of designated institutes do not overlap with others designated at a national level and that they follow the process of approval established by the JCRB.

2.2 Participation in pilot studies and key comparisons at either the CIPM (CC or BIPM) or at the RMO level is an essential requirement for the demonstration of technical capability and competence within the CIPM MRA and provides the technical basis for confidence in CMC declarations. Participation in key comparisons must therefore be open to designated institutes. They are expected to take part in such comparisons either at the CIPM (Consultative Committee and BIPM), or RMO level.

There are two possibilities to ensure that this happens at the Consultative Committee level. The first is that nomination of their participation in a specific comparison would be through the Institute that is already a member of the appropriate Consultative Committee. This would apply in those cases in which the lead organisation is an institute which may have a recognised broad competence in the subject, but not in the discipline required for a specific comparison. The second case is that in which the designated institute is a Consultative Committee member. If no such member exists then an application for Consultative Committee observer status or membership from designated institutes may be made directly to the President of the Consultative Committee. This also applies to Working Groups. The designated institute should normally be present at meetings arranged to discuss the results from comparisons in which they have

taken part. Guidelines for the Consultative Committee membership may be found on the BIPM web site (www.bipm.org).

As the process of designation and the launch of key comparisons do not always go hand in hand, we are prepared to accept a degree of flexibility. This may mean that designation and compliance with the other requirements and obligations in the MRA may not be completed at the time at which a relevant Key Comparison is launched. At the time of their initial entry in the key comparison, the name of the designated institute does not necessarily have to appear in Appendix A but there must be a clear intention that this will eventually be so.

In order to be recognized as a final participant in the Key Comparison, notice of official designation has to be received by the Director of the BIPM. This notification must be made before the report of the Key Comparison, in particular the Key Comparison Reference Value (KCRV), are computed and the report of the Key Comparison is drawn up.

Before their results can be published in Appendix B, the designated institute must be named in Appendix A of the KCDB. It must comply with the requirements of the CIPM MRA before its CMC claims can be published in Appendix C).

Similar arrangements will need to be made by the RMOs for participation of designated institutes in appropriate regional key and supplementary comparisons.

- 2.3 Designated NMIs and other designated institutes of the same country* are not allowed to claim calibration and measurement capabilities already declared under the CIPM MRA in their country. For CIPM MRA purposes only one institute per country can be recognised as holding national responsibility for a specified capability (quantity, measurand, matrix environment, measurement range) and competence, for submitting the related CMCs, and for taking part in the relevant key comparisons.
- 2.4 The responsibilities of NMIs and of other designated institutes that appear in Appendix A of the MRA are the same in respect of the rules and procedures of the MRA and in respect of the content of Appendices B and C (paragraphs 2.1 and 2.2).
- 2.5 In appointing a designated institute, especially if its core business is not normally that of metrology there is an expectation that the institute should:
 - be impartial;
 - offer calibration or other appropriate services in the field to all customers that may request such services. It should be prepared to share results of comparisons and internal processes that relate for example to equipment used, environmental conditions, laboratory staff, technical procedures, etc. to appropriate experts in Consultative Committees and/or the RMOs technical committees. It should also be prepared to provide information on the processes that have been set up for review of Quality Systems and on-site peer review visits;

Designating authorities should be aware that designating other laboratories in the private sector, may have a direct influence on the market position of other commercial companies in their own or even in other countries. Great care is needed to ensure that designation does not confer unfair market advantage.

- 2.6 Designation of an institute for Appendix A can be by letter addressed to the Director of the BIPM from either the Director of the signatory NMI, if authorized to do so, of that country or an appropriate national government or other official authority (paragraph 1.4). The scope and capability (quantity, measurand, matrix environment, measurement range) of the designated institute should be clearly stated as should be the date from which designation takes effect.
- 2.7 Withdrawal from the Arrangement is allowed for in paragraph 11.2 of the CIPM MRA; this applies equally to NMIs and to designated institutes. Withdrawal is presumed to be within the prerogative of the same authority (or its successor) that originally approved the entry of the NMI or other institutes into the MRA.
- 2.8 Designated institutes belonging to International or Intergovernmental bodies such as the IAEA or the JRC of the EU may be accepted as signatories to the CIPM MRA by decision of the CIPM. This participation will be purely on the grounds of the capabilities and competencies of the institutes concerned. No further designation by these designated institutes will be permitted. Similar organisations are encouraged to apply as signatories of the CIPM MRA in their own right.
- 2.9 The rules for the participation in the CIPM MRA of wider inter-governmental economic entities accepted as signatories to the CIPM MRA are set out in a related document on the services supplied to Associates of the CGPM.

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ANNEX 1

SOME EXAMPLES OF ARRANGEMENTS MADE FOR DESIGNATED INSTITUTES

PTB (Germany) by law is authorized to designate other institutes as a NMI for certain quantities; e.g. BAM for large part of chemistry, UBA (German federal institute for the environment) for certain measurement standards in environmental measurements, DGKL (German society for clinical chemistry and laboratory medicine) for certain quantities in the field of clinical chemistry. Other institutes may become designated in the near future for additional parameters in the field of clinical chemistry and for example in the food testing area.

DTI in the UK has designated NPL for the majority of physical standards LGC for measurement standards in the field of chemistry, NWML for volume, and NEL for flow standards.

In Denmark more than 10 institutes, including laboratories of private industries, have been designated by different authorities as a NMI in different defined fields, now being coordinated under a new board.

Up until recently NML (Australia) has designated NARL (AGAL) as the NMI for large part of metrology in chemistry. Since then, the Australian government has decided to merge both organizations into NMI Australia.(NMIA), and continues to designate ANSTO and ARPANSA for various radiation measurements

The Japanese government has merged the three original organizations into one - the NMIJ. NMIJ has designated CERI as a NMI for metrology in gas analysis.

In the USA, NIST is the coordinating organisation . It has designated Cannon for quantities in viscosity.

NRC (Canada) is planning to designate another institute as a NMI for flow measurement standards.

The Finnish government has not only created MIKES as the Finnish national metrology institute, but has also designated some other (government, semi-government and private organizations) as NMIs for certain defined measurement quantities.

CMI (Czech Republic) has designated a private specialty gas company as a NMI for gas analysis.

France has recently re-organized its structure to co-ordinate the work of several different laboratories.

Italy is currently making organisational changes and the two institutes in Turin (IMGC and IEN) are due to merge into the National Metrology Research Institute, (INRIM). This will still leave ionizing radiation responsibilities at the ENEA-INMRI

as the Italian NMI in this field. Italy's signature of the CIPM MRA in 1999 covered the activities of all three Institutes
METAS in Switzerland is the coordinating organisation and has designated IRA for activity measurements and PMOD/WRC for solar irradiance