

BIPM CBKT Programme Guidebook



What do
we mean **by**
capacity
building
and **knowledge**
transfer ?

The BIPM CBKT Programme refers to activities coordinated specifically by the BIPM to help the world-wide metrology community obtain, strengthen and maintain the capabilities needed to fulfil its missions and objectives.

The aim is to increase the effectiveness with which Member States and Associates engage in the world-wide coordinated metrological system.

This aim further includes three specific goals, which are to:

- ◆ balance the workload among members in operating the international measurement system;
- ◆ help new members to engage effectively with the international measurement system;
- ◆ sustain the BIPM visiting secondment programme and promote exchange between members.

Consequently, the main beneficiaries are both those Member States and Associates that have emerging metrology systems and more established NMIs who are expected to take on a broader role in running the world-wide system.

Often, CBKT initiatives are delivered in partnership with Regional Metrology Organizations and National Metrology Institutes.





Initiatives
of the **CBKT**
Programme

Core capacity building (CB) initiatives

The BIPM identifies those areas that are vital importance to Member States and the BIPM, and of common interest to the global metrology community, as the core CBKT initiatives.

Core CBKT initiatives are funded (or partly funded) by the BIPM dotation.

The CIPM MRA support activities have been currently identified as core and address the following topics:

- ◆ **Participation in the BIPM activities** – training for staff from new/ inexperienced Member States and Associates on engagement in the international measurement system (including orientation for new NMI/DI Directors);
- ◆ **Sound beginning** - training for staff from NMIs that intend to participate in scientific comparisons of national measurement standards, or are in the process of developing Calibration and Measurement Capabilities (CMCs) for the first time;
- ◆ **Balancing the workload** - training for staff from NMIs that have participated in scientific comparisons but not yet piloted them, with the aim of increasing future pilot laboratories;
- ◆ **Future leaders** - training for new/inexperienced chairs and potential chairs of RMO Technical Committees (TCs)/Working Groups (WGs), with the aim of improving the efficiency and effectiveness of the CIPM MRA.

These initiatives are planned in cooperation with RMOs. They take place at the BIPM and, when required, in the regions. Regional events allow addressing of regional specific issues, and a wider participation.

Topic-based capacity building (CB) Initiatives

The CBKT Programme is flexible and can easily accommodate various ideas/topics relating to metrology provided they align with the aims of the Programme.

Topic-based CBKT initiatives rely on external sponsorship.

Topics are determined by the need, and upon the agreement of the sponsoring organization and the BIPM. Currently the following topics have been identified as of high priority:

- ◆ Metrology for clean air;
- ◆ Metrology for safe food and feed;
- ◆ Metrology for accurate patient care;
- ◆ Realization and dissemination of the kilogram;
- ◆ Use of quantum electrical standards to realize the electrical

Knowledge Transfer (KT) initiatives

- ◆ visiting scientists contributing to KT from and to NMIs/DIs;
- ◆ other KT activities such as hosting workshops related to the latest developments in metrology, publication of *Metrologia*, knowledge transfer during on-site comparisons at NMI's and DI's of Member States, and provision of advice related to the SI and other aspects of metrology to other regional and international organizations.



BIM Capacity Building & Knowledge Transfer Programme

Increase the effectiveness of the metrology community
of the United Kingdom for Stateless metrology systems

International des Poids et Mesures



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Forms
of **Delivery**

Workshop-based Activities

Workshop-based activities are short-term workshops, seminars, training courses organized at the BIPM or RMO, addressing topics of core CBKT initiatives and/or other topics identified (topic-based initiatives). The content of workshop-based activities will normally include lectures, group work sessions, case studies and laboratory tours (when appropriate and available).

Lecturers are experts drawn from the BIPM and NMIs/DIs or external specialist(s) who have high level of expertise on the selected topic. Lectures (presentations) and other reading materials are published (publically or with restricted access) on the CBKT webpage of the BIPM website as a long-term resource for CBKT Programme participants as well as the broad metrology community. Publication and use of all materials are subject to copyright requirements which can be found in the document “CBKT Programme copyright and privacy policy”.

The BIPM also work with RMOs to jointly organize and support a workshop-based activity. These activities are primarily roll-out events of the core CBKT initiatives previously conducted at the BIPM, but can also accommodate other topics of interest to the RMO. The BIPM, when appropriate, participates in workshop planning and managing, provides lecturers to cover the international aspects of metrology; develops the CBKT materials jointly; and makes them available for wider use at the RMO. These workshops are generally delivered in the region, and can often be organized along with other events such as RMO general assemblies.



Figure 1: Typical structure of workshop-based activities

LECTURES

Focused topics

Provision of theoretical and technical knowledge

CASE STUDIES

Real examples

Best practice of implementation to maximize knowledge transfer

GROUP STUDIES

Practical implementation

Reinforce the knowledge acquired from the lectures

MATERIALS

Wider use

Reading materials and presentations remain as a long term resource for wider use

Laboratory-based Capacity Building Placements

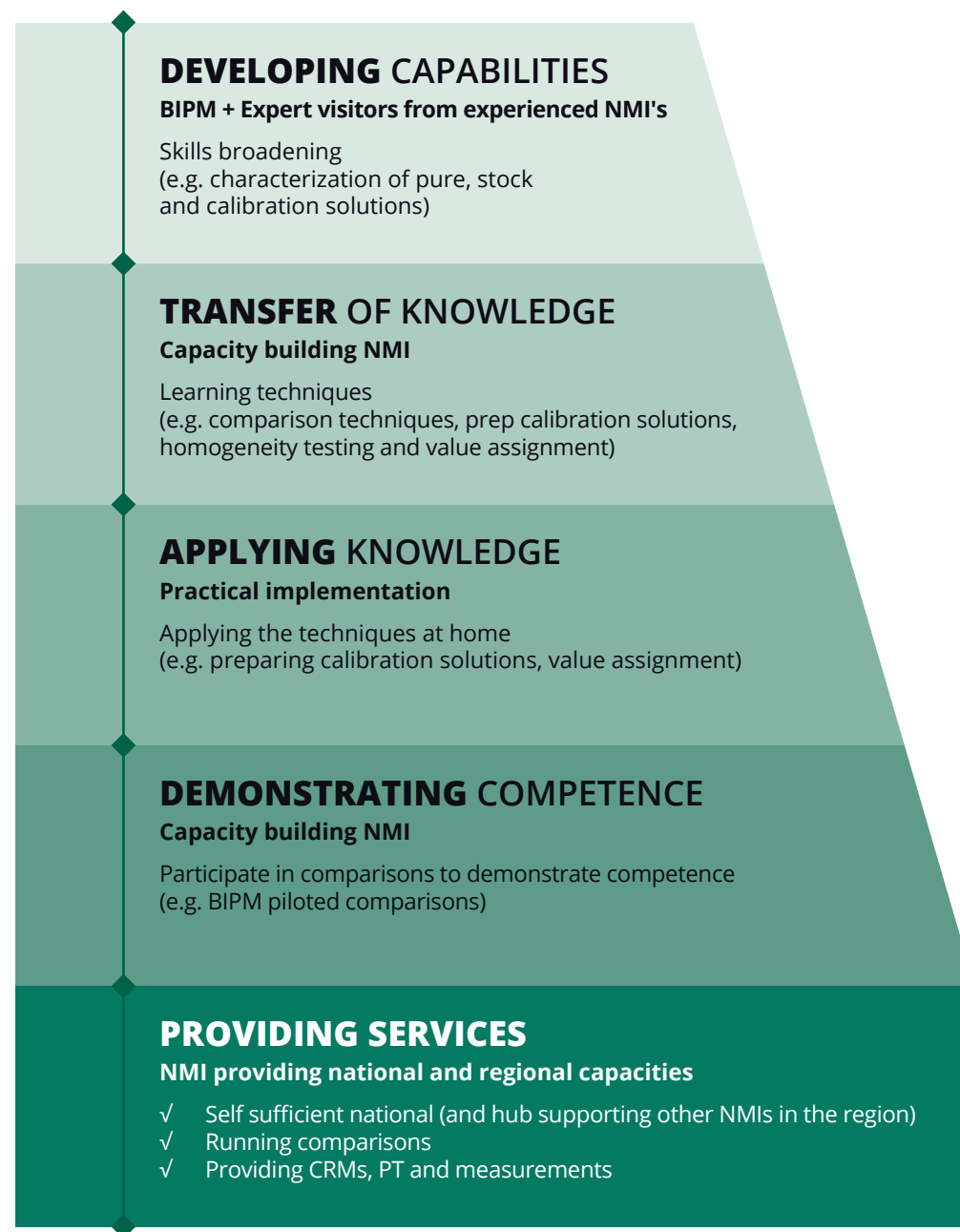
Laboratory-based placements are the long-term capacity building activities conducted through scientific/administrative placements hosted by the BIPM or the sponsoring/supporting organization.

Placements at the BIPM are focused on technical areas where the BIPM is active, with the BIPM hosting the NMIs' scientists. The placements are designed to allow NMIs/DIs to strengthen their technical capabilities. They will further transfer the knowledge to scientists developing their national metrology capabilities, and provide services to address the regional needs. Details of the placements are discussed case by case and tailored to the special needs of the targeted NMIs/DIs.

The joint placements organized by the BIPM and sponsoring/supporting organization provide opportunities for young metrologists to conduct research or gain skills on a subject of their choice for an agreed period in the host NMI's/DI's laboratories. The placement is designed individually for each participant, taking into account the participant's research area and the host laboratory's capabilities. In addition, it is expected that participants will have the opportunity to attend lectures on international aspects of metrology delivered by experts from the BIPM and host NMI/DI. Placements are typically of 1 - 3 months duration.



Figure 2: Example of laboratory-based placements at the BIPM



Knowledge Transfer (KT) activities

BIPM has undertaken Knowledge transfer for many years. These activities underpin the BIPM objectives and mission. They take many forms, involving the BIPM staff, Visiting Scientists from NMIs/DIs, as well as groups of experts assembled from around the world.

Visiting Scientists contributing to KT from and to NMIs/DIs

Visiting scientists seconded to the BIPM can either transfer knowledge for the delivery of the BIPM Laboratory based projects, or become involved with these projects to gain knowledge through dedicated KT activities. In both cases, the scientists have the opportunity to increase their own knowledge and experience. Activities typically include:

- ◆ conducting research, development of equipment or techniques;
- ◆ publication of scientific papers, guidelines, brochures and other documents;
- ◆ mentoring capacity building NMI scientists and lecturing at the CBKT initiatives;
- ◆ specialist roles in liaison and coordination.

Secondment opportunities are usually advertised on the BIPM website.

Other knowledge transfer activities

The BIPM provides or facilitates a wide range of other knowledge transfer activities, including:

- ◆ hosting workshops related to the latest developments in metrology, and its applications, often in collaboration with the relevant CC;
- ◆ publication of *Metrologia* - the peer review journal in pure and applied metrology;
- ◆ KT involving the team of BIPM expert scientists during on - site comparisons at NMI's and DI's of Member States, and when NMI/DI staff participate in the measurements for comparisons or calibration at the BIPM;
- ◆ specific KT projects, designed with the support and input of RMOs and NMIs;
- ◆ contributions by BIPM staff members to the publications of other international organizations;
- ◆ contributions by BIPM staff members to events organized by RMOs, NMIs/DIs and other international organizations, including provision of advice related to the SI and other aspects of metrology.

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How to participate?

Participation in principle is open to all NMI and DI (institutions and staff) of the Member States and Associates. They can participate either as beneficiaries to learn from, or as sponsoring/supporting organization to contribute to the delivery of the CBKT initiatives.

Are You Considering Applying?

Have you seen something of interest in the BIPM CBKT Programme? Are you considering applying?

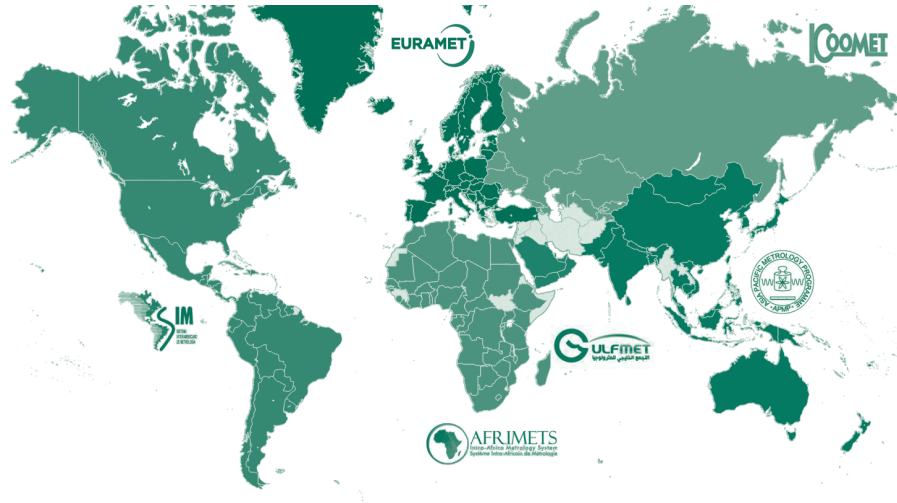
- ◆ Check your participation would meet the aim and goals of the BIPM CBKT Programme;
- ◆ Check the general eligibility;
- ◆ Check the various initiatives to see if there is an available opportunity that is appropriate and of interest;
- ◆ Check the eligibility for that specific initiative;
- ◆ If you satisfy the eligibility criteria, obtain your senior management's approval before applying: applications should be made through your NMI/DI;
- ◆ Follow the instructions included in the specific initiative;
- ◆ If in doubt, contact the CBKT helpdesk (by email to cbkt@bipm.org)

Eligibility to benefit from the BIPM CBKT programme is addressed at the level of both general eligibility, which describes the broad eligibility for participation in the programme as a whole, and at the level of eligibility for each of the specific initiatives within the programme. Eligibility for specific initiatives will vary depending on the particular circumstances of that initiative. Both sets of eligibility criteria must be satisfied.



Who Can Offer Sponsorship?

The CBKT initiatives which are generally **topic-based** rely on external sponsorship/support. Member States and Associates, as well as international organizations, private organizations and foundations, are all invited and welcome to provide voluntary support of all kinds to sustain the CBKT Programme.



Sponsorship can take many forms, such as financial or in-kind support, including but not limited to:

FINANCIAL SUPPORT:

- ◆ grants to the BIPM to execute a defined initiative;
- ◆ funding of individuals to attend an initiative;
- ◆ grants to the BIPM CBKT initiatives.

IN-KIND SUPPORT:

- ◆ hosting a defined initiative;
- ◆ provision of laboratories, facilities, materials, and/or other types of substances as needed;
- ◆ provision of lecturers for workshop-based activities;
- ◆ sending scientists/specialists to contribute the delivery of the BIPM Work Programme;
- ◆ publication of promotional materials / guidelines / documents, etc.

Potential sponsors should consult with the **BIPM CBKT Programme Manager** to discuss the boundary conditions, and decide the specific type and amount of support, the target audience and the timing.



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