

## KCDB REPORT TO THE 25th JCRB MEETING

At the occasion of each JCRB meeting the KCDB Office prepares a report on the status of the KCDB. Each report describes the work of the KCDB Office during the previous six-month period, and the compilation of these reports to the JCRB thus provides a complete record of the evolution of the KCDB.

The previous report (JCRB-24/06) was presented at the 24th meeting of the JCRB, held on 16 and 17 March 2010 at the BIPM, and reflected the situation as at 01 March 2010. The present report covers the six-month period from 01 March 2010 to 01 September 2010.

### Notes from the KCDB Office to the JCRB members

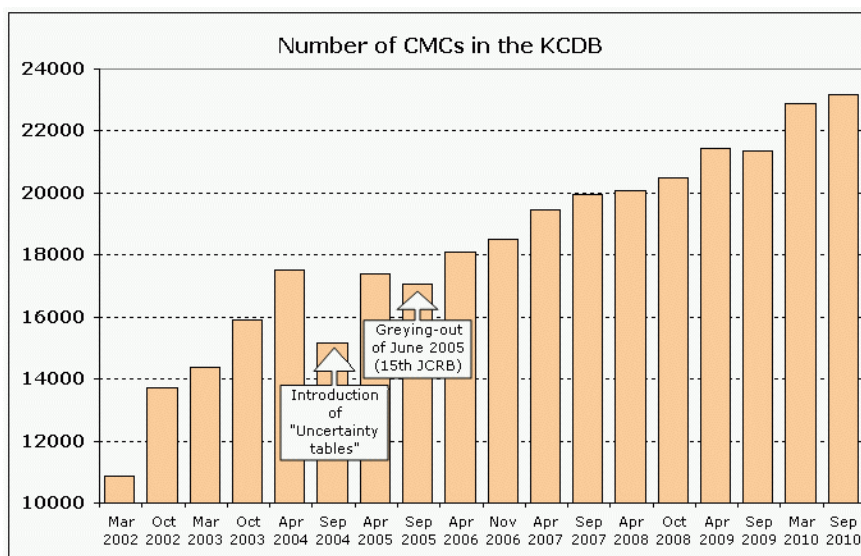
1. Statistics on the content of the KCDB are prepared by the KCDB Office and are available on-line from the [KCDB Statistics page](#). This includes the number of key and supplementary comparisons (updated in real-time), and PDF files showing the participation in key and supplementary comparisons (updated every six months, at the time of each new *KCDB Newsletter* issue) and the number of CMCs by metrology area and by country (updated in real-time).
2. The EXCEL files that are used to generate the PDF files displayed in the KCDB Statistics page are available from the [access-restricted JCRB CMC website](#) (link "[KCDB statistics](#)"). Note that these EXCEL files track all the changes (including greying-out and re-instatement of CMCs) and their dates, and thus allow some recollection of the history of the KCDB. In addition, many numbers that are not shown in the PDF files of statistics are given in the EXCEL files.
3. The KCDB Office provides on demand an additional EXCEL file containing the information of Appendix B of the KCDB, as a snapshot of the content of the database valid at a given date. This makes it possible to carry out statistical analysis using EXCEL functions or customized macro-functions. The file is compiled by the BIPM, using an SQL request named "Angela", and the delivery time is about two working days.
4. The full set of *KCDB Newsletters* is always available on-line from the [KCDB Statistics page](#) (bottom of the page).
5. Since February 2010, a box entitled "Related links" is provided on the left of each KCDB web page. It includes, among others, links to the KCDB Statistics page, to the KCDB FAQs page, and to the open-access CIPM MRA and JCRB documents (located on the main BIPM website).

## 1. The CMC database

### 1.1. Content of the CMC database

As at 01 September 2010, the KCDB included a total of 23 194 CMCs:

- 14 681 in General Physics,
- 3 840 in Ionizing Radiation, and
- 4 673 in Chemistry.



*Number of CMCs registered in the KCDB since March 2002*

Over the period covered by this Report, 19 newly approved sets of CMCs were published (see Section 1.2 below), corresponding to an additional 350 CMCs. There were also some movements related to temporary removal and re-instatement of CMCs (see Section 1.3 below).

Details on the number of CMCs currently published in the KCDB, per country and per metrology area, are openly available in real-time from the [Statistics page of the KCDB](#) (PDF file).

## 1.2. New CMCs publication – see also [“CMCs News”](#)

Since 01 March 2010, the following sets of CMCs have been published in the KCDB:

- 09 March 2010; COOMET.M.13.2009 (BY); +2 CMCs [first CMCs published in M for Belarus].
- 29 March 2010; EURAMET.EM.6.2009 (AT, BG, CH, CZ, DE, FI, FR, GB, GR, IE, LT, NL, RO, SE, and TR); +134 CMCs.
- 21 April 2010; EUROMET.L.8.2010 (AT, CH, DE, FI, GB, IT, NO, PT, RO, SI, HR, NL); +26 CMCs.
- 21 April 2010; COOMET.M.11.2009 (KZ); 6 CMCs in Hardness immediately greyed-out (no QS).
- 26 April 2010; SIM.EM.3.2009 (AR, BR, CR); –5 CMCs [introduction of tables of uncertainties] [first CMCs published in EM for Costa Rica: +54 CMCs].
- 29 April 2010; APMP.L.14.2010 (TH); +25 CMCs [first CMCs published in L for Thailand].
- 01 May 2010; COOMET.EM.4.2008 (UA); +19 CMCs.
- 26 May 2010; EURAMET.M.17.2010 (RS); +10 CMCs [first CMCs published in M for Serbia].
- 26 May 2010; COOMET.T.6.2010 (BY); +19 CMCs.
- 03 June 2010; COOMET.TF.3.2009 (BY); +31 CMCs [first CMCs published in TF for Belarus].
- 21 July 2010; APMP.TF.8.2010 (VN); +5 CMCs [**very first set of CMCs published for Viet Nam** – see Section 6 of this report].
- 22 July 2010; SIM.PR.4.2008 (MX, US); +9 CMCs.
- 27 July 2010; EURAMET.T.8.2010 (AT, BE, CZ, DK, FI, FR, DE, GR, HU, IE, IT, LT, NL, NO, PL, PT, RO, SK, SI, ES, SE, CH, TR, GB); +89 CMCs.
- 28 July 2010; AFRIMETS.QM.8.2010 (ZA Cat 04); –1 CMC.
- 29 July 2010; COOMET.QM.17.2010 (BY Cat 04, RU Cat 04, RU Cat 13); +8 CMCs.

- 30 July 2010; COOMET.EM.5.2010 (UA); +20 CMCs.
- 03 August 2010; SIM.M.12.2010 (PE); +19 CMCs [**very first set of CMCs published for Peru** – see Section 6 of this report].
- 13 August 2010; EURAMET.QM.19.2010 (AT Cat 04, CH Cat 04, CZ Cat 04, DE Cat 04, ES Cat 04, FI Cat 04, FR Cat 04, IT Cat 04, NL Cat 04, PL Cat 04, PT Cat 04, SK Cat 04, GB Cat 04, EU Cat 02, SK Cat 02, DE Cat 05, EU Cat 05, RO Cat 05, SI Cat 05, RO Cat 08, GB Cat 10); +92 CMCs.
- 27 August 2010; SIM.QM.12.2010 (BR Cat 01, BR Cat 04, MX Cat 02, MX Cat 04, MX Cat 05, MX Cat 08, MX Cat 11, MX Cat 13, US Cat 04); +10 CMCs.

In addition, the KCDB Office dealt with numerous corrections:

- editorial changes,
- deletion of services that are no longer available (see Section 1.4), and
- changes in laboratory names and acronyms (for Ireland, Slovenia, and Lithuania over the period covered by this report).

### 1.3. CMCs: temporary removal and re-instatement

The situation regarding temporary removal (“greying-out”) and re-instatement of CMCs is available on-line from page 5 of the [Statistics page of the KCDB](#) (PDF file).

Since 01 March 2010, the following actions have been taken:

- 10 March 2010; BR (T); greying-out; –11 CMCs.
- 15 March 2010; LV (RI); greying-out; –143 CMCs.
- 20 March 2010; AR (AUV); re-instatement; +4 CMCs.
- 14 April 2010; JM (M); greying-out; –22 CMCs.
- 21 April 2010; KZ (M); greying-out; –6 CMCs.
- 30 April 2010; MX (M); greying-out; –45 CMCs.
- 12 May 2010; CA (PR); re-instatement; +21 CMCs (30 CMCs in PR from CA had been greyed-out in June 2005, among which 21 were re-instated on 12 May 2010; on that date, the KCDB Office was requested to retain the 9 remaining greyed-out CMCs until approval of QS scheduled for October 2010).
- 22 July 2010; MX (PR); definitive deletion of two CMCs that had been greyed-out in February 2007.
- 13 August 2010; MX (M); re-instatement; +11 CMCs.
- 20 August 2010; NZ (EM); greying-out; –5 CMCs.

As at 01 September 2010, 443 CMCs were temporarily removed from the KCDB, compared with 249 as at 01 March 2010 (see table on page 4).

As at 01 September 2010, there remained only a few instances of CMCs that were greyed-out from the KCDB more than five years ago (in June 2005 following decision of the 15th JCRB). These are: GR (M), 4 CMCs; MX (M, Hardness), 6 CMCs; MX (EM), 37 CMCs; AR (RI), 71 CMCs; and CA (PR), 9 CMCs [see explanation above].

This information is kept in the spreadsheet “Dates of CMCs greying-out” of the EXCEL file “CMCsNumber\_2010, available from the [access-restricted JCRB CMC website](#) (link “[KCDB statistics](#)”).

### 1.4. Definitive deletion of CMCs

The KCDB Office receives very few requests for definitive deletion of CMCs, and the numbers of CMCs involved is always small.

Since 01 March 2010, the following CMCs have been definitively deleted (“pinked-out”) from the KCDB, as they correspond to services that are no longer available:

- 17 March 2010; IT (T); pinked-out; –4 CMCs.

- 15 April 2010; DK (L); pinked-out; –3 CMCs.
- 22 July 2010; MX (PR); pinked-out; –2 CMCs (previously greyed-out).
- 18 August 2010; GB (T); pinked-out; –5 CMCs.

	M	PR	EM	T	RI	L	AUV	QM	TF	Total
<b>COOMET</b>										
KZ	6									6

Total COOMET: 6

<b>APMP</b>										
NZ			5							5

Total APMP: 5

<b>AFRIMETS</b>										
ZA		5								5

Total AFRIMETS: 5

<b>EURAMET</b>										
BG						1				1
FR	3									3
GR	4						8			12
LV	7		46		143	6				202

Total EURAMET: 218

<b>SIM</b>										
MX	51		37		1			7		96
BR				11						11
AR					71					71
JM	22									22
CA		9								9

Total SIM: 209

Total: 443 CMCs greyed-out

*Number of CMCs temporary removed ("greyed-out") from the KCDB,  
by country and by metrology area, as at 01 September 2010*

#### Follow-up of Action 17/1 from the 17th JCRB meeting

"Future KCDB reports to the JCRB are to include the information on CMC statistics (per RMO) thus avoiding the inclusion of this information in the RMO reports to the JCRB".

Status as at 01 September 2010

APMP: 4 633 CMCs  
COOMET: 1 763 CMCs  
EURAMET: 11 705 CMCs  
AFRIMETS: 367 CMCs  
SIM: 4 460 CMCs  
IAEA: 13 CMCs  
IRMM: 253 CMCs

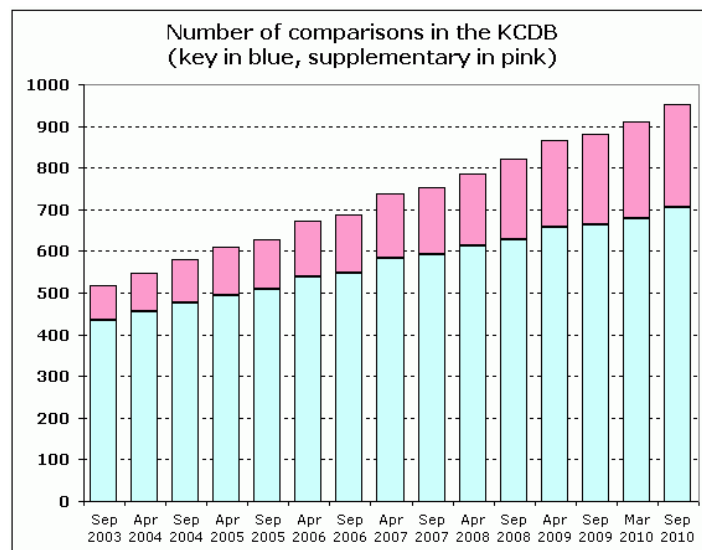
## 2. Key and supplementary comparisons database

### 2.1. Content of the database

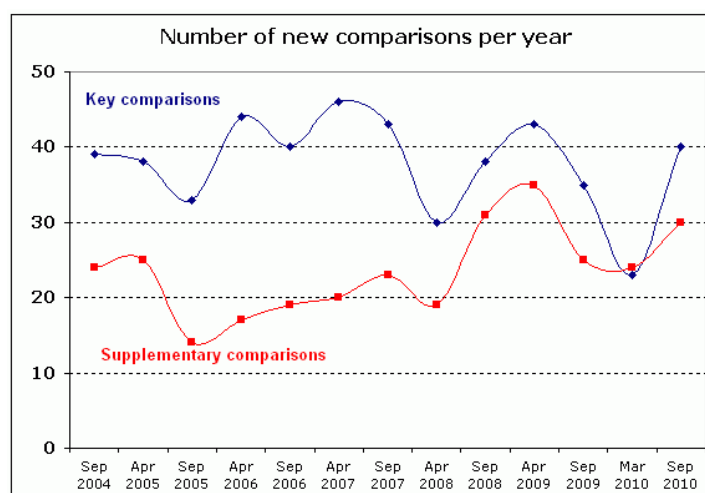
As at 01 September 2010, the database covered 704 key comparisons (83 from the BIPM, 344 from the CCs, 1 from AFRIMETS, 98 from APMP, 28 from COOMET, 112 from EURAMET, and 38 from SIM), and 248 supplementary comparisons.

Graphs showing the evolution since September 2003 of the total number of key comparisons and of supplementary comparisons registered in the KCDB, and the number of new key and supplementary comparisons registered in the KCDB over the one-year period ending at the date indicated on the x-axis are given below.

On average, 38 new key comparisons are registered each year in the KCDB.



*Total number of key comparisons and supplementary comparisons registered in the KCDB: evolution since September 2003*



*Number of new comparisons registered in the KCDB over the one-year period ending at the date indicated on the x-axis*

Updated graphs (PDF files) illustrating the participation in [key](#) and [supplementary](#) comparisons were made available from the [Statistics page of the KCDB](#) on 18 May 2010.

## 2.2. Key and supplementary comparisons: registration, suppression and modification

Since 01 March 2010, the following actions were taken:

- 01 March 2010; registration of [CCRI\(II\)-S10](#).
- 02 March 2010; replacement of [CCRI\(I\)-K6](#) by [BIPM.RI\(I\)-K6](#) (already registered), and replacement of [CCRI\(I\)-K4](#) by [EUROMET.RI\(I\)-K4](#) (already registered) [CCRI(I)-K6 and CCRI(I)-K4 received the status “replaced by ...”, but were not deleted from the KCDB].
- 09 March 2010; registration of [CCEM.RF-K24.F](#).
- 11 March 2010; registration of [APMP.M.F-K2](#).
- 12 March 2010; registration of [SIM.M.P-S3](#) and [SIM.M.P-S4](#).
- 23 March 2010; transformation of APMP.M.P-K8 into [APMP.M.P-S8](#).
- 30 March 2010; registration of [APMP.M.P-K3](#).
- 31 March 2010; registration of [SIM.M.D-S3](#).
- 06 April 2010; registration of [APMP.M.P-K13](#) and [SIM.EM-S7](#).
- 07 April 2010; registration of [CCQM-K76](#), [CCQM-K77](#), and [SIM.EM-K5](#).
- 14 April 2010; suppression of EURAMET.M.P-K1.b.1.
- 14 April 2010; registration of [SIM.EM-K12](#), [COOMET.M.FF-S4](#), [EURAMET.M.M-S2](#) and [EURAMET.EM-K2.1](#).
- 26 April 2010; registration of [APMP.T-S7](#).
- 27 April 2010; registration of [SIM.QM-S2](#).
- 28 April 2010; registration of [APMP.T-K3.3](#).
- 29 April 2010; registration of [SIM.RI\(I\)-K3.1](#).
- 30 April 2010; registration of [EURAMET.QM-S4](#) and [APMP.QM-K9](#).
- 06 May 2010; registration of [APMP.L-S3](#).
- 11 May 2010; registration of [CCQM-K87](#) and [CCEM.RF-K25.W](#).
- 12 May 2010; registration of [COOMET.L-S9](#).
- 19 May 2010; registration of [SIM.L-K4](#).
- 25 May 2010; suppression of CCRI(II)-S9.
- 27 May 2010; registration of [APMP.M.M-K2.1](#).
- 28 May 2010; registration of [EURAMET.T-S3](#).
- 07 June 2010; registration of [APMP.EM-S9](#).
- 10 June 2010; registration of [CCQM-K88](#).
- 24 June 2010; registration of [CCPR-K6.2010](#) and [CCRI\(III\)-K9.AmBe.1](#).
- 08 July 2010; registration of [BIPM.RI\(I\)-K8](#).
- 09 July 2010; registration of [APMP.RI\(I\)-S1](#).
- 20 July 2010; registration of [CCQM-K89](#).
- 28 July 2010; transformation of COOMET.T-K5 into [COOMET.T-S5](#).
- 03 August 2010; registration of [APMP.L-S4](#).
- 04 August 2010; registration of [APMP.M.FF-K2.a](#).
- 19 August 2010; registration of [CCQM-K82](#), [CCQM-K83](#), [CCQM-K84](#) and [APMP.QM-K41](#).
- 23 August 2010; registration of [EURAMET.QM-K4.2](#).

This resulted in an additional 24 key comparisons and 17 supplementary comparisons registered in the KCDB over the six-month period covered by this report.

## 2.3. Published results of key and supplementary comparisons

As at 01 September 2010, among the 704 key comparisons that were registered:

- 88 corresponded to exercises prior to the implementation of the CIPM MRA, and will never have results published in the KCDB; they have been “Approved for provisional equivalence”. (On 09 March 2010, key comparison [CCEM.RF-K4.CL](#) also received

this status, although it was first registered with the aim of being conducted according to the CIPM MRA guidelines);

- 73 of the 83 ongoing BIPM key comparisons had results published in the KCDB; these are regularly extended as new data become available (13 new results were published since 01 March 2010); and
- another 324 CC and RMO key comparisons had their final reports approved and posted in the KCDB website, and corresponding tables of numbers and graphs entered in the database.

All together, the KCDB currently displays a total of 1 520 graphs of equivalence, including more than 140 new graphs of equivalence published over the last six months.

The results of 123 RMO key comparisons (compared with 114 at the time of the 24th JCRB meeting) - 42 conducted by APMP, 14 by COOMET, 52 by EUROMET, and 15 by SIM - are published in the KCDB: see "[Comparisons News](#)" for the list of the most recent publications.

Linkage has also been carried out for 32 bilateral key comparisons subsequent to full-scale CC key comparisons; their results are included in the appropriate graphs of equivalence.

The most complete example of linkage still concerns the family of key comparisons of 1 kg stainless steel standards, in which the results of six RMO key comparisons (APMP.M.M-K1, EUROMET.M.M-K1, EUROMET.M.M-K4, EUROMET.M.M-K4.1, APMP.M.M-K6 and COOMET.M.M-K1) are linked to those of CCM.M-K1: the corresponding [graph of equivalence](#) includes 82 data points.

The final reports of 143 of the 248 supplementary comparisons registered in the KCDB were also posted in the KCDB as at 01 September 2010.

The final reports of key and supplementary comparisons posted in the KCDB are also generally published in the [Metrologia Technical Supplement](#).

### 3. Visits to the KCDB website

As reported previously, more than 90 000 visitors opened a total of about 821 000 KCDB web pages over the year 2009: the number of monthly visits varied between 5 600 and 10 100, and the number of pages opened each month between 48 800 and 117 500.

Over the first eight months of 2010, some 58 000 visitors have opened a total of more than 850 000 KCDB web pages. One observes that the average number of monthly visits remains roughly constant (at the level of about 7 200 visits each month), but that the average number of pages consulted during each visit has increased significantly, as has the average duration of each visit. This indicates that the key communities who visit the KCDB website, National Metrology Institutes, regulators, accreditors, commercial and industrial companies, and others are showing a growing interest in the information displayed.

As observed in 2009, all pages are equally visited, including the News page, the Statistics page, and the Newsletters; and PDF files of comparison reports and of CMC lists are regularly downloaded.

Visitors come from all over the world, and reach the KCDB website from links proposed in other websites (especially NMI websites) for 36 % of them. This percentage was of 25 % on average over year 2009. Internet search engines (Google, Yahoo, etc.) lead about 4 % of our visitors to the KCDB website, the remaining 60 % reach our web page via personal bookmarking, direct URL address typing or using links given in e-mails.

### 4. The KCDB system

No changes were brought to the KCDB web system over the period covered by this report.



## 5. Publicity

[Issue 13](#) of the *KCDB Newsletter* was published on 09 June 2010.

The *KCDB Newsletter* No 13 was successfully sent from the BIPM to 2 300 e-mail addresses around the world. It was posted on the KCDB website and was also advertised (with a web link) in the NCSLI and CFM Bulletins.

## 6. Participation of Associates of the CGPM in CIPM MRA activities

The following table summarizes the participation of NMIs of Associates of the CGPM in CIPM MRA activities as at 01 September 2010.

Associate of the CGPM	Date of becoming an Associate	Date of signature of the CIPM MRA	Total number of published CMCs	Total number of greyed-out CMCs	Date of publication of the first CMC	Number of key comparisons*	Number of supplementary comparisons*
Albania	10 September 2007	10 October 2007	0	0	-	0	0
Bangladesh	29 March 2010	-				0	0
Belarus	05 May 2003	14 October 2003	152	0	07 April 2004	24	17
Bolivia	04 April 2008	16 May 2008	0	0	-	2	5
CARICOM	10 October 2005	12 October 2005	0	0	-	0	4
Chinese Taipei	26 April 2002	04 June 2002	378	0	21 October 2003	64	29
Costa Rica	29 January 2004	06 October 2004	78	0	26 November 2008	11	7
Cuba	19 December 2000	18 June 2001	63	0	02 May 2005	4	9
Ecuador	20 November 2000	15 April 2001	0	0	-	1	6
Estonia	27 January 2005	23 March 2005	0	0	-	7	4
Georgia	01 January 2008	17 June 2008	0	0	-	0	1
Ghana	17 September 2009	24 February 2010	0	0	-	0	0
Hong Kong (China)	08 April 2000	31 May 2000	307	0	13 December 2000	45	11
Jamaica	15 September 2003	21 July 2004	0	22	24 August 2006	5	3
Latvia	11 January 2001	13 March 2001	0	202	23 March 2005	13	6
Lithuania	12 March 2001	12 April 2001	91	0	11 December 2003	14	10
Macedonia, the FYR of	10 October 2006	14 November 2007	0	0	-	0	1
Malta	11 April 2001	20 June 2001	0	0	-	1	1
Moldova, Rep. Of	01 January 2007	14 November 2007	0	0	-	1	1
Panama	03 August 2003	16 September 2003	26	0	11 September 2006	6	7
Paraguay	06 May 2009	27 October 2009	0	0	-	0	5
Peru	28 May 2009	17 November 2009	19	0	03 August 2010	5	11
Philippines	01 June 2002	19 December 2002	0	0	-	10	3
Slovenia	02 June 2003	23 June 2003	254	0	11 May 2004	27	9
Sri Lanka	03 August 2007	14 November 2007	0	0	-	3	1
Tunisia	23 October 2007	14 November 2007	0	0	-	0	0
Ukraine	19 August 2002	14 October 2003	122	0	10 January 2005	27	29
Viet Nam	10 October 2003	16 September 2004	5	0	21 July 2010	19	5

### *CIPM MRA activity of the NMIs of Associates of the CGPM: important dates, number of published CMCs and participation in key and supplementary comparisons*

\*These numbers take into account all comparisons registered in the KCDB, whatever their statuses are, for which at least one laboratory of the Associate is listed in the participants list.

**Note:** As the numbers on participation in key and supplementary comparisons change only slowly with time, the corresponding KCDB statistics are updated every six months at the time of preparation of the *KCDB Newsletter* (typically May and December of each year). The numbers given here show the situation as at 18 May 2010. However, as the numbers of CMCs published in the KCDB can vary quickly, they are updated in real-time in all KCDB Statistics files. The numbers of CMCs given here show the situation as at 01 September 2010.

One observes that nearly all of the Associates who participate in the CIPM MRA have at least one of their metrology institutes listed as participant in a key or a supplementary comparison, whereas only 11 of the 27 currently have CMCs published in the KCDB. This reveals how long and difficult the effort is to complete the whole CIPM MRA scheme.