

**International Committee
for Weights and Measures**

Proceedings of Session I

of the 103rd meeting

(12-13 March 2014)

Executive Summary

Session I of the 103rd meeting of the CIPM (12-13 March 2014)

New CIPM election procedure

The CIPM unanimously supported the text of a ‘collective resignation letter’ that is required to initiate the new election process and the CIPM Secretary will re-contact Member State Representatives and NMI Directors to encourage submission of further candidates for CIPM membership.

BIPM Work Programme 2016-2019

The CIPM supported the proposed BIPM Work Programme 2016-2019.

CIPM MRA review

The CIPM charged the BIPM to hold a meeting of NMI Directors in 2015 dedicated to the CIPM MRA review.

Plans for the 25th CGPM meeting

The plans and timetable for the 25th CGPM meeting (18-20 November 2014), to be held in Versailles, were presented.

Resolutions for the CGPM meeting

The CIPM accepted five draft resolutions for submission to the CGPM.

Amendments to the SI Brochure

The CIPM approved changes within the framework of updating the 8th edition of the SI brochure and will invite the CCs to comment on draft chapters one, two and three of the 9th edition.

JCTLM

The CIPM supported the ongoing role of the BIPM as the JCTLM Secretariat and encouraged the BIPM to seek one-off funding to support streamlining the processes and evolution of the JCTLM database.

MEMBERS OF THE INTERNATIONAL COMMITTEE FOR WEIGHTS AND MEASURES

As of 12 March 2014

President

B. Inglis, National Measurement Institute (NMI), Lindfield, Australia.

Secretary

R. Kaarls, Zoeterwoude, the Netherlands.

Members

B.R. Bowsher, National Physical Laboratory (NPL), Teddington, United Kingdom.

H.S. Brandi, *Instituto Nacional de Metrologia, Qualidade e Tecnologia* (INMETRO), Rio de Janeiro, Brazil.

K. Carneiro, Holte, Denmark.

Y. Duan, National Institute of Metrology (NIM), Beijing, China.

L. Énard, *Laboratoire National de Métrologie et d'Essais* (LNE), Paris, France.

D.-I. Kang, Korea Research Institute of Standards and Science (KRISS), Daejeon, Republic of Korea.

V.N. Krutikov, *Rosstandart*, Moscow, Russian Federation.

W. Louw, National Metrology Institute of South Africa (NMISA), Pretoria, South Africa.

W.E. May, National Institute of Standards and Technology (NIST), Gaithersburg, United States of America. *CIPM Vice-President*.

J.W. McLaren, Ottawa, Canada. *CIPM Vice-President*.

H.O. Nava-Jaimes, *Centro Nacional de Metrología* (CENAM), Querétaro, Mexico.

A. Sacconi, *Istituto Nazionale di Ricerca Metrologica* (INRIM), Turin, Italy.

H. Uğur, Mugla, Turkey.

J. Ullrich, *Physikalisch-Technische Bundesanstalt* (PTB), Braunschweig, Germany.

T. Usuda, National Metrology Institute of Japan (NMIJ/AIST), Tsukuba, Japan.

J. Valdés, *Instituto Nacional de Tecnología Industrial* (INTI), Buenos Aires, Argentina.

Honorary members

E. Ambler, Hilton Head Island, United States of America.

W.R. Blevin, Glenhaven, Australia.

L.M. Branscomb, La Jolla, United States of America.

J.V. Dunworth, Ramsey, Isle of Man, United Kingdom.

E.O. Göbel, Braunschweig, Germany.

K. Iizuka, Tokyo, Japan.

D. Kind, Braunschweig, Germany.

J. Kovalevsky, Grasse, France.

J. Skákala, Bratislava, Slovakia.

Agenda

1. Opening of the session, quorum and approval of the agenda.
2. *In Camera* session.
3. Confirmation of the minutes of the sessions held in 2013 and list of actions.
4. Report of the Secretary and activities of the Bureau of the CIPM, including an update on new and prospective Members and Associates.
5. Update on the activities of the BIPM by the Director.
6. Report from the Chair of the CIPM Standing Sub-Committee on Finance.
7. Financial and administrative matters.
8. Report from the Chair of the CIPM *ad hoc* Working Group on CIPM Membership.
9. Process of communication, consultation and exchange of information and opinions with the NMI Directors and Member State representatives in preparation for the 25th CGPM meeting.
10. Development of the BIPM Work Programme (2016-2019) and strategy.
11. CIPM MRA review process.
12. Plans for the 25th CGPM meeting (2014).
13. Possible resolutions to be submitted to the CGPM.
14. Report from the Chair of the CIPM Standing Sub-Committee on the BIPM Pension and Provident Fund and Health Insurance.
15. Report from the Chair of the CIPM *ad hoc* Working Group on BIPM Conditions of Employment.
16. The role and performance of the CIPM as a scientific body and a direction giving and supervisory body of the BIPM.
17. Proposed amendments to the SI Brochure.
18. Other BIPM issues.
19. International cooperation.
20. Meetings and workshops.
21. Any other business.
22. Date of next meeting.
23. Closure of the meeting.

1. **OPENING OF THE SESSION; QUORUM; AGENDA**

The International Committee for Weights and Measures (CIPM) held Session I of its 103rd meeting on Wednesday 12 March and Thursday 13 March 2014 at the International Bureau of Weights and Measures (BIPM).

Present: B.R. Bowsher, H.S. Brandi, K. Carneiro, Y. Duan, L. Énard, B. Inglis, R. Kaarls, D.-I. Kang, W. Louw, W.E. May, J.W. McLaren, H.O. Nava-Jaimes, A. Sacconi, J. Ullrich, T. Usuda and J. Valdés.

Apologies were received from: V. Krutikov, H. Uğur and M.J.T. Milton.

Also attending the meeting were: C. Fellag Ariouet (Personal Assistant to the Director and head of the Secretariat and Housekeeping Office), A. Henson (Director of the International Liaison and Communication Department), C. Planche (Librarian/Drafting Officer), T.J. Quinn (Emeritus Director), R. Sitton (Publications Officer) and R. Wielgosz (Acting Operational Director).

The following were in attendance for parts of the meeting: I. Andernack (head of the BIPM Finance, Budget and Procurement Office), S. Arlen (head of the BIPM Legal, Administration and Human Resources Office) and M.J.T. Milton¹ (Director of the BIPM).

Dr Inglis, President of the CIPM, opened the session. With 16 out of 18 members present the quorum was satisfied according to Article 12 of the Regulations annexed to the Metre Convention.

Two agenda points were added at the request of Dr Quinn:

21.1 Terminology.

21.2 Outcome of the Royal Society meeting on *G*.

2. **IN CAMERA SESSION**

The *in camera* session was held on 13 March at 9.00 am. During this session, reports were given by Dr Kaarls on the work of the CIPM Standing Sub-Committee on the BIPM Pension and Provident Fund and Health Insurance and by Dr McLaren on the CIPM *ad hoc* Working Group on Conditions of Employment.

¹ By video link for part of the meeting

3. CONFIRMATION OF THE MINUTES OF THE SESSIONS HELD IN 2013 AND LIST OF ACTIONS

The minutes of Session II of the 102nd meeting (2013), as approved by correspondence, were accepted as a true record.

The President reviewed the decisions from Session I (2013). The status of three points were noted:

Decision CIPM/102-31 The CIPM requested the BIPM to draft a decision for approval at its next meeting that will bring the new procedure into effect as described in Step 5 of the document 'Criteria and Process for Election of CIPM Members' (To initiate this new Election Process, current CIPM Members have collectively agreed to vacate their Appointments congruent with the first meeting of the newly elected CIPM if not re-elected).

The CIPM bureau discussed this decision on 11 March and had produced a first draft of a 'collective resignation letter'. The final version was made available for signing on 13 March.

Decision CIPM/102-39 The CIPM approved, in principle, the proposal from the President of the Consultative Committee for Amount of Substance: Metrology in Chemistry (CCQM) to reorganize its structure and change its name to better address biology within its scope.

This proposal is under way.

Decision CIPM/102-44 The CIPM noted the need to review the effectiveness and efficiency of the CIPM MRA with some urgency and decided to request the Consultative Committees and the Joint Committee of the Regional Metrology Organizations and the BIPM (JCRB) to initiate their individual reviews of its implementation and operation as soon as possible. Guidelines and a timescale for these reviews will initially be based on the work initiated by the CCQM and will be circulated within two months. A formal overarching review of the effectiveness and efficiency of the CIPM MRA, taking into account the outcomes of the CC and JCRB reviews, will be conducted by a committee with membership and terms of reference to be established by the CIPM. Membership to include representatives from the CIPM, the regions and others. It was noted that Robert Kaarls, Luc Énard and Wynand Louw offered to serve as members.

The CIPM bureau proposed an alternative course of action later in the agenda (see §11).

Decision CIPM/103-01 The CIPM accepted the minutes of the 102nd meeting of the CIPM as a true record.

4. REPORT OF THE SECRETARY AND ACTIVITIES OF THE BUREAU OF THE CIPM, INCLUDING AN UPDATE ON NEW AND PROSPECTIVE MEMBERS AND ASSOCIATES

Dr Kaarls, Secretary of the CIPM, gave his report (see Appendix 1). He underlined the fact that the Republic of the Philippines (which became an Associate on 1 June 2002) has met the criteria to be encouraged to become a State Party to the Metre Convention. The CIPM decided to proceed with encouraging the Republic of the Philippines to become a Member State. (See §7.7)

Decision CIPM/103-02 The CIPM decided, on the basis of the criteria it has previously adopted, that it would be appropriate for the Republic of the Philippines to become a State Party to the Metre Convention.

The BIPM will convey the Decision, recalling Resolution 4 ‘On the status of Associate State of the General Conference’ adopted by the CGPM at its 24th meeting, and the implications regarding the increase in subscriptions should the Republic of the Philippines choose to remain as an Associate of the CGPM.

5. UPDATE ON THE ACTIVITIES OF THE BIPM BY THE DIRECTOR

Dr Milton, Director of the BIPM, gave the following report for the period October 2013 to March 2014 by video link, the verbatim text of which is given below.

5.1 Introduction

“As you know, I have had to take time away from the BIPM for medical treatment. During the weeks running up to this I put a lot of thought into how to establish interim arrangements to operate the BIPM during the time I would be away. I discussed these with the President and the Secretary. My starting point was a re-analysis of how much of my time was spent on long-term and short-term issues and how much was involved with operational and strategic issues. As a result of that, I developed a detailed Job Description for an Acting Operational Director and appointed Robert Wielgosz to take that role during my absence. The tasks of the acting operational director are strictly operational. The other significant interim arrangement was that I asked Andy Henson to coordinate the development of the draft BIPM work programme in my absence.

Additionally, we have been supported by Bob Kaarls who has visited each month to chair the Management Meeting.

In practice, I have been fully active from here in Teddington over email, telephone and Skype for more than 50 % of the time.

5.2 Membership and Associates

I would like to highlight some improvements to our processes in communicating with Member States and Associates. When the Notification of contributions and subscriptions was prepared in December 2013, it was published on the website as well as being sent in hard copy to the embassies. At the request of some Member States, we have, for the first time, produced a version in English and given clear instructions about requesting invoices – which are now required by several countries.

5.3 Finance

The BIPM Accountant, Isabelle Andernack, will tell you about the work under way to prepare the accounts for 2013. We both met with the auditor from KPMG in December. We told him that the CIPM had decided to adopt the International Public Sector Accounting Standards (IPSAS) standards for financial instruments and explained our plans to do this. He presented his timetable for the audit.

Isabelle Andernack also hosted a visit from Brian Bowsher on 26 February which I was not able to join in with. I am sure that Isabelle and Brian will provide some information about this.

Isabelle Andernack and I have also held a meeting with our investment manager from HSBC in December. They have agreed to take a mandate to invest the assets of the pension fund and the BIPM. The contract for this is now the subject of legal review and is very close to being signed.

Finally, a lot of progress has been made with the analysis of the pension fund and its sustainability. Following the meeting last October, we invited all of the National Metrology Institute (NMI) Directors to propose additional “scenarios” for the pension fund that we should include in some further modelling. We only received two responses, which I turned into detailed scenarios and sent to Mercer [an international actuary company] for modelling. The results of the modelling were received two weeks ago, and after some review were submitted to the Sub-Committee on Pensions and Healthcare Insurance for its meeting on 7 March 2014. The meeting was very effective. A consensus is now developing about how we can get the Pension Fund into “Financial Equilibrium”.

5.4 Human Resources

You will recall that the post of Finance and Administration Director was abolished on 1 December 2013. At that point I made substantial the temporary arrangements that had been operating successfully for the previous three months. I also agreed new job descriptions for a number of the staff involved.

You have seen the changes in the BIPM Regulations, Rules and Instructions (RRI) needed to reflect the new organization. I circulated them to you for voting on 13 February 2014. This is something that the meeting will have to return to later. Perhaps I should remind you that before submitting proposals for revisions to the RRI for voting by the CIPM I am compelled by the rules to discuss them with the BIPM Commission for Conditions of Employment (CCE). I cannot submit anything to you that has not been seen by the CCE. Hence the voting must be on the text as seen. If you don't agree with the text submitted, then please vote no and I will have to take it back to the CCE before you can vote on it again. I cannot progress on the basis of votes that are “qualified”. If the proposals are not approved, I will take them away and re-draft them. Then I typically give the CCE three weeks to make their comments. Then after allowing some time to respond back to the CCE, I will submit them back to you in about two months' time.

In order to help the six people who work in finance and human resources (HR) to work together, we are renovating the offices at level minus two in the Nouveau Pavillon for them to use. A consequence of this is that the scientists of the Mass Department have moved out of the Nouveau Pavillon. The designs for the new offices will be very modern, and I think the staff are looking forward to working there. Robert Wielgosz and Céline Fellag have done a great deal to progress this work; and Aldo Dupire and his staff in the workshop have done most of the building work.

Before I left for my medical treatment, I made it a priority to hold individual discussions with each Department Director about their performance and the performance of their staff during 2013. I also spoke to each of them about which staff might merit pay rises or bonuses for their performance in 2013. The task was finished before I left the site. Subsequently, I discussed some “special cases” with Department Directors on the telephone in January; these were all settled before the pay roll was run in January.

With the agreed increases in salary and the planned changes in staff I am projecting that the salary bill will increase by 2.8 % to the end of 2014.

A salary survey has been commissioned to support the work of the CIPM *ad hoc* Working Group on Conditions of Employment. This will be carried out for us by the International Service for Remunerations and Pensions (SIRP) who have performed this work for the BIPM previously. Sigrid Arlen and I have reviewed the entire set of job descriptions sent to SIRP, which was quite a big job.

Moving on to staff changes, I am pleased that Dr Pierre Gournay has been recruited as a physicist and will replace Dr Roland Goebel who is retiring from the Electricity Department. Sadly, Mr Alain Picard continues to be on long-term sick leave.

Additionally, vacancies have been advertised for: a Principal Physicist for Mass Metrology, an Assistant in Mass metrology and a 3-year post on the watt balance project.

Also in December, Sigrid Arlen and I received a presentation from our healthcare insurer, Vanbreda. They provided a very thorough analysis of the current state and trends in our healthcare costs. This was the first time that I had seen these data. Unfortunately, our costs have been higher than our contributions for five out of the last six years. This is clearly not sustainable. I shared the data with the *Commission Assurance-Maladie* (CAM), the staff commission that addresses healthcare issues and they agreed that it was an urgent matter to increase our contributions towards healthcare, which we have done by the maximum step-increase permitted under the rules. They are now 12.25 % of which the BIPM pays 7.5 % and the remainder is paid by staff.

5.5 Development of the Work Programme for 2016-2019

Along with the finances, my priority over the past two months has been the development of the draft Work Programme for 2016 to 2019. Andy Henson has done an excellent job of coordinating this whilst I have been away from the site. I have been in telephone contact with each of the Department Directors individually about it.

Perhaps, before we get into the detail of the document circulated to you, it is worth looking back to Resolution 10 passed at the last CGPM meeting “On the role, mission, objectives, long-term strategy and governance of the BIPM”. When we look at the recommendations of this group, I think we can be sure that the CIPM and BIPM have done what has been necessary to follow up on everything that was requested. But we might reflect on the fact that the motivation of the conference in setting up the *ad hoc* group seems to have been mainly to do with the long-term future of the BIPM. In putting together a draft work programme for 2016 to 2019, we are looking ahead, but only as far as 2019.

In order to bring together estimates for the dotation that can cover the work programme, we have to address some very long-term issues that affect our cost base: particularly the future of the pension fund, the provision of healthcare insurance for staff and even the staff terms and conditions. These are issues that we were specifically asked to analyse by the *ad hoc* group and also at the Directors’ meeting.

These issues have the potential to make an impact on very important matters like staff morale, staff recruitment and staff retention. These are all less tangible than the finance numbers, but are actually at least as important. Some of the decisions on the table are things that cannot easily be reversed.

I would also like to remind you that this CIPM meeting was brought forward by three months from its usual dates in June to these dates in March. This is useful because it enables you to comment on the draft work programme. But, a consequence of these early dates is that the full picture is not yet available with any accuracy.

5.6 Communications and Publications

Last year we made some very useful improvements in the presentation and timeliness of our publications. These initiatives are continuing in 2014.

For example, each year we publish an article entitled “News from the BIPM” in *Metrologia*. You will have seen it appear in the February 2014 edition. I have changed the emphasis in this publication. We now emphasize the most recent scientific achievements in this paper and report all of the rest of the work of the scientific departments on the BIPM webpages. Progress in all other areas is reported in the Director’s report, which was published on the website on 7 March 2014.

The next steps will be to make this scientific summary part of a single annual report and also to make “*BIPM e-news*” into a true electronic publication which is sent out by email only. I hope we will do this for the 2015 editions.

Another area where we have made a lot of progress is in the timeliness of the CIPM Report. The report of each session is now made available in English on the website as soon as it is completed. Subsequently, the French version is published when the translation is complete.

However, the publication of the decisions from the last session of the CIPM turned out to be more difficult than was expected. The *ad hoc* group requested that we publish these decisions shortly after the meeting. It was my view and also the view of the publication staff here, that the target for this was one week after the meeting. I hope it will be easier to get these completed this time although I will not be available to help the process.

The BIPM website is, of course, an essential part of our communications. It now contains a vast amount of information. For several years we have been preparing the way for the development of a new website. We have been studying the websites of the NMIs and other international organizations. Initially, we put the work of developing the new site out to tender. This was not an easy task since we want the site to have the latest software and functionality as well as to have a more modern look and feel. For these reasons we have had to separate the tasks of preparing the graphic designs from the task of preparing the software. The graphic design work includes all of the colours and fonts that we need for the website and has a direct consequence for the style we use for our BIPM presentations, posters, letters and even publications.

We have now found a company in Paris that has been able to come up with some possible designs. We tried out some of these designs last October on our posters and on some presentations and they were extremely well received – in fact we didn’t get any criticism at all. They are popular with BIPM staff too. I think you will return to this later in the agenda. I hope you will confirm that the approach we are taking is a good one.

5.7 CGPM

At the last session we discussed the plans for the General Conference. Céline Fellag and I visited the *Palais des Congrès* in Versailles again during December and saw a conference in progress there. It confirmed our view that this is going to be a good location. I am very pleased that we have now negotiated and signed a contract with the venue. Céline is now working very hard with her team here to organize all of the logistics. She has drawn up a very detailed plan of all the things we need to do.

In November, I wrote to the President of the *Académie des Sciences*, Prof. Philippe Taquet to ask him to be President of the Conference. He wrote back very promptly.

We have launched a webpage dedicated to the Conference – I hope you have looked at it. We have also emailed all of the NMI Directors and the Member States to let them know about it.

I also prepared a “Communication Plan” for the Member States to explain the actions we are going to take during 2014 to keep them informed about the conference. It was sent out on behalf of myself and the

CIPM President in January. We don't seem to have received any response from this so far – so I hope this means that the Member States are all pleased with our plans.

We did receive letters from three NMI Directors after the meeting in October 2013 with specific comments on the strategies, and, of course, we have replied to these.

5.8 Operations

The BIPM Quality System will be presented by Carlos Maggi, our Quality and Health and Safety manager to the EURAMET QS Forum on 9 April 2014. This is part of our commitment to the RMOs and the NMIs to demonstrate our quality system. As part of the preparation for this presentation, I have authorized a new version of the Quality Manual, and took the opportunity to eliminate a number of forms and procedures from the system.

As I mentioned at the last Session, I have started the development of a building strategy that will focus on the renovation of the Observatoire. The objective is to make the Observatoire into an inspiring and efficient working environment that will be a central point for our laboratory activities until at least 2030. This project has been progressed significantly in my absence by Robert Wielgosz. This will not involve any changes to the main laboratories, although we will be putting some offices into the less-used laboratories at the front of the building. This will put the scientists much closer to their labs, and also bring some life to the building. We expect to have some plans soon, but work will not start until after the General Conference.

We have reported at recent meetings that the BIPM electricity bill started to increase drastically from around the middle of 2011. I set up a group led by Carlos Maggi to look at all aspects of this. I am delighted that we have now identified that the problem was caused by the ageing electricity meter which was over-reading by about 40 %. EDF have now replaced it and we are preparing our claim for reimbursement of excess charges, which will amount, I hope, to several hundred thousand euro.

I am also pleased to report that we have started use of some new software to allow attendees at our meetings to register on-line. This has been tested at a few meetings and has been very successful. I hope we will use it across all meetings soon. The exception will always be meetings of Consultative Committees for which we insist on receiving nominations through NMI Directors in order to be sure that all those who attend have been correctly nominated.

5.9 Other matters

The IPK was removed from the caveau on 15 November 2013. This was done by me in the presence of the Secretary, who used the key left by the CIPM President, and Luc Énard, who used the key left with me by the representative from the French archives. The most important people were also there: that's Michael Stock, Pauline Barat and Richard Davis, who will be doing the real work.

I can say that the campaign of measurements has progressed very well. I have been receiving updates on progress with the data almost weekly. I am not able to tell you anything about the results at this point, although I will say that the improved repeatability achievable with modern automated mass comparators is evident when the data are compared with that from the third re-verification. It is also clear that the repeatability for the cleaning/washing process, when it has been used has been very good.

The Joint Committee for Guides in Metrology (JCGM) met here in December. I am delighted that the member bodies of the JCGM unanimously elected the BIPM to retain the Chair for the next 3 years. I have taken a particular interest in the JCGM since I became Director. I have kept in close contact with

the Chairman and other members of the WG1 which deals with the Guide to the Expression of Uncertainty in Measurement (GUM). In particular I have read through their early draft for a revised GUM and given some specific suggestions as to how it can be made more “user friendly”; I think this is an important issue, since they are proposing a major change in the way that uncertainty calculations are carried out for very good technical reasons. But this change should not be seen as an added complication to most users.

Looking at the work of WG2 which deals with the International Vocabulary of Metrology (VIM), I am aware that in 2011, the CIPM instructed my predecessor to take their view to WG2 that work should be stopped on a “VIM4”. I know that view was not accepted. I have taken a different approach. I have worked hard with Chuck Ehrlich from NIST who is the Chair of WG2 to prepare a work programme for WG2 that clearly explains what the group plans to achieve in preparing a “VIM4”. This includes a list of how the VIM4 will differ in its basic approach from VIM3. This has all been summarized in a “revised work programme” for WG2 which has been circulated to all of the JCGM Member Bodies for their approval. I circulated it to the CIPM on 19 December. Since I have received no reply at all from the CIPM I assume that you are all in agreement, and the problems incurred in 2011 will not occur again.

The theme for World Metrology Day in 2014 is “Measurements and the global energy challenge”. The poster has been designed by KRISS, Republic of Korea, and is excellent. I think it will be very successful. In recent years the Directors of the BIPM and the International Bureau of Legal Metrology (BIML) have published a joint message. The BIML did not want to publish a joint message this year, so I have written my own BIPM message which is available from the “metrologyinfo.com” website.”

The President thanked the Director for his presentation and invited questions. It was noted that the JCGM ‘revised work programme’ for WG2 had been circulated to the CIPM on 19 December 2013. No replies had been received from the CIPM and it had been assumed by the BIPM Director that the CIPM agreed with the proposals. The CIPM commented that they would like more time to reflect on the proposals and requested the BIPM to recirculate the ‘revised work programme’ to ensure there are no further comments.

The Director confirmed that he is already investigating delays in key comparisons that are conducted sequentially. This negates the need for Dr Carneiro to convene a meeting of CC Executive Secretaries for this purpose, which arose as an action from the CC Presidents’ meeting held at the BIPM on 11 March.

Decision CIPM/103-03 The CIPM requested the BIPM to recirculate the JCGM “revised work programme” for WG2 sent to CIPM members in mid-December 2013 to ensure they have no further comments.

Decision CIPM/103-04 The CIPM, noting the action from the CC Presidents’ meeting requesting Dr Carneiro to convene a meeting of CC Executive Secretaries to draft a guidance document to address delays in this type of key comparison for presentation to the CIPM, decided that that action should be discontinued following information received from the Director of the BIPM that he is already addressing this issue.

6. REPORT FROM THE CHAIR OF THE CIPM STANDING SUB-COMMITTEE ON FINANCE

Dr Bowsher gave a report on the activities of the CIPM Standing Sub-Committee on Finance. It had met once since the last report, on 10 March 2014. Dr Bowsher had also met with Ms Andernack (head of the Finance, Budget and Procurement Office) on 26 February to prepare for this meeting. He commented that he has been impressed by the openness and level of engagement with those involved in the work of the Sub-Committee, particularly the BIPM finance team. Discussions on 26 February between Dr Bowsher and Ms Andernack included the most efficient use of the Sub-Committee and how to discharge its responsibilities back to the BIPM. The meeting on 10 March included a discussion on the condition of the BIPM finances. Dr Bowsher welcomed work by the finance team to resolve previous minor irregularities and also to embrace the spirit of accrual accounting. It was agreed that when the BIPM financial statements (both BIPM and pension) are ready they will be sent to the Sub-Committee on Finance for comment prior to final CIPM approval, which is anticipated to be through correspondence.

It was suggested that future interaction between the Sub-Committee on Finance and the Sub-Committee on the BIPM Pension and Provident Fund and Health Insurance will consist of the latter taking the lead on the policy for the BIPM Pension and Provident Fund and the Sub-Committee on Finance maintaining oversight for financial issues concerning the pensions, including review of the Financial Statements.

The Sub-Committee welcomed the changes to presentation of the 2014 budget which improved the clarity of reporting, particularly through the separation of the budget at the laboratory level rather than by department.

7. FINANCIAL AND ADMINISTRATIVE MATTERS

Ms Andernack, head of the Finance, Budget and Procurement Office, joined the meeting and presented her report. Preparation of the BIPM financial statements was under way and no major issues are anticipated. The external auditor will be on-site at the BIPM during the week beginning 31 March 2014 to carry out the audit.

The 2014 budget included a significant increase in the allocation to cover the cost of electricity. This was in response to rising consumption over recent years that was documented in §6.5 of the report of Session I of the 102nd meeting of the CIPM and §12.2 of the report of Session II of the 102nd meeting of the CIPM. Since these reports were published, further investigations into the increase in electricity consumption found that the meter installed by the electricity supplier at the BIPM was faulty. Following the investigation, the electricity supplier visited the BIPM and agreed to change the meter. The BIPM is preparing a claim for reimbursement.

Dr Bowsher, the chair of the CIPM Standing Sub-Committee on Finance, commented that the stronger strategic drive to the latest long-term financial plan for the BIPM has been welcomed by the Member States. He cautioned that the decision over the proposed dotation for 2016-2019 is likely to be a political decision and early engagement of those concerned is essential to gain their support and could be more important than waiting for the final version of the long-term financial plan. He suggested that the CIPM should reflect on the key messages that they want to convey in the long-term financial plan and that when arguing the case for the dotation, the process should be backed-up with “scenarios” for the different levels of the dotation.

Ms Andernack reported that the mandate between the BIPM and its investment bank regarding the pension fund assets will be signed in the near future. The international actuary company (Mercer) presented its report on the investment policy for the pension fund assets at the November 2013 meeting of the Sub-Committee on the BIPM Pension and Provident Fund and Health Insurance. The report noted that the current policy of investing 75 % in bonds and 25 % in equity was a good balance and should continue.

There are currently no Member States in financial arrears for more than three years. The Dominican Republic and the Islamic Republic of Iran have paid their contribution and rescheduling payment for 2012 but not for 2013. There has been no contact with the Dominican Republic which has paid neither its 2013 contribution nor its 2013 rescheduling payment. If this remains the case for 2014, their prerogatives and advantages will remain suspended and they will not be entitled to attend the 25th CGPM meeting. *Notes verbales* will be sent to the respective embassies to notify them that they will be excluded if their arrears are not paid by the end of 2014.

Sri Lanka is the only Associate of the CGPM that has been in financial arrears for more than two years and is close to triggering the rules for exclusion.

8. REPORT FROM THE CHAIR OF THE CIPM AD HOC WORKING GROUP ON CIPM MEMBERSHIP

Dr May gave a progress report on the document '*Criteria and Process for Election of CIPM Members*'. The document had been modified in response to comments made during the NMI Directors and Government Representatives meeting on 23-24 October 2013. The document '*Criteria and Process for Election of CIPM Members*' was still subject to changes which will be addressed in Draft Resolution B to the CGPM '*On the election of the International Committee for Weights and Measures*'.

Dr May's report and the subsequent discussion referred to the requirement that a formal procedure for the collective resignation of the CIPM is needed in order to initiate the new election process. The document '*Criteria and Process for Election of CIPM Members*' is clear that beginning with the 25th CGPM meeting, CIPM members will be elected to a term that begins six months following their election and ends six months after the following CGPM meeting. Thus all CIPM positions will be open for election at each General Conference and CIPM members will commit to resign their positions to follow this process. It was noted that the newly-elected CIPM will begin its term at its first meeting, no more than six months after its election at the CGPM meeting. The current CIPM will remain in office until this time.

The possibility of introducing a fixed-term of four years for CIPM members was raised. However, the time between CGPM meetings can be any period up to and including six years. It was noted that Article 8 (1921) in the Regulations annexed to the Metre Convention states that "*At the time of renewal of half of the International Committee, the outgoing members shall be first those who, in the case of vacancies, have been provisionally elected in the interval between two sessions of the Conference; the others shall be drawn by lot.*" The proposal that all CIPM members will agree under the new process, at their first meeting, to resign after a four-year term would *de facto* satisfy the existing rule for renewal of half the CIPM.

Decision CIPM/103-05 The CIPM decided to convene a group composed of Ms Arlen, Dr May, Dr McLaren and Dr Quinn to review the wording of the Draft Resolution on the election of the CIPM.

There were concerns expressed by a delegate from Norway regarding the election process. He had suggested that all relevant documents relating to each candidate should be handed over to the Committee for CIPM Election and that Steps 1 and 2 in Section D '*Election Process for CIPM Members*' should be handled by the Committee for CIPM Election rather than allowing the CIPM to review the material and submitting its preferred list of candidates. The concerns stem from the fact that many of the candidates will be existing CIPM members and there could be some bias. The CIPM reflected on the Norwegian proposal noting that the Election Committee will develop the definitive list of candidates. The CIPM concluded that it should consider including the modification to the process suggested by Norway (along with others that might come forward) if such is warranted after the new process is exercised for the first time at the 25th CGPM meeting.

Decision CIPM/103-06 The CIPM decided that, in response to the Norwegian concerns on aspects of the *Criteria and process for election of CIPM members* document, a letter will be prepared to be included in the CIPM minutes and charged the President of the CIPM to convey the message to Norway.

See Appendix 2 for the text of the letter.

Dr Kaarls reported that a letter had been sent to NMI Directors and government representatives of Member States in late January 2014 inviting them to propose the names of potential candidates fulfilling the criteria as indicated in the document '*Criteria and Process for Election of CIPM Members*'. The exercise resulted in four new names being added to the pool of candidates.

Concerns were expressed that the call for potential CIPM members had generated so few candidates. It was agreed that a second round of communication to Member State representatives and NMI Directors will be initiated by the CIPM Secretary by early April 2014 in an attempt to obtain the names and CVs of additional candidates.

Decision CIPM/103-07 The CIPM charged the CIPM Secretary to initiate by early April 2014 a second round of communication to Member States representatives and Directors of National Metrology Institutes seeking their continuing support to nominate potential candidates.

Dr Kaarls reminded those members of the CIPM who intended to seek re-election, that they should submit their CVs and supporting documentation to him.

The head of the BIPM Legal, Administration and Human Resources Office had drafted a 'collective resignation letter' for all CIPM members to sign. After a discussion on the text, the document was approved unanimously. All 16 CIPM members present duly signed the letter. It was agreed that a copy of the signed resignation document would be sent to the two absent CIPM members to sign and return.

Decision CIPM/103-08 Following Decision CIPM/102-31, the CIPM in its meeting unanimously supported the proposed text on the planned resignation process for CIPM members required to implement the revised rules and procedure for election of CIPM members that will be submitted to the General Conference on Weights and Measures (CGPM) at its 25th meeting.

Decision CIPM/103-09 The CIPM charged the CIPM Secretary to send a copy of the resignation document signed by the 16 members present at Session I of the 103rd meeting of the CIPM to the two absent members for them to sign and send it back as soon as possible.

Dr Kaarls reported that the recommended list of candidates will be drawn up after 25 May 2014. The CVs of all eligible candidates will be reviewed against the criteria for election of CIPM members. The CIPM will agree in principle (by correspondence) which 18 are the preferred candidates it will recommend to the Committee for CIPM Election. The recommended list will be submitted along with the CVs and supporting information for all candidates. The Committee for CIPM Election will submit a recommended list of candidates to the CGPM.

It was suggested that if a candidate is not considered to be suitable for inclusion on the recommended list, a brief note should be produced explaining why.

Dr May thanked the CIPM for their input into the document ‘*Guidelines for Selection of CIPM Consultative Committee Presidents*’ and encouraged them to send him any further comments. The proposed criteria and selection process will be integrated into document CIPM-D-01, for approval by the CIPM at its November 2014 meeting.

He reported that Dr Richard (President of the Consultative Committee for Mass and Related Quantities (CCM)) has proposed the inclusion of a section in the document to cover creation of new CC Working Groups and the closure, merger and confirmation of active Working Groups.

Decision CIPM/103-10 The CIPM charged the Working Group on CIPM Membership to come forward with proposed criteria and selection process of CC Presidents and good practices for the appointment of CC Working Group Chairpersons and Deputies, to be integrated into document CIPM-D-01, for approval by the CIPM at its November 2014 meeting. A proposal made by Dr Richard to include a section in the document to cover the creation of new CC Working Groups and the closure, merger and confirmation of active Working Groups will be further considered by the Working Group on CIPM Membership and the CIPM.

Dr May also reported that a first draft of the criteria for CC membership and observership has been prepared by the *ad hoc* Working Group on CIPM Membership for inclusion in document CIPM-D-01. The revisions will be circulated to the CIPM for comment.

The CIPM bureau tasked Ms Arlen, Mr Henson and Dr Kaarls with developing a draft for the criteria and process needed for the election of Member State representatives to the [CGPM] Committee for CIPM Election.

9. **PROCESS OF COMMUNICATION, CONSULTATION AND EXCHANGE OF INFORMATION AND OPINIONS WITH THE NMI DIRECTORS AND MEMBER STATE REPRESENTATIVES IN PREPARATION FOR THE 25TH CGPM MEETING**

The attendees at the NMI Directors and Government Representatives meeting held on 23-24 October 2013 had commented that it would be useful to hold a preparatory meeting in the second quarter of 2014. During email discussions amongst the CIPM in December 2013 it became clear that many NMI Directors would be unable to attend such a one-day meeting. Therefore it was decided not to hold one.

Consequently, the President of the CIPM and the Director had prepared a document ‘*BIPM Communication Plan to Member State Representatives and NMI Directors for 2014*’ which was circulated in January.

10. **DEVELOPMENT OF THE BIPM WORK PROGRAMME (2016-2019) AND STRATEGY**

Mr Henson presented the draft BIPM Work Programme for 2016-2019. It was noted that this is a working document and that the consultation process with the Member States is under way. The draft was well received by the CIPM. The main points of the discussion were:

- The juxtaposition of key activities and the strategy as well as the layout and sectorial approach was well appreciated.
- An overview of the Work Programme should be presented to the CGPM, with less detail.
- Inclusion of the justification of the activities carried out at the BIPM (rather than elsewhere) already presented in the Consolidated Planning Process would be useful.
- The basis on which Member States are being asked to comment will need to be made clear when they are consulted (particularly with respect to the optional projects), perhaps with consideration of which projects would need to be cancelled to allow others to proceed.
- The value of secondments from NMIs to the BIPM should be emphasized.
- A summary of the expected impact from the programme should be mentioned.

The draft Work Programme will be made available online around the end of April 2014 to continue the consultation process with the Member States. An alert will be sent to the Directors of NMIs and Designated Institutes (DIs) as well as Member State Representatives.

The alternative Time activity “T-A3.3 Frequency comb validation” in the proposed BIPM Work Programme was discussed. It was noted that if this is being considered as an alternative activity, the proposed expenditure shown in the Work Programme is insufficient; therefore the proposed optical project could only be retained as a “watching brief”. It was commented that optical frequency combs are growing in importance as tools for the realization of the length unit. The absence of a formal validation programme for those measurement systems at the heart of the realization of the SI base unit deserves further consideration in the BIPM Work Programme. It was further noted that frequency comb validation is not supported by the Consultative Committee for Time and Frequency (CCTF) because it is carried out efficiently in a number of NMIs.

Dr Louw suggested that the alternative chemistry activity “A2.1.4 Small Molecule Organic Primary Reference Comparisons (Pure Materials)” should be considered for inclusion in the Work Programme.

Decision CIPM/103-11 The CIPM supported the proposed BIPM Work Programme for the years 2016 to 2019 as a basis for the final document and charged the Director of the BIPM and Mr Henson to take the CIPM members comments into account.

The CIPM decided that the Work Programme would be opened online to Member States for comments and the consultation be brought to the attention of the Directors of National Metrology Institutes and Designated Institutes.

The CIPM decided that the alternative Time activity “T-A3.3 Frequency comb validation” in the proposed BIPM Work Programme would remain an optional project. The CIPM requested the Director of the BIPM to review the costs and scope of the project. Optical frequency combs for the realization of the length unit are, and will become, even more important and decisive tools. The absence of a formal validation programme for those measurement systems at the heart of the realization of the SI base unit must be seen as unsatisfactory and deserves closer consideration of the CIPM and BIPM in the BIPM Work Programme.

The CIPM requested that consideration be given to including the alternative Chemistry activity “A2.1.4 Small Molecule Organic Primary Reference Comparisons (Pure Materials)” in the Work Programme.

11. CIPM MRA REVIEW PROCESS

The President of the CIPM introduced the proposed review process. Within the existing framework of the CIPM MRA a number of useful improvements in efficiency have been achieved through the CC Strategy exercise and as a result of the 2012 Calibration and Measurement Capabilities (CMC) Workshop held by the JCRB. Nevertheless, the CIPM has committed to a much wider ranging review of the efficiency and effectiveness of the CIPM MRA and its implementation, and initially proposed a way forward in its Decision CIPM/102-44.

Given the importance of engagement with the NMI Directors as primary stakeholders in the CIPM MRA, the CIPM decided that the BIPM will hold a meeting of NMI Directors in 2015 dedicated to the CIPM MRA review. The intention would be to focus on the benefits the CIPM MRA, as well as establishing views on what works well, and what needs to be changed. The topic will be addressed from the perspective of the “owners” (NMI/DI Directors), with contributions from representatives drawn from the “operators” (NMI experts, CCs, JCRB, RMOs and the BIPM) and “users” (invited speakers from the key stakeholders such as ILAC and industry). Each party is to be invited to consult their communities focusing on their specific area of concern so as to establish and express their views beforehand. Terms of Reference of the review committee referred to in CIPM Decision CIPM/102-44 would be developed at the workshop.

Draft Resolution E ‘*On the importance of the CIPM Mutual Recognition Arrangement*’ was presented (see §13.5).

Decision CIPM/103-12 The CIPM charged the BIPM to hold a meeting of NMI Directors in 2015 dedicated to the CIPM MRA review focusing on the benefits of the CIPM MRA, as well as establishing views on what works well, and what needs to be changed. Representatives from other key stakeholder groups will be invited to present their views. In the meantime, the CCs and the JCRB will be encouraged to continue their ongoing efforts to streamline operations within the existing framework, and prepare for the wider review in 2015.

The Consultative Committee for Amount of Substance: Metrology in Chemistry (CCQM) has already carried out a questionnaire on the CIPM MRA and the possibility of using this as a template for the wider review was discussed, but not supported.

The JCRB is expecting to receive feedback on the CIPM MRA from the Regional Metrology Organizations (RMOs) later in 2014.

The CIPM MRA document (CIPM MRA-D-05) ‘*Measurement comparisons in the CIPM MRA*’ version 1.5 had been subject to minor revisions (update of links and modification and improvement of the Registration and Progress Form for comparisons).

Decision CIPM/103-13 The CIPM approved the revised document CIPM MRA-D-05, version 1.5.

12. PLANS FOR THE 25TH CGPM MEETING (2014)

Dr Kaarls presented the plans for the 25th CGPM meeting. It was suggested and agreed that the timetable for the preparation day ahead of the CGPM meeting, to be held at the BIPM on 17 November 2014, should be reversed so that the preparatory meeting on the Dotation of the BIPM is held in the morning,

followed by the laboratory tours. This will ensure that the preparatory meeting has sufficient time to complete its discussions.

Since there will be limited space at the preparatory meeting the number of attendees will need to be limited. It was agreed that the CIPM President and Secretary will prepare a communication to the Member States on the formation of the Working Group on the Dotation of the BIPM, taking into consideration Member States with maximum, intermediary and minimum contributions, properly balanced to represent all regions. It was noted that the calculation of the contribution of each Member State is based upon its United Nations (UN) coefficient. These coefficients have changed significantly since the 24th CGPM meeting and should be taken into consideration for participation in the Working Group on the Dotation of the BIPM.

Decision CIPM/103-14 The CIPM accepted the provisional timetable for the CGPM meeting and decided that the [informal] preparatory meeting on the Dotation of the BIPM will take place on the morning of Monday 17 November 2014 (lab tours and presentations to follow in the afternoon).

The CIPM charged the CIPM President and Secretary to prepare a communication on formation of the Working Group on the Dotation of the BIPM to be sent to Member States.

The formal Working Group on the dotation of the BIPM will meet on Wednesday 19 November 2014.

The CC Presidents had discussed the preparation of templates for their written reports and presentations to the CGPM at their meeting on 11 March 2014. A consensus was reached on the need to achieve uniformity of presentation, with a focus on the CC's work, impact for society and industry, and grand challenges. Mr Henson was asked to coordinate preparation of guidelines on what form the oral and poster presentations should take.

13. POSSIBLE RESOLUTIONS TO BE SUBMITTED TO THE CGPM

13.1 Revision of the International System of Units, the SI (see CCU Recommendation CCU 1 (2013))

The text of Draft Resolution A was accepted by the CIPM.

13.2 On the election of the CIPM

Dr Quinn expressed a concern that Draft Resolution B contains the wording '*beginning with the 25th meeting of the CGPM, CIPM members shall be elected to fixed renewable terms*'. If the CGPM decides that the CIPM is elected to a fixed but renewable term, this may not be compatible with the Metre Convention. The head of the BIPM Legal, Administration and Human Resources Office commented that the wording of the proposed Draft Resolution does not change the underlying election process outlined in the Metre Convention. The actual modality of the election process can be decided by the CGPM.

Following minor revisions, the text of Draft Resolution B was accepted by the CIPM.

13.3 On the Pension and Provident Fund of the BIPM

The discussion centred on whether Draft Resolution C should contain information about measures that have already been taken to improve the long-term financial stability of the BIPM Pension and Provident Fund. Many Member States will be unaware that the BIPM had already taken significant steps that were agreed in 2009 and implemented from 2010, including raising the retirement age and increasing the staff contribution. It was agreed to include this information in the Draft Resolution.

The Draft Resolution mentions the establishment of a Supervisory Board for the Pension and Provident Reserve Fund with members that are representative of the interests of the relevant stakeholders. It was queried whether pensioners should be involved in the management of the pension fund and if the situation is the same in other international organizations' pension schemes. The current situation is that because pensioners are beneficiaries of the fund, they do not have a role in its operation: it is overseen by current contributors. Dr Bock (external member of the CIPM Standing Sub-Committee on the BIPM Pension and Provident Fund and Health Insurance) is investigating the situation in other organizations and is drafting a proposal for the Supervisory Board and its membership.

The text of Draft Resolution C was accepted by the CIPM.

13.4 Dotation of the BIPM for the years 2016 to 2019

There were no changes to the text of Draft Resolution D which was accepted by the CIPM.

13.5 On the importance of the CIPM MRA

It was noted that Draft Resolution E should include information about the planned workshop in 2015 to engage in a broad discussion of the CIPM MRA and the proposal to carry out a review of the effectiveness and efficiency of the CIPM MRA in 2015.

The text of Draft Resolution E was accepted by the CIPM.

13.6 Other Draft Resolutions

It was suggested that a Resolution should be drafted to highlight developments in metrology over the last few years to acknowledge that this is a dynamic area that has made significant advances. The CIPM charged the Director of the BIPM, Mr Henson and Dr Wielgosz to develop the text for such a Draft Resolution.

Decision CIPM/103-15 The CIPM approved the proposed text with the agreed changes for the five Draft Resolutions to be submitted to the General Conference on Weights and Measures (CGPM) at its 25th meeting (2014). The CIPM charged the Director of the BIPM, Mr Henson and Dr Wielgosz to come forward with a Draft Resolution on the impact of metrology.

14. REPORT FROM THE CHAIR OF THE CIPM STANDING SUB-COMMITTEE ON THE BIPM PENSION AND PROVIDENT FUND AND HEALTH INSURANCE

This report was given during the *in camera* session. See §2.

15. REPORT FROM THE CHAIR OF THE CIPM AD HOC WORKING GROUP ON BIPM CONDITIONS OF EMPLOYMENT

This report was given during the *in camera* session. See §2.

16. THE ROLE AND PERFORMANCE OF THE CIPM AS A SCIENTIFIC BODY AND A DIRECTION-GIVING AND SUPERVISORY BODY OF THE BIPM

Prof. Valdés gave a presentation on the role and performance of the CIPM as a scientific body and a direction-giving and supervisory body of the BIPM. The scientific role of the BIPM and CIPM were recalled, including the need for the CIPM to discuss and instigate fundamental metrological activities between CGPM meetings. The current status of the CIPM's scientific activities on the run up to the 25th CGPM meeting was highlighted. Resolution 1 of the 24th meeting of the CGPM (2011) '*On the possible future revision of the International System of Units, the SI*' invited the CIPM to continue its work towards improved formulations for the definitions of the SI base units in terms of fundamental constants, having as far as possible a more easily understandable description for users in general, consistent with scientific rigour and clarity. The CIPM should discuss and report to the next CGPM meeting on possible improved formulations for the definitions of the SI.

Prof. Valdés had asked for the opinion of Dr Richard (President of the CCM) and the mass metrology community during Session II of the 102nd meeting of the CIPM on the issue of redefining the kilogram by fixing h or by fixing the mass of an atom. At the time Dr Richard commented that the CCM is aware of this issue and an atomic definition of the kilogram had been considered. However, the CCM has decided that the choice between a definition of the kilogram based on the mass of an atom or a definition based on the Planck constant will have negligible impact on mass metrology.

It was noted that the CIPM has to discuss the pros and cons and decide well before 2018 on a proposal to the CGPM. The CCs should not only bring a given majority position to the CIPM, but also the essentials of the different positions, facilitating a CIPM decision on a scientific basis.

The CIPM could report to the CGPM at its 25th meeting that, in agreement with Resolution 1 (2011) of the CGPM, it has taken note of new experimental measurement results, giving rise to new proposed formulations for the redefinition of the kilogram that should be urgently considered at the next meeting of the CIPM. New experimental results of other constants involved in the redefinitions should be addressed in the reports of the CC's to the CGPM.

The President thanked Prof. Valdés for his presentation and noted that new methods of measuring physical constants will continue to emerge and will be given due consideration by the CIPM.

It was commented that the Planck constant should continue to form the basis of the planned redefinition of the kilogram, although the scientific community should be encouraged to continue research into new methods of realizing it. It was further commented that the CIPM, as a scientific body, has a responsibility to debate and report on work by eminent scientists in the field of metrology. The CIPM has a broader responsibility than simply organizing comparisons of national standards.

Decision CIPM/103-16 The CIPM welcomed the presentation by Prof. Valdés on “The role and performance of the CIPM as a scientific body and a direction giving and supervisory body of the BIPM” and acknowledged its responsibilities to instigate and review fundamental metrological activities. In this context the work he mentioned addressing atom interferometry that was suggested in a recent paper to be among the potential ways to redefine the kilogram was noted by the CIPM. The CIPM encouraged further discussions on scientific issues during the course of CIPM meetings.

17. PROPOSED AMENDMENTS TO THE SI BROCHURE

Prof. Ullrich, in his capacity as Consultative Committee for Units (CCU) President, gave a presentation on the proposed changes to the 8th edition of the SI Brochure. The changes included updating references to standards and guides and a modification of the order of base units in the expression of derived units. The changes are intended to make the SI Brochure more consistent with the ISO 80000 series of standards. There was a brief discussion and the CIPM supported the changes.

He mentioned the proposal to specify units for very small angles for use in astronomy. The proposal would involve the inclusion of the units ‘milliarcsecond’ and ‘microarcsecond’ in Table 6 ‘*Non-SI units accepted for use with the International System of Units*’ of the 8th edition. It was noted that if these quantities are included in the table it could set a precedent for including similar units. The CIPM rejected this proposal.

The CCU President recommended that a short summary of the updates should be printed and inserted into the remaining printed copies of the 8th edition of the SI brochure rather than waiting until the 9th edition is published. The revised content could be inserted into the SI brochure on the BIPM website.

The 9th edition of the SI brochure is scheduled for publication in 2018. Chapters one, two and three of the first draft are available at http://www.bipm.org/utis/common/pdf/si_brochure_draft_ch123.pdf. The CCU President asked the CIPM to invite the CCs to comment on the chapters by March 2015.

The CCU President presented a proposed logo for the new SI: the initiative was supported by the CIPM.

He also proposed that Prof. Mills, the former CCU President, should be appointed as an honorary member of the CCU. The CIPM discussed the proposal and noted that there are no terms of reference for appointment as an honorary member of a CC; any such proposals would have to be discussed on a case-by-case basis. Such an appointment would have to be in recognition of outstanding contributions and should not become an automatic right for CC Presidents when they stand down. In this case, the CIPM agreed to appoint Prof. Mills as an honorary member of the CCU, in view of the unique and outstanding contributions he made during his 17 years as CCU President.

Decision CIPM/103-17 In the framework of the updating of the 8th edition of the SI Brochure, the CIPM approved the modification of the order of base units in the expressions of derived units. It did not approve the need to specify units for very small angles for applications in astronomy in the SI Brochure. The CIPM

accepted the proposed publication process for the updates and the recommendation to proceed with amending the document on the website and producing a short printed summary of the updates.

The CIPM invited Consultative Committees to comment on chapters 1 to 3 of the Draft Version of the 9th edition of the SI Brochure by March 2015.

The CIPM supported the initiative of the CCU President for a new logo for the SI.

In recognition of Prof. Mills' unique and outstanding contributions to metrology and Metre Convention activities while President of the CCU, and the very broad impact of his contributions, the CIPM appointed him as an honorary member of the CCU.

18. OTHER BIPM ISSUES

18.1 BIPM Policy on Support from Third Parties

Dr Wielgosz presented the latest draft of the document '*BIPM Policy on Soliciting and Accepting Support from Third Parties*' for approval. The previous draft of the document had been reviewed by the CIPM bureau following its presentation to the CIPM in October 2013.

Decision CIPM/103-18 The CIPM approved the document BIPM Policy on soliciting and accepting support from Third Parties.

18.2 Donation of a NMR device to the BIPM

Dr Wielgosz commented that the document '*BIPM Policy on Soliciting and Accepting Support from Third Parties*' was being used as the basis for negotiations with a NMR equipment manufacturer that is planning to donate an instrument to the BIPM. The donation agreement is expected to be finalized over the next few months. The work will be supported by a collaborative agreement with the NMIJ, Japan.

18.3 Funding for the Joint Committee for Traceability in Laboratory Medicine (JCTLM)

Dr Wielgosz also presented the document '*JCTLM: The Next Phase? Ad-hoc JCTLM Executive Committee WG on JCTLM Structure*'. The document explored the issues raised by the *ad hoc* Working Group on the future evolution of the JCTLM organizational structure, to best meet the challenges it expects to face. The document achieved this by posing a series of 18 questions and suggesting draft responses. It was noted that the *ad hoc* Working Group had been established following discussions by the JCTLM Members and Stakeholders meeting and the JCTLM Executive.

Dr Wielgosz asked the CIPM to comment on the document and the 18 questions and draft responses. Discussions focused on questions 10, 11 and 12, which dealt with funding the database and reimbursing the travel and accommodation costs for Review Team Leaders to attend annual meetings. Dr Wielgosz commented that the work of the JCTLM Review Teams and the JCTLM Secretariat represent the two major resource intensive activities and the success of the JCTLM relies on the work of the Review Team Leaders. The work of the JCTLM Review Teams is voluntary and any costs have been borne by the Review Team Member's home organizations which have agreed to them undertaking these activities. The annual JCTLM Working Groups' meetings are most effective if they are attended by at least the

Review Team Leaders. After a brief discussion, the CIPM supported the 18 questions and draft responses proposed in the document.

Dr Wielgosz asked the CIPM to consider whether the JCTLM processes can be modified or improved to reduce the 85 person-days of effort required by the Secretariat to maintain the database. He commented that operating the JCTLM requires 50 % of a staff member's time each year. It is estimated that this effort could be halved with more automation or streamlining of processes, although there would be an associated cost. Half the cost of the JCTLM is currently borne by the International Federation for Clinical Chemistry and Laboratory Medicine (IFCC) but it has indicated that it will not be able to sustain this level of support beyond 2014-2015. Many of the member organizations of the JCTLM provide support through staff time spent on JCTLM activities but do not provide any funding for the database. Dr McLaren asked what percentage of JCTLM users were from 'for-profit' organizations and whether they could be approached for one-off funding. Dr Wielgosz noted that alternative sources of external funding are being considered to carry out the work, including companies and foundations. The CIPM encouraged the BIPM initiative to seek one-off funding to support automation or streamlining of the processes involved in the JCTLM database.

There was a brief discussion on whether the BIPM should continue to provide the JCTLM Secretariat and the possible consequences of this role ending. The CIPM supported the ongoing role of the BIPM as the JCTLM Secretariat.

Decision CIPM/103-19 The CIPM supported the continued role of the BIPM as JCTLM Secretariat and approved the draft responses to the JCTLM questionnaire. The CIPM encouraged the BIPM to seek one-off funding to support streamlining the processes and evolution of the JCTLM database.

18.4 New BIPM website and designs

Mr Henson presented the rationale for changing the design of the BIPM logo. The redesign fits in with the wider initiative for the renewal of the website. The current logo does not scale well and the design incorporating the swirl has been in use for 15 years and is looking dated. The proposal is only to replace the logo which depicts the Pavillon de Breteuil: the logos for the CIPM MRA, BIPM key comparison database (KCDB) and JCTLM will remain unchanged. Feedback on the new logo has been positive although concerns were raised by the CIPM bureau that it does not use the BIPM acronym, which could result in some loss of identity. This led to a further review of the proposed logo. It was noted that the originally proposed bronze-coloured logo worked well on printed products but was difficult to reproduce on screen and the bureau had recommended opting for the blue alternative. The 'macaron' logo will continue to be used. The CIPM discussed the new logo and agreed to its adoption.

Mr Henson gave a brief presentation of the refreshed website design and its features. The final design of the logo can be protected legally and integrated into the web refresh now that it has been approved.

Decision CIPM/103-20 The CIPM agreed to adopt the proposed new BIPM logo (noting that the CIPM MRA, KCDB and JCTLM logos will not change and that the "macaron" will continue to be used).

18.5 Policy on Guest Laboratory Participation (BIPM letter of acceptance and agreement)

Dr Wielgosz presented the document '*Participation in CCQM Pilot Studies: Request form for guest laboratories*' and explained the proposed policy on the subject. The background to the policy was given and it was noted that the CCQM undertakes many pilot studies which often include guest laboratories. Guest laboratories will be required to read and sign the policy. The policy, letter of acceptance and

agreement could be adapted for use by other CCs. There was a brief discussion and the CIPM approved the policy.

Decision CIPM/103-21 The CIPM approved the proposed policy on guest laboratory participation in CCQM pilot studies.

18.6 BIPM building works and IT facilities

Dr Wielgosz gave an update on the building work and improvements to the BIPM's IT facilities. The reconfiguration and refurbishment work on the office space in level -2 of the Nouveau Pavillon is well advanced. This new suite of offices will house the staff of the Director's Office.

Work on renovating the Observatoire building will begin in the near future. The Observatoire will become the main suite of laboratories and offices for the physical metrology theme. A consultation exercise was carried out with the BIPM staff to determine their opinions on the building and what they would like to see included in the renovation. The impact of the building work on the ongoing laboratory activities in the Observatoire is being considered.

Dr Wielgosz reported that the BIPM fibre optic network has been renewed and two new data rooms have been created. The BIPM is reviewing the way it manages meetings. This follows an increasing number of requests for electronic meetings and electronic sharing of documents. The extra work required to manage the associated software was noted. A video conferencing facility at the BIPM is under consideration, although extra funding and staff resources would be needed.

19. INTERNATIONAL COOPERATION

Mr Henson reported that during the bilateral meeting of the BIPM and the International Laboratory Accreditation Cooperation (ILAC) on 5 March 2014, the ILAC requested the BIPM to write to NMI Directors to encourage them to operate laboratory comparison schemes with leading industrial companies because those that have their own primary realizations find it hard to validate their very low uncertainties. The view in the meeting and in the CIPM bureau was that this is not the BIPM's role. The CIPM indicated that it should be discussed at the CIPM MRA review meeting with the NMI Directors in 2015.

The ILAC noted during the bilateral meeting that it had received a joint letter from the Inter American Accreditation Cooperation (IAAC) and the Inter-American Metrology System (SIM) related to the ILAC P10 document. They requested an extension to the one-year implementation period for ILAC P10 which had been published in early 2013. The extension was rejected by ILAC because this period had been agreed as part of the vote on P10. The letter came to the attention of the BIPM because it indicated that there were a number of delays in CMC processing that were believed to be due to the BIPM. The processing of CMCs by the BIPM was explained thoroughly at the ILAC meeting and it was noted that the process had been misunderstood and the delays were not due to the BIPM.

Mr Henson noted that the quadripartite meeting between the BIPM, ILAC, the International Organization for Standardization (ISO) and the International Organization of Legal Metrology (OIML) on 6 March 2014 was attended by the Secretary of ISO CASCO and there had been a valuable discussion on areas of

common interest. ISO has a number of technical specifications in development which could not be released as full standards due to unresolved measurement issues.

The cooperation with the Versailles Project on Advanced Materials and Standards (VAMAS) had been discussed at the CC Presidents meeting on 11 March 2014. These discussions included the possibility of creating a new CC for materials metrology. There was general agreement at the CC Presidents meeting on the need to organize a joint workshop with key people from VAMAS to identify areas for cooperation and to reflect on the most efficient way to work collectively.

Mr Henson also noted that there continues to be very good cooperation between the BIPM and the OIML.

20. MEETINGS AND WORKSHOPS

20.1 Future BIPM Workshops

Dr Wielgosz informed the CIPM of two forthcoming workshops at the BIPM. The CCQM workshop on the redefinition of the mole will be held on 9 April 2014. The President of the CCU will attend the workshop which will discuss the expectations of the various interested parties in the redefinition.

The two-day CCQM workshop on “Global to Urban Scale Carbon Measurements” will be held at the BIPM in May or June 2015. An expected output will be a report following the model of the World Meteorological Organization (WMO)-BIPM workshop report from 2010. The workshop may also give further consideration to the establishment of a task driven Joint Committee; the possibility of establishing such a Committee had already been proposed by several participants at the WMO-BIPM workshop. The timing of this workshop is significant as precedes the 21st Conference of the Parties on Climate Change (COP21) and the 11th meeting of the Parties to the Kyoto Protocol (CMP11) which will be held in Paris on 30 November to 11 December 2015.

21. ANY OTHER BUSINESS

21.1 Terminology

Following a request to add an agenda point on BIPM terminology by Dr Quinn, presentations on the subject were given by Dr Quinn and Ms Arlen, head of the BIPM Legal, Administration and Human Resources Office. Dr Quinn disagreed over the correct use of terminology when referring to the name of the organization and the CGPM and its meetings. It was agreed that this issue must be resolved so that clear guidance can be given. The CIPM requested Ms Arlen and Dr Quinn to prepare notes on terminology which will be forwarded to the CIPM and which will be considered by the CIPM bureau at its meeting in June 2014. The CIPM bureau will prepare a recommendation which will be submitted to the CIPM in November 2014.

Decision CIPM/103-22 The CIPM charged Ms Arlen and Dr Quinn to prepare notes on terminology to be forwarded to the CIPM and to be considered by the bureau at its meeting in June 2014. The CIPM bureau will prepare a recommendation to be submitted to the CIPM in November 2014.

21.2 Outcome of the Royal Society meeting on G

Dr Quinn presented a paper on the outcome of the Royal Society meeting on the gravitational constant (G) held at Chicheley Hall, UK, on 27-28 February 2014. The problem of arriving at a reliable value for G in the face of the wide dispersion of results (450 ppm, more than ten times the sigma of the individual results) is unlikely to be resolved by one or two additional results being obtained by teams working independently.

It was proposed by the Royal Society meeting that to resolve the problems associated with teams working independently, an international advisory board be created, made up largely of those who have already carried out a G experiment, to advise on the choice of method or methods, on the design of the experiment, on its construction and finally on the interpretation of the data and calculation of the results. The international advisory board would follow a similar model to the International Avogadro Coordination (IAC) project which successfully achieved high-level results.

The CIPM welcomed Dr Quinn's presentation and the proposal to establish an advisory board on G experiments but required more time to reflect on the subject as this agenda point was not planned and the presentation had not been provided in advance. A formal proposal will be discussed by the CIPM at Session II of its 103rd meeting in November 2014. Dr May noted that the NIST team working on the determination of G fully supported the proposal for an advisory board.

Decision CIPM/103-23 The CIPM would welcome the presentation of a formal proposal on the creation of an advisory board on G experiments at its next meeting.

22. DATE OF NEXT MEETING

Session II of the 103rd meeting of the CIPM will be held on 13-14 November 2014.

23. CLOSURE OF THE MEETING

The President thanked the BIPM staff for their support during the meeting. He wished everyone safe travel and closed the session.

Appendix 1

REPORT OF THE SECRETARY AND ACTIVITIES OF THE BUREAU OF THE CIPM (October 2013 – March 2014)

Note: this report is the first part of the Secretary's report to the CIPM, presented at Session I of the 103rd meeting of the CIPM in March 2014.

1. Meetings of the bureau of the CIPM (the "bureau")

Since the last meeting of the CIPM on 22 and 25 October 2013, the bureau met on 25 October 2013 and on 8-10 March 2014 at the Pavillon de Breteuil.

During the period October 2013 through March 2014 the Secretary made a number of additional visits to the BIPM, among others for chairing the CIPM Sub-Committee on the Pension Fund and Health Insurance on 15 November 2013 and on 7 March 2014.

On 15 November 2013 Mr Énard and the Secretary assisted at the opening of the caveau, facilitating the BIPM to start the comparisons of the 1 kg mass witness standards with the IPK in the scope of the planned programme of weighings ahead of the proposed re-definition.

On 4-6 December 2013 the Secretary attended the JCTLM stakeholders and Executive Committee meetings.

On 12 December 2013 the Secretary met with the Director of the BIPM to discuss the measures to be taken during the Director's period of absence for medical treatment.

During this period of absence, the Secretary chaired the monthly BIPM Management Team meetings on 9 January 2014, 11 February 2014 and 4 March 2014.

Over the whole period the President and Secretary of the CIPM have been and will remain in regular contact with the BIPM Director.

2. CIPM Membership

Following the proposed new rules of procedure for the election of new CIPM members, and after consultation with the *ad hoc* Working Group on the Role, Mission, Objectives, Long-term Strategy and Governance of the BIPM (AHWG), Dr Kang was elected as a new member of the CIPM with effect from 1 January 2014.

3. Member States of the BIPM (Member States) and Associates of the CGPM (Associates)

With retrospective effect to 20 August 2013, the Republic of Iraq has acceded to the Metre Convention, bringing the number of Member States to 56.

On 29 January 2014 the Grand Duchy of Luxembourg signed up as an Associate to the CGPM, bringing the number of Associates to 39.

With reference to the Resolution 4 “On the status of Associate State of the General Conference”, adopted by the 24th meeting of the CGPM (2011), almost none of the 14 Associates for which it would be appropriate to become Member States have so far indicated their intention to do so in the near future. However, the Philippines’ NMI has been in dialogue with the BIPM for information to support the internal proposal to their Ministry to support such a transition, and the NMI from Latvia has been in dialogue with the BIPM while making a case to its Ministry to avoid withdrawing from participation in the activities of the BIPM.

The BIPM will continue to monitor whether these Associates are paying their increased contributions.

The CIPM will be requested to instruct the BIPM to formally write to the Philippines, an Associate since 2002, which had its first CMCs published in the KCDB in December 2013.

4. Member States and Associates in financial arrears for more than three years

Currently none of the Member States and Associates have arrears for more than three years.

The BIPM will continue to monitor the timely payment of the dotation by those Member States with which a rescheduling agreement has been signed. However, as the Member States concerned have currently not yet paid the agreed amounts in euros for the year 2013, the advantages and prerogatives conferred by accession to the Metre Convention have been suspended.

Overall, the payment of the required dotation and contribution by the Member States and Associates follows the yearly pattern expected.

5. Preparations for the 25th meeting of the CGPM

Implementation of all the recommendations made by the AHWG has now been (or is being) addressed. As a consequence several working procedures have been adapted. In particular the method of communication and information transfer has been modified leading to much better interaction and consultation with the NMI Directors and Government Representatives.

Results of the consultation with the NMI Directors and State Representatives concerning the mid- and long-term strategy have been implemented, and in preparation for the 25th CGPM meeting in November 2014, an extensive scheme of regular and timely consultation will be applied. This will be used in the development of the proposed BIPM Work Programme for the period 2016-2019, the proposed Resolutions and the election of members of the CIPM.

The President of the French *Académie des Sciences* has been invited to chair the 25th CGPM meeting, to be held on 18-20 November 2014 in Versailles, France.

6. CIPM Sub-Committees and CIPM *ad hoc* Working Groups

The CIPM Sub-Committees for Strategy, Finance, Pension and Provident Fund and Health Insurance, and the *ad hoc* Working Groups on CIPM Membership, and Conditions of Employment, have continued their activities and will report on their meetings, findings and achievements later in the agenda of this meeting.

The *ad hoc* Working Group on CIPM Membership has prepared draft documents formulating requirements for the election of Consultative Committee Presidents, and giving guidance for the election of CC Working Group Chairpersons and Deputy Chairpersons.

7. Presidency of Consultative Committees (CCs) and Consultative Committee Presidents meeting

Prof. Mills resigned as President of the CCU with effect from 1 January 2014 and Prof. Ullrich, President of the PTB, has been appointed as his successor.

The first joint Consultative Committee Presidents meeting was held at the BIPM on 11 March 2014. This meeting was also attended by all Consultative Committee Executive Secretaries. The aim of this joint CC Presidents meeting was to discuss and improve the efficiency of the CCs in serving the metrological needs of the Member States, improving mutual cooperation, harmonizing working processes, developing joint strategies, identifying gaps and improving the cooperation with all relevant international stakeholder organizations. A report on the outcome of the meeting will be presented later in the agenda.

8. The CIPM MRA

On 23 October 2013 the Mongolian Agency for Standardization and Metrology (MASM), Mongolia, signed the CIPM MRA, bringing the number of signatories to 93 institutes from 52 Member States, 37 Associates and 4 international organizations, and covering a further 150 institutes designated by the signatory bodies.

It is expected that the number of signatories of the CIPM MRA will increase further in the near future.

The next meeting of the JCRB will take place on 26-27 March 2014 at the BIPM.

9. Relations with other bodies

9.1 The annual bilateral meeting of the BIPM and the ILAC and the quadripartite meeting of the BIPM, ILAC, ISO and the OIML took place at the BIPM on 5 and 6 March 2014. A report will be presented later in the agenda.

9.2 The CIPM bureau met with the VAMAS leadership on 10 March 2014 to discuss the possible strengthening of cooperation in the field of materials metrology. A report will be given later in this meeting.

- 9.3 On 4-5 December 2013 a very successful JCTLM member and stakeholder meeting was held at the BIPM, followed by the annual meeting of the JCTLM Executive. In particular, both meetings addressed the successful contributions of the JCTLM to realizing traceability in clinical chemistry, but also discussed how the still very large areas of clinical chemistry where we have not yet been able to establish sustainable traceability, can be addressed. The JCTLM also discussed the costs of the JCTLM secretariat and the JCTLM database at the BIPM. The JCTLM Executive has initiated a study on the desirability and possibilities of involving more international organizations in the JCTLM with an interest in reliable and traceable measurements in clinical chemistry and laboratory medicine, as well as how a more sustainable basis for financing the operations of the JCTLM can be achieved. This point will be further addressed later in the agenda.

10. BIPM administrative and staff matters

- 10.1 The BIPM commissioned Mercer [an international actuary company] to produce an additional report concerning the investment policy of the Pension and Provident Fund and Health Insurance assets. The report has been delivered and was discussed in November 2013. Following this discussion and consideration of the report, the BIPM has discussed an investment policy with the HSBC, which is expected to be signed soon.

Mercer was commissioned to carry out another study for the delivery of information on a number of different scenarios for the BIPM Pension and Provident Fund. On the basis of this study further decisions can be made with respect to the optimum long-term sustainable pension scheme for the BIPM staff.

A study of the BIPM Health Insurance and its liabilities has been initiated.

A report will be given later in the agenda.

- 10.2 The Chairman of the CIPM Sub-Committee on Finance, Dr Bowsher, met with the head of the Finance, Budget and Procurement Office at the BIPM in February 2014 and the CIPM Sub-Committee on Finance met at the BIPM on 10 March 2014.

A report will be presented later in the agenda.

- 10.3 The BIPM has commissioned a comparison study with respect to conditions of employment to the International Service for Remunerations and Pensions (SIRP). The report of this study is expected in mid-2014 and will be discussed by the CIPM *ad hoc* Working Group on Conditions of Employment.

- 10.4 The BIPM has prepared a new BIPM Policy on Soliciting and Accepting Support from Third Parties for approval by the CIPM. This will be discussed later in the agenda.

- 10.5 At the request of members of the *ad hoc* Working Group on CIPM Membership the CIPM has been asked to draft a procedure for the election of a CIPM “CGPM” Committee for Election of CIPM Members, a role currently, during the transitional period, fulfilled by the AHWG.

11. Communication

As part of improving the visibility of the BIPM as a lean, flexible and up-to-date leader in defining and realizing a credible and reliable global measurement system, a new logo and presentation format has been designed. This will be presented later in the agenda.

Appendix 2 – CIPM President’s letter in response to Norwegian concerns on the ‘Criteria and process for election of CIPM members’ document.

This is to respond to your suggestions regarding the process to be used for selection of CIPM members at the 25th Meeting of the CGPM. That process, approved by the CIPM in October 2013, is described in Document ‘Criteria and Process for Election of CIPM Members’ on the BIPM Website at <http://www.bipm.org/utis/en/pdf/cipm-election-process.pdf>

Your concern was discussed in October 2013 prior to final approval of the process and again at the March 2014 meeting of the CIPM. The unanimous decision was to honour the process that the CIPM approved in October 2013 and provided to NMI Directors and Government Representatives in January 2014 in the call of nominations for candidates for the elections at the upcoming 25th Meeting of the CGPM.

The CIPM did agree, however, to consider incorporation of your suggested modification to the process (along with others that might come forward) if such is warranted after we have exercised this new process for the first time at the upcoming CGPM.

Thank you again for your suggestion. Going forward, the CIPM is committed to implementing a process for electing members that is fair, transparent, and effective in selecting the best team of 18 members to carry out the responsibilities entrusted to the CIPM by the CGPM.

Sincerely

Barry Inglis

President, CIPM