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| **WORLD METEOROLOGICAL ORGANIZATION**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **COMMISSION FOR INSTRUMENTS AND**  **METHODS OF OBSERVATION**  **CIMO MANAGEMENT GROUP**  **Fourteenth Session**  Offenbach, Germany 5 – 8 April 2016 |  | CIMO/MG-14/Doc. 6.1  (28.III.2016)  \_\_\_\_\_\_\_  ITEM: 6.1  Original: ENGLISH |

**ISSUES RELATED TO PLANNING, COORDINATION AND MANAGEMENT OF SPECIFIC COMMISSION ACTIVITIES**

**FOLLOW-UP TO THE LANGEN WORKSHOP**

(Submitted by E. Büyükbas, B. Forgan, B. Calpini)

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| **Summary and purpose of document**  This document provides information on the actions taken since the Langen Workshop to follow-up on its recommendations. |

**Action proposed**

The Meeting is invited to consider the report and its recommendations.

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**FOLLOW-UP TO THE LANGEN WORKSHOP**

1. **INTRODUCTION**
   1. The CIMO/WIGOS Exploratory Workshop: Improving Surface-based Data Quality through Improved Standardization of Procedures, was held at the Deutscher Wetterdienst’s Meteorological Training and Conference Centre (BTZ) at Langen, Germany from 3 to 5 December 2014, at the kind invitation of the Permanent Representative of Germany with WMO.
   2. The workshop provided 11 Recommendations to the CIMO MG related to standardization which were considered to be important for facilitating improved surface-based data quality. Since the workshop, CIMO MG has considered and responded to each of the recommendations. Here we report on progress achieved since the Langen Workshop in actioning the various recommendations.
2. **FOLLOW-UP ON THE RECOMMENDATIONS**
   1. **Recommendation 1: Regional Associations ensure that the Regional Instrument Centre activities defined in each Regional WIGOS Implementation Plan are implemented with priority.**

**CIMO MG Response:** **Agree**

**Action:** Respective CIMO MG Members to liaise with their RA to encourage the establishment of special task teams to examine regional needs for improving the efficiency of their RIC(s), as part of the WIGOS Regional Implementation Plan.

It is noted that a special task team for the activities of Regional Instrument Center (TT-RIC) was established under Working Group on Technology Development and Implementation (WG-TDI) by RA-VI. The TORs for that TT-RIC covers the activities for improving the efficiency of RICs , efficient cooperation among RICs, and increasing beneficially use of the RICs by Members. Furthermore, the activities have also been defined in R-WIP-VI which will be carried out by TT-WIGOS in collaboration with TT-RIC.

It is also noted that a survey to get the information on the needs of the Members, and capacities of the laboratories have been conducted by TT-RIC.

* 1. **Recommendation 2: Other NMHS calibration laboratories should become accredited under ISO 17025 to achieve WIGOS traceability and quality improvement goals.**

**CIMO MG Response:** **Agree**

**Action:** Respective CIMO MG Members liaise with their RA task team on RICs to ascertain calibration capabilities around the region and to exchange experiences amongst members. The calibration laboratories other than the RICs should be promoted to become accredited in accordance with ISO 17025 for the calibration activities. In case of any request by NMHSs, RICs can give support and consultancy for accreditation process via workshops, trainings or seminars.

Those NMHS which have achieved accreditation and have the capability and the commitment, should be encouraged and assisted to apply for RIC accreditation.

On the other hand, any NMHS with sufficient capability should be encouraged for the nomination to be a RIC in its Region.

It is also noted that a survey to get the information on the needs of the Members, and capacities of the laboratories have been conducted by TT-RIC.

In addition, an Interlaboratory Comparison (ILC) in RA-VI has been planned to organize an intercomparison in the field of temperature, humidity and pressure within 2016..

* 1. **Recommendation 3: Regional Instrument Centres should establish traceability of and calibration services for precipitation, wind and solar radiation measurements.**

**CIMO MG Response:** **Agree**

**Action:** RICs which do not have these capabilities should be encouraged and supported to establish required infrastructure for these features. It can be supported by organizing some activities such as workshops and seminars within/between RAs.

* 1. **Recommendation 4: Regional Instrument Centres should provide support to the surface-based remote sensing community in its efforts to develop traceability of measurements made by existing and emerging remote sensing technologies.**

**CIMO MG Response:** **Agree in principle**

**Action:** Establishing the traceability chain for remote sensing equipment is not straightforward, and can be far more complex than for in situ measurements. Some RICs may be able to assist in this process via their familiarity with the steps involved in establishing traceability to international standards or in situ observing technologies, and via their familiarity with the process for assessing uncertainty of in situ observations, but it would not be expected that they would necessarily have the detailed expertise required to apply that knowledge to a specific remote sensing technology. Other RICs may not be able to assist at all, so a blanket approach is not recommended. The first requirement in any case will be to define clearly what kind of support is expected from a RIC. This matter clearly requires further discussion by the CIMO MG before moving further.

* 1. **Recommendation 5: CIMO and CBS Management Groups seek the support of the Inter Commission Coordination Group on WIGOS to establish a CIMO/CBS-led international coordination mechanism for weather radar systems and their data and products, which involves the participation of nations operating large weather radar networks, capitalizes on the positive experience achieved within regional cooperation mechanisms, such as OPERA and BALTRAD in Europe, and includes a strong focus on capacity development.**

**CIMO MG Response:** **Agree**

**Action:** Significant progress has been achieved and continues. The matter was considered at Cg-17, which agreed to the need for a single international coordination mechanism for weather radar systems and their data and products, that utilizes existing bodies as far as possible, to achieve global weather radar data consistency. Congress requested CIMO to establish a CIMO/CBS-led international coordination initiative for standardization of practices and procedures for weather radar systems. The joint meeting of CIMO ET-ORST and CBS ET-SBO (Tokyo, October 2015) also provided its strong support and drafted proposed Terms of Reference for such a team. CBS MG 16 (Geneva, February 2016) further endorsed the concept and requested its ICT-IOS to pursue the matter further with CIMO MG. This matter will be considered further under Agenda Item 6.2.

It is of note that a special sub task team was established under TT-WIGOS of RA-VI for improving cooperation between the Members for integration of radar networks at sub-regional and regional level and exchange of radar data (Sub-Task Team on Radar Data Exchange). Similar teams could be established in all RAs and a cooperation mechanism implemented under the supervision of the CIMO/CBS-led coordination team to achieve the integration of radar networks in global level and exchange of radar data among Members.

* 1. **Recommendation 6: The CIMO Management Group review the work plan of the relevant Expert Teams to ensure that high priority is assigned to tasks examining the traceability and quality improvement of the more mature remote sensing products, for example, vertical wind profiles (from radar wind profilers and weather radars), and develop guidance material for inclusion in the CIMO Guide and other relevant material.**

**CIMO MG Response:** **Agree in principle**

**Action:** Complete. The Work Plan of each ET has been reviewed and revised where required to ensure high priority is assigned to these tasks.

* 1. **Recommendation 7: The CIMO Management Group review the work plan of the relevant Expert Teams to ensure that high priority is assigned to tasks proposing a quantitative definition for cloud base to assist subsequent establishment of traceability for ceilometer measurements.**

**CIMO MG Response:** **Agree in principle**

**Action:** Work Plans have been reviewed. This topic is not currently included in any of the Work Plans. Further action awaits discussion by CIMO MG.

* 1. **Recommendation 8: CIMO Management Group should encourage Members to nominate Testbeds and/or Lead Centres for those technologies currently under-represented by existing Testbeds and Lead Centres.**

**CIMO MG Response:** **Agree**

**Action:** Circular letter sent by SG to all PRs in February 2016 renewing the call for new Test Bed / Lead Centre nominations. CIMO MG members to continue to urge experts in their respective RA to submit proposals.

* 1. **Recommendation 9: The CIMO Management Group should review the relevant Expert Team workplans to include tasks aimed at developing a roadmap for Regional Instrument Centres, Testbeds and Lead Centres for progressively improving performance against their Terms of Reference.**

**CIMO MG Response:** Agree

**Action:** Work Plans reviewed but not yet modified to include this. May require further consideration by CIMO MG.

* 1. **Recommendation 10: That CIMO Management Group review relevant workplans to include investigations, guidance and the use of Observations Systems Capability Analysis and Review (OSCAR) Tool to increase the utility of, and benefits from, observational products derived from the integration or compositing of measurements from multiple technologies.**

**CIMO MG Response:** Agree

**Action:** Work Plans reviewed and items added on development of guidance on the use of integrated observations (e.g. rainfall). Use of OSCAR awaits its operational implementation.

* 1. **Recommendation 11: That WMO consider allocating additional resources to the Instruments and Methods of Observation budget to enable priority attention to be given to these matters.**

**CIMO MG Response:** Agree

**Action:** D/OBS included consideration of this matter in his budget proposal to Cg-17 for the 2016-19 financial period.

1. **RECOMMENDATIONS - DECISIONS EXPECTED FROM CIMO-MG**
   1. The following recommendations are submitted to CIMO-MG-14 for its consideration:

* That CIMO MG advise how to progress action against Recommendation 4, regarding the provision of advice by RICs on establishing the traceability chain for remote sensing equipment;
* That CIMO MG discuss and advise on further action against Recommendation 7, to define a quantitative definition for cloud base;
* That CIMO MG discuss and advise on further action against Recommendation 9, a suitable mechanism for developing a roadmap for progressive improvement of RICS, TBs and LCs.
* By considering the strong relation between the data quality and siting classification criteria including metadata, CIMO MG discuss and advise to review and to modify the siting classification criteria.