4 WORLD METEOROLOGICAL ORGANIZATION

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4.1.1 COMMISSION FOR BASIC SYSTEMS
OPEN PROGRAMMME AREA GROUP ON INTEGRATED OBSERVING SYSTEMS

IMPLEMENTATION-COORDINATION TEAM ON INTEGRATED OBSERVING SYSTEM (ICT-IOS)
5 Eighth Session

GENEVA, SWITZERLAND, 7 – 10 APRIL 2014

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WMO INTEGRATED GLOBAL OBSERVING SYSTEM (WIGOS)

(Submitted by the Secretariat)

SUMMARY AND PURPOSE OF DOCUMENT

This document provides information on the status of WIGOS framework implementation activities since Cg-XVI, together with relevant guidance by ICG-WIGOS-3 (10-14 February 2914).

ACTION PROPOSED

The Meeting is invited to take into account the information contained in this document when discussing how it organises its work and formulates its recommendations for CBS-Ext(2014).

Reference: Final Report, ICG-WIGOS-3:
http://www.wmo.int/pages/prog/www/WIGOS-WIS/reports.html

WIGOS FRAMEWORK IMPLEMENTATION

1. Status of WIGOS Framework Implementation

1.1 ICG-WIGOS considered the status of the most critical WIGOS Implementation Activities of the Key Activity Areas (KAA) of the WIP (v.2.0, see website[1]), Table 2, based on the evaluation of the progress provided by WIGOS-PO. In doing that, several issues and aspects were considered. The summary of the main issues/concerns is as follows:

1.2 ICG-WIGOS agreed that the development of the Guide to WIGOS and WIGOS Functional Architecture under 1.1.1, as well as activities under 4.1.1 and 6.1.1 cannot meet the original implementation deadlines of 2015; new target dates for their completion were suggested. The corresponding proposals are reflected in the updated WIP, v.2.8 to be submitted to EC-66 for consideration and approval.

1.3 Regarding 3.1.1 (RRR process), it was noted that the RRR process had been GOS/CBS centred in the past; when broadening the scope to encompass all of WIGOS, it has to be updated accordingly to take into account the respective characters and requirements of the other component observing systems. ICG-WIGOS recognized that the RRR documentation produced by the IPET-OSDE Chair had been used as a basis for the RRR related regulatory materials under development by the TT-WRM for consistency with the current RRR process and terminology. ICG-WIGOS thanked the IPET-OSDE Chair for its contribution to this work, and agreed that such material could indeed be used. ICT-IOS is invited to consider how the scope of the RRR can be broadened and whether the existing framework of IPET-OSDE, Rapporteurs and regular WMO Impact Workshops provides a sufficiently broad base for this.

1.4 ICG-WIGOS recommended that the Observing System Network Design (OSND) Principles developed under the auspices of IPET-OSDE should be incorporated in due course into the Manual on WIGOS and the Guide to WIGOS. The TT-WRM was requested to take this into account. Regarding the draft OSND principles themselves, ICG-WIGOS noted that long term/medium term funding must be assured for sustained observing systems.

1.5 With regard to 5.1.1 (WIGOS QM), ICG-WIGOS noted that some confusion still prevailed on the scope and purpose of WIGOS QM. ICG-WIGOS agreed that a realistic TT-WQM work plan should be developed urgently with a clear indication of what can be achieved by Cg-17 and by Cg-18, respectively. It was proposed that the CIMO Guide (Part III, Chapter on QM) could be used as a starting point for the development of corresponding guidance material needed for the regional and national WIGOS implementation.

1.6 When considering 7.1.1 (WIR[2]), the importance of WIR/OSCAR[3] was stressed, and it was noted that the launch of the OSCAR will mark the first time that all the information regarding requirements and observing systems are available in the same place (surface capabilities are missing for the time being). ICG-WIGOS agreed that the OSCAR should be the repository of a sub-set of the WIGOS metadata; in particular those on observing system capabilities that are required for the RRR process, and those which are requirement for operational use such as the planned evolution of WMO No. 9, Volume A. Most of the remaining metadata will have to be collected, maintained, and archived by Members. ICG-WIGOS requested the TT-WMD to clarify what metadata shall be included in the OSCAR, and which ones shall be mandatory.

1 http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/ICG-WIGOS-3/Doc-5.1_Implementation-Status.doc
2 http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/ICG-WIGOS-3/Doc-5.1_KAA-7-WIR.doc
3 http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/ICG-WIGOS-3/OSCAR.pdf

1.7 Regarding 9.1.1 (CD), ICG-WIGOS agreed that one or more specific and concrete CD projects should be specified as soon as possible (dedicated specifically within RA I in the first instance) in order to provide a model path that will show members how to undertake WIGOS implementation in a practical/tangible way.

1.8 A need to create an open dialog with PRs and senior management of NMHSs on WIGOS implementation progress and related issues was recognized. A WIGOS standard presentation, different examples of achievements and benefits, success stories, dedicated workshops, can all be used as tools. ICG-WIGOS welcomed the initiative of CIMO to renew the International Conference on Experiences with AWS (ICEAWS) covering all aspects of the life cycle of AWS and suggested that these could be 'WIGOS Conferences'. There was a consideration that organization of such a conference would be more effective and appropriate at a regional rather than at a global level. It was agreed that attention could be raised concerning such WIGOS Conferences at EC-66, to encourage resourcing and/or hosting offers.

1.9 Lightning is a concern for RA-IV, and yet no requirements for lightning detection are captured within the WIGOS RRR databases. It was decided to bring this issue to the attention of IPET-OSDE and ICT-IOS.

2. *Report by Chair of OPAG-IOS*

2.1 ICG-WIGOS noted the report submitted by the Chair of OPAG-IOS. The focus was given to contributions to the WIGOS implementation under different Key Activity Areas of the WIP by IPET-WIFI, IPET-OSDE, and all other teams of OPAG-IOS, such as developing a set of WIGOS "Principles" for Observing System Network Design (OSND), input to the development of WIGOS relevant Technical Regulations, WIGOS metadata development, and several achievements under the AMDAR programme. The intersections with other WMO priorities, such as DRR and GFCS were also presented.

2.2 ICG-WIGOS noted the WIGOS benefits of aircraft observations. A recently published WIGOS Technical Report "The Benefits of AMDAR Data to Meteorology and Aviation[4]" is available at the WIGOS web page[5].

2.3 ICG-WIGOS noted and welcomed the recent proposal to move the management of the RRR database (OSCAR) from the WMO Secretariat to MeteoSwiss. The RRR databases are an important component of WIGOS and have gained enormous visibility through the excellent work of the Secretariat. They are becoming very popular and they should be promoted as the unique repository of observation requirements. The need for a diligent and effective hand-over process from the Secretariat to MeteoSwiss was emphasised, so that the continuous further development of the databases should not be interrupted through the transition process. The RRR databases are one of the tangible and visible "successes" of WIGOS to date and therefore continuous support has to be secured. See also paragraph 5.1.11 about this topic.

2.5 ICG-WIGOS reiterated its concern about the sustainability of the observing systems/networks, especially in a developing and less developed countries. In particular, there should be insistence on donors taking an end-to-end approach when projects are considered so that initial investments in acquisition, installation etc. are supplemented with maintenance, training and operational funds to ensure the sustained operation of observing systems and supporting activities. In order to maximize sustainability, ICG-WIGOS recommended that the Resource Mobilization Office of the WMO Secretariat should pay appropriate attention to this critical issue when considering any

4 http://www.wmo.int/pages/prog/www/GOS/ABO/AMDAR/publications/Benefit_of_AMDAR_Data_to_Meteorology_and_Aviation.pdf
5 www.wmo.int/wigos

donation from major development partners as investment in observing systems of WMO Members. Sustainability of such an observing system should be guaranteed by the donors.

3. Relevant Recommendations of ICG-WIGOS-3

3.1 Based on the consideration of the individual Agenda Items, ICG-WIGOS formulated its recommendations to EC-66 (see Item 9 of the Final Report[6]).

3.2 ICG-WIGOS also considered the steps and tasks to be undertaken in completing its work; in this regard, it developed its Future Work Programme and Action Plan, which is reproduced in Appendix III of the Final Report.

4. Status of ICG Task Teams relevant to CBS/OPAG-IOS/ICT-IOS8

ICG-WIGOS also reviewed deliberations of its three Task Teams.

4.1 Task Team on WIGOS Regulatory Material (TT-WRM)

4.1.1 The Chair of TT-WRM (Russell Stringer) informed ICG-WIGOS about the key achievements of this team since ICG-WIGOS-2 and put forth several recommendations for consideration. It was noted with appreciation that the members of the team and the Secretariat partners had applied themselves through two meetings (TT-WRM-2 in June 2013 and TT-WRM-3 in November 2013) and twenty WebEx meetings.

4.1.2 Extensive drafting efforts had successfully resulted in a key milestone being achieved, that is preparation of a consolidated version of the WMO Technical Regulations (WMO-No. 49), Volume I, PART I – WIGOS, as well as the first edition of the Manual on WIGOS. It was noted that further refinement is needed (in particular the sections for Definitions, Observational Metadata, and the Space-Based Sub-system). It was also noted that significant progress had been made in capturing advances of WIGOS in the Technical Regulations, while further advances that are still under development will be captured in future updates and editions.

4.1.3 ICG-WIGOS considered the recommendations suggested by Chair, TT-WRM and accepted the plan to obtain endorsement of the WIGOS relevant Technical Regulations through Presidents of Technical Commissions rather than at full sessions of all Technical Commissions, after noting that it had been explained and accepted at the PTC-2015 meeting;

4.1.4 ICG-WIGOS noted that development of the WMO Technical Regulations (Vol. I, Part I – WIGOS), as recommended by EC-64, is proceeding ahead of the Parts II. – VI. Assistant Secretary General, who was consulted in the margins of the session, encouraged the progress with Vol. I. Part I, and agreed that the remaining parts should be accelerated to ensure a comprehensive approach, so that they are consistent with each other. However, ASG felt that, if necessary, Vol. I, Part I could be approved and promulgated effectively in the absence of such a harmonized Vol. I.

4.1.5 A possible “certification process” of the “third-party” (non-NMHS) data/observations was discussed; how to ensure that the quality of such data can be guaranteed and known. ICG-WIGOS suggested to TT-WRM to consider appropriate provisions for the contribution of such non-NMHS data/observations within the WIGOS relevant Technical Regulations, but agreed that the certification process was a national responsibility and the approach would likely vary from Member to Member.

6 http://www.wmo.int/pages/prog/www/WIGOS-WIS/reports.html

4.1.6 ICG-WIGOS agreed on the importance of CBS-Ext. (14) endorsing the Drafts WMO Technical Regulations (WMO-No. 49), Volume I, PART I – WIGOS, and Manual on WIGOS for approval by Cg-17.

4.2 Task Team on WIGOS Metadata (TT-WMD)

4.2.1 ICG-WIGOS was briefed by Dr. J. Klausen, representing the Chair, TT-WMD, on the key achievements of the Team since ICG-WIGOS-2. Dr. Klausen also put forth several recommendations for consideration.

4.2.2 Regarding classification of WIGOS metadata (as mandatory, complementary and optional), the president of CIMO suggested proceeding with a two-stage process as follows:

4.2.3 During the first stage, a decision should be made on which WMD are mandatory, i.e. on “the minimum set of required WIGOS core metadata”, minimum both in the sense of being necessary to use an observation, and in the sense of “achievability” by all (or most) Members worldwide, i.e. be available in real time. It has to do with the less demanding specifications and metadata required for observations dedicated to security issues, now-casting and short-term weather forecasting.

4.2.4 During the second stage, a complete set of WMD relevant for climate applications, expressing uncertainty, etc. shall be madeavailable by Members. In order to achieve this, the criteria for distinguishing between these two levels of metadata and applying them to the current proposal should be specified.

4.2.5 ICG-WIGOS further discussed the role of OSCAR in managing, utilizing and archiving WIGOS metadata. It was noted that OSCAR has the role to a certain extent, however, it is not anticipated that OSCAR will be used for archival of all WIGOS metadata.

4.2.6 CG-WIGOS asked all Technical Commissions to formally review the draft specification of WIGOS Core metadata by 15/05/2014 (deadline). Such review should in particular help to identify missing elements, as well as comment on the profiling of the Standard for particular applications. In this regard, ICG-WIGOS recommended that GCOS, the WMO Space Programme and EC-PORS should be involved in the review and further development of the draft specification of the WIGOS Core Metadata standard.

4.2.7 ICG-WIGOS requested the WIGOS-PO to make all arrangements needed for TT-WMD-2, which will further work on the Draft specification of the WIGOS Core Metadata standard, in late May 2014.

4.2.8 ICG-WIGOS agreed that the current semantic standard should be formalized in a next step. It was underlined that interoperability requires certain fixed vocabularies (e.g., variable names, Station IDs); however, various stakeholders exist, such as WMO, GEO, EU, CEOS, etc. Therefore, a decision is needed on who will drive the process of establishing governance, who will take responsibility for hosting and maintaining such vocabularies.

4.2.9 TT-WMD requested that ICG-WIGOS urgently recommend to EC-66 to decide on the role of WMO with regard to maintenance of vocabularies needed for metadata management (unanimous support for an engagement of WMO is needed).

4.2.10 Under this Agenda Item, a system for the WIGOS Station Identifiers was presented. ICG-WIGOS acknowledged that the proposed system has capability to meet the request by EC-65 to instigate procedures for expanding the range of station identifiers for use with Table Driven Code

Forms, so that Members could assign these numbers to stations operating in their territories, including stations operated by intergovernmental and international organizations.

4.2.11 In general, ICG-WIGOS agreed with the principles of the proposed structure for WIGOS station identifiers. However, it was noted that there are many technical issues to be further considered and solved. Therefore, ICG-WIGOS requested CBS to deal with this issue and submit the proposal for Cg-17.

4.3 Task Team on WIGOS Quality Management (TT-WQM)

4.3.1 A short presentation was made by J. Zimmermann, Chair, TT-WQM, on the TORs, composition and work plan of the Team.

4.3.2 ICG-WIGOS noted that some confusion remains regarding WIGOS QM, its purpose and scope, and how it should be reflected in WIGOS regulatory material.

4.3.3 ICG-WIGOS agreed that more dedicated work is needed to improve the current quality control and monitoring practices and procedures, including availability of monitoring results in real-time and feed-back to the data providers; the team should build on experiences and lessons learned by EUMETNET, AMDAR and other observing systems, as well as on the relevant sections on QM in the CIMO Guide.

4.3.4 ICG-WIGOS requested that the following actions be undertaken (actions for TT-WQM):

- Review of the current practices in the observational data monitoring system, and recommendation on the way forward, which must include:
    - modernisation of the monitoring system
    - near-real time reporting
    - quality evaluation leading to quality improvement
    - fault management with feedback mechanisms
    - extension of the observational data monitoring to non-weather areas (i.e. beyond the GOS), where appropriate and possible
    - documentation of how revision of the observational data quality monitoring system will be coordinated by TT-WQM and which teams would be responsible for what aspects;
- Meeting of TT-WQM by March-April (both the satellite representative and chair of IPET-WIFI/SG-QM should attend) (action for WIGOS-PO)
- Workshop on Quality Management (Concept of a Workshop on Quality Management has been raised already): (action for WIGOS-PO - arrangements; a) and b) - actions for TT-WQM)
- Regulatory Material on Quality Management to be reviewed.

4.4 Future Work

4.4.1 The need to develop a “Vision for the WIGOS in 2040” was discussed. ICG-WIGOS recommends this development and request CBS to take the initial lead on it, with involvement of the other TCs. The target for approval should be Cg-XVIII. ICT-IOS is invited to discuss how to approach this task, taking into consideration the recommendations made by IPET-OSDE and to take this forward to CBS (Ext)14.

4.4.2 The next WMO Impact Workshop should take place in 2016. ICT-IOS is invited to consider this, taking into account also par. 3.1.3 of the present document, and to bring this to the attention of CBS (Ext)14.