# Extracts From the Report on 16th World Meteorological Congress (WMO No.1077)

Full report is online at: Reference [1] ftp://ftp.wmo.int/Documents/PublicWeb/mainweb/meetings/cbodies/governance/congress\_reports/english/pdf/1077\_en.pdf

## Introduction

The following extracts were presented to the 5th Session of ET-WISC in 2012, Melbourne [Ref 2]. Text highlighted in YELLOW is of special interest to ET-WISC 6th Session, Green represents decisions or feedback directly affecting the work of WT-WISC, and those in CYAN are explicit milestones.

## Extracts

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**3.1 WORLD WEATHER WATCH PROGRAMME** *(agenda item 3.1)*

**3.1.0.1** Congress recognized that the WWW continues to be the “core” operational infrastructure facility for all WMO Programmes as well as for many international programmes of other agencies. Congress reaffirmed that the WWW Programme (as described in Annex II to the present report), with the evolving development of its observing, information and data-processing and forecasting components, continues to be the backbone Programme of WMO that not only accomplishes its goals through the coordinated efforts of Members, but also directly contributes to cross-cutting activities. Congress agreed that the WWW should provide a fundamental contribution to all WMO priority areas, namely, the Global Framework for Climate Services (GFCS), Disaster Risk Reduction, the WMO Integrated Global Observing System (WIGOS), the WMO Information System (WIS), Capacity-building and Aeronautical Meteorology.

**3.1.0.2** Congress re-affirmed that there is a need to further strengthen public awareness of this unique Programme of WMO, which contributes to the security of life and property and sustainable development. It noted that the celebration in 2013 of the fiftieth anniversary of the establishment of the WWW should provide this opportunity, and invited the Secretary-General to make necessary arrangements and encourage Members to provide the necessary resources. Congress also stressed the need to mobilize resources for strengthening the components of the WWW, especially in developing countries.

**3.1.0.3** Congress confirmed that the WWW continues to provide an effective mechanism for the application of developments in science and technology in operations of NMHSs as well as for the WMO and co-sponsored programmes. Congress recognized the opportunities new science and technologies offer the WWW and encouraged Members to continue working with the private sector to rapidly implement those which provided increased efficiency and new capabilities. In this connection, Congress noted with satisfaction the RA VI (Europe) initiative to organize a technical conference on interaction with the private sector and requested the Secretary-General to identify resources needed to organize it in the near future. Congress stressed the need to ensure that support for the WWW Programme reflects the highest priority attributed to that Programme and is sufficient to carry out its important activities in order to fulfil and sustain the core activities of the Organization. It agreed on the purpose, scope and main long-term objectives of the WWW and adopted [Resolution 1 (Cg-XVI) – World Weather Watch Programme for 2012–2015.](#Res1)

**3.1.0.4** Congress noted that CBS had reviewed its specific Terms of Reference, with guidance provided by the Executive Council, and had recommended amendments to its Terms of Reference. Congress adopted Resolution 2 (Cg-XVI) – Terms of reference of the Commission for Basic Systems, which provides these amended Terms of Reference.

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**3.1.2 The Global Telecommunication System and Data Management as components of**

**WMO Information System *Global Telecommunication System (GTS)***

**3.1.2.1** Congress noted with appreciation the progress on the Improved Main Telecommunication Network (IMTN) with the merging of the two IMTN clouds. It noted that as most MTN centres are now on the IMTN cloud and that the others have plans to join the cloud, the IMTN project is now completed. It noted the significant progress in the regional networks and that the migration to IP was almost complete. However, it was concerned that serious shortcomings still existed in some WMO Regions. Congress emphasized the importance of continued improvement of the regional component of the GTS to underpin the meteorological services of each Member, as well as to enable the implementation of WIS and WIGOS, and other new initiatives of WMO, such as the Global Framework for Climate Services (GFCS). It urged Members and regional associations to sustain their commitment in this effort and to take effective actions to modernize their national and regional data-collection systems, especially to get as many NMCs as possible connected to the GTS. It encouraged the Secretary-General to focus on improvement of the GTS, especially in developing and least developed countries, when implementing capacity-building and disaster risk reduction actions for the next financial period.

**3.1.2.2** Congress recalled that CBS had agreed that the IMTN, now connecting the main RTHs of the GTS, will form the core network of WIS providing any-to-any connectivity among all GISCs. It also recalled that CBS had defined the network connecting Data Collection or Production Centres (DCPCs) and National Centres (NCs) to each GISC as the GISC’s Area Meteorological Data Communication Network (AMDCN). Each GISC will take a leading role in ensuring the effectiveness of its AMDCN so that each connected centre can take advantage of more reliable, cost-effective and sustainable managed data communication networks. Congress noted that this new two-level network structure incorporating the GTS will enable further optimization of operational arrangements for global and regional data exchange, especially improving the timeliness of end-to-end delivery of warning messages.

**3.1.2.3** Congress requested CBS to further refine the new structure of GTS, and to pursue a smooth evolution of networks and related applications, such as Automated Message Switching Systems, from the current point-to-point topology to the two-level managed data communication network service architecture. In particular, Congress requested CBS to further explore the potential efficiencies from multicast and related services available in the new architecture. Congress noted that innovative administrative and financial arrangements and partnership were required to share and take full benefit from those new network services, and invited NMHSs to work with their associated GISC and to be as flexible as possible in that regard, taking account of respective national policies.

**3.1.2.4** Congress noted with appreciation that the satellite-based data distribution services continue to be an important component of GTS for the distribution of large volumes of information, and that there had been extensive implementation and significant technological upgrades. Furthermore it noted that some satellite systems also provide a data collection service. It urged NMHSs to consider taking advantage of this new service in designing their new observing and warning systems. Congress expressed its gratitude to all Members and organizations operating satellite-based meteorological data distribution and collection systems for the benefit of all NMHSs.

**3.1.2.5** Congress noted that the Internet had continued to play an increasingly important role for access to and delivery of a wide-range of data and products and as a complement to dedicated circuits for the GTS, with particular importance for smaller NMHSs. Congress recalled the complementary role of the GTS dedicated circuits, GTS circuits implemented across the Internet and of the Internet itself to meet the various operational and other needs and to ensure overall robustness of the system. It welcomed CBS’s effort in updating the technical guidance for the efficient use of the Internet with minimized operational and security risks. Congress emphasized that as the Internet is necessary for the WIS information Discovery, Access and Retrieval (DAR) service, it is essential that the Internet guidance developed by CBS reflect the new WIS functionality and should include recommended practices for user authentication and authorization. Noting the risks associated with the Internet usage, Congress requested CBS to pay particular attention to Internet security and continue to review and update related practices, procedures and guidelines. Congress approved the relevant CBS recommendation for amendments to the *Manual on the Global Telecommunication System* and adopted [Resolution 4 (Cg-XVI) – Report of the extraordinary session (2010) of the Commission for Basic Systems relevant to Technical Regulations concerning the Global Telecommunication System, data management and the WMO Information System](#CgRes4).

***WWW Data Management***

**3.1.2.6** Congress noted the significant effort made by many Members to successfully meet the deadline of migration to Table-Driven Code Form (TDCF), and the significant support provided by CBS experts. It recalled that the 2010 target for migration of the data category 1 (SYNOP, TEMP, PILOT and CLIMAT) had not been fully met. It endorsed the EC-LXII invitation for CBS to consider measures with a view to ensuring that all WMO Members continue accessing the observational data available on the GTS in the appropriate format as well as to facilitate and foster the migration from TAC to TDCF. Congress supported the decision by CBS that after November 2010 the parallel distribution of TAC and TDCF category 1 data as well as the category 2 (satellite observations) and 4 (marine data) may continue and will be discontinued step by step whenever possible with respective advance notification by November 2014. It stressed the need for assistance to some developing countries in implementing the migration, and expressed its gratitude to those Members and organizations that had made available their TDCF converter software or contributed to relevant training workshops to complete this task.

**3.1.2.7** Congress noted the efforts led by CBS, with participation of relevant technical commissions, in further developing the WMO Core Profile of the ISO 19115/19139 metadata standard. Recalling that EC-LVIII assigned the presidents of technical commissions the responsibility for the management of WMO metadata, Congress requested the Secretariat to publish it as WMO Core Profile of ISO metadata standard version 1.2 on the WIS web page (http://wis.wmo.int/2010/metadata/version\_1-2/) after the endorsement of the presidents of technical commissions. Congress noted that CBS identified the need for interim releases of the WMO Core Profile in order to respond to the evolving needs of other technical commissions and cross-cutting Programmes. Congress agreed that the Secretariat should publish the interim releases and ensure compatibility with previous versions. Congress emphasized the need to assist NMHSs in implementing metadata generation and exchange, and decided that CBS should develop recommended practices, procedures and guidelines for operation, including training.

**3.1.2.8** Congress was pleased to note that a Memorandum of Understanding (MoU) between WMO and the Open Geospatial Consortium (OGC) was signed in November 2009. This partnership is important for the development and use of relevant international standards for the WIS. It invited all technical commissions to join their efforts in these activities, in particular with a view to developing a WMO conceptual model of data representation and further developing the WMO Core Profile of the ISO 19100 standards for metadata. Congress particularly stressed the importance to ensure the interoperability of different data representation systems (e.g. WMO TDCF, XML-based, NetCDF, HDF) used, or planned to be used, for the exchange or access of weather, climate and water information within and outside the WMO community.

**3.1.2.9** Congress approved the relevant CBS recommendations for amendments to the *Manual on Codes* and adopted [Resolution 4 (Cg-XVI) – Report of the extraordinary session (2010) of the Commission for Basic Systems relevant to the Global Telecommunication System, data management and Technical Regulations related to the WMO Information System.](#CgRes4)

***Climate Data Management***

**3.1.2.10** Congress emphasized the important work being undertaking by CCl and WCP for ensuring that high quality climate data is available to develop high quality climate monitoring products, climate assessments, research and climate services. It noted with appreciation the involvement of CCl in developing new and modern climate data management systems which take into consideration the WIS architecture and WMO and ISO standards for data and metadata exchange. It requested CBS and CCl to further strengthen this collaboration based on identified needs of the Members and on the user requirements for improving climate data interoperability.

***Operational Information Service related to Information System and Services***

**3.1.2.11** Congress noted the migration plan for transition from the catalogue of meteorological bulletins (Volume C1) to WIS Discovery, Access and Retrieval (DAR) metadata catalogue. The transition plan indicates that RTHs will continue to maintain Volume C1 using existing procedures in parallel with providing updates to the WIS DAR metadata catalogue. Volume C1 will be considered the primary source of this information until 2015.

**3.1.2.12** Noting that several MTN centres had not implemented the maintenance of their parts of Volume C1 and/or had not provided updates of their routeing catalogue, Congress urged Members operating these centres to fully implement the standard procedures for the maintenance of Volume C1 and the recommended practices for updating the routeing catalogues.

**3.1.2.13** Noting the deficiencies in the updating and presentation of Volume C2 of WMO-No. 9 –Transmission Programmes, Congress requested that WMO Members review the contents of Volume C2 and send amendments to the WMO Secretariat as required. Congress emphasized that failure to adhere to the agreed GTS practices negatively impacted on other NMHSs causing loss of data and products essential to their operations.

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***Development of WIS Technical Regulatory Documents***

**3.1.2.18** Congress noted with appreciation the leading role of CBS in the technical development of WIS, and the critical role of the Intercommission Coordination Group on WIS (ICG-WIS) as a coordination mechanism spanning across WMO Programmes and technical commissions, as well as across global and regional levels.

**3.1.2.19** Congress recalled its previous emphasis in 2007 on the need for appropriate technical regulatory documentation for facilitating the implementation by Member countries at global, regional and national levels. Congress noted with satisfaction the progress made by CBS and ICG-WIS on the development of this technical regulatory documentation in the intersessional period and noted that CBS-Ext.(10) (November 2010, Namibia) had reviewed and endorsed the draft amendments to the *Technical Regulations* (WMO-No. 49), Volume I – General Meteorological Standards and Recommended Practices, Section A.3, and the draft of the *Manual on the WMO Information System* (WMO-No. 1060) as Annex VII to the *Technical Regulations* (WMO-No. 49*)*, Congress approved those amendments with the adoption of [Resolution 4 (Cg-XVI) – Report of the extraordinary session (2010) of the Commission for Basic Systems relevant to the Global Telecommunication System, data management and Technical Regulations related to the WMO Information System](#CgRes4). It agreed that the Manual on WIS be a mandatory publication.

**3.1.2.20** Congress noted the progress on the *Guide to WIS* (WMO-No. 1061) and requested CBS to continue and complete this effort. It emphasized the need for additional components including a “best practices for metadata management” and appropriate training material. It noted that due to the requirement for all Members to benefit from WIS, the *Guide to WIS* should also be made available in all official languages.

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**11.4 WMO INFORMATION SYSTEM** *(agenda item 11.4)*

**WIS implementation progress, designation of WIS centres**

**11.4.1** Congress recalled that Fifteenth Congress defined three fundamental types of services to be provided by the WMO Information System (WIS), and agreed that the WIS implementation plan had two parts that would be developed in parallel: Part A – the continued consolidation and further improvement of the GTS for time-critical and operation-critical data, including its extension to meet operational requirements of WMO Programmes in addition to the World Weather Watch; and Part B – an extension of the information services through flexible data discovery, access and retrieval (DAR) services to authorized users, as well as flexible timely delivery services.

**11.4.2** Congress expressed its gratitude to Members who have declared their interest in implementing new WIS functionalities. It noted that as of December 2010, the number of candidate centres identified lies at 15 GISCs and 111 DCPCs. It encouraged those Members to make their best implementation and preparatory efforts in compliance with the functional and technical specifications defined in the Manual on WIS and the Guide to WIS, paying attention to the requirements for interoperability, especially among GISCs. Congress stressed the importance for each candidate WIS Centre to establish WIS functionality and be ready for operation, and to demonstrate to CBS those capabilities, in particular as regards to metadata harvesting, metadata publishing, discovery of data, supporting ad-hoc requests, user authentication and access authorization.

**11.4.3** Congress noted with satisfaction the significant progress achieved by Members in implementing WIS. It recalled that 18 Members/organizations entered into the first round of the demonstration process for a total of 13 GISCs and 56 DCPCs. It expressed its appreciation to those Members who have already enabled WIS functionalities and demonstrated these abilities to the sixty-second session of the Executive Council and CBS-Ext.(10). It noted that some of these centres had been in pre-operational mode since May 2010. It accepted the recommendation by CBS on the designation of the initial set of WIS centres, and adopted [Resolution 51 (Cg-XVI) –Designation of Centres of the WMO Information System](#CgRes51). Congress requested that after the initial designation of WIS centres, further designation will be performed by EC through the review of the Manual on WIS*.*

**11.4.4** Congress noted with appreciation that the regional WIS training workshops successfully hosted by Japan and China provided practical information on the new information system to many Asian countries. Congress stressed the necessity of more capacity development projects for WIS National Centres in developing countries, and the promotion of the use of WIS, together with WIGOS. Congress felt that the area of responsibility of each RA II GISC should be officially agreed upon at the next session of RA II, now scheduled in 2012. However, to allow the Members of RA II to benefit from the new system before this, Congress encouraged RA II to initiate the coordination and consultations as a tentative solution so that each National Centre should be linked to a principal GISC and to a secondary GISC, taking into account the efficiency of options, the cost effectiveness for both NCs and GISCs, data distribution capacity of the GISCs, and the current structure of the GTS.

**11.4.5** Congress noted the contribution of JCOMM to WIS and WIGOS through the establishment of an IOC Ocean Data Portal (ODP). It requested Members to engage in negotiations with oceanographic institutes holding ocean data sets relevant to WMO applications, with a view to having these datasets become interoperable with ODP or WIS. It requested JCOMM to continue its collaboration with IOC in order to realize full interoperability between ODP and WIS. Recognizing the need for further enhancing interoperability between data systems, Congress invited Members to actively participate in the JCOMM Standards process for ocean data management.

**11.4.6** Congress noted that the proactive support from the Secretariat for WIS implementation, which is necessary for the international coordination that underpins all Members core activities, has been largely due to the generosity of Members through in-kind contributions, staff secondments and through contributions to the WIS Trust Fund. Congress expressed its appreciation to those Members who made contributions to the WIS Trust Fund or hosted WIS related training activities, and to Australia, the United States and Germany for their staff support to the WIS Project Office. It noted that WIS is now in a critical implementation and operational stage, and encouraged Members to maintain these contributions which are crucial to the effective and sustained WIS implementation over the next financial period, noting that the Project Office in its present form is no longer appropriate, but substantial coordination activity will still be needed from the Secretariat staff.

**11.4.7** Congress noted that WIS has moved from a development stage into an operational stage. Congress noted that WIS activities in 2012–2015 should be: (1) complete WIS implementation across all WMO Centres; (2) capacity-building to ensure support of all WMO

Members; (3) leverage WIS advantages for all WMO Programmes; and (4) take advantage of WIS in all WMO Data Management.

**Complete WIS implementation across all WMO Centres**

**11.4.8** Congress noted that WIS implementation is now on track for new centres to be operational following Cg-XVI. Congress emphasized that although the implementation of the new functionality of WIS will then be operational in a few core centres, many Members will still have to begin their implementation. Thus, the full implementation of WIS by all Members will take at least the whole of the next financial period.

**11.4.9** Congress noted and supported the following major activities and implementation target dates, and urged all Members and the Secretary-General to identify the necessary resources for reaching the objectives:

(a) Improving the knowledge and capabilities of Members to benefit from WIS functionality, in particular least developed countries, developing countries and small island states through regional workshops and information sessions: 2012–2013;

(b) Implementation of WIS at all NMHS national centres (NCs): 2012–2015;

(c) Implementation of remaining candidate GISCs: 2012–2013;

(d) Implementation of more DCPCs, i.e. WIS interfaces at WMO Programmes’ centres: 2012–2015;

(e) Amendments to the Manual on WIS for enhanced operational arrangements of WIS centres, especially GISCs: 2014.

**11.4.10** Congress thanked those Members who offered to make WIS software available and was particularly pleased to see the differing solutions fulfilling WIS interoperability requirements included open source (free) solutions as well as commercial offerings. It noted that several Members including China, Germany, Japan and the OpenWIS Consortium, led by France, Australia, the Republic of Korea and the United Kingdom, have or are planning to make their WIS software available through the CBS software registry and that there are also commercial vendors offering support, installation and maintenance. The Congress was also informed that the Russian Federation, Bulgaria, Saudi Arabia, Serbia, Morocco, Kenya and Indonesia have agreed to support the OpenWIS strategy as a tool for obtaining long-term sustainability of WIS compliance solution worldwide and to recognize that OpenWIS provides an open source platform that allows Members to contribute to WIS deployment and to implementation of standards and, ultimately to join OpenWIS Consortium.

**11.4.11** Congress, noting the structure of GTS is evolving to a two-level network architecture, invited the regional associations to coordinate the definition of area of responsibility for each GISC, in particular their Area Meteorological Data Communication Network (AMDCN), taking advantage of the improved performance of data exchange enabled by new technologies. Regional associations should consult with CBS when reviewing AMDCNs, being mindful of potential cost impacts on the remainder of WIS.

**11.4.12** Congress expressed its appreciation to the Chair of ICG-WIS and to its participants for their ongoing support and leadership in taking WIS to this implementation stage. Congress emphasized that there is still a strong need for coordinating across technical commissions and regional associations, and CBS will continue to be the main body responsible for technical aspects on the implementation of WIS. Congress requested EC to consider what mechanisms would be appropriate to ensure continued WIS implementation as well as coordination with the needs of WIGOS and other initiatives such as the GFCS. In doing so, the continuation of the ICG-WIS, with revised terms of reference, for an additional two-year period should be considered.

**Capacity-building to ensure support of all WMO Members**

**11.4.13** Congress noted that the priority activities of WIS have moved from development to capacity-building, especially those activities aimed at developing and least developed countries and small island developing States. Congress encouraged Members that have already implemented WIS functions and interfaces to assist those who will be implementing them in the future. Congress also noted that data and metadata issues are especially critical in many small meteorological services and efforts within those NMHSs should be intensified to achieve the required standardization.

**11.4.14** Congress urged all Members and the Secretary-General to identify the necessary resources for training workshops in the period 2012–2015 for developing countries and least developed countries, to assist them in implementing their components of WIS and benefiting from the WIS. It encouraged each GISC to take a leading role in the provision of training for centres in their AMDCN. Noting that the sustainability of WIS is a long-term project, Congress emphasized that regional coordination, utilizing such tools as feasibility studies and gap analyses, is necessary to ensure training and capacity development are targeted to regional needs.

**Leverage WIS advantages for all WMO Programmes**

**11.4.15** Congress highlighted that WIS is an essential component of many WMO high priority initiatives, including Disaster Risk Reduction, Capacity-building, WIGOS and GFCS. Congress encouraged Members to ensure that new projects take advantage of the WIS and its set of interoperability standards, with an aim to increasing their ability to respond to user requirements while reducing the costs of developing and implementing new initiatives.

**11.4.16** Congress noted that WIS is a continuously evolving system, improving as new technologies become available. Thus, Congress requested CBS to continue to refine WIS components to increase the efficiency and effectiveness of WIS, paying particular attention to address fully any security issues associated with these new technologies. Congress encouraged Members to interact with the OGC, ISO, OASIS, IETF, W3C, and other standards bodies to ensure those standards on which WIS interoperability is based, better meet the WMO community’s needs.

**11.4.17** Congress emphasized that WIS must continue to be driven by needs. Congress urged technical commissions and regional associations to actively pursue their contributions to the refinement of WIS user requirements to ensure that the Commissions and regional programmes requirements on WIS are taken into account.

**11.4.18** Congress urged all Members and the Secretary-General to identify the necessary resources for training workshops in the period 2012–2013 for WMO Programmes on benefiting from and contributing to WIS implementation.

**Take advantage of WIS in all WMO data management**

**11.4.19** Congress noted that WIS adopted best principles and practices in modern data management, especially where interoperability is necessary among complex systems that are separately managed. Congress urged Members, technical commissions, regional associations, and other bodies associated with WMO to apply such data management principles and practices throughout all WMO data management activities.

**11.4.20** Congress emphasized that as an increasing number of Members are committed to the implementation of WIS, special attention should be paid to data and metadata standardization to ensure data interoperability and accessibility for WIGOS, GFCS and other WMO Programmes and initiatives.

**11.4.21** Congress recognized the need to consolidate the ongoing WCDMP work in developing climate data management systems (CDMSs) and facilitating regional data initiatives, such as the Mediterranean Data Rescue initiative (MEDARE) and related data services portal. It requested CBS to develop an effective and focused working mechanism with WCP and CCl to achieve modern, robust and interoperable data management systems and to investigate the potential for MEDARE and similar initiatives to be incorporated within the WIS architecture, e.g DCPCs.

**11.4.22** Congress further agreed that CCl and CBS collaboration should be extended to seek establishing improved interfaces with other databases, such as hydrological, agriculture, health, environmental and socio-economic databases.

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**RESOLUTIONS ADOPTED BY THE SESSION**

**Resolution 1 (Cg-XVI)**

**WORLD WEATHER WATCH PROGRAMME FOR 2012–2015**

THE CONGRESS,

**Recalling:**

(1) Resolution 2 (Cg-XV) – World Weather Watch Programme for 2008–2011,

(2) Resolution 64/86 of the United Nations General Assembly – International cooperation in the peaceful uses of outer space,

**Noting:**

(1) The *Abridged Final Report with Resolutions of the Fifteenth World Meteorological Congress*

(WMO-No. 1026), general summary, agenda item 3.1,

(2) The *Abridged Final Report with Resolutions and Recommendations of the Fourteenth*

*Session of the Commission for Basic Systems* (WMO-No. 1040),

(3) The *Abridged Final Report with Resolutions and Recommendations of the Fifteenth*

*Session of the Commission for Instruments and Methods of Observation* (WMO-No. 1064),

(4) The *Abridged Final Report with Resolutions and Recommendations of the Extraordinary*

*Session 2010 of the Commission for Basic Systems* (WMO-No. 1070),

**Expresses:**

(1) Its satisfaction that progress has been made in the further improvement of the operation of the World Weather Watch (WWW) Programme during the period 2008–2011;

(2) Its concern that deficiencies remain in the implementation of the WWW Programme in some areas;

(3) The need for intensified and coordinated activities for the operation and maintenance of the WWW Programme in support of other WMO Programmes and high-priority areas to meet the objectives of the WMO Strategic Plan and maximize the benefits available to all Members;

**Confirms:**

(1) That the WWW Programme has the highest priority as the basic WMO Programme on which all other Programmes of the Organization depend and that it provides the basis for the operations of National Meteorological and Hydrological Services;

(2) That the WWW Programme continues to provide an effective mechanism for the application of science and technology in operations;

(3) That the WWW Programme contributes to the WMO Strategy for Service Delivery;

(4) That the WWW Programme should be used only for peaceful purposes, due account being

taken of the national sovereignty and security of States, in accordance with the provisions of

the Charter of the United Nations and the spirit and tradition of the Convention of the World

Meteorological Organization;

**Considering:**

(1) The absolute importance of weather, climate and water observations for determining the current state of the atmosphere, for weather forecasting, including severe weather forecasting and warning services, for monitoring climate variability and climate change, for climate prediction and as a fundamental underpinning of the Global Framework for Climate

Services,

(2) That advanced technology for improving the technical systems of the WWW Programme calls for special efforts in the provision of technical guidance, specialized training and capacity building,

**Decides** that the purpose, scope and main long-term objectives of the WWW Programme shall be aligned with the WMO Strategic Plan and high priorities of WMO;

**Stresses** the role to be played by regional associations in coordinating the WWW Programme implementation, identifying deficiencies, specifying requirements, and planning system support projects on a regional scale;

**Invites** the regional associations to promote the coordinated implementation of the WWW

Programme and to keep under continuous review related regional requirements;

**Requests** the Executive Council:

(1) To ensure that the further development of the WWW Programme is carried out with the highest priority and in accordance with the WMO Strategic Plan;

(2) To adjust the WWW Programme as necessary, particularly in light of the recommendations made by the Commission for Basic Systems and the regional associations;

(3) To assist Members in all possible ways in meeting their respective responsibilities within the WWW Programme;

(4) To promote the establishment of cooperative arrangements for the implementation, operation and maintenance of WWW Programme component systems, as appropriate;

**Requests** the Commission for Basic Systems:

(1) To pursue the technical planning and further development of the WWW Programme in accordance with the WMO Strategic Plan, taking into account any adjustments and directives from the Executive Council;

(2) To take a leading role, together with the Commission for Instruments and Methods of Observation, in the technical development and implementation of the Global Observing

System (GOS), as the key component of the WMO Integrated Global Observing System (WIGOS), to meet, in an optimal way, the requirements of all WMO and co-sponsored

Programmes;

(3) To pursue its leading role in the technical implementation and operation of the WMO

Information System (WIS), including the Global Telecommunication System (GTS) as its core network, for the collection and sharing of information for all WMO and related international programmes;

(4) To pursue its leading role to enhance the implementation of the Global Data-processing and Forecasting System (GDPFS) through increased lead time and reliability of forecasts and warnings, and its critical support to the delivery of services to the general public as well as to all relevant socio-economic sectors;

(5) To maintain close liaison with the other technical commissions, the regional associations, other relevant international organizations and international programmes, in particular the

Global Climate Observing System (GCOS), with a view to ensuring that their relevant requirements and recommendations are taken into due consideration;

**Urges** all Members, especially donor countries, individually and through appropriate multinational arrangements, to cooperate actively in the further development and operation of the World Weather Watch, and in particular:

(1) To continue, to the best of their ability, to further develop, implement, operate and maintain the WWW Programme component systems (observation, information, data-processing and forecasting components) and to ensure that the requirements of Members for the provision of services and products are fully met;

(2) To contribute to the implementation and operation of WIGOS, WIS and GDPFS and participate in their projects;

(3) To coordinate and pool their national efforts and resources in order to establish realistic goals, minimize the implementation and operational costs, and avoid duplication of WWW Programme activities as far as possible;

(4) To participate in the deployment and use of new systems and techniques, including appropriate capacity-building activities, and individually or collectively, to evaluate their effectiveness and their integration into the WWW Programme;

(5) To keep the Secretary-General informed about their plans and activities regarding the implementation of the WWW Programme;

**Requests** the Secretary-General:

(1) To keep the Members informed of progress and developments in the planning and implementation of the WWW Programme;

(2) To continue to improve the monitoring of the operation of the WWW Programme and the publication of results;

(3) To assist Members, as necessary, in overcoming difficulties that may arise in the implementation of the WWW Programme during the sixteenth financial period;

(4) To propose projects and priorities for the consolidation and further development of key WWW Programme facilities;

(5) To assist the Executive Council, the regional associations and the Commission for Basic Systems in the implementation of this resolution;

(6) To bring this resolution to the attention of all concerned;

(7) To submit a report to the Seventeenth World Meteorological Congress on the implementation of the WWW component systems during the sixteenth financial period, together with proposals for further development of the World Weather Watch.

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**Resolution 4 (Cg-XVI)**

**REPORT OF THE EXTRAORDINARY SESSION (2010) OF THE COMMISSION FOR BASIC SYSTEMS RELEVANT TO TECHNICAL REGULATIONS CONCERNING THE GLOBAL TELECOMMUNICATION SYSTEM, DATA MANAGEMENT AND THE WMO INFORMATION SYSTEM**

THE CONGRESS,

**Having considered** the *Abridged Final Report with Resolutions and Recommendations of the Extraordinary Session 2010 of the Commission for Basic Systems* (WMO-No. 1070),

**Noting:**

(1) Resolution 1 (Cg-XV) – Technical Regulations of the World Meteorological Organization,

(2) Resolution 2 (Cg-XV) – World Weather Watch Programme for 2008–2011,

(3) The decision of the Fourteenth World Meteorological Congress to establish an overarching WMO Information System (WIS) that would be used for the collection and sharing of information for all WMO and related international programmes,

(4) The *Technical Regulations* (WMO-No. 49), Volume I – General Meteorological Standards and Recommended Practices, Section A.3,

(5) Recommendation 1 (CBS-Ext.(10)) – Amendments to the *Manual on Codes* (WMO-No. 306), Introduction Chapter of Volumes I.1 and I.2; Recommendation 2 (CBS-Ext.(10)) – Amendments to the *Manual on Codes* (WMO-No. 306), Volume I.1;

Recommendation 3 (CBS-Ext.(10)) – Amendments to the *Manual on the Global Telecommunication System* (WMO-No. 386), Volume I, Part II; Recommendation 5 (CBS-Ext.(10)) – Amendments to the *Technical Regulations* (WMO-No. 49), Volume I, Section A.3; Recommendation 6 (CBS-Ext.(10)) – The *Manual on the WMO Information System* (WMO-No.1060),

**Recalling:**

(1) That Fifteenth Congress emphasized the need for appropriate WMO Information System (WIS) regulatory documentation and charged the Commission for Basic Systems (CBS) with the development of regulatory documentation,

(2) That the Executive Council, at its sixty-second session, emphasized the importance of appropriate WIS regulatory and guidance documentation and requested the Inter- Commission Coordination Group on the WMO Information System (ICG-WIS) and CBS to prepare amendments to the relevant section of WMO-No. 49 – *Technical Regulations*, and the *Manual on the WMO Information System*, for consideration by Sixteenth Congress,

**Decides** to take action on each of the recommendations as follows:

**Recommendation 1 (CBS-Ext.(10)) – Amendments to the *Manual on Codes* (WMO-No. 306), Introduction Chapter of Volumes I.1 and I.2**

**Recommendation 2 (CBS-Ext.(10)) – Amendments to the *Manual on Codes* (WMO-No. 306), Volume I.1**

(1) Approves these recommendations, with effect from:

(a) 1 July 2011 for applying the procedures for amending the *Manual on Codes* as defined in the Annex to Recommendation 1 (CBS-Ext.(10));

(b) 2 November 2011 for amendments to the *Manual on Codes* for operational use as defined in the Annex to Recommendation 2 (CBS-Ext.(10));

(2) Requests the Secretary-General to make the amendments, as given in the annexes to these recommendations, to the *Manual on Codes;*

(3) Authorizes the Secretary-General to make any consequent editorial amendments;

**Recommendation 3 (CBS-Ext.(10)) – Amendments to the *Manual on the Global Telecommunication System* (WMO-No. 386), Volume I, Part II**

(1) Approves this recommendation, with effect from 2 November 2011;

(2) Requests the Secretary-General to make the amendments, as given in the annexes to this recommendation, to the *Manual on the Global Telecommunication System;*

(3) Authorizes the Secretary-General to make any consequent purely editorial amendments;

**Recommendation 5 (CBS-Ext.(10)) – Amendments to the *Technical Regulations* (WMO-No. 49), Volume I, Section A.3**

**Recommendation 6 (CBS-Ext.(10)) – The *Manual on the WMO Information System* (WMO-No. 1060)**

(1) Approves these recommendations, with effect from 1 January 2012;

(2) Requests the Secretary-General:

(a) To make the amendments, as given in the annexes to these recommendations, to the *Technical Regulations*, Volume I – General Meteorological Standards and Recommended Practices, Section A.3;

(b) To publish the *Manual on the WMO Information System*, in all the WMO official languages;

(3) Authorizes the Secretary-General to make any consequent editorial amendments.

...snip...

**Resolution 51 (Cg-XVI)**

**DESIGNATION OF CENTRES OF THE WMO INFORMATION SYSTEM**

THE CONGRESS,

**Noting:**

(1) The designation procedure for Global Information System Centres (GISCs) and Data Collection or Production Centres (DCPCs), as endorsed by Fifteenth Congress (*Abridged*

*Final Report with Resolutions of the Fifteenth World Meteorological Congress* (WMO-No. 1026), general summary, paragraph 3.1.2.13),

(2) The amendments to the *Technical Regulations* (WMO-No. 49), Volume I, Section A.3, as proposed in Resolution 4 (Cg-XVI) – Report of the extraordinary session (2010) of the Commission for Basic Systems relevant to Technical Regulations concerning the Global Telecommunication System, data management and the WMO Information System**,**

(3) The recommendation for a *Manual on the WMO Information System (WIS)* (WMO-No. 1060) as proposed in Resolution 4 (Cg-XVI),

**Considering** Recommendation 4 (CBS-Ext.(10)) – Designation of Centres of the WMO Information System,

**Decides:**

(1) To designate as WIS Global Information System Centres those centres listed in Table 1 of the annex to this resolution;

(2) To designate as WIS Data Collection or Production Centres those centres listed in Table 2 of the annex to this resolution;

(3) To designate those centres listed in Table 3 in the annex to this resolution for the roles

defined in Table 3;

(4) To conditionally designate those centres shown in Table 4 in the annex to this resolution, subject to demonstration of meeting the pre-operational compliance requirements of the Commission for Basic Systems (CBS) Management Group, and that any centre in Table 4 that has not demonstrated pre-operational compliance by the time of the sixty-fourth session of the Executive Council will have its conditional designation removed;

(5) To confirm that any centres that have not been designated by the time of the sixty-fourth session of the Executive Council and that wish to be recognized as a DCPC or GISC, must demonstrate that they meet the pre-operational compliance requirements and be endorsed by the CBS Management Group before the Executive Council decides whether or not to designate that centre in the requested role;

**Requests** the Secretary-General to take appropriate actions to update the list of centres in the *Manual on the WMO Information System* accordingly;

**Requests** Members listed in the annex to this resolution to make operational those WIS Centres identified and to ensure that the centres maintain compliance with required WIS functions.

**Annex to Resolution 51 (Cg-XVI)**

**CENTRES RECOMMENDED BY THE COMMISSION FOR BASIC SYSTEMS FOR**

**DESIGNATION AS WMO INFORMATION SYSTEM CENTRES**

**Table 1.** Centres endorsed by the Commission for Basic Systems (CBS) at its extraordinary session (2010) to serve as WMO Information System (WIS) Global Information System Centres (GISCs) and recognized as satisfying the pre-operational compliance requirements

|  |  |
| --- | --- |
| **Centre** | **Proposed Role** |
| Beijing, China | GISC |
| Offenbach, Germany | GISC |
| Tokyo, Japan | GISC |

**Table 2.** Centres endorsed by the Commission for Basic Systems at its extraordinary session (2010) to serve as WIS Data Collection or Production Centres (DCPCs) and recognized as satisfying the pre-operational compliance requirements

|  |  |
| --- | --- |
| **Centre** | **Proposed Role** |
| Beijing, China (RTH) | 1 DCPC |
| Offenbach, Germany(RTH, RSMC, RCC, GPCC) | 4 DCPCs |
| Tokyo, Japan(RTH, WDC-GHG, Satellite Centre, RSMCs, RCC, GPC) | 8 DCPCs |
| ECMWF | 1 DCPC |
| EUMETSAT | 1 DCPC |

**Table 3.** Centres endorsed by the CBS Management Group after the CBS extraordinary session (2010) and recognized as satisfying the pre-operational compliance requirements

|  |  |
| --- | --- |
| **Centre** | **Proposed Role** |
| Toulouse, France (VAAC, RTH, RSMC, RegionalNWP support, RCC, GPC/LRF) | GISC, 6 DCPCs |
| Exeter, United Kingdom (WAFC, VAAC, Specialized Ocean/Wave Centre, RTH, RSMCs, Marine Observations Centre, GPC/LRF) | GISC, 6 DCPCs |
| Oslo, Norway (ADC) | DCPC |
| Hong Kong, China (WWIS) |  |
| Bremerhaven, Germany (WRMC) |  |
| Hamburg, Germany (WDCC, GCC)  | 2 DCPCs |
| Oberpfaffenhofen, Germany (WDC-RSAT)  | DCPC |
| Lindenberg, Germany (GRUAN-LC)  | DCPC |
| Koblenz, Germany (GRDC)  | DCPC |

**Table 4.** Centres that have registered to be considered for the role of GISC and/or DCPC of the WIS, but for which the demonstration of pre-operational compliance requirements had not been completed at the time papers were submitted to Sixteenth Congress

|  |  |
| --- | --- |
| **Centre** | **Proposed Role** |
| Asheville, United States (GOSIC)  | DCPC |
| Beijing, China (NSMC, NCC, RSMCs)  | DCPCs |
| Belgrade, Serbia (RCC)  | DCPC |
| Boulder, United States (NCAR)  | DCPC |
| Brasilia, Brazil  | GISC |
| De Bilt, Netherlands (Satellite Centre, RCC)  | DCPCs |
| Delhi, India  | GISC, DCPCs |
| Jeddah, Saudi Arabia  | GISC |
| Khabarovsk, Russian Federation  | DCPC |
| La Reunion, France (RSMC)  | DCPC |
| Casablanca, Morocco  | GISC |
| Melbourne, Australia  | GISC, DCPCs |
| Montreal, Canada  | DCPC |
| Moscow, Russian Federation  | GISC, DCPCs |
| Novosibirsk, Russian Federation  | DCPC |
| Obninsk, Russian Federation  | DCPCs |
| Oslo, Norway (NILU)  | DCPC |
| Prague, Czech Republic  | DCPC |
| Pretoria, South Africa  | GISC |
| Rome, Italy  | DCPCs |
| St Petersburg, Russian Federation  | DCPCs |
| Seoul, Republic of Korea  | GISC, DCPCs |
| Sodankylä, Finland  | DCPC |
| Sofia, Bulgaria  | DCPC |
| Norrköping, Sweden  | DCPCs |
| Tehran, Islamic Republic of Iran  | GISC |
| Washington, DC, United States  | GISC, DCPCs |
| Zagreb, Croatia (Marine Meteorological Centre – Split)  | DCPC |

...snip...

**ANNEX II**

**WMO PROGRAMME DESCRIPTIONS**

**WORLD WEATHER WATCH PROGRAMME**

**1. Purpose and scope of the World Weather Watch (WWW) Programme**

**1.1** The World Weather Watch (WWW) Programme facilitates the development, operation and enhancement of worldwide systems for observing and exchanging meteorological and related observations, and for the generation and dissemination of analyses and forecast products, as well as severe weather advisories and warnings, and related operational information. The activities carried out under this Programme collectively ensure that Members have access to the required information to enable them to provide data, prediction and information services and products to users. WWW is organized as an international cooperative programme, under which the infrastructure, systems and facilities needed for the provision of these services are owned, implemented and operated by the Member countries. This is based on the fundamental understanding that the weather systems and patterns do not recognize national boundaries and are always evolving on varying temporal and spatial scales, and that international cooperation is paramount, as no one country can be fully self-sufficient in the provision of all weather, water and climate related services.

**1.2** The Programme's main functions are planning, organization and coordination of the facilities, procedures and arrangements at the global and regional levels, related to the design of observing and communications networks, the standardization of observing and measuring practices and techniques, the use of data management principles, the application of scientific and technical means for assuring, analysing and predicting weather systems, and the presentation of the information in a form and format that is understood by all, regardless of language. WWW is the key Programme of WMO in providing basic data, analyses, forecasts, and warnings to Members and other WMO and co-sponsored Programmes, such as the Global Climate Observing System and Global Ocean Observing System, and relevant international organizations.

**1.3** WWW puts priority on capacity-building activities to avail of technological advances to enhance the WWW components, especially in developing countries, and on cost-effective, systematic monitoring and improvements to the operations of WWW that can be derived thereof. Thus, it allows Members to obtain maximum benefits from the WWW.

**1.4** The WWW Programme effectively contributes to the implementation of all the WMO Expected Results of the WMO Strategic Plan. Many of the activities are strongly linked with all other WMO Programmes and it will provide direct support to the future WMO high priority areas, namely GFCS, DRR, WIGOS and WIS, Capacity-building and Aeronautical Meteorology.

**2. Programme structure**

**2.1** The World Weather Watch Programme comprises the design, implementation, operation and further development of the following three interconnected, and increasingly integrated, core components:

(a) Global Observing System (GOS), consisting of facilities and arrangements for making meteorological observations (including climatological observations) and other related environmental observations at stations on land and at sea, and from aircraft, meteorological environmental satellites and other platforms;

(b) Global Telecommunication System (GTS), consisting of integrated networks of telecommunications facilities and services for the rapid, reliable collection and distribution

of observational data and processed information;

(c) Global Data-processing and Forecasting System (GDPFS), consisting of World, Regional Specialized, and National Meteorological Centres that provide quality-assured, processed data, analyses, and forecast products on a wide range of temporal and spatial scales.

**2.2** Coordination, integration and efficient operation of the three core components are achieved through support programmes as follows:

(a) The WWW Data Management (WWWDM) support programme monitors and manages the information flow within the World Weather Watch system to assure quality and timely availability of data and products and the use of standard representation formats;

(b) The WWW System Support Activity (WWWSSA) support programme provides specific technical guidance, training and implementation support, the WWW Operational Information

Services, and supports cooperative initiatives.

**2.3** In addition, the WWW Programme incorporates three programmes that complement and enhance the core components of the WWW, as well as provide significant input and support to other WMO and co-sponsored Programmes:

(a) The Instruments and Methods of Observation Programme (IMOP) improves the quality and long-term stability of observations and measurements of meteorological and related environmental variables through the standardization activities and coordination and promotion of the use of efficient methods and technology to meet the requirements of operational and research applications;

(b) The Emergency Response Activities (ERA) programme assists NMHSs to respond effectively to large-scale atmospheric pollution and environmental emergencies in close collaboration with other relevant international organizations;

(c) The WMO Antarctic Activities (WMOAA) programme coordinates the WWW basic systems implementation and operation in Antarctica to meet the requirements for meteorological services as well as for environmental monitoring and climate research.

**2.4** The World Weather Watch component systems are primarily managed under the technical responsibility of the Commission for Basic Systems (CBS) with the exception of the IMOP that is managed under the technical responsibility of the Commission for Instruments and Methods of Observation (CIMO).

**2.5** The WWW Programme works closely with other related programmes, in particular:

(a) The Tropical Cyclone Programme (TCP), which assists Members in establishing national and regionally coordinated systems to ensure that the loss of life and damage caused by tropical cyclones are reduced to a minimum, and to achieve sustainable development;

(b) The WMO Space Programme (WMO SP) which promotes wide availability and utilization of satellite data and products for weather, climate, water and related applications of WMO Members, and coordinates environmental satellite matters and activities throughout all WMO Programmes;

(c) The WMO Public Weather Services Programme (PWSP) whose principal aim is to strengthen the capabilities of WMO Members to meet the needs of society through provision and delivery of comprehensive weather and related environmental services, with particular emphasis on public safety and welfare, and to foster a better understanding by the public of the capabilities of their respective National Meteorological and Hydrological Services (NMHSs), and of how best to use the services that NMHSs deliver.

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**4. Global Telecommunication System (GTS)**

**4.1** Purpose and scope

**4.1.1** The Global Telecommunication System (GTS) is an integrated system of managed data communication networks, point-to-point circuits and satellite-based data collection and broadcast systems, which interconnect meteorological centres through agreed procedures and services. It provides the telecommunication services for the collection, and exchange of observational data (particularly GOS data) and the distribution of processed information from the Global Dataprocessing and Forecasting System (GDPFS) and other related centres. The GTS is operated by National Meteorological Services, national or international satellite agencies or contracted commercial telecommunication service providers. The Internet complements the GTS where technical or economic conditions limit the scope of the GTS. Maintenance and enhancement of systems to exchange data, products and information thus facilitate access to information needed for the preparation of analyses, forecasts and warnings, research activities and other environment related applications.

**4.1.2** The main goal will be the further development of structure and operational principles of the GTS and other components of the WMO Information System (WIS). As a core network of WIS, the GTS will respond to growing data communication needs of all WMO Programmes and exploit new technical and economic opportunities. The priority activity will be focused on achieving cost effectiveness, enhanced data transmission capacity and a greater variety and flexibility of services. The WIS will continue to evolve jointly supported by the GTS and WWWDM programmes, and including input from other relevant programmes.

Main long-term objectives:

(a) Improve and optimize the WIS and its operational procedures to provide effective and efficient telecommunication services for the collection and communication of observational data, processed information, advisories, warnings, and others, within established time limits; (b) Maintain and further develop the GTS as the core network of the WMO Information System (WIS) that will provide the information systems and services for the exchange of and access to data, which will meet the requirements for such services of all WMO Programmes.

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**6. WWW Data Management (WWWDM)**

**6.1** Purpose and scope

The World Weather Watch Data Management (WWWDM) support programme will continue to develop and coordinate the support functions including data formats and codes, metadata standards, needed for an orderly and efficient overall management of meteorological data and products within the framework of WIS. It will also coordinate the monitoring of the operations of the WWW to improve the availability and quality of data and products.

**6.2** Main long-term objectives:

(a) Implement modern standardized data handling and archiving models, procedures, practices, interfaces and formats required for efficient exchange, archive and retrieval of all information used in the World Weather Watch and other related WMO Programmes;

(b) Define and coordinate implementation of metadata standards for the WIS so that it meets the data exchange and access requirements of all WMO Programmes.

**7. WWW System Support Activity, including the Operational Information Service (OIS)**

**7.1** Purpose and scope

**7.1.1** The WWW System Support Activity (WWWSSA) support programme provides technical advice and support, especially to developing NMHSs, in order to assist in achieving the most effective and efficient implementation and sustainable operation of the World Weather Watch. The programme promotes the development of standard solutions to common operational problems and their implementation through coordinated projects.

**7.1.2** The Operational Information Service (OIS) collects from and distributes to WMO Members detailed and up-to-date information, in a timely and efficient manner, on facilities, services and products made available through the operation of the World Weather Watch.

**7.2** Main long-term objectives:

(a) Assist developing NMHSs, particularly through technical advice and training activities, in obtaining the necessary self-reliance for providing weather forecasting and warning services in their country and to allow them to fulfil agreed responsibilities within the WWW system and other related WMO or international programmes;

(b) Promote development and implementation of innovative arrangements for cooperation and funding within the WWW system to strengthen the long-term and cost-effective operation of the basic infrastructure;

(c) Provide the information services on the operation of the World Weather Watch and related systems and improve their utility for the users.

...snip

## References

* [1] Report on the Sixteenth Session of World Meteorological Congress ftp://ftp.wmo.int/Documents/PublicWeb/mainweb/meetings/cbodies/governance/congress\_reports/english/pdf/1077\_en.pdf
* [2] ET-WISC2012-Doc02.1 –Extracts from Cg XVI – [http://wis.wmo.int/doc=855](http://wis.wmo.int/doc%3D855)

## Recommended Text

The meeting noted the report on the Sixteenth Session of World Meteorological Congress. It was pleased that most of the GISCs identified in Resolution 51 (Cg-XVI) as conditionally designated have now been certified by CBS with only Morocco and Pretoria still to set definite audit dates for TT-CAC. The meeting noted that progress on DCPCs has been less evident but that EC has recognized the work being undertaken by centres to be able to demonstrate their WIS functionality and that the conditional requirements identified in Resolution 51 (Cg-XVI) have been extended by both EC-64 and EC-65.

The meeting recalled the timelines on WIS implementation established by Cg XVI under paragraph 11.4.9 in which Congress noted and supported the following major activities and implementation target dates: (a) Improving the knowledge and capabilities of Members to benefit from WIS functionality, in particular least developed countries, developing countries and small island states through regional workshops and information sessions: 2012–2013; (b) Implementation of WIS at all NMHS national centres (NCs): 2012–2015; (c) Implementation of remaining candidate GISCs: 2012–2013; (d) Implementation of more DCPCs, i.e. WIS interfaces at WMO Programmes’ centres: 2012–2015; (e) Amendments to the Manual on WIS for enhanced operational arrangements of WIS centres, especially GISCs: 2014.

The meeting further noted that Congress had urged all Members and the Secretary-General to identify the necessary resources for reaching the objectives

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