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**Regulation 44**

In the case of a recommendation made by a working group between sessions of the responsible constituent body, either in a session of a working group or by correspondence, the president of the body may, as an exceptional measure, approve the recommendation on behalf of the constituent body when the matter is, in his opinion, urgent, and does not appear to imply new obligations for Members. He may then submit this recommendation for adoption by the Executive Council or to the President of the Organization for action in accordance with Regulation 9(5).

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# Final Report

## 1. Opening

### Welcome

1. Mr Matteo Dell’Aqua, chair of ICT-ISS chaired the second ad hoc ICT-ISS strategy meeting which was held in WMO headquarters from 18 to 20 May 2016 [[1](http://wis.wmo.int/page=ICT-ISS-2016-1)]. A list of participants is in [Annex 2](#_Annex_2_–). The chair opened the meeting and welcomed participants. He noted that the purpose of this meeting was to follow up on the work from the first ad hoc ICT-ISS strategy meeting held in Paris in 19-21 May 2015 [[2](http://wis.wmo.int/page=ICT-ISS-2015-1)] . He recalled that the first ad hoc meeting looked at different scenarios for the development of WIS in order to meet what could be required by users. The meeting also considered WIS strengths and weaknesses and agreed on a list of items ICT-ISS wanted to explore further. Actions were given to sub-groups. He added that the aim for this second meeting was to go through the findings of the sub-group, develop a first draft of the strategy for the evolution of WIS over the next 10 years and how to achieve this. The meeting would work in brainstorming mode rather than be document driven. Decisions from this meeting were be put into a formal document for consideration of CBS-16.
2. MrPeiliang Shi, Director of WIS welcomed participants to WMO. He noted that after one year of thinking and reviewing the concepts with the WIS community, it was now time to sit down and consolidate the findings. Members need to be aware that WIS will evolve during the next 10 years and need guidance on the direction WIS will be going.
3. Mr Shi recalled that Congress had asked CBS to look at WIS technology, the current status of WIS and to extend scope of WIS from the current focus on information exchange (including discovery, access and retrieval) to information management. He noted that the agenda was dense and that there were a lot of topics to cover, including Part C of WIS under item 3, and that the main focus will be on agenda item 4, the development of the draft of the 10-years strategy to deliver to other programmes and for consideration of CBS-16.
4. Mr Shi advised the meeting that a two day CBS Teco will be held just prior to CBS-16 in Guangzhou, China from 21 to 22 November 2016 and that the vice president of CBS, Dr Sue Barrell had issued a request to CBS management group outline Teco and asking them to encourage contributions and participation in the Teco. Mr Shi highlighted that although Teco is CBS wide, OPAG ISS represents a major component and he encouraged all to try and be at Teco and at CBS-16.
5. The chair, noting that this second meeting included people that had not attended the first meeting, led a tour de table to enable participants to introduce themselves.

### Adoption of the agenda

1. The chair introduced the draft agenda. He noted that the first ad hoc meeting had not covered the new Part C of WIS and that it would be covered this time under agenda item 3. He also noted the need to identify elements for ISS in Teco and suggested that this could be covered under “other business” (AI 6) if there was time. The meeting also agreed to include discussions on the impact of Big Data on the WIS strategy under relevant sections but to include it under other business as a check to ensure it is covered. The meeting adopted the agenda as provided in [Annex 1](#_Annex_1_–).

### Working arrangements

1. The meeting agreed to the working arrangements of 9am to 5:30pm with lunch between 12:30 and 1:30pm.

## 2. Review of relevant decisions and activities since ICT-ISS-2015

### Congress decisions on WIS

1. The secretariat summarized the main recommendations and decisions from CBS Ext(2014) and Cg-17 using the document ET-WISC/2016-Doc03 [[3](http://wis.wmo.int/file=2559)]. The meeting noted again the importance of life cycle data management (the new WIS Part C) and Big Data to this strategy meeting. It also noted that the 2016 joint meeting of presidents of regional associations and technical commissions was very supportive of the CBS decision to establish an ITT-WIS to look at WIS governance which is to be considered by EC-68. Should the ITT proceed, it will be important liaison opportunity for the WIS strategy.

### CBS MG meeting discussion on WIS strategy development

1. The chair briefed the meeting on discussions and decisions associated with the sixteenth CBS management group meeting [[4](http://wis.wmo.int/page=CBS-MG-16)]. He noted that he had briefed the Management Group on the outcome of the first ad hoc WIS strategy meeting [[2](http://wis.wmo.int/page=ICT-ISS-2015-1)] including the need to make WIS a system that really meets all programmes’ requirements. WIS should be a place where people find relevant information on weather, climate and water including systems and services. The chair reported that he had received good feedback from management group and that they were keen to see the outcome of ICT-ISS ideas on the evolution of WIS in the form of a definitive paper for consideration of CBS. He emphasized that it is really important that the paper makes sense to really improve how WMO Members and users can utilize WIS. Mr Kenji Tsunoda highlighted that the management group had identified the importance of big data and other emerging issues and that each OPAG had prepared a paper on this topic The papers from the presidents of technical commissions are summarized online at[EC-TT-DPEI-1(2016)-d04-1(1)-EMERGING-DATA-KEY ISSUES-draft1\_en.docx](http://www.wmo.int/pages/prog/www/WIS/wiswiki/tiki-download_file.php?fileId=2837) [[5](http://wis.wmo.int/file=2837)]. The CBS OPAG papers that contributed to the document are available online[[6](http://wis.wmo.int/folder=257)].

### WIS strategy development activities coordinated by OPAG-ISS

1. This item was the main topic of the meeting and discussed further under agenda item 4.

### Outcome of recent Expert Team meetings

1. Reports were presented on ET-CTS (Remy Giraud), IPET-MDRD (Jeremy Tandy) and ET-WISC (Matteo Dell’Aqua). Reports were also received from the leads of the working groups from the strategy workshop conducted 21 April 2016 during the ET-WISC meeting in Melbourne (<http://wis.wmo.int/page=ET-WISC-2016> [[7](http://wis.wmo.int/page=ET-WISC-2016)]).
2. ET-CTS – Mr Remy Giraud reported on the cloud solution being piloted for GISC to GISC data exchange. Key issues identified by the ICT-ISS meeting were the following
   1. Use of SFTP has proven to remove any need to pack files as unlike earlier methods used, SFTP has no overhead.
   2. Reduction in hops between WIS centres facilitates the meeting of the 2 minute end to end requirement for distributing warnings through WIS. With the cloud solution, GISCs can have multiple connections to the cloud which will allow even faster exchange of traffic.
   3. SLAs in cloud solutions are really just “best effort” so robustness and reliability of WIS services based in the cloud must be designed into the solution and applications taking the lack of a fully robust SLA by the cloud provider into account.
   4. Noting the initial justification for the cloud solution was to facilitate GISC to GISC information exchange the meeting noted that the strategy could see a wider adaption, including any WIS centre using cloud for information exchange as well as applications and services.
3. IPET-MDRD – Mr Jeremy Tandy reported that IPET-MDRD had met the week before and that he was still consolidating the outcomes of the meeting. He noted that WIS strategy should help Members do a better job by making best practices more visible. He highlighted several areas where WMO does not need to invent solutions for information sharing or for making WMO information discoverable through web search engines. He described these in detail using the following resources.
   1. Mr Tandy gave a presentation on sharing spatial data on the web (<http://wis.wmo.int/file=2865>) highlighting a collaboration web site on sharing spatial data “Geonovum testbed” at <https://github.com/geo4web-testbed/general>
   2. He explained in detail the work that he is involved in for making information, including spatial data, discoverable by web search engine crawlers and robots. This was described atSchema.org: <http://schema.org> and provided a way of creating html pages of a centre’s metadata.
   3. The meeting noted the key message to make use of work being done by others and the importance of participating in such communities to ensure that WMO’s needs were incorporated. He demonstrated the maturity of such an approach utilizing the site of “Data on the Web Best Practices” at<http://w3c.github.io/dwbp/bp.html>
   4. The meeting agreed that in addition to discovering and sharing information on the web by the approaches mentioned above, the work of IPET-MDRD on development of data modelling to facilitate seamless use of data of varying formats remained a key element for WIS to evolve.
4. ET-WISC – The chair reported on the strategy workshop he held at the joint TT-GISC/ET-WISC meeting in Melbourne [[7](http://wis.wmo.int/page=ET-WISC-2016)]. He was very pleased with the workshop which broke into three working groups. The outcome of the workshop and working groups were summarised by the working group leaders as follows:
   1. Working group 1 by Mr Dell’Aqua, the key issues being who are the users of WIS, what is its scope, the role of the RTHs, how to engage with centres which are not connected to WIS and interoperability of WIS with other systems such as GEO, SWIM, etc.
   2. Working group 2 by M rBungy, the key issues being defining the users, introduction of user feedback mechanisms, catalogue of services. The meeting noted that user authentication was also necessary to address.
   3. Working group 3 by Mr Wolf who highlighted that WIS needs to be suitable to meet national needs in order to fulfill its core business while not being a burden on the centres. That is, WIS needs to align with centres’ activities and goals. User management is important, including their needs and expectations. Technology, including cloud and centre based services for processing data and creating information. He also highlighted the need to address Big Data and related issues along with building on strengths and interoperability.
   4. The output and subsequent discussions on the ET-WISC workshop were addressed further under agenda item 4.

## 3. Life cycle data management (Part C of WIS)

1. The meeting noted the requirement of Cg-17 for WIS Part C. It reviewed the information data cycle (<http://wis.wmo.int/file=2839>) agreeing that there were several elements common to all parts of the information life cycle not highlighted in the diagram. These included data assurance, security, data retention and usage policies and so on. It noted that many of these elements were described elsewhere(e.g Manual on GDPFS, ICAO, Climate database systems guide, etc). The meeting also noted that ICT-ISS planned to establish a task team for the next CBS intersessional period to look at a global framework for life cycle data management and will be tasked with identifying such elements, establishing priorities and preparing guidance.
2. From a strategic point of view, inclusion of WIS Part C would be a part of the changing environment of WIS and would be incorporated into how WMO wants WIS to evolve. The chair noted that WIS Part C will be addressed at the next full ICT-ISS meeting scheduled for 29 June to 1 July 2016 in WMO, Geneva.

## 4. Developing the strategy for WIS

1. The chair reminded the meeting of his aims for the brainstorming session to develop the WIS strategy utilizing a presentation on the key issues to be addressed (Working document ICT-ISS2016-WD03-WIS strategy-bullet.pptx[[1]](#footnote-1)).
2. Mr Kenji Tsunoda presented a document summarizing the outputs of the first ad hoc strategic meeting including identification of the tasks given to participants. The task leads then presented their findings and the working document was updated to incorporate the later information (ICT-ISS2016-WD02-Strategy.docx). The meeting also reviewed the planned layout of the WIS Strategy Paper and broke into working groups to address the key topic areas. The topics and working groups are listed in [Annex 4](#_Annex_4_–).
3. Following the break out session, the meeting reviewed the findings of each team. Reports are in the “Meeting documents (limited access)” table on the meeting page[[2]](#footnote-2).
4. Dr Wenjian Zhang (Director Observing and Information Systems) visited the meeting and introduced the participants to the discussions on big data and other emerging information issues that had been discussed at the EC Panel on Data Policy. Dr Zhang emphasized the importance of ICT-ISS providing a comprehensive and understandable WIS strategy that clearly shows the importance of WIS in allowing WMO programmes to manage and to make use of these emerging issues. Participants confirmed that the work to date on WIS strategy had included these issues.
5. The chair led a discussion on the way forward for the plan. Breakout group leaders committed to refining their reports for inclusion in a strategy paper to be reviewed at ICT-ISS in June 29 to July 1. The chair will review the input and arrange a telco a week before ICT-ISS meeting.

## 5. Work Plan before CBS

1. The chair noted that the ICT-ISS meeting in June will be a major step in the preparation for CBS. As with the WIS strategic plan, the CBS management group has already been alerted to the likely issues to be presented to CBS so it is now up to the expert teams and ICT-ISS to finalize the decisions so that the secretariat can prepare the CBS papers.
2. He noted that the meeting did not get to discuss the issue about CBS Teco, so this too will be discussed at the ICT-ISS.

## 6. Any Other Business

1. Mr Li Cheng Zao gave a presentation on the implementation of CMA’s NMIS central distribution and storage system [(Doc06)](http://wis.wmo.int/file=2867). The meeting noted that many small agencies did not have information management systems and need guidance on the how and why for the establishment of such systems.It noted further that industry could be an important partner in helping NMHSs implement centralized information management systems.

…

## References

[1] Second ad hoc meeting of ICT-ISS on strategy. (<http://wis.wmo.int/page=ICT-ISS-2016-1>) (Geneva, 18-20 May 2016)

[2] First ad hoc meeting of ICT-ISS on strategy. (<http://wis.wmo.int/page=ICT-ISS-2015-1>) (Paris, 19-21 May 2015)

[3] Extract of CBS Ext(2014) and Cg 17 Decisions - ET-WISC/2016-Doc03 (<http://wis.wmo.int/file=2559>)

[4] Sixteenth CBS management group (<http://wis.wmo.int/page=CBS-MG-16>) (Geneva, (15 Feb 2016)

[5] EMERGING-DATA-KEY ISSUES (EC-TT-DPEI-1(2016)-d04-1(1)) (<http://wis.wmo.int/file=2837>)

[6] CBS Collection of essays by OPAGS on Big Data (<http://wis.wmo.int/folder=257>) (Accessed 19 May 2016)

[7] ET-WISC WIS strategy workshop. Melbourne 21 April 2016. (<http://wis.wmo.int/page=ET-WISC-2016>) ) (Accessed 19 May 2016)

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# Annex 1 – Agenda

|  |
| --- |
| **1. Opening** |
| 1.1. Welcome |
| 1.2. Adoption of the agenda |
| 1.3. Working arrangements |
| **2. Review of relevant decisions and activities since ICT-ISS-2015** |
| 2.1 Congress decisions on WIS |
| 2.2 CBS MG meeting discussion on WIS strategy development |
| 2.3 WIS strategy development activities coordinated by OPAG-ISS |
| 2.4 Outcome of recent Expert Team meetings |
| **3. Part C of WIS** |
| 3.1 Scope of Part C |
| 3.2 Known user requirements for Part C |
| 3.3 Road map for development of Part C |
| **4. Developing the strategy for WIS** |
| 4.1 Key issues to address in the WIS strategy |
| 4.2 Structure of the WIS strategy |
| 4.3 Drafting of the WIS strategy |
| **5. Work Plan before CBS-16** |
| **6. Any Other Business** |
| 6.1 ICT-ISS elements for TECO |
| 6.2 Big data |
| **7. Closure of meeting** |

# Annex 2 – Participants

| **Country/Org** | **Representative/s** |
| --- | --- |
| France | Matteo DELL'ACQUA (Chair, OPAG-ISS) |
| Japan | Kenji TSUNODA (Co-chair, OPAG-ISS) |
| China | Licheng ZHAO |
| France | Remy GIRAUD |
| UK | Jeremy TANDY |
| USA | Robert BUNGE |
| ECMWF | Baudouin RAOULT |
| Eumetsat | Lothar WOLF |
| WMO | Peiliang SHI |
| WMO | Steve FOREMAN |
| WMO | David Thomas |

# Annex 3 – List of documents

Documents addressed the ICT-ISS strategy meeting that are accessible included:

* ICT-ISS2016-1 [Doc(01)](http://wis.wmo.int/file=2829) - Agenda.docx
* ICT-ISS2016-1 [Doc(02)](http://wis.wmo.int/file=2831) – List of participants
* ICT-ISS2016-1 [Doc(03)](http://wis.wmo.int/file=2833) – Strategy Questions for WG-1
* ET-WISC2016 [Doc(16)](http://wis.wmo.int/file=2663) – Strategy Questions for WG-2
* ICT-ISS2016-1 [Doc(04)](http://wis.wmo.int/file=2835) – Strategy Questions for WG-3
* ICT-ISS2016-1 [Doc(06)](http://wis.wmo.int/file=2833) – CMA NMIS Centralised information dissemination systems

ET-WISC Strategy Workshop Reports

* [WG 1 Report](http://wis.wmo.int/file=2667)
* [WG 2 Report](http://wis.wmo.int/file=2669)
* [WG 3 Report](http://wis.wmo.int/file=2671)

Several other reference documents were utilised, including the WIS Functional Architecture, WIS Project and Implementation Plan. These are listed on the meeting page at <http://wis.wmo.int/page=ICT-ISS-2016-1>, which also contains links to the working documents of this and the 2015 WIS strategy meeting which are available only to users with a WIS Wiki account authorised to access ICT-ISS working documents.

# Annex 4 – Break out groups. Structure, topics and participants

## Structure overview of topics to discuss

* Vision
* Relation to Current Requirements, Obligations (WIS Status)
* Topology of WIS
  + What WIS is and where it fits into the big picture
* Drivers:
  + External Drivers
  + Internal Drivers
  + International Context (Inter Programmatic Context, Other international initiatives), Other initiatives and global frameworks
  + Perceived Evolution of the User Expectations
* Technological Evolution (including evolution of applicable standards and best practices),
* Legal and Policy Aspects
* Challenges (Risk analysis /SWOT)
* Updated vision and scope (eg Part C of WIS)
* Recognizing these aspects the new WIS strategy would be ….
* Include staged implementation plan

## Group 1

**Remy Griaud , Kenji Tsunoda, Bob Bungy, Peiliang Shi**

* Relation to Current Requirements, Obligations (WIS Status)
* Technological Evolution (including evolution of applicable standards and best practices),
* Challenges (Risk analysis /SWOT)

## Group 2

**Matteo Dell’Aqua, Lothar Wolf, Steve Foreman**

* Vision
* Drivers:
  + External Drivers
  + Internal Drivers
  + International Context (Inter Programmatic Context, Other international initiatives), Other initiatives and global frameworks
* Perceived Evolution of the User Expectations
  + Technological Evolution (including evolution of applicable standards and best practices),
* Legal and Policy Aspects
* Updated vision and scope (eg Part C of WIS)

## Group 3

**Jeremy Tandy, BaudouinRaoult, Li Cheng , Dave Thomas**

* Recognizing these aspects the new WIS strategy would be ….
* Include staged implementation plan

1. Note: Working documents like WD03 are on the meeting page, but access is restricted to only ICT-.ISS members [↑](#footnote-ref-1)
2. Note: You must log into the wiki and be a member of the team In order to see the table limited access documents [↑](#footnote-ref-2)