

INTERNATIONAL CIVIL AVIATION ORGANIZATION



First Meeting of the APIRG Infrastructure and Information Management Sub-Group (IIM/SG/1) Nairobi, Kenya 27-30 June 2017

Draft Report

Prepared by ICAO Secretariat

July 2017

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PART I

1. Introduction

The First meeting of the APIRG Infrastructure and Information Management Sub-Group (IIM/SG/1) was held from 27 to 30 June 2017 in the second meeting room of the United Nation Complex in Gigiri, hosting the ICAO Regional Office for Eastern and Southern Africa, Nairobi, Kenya.

2. Objectives

The main objectives of the meeting were inter alia to:

- a) Review the recent developments in the ICAO Global Air Navigation Plan (GANP Doc 9750 5th Ed.) and Aviation Systems Block Upgrades (ASBU) Methodology as well as in the AFI Air Navigation Plan (AFI ANP Doc 7474, AFI e-ANP) and the AFI Plan of Action for the implementation of the ICAO ASBU Block 0 Modules;
- b) Review the outcome of the APIRG/20 meeting (held in Yamoussoukro , Côte d'Ivoire from 30 November to 2 December 2015) pertaining to the areas of Aeronautical Information Management (AIM), Aeronautical Communication Navigation Surveillance and Spectrum (CNS), Aeronautical Meteorology (MET);
- c) Review the conclusions/decisions of the meeting for the establishment of the APIRG IIM/SG and the report of the first meeting of the APIRG Projects Coordination Committee (APCC);
- d) Consider the AFI Air Navigation Priorities/Targets and the Projects Approach adopted by APIRG to identify and plan Regional Projects in the above mentioned fields (AIM, CNS, MET), to be implemented based on the ICAO ASBU prioritized related modules selected by the AFI Region;
- e) Finalize IIM regional projects, establish balanced IIM Projects Teams in the spirit of “*No country Left Behind*” and identify IIM Project Teams Coordinators (PTCs) tasked to ensure an effective coordinated planning, implementation, operation and monitoring of the regional projects;
- f) Identify set of Indicators and Metrics for the Regional Air Navigation reporting and Air Navigation Dashboard in the areas related to IIM.

3. Attendance

3.1 The meeting was attended by 70 participants comprising representatives of 18 States, 4 Air Navigation Service Providers (ASECNA, ATNS, GCAA, NAMA) 1 international airlines association (IATA) and 1 International Federation of Air Line Pilots' Associations (IFALPA). A list of participants is provided at Appendix A.

4. Officers and Secretariat

4.1 The meeting appointed Mr. **Kinafo Silué**, Chef Service Infrastructure Radioelectrique et Electrique SODEXAM, Côte d'Ivoire as Chairperson and Mrs **Esther Gaborekwe KHAMBULE**, South African Weather Service as Vice Chairperson.

4.2 **Mr. François-Xavier SALAMBANGA**, Regional Officer, Communications, Navigation and Surveillance from the ICAO Regional Office for Western and Central Africa, Dakar and Secretary of the APIRG IIM/SG, acted as Secretary of the meeting and was assisted by MM. **Vitalis AHAGO** and **Harvey Gabriel LEKAMISY** respectively Regional Officers MET and CNS, ICAO Regional Office of Nairobi and George **BALDEH**, Regional Officer AIM, ICAO Regional Office of Dakar.

5. Working language

5.1 The meeting was conducted in the English and French languages with simultaneous translation.

6. Opening

6.1 The meeting was opened by **Mr. Arthemon NDIKUMANA**, ICAO Deputy Regional Director on behalf of the Regional Director for the ICAO Eastern and Southern Regional Office.

6.2 In his address he reminded to the attention of the participants, the APIRG reorganization process with a new structure adopted by the APIRG/20 meeting in order to give effect to the outcomes of the Special Regional Air Navigation Meeting of 2008 (**SP AFI/08 RAN**) and the ICAO, Twelfth Air Navigation Conference (AN-Conf./12) in 2012. The reorganization of APIRG emphasizes on project management approach in APIRG planning and implementation activities in support of States' efforts to implement SARPs, Regional requirements and other ICAO provisions and policies.

6.3 He recalled that, the IIM SG Sub-group is intended to focus on implementation in the context of Performance Improvement Areas (PIAs) and specifically PIA No. 2-Globally Interoperable Systems and Data of the ASBU Framework and highlighted the crucial role of digital processing and management of aeronautical information, meteorological information and the data link communications in support of the provision of Air Traffic Services (ATS).

6.4 Mr. **NDIKUMANA** underlined that the contribution of States and industry experts will play a pivoted role in how international civil aviation community could do better in view of the expected traffic growth.

6.5 He invited the meeting to identify and complete all outstanding tasks of the sub-group, reassess their continued relevance or otherwise in the implementation of the ASBUs, and where required, to formulate them into potential new projects and wished to the participants safe stay in Nairobi and fruitful deliberations.

7. Agenda

The meeting adopted the following agenda:

7.1 **Agenda Item 1: Adoption of the Agenda, the Work programme and Election of Chairperson and Vice-Chairperson of the Meeting**

7.2 **Agenda Item 2: Review of the Conclusions/Decisions of the meeting for the establishment of the IIM/SG**

7.3 **Agenda Item 3: Review of the Conclusions/Decisions of the first meeting of the APIRG Project Coordination Committee (APIRG APCC/1)**

7.4 **Agenda Item 4: Planning and implementation**

7.5 **Agenda Item 5: Identification of the linkage between AFI IIM Regional Projects**

7.6 **Agenda Item 6: AFI Air Navigation Reporting Forms**

7.7 **Agenda Item 7: Review of the Terms of Reference, Composition and Future Work Programme of the APIRG IIM/SG**

7.8 **Agenda Item 8: Any other business**

8. Summary of Draft conclusions & decisions

The following Draft Conclusions and Decisions were formulated by IIM/SG first meeting:

Number	Title
Agenda Item 1	Adoption of the Agenda, the Work programme and Election of Chairperson and Vice-Chairperson of the Meeting
Draft Decision 1/01	<i>Appointment of Chairperson and Vice Chairperson of the APIRG IIM/SG</i> NIL That; Côte d'Ivoire and South Africa are appointed as Chairperson and Vice Chairperson of the AFPIRG IIM/SG
Agenda Item 2	Review of the Conclusions/Decisions of the meeting for the establishment of the IIM/SG
Draft Conclusion1/02	<i>Implementation of the outstanding Conclusions/Decision of the meeting for the establishment of the APIRG IIM/SG</i> That; Administrations/Organizations endeavor to implement the outstanding Conclusions/Decisions of the meeting for the establishment of the APIRG IIM/SG in particular, States, Service providers and airspace users should update their Priorities, Targets and related implementation Plans, develop, update, maintain and implement their national ASBU Plan consistent with the GANP 5 th Edition objectives as well as the needs of the AFI region State
Agenda Item 3	Review of the Conclusions/Decisions of the first meeting of the APIRG Project Coordination Committee (APIRG APCC/1)
	NIL
Agenda Item 4	Planning and implementation
Draft Decision 1/03	<i>Finalization of the IIM Projects</i> That; a) The APIRG IIM Projects attached in Appendices B.1 to B.14 are approved by APIRG for implementation in accordance with the AFI regional Air Navigation Plan; b) The Project Teams attached in Appendices C.1 to C.14 to review and update if necessary these projects and submitted to the APCC for approval
Agenda Item 4.1	Aeronautical Meteorological Service
Draft Conclusion 1 /04	<i>Update of Air Navigation deficiencies</i> That, a. The Secretariat provide to concerned Administrations/Organizations with the tables of Air Navigation deficiencies no later than 31/07/2017 b. Administrations/Organizations provide updated status of the tables through their respective ICAO Regional Offices before 30 September 2017 for consideration by APIRG/21
Agenda Item 4.2	Aeronautical Information Management
Draft Decision 1/05.	<i>Planning and Implementation of AIM Projects</i> That; In the framework the APIRG project approach the AIM Projects are extended for period 2017-2019
Agenda Item 4.3	Aeronautical Communication Navigation Surveillance and Spectrum Infrastructure and Systems

Number	Title
Draft Conclusion 1/06	<p><i>Finalization of the development of the AFI Air Navigation Deficiencies Data Base (AANDDB)</i></p> <p>That;</p> <p>In order to finalize the development of the AFI Air Navigation Deficiencies Data Base (AANDDB):</p> <p>a) Administrations/Organizations nominate Focal Points for the regular collection of Air Navigation Deficiencies to be uploaded on the data base;</p> <p>b) The Regional Offices provide Administrations/Organizations with access credentials to the Data Base</p>
Draft Conclusion 1/07	<p><i>Regional project on the assessment of the AFI Aeronautical Networks Cyber Security</i></p> <p>That;</p> <p>As a matter of urgency,</p> <p>a) Administrations and the aviation industry through the identified IIM SG Project COM.5, conduct assessment on the AFI Aeronautical Networks Cyber Security develop policies and plan aiming at addressing the threat of Cyber-attacks on air Navigation systems;</p> <p>b) ICAO pursue its ongoing work to provide guidance and improve States awareness on cyber security through workshops and seminars</p>
Draft Conclusion 1/08	<p><i>Implementation of GNSS/SBAS in AFI Region - Sharing of study on GNSS</i></p> <p>That:</p> <p>In order to ensure collaborative decision making on GNSS/SBAS implementation, States/ Organization who have undertaken trials and studies covering operational, technical, environmental and economic aspects on GNSS augmentation system in particular SBAS, share the results in accordance with the AFI GNSS Strategy and pursuant to APIRG Conclusion 20/25</p>
Draft Conclusion 1/09	<p><i>Update of the Strategy of implementation of the AFI Surveillance Systems</i></p> <p>That;</p> <p>The IIM SG consider the Work done by the AFI Surveillance Implementation Task Force and update the Strategy of implementation of the AFI Surveillance Systems</p>
Draft Conclusion 1/10	<p><i>Surveillance data exchanges</i></p> <p>That;</p> <p>Administrations/Organizations pursue their effort to share surveillance data (SSR & ADS-B) in order to provide a seamless surveillance service along the areas of routing in accordance with ICAO provision of the Required Surveillance Performance (RSP Doc-9869)</p>
Draft Conclusion 1/11	<p><i>ICAO Position for ITU WRC-19</i></p> <p>That;</p> <p>Administration/Organizations:</p> <p>a) Consider and populate to the maximum extent possible, the ICAO Position for the ITU WRC-19 attached in Appendix to this report;</p> <p>b) Endeavour to attend the preparatory activities to ITU WRC-19 at national, sub regional and regional levels in collaboration with their national Authority of Regulation of Telecommunication</p>

Number	Title
Draft Conclusion 1/12	<p><i>Protection of C band Spectrum</i></p> <p>That;</p> <p>In accordance with Resolution 154 (Rev WRC-15) and pursuant to APIRG Conclusion 20/30, Administrations/Organizations take the appropriate measures in order to ensure the protection of the satellite C-band operated by the AFI VSAT networks:</p> <p>a) Registration of the aeronautical VSAT frequencies in the States register held by the national authorities of regulation of telecommunication and;</p> <p>b) Follow-up with the concerned authorities in the States to further register the frequencies in the ITU Master International Frequency Register (MIFR)</p>
Draft Conclusion 1/13	<p><i>Aeronautical Spectrum Projects</i></p> <p>That;</p> <p>In order to protect and maintain continuous vigilance on ongoing threats to aviation spectrum, ANSPs and airlines are encouraged to regularly report cases of harmful radio interferences to aviation frequency spectrum to their national Authorities in charge of aviation and Telecommunication, ICAO and IATA.</p>
Draft Decision 1/14	<p><i>Data Base on reporting of cases of harmful interferences</i></p> <p>That;</p> <p>The Spectrum protection project Team include in its workprogramme the development of a framework of regional database supporting statistics on the reporting of cases of harmful interferences in the aviation spectrum</p>
Agenda Item 5	Identification of the linkage between AFI IIM Regional Projects
Draft Conclusion 1/15	<p><i>Linkage between projects</i></p> <p>That;</p> <p>a) The Project Teams finalize the detailed linkage between the IIM Projects</p> <p>b) The Secretariat in liaison with the AAO/SG provide the operational requirements to be considered by the IIM SG projects</p>
Draft Decision 1/16	<p><i>Establishment of project baselines</i></p> <p>That;</p> <p>In view of the anticipated multiple requirements for surveys to establish the baseline for the projects,</p> <p>a) The project Teams coordinators will submit questionnaire to the Secretariat preferably by 30/09/2017;</p> <p>b) The Secretariat will consolidate the questionnaire by area (AIM, MET, CNS) and circulate to the States/Organizations</p>
Draft Decision /17	<p><i>Finalization of the Terms of Reference of the AFI DL/CMRA project</i></p> <p>That;</p> <p>The AFI DL/CMRA project Team finalize the draft Terms of Reference for circulation by the Secretariat to Administrations/Organization for final comment before submission to APIRG/21</p>
Draft Conclusion 1/18	<p><i>Air navigation reporting</i></p> <p>That;</p> <p>States endeavor to monitor their Air Navigation Performance Indicators and Metrics and regularly fill up their Air Navigation Reporting Forms (ANRFs)</p>
Agenda Item 7	Review of the Terms of Reference, Composition and Future Work Programme of the APIRG IIM/SG

Number	Title
Draft Decision 1/19	<i>Terms of Reference Composition and Workprogramme of the APIRG IIM/SG</i> That; The ToRs Composition and Workprogramme of the AFI IIMS/G is approved as attached in Appendix J to this report

PART II

8 Report on Agenda Items

Agenda Item 1: Election of Chairman and Vice-Chairman of the Sub-Group

1.1 Under this agenda item, the meeting reviewed and adopted the draft agenda and the work programme presented by the Secretariat and elected Côte d'Ivoire and South Africa to designate its Chairperson and Vice Chairperson.

1.2 In this regards the meeting appointed Mr. **Kinafo Silué**, Chef Service Infrastructure Radioelectrique et Electrique SODEXAM, Côte d'Ivoire as Chairperson and Mrs. **Esther Gaborekwe Khambule**, South African Weather Service as Vice Chairperson.

The following draft decision was formulated:

Draft Decision 1/01: Appointment of Chairperson and Vice Chairperson of the APIRG IIM/SG

That;

Côte d'Ivoire and South Africa are appointed as Chairperson and Vice Chairperson of the AFPIRG IIM/SG.

Agenda Item 2: Review of the Conclusions/Decisions of the meeting for the establishment of the IIM/SG

2.1 Under this Agenda Item, the meeting through WP02 and its Appendices reviewed the status of implementation of the conclusions/decisions of the meeting for the establishment of the APIRG Infrastructure and Information Sub Group (IIM/SG) held in Dakar from **28 to 30 November 2016**.

2.2 The meeting noted that most of the States have not yet completed the development of their National ASBU Plan as called upon by conclusion IIM-E/02.

The meeting also identified the future key actions to be considered by the IIM/SG and consisting on:

- The confirmation of appointed States on their willingness to participate in the IIM Projects Teams and the enrolment of States who did not attend the IIM-E Meeting;
- The development/Update of States National Air Navigation Plans (NANP) taking into account the need for a ASBU national planning mechanism;
- The finalization of the APIRG Procedural Handbook;
- The finalization of the e-ANP;
- The coordination between the APIRG two Sub Groups in order to prevent duplication and facilitate harmonization of planning and implementation of Air Navigation related projects;
- The operationalization of the identified projects in the framework of the AFI ANP and the GANP.

The following draft conclusion was formulated:

Draft Conclusion 1/02: Implementation of the outstanding Conclusions/Decision of the meeting for the establishment of the APIRG IIM/SG

That;

Administrations/Organizations endeavor to implement the outstanding Conclusions/Decisions of the meeting for the establishment of the APIRG IIM/SG in particular, States, Service providers and airspace users should update their Priorities, Targets and related implementation Plans, develop, update, maintain and implement their national ASBU Plan consistent with the GANP 5th Edition objectives as well as the needs of the AFI region States.

Agenda Item 3: Review of the Conclusions/Decisions of the first meeting of the APIRG Project Coordination Committee (APIRG APCC/1)

3.1 Under this agenda item, the meeting reviewed the Conclusions and Decisions of the APIRG Projects Coordination Committee (APCC) held in Nairobi from **30 to 31 January 2017**.

3.2 The APCC meeting considered the outcome of the meeting on the Establishment of the APIRG Infrastructure and Information Management Subgroup (IIM/SG), held from 28 to 30 November 2016 in Dakar, Senegal and noted that the meeting was a precursor to the formalized IIM SG meeting.

3.2 The meeting also endorsed the first version of the list of IIM projects reviewed by the IIM Sub Group considered the Project Teams proposed by the IIM/SG as well as the Projects Teams Coordinators identified to lead the implementation and tasked the Sub group to refine and finalize the projects and the teams during its first meeting.

Agenda Item 4: Planning and implementation

4.1 Under this Agenda Item, the meeting reviewed the identified regional projects in the matter of Aeronautical Information Management, Communication, Navigation and Surveillance, Aeronautical Spectrum and Aeronautical Meteorology aimed at fulfilling the Air Navigation Service requirements, in line with the AFI ANS regional Priorities and Targets, and the related ICAO ASBU prioritized modules identified by the AFI Region.

4.2 The meeting completed the list of projects by involving three new projects in the CNS field respectively on an *Integrated Aeronautical Telecommunication Infrastructure* (IIMSG COM Project.4), *Assessment of AFI Aeronautical Networks Cyber Security* (IIMSG COM Project.5) and *Implementation of a Data Link Regional Central Monitoring and Reporting Agency* (IIMSG CMRA Project) as attached in **Appendices B.1 to B.14**.

4.3 Project Teams were consolidated and Project Team Coordinators (PTCs) designated by the meeting as attached in **Appendices C.1 to C.14**. The meeting agreed that the Project Teams should review and update if necessary these projects and submitted to the APCC for approval.

The following draft decision was formulated:

Draft Decision 1/03: Finalization of the IIM Projects

That;

- a) The APIRG IIM Projects attached in **Appendices, B.1 to B.14** are approved by APIRG for implementation in accordance with the AFI regional Air Navigation Plan;
- b) The Project Teams attached in **Appendices C.1 to C.14** to review and update if necessary these projects and submitted to the APCC for approval

4.1 Aeronautical Meteorological Service

4.1.1 Aeronautical Meteorological requirements in support to ATM provision

4.1.1.1 Under this agenda item the meeting reviewed and noted the MET related information contained in the GANP and associated ASBU methodology, outcome of the ICAO Meteorology divisional meeting including the formation of the MET Panel aimed at defining, elaborating and developing MET provisions in line with the GANP.

4.1.1.2 In view of the ongoing activities at global level, the meeting encouraged the secretariat to continue monitoring the development of global provisions, through METP reports, for aeronautical services with a view to formulating regional action.

4.1.2 Air navigation deficiencies in the MET field

4.1.2.1 The meeting reviewed the list of deficiencies in the MET field and tasked the Secretariat to send a table of deficiencies to concerned States for provision and update of the status through their respective ICAO Regional Offices before APIRG 21 meeting.

The Table of deficiencies in the MET field is presented at **Appendix D** to this report

4.1.2.2 As the issues of deficiencies involves all fields of IIM activities it was agreed to extend this task to AIM and CNS deficiencies.

The following draft conclusion was formulated:

Draft Conclusion 1 /04: Update of Air Navigation deficiencies

That,

- a. **The Secretariat provide to concerned Administrations/Organizations with the tables of Air Navigation deficiencies no later than 31/07/2017**
- b. **Administrations/Organizations provide updated status of the tables through their respective ICAO Regional Offices before 30 September 2017 for consideration by APIRG/21.**

4.1.3 *Planning and implementation of AFI Regional Aeronautical Meteorological Projects*

4.1.3.1 Under this sub item the Sub-group endorsed the provision of the working group tasked to review and update the two AFI Regional Aeronautical Meteorological Projects (Consistency, planning, appointment of Project Teams. The MET projects as attached at **Appendices B.1 & B.2.**

4.1.3.2 Appropriate project teams were appointed by the meeting and it was agreed to welcome future members.

4.2 **Aeronautical Information Management**

4.2.1 *Aeronautical Information requirements in support to ATM provision*

4.2.1.1 Under this Agenda the meeting discussed the Aeronautical Information Requirements in support of ATM Provision (AIM). The recent developments in the ICAO Global Air Navigation Plan (**GANP Doc 9750**) and Aviation Systems Block Upgrades (**ASBU**) Methodology as well as the ASBU requirements in the AFI Air Navigation Plan (**AFI e-ANP/FASID**) were presented to the meeting.

4.2.1.2 The meeting noted the AFI Plan of Action for the implementation of the ICAO ASBU Block 0 Modules, the methodology for reporting and assessing the progress related to the transition from AIS to AIM listed and the Summary Report of the Global IFAIMA Conference.

4.2.1.3 The APIRG Information and Infrastructure Management Sub-Group reviewed and updated the proposals for inclusion of the dynamic Material constituted by the AIS/AIM facilities and services required for international air navigation to be contained in the AFI e-ANP Volume III and highlighted the contents of Draft Volumes III of the AFI e-ANP to be implemented by States.

4.2.2 *Air navigation deficiencies in the AIM field*

4.2.2.1 Whilst reviewing the list of deficiencies in the Aeronautical Information Management (AIM) field listed in **Appendix E** to be revised and updated by States, the meeting was informed that the AFI Air Navigation Deficiencies Database (**AANDD**) is now in a test phase based on the User Guidelines developed for the MID MANDD. Currently the AANDD is under development and States will be provided access codes in due course.

4.2.2.2 Hereunder is the link to the AANDD site.

<http://196.204.197.120/>

4.2.3 *Planning and implementation of AFI Regional Aeronautical Information management Projects*

4.2.3.1 Based on the PFFs and ANRF in the AIM Field, the Secretariat developed and proposed the AIM related APIRG Projects in **Appendices B.3 to B.5** as referred in agenda item 4 above for the attention of the IIM Sub-Group. In this regard, the meeting endorsed the proposed AIM Projects and proposed the following Draft Decision:

Draft Decision 1/05: Planning and Implementation of AIM Projects

That;

In the framework the APIRG project approach the AIM Projects are extended for period 2017-2019.

4.3 Aeronautical Communication Navigation Surveillance and Spectrum Infrastructure and Systems

4.3.1 *Aeronautical Communication requirements in support to ATM, AIM & MET services provision*

4.3.1.1 Under this agenda item the meeting reviewed the Aeronautical Communication requirements in support to Air Traffic Management discussed in detail and defined by the AFI Regional Air Navigation 7th meeting (Abuja, Nigeria, 12-23 May 1997) and the AFI Regional Plans. Operational and technical needs and performance were identified for Aeronautical Fixed and Mobile Services.

4.3.1.2 The meeting was provided (WP09 COM Requirements) with the relevant Recommendations for planning and implementation of Aeronautical Fixed Service-(AFTN-ATS/DS) in the AFI Region such as:

- a) *Recommendation 9/3-AFTN Efficiency;*
- b) *Recommendation 9/4-AFTN Performance;*
- c) *Recommendation 9/5-Management of AFTN COM Centers;*
- d) *Recommendation 9/6-Use of Control Protocols between AFTN main centers;*
- e) *Recommendation 9/7-AFTN rationalized plan*
- f) *Recommendation 9/8-Implementation of the ATS/DS*
- g) *Recommendation 9/9-ATS/DS Circuits Plan*

The regional requirement for MET and AIS data communication were identified under the agenda item 8 and 12 of AFI/RAN/7 meeting.

4.3.1.3 Criteria and principles for En-Route and Terminal Area Communication in the AFI Region was brought to the attention of the meeting in order to align the planning and the implementation with regional agreed needs, policies and mechanisms.

The needs identified by AFI/RAN 7 for the transmission of VOLMET HF and VHF, OFIS and ATIS were reminded to the meeting.

4.3.1.4 The meeting also noted that in the framework of the CNS technology roadmap for the implementation of the modules of the ICAO Aviation System Blocks Upgrades (**ASBU**), new requirements have been identified taking into consideration the emerging digitalized technologies:

- In the area of Aeronautical Fixed Service (**AFS**) the current character oriented protocols in use in AFTN will be replaced by the digitalized oriented protocol by ATS Message Handling System (**AMHS**);
- ATS/DS will be supplemented then replaced by the ATS Inter facilities data communication (**AIDC**) enabling automation of coordination;
- Aeronautical Meteorology and Aeronautical Information Service data Exchanges evolving towards the System Wide Information Management (**SWIM**) are demanding more capacity and require more compliance for time sensitive operation;
- In the area of Aeronautical Mobile Service (**AMS**) the Controller Pilot Data Link Communication (**CPDLC**) operation is made available and has become the main Air/Ground communication media

over oceanic or remote continental airspaces resulting in an increase of air navigation safety, capacity efficiency and cost effective operations.

- The data link communication is planned to be hosted by HF and VHF systems in order to sustain a robust air ground communication in accordance with the concept of Required Communication Performance stated in ICAO Doc. 9869 Manual on Performance Based communication and Surveillance-PBCS.

4.3.1.5 The meeting considered that the Aeronautical evolving communication technologies and Systems should be planned and implemented in the view to improve efficiency and performance of communication systems meeting user requirements and taking advantage of the emerging technologies.

4.3.2 Air navigation deficiencies in the Communication field

4.3.2.1 Under this agenda item the meeting was provided with the tables of deficiencies in the communication field developed by the Secretariat based on information available. It was agreed that the Secretariat is experiencing hurdles in the collection of deficiencies data. The table of deficiencies in the communication field is in **Appendix F** of this report.

4.3.2.2 The meeting was informed that the AFI Air Navigation Deficiencies Database (AANDDD) was under development by ICAO. The meeting was reminded that in this framework a State letter was issued to ask State to nominate Focal Points for regular collection of Air Navigation Deficiencies to be uploaded on the Data base. It was also agreed that the Offices should provide Administrations/Organizations with access credentials to the Data Base.

The following draft conclusion was formulated:

Draft Conclusion 1/06: Finalization of the development of the AFI Air Navigation Deficiencies Data Base (AANDDB)

That;

In order to finalize the development of the AFI Air Navigation Deficiencies Data Base (AANDDB):

- a) Administrations/Organizations nominate Focal Points for the regular collection of Air Navigation Deficiencies to be uploaded on the data base;**
- b) The Regional Offices provide Administrations/Organizations with access credentials to the Data Base.**

4.3.3 Planning and implementation of AFI Regional Aeronautical Communication Projects

4.3.3.1 Under this agenda item the meeting reviewed and consolidated the identified regional projects in the communication field with regard to the operational communication requirements and the list of deficiencies identified by APIRG.

4.3.3.2 The projects identified for the Aeronautical Fixed Service (AFS) are related to:

- a) ATS/DS to ensure flight coordination by ATCOs**
- b) VoIP to ensure flight coordination by ATCOs**
- c) AIDC to ensure automated flight coordination by ATS facilities**
- d) AFTN to ensure exchange of Flight Plans, OPMET, NOTAMS**
- e) AMHS to ensure exchange of Flight Plans, OPMET, NOTAMS**

4.3.3.3 The projects identified for the Aeronautical mobile Service (AMS) are related to:

- a) **HF/VHF Voice & Data Link to ensure air ground communication**
- b) **CPDLC to ensure air ground communication**
- c) **VOLMET HF &VHF and ATIS**

4.3.3.4 The attention of the meeting was drawn by ASECNA (WP28-Cyber Security) on the real threat on aeronautical communication infrastructures and systems, threat that may require an Assessment and implementation of cyber security of ANSP systems and networks.

The meeting decided to develop a regional project on this issue to be submitted to APIRG.

The following Draft conclusion was formulated:

Draft Conclusion 1/07: Regional project on the assessment of the AFI Aeronautical Networks Cyber Security

That;

As a matter of urgency,

- c) **Administrations and the aviation industry through the identified IIM SG Project COM.5, conduct assessment on the AFI Aeronautical Networks Cyber Security, develop policies and plan aiming at addressing the threat of Cyber-attacks on air Navigation systems;**
- d) **ICAO pursue its ongoing work to provide guidance and improve States awareness on cyber security through workshops and seminars**

The communications projects are listed from **Appendices B.6** to **Appendix B.10**.

4.3.4 Aeronautical Navigation requirements in support to ATM provision

4.3.4.1 The meeting reviewed the status of implementation of the Aeronautical Radio Navigation service (ARNS).

4.3.5 Air navigation deficiencies in the Navigation field

The meeting identified deficiencies in the Navigation field and remedial actions. The table of deficiencies in the navigation field is in **Appendix G** of this report.

4.3.6 Planning and implementation of AFI Regional Aeronautical Navigation Projects

Global Navigation Satellite System (GNSS)

4.3.6.1 The meeting recalled the criteria for SBAS implementation in AFI Region, commended the initiative and encouraged States/Administrations to pursue their efforts to conduct studies and trials on GNSS and share their results with APIRG Members in order to avoid duplication of efforts.

The following draft conclusion was formulated:

Draft Conclusion 1/08: Implementation of GNSS/SBAS in AFI Region - Sharing of study on GNSS

That:

In order to ensure collaborative decision making on GNSS/SBAS implementation, States/Organization who have undertaken trials and studies covering operational, technical, environmental and economic aspects on GNSS augmentation system in particular SBAS, share the results in accordance with the AFI GNSS Strategy and pursuant to APIRG Conclusion 20/25.

4.3.6.2 The meeting noted the information relating to the new structure of APIRG and also the planning implementation of the AFI Aeronautical navigation Project as attached at **Appendix B.11**. Appropriate project teams were appointed by the group for the NAV project which is attached as **Appendix C.11**.

4.3.7 Aeronautical Surveillance requirements in support to ATM

4.3.7.1 Under this agenda item the meeting reviewed the Aeronautical Surveillance facilities requirements in support to ATM as identified by the AFI/RAN 7th meeting:

- a) Primary Surveillance Radar (**PSR**) and Secondary Surveillance Radar (**SSR**);
- b) Automatic Dependent Surveillance (**ADS**).

4.3.7.2 The meeting also noted that due account of the evolving technology, APIRG considered Multilateration (**Mlat**) technics as candidate to provide aeronautical surveillance service in the AFI Region.

4.3.8 Air navigation deficiencies in the Surveillance field

4.3.8.1 The meeting reviewed the status of implementation of surveillance systems by AFI Administration/Organizations in accordance with the Regional plan. Based on the information available the Secretariat provided a table on the current status of implementation of surveillance systems as attached at **Appendix H**. This table contains the deficiencies in the aeronautical surveillance systems.

4.3.8.2 The meeting therefore tasked the surveillance Project Team to update the status of implementation of surveillance systems in the region, develop and maintain a table of air navigation deficiencies in the surveillance field.

4.3.9 Planning and implementation of AFI Regional Aeronautical Surveillance Projects

4.3.9.1 Under this agenda item the meeting was reminded on the outcome of the meeting for the establishment of the APIRG IIM Sub Group held in Dakar, Senegal from 28 to 30 November 2016 which amongst others identified a group of Aeronautical surveillance projects in support to Air Navigation Service. The identified projects are related to:

- a) **SSR Mode S**, in continental airspace to give to Air Traffic Centers, capacity to increase the surveillance of air traffic, enhancing safety, capacity and efficiency;
- b) **ADS-C**: In oceanic and continental remote airspaces to improve air navigation service by enabling the improvement of the space organization, the flexibility of routing;
- c) **ADS-B**: In continental airspace to provide the same level of service as given by SSR with cost effectiveness

Nota: ADS-B Space when fully operational, will combine the advantage of both ADS-C and SSR in both continental and oceanic airspaces;

d) Mlat/WAM: In approach and terminal areas to supplement with cost effectiveness SSR Mode S and ADS-B.

The surveillance Project is presented under **Appendix B.12** to this report.

4.3.9.2 The meeting tasked the Surveillance project Team to consider the Work done by the AFI Surveillance Implementation Task Force of the former CNS Sub Group and update the Strategy of implementation of the AFI Surveillance Systems.

The following draft conclusion was formulated:

Draft Conclusion 1/09: Update of the Strategy of implementation of the AFI Surveillance Systems

That;

The IIM SG consider the Work done by the AFI Surveillance Implementation Task Force and update the Strategy of implementation of the AFI Surveillance Systems.

4.3.9.3 The meeting was informed on initiatives undertaken by four major WACAF ANSPs namely ASECNA, GCAA, NAMA and the Roberts FIR with the assistance of the ICAO WACAF Office to provide a seamless aeronautical surveillance service along and around the Gulf of Guinea by the means of aeronautical surveillance data sharing. In this regard the meeting was briefed on the outcome of a coordination meeting held in Lomé Togo from 27th to 29th April 2016 with the assistance of ICAO, to study the interconnection procedures for surveillance systems among ASECNA, GCAA, NAMA, and ROBERTS FIR and to find practical solutions stated for the implementation.

4.3.9.4 The meeting approved this initiative and encouraged Administrations/Organizations to pursue their effort to share surveillance data (SSR & ADS-B) in order to provide a seamless surveillance service along the areas of routing in accordance with ICAO provision of the Required Surveillance Performance (RSP Doc-9869).

The following draft conclusion was formulated:

Draft Conclusion 1/10: Surveillance data exchanges

That;

Administrations/Organizations pursue their effort to share surveillance data (SSR & ADS-B) in order to provide a seamless surveillance service along the areas of routing in accordance with ICAO provision of the Required Surveillance Performance (RSP Doc-9869).

4.3.10 Aeronautical Spectrum requirements in support to CNS, ATM, AIM & MET services provision ICAO position for the ITU WRC-19

4.3.10.1 The meeting was informed that the ICAO Council, at the 8th meeting of its 211th Session on 19 June 2017, approved the ICAO position on issues of critical concern to aviation which are on the agenda of the International Telecommunication Union (ITU) World Radiocommunication Conference (2019) (WRC-19). The ICAO position will be sent shortly to ICAO Contracting States, requesting them to consider it when developing their national position for WRC-19, and to support the ICAO position during ITU WRC-19.

4.3.10.2 The meeting's attention was drawn to the fact that the ICAO position would be submitted to the ITU WRC-19 as an information paper. As such, active support from States was deemed to be the only means to ensure that the results of the WRC-19 reflect civil aviation's need for spectrum (ICAO Assembly Resolution A36-25-*Support of the ICAO Policy on radio frequency spectrum matters* refers). The ICAO Position for ITU WRC-19 is attached at **Appendix I** to this report.

Based on the above the following draft conclusion was formulated:

Draft Conclusion 1/11: ICAO Position for ITU WRC-19

That;

Administration/Organizations:

- a) **Consider and populate to the maximum extent possible, the ICAO Position for the ITU WRC-19 attached in **Appendix I** to this report;**
- b) **Endeavour to attend the preparatory activities to ITU WRC-19 at national, sub regional and regional levels in collaboration with their national Authority of Regulation of Telecommunication.**

4.3.11 *Air navigation deficiencies in the spectrum field*

4.3.11.1 The meeting was informed by the Secretariat on the low pace of involvement of Aeronautical Administration in the various preparatory activities for the ITU WRCs and recognized the need for Administration/Organization to reinforce their awareness in the ATU/ITU meetings mechanisms.

4.3.11.2 The meeting also noted the low pace of member States taking appropriate measures to protect C-band, referring to APIRG Conclusion 20/30 in accordance with Resolution 154 (Rev WRC-15). The following draft Conclusion was formulated:

Draft Conclusion 1/12: Protection of C band Spectrum

That;

In accordance with Resolution 154 (Rev WRC-15) and pursuant to APIRG Conclusion 20/30, Administrations/Organizations take the appropriate measures in order to ensure the protection of the satellite C-band operated by the AFI VSAT networks:

- a) **Registration of the aeronautical VSAT frequencies in the States register held by the national authorities of regulation of telecommunication and;**
- b) **Follow-up with the concerned authorities in the States to further register the frequencies in the ITU Master International Frequency Register (MIFR).**

4.3.12 *Planning and implementation of AFI Aeronautical Spectrum Projects*

4.3.12.1 The meeting reviewed the planning and implementation of the AFI Regional Aeronautical Spectrum Project with focus on the necessary reporting of harmful interferences by ANSPs and airlines to the appropriate bodies for remedial action and monitoring.

The Regional project on Spectrum is attached at **Appendix B.13** to this report

The following draft conclusion was formulated:

Draft Conclusion 1/13: Aeronautical Spectrum Projects

That;

In order to protect and maintain continuous vigilance on ongoing threats to aviation spectrum, ANSPs and airlines are encouraged to regularly report cases of harmful radio interferences to aviation frequency spectrum to their national Authorities in charge of aviation and Telecommunication, ICAO and IATA.

4.3.12.2 The meeting also tasked the Spectrum Project Team to consider in its workprogramme the development of a framework of regional database supporting statistics on the reporting of cases of harmful interferences in the aviation spectrum. The following draft decision was formulated:

Draft Decision 1/14: Data Base on reporting of cases of harmful interferences

That;

The Spectrum protection project Team include in its workprogramme the development of a framework of regional database supporting statistics on the reporting of cases of harmful interferences in the aviation spectrum.

Agenda Item 5: Identification of the linkage between AFI IIM Regional Projects

5.1 Under this Agenda Item, the project Teams began identifying the inter-linkage between the identified projects at the aim to develop coordination mechanisms in order to avoid duplication and ensure compatibility and interoperability of the solutions to be envisaged in the projects and their cost effectiveness:

- *AIM-MET projects links*
- *MET-CNS projects links*
- *CNS-AIM-MET-ATM projects links*
- *CNS-AIM-MET-AOP projects links*

5.2 In the spirit of APIRG/20 Conclusion 20/32: *Coordination for air navigation service planning and implementation*, the meeting tasked the Secretariat to develop a draft procedure aimed at ensuring similar coordination with the APIRG Airspace and Aerodrome Operations Sub-Group (AAO/SG).

The following draft Conclusion was formulated:

Draft Conclusion 1/15: Linkage between projects

That;

- a) **The Project Teams finalize the detailed linkage between the IIM Projects**
- b) **The Secretariat in liaison with the AAO/SG provide the operational requirements to be considered by the IIM SG projects.**

2.1 5.3 The meeting noted that surveys were necessary for the establishment of the baseline of the projects. It was agreed that the Project Teams Coordinators should submit a questionnaire to the Secretariat preferably by **30 September 2017** for consolidation and circulation to Administrations/Organization.

The following Draft decision was formulated:

Draft Decision 1/16 Establishment of project baselines

That;

In view of the anticipated multiple requirements for surveys to establish the baseline for the projects,

- a) **The Project Teams Coordinators will submit questionnaire to the Secretariat preferably by 30/09/2017.**
- b) **The Secretariat will consolidate the questionnaire by area (AIM, MET, CNS) and circulate to the States/Organizations.**

5.4 The meeting discussed the issue of the AFI Data Link Central Monitoring Regional Agency (AFI DL/CMRA) established by APIRG/20 under its Conclusion 20/24.

5.5 The Secretariat reported the follow up actions undertaken towards Administrations/Organizations nominated to identify and to propose the main functions of an AFI DL/CMRA, the appropriate organizational framework and a suitable cost effective funding mechanisms. Cape Verde tasked to lead the Team was reported to have not react to the two follow up letters sent by the ICAO WACAF Office.

5.6 The meeting decided to include the establishment of the AFI DL/CMRA in the list of the III Projects with the same members with possible new adhesion. The Project Team was tasked to finalize the draft Terms of Reference of the AFI DL/CMRA project submitted to the meeting by IATA.

The following Draft Decision was formulated:

Draft Decision /17: Finalization of the Terms of Reference of the AFI DL/CMRA project

That;

The AFI DL/CMRA project Team finalize the draft Terms of Reference for circulation by the Secretariat to Administrations/Organization for final comment before submission to APIRG/21.

The AFI DL/CMRA project with the Terms of Reference under development will be attached as **Appendix B.14** to this report.

Agenda Item 6: AFI Air Navigation Reporting Forms

6.1 Under this agenda item, the meeting reviewed the Air Navigation Reporting Forms (ANRFs) related to the AFI identified ASBU modules together with the Performance Indicators and Performance Metrics.

6.2 The meeting was also reminded that these Indicators and Metrics are the contributive foundation for the development of the AFI Regional IIM Dashboard.

The following draft Conclusion was formulated:

Draft Conclusion 1/18: Air navigation reporting

That;

States endeavor to monitor their Air Navigation Performance Indicators and Metrics and regularly fill up their Air Navigation Reporting Forms (ANRFs)

Agenda Item 7: Review of the Terms of Reference, Composition, Working Methods Infrastructure Management Sub-Group and Work Programme of the APIRG Information and

7.1 Under this Agenda Item, the IIM Sub Group reviewed its Terms of Reference, Composition, Working Methods and Work Programme as approved by APIRG Extraordinary Meeting (Decision EO/01: *Restructuring and Reorganization of APIRG*).

7.2 The meeting invited the Sub Group to take opportunity of the emerging Information and Communication Technologies (E-Mailing, Skype...) to provide more consistency, in order to work with more flexibility and effectiveness on the issues of coordination of planning, implementing and monitoring of air navigation services and facilities in the Region and, if necessary, make future proposals to update its Terms of Reference, Composition, Working Methods and Work Programme.

Draft Decision 1 /19: Terms of Reference Composition and Workprogramme of the APIRG IIM/SG

That;

The ToRs Composition and Workprogramme of the AFI IIMS/G is approved as attached in **Appendix J to this report.**

Agenda Item 8: Any other business

8.1 Under this agenda item the meeting was informed that the 21st Meeting is scheduled to take place on October 2017 in the UN Complex of GIGIRI Nairobi hosting the ICAO ESAF Office.

8.2 The Secretariat also provide the meeting with forthcoming regional meetings, seminars, workshops and encouraged delegates to ensure their participation.