INTERNATIONAL CIVIL AVIATION ORGANIZATION
WESTERN AND CENTRAL AFRICAN OFFICE

Second Meeting of the APIRG Information and Infrastructure Management Sub-Group (IIM/SG/2)

Dakar, Senegal, 09– 11 July 2018

Agenda Item 3: Review of the outcome of APIRG/21

Conclusions/Decisions of the APIRG/21st meeting in the areas of Aeronautical Communication, Navigation, Surveillance and Spectrum (CNS)

(Presented by Secretariat)

SUMMARY
This paper presents the outcome of APIRG/21st meeting held in Nairobi, Kenya, from 9 to 11 October 2017.
Action by the meeting is at paragraph 3:
REFRENCE(S): ▪ Doc 9750, *Global Air Navigation Plan* ▪ Doc 7474, *Air Navigation Plan — Africa-Indian Ocean Region* ▪ Report on the first meeting for the APIRG IIM Sub Group.
Related ICAO Strategic Objective(s): A – *Safety,* **B** – *Air Navigation Capacity and Efficiency,* **D** – *Economic Development of Air Transport, and* **E** – *Environmental Protection.*
Related ASBU KPIs & B0 Modules: All applicable to AIM, CNS and MET

1. INTRODUCTION

1.1   The Twenty First Meeting of the Africa-Indian Ocean Region (AFI) Planning and Implementation Regional Group (APIRG/21) was held back to back with the Fourth Regional Aviation Safety Group (RASG/AFI/4), in Nairobi, Kenya, from 9 to 11 October 2017.

1.2   The meeting was attended by 171 participants from 38 AFI States and 16 Regional / International Organizations and Industry.

1.3   The meeting adopted and discussed through Working Papers and Presentations 10 Agenda Items as presented in **Appendix A** to this Working Paper

2. DISCUSSION

APIRG Project Approach

2.1   Under its Agenda Item 3.3 the APIRG/21st meeting reviewed the outcome of the First meeting of the APIIRG Infrastructure and Information Management Sub Group (APIRG IIM SG/1) in the areas related to aeronautical Communications, Navigation, Surveillance (**CNS**) and Radiofrequency Spectrum, Aeronautical Information Management (**AIM**), Aeronautical Meteorology (**MET**) including planned actions for the operationalization of the IIM/SG.

2.2   The meeting was reminded that the requirements governing planning and implementation of the air navigation infrastructure, systems, services and spectrum provisions were identified by the **7th** AFI Regional Air Navigation Meeting (AFI/7) Abuja, May 1997, the Special AFI RAN/08 Meeting, Durban, November 2008 (SP AFI/08) and the AFI Regional Plan as revised by APIRG.

2.3   In this regard the meeting reviewed the regional Projects identified by the IIM/SG and approved by the APIRG Projects Coordination Committee (APCC) in line with the AFI ANS regional Priorities and Targets, and the related ICAO ASBU prioritized modules identified by the AFI Region. Fourteen (14) Regional Projects were identified in the areas of AIM (3), CNS & Spectrum (9) and MET (2). The meeting approved the AFI IIM/SG Regional Projects and Project Teams and tasked the Secretariat to finalize the catalogue providing a standardized description of all APIRG projects and ensures its continued update and uploading on the respective Regional Offices websites.

2.4   The meeting was informed that the Project Teams initiated identification of linkage between the regional projects aimed at developing coordination mechanisms to avoid duplication and ensure compatibility and interoperability of the envisaged solutions and their cost effectiveness and therefore recognized the need to ensure a strong coordination between the two AAO/SG and IIM/SG APIRG Sub Groups in planning and implementation of regional Air Navigation projects.

2.5   The meeting noted the necessity for a survey to establish the baseline of the IIM regional projects and agreed in this regard that the Project Teams Coordinators should submit a questionnaire to the Secretariat for consolidation and circulation to Administrations/Organization.

Aeronautical Fixed and Mobile Communication Services

2.6   In the area of aeronautical fixed service the meeting was update by the industry (ASECNA and ATNS) on the actions conducted to identify the main causes in the occurrence of missing flight plans and the mitigation measures implemented by multidisciplinary local teams. In this regard the following causes were identified:
a)   Lack of awareness of the organization of ASECNA airspace by some airspace users;
b)   Omission of AFTN addresses from some air traffic control agencies;
c)   Non-use of FPL collective addresses by operators;
d)   Incorrect programming of routing tables or lack of knowledge of routing procedures, including redirection and restoration delays in the event of circuit unavailability;
e)   Technical problems, including link problems (unstable operation of some circuits);
f)   Failure to follow message routing procedures.

The mitigation action conducted involve amongst others:
a)   Implementation of collective addresses for the routing of flight plan messages in the various FIRs;
b)   Establishment of a procedure for the collection, monitoring and analysis of flight plans to ensure that   flight plans are addressed correctly;
c)   Monthly data collection of missing flight plans and diligence in treatment in coordination amongst neighboring centers.
d)   Use of automated flight planning systems capable of addressing flight plans according to the route flown and use of collective addressing is required.

2.7   The meeting was informed on the regional initiatives taken by Air Navigation Service Providers for the implementation of Air Traffic Inter Facilities Data communication (**AIDC**). In this regard, ASECNA informed the meeting on the progressive implementation within its area and with its neighbors with full operation in Abidjan, Brazzaville, Cotonou, Dakar, Khartoum, Lomé, Mauritius, N'Djamena, and Niamey. It was reported that promising trials were currently being carried out between Abidjan (ASECNA) and Accra (GCAA) and arrangements are under negotiation with Atlántico, Beira, Dar Es Salam, Johannesburg, Luanda, Roberts FIR, Sal, Seychelles with provisional planning. The meeting applauded these regional initiatives and encouraged States/Organizations to strengthen their collaboration in this area and tasked the   **IIM/SG COM Project.1 Team** to coordinate the implementation of new AIDC capable systems aimed at ensuring the full compliance of their protocols in order to facilitate interoperability and interconnection. The meeting agreed that specific arrangements be instituted to facilitate the implementation of regional IIM projects and in particular the development of proposals for amendments of the AFI Surveillance strategy in the area of Aeronautical Surveillance by the secretariat.

2.8   The status of implementation and operation of Aeronautical Mobile Service was assessed by the meeting through the presentation provided by the industry (ASECNA and IATA). In this regard ASECNA reported a continuous improvement of VHF radio communications in its FIRs with a quality of communications with an average level ranging between 4 and 5. However, it was also highlighted lack of coverage due to area located at boundaries of FIR and coverage to be improved at some way points.

2.9   The same progress was noted in the operation of CPDLC with an increased use in line with the increase of the equipped fleet in oceanic airspaces (60% in Dakar FIR and 25% in Antananarivo FIR). CPDLC transactions are reported to be globally satisfactory with quality at 7 in majority. The meeting encouraged States and the industry to continue the effort to increase the equipage and operation CPDLC.

2.10   The meeting further noted a reduction in the use of the HF and the improvement of the quality of communication with an average level from 3 to 5 when the frequencies are operated adequately since some centers are provided with HF frequencies forecast software in accordance with recommendation 6/20 of Special AFI/RAN/08 meeting.

2.11   The outcome of a survey on Aeronautical Mobile Communication in the AFI conducted from 8th to 22nd February 2017 was presented by IATA to the meeting with the aims to:

> a) Determine the real VHF coverage and the quality of HF and CPDLC/SATCOM service provisions to users;
> b) Identify deficiencies and develop corrective action plans to be addressed with concerned States/ANSPs;
> c) Continue Efforts to address persistent Challenges;
> d) Support improvement of aeronautical mobile communication and the protection of the aviation frequency spectrum;

Aeronautical Navigation Service

2.12   In the area of navigation, the meeting deliberated on the issue of accommodation of legacy aircraft in the implementation of PBN. The meeting was however, informed that there were various provisions in place to accommodate non-equipped aircraft. Amongst others, ICAO provisions on PBN implementation including PBN airspace design do take into account implementation for legacy aircraft. It was further highlighted that for effective PBN implementation it is paramount that all airspace stakeholders (service providers, airspace users, stake organs like military, etc.) are involved in the design of the airspace. Accordingly, the Group emphasized that the non-equipage of some aircraft should not slow down/delay the rate of implementation of PBN. Therefore, the strategy of implementation of GNSS in the AFI Region should comply with the PBN implementation requirements and planning.

Aeronautical Surveillance Service

2.13   In the area of aeronautical surveillance, the meeting noted that many AFI States had implemented or are in the process of implementing ADS-B, Secondary Surveillance Radar (SSR) and Multilateration (MLAT) technologies including establishment of mandates on individual levels. However, concern was raised that in many cases, users were not fully involved in the planning for implementation of such technologies. Furthermore, ICAO guidance in Circular 326, concerning implementation of ground-based ADS-B or MLAT technologies, and principles of cost-relatedness in Document 9082 as well as Document 9161 were not effectively applied. In view of the above, the meeting noted the need for AFI States to apply the principles of collaborative decision making (CDM) by involving airspace users at early stage, before major commitment are adopted and implemented, in order to consider the user concerns on the implication of such investments, including aircraft certification, avionic performance requirements, safety requirements, the Concept of Operation and associated operational and economic benefits

2.14   The meeting was briefed on the ongoing project of implementation of surveillance systems. The meeting noted that considering the important air traffic flow on the western coast of Africa, from Senegal to Gabon, including Guinea, Sierra Leone, Liberia, Côte d'Ivoire, Ghana, Togo, Benin, Nigeria, Cameroon, Equatorial Guinea in one hand, the overlapping SSR and ADS-B coverage offering a tremendous opportunity to ensure continuity of the surveillance service in the other hand, the ANSPs in the Gulf of Guinea (ASECNA, GCAA, NAMA, Roberts FIR), committed to share their surveillance data to facilitate the implementation of reduced separation minima for the benefit of users and enhance air navigation safety, capacity and efficiency. It was noted that an agreement was concluded on the modalities of interconnection of the surveillance facilities and the implementation of AIDC and a Memorandum of Cooperation (MoC) drawn up to guide the implementation of this project, including the possibility to jointly purchase equipment, the implementation mechanisms by a joint technical team for better synergy of action of the ANSPs involved, the technical characteristics and the performance framework of the systems..

2.15   This initiative supported by the ICAO WACAF Office was forwarded to the attention of ECOWAS to be considered as a component of the regional project in the transport area. The meeting applauded this sub regional initiative and encouraged ANSPs to continue their initiative for the integration of ATM systems in the view to ensure systems interoperability and ATM seamlessness over the Gulf of Guinea.

Aeronautical Spectrum Provision Operation and Protection

2.16   In the area of Aeronautical frequency spectrum, the meeting was reminded of the ICAO Position for WRC 19 sent to States through ICAO Secretary General States Letter Ref.: E 3/517/82 dated 14 July 2017. The meeting was also reminded of the need for States and organizations to maintain continuous vigilance on the threats to the aeronautical frequency spectrum and protection of the aeronautical spectrum and the reporting on harmful interferences on this spectrum as well as the continuous update of the frequencies list. This would provide ICAO with information on occurrences to be brought to the attention of spectrum regulators.

Cyber safety and resilience of the air navigation systems

2.17   The Group noted information on issues relating to threats and challenges encountered in the area of Safety and Resilience of air navigation systems in the AFI Region. It was noted that the Global Air Navigation Plan (GANP Doc. 9750) developed under the concept of ICAO Aviation System Block Upgrades (ASBUs) framework increased interoperability, efficiency and capacity through ground-ground integration.

2.18   The meeting agreed that this worldwide information exchange, while enhancing efficiency, capacity and flexibility of the operations and raising productivity, increases vulnerabilities to cyber-attacks since the trend is to use open available and emerging technologies. It was recognized that the threats were real, critical and may emanate from various internal and /or external sources; involves air navigation systems infrastructure, signals and data, people, procedures, information, resources, facilities (air traffic services units and airports), equipment (communications, navigation and surveillance (CNS)).

2.19   The meeting therefore acknowledged that the achievement of air navigation safety and resilience in a multidisciplinary stakeholders' environment would require strong collaboration between concerned national entities as well as between States in line with the provision of Annex 17 to the Chicago Convention. Accordingly, AFI States were encouraged to include in their national regulatory framework (Regulation, policy strategy and plan) provisions to address air navigation safety and resilience.

2.20   The meeting also recognized the need for development and implementation of coordination procedures concerning the exchange of information between adjacent States, in particular ATS units which already have Letters of Agreement (**LOAs**) detailing communications and coordination procedures. The meeting encouraged States that have not already done so, to ensure that procedures related to cyber safety and resilience are included in the LoAs.

The Conclusions and decisions of APIRG/21 meeting pertaining to CNS and spectrum are summarized in **Appendix B** to this Working Paper.

3. ACTION BY THE MEETING

The meeting is invited to:

a) Take note of the information provided above
b) Report on the status of implementation of the APIRG/21st Conclusion and decisions pertaining to CNS
c) Identify any future action aimed at ensuring the full implementation or proposals for update of the outcome of APIRG/21st meeting in the CNS area