



**COMPREHENSIVE REGIONAL IMPLEMENTATION PLAN FOR AVIATION  
SAFETY IN AFRICA (AFI PLAN)**

*AVIATION INFRASTRUCTURE FOR AFRICA GAP ANALYSIS WORKSHOP*

*Abuja, Nigeria, 19-21 March 2019*

**REPORT**

27 March 2019

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NB: In addition to this report the concept note, the workshop programme and all presentations from the ICAO secretariat and Partners are available at the website: <https://www.icao.int/ESAF/Pages/AvInfra-Africa-GapAnalysis-2019.aspx>

## **1. Venue, date and attendance**

1.1 The Aviation Infrastructure for Africa Gap Analysis workshop was held from 19 to 21 March 2019 in Abuja, Nigeria. The workshop was attended by 173 Participants including delegations from 22 ICAO member States, two members from the ICAO Council and the Air Navigation Commission (ANC), and 13 officials of invited international and regional organizations, industry and other partners and stakeholders. The list of participants is provided as an Appendix to this report.

## **2. Opening of the Workshop**

2.1 During the opening session Mr. Sabiu Zakari, Permanent Secretary, Federal Ministry of Aviation welcomed the senior officials who represent the Federal Democratic Republic of Nigeria, ICAO and other regional and international organizations as well as participants from various States. Following the welcoming remarks, statements were delivered by Mr. Papa Atoumane Fall, Representative of the Secretary General of AFCAC, Dr. Olumuyiwa Benard Aliu, President, ICAO Council and Senator Hadi Abubakar Srika, Honourable Minister of State (Aviation), The Federal Republic of Nigeria.

2.2 In his address to the workshop, the representative of the Secretary General of the African Civil Aviation Commission (AFCAC), Papa Atoumane Fall, underlined the need for significant effort in air navigation expansion and upgrading programmes as well as gradually rehabilitate existing facilities and support aircraft technological advancements in the region in order to accommodate growth in passenger and cargo activities.

2.3 In his remarks, the ICAO Council President, Dr. Olumuyiwa Benard Aliu, expressed that with the potential of growth in the African Aviation industry, which have been augmented through the Single Africa Air transport market, it is apparent that growth in traffic must be accompanied by commensurate investment and commitment to new and modernize airport and air navigation infrastructure. It is, therefore, urgent for Africa to address its aviation infrastructure gaps given current awareness of how air connectivity has become such a unique and indispensable catalyst for socio-economic growth on the continent.

2.4 Dr. Aliu further remarked that the launch of the African Union's Single Air Transport Market demonstrated Africa's unity and agreement of the fact that aviation connectivity's socio-economic benefits are real, sustainable, and worthy of the attention and commitments of African Governments. However, he also stressed that the rapidly-expanding air traffic and enhanced air connectivity can only be sustained with continued investment and development for aviation infrastructure, capacity and technology, supported by a regulatory framework which is ICAO compliant and therefore harmonized with other States and Regions.

2.5 In his opening remarks, the Minister of State, Aviation, Senator Hadi Sirika, expressed that, although aviation in Africa has created about seven million jobs and added about \$72 billion dollars to Africa's GDP, African aviation industry is facing serious constraints in terms of infrastructure requirements to support future capacity.

2.6 The Minister therefore stressed that Africa aviation needs significant upgrade and expansion to meet the requirements of the projected growth but has to overcome the problem of insufficient access to financial resources for aviation development and modernization.

### **3. Session 1: The Air Transport Context in Africa**

3.1 This session was moderated by Mr. Barry Kashambo, Regional Director, ICAO/ESAF Regional Office supported by Mr. Adiron Alberto, Regional Officer, AT/TC, ICAO/ESAF as Rapporteur. Two presentations were made by the African Civil Aviation Commission and the ICAO Secretariat.

3.2 During this session, information was provided on the current trends of the air transport market in Africa, the various continental policy instruments which are the Yamoussoukro Decision (YD), the Single African Air Transport Market (SAATM) and African Civil Aviation Policy aimed at enhancing air connectivity. The participants were also provided with information on the background and genesis of the Declaration and Framework for a Plan of Action for Development of Aviation Infrastructure in Africa among other outcomes of the Third ICAO World Aviation Forum (IWAF/3) relevant to the workshop.

3.3 The presentations during this session drew the attention of the workshop participants to the following key items:

- a) The framework for Air transport liberalization in Africa is the Yamoussoukro Decision which evolved towards the establishment of a Single African Air Transport Market (SAATM) under the leadership of the African Union and AFCAC identified as the Executing Agency;
- b) The revision of the prioritized action plan for the implementation of SAATM was commended, together with the step taken by AFCAC in developing measurable performance indicators to evaluate the implementation of SAATM;
- c) The need to strengthen the advocacy and promotion efforts to subscribe to the SAATM and build the necessary capacity for the implementation of SAATM by Member States;
- d) That the outcome of IWAF/3 formed the background for the demand to conduct this infrastructure gap analysis to determine the needs in Africa;
- e) IWAF/3 adopted a Communique and the Declaration and Framework for a Plan of Action for Development of Aviation Infrastructure in Africa that will be implemented with the African Union Programme for Infrastructure Development in Africa (PIDA) and included in its priority projects 2020-2030, in cooperation with AfDB, AUC, African Union Development Agency (AUDA);
- f) An aspirational goal is “no constraints of infrastructure capacity, technology and financial resources for aviation development” and follow-up of the Gap analysis will be conducted under the existing framework, namely AFI Plan, AFI SECFAL Plan and HRDF;
- g) In supporting implementation of the PIDA in a coordinated way, African States should deepen and broaden economic and financial cooperation among each other and with development partners in line with the SAATM and the African Union's Agenda 2063 and in support of the ICAO NCLB initiative;
- h) All investments in aviation infrastructure development and modernization in Africa should be directed to well-managed projects featuring solid business cases and due levels of accountability, transparency and quality assurance; and
- i) Aviation infrastructure programmes should be aligned and integrated with multi-modal and urban planning initiatives under the good governance.

#### **4. Session 2: Global and Regional Requirements**

4.1 This session was moderated by Mr. Mam Sait Jallow, Regional Director, ICAO/WACAF Regional Office supported by Mr. François Xavier Salambanga, Regional Officer, Communications, Navigation and Surveillance (CNS), ICAO/WACAF Regional Office as Rapporteur. Four Presentations were made by ICAO Secretariat and the African Civil Aviation Commission (AFCAC).

4.2 During this session information were provided on global and regional aviation safety, air navigation and security plans including their corresponding targets. Accordingly, the following key issues were presented and discussed during the workshop:

- a) The structure and components, as well as the importance and relevance of the ICAO Global Air Navigation Plan (GANP), Global Aviation Safety Plan (GASP), and Global Aviation Security Plan (GASeP) were explained;
- b) Information on the framework for regional and national planning and implementation was shared;
- c) The necessity of alignment of Regional Plans, especially the AFI Regional Air Navigation Plan (AFI ANP) with the global frameworks (GANP, GASP, GASeP) in terms of Goals, Objectives, Targets & indicators was emphasized;
- d) The AFI regional targets, mainly the revised Abuja safety targets and air navigation targets and indicators as well as the Windhoek declaration and targets for security and facilitation were presented; and
- e) The roles of Planning, Implementation and Monitoring mechanisms through Regional Groups: AFI Planning and Implementation Regional Group (APIRG), AFI Regional Aviation Safety Group (RASG-AFI), and AFI Comprehensive Regional Implementation Plans for Safety in Africa (AFI Plan) and for AFI Comprehensive Regional Implementation Plans for Security in Africa (AFI SECFAL Plan), were presented and explained.

## **5. Session 3: Aviation Infrastructure Gap Analysis and Master Plan Development Process-Exchange of experiences and lessons learned**

5.1 This session was moderated by Mr. Toru Hasegawa, Deputy Director, Economic Development, Air Transport Bureau (ATB), ICAO supported by Mr. Albert Aidoo Taylor, Regional Officer, ATM/SAR, ICAO/WACAF Regional Office as Rapporteur. Seven presentations were made during this Session by ICAO Secretariat, Industry representatives (ACI and IATA), the Commission of the Economic Community of West African States (ECOWAS) and two States (Nigeria and Kenya).

5.2 This session provided an opportunity for sharing experiences and learning lessons from various similar Aviation Gap Analysis exercises conducted in different regions by various stakeholders including States. It was noted that the scope, method and information utilized by the various stakeholders analyzing the aviation infrastructure gaps varies. The following the key issues were raised across the presentations:

- a) Development of national and regional Civil Aviation Master Plans (CAMPs) is key to addressing gaps in infrastructure and as such, it was recommended that States should promote the importance of aviation development, noting that aviation contributes significantly to national, regional and global economy;
- b) The scope of aviation infrastructure projects is very large in and thus, a long timeframe from planning to completion should be observed, usually with multiple adjustments to the original plan along the way;
- c) Civil Aviation Master Plans should be clearly linked to ICAO's Global and Regional plans, as well as national development framework;
- d) Identified infrastructure gaps, as well as their causes, should be quantified and included in the Civil Aviation Master Plan; and
- e) Given the limited available resources and funds, investments to close the identified gaps should be made in order of priority and urgency, taking also into account value for money (VFM)

## 6. Session 4: Aviation Infrastructure for Africa Gap Analysis – 2019

6.1 This session was moderated by Mr. Mam Sait Jallow, Regional Director, ICAO/WACAF Regional Office supported by Mr. Eyob Estifanos, Associate Regional Programme Officer – ICAO/AFI Plan. Three Presentations were made by ICAO Secretariat.

6.2 During this session, the Aviation Infrastructure Gap analysis conducted by ICAO was presented in three main areas: Airports, Air Navigation Services (ANS) and Airlines (Aircraft and Equipage). Information was provided on the scope, methodology of survey data collection, developing matrices of prioritizing evaluation item, relevant metrics, as well as interpretation and summary results. The Gap Analysis was conducted based on information obtained from 26 States in response to the survey questionnaire with a varying degree of detail as well as additional data and information from ICAO database.

6.3 The key results of the Gap Analysis are summarized as follows:-

### 6.3.1 Airports

- a) A majority of international Airports are not certified;
- b) 40% have insufficient pavement strength with regard to intended use;
- c) 35% have insufficient aerodrome emergency planning and perimeter fencing;  
and
- d) 20% have insufficient aerodrome capacity

### 6.3.2 Air Navigation Services

- a) *Air Traffic Management – Performance –based navigation (PBN)*. About 35% of international aerodromes have no PBN approaches while additional 11 % have only visual approach procedures; implementation of continuous climb operations (CCO) and continuous descent operations (CDO) procedures has not started to take full advantage of PBN approach procedures;

- b) **Communications.** Communication infrastructure gap is at a varying degree of implementation with:
- A high rate of implementation of aeronautical fixed telecommunication network (AFTN) requirements, a low level of implementation of Air Traffic Services Message Handling Systems (AMHS) and related interconnections, a very low level of ATS Inter-Facility Data Communications (AIDC) procedures, and no implementation of Voice over Internet Protocol (VoIP);
  - A good very high frequency (VHF) and high frequency (HF) radio coverage, and an increasing Controller-Pilot Data Communications (CPDLC) coverage; and
  - No implementation of VHF and HF data link (VDL and HF DL).
- c) **Navigation systems.** With regard to aeronautical navigational infrastructure, conventional radio navigation aids (VHF omnidirectional range (VOR), distance measuring equipment (DME), instrument landing system (ILS)) and global navigation satellite system (GNSS) core constellations have a good stage of implementation in the region. However, a low pace of implementation of augmented GNSS (satellite-based augmentation system (SBAS), ground-based augmentation system (GBAS)) is identified. GNSS services are currently provided through aircraft-based augmented systems (ABAS);
- d) **Surveillance.** Regarding the aeronautical surveillance infrastructure, it was noted progress in implementing Secondary Surveillance Radar (SSR) Mode S and Automatic Dependent Surveillance Contract (ADS-C) against a low pace of implementation of Automatic Dependent Surveillance Broadcast (ADS-B) and Multilateration (MLAT) stations across the AFI Flight Information Regions
- e) **Frequency spectrum management.** Spectrum monitoring and reporting systems are not implemented by States although increasing number of harmful interferences to aviation are experienced in the Region.
- f) **Aeronautical Information Management.** Progress was registered in aeronautical information exchange model (AIXM) - based electronic Aeronautical Information Publications (e-AIP) and electronic terrain and obstacle data (e-TOD) implementation. Most States also developed

Aeronautical information service (AIS)/Aeronautical information management (AIM) Transition Plans;

- g) ***Aeronautical Meteorology***. The availability rate of OPMETs increased over time, while implementation of Volcanic Ash contingency procedures is at a very low stage; and
- h) ***Search and Rescue***. Effective implementation of Rescue Coordination Centre (RCCs) or Rescue Secondary Centers (RSCs) and signature of effective search and rescue (SAR) agreements have a low level of implementation in the region.

### 6.3.3 **Airlines**

- a) Low connectivity and frequency of services among African States. Though some guarantee a potential for evaluation of direct routes, Passengers took connecting flights;
- b) Direct traffic from single African Air Transport Market (SAATM) States is mainly to Europe and intra-Africa, while traffic from SAATM to other regions is carried mainly through connecting flights;
- c) In terms of international frequencies offered a substantial portion of the service are offered by African carriers;
- d) In terms of origin-destination passengers, for 14 African States, over 50% of international passengers are carried by African carriers; and
- e) All the African States are facing load factors of their airlines lower than the world average.

## **7. Session 5: Breakout Sessions of Working Groups to review various components of the 2019 Aviation Infrastructure Gap Analysis**

7.1 Under this session three groups focusing respectively on Airports, Air Navigation Services (ANS) and Airlines (aircraft and equipage) were constituted from participants with the support of the ICAO Secretariat. The Airports, Air Navigation Services (ANS) and Airlines Working Groups' discussions were facilitated by Mr. Rishi Thakurdin, Director Safety and Technical, Airports Council International –Africa (ACI-Africa); Ms. Mbayang Gueye, Head of the Strategy and Planning Department of the *Agence pour la securite de la navigation aeriennne en Afrique et a Madagascar* (ASECNA), and Mr. Abderahmane Berthe, Secretary General of the African Airlines Association (AFRAA) respectively.

7.2 The Working Groups were tasked to review the preliminary survey results covering the three areas and determine the existing aviation infrastructure gaps as well as make recommendations and define requirements on the next steps towards the development of regional and national aviation infrastructure programmes and master plans based on determined strategic infrastructure requirements and in line with the level of predicted traffic growth and ICAO Global and Regional plans.

7.3 In reviewing the survey results, Working Groups were guided by the listed priority evaluation parameters and metrics as identified under each Working Group. To this effect, guidelines were prepared for each Working Group and provided to the Working Group facilitators.

7.4 Each Working Group evaluated the survey questionnaire, scope, methodology utilized in the Gap Analysis and recommended a set of action to improve the results of the analysis including to broaden the scope beyond the gap analysis to cover various elements that are instrumental for aviation infrastructure development and master plan study.

7.5 The results and recommendations of set of actions by each Working Group are presented under Session 6.

## **8. Session 6: Recommendations / Outcomes of the Working Group and Next Step**

8.1 This session was moderated by Mr. Mam Sait Jallow, Regional Director, ICAO/WACAF Regional Office supported by Mr. Nika Meheza Manzi, Regional Officer, Aerodromes and Ground Aids (AGA), ICAO/WACAF Regional Office as Rapporteur. The Working Groups established under Session 5 to evaluate the Gap Analysis presented the outcome of their discussions, and recommendations to improve the aviation infrastructure gap analysis report.

8.2 The key recommendations by each Working Group to improve the Infrastructure Gap analysis and the way forward are presented as follows:

### **8.2.1 The Airport Working Group**

- a) The airport Working Group suggested that the information gathered through the survey questionnaire can be improved to add some critical elements such as the land side facilities, environment (emission reduction, sustainable source of energy ...), Detailed facilities on aviation security and personnel and training.
- b) The group also suggested that the prioritized key items can be categorized in two major areas:
  - **Priority 1**
    - Lightings and visual aids
    - Electrical power supply
    - Perimeter fence
    - Passenger/Bag screening
    - Aerodrome Rescue and Fire Fighting Service (ARFFS)
    - Apron capacity
    - Pavement strength
    - Runway/Taxiway (RWY/TWY) dimensions
    - Certification
  - **Priority 2**
    - Cargo screening
    - Machine Readable Travel Documents (MRTDs)

- Cargo terminal design capacity
- Passenger terminal design capacity

### 8.2.2 The Air Navigation Services Working Group

The Air navigation services Working Group evaluated the questionnaire, scope and methodology, the key elements of the Gap Analysis including the interpretation of the results of the Gap Analysis. The Working Group recommended that:

- a) the survey questionnaire should evolve to identify ANS gaps in ANS human resources and training and to address emerging critical issues such as cyber resilience of CNS/ATM systems/infrastructure, increasing operations of UAS/RPAS, space travel, high flying balloons, supersonic flights, urban taxis etc.
- b) the links between the ANS gaps and the already existing APIRG regional infrastructure projects be clearly identified in order to address those critical gaps in the air navigation area; and
- c) a regular monitoring of ANS gaps by States with a six-month reporting cycle to ICAO.

### 8.2.3 The Airline Working Group

- a) The Airline Working Group suggested that the information gathered through the survey questionnaire can be improved to add some critical elements such as maximum connecting time, cargo data, and Average fleet utilization etc.
- b) The group recommended that the following set of action to be considered to improve the Gap analysis and future Steps:
  - To include the strengthen and expand the existing MRO in the gap analysis
  - To consider human development, training and retainment of aviation professionals,
  - Funding of Airlines form African financial institutions; and
  - Evaluation of the Governments Aviation Policies and Regulations

## 8.2.4 General Recommendations

8.2.4.1 The following general recommendations which are not specific to the areas of Airports, Air Navigation Services and Airlines, were formulated by the Working Groups:

- a) ICAO to improve and re-submit the questionnaire to States for completion of data collection;
- b) To present the results of the finalized GAP analysis to AU, RECs, Development Partners, etc. for consideration
- c) To put in place a regional programme to ensure the action plan/project is properly implemented;
- d) To develop a regional programme with specific plans and projects to ensure that the identified gaps are properly addressed.;
- e) To identify funding mechanisms at States' or regional level; and
- f) To ensure proper collection of data, the States are advised to coordinate appropriately with their aviation industry; and
- g) ICAO should put in place a better advocacy and top-down approach through CEOs/DGs of CAAs, for accurate and robust data gathering from States.

## 9 Closing Remarks

9.1 The AFI Plan Steering Committee Chairperson, Mr. Mr. Halidou Moussa expressed his appreciation for participants of the workshop that represents States, Industry and development partners for their active engagement during the course of the workshop. He also expressed appreciation for the excellent organization and support provided by the host, the Ministry of State, Aviation of the Federal Republic Nigeria.

9.2 The Chairperson informed the meeting that the implementation of the AFI Plan work programme over the years has had a positive impact on aviation safety in Africa. He attributed these achievements to the continuous and strong support of the ICAO President who consistently promote and guide the various initiatives that are instrumental enhancing the level of aviation activity in Africa.

9.3 In closing the meeting, the ICAO Council President, Dr. Olumuyiwa Benard Aliu expressed his appreciation to the host State, the Federal Republic of Nigeria for the usual

excellent organization and continuous support of ICAO. He also thanked the ICAO Secretariat from Headquarters and Regional Offices led by three Regional Directors from Dakar, Nairobi and Cairo.

9.4 He also expressed his gratitude and satisfaction for the active participation and representation of the States, Regional Organizations, and Industry and Development Partners in the workshop. Finally, he stressed the need to work fast and finalize the report of the workshop, while the finalized Gap Analysis report with all the feedback from the workshop should be ready for presentation at the 22<sup>nd</sup> meeting of the AFI Plan steering Committee scheduled to be held on 15 of May 2019 in Kampala, Uganda.

9.5 Finally, on behalf of the Permanent Secretary, Federal Ministry of Transportation, Nigeria, the Director-General of Nigeria Civil Aviation Authority (NCAA), Capt. Muhtar Usman, thanked all of those who made the workshop successful and formally closed the workshop.

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