INTERNATIONAL CIVIL AVIATION ORGANIZATION

SECOND MEETING OF THE AFI REGION AIM IMPLEMENTATION TASK FORCE (AFI AIM TF/2)

(Nairobi, Kenya, 17 – 19 December 2012)

Agenda Item 5 : **Development of National Performance Framework for the implementation of AIM on the bases of the Aviation System Block Upgrades methodology (ASBU) and its impact on the e-ANP.**

(Presented by the Secretariat)

SUMMARY

This Paper presents the ASBU modules related to interoperability system and AIM data presented at the 12th Air Navigation Conference in November 2012. It is expected that operational improvements will be outlined in a logical stepwise block upgrades that at a minimum: *identifies the operational benefit; determine the necessary procedures; nominate the required technology; develop the business case; and propose a preliminary strategy for regulatory approval.*

Action by the meeting is at **paragraph 3.**

REFERENCES:
ATS/AIS/SAR SG/12 report

APIRG/17 and18 Reports

Doc. 9854, Global Air Traffic Management Operational Concept
Doc. 9750, Global Air Navigation Plan

1. **INTRODUCTION**

1.1   The meeting may recall that the ICAO planning objective is to achieve a seamless global Air Traffic Management (ATM) system through the implementation of air navigation systems and procedures in a progressive, cost-effective and cooperative manner. Aeronautical information service is one of the core concepts of ATM and flight operations and impacts safety of air navigation seriously. Along with the rapid development of ATM systems, navigation methods and aircraft systems and the needs of air traffic management and flight operations for the right and accurate information, AIS systems have to develop to satisfy their users. In addition, the concept of Aeronautical information management (AIM) has been introduced by ICAO to meet the requirements of AIS users. AIM will permit a comprehensive change of the type and way of provision of aeronautical information services.

1.2   In this regard, ICAO has adopted a performance based approach for regional and national air navigation planning, in line with the *Global Air Navigation Plan* (Doc 9750).

1.3   It is to be recalled that the SP AFI RAN 08 meeting held in Durban, South Africa agreed to the introduction of a performance-based approach to the planning of air navigation services in the AFI region. Subsequently, a series of performance framework Forms (PFF) relating to air navigation fields was considered by the meeting and referred to APIRG as a mechanism to identify the performance objectives as well as to establish timeframes for the regional planning and implementation process. This was further confirmed by the following APIRG/17 Decision17/87 (a) :

DECISION 17/87:   PLANNING FOR THE TRANSITION FROM AIS TO AIM

That, based on the ICAO global ATM operational concept and the ICAO roadmap for the transition from AIS to AIM, the AFI AIM Implementation Task Force (AFI AIM TF):

a) **Develop performance goals for the transition from AIS to AIM in the AFI Region and identify achievable milestones; and**

1.4   The main objective of this Paper is to provide guidance to States, in accordance with the requirements of AFI Part of the Draft e-ANP to be presented at the 12th Air Navigation Conference. The meeting will also review the ASBU modules related to interoperability system and data (AIM) presented at the 12 Air Navigation Conferences. It is expected that operational improvements will be outlined in a logical stepwise block upgrades that at a minimum: *identifies the operational benefit; determine the necessary procedures; nominate the required technology; develop the business case; and propose a preliminary strategy for regulatory approval.*

2.   DISCUSSION

2.1   According to the ICAO road map for transition from AIS to AIM, in AIM, some key aspects should be considered. Some of them are as follows:

- Quality and Quality management system

- WGS-84

- AIRAC adherence

- AIS Automation

- Digital NOTAM

- eAIP

- eTOD

2.2   The current PFFs have been redesigned and aligned with ASBU framework and called the Air Navigation Report Form (ANRF).The ANRF will be the basis for performance monitoring of the ASBU implementation. The ANRF templates for all the 18 Modules of the ASBU Block 0 will be available in Volume II-FASID –FASID of each Regional eANP.

2.3   Effective 2014, on annual basis A Global Air Navigation Report will be released which indicates the following:

➢ The Regional Air Navigation Reports (ANRF) that provides data for shared review will be utilized in developing the annual Global Air Navigation Report.
➢ The spirit of such a global review is to assist in understanding which areas requires special attention and effectively improve air navigation performance in the future.
➢ This review also provides an opportunity for world civil aviation community to compare the progress across different ICAO Regions in the establishment of air navigation infrastructure.

3.   ACTION BY THE MEETING

3.1   The meeting is invited to:

a)   note the information contained in this working paper;

b)   consider and endorse the new ASBU framework and called the Air Navigation Report Forms (ANRF) attached hereto, for review and update as necessary under Appendix-A, B and C; and

c)   develop additional ANRF's to meet any new performance objective identified for the AFI Region as necessary.

SAMPLE TEMPLATE   **APPENDIX - A**

AIR NAVIGATION REPORT FORM (ANRF)
ASBU METHODOLOGY

Regional and National planning for all ASBU Modules

<table>
<tr><td colspan="6" align="center">**REGIONAL/NATIONAL PERFORMANCE OBJECTIVE**

Service Improvement through Digital Aeronautical Information Management (ASBU B0-30)

Performance Improvement Area 2: Globally Interoperable Systems and Data – Through Globally Interoperable System Wide Information Management</td></tr>
<tr><td colspan="6" align="center">**Main Key Performance Areas (KPA)**</td></tr>
<tr><td></td><td align="center">**Access & Equity**</td><td align="center">**Capacity**</td><td align="center">**Efficiency**</td><td align="center">**Environment**</td><td align="center">**Safety**</td></tr>
<tr><td>**Applicable**</td><td align="center">N</td><td align="center">N</td><td align="center">Y</td><td align="center">Y</td><td align="center">Y</td></tr>
<tr><td colspan="6" align="center">**Implementation Progress**</td></tr>
<tr><td colspan="3" align="center">**ASBU B0-30**
Elements including baseline
Phase 1 of the AIS/AIM Transition Roadmap
(Consolidation)</td><td colspan="3" align="center">**Implementation Status**</td></tr>
<tr><td colspan="3">1. AIRAC adherence monitoring (P-03)</td><td colspan="3"></td></tr>
<tr><td colspan="3">2. Monitoring of States ' differences to Annex 4 and 15 (P-04)</td><td colspan="3"></td></tr>
<tr><td colspan="3">3.WGS-84 Implementation (P-05)</td><td colspan="3"></td></tr>
<tr><td colspan="3">4. Quality (P-17)</td><td colspan="3"></td></tr>
<tr><td colspan="6" align="center">**Implementation Roadblocks**</td></tr>
<tr><td align="center">**Elements**
including baseline
Phase 1 of the AIS/AIM Transition Roadmap
(Consolidation)</td><td colspan="2" align="center">**Ground system Implementation**</td><td align="center">**Avionics Implementation**</td><td align="center">**Procedures Availability**</td><td align="center">**Operational Approvals**</td></tr>
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<tr><td>4. Quality (P-17)</td><td colspan="2"></td><td></td><td></td><td></td></tr>
<tr><td>**Remarks, if any**</td><td colspan="5"></td></tr>
</table>

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**AIR NAVIGATION REPORT FORM - ASBU METHODOLOGY
EXPLANATORY NOTES**

1. **Air Navigation Report Form (ANRF):** This form may be used when Planning and Implementation Regional Groups (PIRGs) and States report on the implementation status of Aviation System Block Upgrades (ASBU) modules. Other formats may be appropriate but should contain as a minimum the elements described below.

2. **Performance objective:** To align with ASBU methodology, the performance objective for the regions as well as for the States will be the ASBU module title itself along with corresponding Performance Improvement area (PIA).

3. **Key Performance Areas:** Key to the achievement of a globally interoperable ATM system is a clear statement of the expectations of the ATM community. The expectations, hereafter known as Key Performance Areas (KPAs), are interrelated and cannot be considered in isolation since all are necessary for the achievement of the objectives established for the system as a whole. It should be noted that while safety is the highest priority, the eleven KPAs are shown in alphabetical order as they would appear in English. They are access/equity; capacity; cost effectiveness; efficiency; environment; flexibility; global interoperability; participation of ATM community; predictability; safety; and security. However, out of these eleven KPAs, five have been selected for reporting, which are Access & Equity, Capacity, Efficiency, Environment and Safety. KPAs applicable to ASBU module are to be identified by marking Y (Yes) or N (No).

4. **Implementation Progress:** This section, while describing different elements of ASBU Module, indicates progress in its implementation by States.

5. **Elements including baseline related to ASBU module:** The regional/national air navigation work programmes, under this section, will identify elements that are needed to achieve the said performance objective/ASBU module. For the list of elements related to of different ASBUs, refer to the description of respective ASBU Module. Furthermore, should there be elements that are not reflected in the ASBU module (example: In ASBU B0-80/Airport CDM, Aerodrome certification and data link applications D-VOLMET, D-ATIS, D-FIS are not included; Similarly in ASBU B0-30/AIM, note that WGS-84 and eTOD are not included) but at the same time they are part of baseline requirements, ANRF should specify those elements.

6. **Implementation Status:** Planned implementation date (year) and the current status are to be reported in this section It is recognized that not all ASBU modules/or elements are required in all airspaces. If that be the case, mention as "Not Applicable" in this section.

7. **Implementation Roadblocks**: Challenging issues for the implementation of Elements /baseline of the Module are to be reported in this section. The four implementation roadblocks are as follows:

   - Ground System Implementation:
   - Avionics Implementation:
   - Procedures Availability:
   - Operational Approvals:

8.   **Remarks:** Comments, if any, related to any of the sections are to be reported here.

LIST OF SUGGESTED PERFORMANCE METRICS

Key Performance Area	Related Performance Metrics
1. Access & Equity	1. KPA/Access: Percentage of instrument runway ends having an APV
	2. KPA/Access: Duration of Special Use Airspace (SUA) limits Civil Operations
	3. KPA/Equity Percentage of aircraft operators by class who consider that equity is achieved
	4. KPA/Access: Percentage of requested flight level versus cleared flight level
2. Capacity	1. Number of movements per day per aerodrome
	2. Average ATFM delay per flight at an airport
	3. Number of aircraft entering a specified volume of airspace per hour
	4. Average en-route ATFM delay generated by airspace volume
3. Cost effectiveness	1.IFR movements per ATCO hour on duty
	2. IFR flights (en-route) per ATCO hour duty
4. Efficiency	1. Kilograms of fuel saved per operation
	2. Average ATFM delay per flight in the airport
	3. Percentage of PBN routes
5. Environment	1.Kilograms of CO_2 emissions reduced per operation
6. Flexibility	To be decided
7. Global Interoperability	1. Number of ATC automated systems that are interconnected
8. Participation of the ATM Community	1. Level of participation in meetings
	2. Level of responses to planning activities
9. Predictability	1. Arrival/departure delay (in minutes) at airport)
10. Safety	1.Percentage of instrument runway ends having a precision approach procedure
	2.Number of runway incursions per aerodrome per year
	3.Percentage of certified aerodromes used for international operations
	4. Number of aircraft fitted with ADS-B IN
	5. Number of aircraft fitted with ACAS / logic Version 7.1
	6.Percentage of aerodromes with PBN STAR implemented
	7. Percentage of aerodromes with CDOs implemented
	8. Number of ADS-Cs available over oceanic and remote Areas
	9. Number of continental CPDLC systems established
	10. Percentage of aerodromes with PBN SIDs implemented and
	11. Percentage of aerodromes with CCOs implemented;
	12. Number of States implemented WGS-84
11. Security	Not applicable

— END —.

SAMPLE TEMPLATE   **APPENDIX-B**

AIR NAVIGATION REPORT FORM (ANRF)
ASBU METHODOLOGY

Regional and National planning for all ASBU Modules

REGIONAL/NATIONAL PERFORMANCE OBJECTIVE

Service Improvement through Digital Aeronautical Information Management (ASBU B0-30)

Performance Improvement Area 2: Globally Interoperable Systems and Data – Through Globally Interoperable System Wide Information Management

Main Key Performance Areas (KPA)

	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	N	Y	Y	Y

Implementation Progress

ASBU B0-30 Elements including baseline PHASE 2 of the AIS/AIM Transition Roadmap (Going Digital)	Implementation Status
1. Data Quality monitoring (P-01)	
2. Data integrity monitoring (P-02)	
3. Integrated Aeronautical Information Database (P-06)	
4. Unique identifiers (P-07)	
5. Aeronautical Information Conceptual Model (P-08)	
6. Electronic AIP (P- 11)	
7. Terrain (P-13)	
8. Obstacles (P- 14)	
9. Aerodrome mapping (P-15)	

Implementation Roadblocks

Elements including baseline PHASE 2 of the AIS/AIM Transition Roadmap (Going Digital)	Ground system Implementation	Avionics Implementation	Procedures Availability	Operational Approvals
1.Data Quality monitoring (P-01)				
2. Data integrity monitoring (P-02)				
3. Integrated Aeronautical Information Database (P-06)				
4. Unique identifiers (P-07)				
5. Aeronautical Information Conceptual Model (P-08)				

6. Electronic AIP (P- 11)				
7. Terrain (P-13)	8			
8. Obstacles (P- 14)				
9. Aerodrome mapping (P-15)				
Remarks, if any				

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**AIR NAVIGATION REPORT FORM - ASBU METHODOLOGY
EXPLANATORY NOTES**

9. **Air Navigation Report Form (ANRF):** This form may be used when Planning and Implementation Regional Groups (PIRGs) and States report on the implementation status of Aviation System Block Upgrades (ASBU) modules. Other formats may be appropriate but should contain as a minimum the elements described below.

10. **Performance objective:** To align with ASBU methodology, the performance objective for the regions as well as for the States will be the ASBU module title itself along with corresponding Performance Improvement area (PIA).

11. **Key Performance Areas:** Key to the achievement of a globally interoperable ATM system is a clear statement of the expectations of the ATM community. The expectations, hereafter known as Key Performance Areas (KPAs), are interrelated and cannot be considered in isolation since all are necessary for the achievement of the objectives established for the system as a whole. It should be noted that while safety is the highest priority, the eleven KPAs are shown in alphabetical order as they would appear in English. They are access/equity; capacity; cost effectiveness; efficiency; environment; flexibility; global interoperability; participation of ATM community; predictability; safety; and security. However, out of these eleven KPAs, five have been selected for reporting, which are Access & Equity, Capacity, Efficiency, Environment and Safety. KPAs applicable to ASBU module are to be identified by marking Y (Yes) or N (No).

12. **Implementation Progress:** This section, while describing different elements of ASBU Module, indicates progress in its implementation by States.

13. **Elements including baseline related to ASBU module:** The regional/national air navigation work programmes, under this section, will identify elements that are needed to achieve the said performance objective/ASBU module. For the list of elements related to of different ASBUs, refer to the description of respective ASBU Module. Furthermore, should there be elements that are not reflected in the ASBU module (example: In ASBU B0-80/Airport CDM, Aerodrome certification and data link applications D-VOLMET, D-ATIS, D-FIS are not included; Similarly in ASBU B0-30/AIM, note that WGS-84 and eTOD are not included) but at the same time they are part of baseline requirements, ANRF should specify those elements.

14. **Implementation Status:** Planned implementation date (year) and the current status are to be reported in this section It is recognized that not all ASBU modules/or elements are required in all airspaces. If that be the case, mention as "Not Applicable" in this section.

15. **Implementation Roadblocks**: Challenging issues for the implementation of Elements /baseline of the Module are to be reported in this section. The four implementation roadblocks are as follows:

- Ground System Implementation:
- Avionics Implementation:
- Procedures Availability:
- Operational Approvals:

16. **Remarks:** Comments, if any, related to any of the sections are to be reported here.

LIST OF SUGGESTED PERFORMANCE METRICS

Key Performance Area	Related Performance Metrics
1. Access & Equity	1. KPA/Access: Percentage of instrument runway ends having an APV
	2. KPA/Access: Duration of Special Use Airspace (SUA) limits Civil Operations
	3. KPA/Equity Percentage of aircraft operators by class who consider that equity is achieved
	4. KPA/Access: Percentage of requested flight level versus cleared flight level
2. Capacity	1. Number of movements per day per aerodrome
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3. Cost effectiveness	1.IFR movements per ATCO hour on duty
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4. Efficiency	1. Kilograms of fuel saved per operation
	2. Average ATFM delay per flight in the airport
	3. Percentage of PBN routes
5. Environment	1.Kilograms of CO_2 emissions reduced per operation
6. Flexibility	To be decided
7. Global Interoperability	1. Number of ATC automated systems that are interconnected
8. Participation of the ATM Community	1. Level of participation in meetings
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	8. Number of ADS-Cs available over oceanic and remote Areas
	9. Number of continental CPDLC systems established
	10. Percentage of aerodromes with PBN SIDs implemented and
	11. Percentage of aerodromes with CCOs implemented;
	12. Number of States implemented WGS-84
11. Security	Not applicable

— END —.

SAMPLE TEMPLATE   **APPENDIX - C**

AIR NAVIGATION REPORT FORM (ANRF)
ASBU METHODOLOGY

Regional and National planning for all ASBU Modules

REGIONAL/NATIONAL PERFORMANCE OBJECTIVE

Service Improvement through Digital Aeronautical Information Management (ASBU B0-30)

Performance Improvement Area 2: Globally Interoperable Systems and Data – Through Globally Interoperable System Wide Information Management

Main Key Performance Areas (KPA)

	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	N	Y	Y	Y

Implementation Progress

ASBU B0-30 Elements including baseline PHASE-3 of the AIS/AIM Transition Roadmap (Information Management)	Implementation Status
1.Aeronautical Data Exchange (P-09)	
2.Communications networks (P-10)	
3. Aeronautical Information Briefing (P-12)	
4. Training (P-16)	
5. Agreements with Data Originators (P-18)	
6.Interoperability with meteorological products (P- 19)	
7. Electronic aeronautical charts (P-20)	
8. Digital NOTAM(P-21)	

Implementation Roadblocks

Elements including baseline PHASE-3 of the AIS/AIM Transition Roadmap (Information Management)	Ground system Implementation	Avionics Implementation	Procedures Availability	Operational Approvals
1. Aeronautical Data Exchange (P-09)				
2. Communications networks (P-10)				
3. Aeronautical Information Briefing (P-12)				
4. Training (P-16)				

5. Agreements with Data Originators (P-18)				
6. Interoperability with meteorological products (P- 19)				
7. Electronic aeronautical charts (P-20)				
8. Digital NOTAM(P-21)				
Remarks, if any				

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**AIR NAVIGATION REPORT FORM - ASBU METHODOLOGY
EXPLANATORY NOTES**

17. **Air Navigation Report Form (ANRF):** This form may be used when Planning and Implementation Regional Groups (PIRGs) and States report on the implementation status of Aviation System Block Upgrades (ASBU) modules. Other formats may be appropriate but should contain as a minimum the elements described below.

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22. **Implementation Status:** Planned implementation date (year) and the current status are to be reported in this section It is recognized that not all ASBU modules/or elements are required in all airspaces. If that be the case, mention as "Not Applicable" in this section.

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  - Avionics Implementation:
  - Procedures Availability:
  - Operational Approvals:

24. **Remarks:** Comments, if any, related to any of the sections are to be reported here.

LIST OF SUGGESTED PERFORMANCE METRICS

Key Performance Area	Related Performance Metrics
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	11. Percentage of aerodromes with CCOs implemented;
	12. Number of States implemented WGS-84
11. Security	Not applicable

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