ATM/AIM/SAR SG/12 WP/14



International Civil Aviation Organization Western and Central African Office

Twelfth Meeting of the Air Traffic Management/Aeronautical Information Management/Search and Rescue Sub-Group (ATM/AIM/SAR SG/12) (Dakar, Senegal, 25 - 29 July 2011)

Agenda Item 13:Review of Air Navigation deficiencies in the ATM, AIS, MAP and
SAR fields

REVIEW OF AIR NAVIGATION DEFICIENCIES IN THE ATS, AIS/MAP AND SAR FIELDS

(Presented by the Secretariat)

Summary

This paper discusses the status of deficiencies in the ATS, SAR and AIS/MAP fields in the AFI Region as updated in APIRG/17. The paper recalls that APIRG/17 was of the view that the current list of deficiencies in the ATS, SAR and AIS/MAP fields had limited usefulness, and proposes measures to enhance reporting.

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

References:

APIRG/17 Report ATS/AIS/SAR SG/11 Report SP AFI/8 RAN Report

1. INTRODUCTION

1.1 The definition "deficiency" as approved by the ICAO Council is that:

"a deficiency is a situation where a facility, service or procedure does not comply with a regional air navigation plan approved by the Council, or with related ICAO Standards and Recommended Practices, and which situation has a negative impact on the safety, regularity and/or efficiency of international civil aviation" 1.2 Identification, assessment and reporting of air navigation deficiencies is one of the regular tasks of the ICAO planning and implementation regional groups (PIRGs). However, in order for APIRG to effectively address deficiencies in the AFI Region, adequate information on specific deficiencies should be available.

1.3 The SP AFI/ 8 RAN meeting Rec.6/25 adopted performance objectives for the elimination of Air Navigation Deficiencies in the AFI Region, and called States to develop their national action plans, aligned with the regional performance objective, to eliminate their relevant deficiencies.

2. DISCUSSION

0.1 The APIRG/17 Meeting, Ouagadougou, Burkina Faso, from 2 to 6 August 2010 noted that based on currently available information at the Secretariat as of March 2010, 44 States were reported as having no deficiencies in the field of ATM, 51 in the fields of AIS/MAP, while in the field of SAR most States (40-45) had three similar deficiencies all identified between 1991 and 1995. The Group agreed that the existing list of deficiencies was not useful, given the picture reflected by, inter alia, reports from the USOAP audit of AFI States, and unsatisfactory condition reports (UCRs) considered by the AFI Tactical Action Group (TAG)

0.2 The Group acknowledged that a comprehensive review of the AFI deficiency database is necessary in order to more closely reflect the actual status of deficiencies, and in turn to trigger appropriate measures to resolve such deficiencies. Accordingly, the APIRG/17 formulated the following Conclusion:

APIRG Conclusion 17/100: Elimination Of Air Navigation Deficiencies in the ATM AIS/MAP and SAR fields:

That, in order to facilitate the updating of the deficiency database by the Regional offices, and to foster the elimination of deficiencies in the AFI Region:

- a) APIRG subsidiary bodies and secretariat establish a comprehensive list comprising all air navigation deficiencies consistent with the ICAO definition of deficiency as approved by Council, for necessary attention;
- b) States and International Organizations (including IATA, IFALPA, IFATCA) are urged to actively contribute towards updating the deficiency database, by providing to the Regional Offices, information on the implementation status of SARPS and Air Navigation Plan (ANP) requirements and;
- c) States provide copies of action plans developed in pursuant to SP AFI/8 RAN Recommendation 6/25 to the concerned APIRG subsidiary bodies and the Regional Offices.

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0.3 The ATM/AIM/SAR Sub-Group may wish to acknowledge that while one of the tasks of APIRG (with its Sub-Groups) is the identification, assessment and reporting of air navigation deficiencies, without effect reporting, this important task is best facilitated by active participation by States (and their ANSPs), users and other stakeholders including professional organizations.

0.4 In order to encourage reporting by all concerned parties and to enable follow up, particularly by the Regional Offices, the Sub-Group may wish to agree on an **approach to reporting** that would guide the parties from whom reports on deficiencies are expected.

0.5 In **Appendix A** to this working paper is a list of areas which are proposed to be a reference for minimum reporting. Without prejudice to the definition of deficiency as approved by the Council, States, (Regulators and ANSPs), users (IATA, AFRAA, etc.), and professional organizations (IFALPA, IFATCA, IFATSEA, etc.) would be encouraged to report on deficiencies in the areas listed in the Appendix (in addition to reporting any other deficiencies as defined by the Council). The criteria used to develop the list is as follows:

- (i) Areas in which historically there has been reporting, particularly across regions
- (ii) Areas observed to have perpetual/perennial existence
- (iii) Provisions which if not met have widespread safety implications
- (iv) Provisions which if implemented would have significant, widespread impact
- (v) SARPs/Requirements know to present challenges that many State find difficult to overcome
- (vi) The balance between excessive reporting, and reporting level that is so low that its value is insignificant

0.6 The envisaged benefits of this approach include the following:

- (i) Consistency in reporting across all AFI States with respect to the listed areas
- (ii) Ability to derive trends and propose common solutions
- (iii) Consistency in follow-up by Regional Offices and other concerned parties
- (iv) Encouragement to report

0.7 Undesirable outcomes of the approach which should be guarded against include the following:

(i) Reporting only on the listed areas, instead of all deficiencies covered by the Council deficiencies

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- (ii) Excessive allocation of solutions effort the listed areas

0.8 The meeting may wish to discuss the approach and list in **Appendix A**, noting that SARPs and Regional requirements on which reporting would be with the Council definition, are in thousands. Accordingly, a balance should be established between over-reporting which could make prioritizing difficult, and little or no reporting; both of which could defeat the purpose of identifying the deficiencies and the ability to find solutions.

0.9 Based on the above, the meeting may wish to formulate the following Draft Conclusion:

Draft Conclusion 12/XX: That, in order to encourage reporting of deficiencies, follow up, collection of information on impediments to implementation, and to facilitate identification solutions, AFI States and other stakeholders are encouraged to use the list of reporting areas at **Appendix XXA**, as a guide to minimum reporting.

ACTION BY THE MEETING: 3.

The Sub-Group is invited to:

- a) note the information in this working paper
- b) review and agree on the proposed reporting approach and the Draft Conclusion under paragraph 2.8 of this working paper.

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	ICAO Reference Document & GPIs	Description	Date first reported	Remarks/ Impact of non- implementation	Action by States	Action taken/planned by State (including timelines/target dates)	Identified implementation impediment and action thereon	Status
				CLASSIFICATION O	F AIRSPACES [Annex 11, 2.6]			
1.	[Annex 11 Para 2.3] [AFI/7 Rec. 5/21] GPI-4	Lack of provision of area control service		Inefficient and unsafe provision of ATS				
			PE	RFORMANCE-BASED NAVIO	GATION [Annex 11, 2.7] [A37	Resolution]		
2.	[Annex 11, Para 2.7] AFI/7 Rec. 6/9	Lack of implementation of PBN		Will not achieve targets set as part of Global PBN implementation goals				

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3.	[A37 Resolution] [AFI/7 Conc. 5/7] GPI-5, GPI- 11,	Implementation of RNAV and RNP operations						
4.	GPI-21 [A37 Resolution] GPI-5, GPI- 14, GPI-21	Implementation of approach procedures with vertical guidance (APV)						
5.	[A37 Resolution] GPI-5, GPI- 14, GPI-21	Implementation of LNAV only procedures						
6.	[AFI/7, Rec 5/16] GPI-5	State database of approval status						
7.	[Annex 11, 2.27.1]	States Safety Plan (SSP)						

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8.	[Annex 11, 2.27.3] [PANS-ATM, Chapter 2]	Safety management system (SMS)		Cannot achieve or guarantee acceptable level of safety in the provision of ATS				
				LANGUAGE PROP	FICIENCY [Annex 11, 2.29]			
9.	[Annex 1 Annex 11] [A37-10 Resolution] [AFI/7 RAN]	Language proficiency						
10.	[PANS-ATM Chapter 12]	Non use of appropriate language for ATS provision		Can result in confusion and misinterpretation of instructions which can impact on safety of air navigation				
				AIRSPACE M	ANAGEMENT (ASM)	·	·	

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11.	[AFI/7, Rec. 5/1] GPI-7	Cooperative approach to airspace management		Lack of safe, orderly and expeditious flow of air traffic Lack of efficiency in upper airspace management				
12.	[Annex 11 Para 2.12]	Non standard use of ATS Route designators		Confusion/misinterpretation of ATC requirements for position reports that can affect situation awareness and lead to provision of non standard separation minima by ATC Units.				
13.	[PANS-ATM Chapter 2]	Uncoordinated use of waypoints (5LNCs)		Conflicting waypoints (having same name but different coordinates Similar pronunciation of waypoints located within close proximity				

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14.	[AFI/7, Rec. 5/3] [Annex 11 Para 2.17, 2.30] GPI-1	Civil/military coordination		Lack of effective civil/military coordination resulting in unsafe and inefficient use of airspace					
15.	[Annex 11 Para 2.12]	Non implementation of Table of ATS 1		Lack of route continuity across the region Inefficient use of airpsce					
16.	[AFI/7, Rec. 5/2] [Annex 11]	Contingency planning		Uncoordinated and unsafe operation of aircraft during disruption of ATS within affected airspace(s).					
17.	[LIM AFI, Rec. 2/1] GPI-3, GPI-4	Plane of division between the lower and upper airspace		Non applicability of uniform division between lower and upper airspace across FIRs and ICAO Regions					

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18.	[AFI/7, Rec. 5/5]	Publication of interception of civil aircraft information in aeronautical information publications		Lack of clear procedures applicable for interception of civil aircraft					
19.	[AFI/7, Rec. 5/10] [Annex 11] [Doc 9426] GPI-11	Establishment of standard departure and arrival routes		Lack of safe, orderly and expeditious flow of air traffic					
20.	[AFI/7, Rec. 5/4]	Ratification of Article 3 bis of the Convention on International Civil Aviation							
	AIR TRAFFIC SERVICES (ATS)								
21.	[Annex 11 Chapter 3,4&5]	Implementation of ATS provisions		Unsafe provisions of ATS					

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22.	[Annex 11 Para 2.3] [AFI/RAN Rec 5/21]	Lack of provision of area control service		Inefficient and unsafe provision of ATS				
23.	[AFI/7 RAN Rec 14/7] [Annex 1]	Lack of trained and competent personnel in the provision of ATS		Unsafe provision of ATS				
24.	[PANS ATM Chapter 10]	Operational Letters of Agreements between ATS units		Unsafe operation of traffic due to outdated LOAs Unsafe operation of traffic due to lack of LOAs				
25.	[AFI/7, Rec. 5/6]	Operational Letter of Agreement between ATS and military units		Lack of uniformity in application of ICAO standards relating to interception of civil aircraft				
26.	[PANS-ATM Chapter 4]	Poor ATC proficiency and lack of proper ATC procedures		Inconsistent and unsafe provision of ATS				

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27.	[AFI/7, Rec. 5/22]	Repetitive flight plans									
28.	[AFI/7, Rec. 5/26]	Reporting and analysis of ATS incidents									
29.	GPI-2	RVSM approvals and monitoring		Lack of updated information on RVSM approved aircraft							
30.	[APIRG Conc.17/43]	Application of strategic lateral offset procedures (SLOP)		Lack of direct routings Lack of efficiency in aircraft operations							
31.	[PANS-ATM] [Doc 7030]	RVSM flight levels restriction		Non-efficient use of RVSM airspace							
32.	[AFI/6, Rec. 7/11]	Compliance with standard radiotelephony phraseologies and procedures		Lack of applicability of standard radiotelephony phraseologies and procedures can create confusion and impact on safety of air navigation							

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33.	[PANS-ATM Chapter 5]	Use of non- standard separation minima		Increased potential for air traffic incidents including accidents						
34.	[SP/RAN] [Annex 11 Para 3.3.5.1]	Non provision of RMA data		Insufficient data results in incomplete safety assessment by ARMA						
35.	[Annex 11 Chapter 7]	Non provision of Met information at ATS units		Lack of provision of timely and accurate met information to pilots can affect operational decisions and safety of operations						
				FLIGHT INFORM	MATION SERVICE (FIS)			-		
36.	[AFI/6, Rec. 6/12]	Provision of aerodrome flight information service		Lack of AFIS can impact on safety of air navigation						
37.	[AFI/7, Rec. 5/12] GPI-22	Implementation of VHF radio coverage		Non availability of two-way communication between ATS units and aircraft						

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38.	[AFI/6, Rec. 6/15]	Air traffic advisory service							
	GPI-4								
			ATS REQU	JIREMENTS FOR AERONAU	UTICAL FIXED SERVICE CO	OMMUNICATIONS		·	
39.	[LIM AFI, Rec. 10/36] GPI-22	Implementation of ATS direct speech circuits							
40.	[AFI/7, Rec. 5/24]	Improvement of communications							
	GPI-22								
	I			AERONAUTICAL INFOR	RMATION MANAGEMENT (A)	IM)	I		
41.	[Annex 15 Para 3.7.1]	Non implementation of WGS-84		Unable to implement basic PBN requirements					
42.	[Annex 15 Para 4.1- 4.2]	Non standard format of AIP		Difficulty to locate essential safety information relevant to conditions of services					

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43.	[Annex 15 Para 5]	Lack of regular and effective updating of AIP		Lack of updated information can lead to safety of air navigation being compromised					
44.	[Annex 15, Para 3.1.1.2, 3.1.4, 3.1.6, 3.2.1 & 4.1]	AIP containing conflicting/misleading information within the different sections		Can cause confusion as to the accuracy and reliability of information that can be utilised by users					
45.	[Annex 15, Para 5]	Lack of implementation of AIRAC system		Publication of critical aeronautical information will not follow standard procedure and can impact on safety of air navigation					
46.	[Annex 15, Para 5]	Lack of timely issuance of notams		Non- availability of critical aeronautical information via notams					
47.	Annex 4, [Para 3.2, 7.2, 13.2 & 16.2] [Annex 15, Para 4.2.3]	Non production of aeronautical charts appropriate to the State		Lack of critical information essential for safety of air navigation					

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48.	[Annex 4]	Non use of standard units of measurement		Can impact on safety of air navigation						
49.	[Annex 15, Para 3.2]	Non implementation of AIS Quality Management System (QMS)		Cannot guarantee quality and accuracy of aeronautical data being published in the AIP						
50.	[Doc 8126, Para 3.2.2 & 3.3]	Lack of effective AIS system		Processes and procedures relating to AIS will not be reliable and standardised						
51.	[Annex 15, Para 3.6.5]	Lack of AIS automation		Increases the chance of human errors during processing of aeronautical information and reduces efficiency of AIS						
52.	[Annex 15, Para 8.1]	Non provision of pre- flight information service at international airports		Lack of pre-flight information can affect flight planning by users and safety of air navigation						
53.	[Annex 15, Para 8.1]	Lack of AIS Aerodrome Units at International Airports		Cannot guarantee provisions of AIS						
54.	[Annex 15, Para 3.2]	Lack of adequate training of AIS personnel		Inadequate human resources to sustain the provision of AIS						

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			A	TS REQUIREMENT FOR OPI	ERATIONAL FLIGHT INFOR	RMATION			
55.	[AFI/7, Rec. 5/14]	HF and VHF VOLMET broadcasts							
	GPI-19, GPI-22								
				COMN	IUNICATIONS				
56.	[AFI/7, Rec. 9/7] GPI-22	Aeronautical fixed telecommunication network (AFTN)							
57.	[AFI/7, Rec. 9/5] GPI-22	AFTN COM centre management							
58.	[AFI/7, Rec. 9/4] GPI-22	AFTN circuits/performance							

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59.	[AFI/7, Rec. 9/3] GPI-22	AFTN efficiency							
60.	[AFI/6, Rec. 12/26] GPI-22	AFS personnel training							
61.	[LIM AFI, Rec. 7/13] GPI-22	Liaison visits by communication centre personnel							
62.	[AFI/7, Rec. 9/10] GPI-19, GPI-22	Satellite broadcast							
63.	[AFI/6, Rec. 13/4] GPI-22, GPI-23	Provision of SELCAL							

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64.	[LIM AFI, Rec. 8/5] GPI-22, GPI-23	Elimination of interference on AMS frequencies								
65.	[LIM AFI, Rec. 8/6] GPI-22, GPI-23	Measures to reduce harmful interference from carrier systems								
66.	GPI-22, GPI-23	VHF frequency utilization list								
67.	[AFI/6, Rec. 13/13] GPI-22, GPI-23	Notification of frequency assignments								
68.	[AFI/6, Rec. 13/14] GPI-22, GPI-23	VHF channels for aerodrome and approach control								

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69.	[Annex 11, Chapter 6]	Lack of essential communication facilities to support the provisions of ATS (internal and external)		Lack of coordination of flights Unsafe operation of flights with increased risks of incidents					
70.	[APIRG Conc. 13/18] GPI-22, GPI-23	Frequency stability and effective adjacent channel rejection characteristic in the VHF mobile							
71.	[AFI/6, Rec. 13/3]	Improved use of the aeronautical mobile service (HF)							
72.	[APIRG Conc.17/25] GPI-17, GPI-22	Implementation of controller-pilot data link communications (CPDLC)		Congestion in communication No assurance of two-way communications between ATS and aircraft where VHF/HF communication is not available or unreliable					

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73.	[AFI/6, Rec. 13/12, FASID Table ATS 2] GPI-19, GPI-22	HF VOLMET broadcasts							
				NAVIGATION	(FASID Table CNS 3)				
74.	GPI-21, GPI-23	Planning principles for radio navigation aids							
75.	[AFI/6, Rec. 14/1] GPI-21	Testing of radio navigation aids							
76.	[AFI/6, Rec. 14/3] GPI-21	Reliability of operation of radio navigation aids							

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77.	[AFI/6, Rec. 14/4] GPI-21, GPI-23	Notification of frequency assignments to radio navigation aids							
78.	[AFI/7, Conc. 10/1] GPI-21	Flight checking of radio navigation aids							
79.	[AFI/7, Rec. 10/2] GPI-21, GPI-23	Geographical separation criteria for VOR and/or VOR/DME installations in the AFI region							
80.	[AFI/7, Rec. 10/3] GPI-21, GPI-23	Geographical separation criteria for ILS installations in the AFI region							
81.	[LIM AFI, Rec. 9/3] GPI-23	Frequency utilization lists LF/MF, 108 MHz to 117.975 MHz and 960 MHz to 1 215 MHz bands							

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82.	GPI-23	Geographical separation criteria for VHF air- ground communications							
				SURVEILLANCE (F	ASID Tables CNS 4A and 4B)	,			
83.	[APIRG Conc.17/31] GPI-9, GPI-17	Implementation of automatic dependent surveillance (ADS-C)							
84.	[AFI/7, Conc. 11/2] GPI-9, GPI-17	Application of procedures for 24-bit aircraft address assignment							
85.	[PANS-ATM Chapter 8]	Lack of essential surveillance facilities to support the provisions of ATS		Ineffective and inefficient surveillance facilities can impact on outcome of emergencies					
				SEARCH A	ND RESCUE (SAR)		·		

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86.	[Annex 12, Chapter 3] AFI/7 Rec. 6/3	Lack of Search and Rescue Agreements between neighboring States		Lack of SAR agreements can be detrimental to safety of persons in distress where searches overlap national boundaries.					
87.	[Annex 12, Section 4.3]	Search and rescue units		Lack of adequately trained search and rescue units and adequate survival and medical supplies can seriously affect the conduct and outcome of SAR operation					
88.	[Annex 12, Section 4.4]	Search and rescue exercises		Lack of regular training of search and rescue personnel and conduct of regular search and rescue exercises can prevent achievement of maximum efficiency in search and rescue operation.					
89.	AFI/7 Rec. 6/1 AFI/7 Rec. 6/2	Satellite aided search and rescue		Lack of implementation will result in difficulty in detection, identification and location of activated 406 Mhz ELTs and loss of valuable time for SAR					

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Note: ICAO Council definition of a Deficiency:

A deficiency is a situation where a facility, service or procedure does not comply with a regional air navigation plan approved by the Council, or with related ICAO Standards and Recommended Practices, and which situation has a negative impact on the safety, regularity and/or efficiency of international civil aviation.
