



International Civil Aviation Organization

**The Third Meeting of the APANPIRG ATM Sub-Group
(ATM /SG/3)**

Bangkok, Thailand, 03-07 August 2015

Agenda Item 6: AOP, MET, AIM, SAR

AIS-AIM IMPLEMENTATION TASK FORCE OUTCOMES

(Presented by the SECRETARIAT)

SUMMARY

This paper presents the outcomes of the ICAO Asia/Pacific Aeronautical Information Services – Aeronautical Information Management Implementation Task Force.

1. INTRODUCTION

1.1 The 10th Meeting of the Aeronautical Information Services (AIS) – Aeronautical Information Management (AIM) Implementation Task Force (AAITF/10) was held in Bangkok, Thailand, from 27 – 30 April 2015.

1.2 The meeting considered a range of issues related to AIS and the transition to AIM, including coordination between relevant ICAO regional groups, AIS-AIM air navigation deficiencies, Regional AIM transition progress and reporting, State updates on AIM implementation, and the ICAO International Codes and Route Designators (ICARD) application.

1.3 Recognizing the ongoing absence of key global guidance material for the implementation of currently effective ICAO standards and recommended practices (SARPS), AAITF developed interim AIM transition guidance for four steps from the Roadmap for Transition from AIS to AIM that were identified as being of the highest priority for the region.

2. DISCUSSION

AIS-AIMSG/10

2.1 The meeting was informed that the current goal for completion of the work of AIS-AIMSG was 2nd or 3rd Quarter 2016, following completion of final proposals for the update to Annex 15 and the new Procedures for Air Navigation Services – Aeronautical Information Management (PANS-AIM).

2.2 Information was also provided on nine ICAO publications being produced or updated by AIS-AIMSG that were expected to become available in 2015:

- Doc 9839 – *AIS Quality Manual* (new) – Draft being completed for use at information workshops in late 2015;
- Doc 8126 – *AIS Manual* (updated) – To be completed closely following AIS Quality Manual;

- Doc 9919 – *AIS Training Manual* (new) – Drafted, undergoing final review by ICAO training specialist, to be released soon in draft form;
- *AIM Concept* (new) – To be updated and combined with an updated Roadmap for the Transition from AIS to AIM;
- Doc 9881 – *eTOD/AMDB Manual* – ICAO investigating the production of a dedicated iKIT;
- Doc 9674 – *WGS-84 Manual* (updated) – accuracy and heighting changes currently being updated by U.S. National Geodetic Survey (NGS);
- Doc 8697 – *Charting Manual* (updated) – undergoing final editorial work;
- Doc 9855 – *Public Usage of the Internet* (updated) – on the work program of the ICAO Information Management Panel (IMP); and
- Doc 8400 – *PANS-ABC* (updated) – in final review, to be considered by the Air Navigation Commission at its next session.

2.3 The meeting reports of the AIS-AIMSG (Summaries of Discussions) are available on the ICAO website at <http://www.icao.int/safety/ais-aimsg/Pages/default.aspx>.

Coordination Between APAC PBNICG and AAITF

2.4 The Secretariat briefed the meeting on coordination between the Asia/Pacific Region Performance-Based Navigation Implementation Coordination Group and AAITF. PBNICG had recognized the scale and importance of the ICAO Codes and Routes Database (ICARD) to both PBNICG and AAITF. In line with the APANPIRG procedural handbook coordination between the two groups would be handled by the ICAO Secretariat on an ad-hoc basis through the submission of papers.

AIS-AIM Air Navigation Deficiencies

2.5 The Secretariat presented the AIS AIM related Air Navigation Deficiencies as identified by the Twenty-Fifth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/25), and by the ICAO Regional Office, for review and update by the meeting. It was noted that, following corrections provided by States since AAITF/9, the following AIS/AIM-related deficiencies remained in the list:

- WGS-84 not implemented (16 States);
- AIP Format (4 States); and
- Quality Management System not implemented (26 States).

2.6 The meeting noted that Annex 15 stipulated that States shall have a quality management system for aeronautical information in place. However, while International Standards Organization (ISO) series quality management standards were referenced in the document, it was not mandatory to use them.

2.7 ANS deficiencies including those related to AIS/AIM are separately provided for review by the meeting in AI7 WP/32.

Regional AIM Transition Progress and Progress Reporting

2.8 The Secretariat provided a summary of AIM transition progress in the Asia/Pacific Region since AAITF/9 (June 2014), as reported to the ICAO Regional Office. Several States had made significant progress, as recorded in the AIM Transition Table which is available on the Asia/Pacific Regional Office website at <http://www.icao.int/APAC/Pages/edocs.aspx>.

2.9 The meeting was reminded of **Conclusion APANPIRG/25-15: Aeronautical Information Management (AIM) Transition Reporting**, which had urged States to verify the information recorded in the AIM Transition Table and update the information at least once annually, by April 30 each year. The following 12 administrations provided updated information:

Australia, Bangladesh, China, Macao China, Fiji, Malaysia, Maldives, Singapore, Sri Lanka, Thailand, Tonga and USA.

2.10 The following States had not provided any information on AIM transition since the AIM Transition Table was created in 2011:

Bhutan, Brunei Darussalam, Kiribati, Marshall Islands, Micronesia, Nauru, Samoa.

2.11 The AIM Transition Table, with progress since AAITF/9 highlighted and including updates provided up to 14 May 2015, is provided in **Attachment A**.

2.12 **Figure 1** illustrates current Asia/Pacific Region progress towards completion of Phase 1.

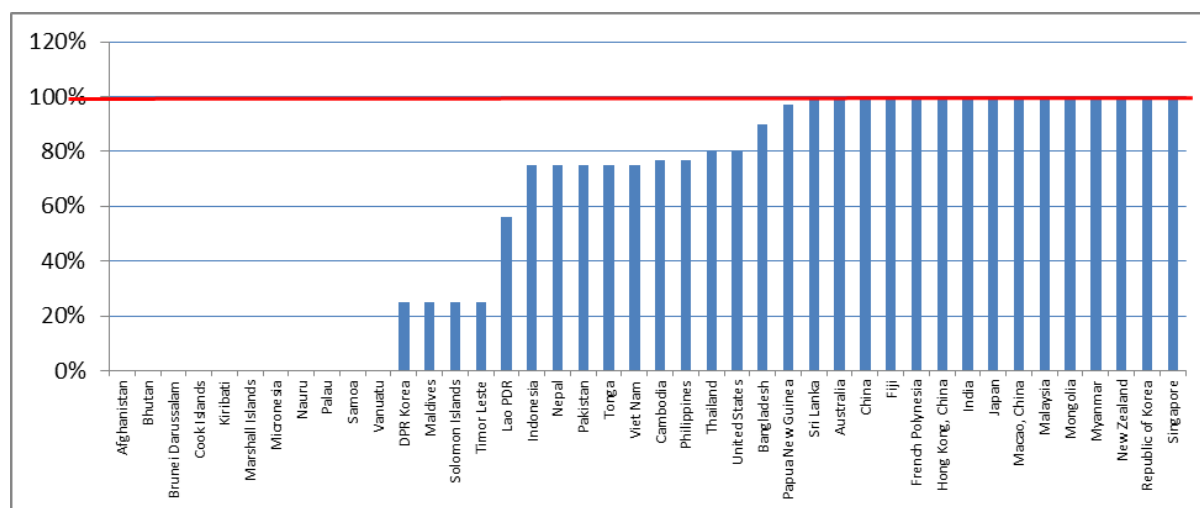


Figure 1: Regional Phase 1 AIM Roadmap Implementation Progress

2.13 Regional implementation of Phase 1- *Consolidation* of the Roadmap for Transition from AIS to AIM was summarized as follows:

15 Administrations ($\approx 36\%$) had completed implementation of Phase 1;

16 Administrations ($\approx 38\%$) had partly implemented Phase 1;

11 Administrations ($\approx 26\%$) had not implemented any Phase 1 step; and

Overall Regional implementation of Phase 1 $\approx 60\%$.

2.14 Figure 2 illustrates current Regional progress towards completion of Phase 2 of the Roadmap.

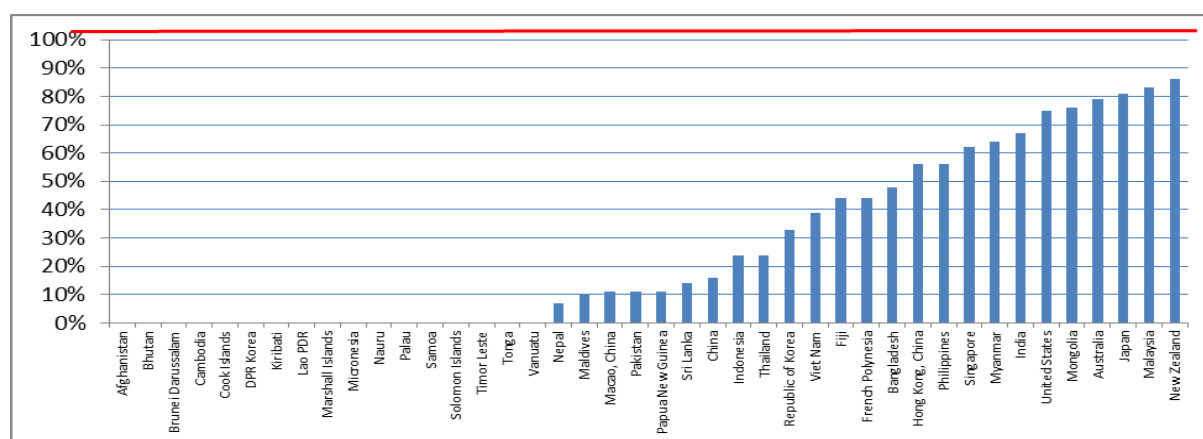


Figure 2: Regional Phase 2 Implementation Progress

2.15 Regional implementation of Phase 2 – *Going Digital* was summarized as follows:

- No Administrations had completed implementation of Phase 2;
- 25 Administrations ($\approx 59\%$) had partly implemented Phase 2
 - 11 Administrations ($\approx 26\%$) have completed more than 50% of Phase 2;
- 17 Administrations ($\approx 40\%$) had not completed any Phase 2 step; and
- Overall Regional implementation of Phase 2 $\approx 27\%$.

2.16 The meeting was reminded that the performance objectives of the Asia/Pacific Seamless ATM Plan, adopted by APANPIRG/24 in June 2013, include the expectation that Phases 1 and 2 of the Roadmap for Transition from AIS – AIM would be completed by November 2015.

2.17 In discussing Regional AIM transition progress, the meeting was reminded of Mongolia's previous offer to design an AIM implementation tracking website. While the AIM Transition Table provided information on progress within the Phases, it did not provide information on the current status and challenges being faced by States. The meeting supported the proposal for a website to share experience between States, and agreed to the following Decision:

Decision AAITF/10-1: AIM Transition Information Sharing Website

That, AAITF agrees to facilitate a project by Mongolia to develop a website for the sharing of information related to the implementation of Aeronautical Information Management steps defined in the ICAO Roadmap for Transition from AIS to AIM.

Facilitation includes:

1. Providing a coordination point for the contact details of the website administrator;
2. Assisting in the development of a list of items for inclusion in the website;
3. Promoting the website as a valuable resource for Asia/Pacific Administrations undertaking or planning to undertake AIM transition and implementation projects; and
4. Encouraging discussion of issues raised in the website and lessons learned at AAITF meetings;
5. Providing a summary of information shared through the website, and providing hyperlink/s to the website, in AAITF meeting reports.

2.18 The scope of the website will be limited to the sharing of information on AIM transition activities and experience. Registered users, being the nominated point-of-contact from each State or Administration, will have write-access permissions for sharing information, posting questions and providing answers or suggestions. The information shared in the website will be publicly available. Mongolia requested that meeting participants provide their States' point-of-contact details as soon as possible.

2.19 It was agreed that Mongolia would design the initial version of the website, with further development based on feedback from the designated points-of-contact. Progress would be reported to the next AAITF meeting.

Electronic AIP

2.20 The meeting discussed the recording in the AIM Implementation Table of electronic AIP (eAIP) implementation, noting that the table did not differentiate between a simple web-accessible, printable AIP provided via PDF or other files, and an AIP based on a digital database of information that could be exchanged through the use of an appropriate information exchange model. The meeting agreed that the current column of the AIM Transition Table recording eAIP implementation should be split to provide information on States that had implemented eAIP generated from digital databases.

2.21 Noting that the updating of AIM Implementation Table information was the subject of an APANPIRG Conclusion, the meeting agreed to the following draft Conclusion:

Draft Conclusion AAITF/10-2: eAIP from Digital Database

That, States providing updated AIM transition information in accordance with **Conclusion APANPIRG/25-15** should advise whether their eAIP is generated from a digital database of aeronautical information.

2.22 It was noted that some States may have implemented eAIP generated from a digital database that may not be suitable for future exchange. The meeting was reminded that the performance objectives of the Asia/Pacific Seamless ATM Plan specified the Aeronautical Information Exchange Model (AIXM) version 5.1 or later¹.

2.23 In discussing eAIP and the Asia/Pacific Seamless ATM Plan's performance objectives the meeting noted that the use of the Aeronautical Information Exchange Model may not be applicable to Phases 1 and 2 of the Roadmap for Transition from AIS to AIM. In its description of Phase 3 – *Information Management* the Roadmap stated *inter alia*:

During Phase 3, steps will be taken to enable future AIM functions in States to address the new requirements that will be needed to implement the Global Air Traffic Management Operational Concept in a net-centric information environment.

The digital databases introduced in Phase 2 will be used for the transfer of information in the form of digital data. This will require the adoption of a Standard for an aeronautical data exchange model to ensure interoperability between all systems not only for the exchange of full aeronautical data sets, but also for short-term notification of changes.

2.24 AIM Transition Phase 2 step P-11 – *Electronic AIP* related to the implementation of the electronic version of the AIP in two forms; a printable document, and one that could be viewed by web browsers. The Phase 3 Step P-09 – *Aeronautical Data Exchange* related to the definition of the information exchange model.

State AIM Updates

Indonesia

2.25 Indonesia presented an overview of both of DGCA and AIRNAV progress towards the Roadmap for the Transition from AIS to AIM Phase 1 (Consolidation) and Phase 2 (Going Digital) in respect to Quality Management. A working group had been created to develop a QMS manual after completion of a gap analysis. Training plans would be developed, and training of all AIS personnel was targeted for the end of 2016. Indonesia's Quality Manual and documented procedures would be developed by the end of 2015.

2.26 DGCA Indonesia was identified as the responsible body for coordination of terrain and obstacle data implementation, including the identification of all stakeholders in order to determine responsibilities, and to develop a feasible plan for implementation. A series of regional seminars was held and a Task Force led by DGCA would allow for a coordinated implementation plan and a common understanding of actions that needed to be taken, including *inter alia* assessment of current data sources, monitoring of surveyors and validation and verification of new and existing data.

¹ Preferred ATM Service Levels (PASL) Phase 1 – (expected implementation by 12 November 2015); Seamless ATM Plan element 7.38.

2.27 It was noted by the meeting that States needed to define “regularly used by international civil aviation¹” to determine their needs for eTOD, e.g. airports with only category A or B operations, no RNP approaches, etc.

Japan

2.28 Japan presented information on the commencement of provision of eTOD in Japan utilizing the existing data for Area 1, Area 2 and Area 4. The data for eTOD will be prepared by making the most of the data that the organizations concerned currently possess and no new survey will be performed to implement eTOD.

2.29 Many obstacles for Area 1 in Japan were not surveyed data and did not meet the accuracy requirement provided by ICAO SARPs. Such data would be provided with the remark that they did not meet the accuracy specification required by ICAO SARPs.

2.30 It was essential to establish a system to provide data that was compliant with the ICAO SARPs for all Areas, although it would take some time. For the time being, the data for Area 2 and Area 4 would be provided by prioritizing airports, firstly for the airports that were regularly used for international civil aviation and then for other airports.

Mongolia

2.31 Mongolia advised the meeting that they were developing a Standard AIS Training Package in cooperation with the Civil Aviation Training Center of Mongolia (a TRAINAIR PLUS member), and was open to opportunities for collaboration and technical assistance in AIM transition. In cooperative activities through the other organizations including Continuing Development of Operational Safety and Continuing Airworthiness Program (COSCAP), industry partners, and the International Federation of Aeronautical Information Management Associations (IFAIMA), Mongolia had provided assistance to other States in AIS training, and AIM automation system and quality management system implementation.

ICARD Update

2.32 The Secretariat provided an update on ICAO International Codes and Route Designators application (ICARD) and participation by Asia/Pacific States, discussing ICARD procedural issues.

2.33 The information provided included discussion of the purpose of ICARD and the user registration process, an update of regional participation in ICARD, common errors, proximity checks, the process flow for requesting 5-letter name codes (5LNC), ATS route designator allocation, and ICARD_5LNC_Manager actions.

¹ Annex 15 sections 10.1.4 to 10.1.9 (standards and recommended practices for electronic terrain and obstacle data for aerodromes and their vicinity.)

2.34 The common errors discussed included:

- Publication of 5LNC in AIP before they have been approved in ICARD;
- States allocating 5LNC from their ICARD Reserve List, but failing to first complete the process of registering the 5LNC in ICARD.
 - *States must ensure that 5LNC selected for use are fully registered through the ICARD **Request for Code Allocation** process.*
- Publication of ATS routes and/or new or amended 5LNC on dates other than AIRAC dates, and with less than the advance notification specified in Annex 15 (**Figure 3**);
 - *States must ensure compliance with the Standards and Recommended Practices (SARPS) relating to advance notification of new or amended aeronautical information, defined in Annex 15 Section 6.2.*
- Completing the Proximity Check checkbox in ICARD to indicate the proximity has been done, when it has clearly either not been done or has not been correctly done;
- Registering 5LNC in ICARD before the coordinates of the waypoint have been validated.
 - *Annex 11 and the ICARD rules do not permit the relocation of a 5LNC.*

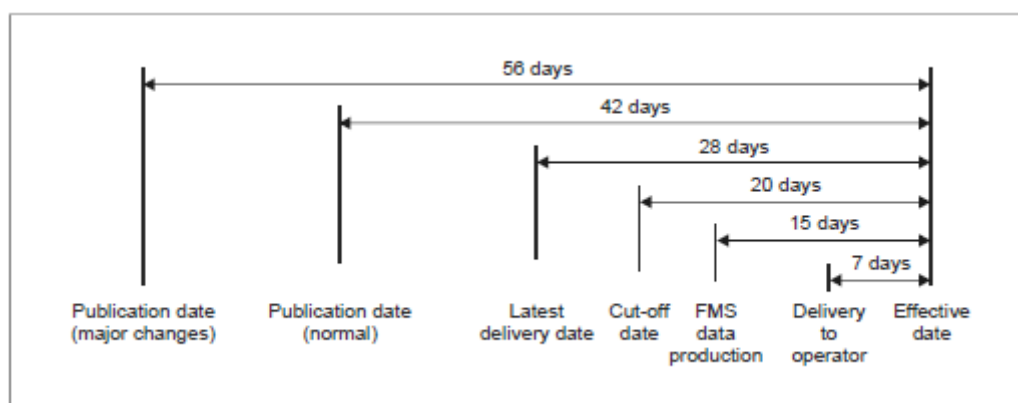


Figure 3: Processing Cycle for Airborne Navigation Databases (Source: Doc 8126 – *AIS Manual*)

2.35 A proposed algorithm was provided in for consideration of States to use as an aid in the detection of like-sounding confusion during proximity checks. Improvements in correct detection of like-sounding or easily confused codes will result in less time consuming rejections of code requests by the ICARD_5LNC_MANAGER.

2.36 **Attachment B** lists the current registered ICARD_5LNC_PLANNERS for the Asia/Pacific Region. States are requested to check the list to ensure the details are correct, and to notify Bangkok Office of any change.

Interim AIM Transition Guidance (WP/07)

2.37 The Secretariat provided draft AIM Transition Guidance for consideration by AAITF, to provide interim guidance on implementation of key AIM transition steps pending the availability of ICAO global guidance material.

2.38 The lack of global guidance material for AIS-AIM transition was viewed by AAITF/9 (Pattaya, Thailand, 24 to 27 June 2014) to be a significant obstacle in States' AIM implementation progress, and presented challenges to their efforts to implement AIM transition steps within timeframes defined by Annex 15 applicability and the Asia/Pacific Seamless ATM Plan's performance objectives. Delivery of the guidance documents has been further delayed beyond the latest advised timeframe (Q2/3 2014). The latest information from ICAO Headquarters at the time of the AAITF/10 meeting (April 2015) was that most of these documents were undergoing final drafting and/or editing, but publication dates had not yet been finalized.

2.39 While recognizing that any independently developed regional guidance material could risk encouraging States to implement AIM in ways that were either not supported by or running counter to the delayed global guidance material, AAITF/9 had agreed to work on AIM transition guidance material for 4 identified priority AIM transition steps: P-17 – *Quality*, P-16 – *Training*, P18 – *Agreements with data originators*, and P-11 *Electronic AIP*.

2.40 Draft Interim AIM Transition Guidance, intended to provide States with a simple checklist of references and information pending publication of the ICAO global guidance documents and PANS-AIM, was reviewed by the meeting. It was proposed that the Interim AIM Transition Guidance should form an appendix to the *Guidance Manual for Aeronautical Information Services (AIS) in the Asia/Pacific Region*, which was available on the ICAO Asia/Pacific Regional Office website at <http://www.icao.int/APAC/Pages/edocs.aspx>.

2.41 The meeting agreed to the following Draft Conclusion:

Draft Conclusion AAITF/10-3: Interim AIM Transition Guidance

That, the *Guidance Manual for Aeronautical Information Services (AIS) in the Asia/Pacific Region* be updated to include as an appendix the Interim AIM Transition Guidance appended at **Attachment C**.

2.42 Following the availability of the ICAO publications supporting AIM transition there would be a need to familiarize stakeholders with their contents. Recognizing also the performance objectives of the Asia/Pacific Seamless ATM Plan (AIM Transition Phases 1 and 2 implemented by November 2015), there would be a need for amendment or further development of the Regional AIM guidance manual. The meeting therefore agreed to the following Draft Decision:

Draft Decision AAITF/10-4: AIM Transition Seminars/Workshops

That, ICAO be urged to facilitate Asia/Pacific AIM Transition Seminars/Workshops to:

1. Familiarize stakeholders with the new and amended ICAO publications developed by the ICAO AIS-AIM Study Group;
2. Assist States in developing AIM implementation plans; and
3. Act as a forum for further development and updating of the *Guidance Manual for Aeronautical Information Services (AIS) in the Asia/Pacific Region*.

2.43 In discussing and amending the draft Interim Guidance for AIM Transition, the meeting also made the following observations:

- Some States were having difficulty in developing a quality manual, and requested an example of a current quality manual;
- Locating training organizations qualified to train AIM staff in quality management was difficult;
- A template for agreements with data originators would provide valuable guidance;
- EUROCONTROL had developed a template that had been adapted by Mongolia to form a template for service level agreements (SLA) between data originators and AIS;
- The type of formal agreement between AIS and data originators would be dependent on the type of agreement that was acceptable under the laws of the individual State;
- Guidance was not yet available for training in the transition from AIS to AIM;
- Guidance was needed on a training structure for sub-units of AIS, with a structured syllabus for each specialization;
- Differentiation between eAIP as defined in Annex 15 and an eAIP generated from a digital database of aeronautical information, and thus suitable for future aeronautical information exchange, was problematic;
- While it may be appropriate to reference AIXM as the model for future aeronautical information exchange, it was not yet appropriate to specify the version number;
- APANPIRG *Conclusion 24/19: Electronic AIP*, in urging States to *inter alia* ensure the eAIP had the unconditional authority of the State without disclaimers referring to a separately published paper product, was intended to encourage States to ensure that their internet accessible eAIP was a fully authorized version of the State AIP, rather than restricting any rights of the State to include disclaimers relating to the subsequent use of the information by other parties;
- While the migration of text-based AIP information, eTOD and other static data into digital databases was relatively straightforward, the migration of conventional instrument approach and landing charts to a digital form presented a significant challenge. There was no current capability available for the automatic generation of conventional charts from digital data.

2.44 The meeting was reminded of the ICAO Information Management Panel, which included in its terms of reference the development of transition strategies and guidance necessary for implementation of global System-Wide Information Management and new information exchange formats, and the further evolution and work on AIM beyond the current AIS-AIMSG work.

Transition to the Asia/Pacific electronic Regional Air Navigation Plan

2.45 The Asia/Pacific Region Air Navigation Plan is in the process of transition to the new online electronic Air Navigation Plan (eANP). **Attachment D** provides the following AIM tables of information that will be migrated from the current ANP into Volume II of the eANP, for review by the meeting:

- Table AIM II-1 – Responsibility for the Provision of AIS/AIM Facilities and Services; and
- Table AIM II-2 – Production Responsibility for Sheets of the World Aeronautical Chart – ICAO 1:1 000 000 or Aeronautical chart – ICAO 1:500 000.

IFAIMA Global AIM 2015

2.46 Viet Nam presented information on the International Federation of Aeronautical Information Management Associations (IFAIMA) Global AIM 2015 conference, which was subsequently held in Ha Noi, Viet Nam, from 9 to 11 June 2015. The event provided the opportunity for participants to gain knowledge and information from a broad range of aeronautical information regulators, service providers, system vendors, users and AIM experts from around the globe.

2.47 ATM/SG is invited to note that IFAIMA Global AIM 2015 was the first such conference held after the formal recognition of IFAIMA by the Council of ICAO. IFAIMA is now recognized as an organization that may be invited to attend suitable ICAO meetings, and will be directly invited attend future AAITF meetings.

Future Direction of AAITF

2.48 During the review of its Terms of Reference (TOR) the meeting discussed the future direction of AAITF, and what it was expected to achieve. It was noted that only 7 working papers and 6 information papers had been presented to this meeting, and that no States had presented working papers.

2.49 It was again noted that achievement of the AAITF objectives listed in the TOR were dependent on global guidance material supporting AIM transition that had not yet been delivered, most notably including the updated Doc 8126 – *AIS Manual*, and the new AIS Training and AIS Quality manuals. However, it was agreed that AAITF could continue to work towards its objectives pending the delivery of the relevant documents. It was therefore agreed that AAITF would, as near term objectives:

1. Review and update the quality management guidance and sample quality manual provided in the Guidance Manual for AIS in the Asia/Pacific Region;
2. Review the global guidance material relating to AIM transition when it became available, and draft recommendations for implementation within the APAC Region;
3. Conduct one-day seminars/workshops on selected topics in conjunction with each AAITF meeting. A topic agreed for AAITF/11 was *processes, considerations and challenges in the migration of aeronautical information into digital databases*.

3. ACTION BY THE MEETING

- a) The meeting is invited to:
- b) note the information contained in this paper;
- c) Discuss and agree to the following Draft Conclusions and Draft Decision;
 - *Draft Conclusion AAITF/10-2: eAIP from Digital Database;*
 - *Draft Conclusion AAITF/10-3: Interim AIM Transition Guidance;* and
 - *Draft Decision AAITF/10-4: AIM Transition Seminars/Workshops;* and
- d) Notify the ICAO Asia/Pacific Regional Office of any amendments or corrections to information included in the eANP AIM tables.
- e) discuss any relevant matters as appropriate.

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State AIS AIM Transition Table

Phase 1

- P-03 — AIRAC adherence monitoring
- P-04 — Monitoring of States' differences to Annex 4 and Annex 15
- P-05 — WGS-84 implementation
- P-17 — Quality

Phase 2

- P-01 — Data quality monitoring
- P-02 — Data integrity monitoring
- P-06 — Integrated aeronautical information database
- P-07 — Unique identifiers
- P-08 — Aeronautical information conceptual model
- P-11 — Electronic AIP
- P-13 — Terrain
- P-14 — Obstacles
- P-15 — Aerodrome mapping

Phase 3

- P-09 — Aeronautical data exchange
- P-10 — Communication networks
- P-12 — Aeronautical information briefing
- P-16 — Training
- P-18 — Agreements with data originators
- P-19 — Interoperability with meteorological products
- P-20 — Electronic aeronautical charts
- P-21 — Digital NOTAM

State Name = No reports since AAITF/9

= progress reported

= amended progress reported

Part = AIP Book, but no AIP SUP or AIC

Date Last Amended: 14 May 2015

	Phase 1 Consolidation (Am. 36 November 2010)				Phase 2 Going Digital (Amendment 37 November 2013)							Phase 3 Information Management (Amendment 38 November 2016)											
	P-03	P-04	P-05	P-17	P-01	P-02	P-06	P-07	P-08	P-11		P-13	P-14	P-15	P-09	P-10	P-12	P-16	P-18	P-19	P-20	P-21	
										eAIP	Digital ¹												
Afghanistan																							
Australia	√	√	√	√	80%	√	√	√	60%	Link		√	75%				10%	60%			90%	5%	
Bangladesh	√	√	60%	√	√	√	70%	√		Part			60%			20%				20%			
Bhutan																							
Brunei Darussalam																							
Cambodia	√	√	√	10%						Part						70%		40%					
China	√	√	√	√					40%	Link								√	√			√	
Hong Kong, China	√	√	√	√	√	√				Link		√	√					40%	√				
Macao, China	√	√	√	√						Link								√	√				
Cook Islands																		√					
DPR Korea			√																				
Fiji	√	√	√	√			√	√	√				√			√	√	√					
India	√	√	√	√	√	√	√	√	√				√										
Indonesia	√	√	√		50%	50%	20%			Link						80%		60%	20%	10%	20%		
Japan	√	√	√	√	√	√	√	√	√	Link		80%	50%		80%	20%	60%	√	√		20%	20%	
Kiribati																							
Lao PDR	√	√	25%																				
Malaysia	√	√	√	√	√	√	√	√	√	Link		50%	50%	50%	√	√	√	√			50%		
Maldives			√							Link													
Marshall Islands																							
Micronesia																							
Mongolia	√	√	√	√	√	√	√	80%	√	Link		65%	28%	5%	20%	10%	√	90%	√			√	
Myanmar	√	√	√	√	√	√	20%	20%	20%	Link		√	√	20%	20%	50%	50%	80%	80%	80%	80%	20%	
Nauru																							
Nepal	√	√	√										30%	30%									
New Zealand	√	√	√	√	√	√	√	√	75%	Link		√	80%	15%	80%								
Niue (NZ)																							
Pakistan	√	√	√										√		√	√	√		√			√	
Palau										part													
Papua New Guinea	√	√	√	90%				√									10%						
Philippines	√	√	60%	50%	√	50%	√	√	√	50%													
Republic of Korea	√	√	√	√	√			√	√									√	√		40%	90%	
Samoa																							
Singapore	√	√	√	√	√	√	50%	√	√	Link	√	60%	60%	25%	√	√	√	√	√			√	
Solomon Islands			√																				
Sri Lanka	√	√	√	95%			25%			Link						25%	25%	20%	25%				
Thailand	√	√	80%	40%	40%	30%				Link		25%	25%		10%	5%							
Timor Leste			√																				
Tonga		√	√	√																			
Vanuatu																							
Viet Nam	√	75%	√	25%	50%	50%	50%		√	Link					√	√		70%	50%				
USA ²	√	√	20%	√	√	√	25%	√	50%	part		√	√	√	√	√		70%	√	25%	√	√	
France ³	√	√	√	√	√	√		√		Link													

¹ Electronic AIP generated from a digital database of aeronautical information.

² Includes American Samoa, Guam, Johnston, Kingman, Midway, Mariana, Palmyra, Wake

³ Includes French Polynesia, New Caledonia, Wallis and Futuna Islands

Asia/Pacific Region ICARD_5LNC_PLANNERS				
State/Administration	ICARD User Id	Surname	First name	Email
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INTERIM AIM TRANSITION GUIDANCE

Introduction

1.1 The Ninth Meeting of the Asia/Pacific Region AIS – AIM Implementation Task Force (AAITF/9, Pattaya, Thailand, 24 – 27 June 2014), recognized that the lack of AIM transition guidance material was a matter of significant concern to Administrations. There had been delays in the production of global ICAO guidance documents, those of most immediate significance being the updated Doc 8126 *AIS Manual*, the new Doc 9839 *Quality Manual* and Doc 9991 *AIS Training Manual*.

1.2 The lack of global guidance material was proving to be a significant obstacle in States' AIM implementation progress. This would present considerable challenges to their efforts to implement AIM transition steps within timeframes defined by the applicability of Standards and Recommended Practices (SARPS) defined in Annex 15 to the Convention on Civil Aviation, and the performance objectives of the Asia/Pacific Seamless ATM Plan.

1.3 AAITF/9 noted that any independently developed regional guidance material could risk encouraging States to implement AIM in ways that may be divergent from anticipated global guidance. However, also noting that availability of global guidance material had been progressively delayed from Q1/2 2012 to Q3/4 2013 then Q2/3 2014, the Task Force agreed to continue work on Regional AIM transition guidance material for key AIM transition steps from the ICAO *Roadmap for Transition from AIS to AIM*.

1.4 4 priority AIM transition steps were identified:

- P-17 – *Quality*;
- P-16 – *Training*;
- P-18 – *Agreements with data originators*;
- P-11 – *Electronic AIP*.

1.5 The following guidance material is provided in the form of a checklist of considerations, together with brief explanatory material, for each of the four identified steps. References to SARPS and existing guidance material are provided. Contributions provided by Australia, India, Japan, Malaysia, Singapore and Thailand were reviewed and agreed by AAITF/10 (Bangkok, Thailand, 27 – 30 April 2015).

1.6 Global AIM guidance documents, when published, will be reviewed by AAITF. The outcomes of that review will determine the need for continuing regional guidance material.

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P-17 – Quality

Roadmap for Transition from AIS to AIM

Quality management measures will be re-enforced to ensure the required level of quality of the aeronautical information. In order to assist States in the implementation of an efficient quality management system, guidance material for the development of a quality manual will be developed.

The transition step P-17 – Quality is one of four steps in AIM Transition Phase 1 – *Consolidation*. In this phase States were expected to enhance the quality of their existing AIS products, to conform to SARPS existing at the time of publication of the Roadmap.

Along with the other Phase 1 transition steps, P-17 – Quality is a prerequisite for commencement of the transition from AIS to AIM.

Annex 15 – Aeronautical Information Services

1.1 Amendment 30 to Annex 15, applicable from 2 November 2000, introduced the following Standard:

3.2 Quality system

3.2.1 Each Contracting State shall take all necessary measures to introduce a properly organized quality system containing procedures, processes and resources necessary to implement quality management at each function stage as outlined in 3.1.7 above. The execution of such quality management shall be made demonstrable for each function stage, when required.

1.2 The wording of the paragraph was subsequently simplified in Amendment 36 to the Annex, applicable from 18 November 2010:

3.2 Quality management system

3.2.1 Quality management systems shall be implemented and maintained encompassing all functions of an aeronautical information service, as outlined in 3.1.7. The execution of such quality management systems shall be made demonstrable for each function stage, when required.

P-17 – Quality

1.3 The following Annex 15 references specify addition SARPS for aeronautical information quality, and quality management systems:

1.1 Definitions

Aeronautical information management (AIM). *The dynamic, integrated management of aeronautical information through the provision and exchange of quality-assured digital aeronautical data in collaboration with all parties.*

Data quality. A degree or level of confidence that the data provided meet the requirements of the data user in terms of accuracy, resolution and integrity.

Metadata. *Data about data (ISO 19115*).*

Note.— *A structured description of the content, quality, condition or other characteristics of data.*

Quality. Degree to which a set of inherent characteristics fulfils requirements (ISO 9000*).

Note 1.— *The term “quality” can be used with adjectives such as poor, good or excellent.*

Note 2.— *“Inherent”, as opposed to “assigned”, means existing in something, especially as a permanent characteristic.*

Quality assurance. *Part of quality management focused on providing confidence that quality requirements will be fulfilled (ISO 9000*).*

Quality control. *Part of quality management focused on fulfilling quality requirements (ISO 9000*).*

Quality management. *Coordinated activities to direct and control an organization with regard to quality (ISO 9000*).*

Requirement. *Need or expectation that is stated, generally implied or obligatory (ISO 9000*).*

Note 2.— *A qualifier can be used to denote a specific type of requirement, e.g. product requirement, quality management requirement, customer requirement.*

Traceability. *Ability to trace the history, application or location of that which is under consideration (ISO 9000*).*

Note.— *When considering product, traceability can relate to:*

- *the origin of materials and parts;*
- *the processing history; and*
- *the distribution and location of the product after delivery.*

Validation. *Confirmation, through the provision of objective evidence, that the requirements for a specific intended use or application have been fulfilled (ISO 9000*).*

P-17 – Quality

Verification. *Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled (ISO 9000*).*

Note 1.— The term “verified” is used to designate the corresponding status.

*Note 2.— Confirmation can comprise activities such as:
performing alternative calculations;*

- comparing a new design specification with a similar proven design specification;*
- undertaking tests and demonstrations; and*
- reviewing documents prior to issue.*

Chapter 2. Responsibilities and Functions.

2.1 State responsibilities

2.1.4 Each Contracting State shall ensure that the aeronautical data and aeronautical information provided are complete, timely and of required quality in accordance with 3.3.

Chapter 3. Aeronautical Information Management

3.2 Aeronautical data and aeronautical information validation and verification

3.3 Data quality specifications (Accuracy, Resolution, Integrity)

3.4 Metadata

3.5 Data Protection

3.7 Use of Automation

3.7 Quality management system

3.8 Human Factors Considerations

Chapter 8. Pre-Flight and Post-Flight Information

8.2 Automated pre-flight information systems

Chapter 10. Electronic Terrain and Obstacle Data

10.4 Terrain and obstacle data product specifications

Chapter 11. Aerodrome Mapping Data

11.1 Aerodrome mapping data – requirements for provision

Appendix 7. Aeronautical Data Publication Resolution and Integrity Classification

P-17 – Quality

Annex 4 – Aeronautical Charts

Chapter 5. Aerodrome Terrain and Obstacle Chart – ICAO (Electronic)

5.8 Chart data product specifications

Chapter 20. Electronic Aeronautical Chart Display – ICAO

20.4. Provision and updating of data

Appendix 6. Aeronautical Data Quality Requirements

ICAO Doc 8126 – AIS Manual

1.4 Guidance material for Quality Systems is included in the current edition of ICAO Doc 8126 – *AIS Manual* (Eighth Edition, published in 2003 and last amended in September 2009).

Chapter 1. Introduction

1.3 Quality System

1.6 Use of Automation

Chapter 9. Organization of an Automated Aeronautical Information Services System

9.2 Basic Principles

9.3 Users' Operational Requirements in an Automated AIS System

ICAO Doc 9674 – WGS-84 Manual

1.5 In addition to quality requirements for accuracy, resolution and integrity, the WGS-84 Manual provides detailed guidance for quality assurance of aeronautical data:

Chapter 6. Quality Assurance

Regional Guidance Material

1.6 Detailed Regional guidance material for Quality Systems is included in the *Guidance Manual for Aeronautical Information Services (AIS) in the Asia/Pacific Region*, and available on the ICAO Asia/Pacific Regional Office website at <http://www.icao.int/APAC/Pages/edocs.aspx>.

P-17 – Quality

Checklist of Considerations

Regulatory Considerations

1.7 Regulations supporting aeronautical information quality must be established:

Requirements for aeronautical information quality, and for formal agreements defining roles and responsibilities of data originators, AIS, aeronautical information production organizations (e.g. charting) and end users.

1.8 Examples of Regulations for Aeronautical Information may be found at:

Civil Aviation Safety Authority (Australia)

<http://www.casa.gov.au/scripts/nc.dll?WCMS:PWA::pc=PARTS175>.

1.9 Clearly define the separate roles and responsibilities of regulator and service provider.

Resources, Infrastructure and Systems

1.10 Provision of resources

Appropriate deployment of resources to ensure that the AIM management system is capable of meeting ongoing business needs. Sufficient resources are allocated toward maintaining and improving the quality management system, and enhancing customer/client satisfaction.

- an assessment of the training needs of staff
- provision of training and the maintenance of currency/effectiveness
- the appropriate number of persons
- availability of equipment and systems
- staff facilities and reference materials.

1.11 Infrastructure

Appropriate infrastructure such as buildings, equipment and systems (hardware and software) are provided to enable personnel to deliver quality products and services commensurate with their role and responsibilities. The plant and equipment used is supported by service contracts administered by dedicated support groups. System specialists maintain configuration, access, security, virus control and disaster recovery of computer based systems.

P-17 – Quality

Processes and Procedures

1.12 **Develop a Quality Manual**

A quality manual forms part of a hierarchy of policy, procedures and work instructions ensuring the robust application of quality management:

- Quality Manual – Quality management policy and requirements covering all work domains of the organization;
- Quality Procedures – developed for each department/unit of an organization to ensure compliance with the provisions of the Quality Manual;
- Work Instructions – the detailed instructions for the conduct of the operations of the section/unit (e.g. AIS), which include Quality Procedures.

Development of a quality manual should include the following:

1. Organizational commitment at all levels to implement a quality management system;
2. A work plan including necessary approvals and budget allocation;
3. Engagement of a QMS consultant to assist in understanding of quality management concepts and terms;
4. Defined quality policy and quality objectives (quality objectives renewed every year);
5. AIS process diagram including quality control connections;
6. Non-punitive reporting system to ensure true data on non-conformance;
7. Define corrective and protective actions;
8. Annual internal audit plan to ensure correct implementation of the QMS;
9. Bi-annual management review meetings;

Guidance on the development of a Quality System for Aeronautical Information, and a sample Quality Manual, are provided in the *Guidance Manual for Aeronautical Information Services (AIS) in the Asia/Pacific Region*. Detailed global guidance for quality management will be provided in the new ICAO Document 9839 – *Aeronautical Information Quality Manual*.

P-17 – Quality

1.13 Documented Procedures.

Documented procedures ensure that controlled documents are identifiable, legible, readily available and retrievable. Documents are regularly reviewed for adequacy and approved by the relevant document owner.

Ensure that:

- relevant and current documents are issued and are available at points of use ;
- unauthorized or obsolete documents are removed from points of use;
- hard copies of controlled documents are assumed to be (and are treated as) ‘Uncontrolled Copy’; and
- changes to documents are reviewed and approved and identified in the document.

1.14 Control of records

AIM should have legal and regulatory requirements to keep complete, reliable and accurate records as evidence that it is operating within regulatory and legislative requirements.

Policy should ensure that detailed records associated with any change to published information are maintained and are traceable back to the originator of the change.

1.15 Quality management of data input to aeronautical information databases during migration from aeronautical information products (i.e. paper AIP).

Ensure quality management processes are in place to ensure the quality of data is validated during the migration of information into databases.

1.16 Regular reviews of the entire Integrated Aeronautical Information Package

Regular reviews of all elements of the Integrated Aeronautical Information Package should be undertaken to ensure the consistency, accuracy and timeliness of information, and the timely removal of redundant information.

The Integrated Aeronautical Information Package is defined in Annex 15 as a package in paper, or electronic media which consists of the following elements:

- *AIP, including amendment service;*
- *Supplements to the AIP;*
- *NOTAM and PIB;*
- *AIC; and*
- *checklists and lists of valid NOTAM.*

P-17 – Quality

1.17 The AIP document set is reviewed and updated at regular intervals (at least once per year, in accordance with AIRAC cycle)

1.18 Ensure compliance with AIRAC publication and effective dates, and with advance notification requirements specified in Annex 15.

Ensure data originators for planning purpose to ensure timely publication of operationally significant aeronautical data and information to allow sufficient time for follow-up actions by users.

Publish AIRAC publication and effective dates in AIC and / or AIP yearly

1.19 Data Quality (Accuracy, Resolution and Integrity):

Formal agreements must be in place between data originators, the AIS, data production organizations (e.g. charting) and end users, relating to the quality requirements, maintenance and amendment of data, and the procedures for coordination and communication.

Before submitting data for publication, data originators must ensure that data is accurate and is in conformity with the specifications.

AIS Section to ensure that the data has been entered into the system, for publication, as received.

Data originators to ensure that data is in conformity with the data forwarded.

Data originators should cross check the published data at each AIRAC date to ensure it remains valid.

Data originators to take immediate action to notify the AIS of any correction to data provided.

Data originators and AIS to assess the causes of error committed may be inadvertently and to take preventive measures.

1.20 Proof reading and peer review of AIP amendments, AIP Supplements and AIC before publication.

Check for typographical and other errors, and for inconsistency between elements of the Integrated Aeronautical Information Package.

Review by data originators and aeronautical information service providers.

P-17 – Quality

1.21 AIP Amendment Distribution Checks.

Conduct surveys and other checks to ensure that end users of AIP are receiving AIP Amendments, SUPPS and AIC in accordance with the AIRAC and Annex 15 requirements for distribution.

1.22 Annex 15 and Doc 8126 Compliance checks for all NOTAMS.

Standards, recommended practices and guidance for the compilation and distribution of NOTAMS are defined in Annex 15 and Doc 8126 AIS Manual.

Asia/Pacific Region OPADD procedures should be used to complement the procedures specified in ICAO docs to ensure concise, consistent NOTAMS.

1.23 Corrective Action on Errors Identified after Publication.

- Verify the nature of the error;
- Where necessary verify the correct information with the data originator;
- Take initial NOTAM action where appropriate, and initiate amendment to AIP and/or re-issue of AIP Supplement or AIC.

1.24 Handling of multi-part NOTAMs

Standardized format to indicate multi-part NOTAMs, to allow automatic processing

1.25 Standard format for NOTAM query (RQN)

Standardized format to request repeat of missing / corrupted to allow automatic processing by automated system to provide accurate and complete aeronautical information to users.

1.26 Single, published address and contact information for NOF

To ensure that queries and corrections on NOTAMs are correctly routed for timely follow-up action.

P-17 – Quality

Human Performance

1.27 **Ensure complete understanding of Aeronautical Information Management concepts including training of relevant staff in:**

- *National obligations under Annexes 4 and 15 to the Convention on Civil Aviation;*
- *National regulations supporting annexes 4 and 15;*
- *AIRAC cycle and Annex 15 requirements for advance notification of major changes;*
- *Definition of major changes;*

- *Quality requirements for accuracy, resolution and integrity; and*
- *Quality management concepts and processes.*

Train staff in Quality Management requirements

1.28 **Regular Proficiency Checks**

Ensure all staff in the aeronautical information chain are suitably trained, competent and diligent, and are familiar with any changes in processes or requirements.

Annex 1 to the Convention on Civil Aviation (Personnel Licensing) does not specify license requirements for Aeronautical Information Personnel. States may consider implementing a Certificate of Competency, together with a performance standards and assessment methodology, for the regular assessment of competency.

P-18 – AGREEMENTS WITH DATA ORIGINATORS

Roadmap for Transition from AIS to AIM

Data of high quality can only be maintained if the source material is of good quality. States will be required to better control relationships along the whole data chain from the producer to the distributor. This may take the form of template service level agreements with data originators, neighbouring States, information service providers or others.

The transition step P-18 – *Agreements with Data Originators* is one of eight steps in AIM Transition Phase 3 – *Information Management*. While the Asia/Pacific Region’s current focus is on implementation of Phases 1 and 2, it is recognized that formal agreements between stakeholders in the aeronautical information chain are a critical component of robust end-to-end quality management. Step P-18 is one of four complementary Roadmap steps related to the quality management of aeronautical data:

- P-17 – Quality;
- P-01 – Data Quality Monitoring;
- P-02 – Data Integrity Monitoring; and
- P-18 – Agreements with Data Originators.

Annex 15 – Aeronautical Information Services

1.1 The current provision in Annex 15 relating to agreements with data originators include:

3.7. *Quality management system*

3.7.1 *Quality management systems shall be implemented and maintained encompassing all functions of an aeronautical information service, as outlined in (section) 2.2. The execution of such quality management systems shall be made demonstrable for each function stage.*

Note.—Guidance material is contained in the Manual on the Quality Management System for Aeronautical Information Services (Doc 9839).

3.7.2 *Recommendation.— Quality management should be applicable to the whole aeronautical information data chain from data origination to distribution to the next intended user, taking into consideration the intended use of data.*

Note 1.— Quality management may be provided by a single quality management system or serial quality management systems.

Note 2.— Letters of agreement concerning data quality between originator and distributor and between distributor and next intended user may be used to manage the aeronautical information data chain.

P-18 – AGREEMENTS WITH DATA ORIGINATORS

1.2 The updated Annex 15, and new PANS-AIM currently being drafted by the ICAO AIS-AIM Study Group (AIS-AIM/SG) are expected to provide SARPS and/or procedures supporting agreements with data originators.

Checklist of Considerations

Regulatory Considerations

1.3 **Regulations for Data Quality and Timeliness**

States must Establish regulations detailing requirements and responsibilities for all data originators for the quality and timeliness of the provision of data, and the maintenance of data, and to ensure data quality as specified in Annex 15;

Owner of the facility to have agreement with the surveyor regarding conformance of required standards and practices.

1.4 **Regulations for Formal Agreements**

States should establish regulations requiring formal agreements for the exchange of aeronautical data between data originators, AIS, aeronautical data service providers and end users.

Process and Procedures

1.5 **Identify a complete list of authorized originators of AIS Information (static and dynamic).**

A list of authorized data originators will clearly identify the organizations and stakeholders responsible for supplying specific information to the AIS organization, and avoid duplication or conflicting information from multiple origination points supplying the same information.

- Airport Operators;
- Military Organizations;
- Air Navigation Service Providers;
- Surveyors; etc.

1.6 **Specify the format for data to be provided by data originators.**

Ensure standardization of the format and presentation of data provided . Templates or pro-formas could be used to ensure standardized presentation of data by originators, and to ensure data complies with Annex 15 quality requirements for accuracy, resolution and integrity.

P-18 – AGREEMENTS WITH DATA ORIGINATORS

1.7 Surveyed Geospatial Data.

Agreements should clearly specify the responsibility of all parties to the agreement regarding ownership, maintenance and update of the data.

Facility owners such as airport operators should have formal agreements with surveyor organizations to ensure the data conforms with the required standards and practices.

1.8 Formal Agreements

Agreements may be in the form of a Contract, a Service Level Agreement (SLA), Memorandum of Understanding (MOU) or Letter of Agreement (LOA).

Formal agreements should include:

- Applicable national regulatory requirements;
- The scope of the data to be provided;
- Data Quality and Quality Management requirements;
- Data maintenance requirements;
- Method and format of provision of data, including the information exchange model;
- Clear requirements for originators to comply with Annex 15 requirements for advance notification of new or amended data;
- Accountabilities and responsibilities of data originators and AIS;
- Error reporting and rectification procedures;

Human Performance

1.9 Conduct regular workshops and training courses for data originators.

Ensure complete understanding of Aeronautical Information Management concepts including:

- National obligations under the Annexes to the Convention on Civil Aviation;
- National regulations supporting the Annexes;
- AIRAC cycle and Annex 15 requirements for advance notification of major changes;
- Definition of major changes; and
- Quality requirements for accuracy, resolution and integrity

P-16 – Training

Roadmap for Transition from AIS to AIM

The training of personnel will be adapted to the new requirements on skill and competencies introduced by the transition to AIM.

The AIM Transition Step P-16 – *Training* is included in Phase 3 of the Roadmap for Transition from AIS to AIM. While current Asia/Pacific Regional focus is on Transition Phases 1 and 2, the Task Force has identified the need for AIS/AIM Training.

The new ICAO Doc 9919 – *AIM Training Development Manual*, currently undergoing pre-publication editorial review, will provide detailed guidance on training for personnel in the aeronautical information data chain.

Regional guidance for AIS training is included in the *Guidance Manual for Aeronautical Information Services (AIS) in the Asia/Pacific Region*

Annex 15 – Aeronautical Information Services

1.1 Annex 15 States:

3.7.4 Within the context of the established quality management system, the competencies and the associated knowledge, skills and abilities required for each function shall be identified, and personnel assigned to perform those functions shall be appropriately trained. Processes shall be in place to ensure that personnel possess the competencies required to perform specific assigned functions. Appropriate records shall be maintained so that the qualifications of personnel can be confirmed. Initial and periodic assessments shall be established that require personnel to demonstrate the required competencies. Periodic assessments of personnel shall be used as a means to detect and correct shortfalls.

Regional Guidance Material

1.2 The Guidance Manual for Aeronautical Information Services (AIS) in the Asia/Pacific Region is available on the ICAO Asia/Pacific Regional Office website at:

<http://www.icao.int/APAC/Pages/edocs.aspx>,

P-16 – Training

1.3 The manual includes detailed guidance for the selection and training of AIS personnel. Doc 8126 references provide guidance for the training of AIS personnel, including

- Selection Principles;
- Selection Process;
- Training and Training Courses;
 - New Entrant Selection;
 - Core Training;
 - Training Assessment;
 - Task Specific OJT;
 - Performance Assessment; and
 - Career Development
- Sample Selection and Training Process;
- Sample Training Checklists;
- Sample Trainee Assessment Debrief Form;
- Sample Competency Grading Criteria;
- Sample Performance appraisal;
- Training guidelines for NOTAM handling and PIB

Checklist of Considerations

Regulatory Considerations

1.4 **Regulations must be established supporting the requirements for training for AIS personnel, specified in Annex 15 section 3.7.4.**

Processes and Procedures

1.5 **Training Needs Analysis**

Training Needs Analysis (TNA) is a generic term used to describe the process for determining the training required in order to satisfy a specified outcome. A TNA may apply to an individual, a business unit or a broader target audience.

Development of the TNA involves comparing existing knowledge and skill against the required knowledge and skill, the results of which will enable a relevant Training Plan to be developed.

P-16 – Training

1.6 Process for developing the TNA

The general requirement for all TNAs is to determine:

- What knowledge and skill does the candidate currently have?
- What knowledge and skill does the candidate require?
- What gap exists between current and required? (i.e. what training is needed to fill the knowledge and skill gap/s).

1.7 Training Development for Aeronautical Information Users

Ensure that AIS user organizations or their representatives (e.g. IATA) are fully informed of changes in process, procedures and products, to permit modification of their training and procedural requirements and harmonization/interoperability of procedures and interfaces.

1.8 Recognition of Prior Learning (RPL)

RPL is a form of assessment used to determine whether a trainee has the required knowledge, skills and application (or combinations of these) that have been acquired previously through life experience, formal training and previous work experience needed to meet the standards of the course.

Human Performance

1.9 Develop requirements and procedures for AIS initial and periodic competency assessment.

Annex 1 to the Convention does not specify licensing requirements for AIS personnel. States may consider issuing a Certificate of Competency, and developing rules and procedures for initial and periodic competency assessment.

States may consider a requirement for English Language competency at Level 3 or higher.

P-16 – Training

1.10 Training of Senior Management

Senior Management personnel of all data originator, AIS and data aeronautical information production organizations should be trained in relevant aspects of AIS/AIM including

- State obligations under the Annexes to the Convention on Civil Aviation;
- State regulations supporting the Standards and Recommended Procedures (SARPS) of the Annexes;
- Quality Management Systems for Aeronautical Information;
- Requirements for advance notification of new or amended aeronautical information

1.11 Understanding Transition

Evolution from AIS to AIM will occur over an extended period, with present and future styles of operation proceeding in parallel, until staff eventually cease to be involved in detailed day-to-day information product provision.

In the near to medium term re-training of existing staff will need to be undertaken, taking into account new skill requirements during recruitment and selection processes, to reflect the transition to an information management process rather than the current information product environment.

1.12 AIS to AIM People Strategy Guidance Material

ICAO DOC 7192-AN/857 Part E3

- Training Manual for Aeronautical Information Services Personnel Preliminary Edition 2005

Eurocontrol Human Factors

- AIS Training Development Guidelines Edition 1, 2007
- Eurocontrol Common AIS Staff Profiling

Annex 15 Quality Assurance System ISO 9000

- Within the Quality System, the objectives of skills and competency management must include
- Identification of functions to be performed;
- Establishment of the knowledge and skills required for each step of the process; and
- Assurance that the personnel assigned to those functions have the required knowledge and skills and that they are competent to perform those functions.

P-16 – Training

1.13 **Competency Considerations**

Behaviour Strengths	
<ul style="list-style-type: none"> • Adaptable • Analytical 	<ul style="list-style-type: none"> • Business sense • Fast learner
<ul style="list-style-type: none"> • Innovator • Multi-Tasker 	<ul style="list-style-type: none"> • Resourceful • Service Orientated
Core Competencies	
<ul style="list-style-type: none"> ➤ Critical examining ➤ Information analysis ➤ Operational knowledge ➤ Professional expertise ➤ Adherence to procedure ➤ Safety culture ➤ ATC safety conscious ➤ Language skills 	<ul style="list-style-type: none"> ➤ Judgement and decision making ➤ Reliability ➤ Accuracy ➤ Methodical ➤ Selective attention ➤ Quality focussed ➤ Customer focused
Business Competencies	
<p><i>Critical</i></p> <ul style="list-style-type: none"> ➤ Communication skills ➤ Conflict management ➤ Continual learning ➤ Planning and organisation/Time management ➤ Technical credibility ➤ Technology management 	<p><i>Secondary</i></p> <ul style="list-style-type: none"> ➤ Administration ➤ Business/operations awareness ➤ Cultural awareness ➤ Human resource management

P-16 – Training

Other Considerations

1.14 **Career Planning for AIS/AIM Staff:**

AIS/AIM should be established as a separate specialization, with structured career development and progression and other incentives.

AIS/AIM should not be used as an ongoing rotational deployment option for personnel from other specializations for whom AIS/AIM is not an employment goal.

1.15 **Recruiting and retaining the right mix of skills required for AIS**

The AIS organizations should ensure that recruitment and retention objectives include an appropriate mix of personnel with the following skills, qualifications and/or experience:

- Aeronautical knowledge and experience (e.g. AIS, pilot, ATC, airport operator or airline ops);
- Information Technology qualifications and experience;
- Technical writing, document production and editing skills

1.16 **Enhance the motivation by achieving mastery of operational processes**

Ensure complete understanding of the purpose and context of operational processes to enhance the motivation to achieve the objectives:

- Quality management of AIS static and dynamic data including robust processes for cross checking;
- The purpose and context of setting numerical targets; and
- The critical importance of adhering to process, and of reporting and rectifying process gaps.

P-11 – Electronic AIP

Roadmap for Transition from AIS to AIM

The integrated aeronautical information package will not be phased out. On the contrary, it will be adapted to include the new data products needed during the transition to AIM.

The electronic version of the AIP will be defined in two forms: a printable document and one that can be viewed by web browsers.

Annex 15 – Aeronautical Information Services

1.1 Annex 15 specifies Standards and Recommended Practices (SARPS) for Electronic AIP:

4.6 Electronic AIP (eAIP)

4.6.1 Recommendation.— The AIP, AIP Amendment, AIP Supplement and AIC should also be published in a format that allows for displaying on a computer screen and printing on paper.

Note 1.— This composite electronic document is named “Electronic AIP” (eAIP) and may be based on a format that allows for digital data exchange.

Note 2.— Guidance material for the production and provision of the eAIP is contained in Doc 8126.

4.6.2 When provided, the information content of the eAIP and the structure of chapters, sections and sub-sections shall follow the content and structure of the paper AIP. The eAIP shall include files that allow for printing a paper AIP.

4.6.3 Recommendation.— When provided, the eAIP should be available on a physical distribution medium (CD, DVD, etc) and/or online on the Internet.

Note.— Guidance material on the use of the Internet is contained in Guidelines on the Use of the Public Internet for Aeronautical Applications (Doc 9855).

ICAO Doc 9750 - Global Air Navigation Plan

1.2 Aviation System Block Upgrades Block 0 includes:

B0-DATM – Service Improvement through Digital Aeronautical Information Management

Initial introduction of digital processing and management of information by the implementation of AIS/AIM making use of AIXM, moving to electronic AIP and better quality and availability of data.

P-11 – Electronic AIP

Checklist of Considerations

1.3 **eAIP Content**

States should ensure the eAIP includes all components of the integrated aeronautical information package defined in Annex 15, and complies with the Annex requirements for content and structure.

1.4 **Accessibility**

The eAIP should be accessible on the public internet.

Open access to the eAIP should be permitted, either without the need for registration or, if registration is required, with access to eAIP being automatically and immediately available.

1.5 **Authorization**

Ensure the eAIP has the unconditional authority of the State, without disclaimers referring to a separately published paper product

1.6 **Reporting to ICAO Regional Office**

eAIP implementation and its internet hyperlink should be reported to the ICAO Asia/Pacific Regional Office.

On receipt of notification from the ICAO Asia/Pacific Regional Office, discontinue the forwarding of paper or CD copies of AIP, AIP SUP, AIC and NOTAM Checklists to the Regional Office. (Requirements for distribution to ICAO Headquarters remain unchanged)

1.7 **Electronic AIP (eAIP)**

eAIP should be generated from a digital database of aeronautical information.

P-11 – Electronic AIP

1.8 **Preparation for Information Exchange**

Design and development of digital databases of aeronautical information used for the generation of eAIP should include consideration of:

- a) The development of an integrated aeronautical information database (Step P-06 of Phase 2 of the Roadmap for Transition from AIS to AIM); and
- b) Future requirements for digital data and information exchange under Phase 3 of the Roadmap, using AIXM.

***Note:** Annex 15 recommends that the AIP, AIP Amendment, AIP Supplement and AIC should also be published in a format that allows for displaying on a computer screen and printing on paper, and that when provided, the eAIP should be available on a physical distribution medium (CD, DVD, etc) and/or online on the Internet.*

eAIP is information from the Integrated Aeronautical Information Package (IAIP) presented for display on a computer screen, and for printing. It may therefore be a simple rendering of information drawn from existing IAIP products, such as pdf files, or it may be information extracted from a digital database of aeronautical information.

Noting the need to prepare the Asia/Pacific Region for transition through Phases 2 and 3 of the Roadmap for Transition from AIS to AIM, the Asia/Pacific Region AIS – AIM Implementation Task Force considered that eAIP should be generated from a digital database.

TABLE AIM II-1 - RESPONSIBILITY FOR THE PROVISION OF AIS/AIM FACILITIES AND SERVICES

State	NOF	AIP	MAP	IAID	Pre-flight briefing	Remarks
1	2	3	4	5	6	7
Afghanistan						
Australia	Sydney					
Bangladesh	Dhaka					
Bhutan						
Brunei Darussalam						
Cambodia	Phnom Penh					
China	Beijing					
Hong Kong, China	Hong Kong					
Macao, China						
Cook Islands						
Democratic People's Rep. of Korea	Pyongyang					
Fiji	Nadi					
French Polynesia	Tahiti					
India	Chennai Delhi Kolkata Mumbai					
Indonesia	Jakarta					
Japan	Tokyo					
Kiribati						
Lao Peoples' Democratic Republic	Vientiane					
Malaysia	Kota Kinabalu Kuala Lumpur					
Maldives	Male					
Marshall Islands						
Micronesia (Federated States of)						
Mongolia	Ulaanbaatar					
Myanmar						
Nauru	Nauru					
Nepal	Kathmandu					
New Caledonia						
New Zealand	Apia Christchurch					
Pakistan	Karachi					
Palau						
Papua New Guinea	Port Moresby					
Philippines	Manila					
Republic of Korea	Incheon					
Samoa						
Singapore	Singapore					
Solomon Islands	Honiara					
Sri Lanka	Colombo					
Thailand	Bangkok					
Timor-Leste						
Tonga						
United States of America						
Vanuatu	Port Vila					
Viet Nam	Ho Chi Minh					

**TABLE AIM II-2 - PRODUCTION RESPONSIBILITY FOR SHEETS OF THE WORLD AERONAUTICAL CHART -
ICAO 1:1 000 000 OR AERONAUTICAL CHART — ICAO 1: 500 000**

State	Sheet number(s)	Remarks
1	2	3
Afghanistan	2336, 2337, 2430, 2431, 2442	
Australia	3097, 3098, 3099, 3103, 3108, 3109, 3110, 3111, 3112, 3164, 3219, 3220, 3221, 3222, 3223, 3229, 3230, 3231, 3232, 3233, 3234, 3235, 3340, 3341, 3342, 3343, 3344, 3345, 3346, 3351, 3352, 3353, 3354, 3355, 3356, 3357, 3358, 3359, 3456, 3457, 3458, 3459, 3461, 3462, 3469, 3470, 3556	
Solomon Islands	2990, 3094	
Bangladesh	2557	
Bhutan		
Brunei Darussalam		
Cambodia		
China		
Hong Kong, China		
Macao, China		
Taiwan, China	2499, 2613, 2614	
Cook Islands		
Democratic People's Rep. of Korea		
Fiji		
French Polynesia		
India	2432, 2439, 2440, 2551, 2552, 2553, 2554, 2558, 2559, 2560, 2561, 2673, 2674, 2675, 2679, 2681, 2682 2795 2796 2798, 2801	With western sheet edge extended to meridian 71 E With western sheet edge extended to meridian 71E Excluding Sri Lanka
Indonesia	2800, 2862, 2863, 2864, 2920, 2921, 2975, 2976, 2977, 2978, 2979, 2980, 2981, 2982, 2983, 2984, 2985, 2986, 3100, 3101, 3102	
Japan	2281, 2292, 2378, 2379, 2387, 2388, 2389, 2489, 2491, 2500, 2502, 2504	
Kiribati		
Lao Peoples' Democratic Republic	2616 2617	Lao PDR to cover its own territory Lao PDR to cover its own territory and Viet Nam to cover Ho Chi Minh
Malaysia	2858, 2859, 2861	
Maldives		
Marshall Islands		
Micronesia (Federated States of)		

**TABLE AIM II-2 - PRODUCTION RESPONSIBILITY FOR SHEETS OF THE WORLD AERONAUTICAL CHART -
ICAO 1:1 000 000 OR AERONAUTICAL CHART — ICAO 1: 500 000**

Mongolia		
Myanmar	2555, 2556, 2676	
Nauru		
Nepal	2438	
New Caledonia		
New Zealand	3474, 3553	
Pakistan	2441, 2549, 2550	
Palau		
Papua New Guinea	2972, 2973, 2974, 2987, 2988, 2989, 3095, 3096	
Philippines	2620, 2735, 2741, 2742, 2855, 2856	
Republic of Korea	2380	
Samoa		
Singapore	2860	
Sri Lanka	2803	With sheet lines extended to include the whole of Sri Lanka
Thailand	2677, 2678, 2799	
Timor-Leste		
Tonga		
Vanuatu		
Viet Nam	2617, 2737, 2738, 2739	Lao PDR to cover its own territory and Viet Nam to cover Ho Chi Minh FIR

Note: a scan of the AIM FASID chart follows for checking purposes

