



**INTERNATIONAL CIVIL AVIATION ORGANIZATION
WESTERN AND CENTRAL AFRICAN OFFICE**

**NINTH APIRG ATS/AIS/SAR/SG/8 MEETING
(Dakar, 12 - 15 May 2009)**

Agenda Item 5: Review of the Report of the Fifth Meeting of the AFIAIS/MAP Task Force

(Presented by the Secretariat)

Summary

This Paper presents the report of the Fifth Meeting of the AFI AIS/MAP Task Force. Pursuant to the implementation of APIRG/16 Conclusions 16/41, 16/42, 16/43, 16/44 respectively, taking into account AFI RAN/8 Meeting Recommendations 6/11 and 6/25 which call for the implementation of WGS-84, e-TOD and the elimination of AIS-MAP deficiencies.

Action by the Sub-Group is at paragraph 6.

References :

APIRG/16 – Report

AFI/8 RAN Report (Doc.)

AIS/MAP Task Force/5 – Report of Fifth Meeting (Dakar, 11-12 May 2009)

1. Introduction

1.1 The Fifth meeting of the AFI AIS/MAP Task Force was convened in Dakar, Senegal from 11-12 May 2009 by the International Civil Aviation Organization (ICAO). The main objective of this meeting is to provide guidance to States, in accordance with the requirements of the AFI Air Navigation Plan, for the implementation of the above-mentioned APIRG/16 in Conclusions, AFI RAN/8 Meeting Recommendations and provide efficiency and cost-effectiveness the development of a standardized integrated and automated AFI AIS system in order to provide harmonized quality products and services to users.

1.2 The meeting was attended by **22** participants from **9** Contracting States and 3 International organizations (ASECNA, IATA and Roberts FIR)

2 Review of the Status of Implementation of the Conclusions of the Fourth Meeting of the AIS/MAP Task Force

2.1 The meeting reviewed the Status of implementation of Conclusions of the Fourth Meeting of the AIS/MAP Task Force. It was noted that the ATS/AIS/SAR Sub-Group during its ninth meeting held in Dakar, Senegal from 25-27 April 2007, adopted and endorsed draft Conclusions 9/9 to 9/14 emanating from the Fourth AIS/MAP Task Force meeting and considered that Conclusion 9/11, 9/12 and 9/14 would be of interest to APIRG.

2.2 The meeting noted that the APIRG/16th Meeting adopted five of the Conclusions emanating from the AIS/MAP TF/4 Report. (See APIRG/16 Conc. 16/40,16/41,16/42,16/43, and 16/44) The Conclusions were reflected in the Report of the APIRG/16 Meeting held in Rubavu, Rwanda from 19-23 November 2007. Consequently, the AIS/MAP Task Force and the ATS/AIS/SAR Sub-Group are accordingly charged to follow-up on the implementation process and inform APIRG on the progress and problems being encountered.

2.3 The meeting then reviewed and updated the follow-up action on previous APIRG/15 Conclusions related to AIS/MAP (Conc. 15/33,15/34,15/35, 15/36,15/37,15/38, 15/39, 15/40, 15/41,15/42,15/43 and 15/44) and agreed on the validity of these Conclusions for continuous action.

Draft Conclusion 5/1 – APIRG /15 Conclusions on AIS/MAP

The meeting agreed that APIRG/15 Conclusions related to AIS/MAP (Conc. 15/33,15/34,15/35, 15/36,15/37,15/38, 15/39, 15/40, 15/41,15/42,15/43 and 15/44) are still valid for continuous follow-up action by States.

3. Status of Implementation of ICAO Requirements in the AIS/MAP Field in AFI Region (Deficiencies)

Pre-flight and post-flight information services

3.1 The meeting noted the requirements for the provision of pre-flight and post-flight information services at aerodrome/heliport normally used for international air operations. It is noted that with the current facilities offered, many pilots have started to make use of the commercial facilities available, which supply a product that demands an integrated and tailored briefing package. However, many users see only the information issued by the State Authority as being the official and correct data.

3.2 In the future it is envisaged that pre-flight briefing will be extended to the provision of pre-flight briefings directly to the flight deck of aircraft. This would enable the pilot to be provided with briefing information throughout the gate-to-gate operation of a flight. It would then be a natural progression to further extend this facility to include in-flight updates of aeronautical and meteorological information on

the flight deck.

3.3 It was noted that Annex 15 para. 8.3 requires States to ensure that arrangements are made at aerodromes/heliports to receive post-flight information which has the purpose to ensure that inadequacies of facilities essential to the safety of flight operations, and the presence of birds on or around the airport constituting a potential hazard to aircraft operations, observed by a pilot during the flight, are reported without delay to the authority responsible for those facilities.

3.4 In this regard, the meeting noted that after landing a pilot wishing to confirm in writing any observations reported on the ATS frequencies or wishing to make an initial report, may do so at the aerodrome/heliport AIS unit, where a post-flight report form should be available. It should be noted that a specimen post-flight report form is available in the AIS Manual (Doc. 8126, Sixth Edition, Figure 8-9)

3.5 The meeting agreed on the following Conclusion .

Draft Conclusion 5/2- Updated list of AIS/MAP FASID Tables AIS-1 to AIS-8

That AFI States should provide by September 2009, an updated list of the status of implementation of the ICAO Requirements in the AIS/MAP field on Table AIS-1 to Table AIS-8 in Part VIII of the FASID Table which will subsequently form the amendment proposal to the AFI FASID.

4. Implementation of e-TOD and the draft development of a policy for the management of national e-TOD programmes by States in the AFI Region.

4.1 The meeting noted that Annex 15 requires States to provide terrain and obstacle data at different precisions for different areas as necessary to accommodate current and planned new air navigation systems or functions. Four coverage areas have been defined for which specific levels of precision are required, with Area 1 requiring the least precision and Area 4 requiring the most, as follows:

Area 1 shall cover the entire territory of a State, including aerodromes.

Area 2 shall be the terminal control area as published in AIPs, limited to a 45KM radius from the aerodrome reference point. If the terminal control area is not established, Area 2 shall be the area within the 45KM radius from the aerodrome reference point.

Area 3 shall cover the area which is within 50 meters from the edges of defined aerodrome or heliport surface movement areas.

Area 4 shall be restricted only to those runways where precision approach Category 2 or 3 has been established. Area 4 terrain data shall be provided in order to enable operators to assess the effect of terrain on decision height determination by use of radio altimeters.

4.2 The meeting noted that the implementation of eTOD requirements is a challenging process that must be accomplished with a high level commitment, careful planning, sharing of resources and a structured tracking of regional progress. Appendix B lists a series of short- and medium-term tasks which are proposed with a view to facilitate implementation. These tasks are based on experience gained at the AFI Regional Seminar on Electronic Terrain and Obstacle Data held in Casablanca, Morocco from 1 to 3 April 2008. Appendix C provides the structure for an AFI ANP FASID table which is proposed to be used

to provide detail of regional eTOD requirements and as a tool to track implementation.

4.3 The meeting noted that a structured approach to implementation is required to realize the important safety and efficiency benefits to be derived from the uniform implementation of WGS-84 and terrain and obstacle data (eTOD) provisions. On this basis, the meeting adopted the following recommendation to guide the work of APIRG.

Draft Conclusion 5/3 —Implementation of WGS-84 and electronic terrain and obstacle data

That *a) the AFI Planning and Implementation Regional Group (APIRG) adopt the AIM Performance Objective “Implementation of WGS-84 and electronic terrain and obstacle data” as contained in the Performance Framework Form in the Appendix- A to this Report as its strategy for implementation.*

b) the proposed FASID Table at Attachment B be adopted for inclusion as a requirement in the AFI FASID Document 7474 Vol.II.

c) that the adopted draft Conclusions in Appendix C emanating from the findings of the AFI Region e-TOD Seminar held in Casablanca, Morocco, from 1-3 April 2008 be reviewed for endorsement by APIRG.

d) that the adopted draft AFI Region e-TOD Implementation strategy under Appendix-D be reviewed for adoption by APIRG .

e) that the adopted terms of reference of the AFI Region e-TOD Working Group under Appendix-E be reviewed for adoption by APIRG.

5. Implementation of WGS-84 and the establishment of draft WGS-84 implementation goals in coordination with the national PBN implementation plan.

5.1 The meeting noted that the Special AFI RAN/8 Meeting recalled that APIRG and AFI States had been working towards WGS-84 implementation for many years and that a large part of the work had been completed by most States. However, considerable work still remains.

5.2 Additionally, the WGS-84 reference system requires regular updating. The AFI RAN/8 meeting recognized that implementation is now most urgent, as availability of geographical coordinates in the commonly agreed WGS-84 reference system is a prerequisite for States to obtain the benefits of PBN, and also an important step in preparing for the transition from Aeronautical Information Services (AIS) to Aeronautical Information Management (AIM) for which the provision of digital geographic data of appropriate quality will be essential.

5.3 In order to allow for a comprehensive analysis of the status of implementation of WGS-84 throughout the AFI Region, it is important that appropriate background information be provided to

substantiate any discrepancy in the current implementation status.

5.4 In order to keep pace on the subject, the Secretariat prepared a regional status report for consideration and review by the APIRG/17 Meeting.

5.5 The meeting then agreed on the following conclusion .

Draft Conclusion 5/4- Submission of WGS-84 Implementation Survey Questionnaires

That States submit their responses to the Regional WGS-84 Implementation survey by 30 November 2009

6. Review of the Report of the Third Meeting of the AFI Region Study Group on the Establishment of a Centralized AFI Region AIS Data base (AFI-CAD/Study Group/3)

6.1 The meeting noted the adoption of the framework and guidance material for the AFI-CAD by the APIRG 16th meeting (APIRG Conc.16/41 refers), the main objective of this technical meeting was to provide the required forum for the AFI-CAD study Group members to work and provide guidance to the ICAO designated specialist/financial analyst-experts tasked with the development of the AFI-CAD business/financial model and the URS. The Study Group in collaboration with the designated ICAO Experts are expected to submit the results of the project to the APIRG/17 Meeting for consideration and endorsement.

6.2 Finally, the meeting reviewed endorsed of the Report of the Third Meeting of the AFI Region Study Group on the Establishment of a Centralized AFI Region AIS Data base (AFI-CAD/Study Group/3).

Draft Conclusion 5/5- Adoption of the Third AFI-CAD Meeting

That APIRG would review and endorse the Report of the Third Meeting of the AFI Region Study Group on the Establishment of a Centralized AFI Region AIS Data base (AFI-CAD/Study Group/3).

7. Review of the Draft Roadmap for the transition from AIS to AIM and its implications in the AFI Region

7.1 The meeting noted that the AIS-AIM Transition Road map document is a plan, to manage and facilitate the global transition from AIS to AIM. The road map recognizes that not all States or regions can make the transition immediately to AIM, and that implementation will be evolutionary, based on regional needs. The transition would be supported by the Global Air Navigation Plan, regional plans and State implementation plans, which would also describe the progressive intermediate steps. The plans of all States and regions need to be aligned to ensure, to the greatest extent possible, that solutions are internationally harmonized and integrated and do not unnecessarily impose multiple equipment carriage requirements in the air components of the ATM system, or multiple systems on the ground.

7.2 The global strategy/roadmap for the transition from AIS to AIM has been developed to address in

greater detail the direction given for aeronautical information in the *Global Air Navigation Plan* (Doc 9750). It is intended as a high-level document to provide a framework for States in their evolution towards AIM, and to clarify the purpose and scope of the transition. The roadmap identifies the major milestones towards a uniform global evolution to AIM and indicates specific steps and timelines for implementation. The roadmap for the transition from AIS to AIM was presented for the Commission's endorsement at <http://www.icao.int/anb/AIM/>.

7.3 The roadmap has been placed on the AIM website in English with other languages to follow as soon as possible.

7.4 The meeting also noted that Annex 4, Annex 15 and associated guidance material will also require amendment to support new digital requirements and an appropriate presentation of aeronautical information to the end user. This would include electronic AIPs (eAIP) and electronic charts. The development of these requirements would take into account that though the transition from a product-centric (current AIS) to a data centric (AIM) service is essential, it is foreseen that AIM will still have to cater for the provision of traditional AIS products during the transition phase. Nevertheless, the quality, consistency, availability and timeliness of data must meet stringent new digital requirements, substantially exceeding those currently considered acceptable.

7.5 The meeting finally reviewed and endorsed the Roadmap for the transition from AIS to AIM at Appendix –F and drafted the following conclusion

Draft Conclusion 5/6 – Adoption of the AIS to AIM Transition Roadmap

that

a) APIRG adopts the Roadmap as Guidance material to plan, manage and facilitate the global transition from AIS to AIM.

b) by using the Roadmap, assist States in planning the scope and prioritizing projects and actions for the transition to AIM.

8. Review of the Report of the First meeting of the Aeronautical Information Services-Aeronautical Information Management Study Group (AIS-AIMSG/1) and its implications in the AFI Region.

8.1 The meeting noted the proposal to amend the provisions in Annex 15 related to the QMS stems from Decision 49/1 of the forty-ninth meeting of the European Air Navigation Planning Group (EANPG/49) held in Paris from 27 to 29 November 2007 and was further developed by the Secretariat with the assistance of the AIS-AIMSG. It was noted that the proposal:

- a) clarifies the scope of the QMS to encompass all organizations involved in the data processing chain, from the point of origin/survey, through to the AIS and distribution of the data to the intended user;
- b) introduces a requirement for only one cyclic redundancy check (CRC) algorithm (instead of three) for all integrity classifications in the interests of harmonization;
- c) upgrades the provision of automated pre-flight information systems to a Standard;

- d) requires that States give due consideration to human factors issues associated with the integrity of information and take steps to mitigate any risks identified;
- e) requires the use of metadata to support the existing traceability requirements;
- f) clarifies the applicability of “major changes” with regard to information to be notified by AIRAC; and
- g) introduces editorial amendments aimed at improving consistency in the wording of the Standards and Recommended Practices (SARPs).

8.2 During its review of the proposed amendment, the meeting noted the following elements concerning Electronic AIPs .

- a) That the proposal to amend Annex 15 includes a recommendation to allow for the provision of an electronic aeronautical information publication (eAIP). It is considered that clear provisions and guidance are necessary to prevent proliferation of eAIP formats and that a standard look would simplify access by users. Accordingly, the proposal specifies that when the eAIP is provided, the eAIP product remain equivalent and synchronized with the paper AIP product.
- b) That the contact information in the AIP for designated authorities and responsible services has also been updated to remove telex numbers and include e-mail and website addresses.
- c) That the proposal supports the new digital environment where end users will increasingly visualize AIS information on computer screens with improved consistency, integrity, timeliness and usability. Producers of the eAIP will also benefit from efficiencies in production and distribution.

8.3 During its review of the implementation issues, the meeting noted the following .

- a) Implementation difficulties and cost implications concerning the proposals related to the QMS and use of automation enabling digital data exchange may be substantial, especially for States with little or no automation capabilities. However, it was noted that the proposal allows for automation enabling digital data exchange to be introduced in a progressive manner. In the long term, automation and the associated QMS should lead to efficiencies.
- b) The meeting noted that the implementation of the eAIP is expected to reduce production and distribution costs compared to the paper product. However, the meeting noted that the proposal would have cost implications for States that currently produce eAIPs which are not harmonized with Annex 15, Appendix 1.
- c) The meeting noted that the proposed changes to the NOTAM Format could imply moderate costs associated with software changes.
- d) The meeting also noted that the proposal related to eTOD is expected to generally reduce implementation difficulties and costs mainly through the amendment of requirements for proposed Area 2.

9. Draft Conclusions/Decisions

9.1 The Task Force recorded its action in the form of conclusions/decisions

Draft Conclusion 5/1 – APIRG /15 Conclusions on AIS/MAP

The meeting agreed that APIRG/15 Conclusions related to AIS/MAP (Conc. 15/33,15/34,15/35, 15/36,15/37,15/38, 15/39, 15/40, 15/41,15/42,15/43 and 15/44) are still valid for continuous follow-up action by States.

Draft Conclusion 5/2- Updated list of AIS/MAP FASID Tables AIS-1 to AIS-8

That AFI States should provide by September 2009, an updated list of the status of implementation of the ICAO Requirements in the AIS/MAP field on Table AIS-1 to Table AIS-8 in Part VIII of the FASID Table which will subsequently form the amendment proposal to the AFI FASID.

Draft Conclusion 5/3 —Implementation of WGS-84 and electronic terrain and obstacle data

That *a) the AFI Planning and Implementation Regional Group (APIRG) adopt the AIM Performance Objective “Implementation of WGS-84 and electronic terrain and obstacle data” as contained in the Performance Framework Form in the Appendix- A to this Report as its strategy for implementation.*

b) the proposed FASID Table at Attachment B be adopted for inclusion as a requirement in the AFI FASID Document 7474 Vol.II.

c) that the adopted draft Conclusions in Appendix C emanating from the findings of the AFI Region e-TOD Seminar held in Casablanca, Morocco, from 1-3 April 2008 be reviewed for endorsement by APIRG.

d) that the adopted draft AFI Region e-TOD Implementation strategy under Appendix-D be reviewed for adoption by APIRG .

e) that the adopted terms of reference of the AFI Region e-TOD Working Group under Appendix-E be reviewed for adoption by APIRG.

Draft Conclusion 5/4- Submission of WGS-84 Implementation Survey Questionnaires

That States submit their responses to the Regional WGS-84 Implementation survey by 30 November 2009

Draft Conclusion 5/5- Adoption of the Third AFI-CAD Meeting

That APIRG would review and endorse the Report of the Third Meeting of the AFI Region Study Group on

the Establishment of a Centralized AFI Region AIS Data base (AFI-CAD/Study Group/3.

Draft Conclusion 5/6 – Adoption of the AIS to AIM Transition Roadmap

that

a) APIRG adopts the Roadmap as Guidance material to plan, manage and facilitate the global transition from AIS to AIM.

b) by using the Roadmap, assist States in planning the scope and prioritizing projects and actions for the transition to AIM.

Draft Conclusion 5/7: e-TOD implementation awareness campaigns

Taking into consideration the adopted dates of applicability of E-TOD provisions introduced by AMDT 33 to Annex 15 and the resources required for the implementation of these new provisions, the States' AIS should take the lead and carry out awareness campaigns at national level to promote a better understanding of the planning and implementation issues related to E-TOD.

Draft Conclusion 5/8: Development and management of a national e-TOD programme

That: States, in accordance with sound management principles and procedures, should:

a) develop a framework and a detailed planning including priorities and timelines, for the implementation of a national E-TOD programme;

b) adopt/follow a collaborative approach, involving all concerned parties, in the implementation of E-TOD provisions; and

c) make an inventory of and evaluate the quality of existing terrain and obstacle data sources, and in the case of data collection, consider carefully the required level of details of collected terrain and obstacle data with particular emphasis on obstacle data and associated cost.

Draft Conclusion 5/9: Coordination and exchange of experience for the implementation of e-tod requirements

That: Implementation of E-TOD provisions should be considered a global matter concerning all ICAO Regions, which thereby necessitates coordination and exchange of experience between States, ICAO and other national/international organizations and industry partners involved.

Draft Conclusion 5/10: Coordination between states and data providers/integrators for the provision of e-tod

That: Collaboration between States and data providers/integrators should be considered.

Draft Conclusion 5/11: responsibility for the provision of e-tod

That: States, while maintaining the responsibility for data quality and availability, should consider the extent to which provision of electronic terrain and obstacle data could be delegated to national geodetic Institutes/Agencies, based on Service Level Agreement (SLA) reflecting such delegation.

Draft Conclusion 5/12: ANP requirements related to e-TOD

That: ICAO should develop an amendment to the basic Air Navigation Plans (ANP) for all ICAO Regions to include new E-TOD requirements and introduce a new table in the Facilities and Services Implementation Documents (FASIDs) in which detailed planning of E-TOD implementation by States together with an indication of the implementation timelines, are reflected.

Draft Conclusion 5/13: Establishment of AFI region e-tod working group

That with a view to, inter-alia, analysing the E-TOD requirements, developing a common understanding of these requirements and steering the planning and implementation process within the region, an AFI Region E-TOD Working Group be established as the way forward for the timely implementation of E-TOD through the proposed AFI Region E-TOD Implementation Strategy at Appendix D with the Terms of Reference at Appendix E.

APPENDIX -A

AIM PERFORMANCE OBJECTIVES

NATIONAL PERFORMANCE OBJECTIVE				
IMPLEMENTATION OF WGS-84 AND ELECTRONIC TERRAIN AND OBSTACLE DATA				
Benefits				
Environment	none			
Efficiency	required by Performance Based Navigation support approach and departure procedure design and implementation improve aircraft operating limitations analysis support aeronautical chart production and on-board databases			
Safety	improve situational awareness support determination of emergency contingency procedures support technologies such as ground proximity and minimum safe altitude warning systems			
Strategy Short term (2010) Medium term (2011 - 2015)				
ATM OC COMPONENTS	TASKS	TIMEFRAME START-END	RESPONSIBILITY	STATUS
ATM CM	Electronic terrain and obstacle data (eTOD) Share experience and resources in the implementation of eTOD through the establishment of an eTOD working group.	2008-2011	APIRG States	
	Report requirements and monitor implementation status of eTOD using a new AIS Table of the AFI FASID (Ref. Appendix B).	2009-ongoing	APIRG States	
	Develop a high level policy for the management of a national eTOD Programme.	2008-2009	States	
ATM AUO	WGS-84 Report requirements and monitor implementation status of WGS-84 using the AIS-5 Table of the AFI FASID.	Ongoing	APIRG States	
Link to GPIs	GPI-9: Situational awareness GPI-11: RNP and RNAV SIDs and STARs GPI-18: Aeronautical Information GPI-20: WGS-84 GPI-21: Navigation Systems			

APPENDIX B

PROPOSED FASID TABLE AIS-X — eTOD REQUIREMENTS

EXPLANATION OF THE TABLE

Column

1 Name of the State, territory or aerodrome for which electronic terrain and obstacle data (eTOD) are required with the designation of the aerodrome use:

RS	—	international scheduled air transport, regular use
RNS	—	international non-scheduled air transport, regular use
RG	—	international general aviation, regular use
AS	—	international scheduled air transport, alternate use

2 Runway designation numbers

3 Type of each of the runways to be provided. The types of runways, as defined in Annex 14, Volume 1, Chapter I, are:

NINST	—	non-instrument runway;
NPA	—	non-precision approach runway
PA1	—	precision approach runway, Category I;
PA2	—	precision approach runway, Category II;
PA3	—	precision approach runway, Category III.

4 Requirement for the provision of terrain data for Area 1, shown by an “X” against the State or territory to be covered.

5 Requirement for the provision of terrain data for Area 2 (TMA), shown by an “X” against the aerodrome to be covered.

6 Requirement for the provision of terrain data for Area 2 (45 Km radius from the ARP), shown by an “X” against the aerodrome to be covered.

7 Requirement for the provision of Terrain data for Area 3, shown by an “X” against the aerodrome to be covered.

8 Requirement for the provision of Terrain data for Area 4, shown by an “X” against the runway threshold to be covered.

9 Requirement for the provision of Obstacle data for Area 1, shown by an “X” against the State or territory to be covered.

10 Requirement for the provision of Obstacle data for Area 2 (TMA), shown by an “X” against the aerodrome to be covered.

11 Requirement for the provision of Obstacle data for Area 2 (45 Km radius from the ARP), shown by an “X” against the aerodrome to be covered.

12 Requirement for the provision of Obstacle data for Area 3, shown by an “X” against the aerodrome to be covered.

13 Remarks (timetable for implementation)

Note.— For columns 4 to 12 use the following symbols:

X	—	Required but not implemented
XI	—	Required and implemented

APPENDIX B

STATE, TERRITORY OR AERODROME FOR WHICH eTOD IS REQUIRED			TERRAIN DATA REQUIRED					OBSTACLE DATA REQUIRED				REMARKS
CITY/AERODROME	RWY No	RWY TYPE	Area 1	Area 2		Area 3	Area 4	Area 1	Area 2		Area 3	
				TM A	45 Km				TM A	45 Km		
1	2	3	4	5	6	7	8	9	10	11	12	13
STATE X			X					X				
(ABCD) City Y/AD Z				X		X			X		X	
RS	11 29	NPA PA1										

Appendix-C

Draft Conclusion 3/2: E-TOD IMPLEMENTATION AWARENESS CAMPAIGNS

Taking into consideration the adopted dates of applicability of E-TOD provisions introduced by AMDT 33 to Annex 15 and the resources required for the implementation of these new provisions, the States' AIS should take the lead and carry out awareness campaigns at national level to promote a better understanding of the planning and implementation issues related to E-TOD.

Draft Conclusion 3/3: DEVELOPMENT AND MANAGEMENT OF A NATIONAL E-TOD PROGRAMME

That: States, in accordance with sound management principles and procedures, should:

- a) develop a framework and a detailed planning including priorities and timelines, for the implementation of a national E-TOD programme;
- b) adopt/follow a collaborative approach, involving all concerned parties, in the implementation of E-TOD provisions; and
- c) make an inventory of and evaluate the quality of existing terrain and obstacle data sources, and in the case of data collection, consider carefully the required level of details of collected terrain and obstacle data with particular emphasis on obstacle data and associated cost.

Draft Conclusion 3/4: COORDINATION AND EXCHANGE OF EXPERIENCE FOR THE IMPLEMENTATION OF E-TOD REQUIREMENTS

That: Implementation of E-TOD provisions should be considered a global matter concerning all ICAO Regions, which thereby necessitates coordination and exchange of experience between States, ICAO and other national/international organizations and industry partners involved.

Draft Conclusion 3/5: COORDINATION BETWEEN STATES AND DATA PROVIDERS/INTEGRATORS FOR THE PROVISION OF E-TOD

That: Collaboration between States and data providers/integrators should be considered.

Draft Conclusion 3/6: RESPONSIBILITY FOR THE PROVISION OF E-TOD

That: States, while maintaining the responsibility for data quality and availability, should consider the extent to which provision of electronic terrain and obstacle data could be delegated to national geodetic Institutes/Agencies, based on Service Level Agreement (SLA) reflecting such delegation.

Draft Conclusion 3/7: ANP REQUIREMENTS RELATED TO E-TOD

That: ICAO should develop an amendment to the basic Air Navigation Plans (ANP) for all ICAO Regions to include new E-TOD requirements and introduce a new table in the Facilities and Services Implementation Documents (FASIDs) in which detailed planning of E-TOD implementation by States together with an indication of the implementation timelines, are reflected.

Draft Conclusion 3/8: ESTABLISHMENT OF AFI REGION E-TOD WORKING GROUP

That with a view to, inter-alia, analysing the E-TOD requirements, developing a common understanding of these requirements and steering the planning and implementation process within the region, an AFI Region E-TOD Working Group be established as the way forward for the timely implementation of E-TOD through the proposed AFI Region E-TOD Implementation Strategy at Appendix A with the Terms of Reference at Appendix B.

APPENDIX-D

DRAFT AFI REGION E-TOD IMPLEMENTATION STRATEGY

Considering:

the new provisions introduced by Amendment 33 to Annex 15 related to E-TOD; and

the guidance material contained in Doc 9881 (Guidelines for electronic Terrain, Obstacle and Aerodrome Mapping Information); and

Recognizing that:

significant safety benefits to international civil aviation will be provided by in-flight and ground-based applications that rely on quality electronic Terrain and Obstacle Data; and

the implementation of E-TOD requirements is a challenging, costly, and cumbersome task of cross-domain nature;

The Seminar proposed an AFI Region implementation strategy based on the following adopted criteria as detailed below:

E-TOD implementation should be in compliance with ICAO provisions contained in Annex 15 and Doc 9881;

E-TOD implementation should be based on national plans/roadmaps;

E-TOD implementation should be managed by each State as a national E-TOD programme supported by necessary resources, a high level framework and a detailed national plan including priorities and timelines for the implementation of the programme;

States should adopt/follow a collaborative approach involving all concerned parties in the implementation of E-TOD provisions and establish a multi-disciplinary team defining clearly the responsibilities and roles of the different Administrations within and outside the Civil Aviation Administration in the implementation process (AIS, Aerodromes, Military, National Geographic and Topographic Administrations/Agencies, etc);

E-TOD requirements should be analyzed and a common understanding for the Implementation of these requirements developed;

States should make an inventory of and evaluate the quality of existing terrain and obstacle data sources and in the case of data collection, consider carefully the required level of details of collected terrain and obstacle data with particular emphasis on obstacle data and associated cost;

States should carry out theoretical studies of candidate techniques for data acquisition (photogrammetry, LIDAR, IFSAR, etc) based on a Cost-Benefit Analysis and supported by case study for a representative aerodrome;

in the development of their E-TOD programme, States should take into consideration the requirements for update/maintenance of data, especially the obstacle data;

States, while maintaining the responsibility for data quality and availability, should consider the extent to which the provision of electronic terrain and obstacle data could be delegated to national geodetic Institutes/Agencies, based on Service Level Agreement reflecting such delegation. Collaboration between States and data providers/integrators should also be considered;

ICAO and States should undertake awareness and training programmes to promote and expedite E-TOD implementation;

implementation of E-TOD provisions should be considered a global matter, which necessitates coordination and exchange of experience between States, ICAO and other national/international organizations and industry partners involved;

to the extent possible, States should work co-operatively especially with regard to the cross-border issue, for the sake of harmonization and more efficient implementation of E-TOD; and

States encountering difficulties in the implementation of E-TOD may seek assistance (individually or collectively) from ICAO, through a TCB project, and/or from other States.

APPENDIX -E

**AFI REGION ELECTRONIC TERRAIN AND OBSTACLE DATA WORKING GROUP
(E-TOD WG)****A) TERMS OF REFERENCE**

With a view to harmonize, coordinate and support E-TOD implementation activities on a regional basis, the AFI Region E-TOD Working Group shall:

- 1) analyse E-TOD requirements and develop a common understanding of these requirements (clarify the needs in terms of data format, temporality, cross-border harmonisation and develop associated guidelines as required);
- 2) recommend the way forward for timely implementation of E-TOD;
- 3) adopt and maintain an AFI Region E-TOD implementation strategy;
- 4) guide the development and support the roll-out of an awareness campaign for E-TOD implementation within AFI States;
- 5) carry out a theoretical study of candidates techniques for electronic Terrain and Obstacle Data acquisition including a cost benefit analysis;
- 6) develop an AFI Region business case for E-TOD implementation;
- 7) carry out a study case for a representative aerodrome from the AFI Region;
- 8) assist States in the development of mandate/policy pertaining to the implementation of E-TOD requirements;
- 9) develop an action plan for the implementation of E-TOD requirements in the AFI Region;
- 10) monitor the cost-effectiveness and timely implementation of E-TOD requirements in the AFI Region;
- 11) monitor and review latest developments pertaining to E-TOD; and
- 12) develop its work program within the scope of its Terms of Reference

B) COMPOSITION

The AFI Region E-TOD Working Group will be composed of Experts nominated by the AFI Region States and ANSP that participated in the AFI Region E-TOD Seminar with the State of Morocco being the Rapporteur. Other representatives from industry and user organizations having a vested interest in the aeronautical services and E-TOD in particular, could participate in the work of this Working Group

C) WORKING ARRANGEMENTS

The AFI Region E-TOD Working Group shall report to the AIS/MAP Task Force established under the AFI Planning Implementation Regional Group (APIRG).

The work of the AFI E-TOD Working Group shall be carried out mainly through exchange of correspondence (email, facsimile, Tel, etc) between its Members. The Working Group shall meet as required and at least once in every year prior to an APIRG Meeting. The convening of the Working Group meetings should be initiated by the established AIS/MAP Task Force Secretariat based on the need to address AIS/MAP deficiencies in the AFI Region.