INTERNATIONAL CIVIL AVIATION ORGANIZATION

REPORT OF

THE EIGHTEENTH MEETING OF THE AFI PLANNING AND IMPLEMENTATION REGIONAL GROUP (APIRG/18)

(Kampala, Uganda, 27-30 March 2012)

PREPARED BY THE SECRETARY OF APIRG

MARCH 2012

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PART I - HISTORY OF THE MEETING

1. VENUE AND DATE

1.1 The Eighteenth Meeting of the Africa-Indian Ocean (AFI) Planning and Implementation Regional Group (APIRG/18) was held back to back with the First AFI Regional Aviation Safety Group (RASG AFI/1), at the Imperial Royale Hotel in Kampala, Uganda, from 27 to 30 March 2012, at the kind invitation of the Government of Uganda.

2. LANGUAGE AND DOCUMENTATION

2.1 The discussions were conducted in English and French and the meeting documentation was issued in both languages. Translation and simultaneous interpretation services were provided under the supervision of Mr. Adalbert Otou Nguini.

3. OFFICERS AND SECRETARIAT

3.1 The meeting was chaired by Engineer John T. Kagoro, from Uganda, Chairman of the APIRG.

3.2 Ms. Nancy Graham, Director of Air Navigation Bureau (ICAO HQ, Montreal), participated at the meeting and made a key presentation on Air Navigation System (ANS). Mr. Meshesha Belayneh, Regional Director, ICAO Eastern and Southern African Office (Nairobi) served as Secretary to the meeting. He was assisted by Mr. Mam Sait Jallow, Regional Director, ICAO Western and Central African Office (Dakar). The following Officers from the Dakar and Nairobi Regional Offices serviced the meeting:

Mr. B. M. Sekwati	D/RD, ESAF Office, Nairobi;
Mr. L. Ndiwaita	RO/AGA, ESAF Office, Nairobi;
Mr. P. Zo'o Minto'o	RO/ CNS, ESAF Office, Nairobi;
Mr. S. Machobane	RO/ATM, ESAF Office, Nairobi;
Mr. M. Tumusiime	RO/FS, ESAF Office, Nairobi;
Mr. E. Gnang	RO/TC, WACAF Office, Dakar;
Mr. A. B. Okossi	RO/MET, WACAF Office, Dakar;
Mr. E. Voudri	RO/FLS, WACAF Office, Dakar; and
Mr. G. Y. Baldeh	RO/AIM, WACAF Office, Dakar.

4. ATTENDANCE

4.1 The meeting was attended by two hundred and fifty five (255) participants from forty-three (43) AFI States and fourteen (14) regional and international organizations, namely: the African Civil Aviation Commission (AFCAC), International Air Transport Association (IATA), Agency for the Safety of Air Navigation in Africa and Madagascar (ASECNA), the International Federation of Air Traffic Controllers (IFATCA), African Airlines Association (AFRAA), Airports Council International (ACI), East African Community (EAC), International Federation of Airline Pilots' Associations (IFALPA), Société Internationale des Telecommunications Aéronautiques (SITA), Civil Air Navigation Services Organization (CANSO), East African Community Civil Aviation Safety and Security Oversight Agency (EAC-CASSOA), COSCAP-West African Economic and Monetary Union (UEMOA), Banjul Accord Group Aviation Safety Oversight Organization (BAGASOO) and Boeing.

4.2 The list of participants is provided at **Appendix 1A**, attached to this report.

5. OPENING OF THE MEETING

5.1 The Meeting was jointly opened with the First Meeting of the AFI Regional Aviation Safety Group (RASG AFI/1) by the 3rd Deputy Prime Minister, Rt. Hon. Lt. General (Rtd) Moses Ali representing the Prime Minister of Uganda, Rt Honourable Amama Mbabazi, who welcomed participants and emphasized the importance of air transport in the socio-economic development of Uganda. He recalled that Uganda is one of the oldest African Members of ICAO and has since been an active player in the global air transport arena.

5.2 He further expressed Uganda's delight in hosting the two meetings stating that safety heavily influences Government policies in the field of civil aviation and therefore, Uganda could not miss the opportunity of hosting the two events.

5.3 The Deputy Prime Minister also used the opportunity to invite investment in the air transport industry in Uganda noting that Uganda is reviewing its National Aviation Policy to realize the full implementation of the Yamoussoukro Decision on Air Transport Liberalization.

5.4 He indicated that the Government of Uganda will eagerly await the outcomes of the meeting, especially, those that require its attention for implementation. He concluded by re-affirming his Government's commitment towards fulfilling Uganda's obligations as a member State of ICAO.

5.5 Mr. Raymond Benjamin, Secretary General of ICAO, in his address thanked the Government of Uganda for having accepted to host the RASG AFI/1 and APIRG/18 meetings and for the excellent facilities provided. He thanked participants for the high level of attendance and for the work done in the region towards improving safety. He pointed out that the objective of the two Groups should be to reach consensus on Aviation Safety in Africa where too many lives are lost, recalling that systemic deficiencies identified under the ICAO Universal Safety Oversight Audit Programme (USOAP) since 1999 were still present

5.6 He indicated that for ICAO, 2012 is a very important year as it will culminate in the convening of the 12th Air Navigation Conference in November 2012 which will address amongst other issues the Aviation System Block Upgrades (ASBUs). The ASBUs were first introduced to the international community at the Global Air Navigation Industry Symposium (GANIS) in September 2011. It is expected that all aviation stakeholders will work together during the Conference to reach consensus, obtain commitments and formulate recommendations to achieve a harmonized global air navigation system for international civil aviation. He encouraged States to participate in the two workshops on ASBUs to be conducted in the AFI Region during July/August 2012. Recognizing that air navigation issues facing the region have become more difficult to resolve over the years, he recommended a proactive approach involving States, international organizations and the support of ICAO, as the only way to effectively establish regional implementation mechanisms. In 2011, such collaboration, he stated lead to the development of thirty user-preferred routes in the AFI Region, a key achievement.

5.7 The Secretary General highlighted the decisive steps taken by ICAO to ensure the growth of civil aviation while addressing environmental protection, as well as the connection between air navigation system improvements and environmental benefits. To demonstrate this link, he pointed out, ICAO joined forces with IATA and CANSO to develop its Fuel Savings Estimation Tool (IFSET), in order to assess the benefits of operational improvements such as Performance Based Navigation (PBN).

5.8 Finally, Mr Benjamin underscored the critical role of APIRG in addressing the challenges associated with many air navigation developments aimed at improving safety and efficiency.

5.9 In his remarks, the Hon. Eng. James Abraham Byandala, Minister of Works and Transport also welcomed participants to Kampala. He called for serious discussions to find ways of minimizing the occurrence of accidents within the AFI Region. He emphasized that the implementation of the Yamoussoukro Decision should help free air transport without compromising safety. He concluded by wishing the participants fruitful deliberations and an enjoyable stay in Uganda.

5.10 The Chairman of the Board of Directors of Uganda Civil Aviation Authority (UCAA), Mr. Zephania Baliddawa, also addressed the APIRG/18 meeting. In his remarks, Mr. Baliddawa warmly welcomed the ICAO Secretary General, the ICAO Council members and the two Regional Directors of the ICAO Dakar and Nairobi Regional Offices and all the delegates present. He stressed that APIRG/18 was a very important meeting as it would review and update the list of deficiencies in the air navigation system in the AFI region as well as discuss strategies for resolving these deficiencies.

5.11 The UCAA Board Chairman also informed the meeting that Uganda was audited by ICAO under the Universal Safety Oversight Audit Programme (USOAP) and the Universal Security Audit Programme (USAP). He indicated that Uganda's hosting of the APIRG/18 meeting was an opportunity to gain new knowledge and experience to assist it in the implementation of the Corrective Action Plans (CAPs) developed subsequent to these audits, as well as share challenges and experiences with the rest of the aviation fraternity.

5.12 Mr. Baliddawa pledged Uganda's firm willingness to partner with all aviation stakeholders in the implementation of strategies to improve the safety record of the AFI Region in spite of its inadequate resources. He also underscored the importance of ICAO Standards and Recommended Practices (SARPs) and urged all AFI States to always strive to adhere to them in order to ensure acceptable standards of safety in their respective aviation systems.

5.13 Dr. W. Rama Makuza, Managing Director of Uganda CAA, in addressing the meeting thanked ICAO for the support received by Uganda through the Technical Cooperation Bureau (TCB). In addition, he expressed appreciation, on behalf of CASSOA, to the US - Safe Skies for Africa Program for their support.

5.14 Mr Meshesha Belayneh, ICAO Regional Director, Nairobi, explained the responsibilities of APIRG in the development and maintenance of the regional air navigation plan between AFI Regional Air Navigation (RAN) meetings that determine the requirements for facilities and services in the air navigation field to meet ICAO standards.

5.15 He provided an overview of a number of programmes developed or under development by APIRG for an effective, efficient and sustained air navigation system, such as implementation of Reduced Vertical Separation Minima (RVSM), Performance-Based Navigation (PBN), the new ICAO Flight Plan Form, Search and Rescue (SAR) improvements, transition to Aeronautical Information Management (AIM), sustainability and integration of existing aeronautical VSAT network telecommunication infrastructure, protection of their operated frequency band, certification of aerodromes and Quality Management Systems (QMS) for Meteorological services.

5.16 Mr Belayneh informed the meeting of the establishment of the ICAO Regional Office Safety Teams (ROSTs) to assist States in addressing safety deficiencies identified through USOAP audits. This initiative, he pointed out, is coordinated under the AFI Comprehensive Implementation Plan (AFI Plan). He explained that assistance interventions of long-term nature will be handled through the ICAO Technical Cooperation Programme or other initiatives.

5.17 He further informed the Group of the establishment of an AFI Regional Aviation Safety Group (RASG-AFI) whose first meeting was held from 26 to 27 March 2012, in Kampala,

Uganda and emphasized the need for close coordination between the two groups to effectively address issues of safety and avoid duplication of efforts in the Region.

5.18 Finally, Mr Belayneh welcomed the presence of the Delegation of the State of South Sudan, as a full member in accordance with the Rules of Procedure for the Membership to APIRG.

6. AGENDA

Agenda Item 1: Follow-up on the outcome of APIRG/17 Meeting and of the Special Regional Air Navigation Meeting (SP AFI RAN/08)

1.1 Review of the action taken by the ANC and the Council on the report of APIRG/17

1.2 Review status of implementation of APIRG/17 Conclusions and Decisions

1.3 Review status of implementation of APIRG Outstanding Conclusions and Decisions from other previous meetings

1.4 Review of the status of implementation of the ICAO SP AFI RAN/08 Recommendations: Activities of ICAO Regional Office Safety Teams (ROSTs).

Agenda Item 2: Flight Safety and Regional Aviation Safety Group for AFI (RASG-AFI) activities – Global, Regional and interregional activities

2.1 Flight Safety and RASG-AFI activities

2.2 Global, regional and interregional activities

Agenda Item 3: Performance Framework for Regional air navigation planning and implementation

3.0 Regional and National Performance Framework

3.1 Aerodrome Operations Planning (AOP) Matters

3.2 Air Traffic Management and Search and Rescue (ATM/SAR) Matters

3.3 AFI Regional Monitoring Agency (ARMA) Matters

3.4 Communications, Navigation and Surveillance (CNS) Matters

3.5 Aeronautical Information Management (AIM) Matters

3.6 Aeronautical Meteorology (MET) Matters

3.7 Other Air Navigation Matters

3.8 Twelfth Air Navigation Conference (AN-Conf/12)

Agenda Item 4: Regional air navigation deficiencies

4.1 Review and update of the list of deficiencies in the Air Navigation fields – Implementation of the AFI Regional Database and transition to a Central Database

4.2 The report of the AFI Tactical Action Group (TAG).
4.3 Strategies to remove identified deficiencies

Agenda Item 5: APIRG Future Work Programme

Agenda Item 6: Any other business

7. CONCLUSIONS AND DECISIONS – DEFINITIONS

7.1 APIRG records its actions in the form of Conclusions and Decisions with the following significance:

a) Conclusions deal with matters which, in accordance with the Group's terms of reference, merit directly the attention of States or on which further action will be initiated by ICAO in accordance with established procedures; and

b) Decisions deal with matters of concern only to APIRG and its contributory bodies.

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PART II - REPORT ON AGENDA ITEMS

AGENDA ITEM 1: FOLLOW-UP ON OUTCOME OF APIRG/17 MEETING AND OF THE SPECIAL REGIONAL AIR NAVIGATION MEETING (SP AFI RAN/08)

1.0 Adoption of the Agenda:

1.0.1 The meeting reviewed and adopted the draft Agenda as indicated in paragraph 6 of the History of the meeting, with the inclusion of a presentation on Integrated Air Navigation Planning, from ICAO Director, Air Navigation Bureau.

Integrated Air Navigation Planning

1.0.2 In a presentation by ICAO D/ANB, the meeting was provided with background information based on integrated air navigation planning which outlined the optimization of AFI airspace in view of traffic volumes and accident rates whilst identifying PBN and continuous climb and descent operations as priorities.

1.0.3 On measuring operations and environmental benefits in terms of climate change, the meeting was briefed on assistance to States for the development of action plans for CO_2 reduction as well as the IFSET Tool. Various tools to assist in integrated air navigation planning such as the ICAO Flight Plan Format, WGS-84 implementation, language Proficiency and AIS-AIM were highlighted.

1.0.4 In addition, the meeting was updated on ASBUs and the 12th Air Navigation Conference to take place from 19 to 30 November 2012. The information was noted and taken into account in deliberations of the relevant agenda items.

1.1 Review of action taken by the Air Navigation Commission (ANC) and Council on APIRG/17 meeting report

1.1.1 The meeting reviewed the actions taken by the ANC (hereafter referred to as the Commission) and the Council on the Report of APIRG/17, which was held in Ouagadougou, Burkina Faso, from 2 to 6 August 2010.

1.1.2 The Meeting specifically noted the actions taken by the Commission on selected conclusions and decisions. No action was required from the Council of APIRG/17 Conclusions.

1.2 Review status of implementation of APIRG/17 Conclusions and Decisions

1.2.1 The Group recalled that APIRG/17 had adopted 87 Conclusions and 20 Decisions and was presented with a progress report on their implementation and noted the achievements made and constraints encountered. The challenges to States included lack of capacity and financial resources. The Meeting proposed further action with the aim of increasing the level of implementation and urged States to provide the Secretariat from time to time with the required information in order to assess progress in the strengthening of the air navigation system. The status of implementation of the APIRG/17 Conclusions and Decisions as at the end of January 2012 are at **Appendix 1.2A.**

1.3 Review status of implementation of APIRG Outstanding Conclusions and Decisions from other previous meetings

1.3.1 The Group further noted that Conclusions deal with matters which, in accordance with the APIRG terms of reference, merit directly the attention of States, regional and international organizations or on which further action is required to be initiated by the Secretary in accordance with

established procedures, while Decisions deal with matters of concern only to the Group and its subsidiary bodies.

1.3.2 The Group acknowledged that the number of Conclusions and Decisions have become cumbersome to manage effectively and requires a strategy to be developed for their streamlining. In this regard, the Meeting agreed that the Sub-Groups should review all APIRG Conclusions and Decisions since APIRG/13 meeting, with the objective of identifying Conclusions and Decisions with the following characteristics:

a) Those which have been implemented or become obsolete due to developments;

b) Those which have matured to be included in the work programme of APIRG and its subsidiary bodies as well as the Terms of Reference or Handbook of the Group;

c) Those which are adequately covered by other specific provisions of ICAO including SARPs, Assembly Resolutions and Regional requirements, to be deleted or reformulated to complement such other ICAO provisions; and

d) Those which have since become redundant.

1.3.3 Based on the above, the Meeting formulated the following Decision:

DECISION 18/01: REVIEW AND UPDATE OF APIRG CONCLUSIONS AND DECISIONS

That APIRG Sub-Groups:

a) review all APIRG Conclusions and Decisions from APIRG/13 to APIRG/17 and identify those which are no longer valid;
b) adopt a system of reviewing the validity of Conclusions and Decisions every two successive APIRG meetings; and
c) transfer Conclusions and Decisions which have reached maturity and still relevant to appropriate guides, handbooks and manuals for the AFI Region.

1.4 Review status of implementation of the ICAO SP AFI RAN/08 Recommendations

Activities of ICAO Regional Office Safety Teams (ROSTs)

1.4.1 The meeting was presented with information on actions taken by the ICAO AFI Regional Comprehensive Implementation Plan for aviation safety in Africa (AFI Plan) with respect to the implementation of recommendation 5/13 of the Special AFI RAN/08 meeting, related to the follow-up and continuous monitoring of the sustainability of implementation projects.

1.4.2 Information was further provided on the activities of the Regional Office Safety Teams (ROSTs), the development and implementation of individual State tailored plans of action to assist States address identified safety deficiencies in particular those with high level of Lack of Effective Implementation (LEI).

CONCLUSION 18/02: ACTIVITIES OF ICAO REGIONAL OFFICE SAFETY TEAMS (ROSTS)

That States in the AFI Region take advantage of the assistance made available under the ROSTs in order to support the implementation of their respective Corrective Action Plans (CAPs).

Training Needs and Resources in Africa

1.4.3 The meeting was presented with information on actions taken by the ICAO AFI Regional Comprehensive Implementation Plan for aviation safety in Africa (AFI Plan) with respect to the implementation of recommendation 5/8 of the Special AFI RAN/08 meeting, related to training strategies for safety in Africa.

1.4.4 In this respect, information was also provided on the activities of the Training Experts Working Meeting (TEWG) and the outcomes of the Third Pan-African Aviation Training Coordination Conference which was held from 27 to 29 July 2011 in Cape Town, South Africa.

1.4.5 The meeting was informed of the planned Constitutive Assembly of the Association of African Aviation Training Organizations to be held in Nairobi, Kenya, from 2 to 4 April 2012.The Group urged States and Organizations to participate in planned activities related to training in the AFI Region.

CONCLUSION 18/03: TRAINING NEEDS AND RESOURCES IN AFRICA

That:

a) training organizations in the AFI Region participate in the Constitutive Assembly of the Association of African Aviation Training Organizations (AATO) to be held in Nairobi, Kenya, from 2 to 4 April 2012 and join the AATO; and

b) States, training organizations, and aviation services providers in the AFI region participate in the activities of the envisaged framework for the harmonization of aviation training in the AFI Region and contribute towards the implementation of the ICAO SP AFI RAN/08 Recommendation 5/8.

AGENDA ITEM 2: FLIGHT SAFETY AND REGIONAL AVIATION SAFETY GROUP FOR AFI (RASG-AFI) ACTIVITIES – GLOBAL, REGIONAL AND INTERREGIONAL ACTIVITIES

2.1 Flight Safety and RASG-AFI Activities

2.1.1 The First Meeting of the AFI Region (RASG-AFI/1) was held in Kampala, Uganda from 26 to 27 March 2012. The meeting was attended by one hundred and seventy seven (177) participants from thirty-three (33) States and twelve (12) regional/international organizations.

2.1.2 Regional Aviation Safety Groups (RASGs) have been established to serve regional bodies to integrate global, regional, sub-regional, national and industry efforts to enhance aviation safety worldwide. The creation of RASGs by the Council, similar to PIRGs, has raised need for caution to avoid duplication of efforts. There is therefore a need to coordinate actions among the two Groups and States to facilitate implementation of Global Aviation Safety Plan (GASP) and the associated Roadmap (GASR).

2.1.3 Based on the information provided by the Secretariat and on the need to streamline the responsibilities of the two Groups, the meeting adopted the following Conclusion identifying the areas of focus for each Group:

CONCLUSION 18/04: COORDINATION OF ACTIVITIES BETWEEN APIRG AND RASG-AFI

That:

a) Accidents and Incidents Analysis; and State Safety Programme (SSP) be addressed within the framework of RASG-AFI;

b) RVSM safety monitoring, Quality Management System (QMS) for meteorological and aeronautical information services, Civil-military coordination and SAR continue to be part of APIRG Work Programme;

c) English Language Proficiency (ELP), Safety Management System (SMS) implementation, Runway Safety, Unsatisfactory Condition Reports(UCRs) and Airspace contingencies issues remain in the Work Programme of both RASG-AFI and APIRG, until further notice; and

d) The two Groups agree on the mechanism to be used to ensure that the safety issues addressed by both APIRG and RASG-AFI are fully coordinated.

2.2 Global, regional and interregional activities

Regional Technical Cooperation

2.2.1 The Meeting was informed of the two regional cooperative type projects currently being implemented by the ICAO Technical Cooperation Bureau in the AFI region - the Cooperative Arrangement for the Prevention of Spread of Communicable Disease through Air Travel (CAPSCA) and the Cooperative Development of Aeronautical Meteorology (CODEVMET).

2.2.2 The Group noted that the combined efforts of ICAO and WHO have resulted in the development of public health emergency preparedness guidelines for aviation, the implementation of which is promoted through the CAPSCA project.

2.2.3 The Group was informed that the CAPSCA project organizes visits by technical advisors trained under the Project, to States and their main international airports to assist in ensuring compliance with relevant ICAO SARPs and WHO International Health Regulations. The CAPSCA project also organizes regional training events to provide training in preparedness planning to State aviation and public health authorities as well as other stakeholders.

2.2.4 It was pointed out that Audit Protocol Questions related to the management of communicable disease in aviation will be included in the Continuous Monitoring Approach (CMA) of the Universal Safety Oversight Audit Programme (USOAP). States therefore need to include in their Civil Aviation Regulations public health emergency related provisions of Annexes to the Chicago Convention and ICAO guidance material.

2.2.5 It was reported that the main financial support for the CAPSCA Project has been a series of grants from the UN Central Fund for Influenza Action (UNCFIA). This source of funding is expected to end in December 2012. States will be required to contribute to the funding of the Project thereafter.

2.2.6 The Meeting was informed that the CODEVMET project is the second phase of providing assistance to nine (9) Western and Central African States (Cape Verde, Democratic Republic of Congo, Gambia, Guinea, Guinea-Bissau, Liberia, Nigeria, Sao Tome and Principe and Sierra Leone). This second phase involves the implementation of the CODEVMET-WACAF Pilot Project which addresses the requirements for removal of the deficiencies and enhancing the capacity of State regulatory authorities in carrying out safety oversight of Aeronautical Meteorological Services.

2.2.7 It was recalled that APIRG 17 Conclusion 17/104 a) required States interested in the CODEVMET Project to submit a formal application to the ICAO WACAF office, for enrollment to the project. However, to date no new applications had been received.

2.2.8 Based on the information provided, the Group adopted the following Conclusion:

CONCLUSION 18/05: IMPLEMENTATION OF COOPERATIVE TYPE GLOBAL AND REGIONAL PROJECTS

That States:

a) include in their Civil Aviation Regulations public health emergency related provisions of ICAO Annexes and guidance material;
b) establish an Aviation Public Health Emergency Plan which is integrated in the National Public Health Emergency Plan;
c) which are not members of the Cooperative Arrangement for the Prevention of Spread of Communicable Disease through Air Travel (CAPSCA) project are encouraged to join, request assistance visits and contribute to the funding of the Project; and
d) nominate candidates to be trained as Technical Advisors.

AGENDA ITEM 3: PERFORMANCE FRAMEWORK FOR REGIONAL AIR NAVIGATION PLANNING AND IMPLEMENTATION

3.0. Global, Regional and National Performance Framework – Metrics

ICAO Efforts towards Implementation of a Global ATM System

3.0.1 The Group acknowledged that, in order to facilitate the realization of a performance based Global ATM system, ICAO had made significant progress in the development of relevant guidance material. The intent of the guidance material is to promote a globally harmonized approach to transition planning and to ensure collaboration in developing air navigation systems and procedures.

Regional Planning

3.0.2 The Group reviewed and endorsed the methodology for transition to a performance based Global ATM system as described at **Appendix 3.0A** to this report (extracted from the Global Air Navigation Plan, Doc 9750) in conjunction with **Appendix 3.0B** to this report, transition approach (extracted from Part II of the Global Performance Manual, Doc 9883), which provide a broad overview of the tasks that need to be undertaken by the Group. The outcome of this process would result in an output and management form that has been designated as "Performance Framework Form (PFF)". A sample PFF with explanatory notes, which has been standardized, is shown at **Appendix 3.0C** hereto, is applicable to both regional and national planning framework. The common template ensures easy understanding and harmonization. The explanatory notes provided in **Appendix 3.0D** to this report serve as guide for completing the PFF.

ICAO Special AFI Regional Air Navigation Meeting (SP AFI RAN/08)

3.0.3 The Group recalled that the ICAO SP AFI RAN/08 meeting had recognized that a performance-based approach to planning of air navigation services and aviation safety offered an opportunity to strengthen a continent wide commitment to improving safety and efficiency; toward resolving deficiencies and addressing critical issues. The objective should be to develop a comprehensive report which would contain a set of proposed work programme based on performance

objectives with measurable outcomes and metrics. This would facilitate regional and global management, technical and financial assistance and provide a comprehensive and documented set of needs and requirements for the AFI Region. The SP AFI RAN/08 meeting agreed that it was critical to establish an initial set of metrics to measure performance in the region and requested ICAO to coordinate with States, organizations and stakeholders in the region to collect and process data to measure the metrics, leveraging to the extent possible in all existing data and ongoing efforts. The meeting identified the need for regional workshops on performance-based approach to planning of air navigation services and aviation safety to assist States in implementing related processes. The following decision was formulated:

DECISION 18/06: PERFORMANCE- BASED APPROACH-METRICS

That:

a) APIRG sub-groups develop indicators that are specific, measurable, achievable, realistic and time bound and attach them to the performance framework forms (PFFs) in the appropriate box, using the metrics recommended under SP AFI RAN/08 Recommendation 3/3 and/or others determined to be appropriate indicators for the AFI Region;

b) States use the regionally agreed indicators; and

c) ICAO organizes regional workshops on performance-based approach to assist States in the development and implementation of performance-based approach related processes.

3.1 Review of activities of the Aerodrome Operations Planning Sub-Group

3.1.1 Under this agenda item, the meeting reviewed the report of the AOP/SG/9 which was held in Dakar, Senegal, from 28 to 30 September 2011.

3.1.2 The meeting noted that the AOP/SG in its deliberations acknowledged the challenges many States were experiencing in terms of Qualification and Training of Technical Personnel in the AOP field which has, until recently, not been considered to be areas of responsibility of the regulatory authorities. The AOP/SG noted that providing for adequately trained aerodrome inspectors contributes towards the effective implementation of all the other Critical Elements in the AOP field and in this regard acknowledged the efforts currently on-going to establish Regional Safety Oversight Organizations (RSOOs). The AOP/SG had noted that, in many States, the implementations of the Corrective Action Plans are increasingly being managed by recipients of AFI plan training activities. The meeting observed however that there was still more demand for more training and that in some cases tailor made locally organized training activities were more desirable.

3.1.3 The meeting further agreed with the AOP/SG that the Gap Analyses that were conducted under the implementation of the Global Aviation Safety Plan (GASP) had reconfirmed the findings of USOAP and emphasized the need to develop and take advantage of partnership between the regulators and the industry including aerodrome operators. In order to enhance overall aviation safety, the need for the implementation of the Safety Management System (SMS) and State Safety Programme (SSP) and subsequently the exchange of safety data became obvious. In this regard, the meeting formulated the following Conclusion:-

CONCLUSION 18/07: AERODROME INSPECTOR TRAINING REQUESTS TO AFI PLAN

That States who may wish to get more training under the ICAO AFI Plan (Integrated Safety Management Course, Aerodrome Inspector's Courses and Aerodrome Certification Course) should send requests to ICAO regional offices, and where possible

coordinate such requests with other States for region-wide benefit, and that when such courses are organized, States should include participants from both the "regulator" and "aerodrome operator".

3.1.4 The meeting noted the view of the AOP/SG that certain deficiencies in some States had remained unresolved for a long time. With respect to wildlife hazard reduction, there was a need for continuous assessment, monitoring and reporting in order to develop and implement well researched mitigation measures involving all stakeholders. For rescue and fire fighting services, some States had not put sufficient emphasis on the "rescue" component of RFFS and the provision of adequate resources for training of RFFS personnel. On aerodrome emergency planning, the AOP/SG noted that in some States its adequacy and currency was questionable, the AEP testing was not being conducted at appropriate intervals and that many States had not adequately considered and provided facilities taking into account the difficult terrain. The meeting agreed with the AOP/SG that the previous APIRG 16 and 17 conclusions on this matter were still valid.

3.1.5 The meeting was apprised of the initiative the Airport Council International (ACI) was implementing called APEX (Airport Excellence in Safety) to complement ICAO's efforts to address aerodrome safety through the establishment of Safety Review Teams. This initiative strives to assist a host airport to achieve regulatory compliance with the actual day to day operational needs to maximize efficiency whilst enhancing safety standards. The initiative is designed to provide advice, recommendations, training and support from peer airports (known as Safety Partners) on several issues including aerodrome certification and to introduce a comprehensive safety management system. The initiative is tailored to achieve close cooperation between ACI and ICAO.

3.1.6 On the implementation of aerodrome certification, the meeting noted that although progress had been made, further work was required in some States. The specific challenges in the ASECNA States related to the operational and organizational structures required a solution at corporate level. The meeting acknowledged that in order for States to make progress on implementation of aerodrome certification, there must be cooperation of both the regulator and the operator. In addition, political commitment is necessary in order to ensure the promulgation of the enabling regulatory framework to enable the regulator to perform its aerodrome safety oversight functions effectively even when the airports are operated by the Government or other Government Agencies.

3.1.7 The meeting noted the discussions in the AOP/SG on runway safety and agreed that runway safety required a multi-disciplinary approach. Issues related to the radiotelephony phraseology, language proficiency, equipment, aerodrome lighting and markings, aerodrome charts, operational aspects, situational awareness, runway contaminants affecting the pavement surface friction characteristics, insufficient taxiways and human factors, all were contributory factors. The meeting noted that the ICAO efforts to produce and disseminate the ICAO Runway Safety Toolkit (2005, CD-ROM) and Doc 9870 —*Manual on the Prevention of Runway Incursions* (2007) had helped to make States aware of the problem. Recent Amendment 10-A to Annex 14, Volume I, that introduced new provisions for enhanced taxiway centre line markings and mandatory instruction signs to further strengthen runway incursion prevention through visual aids measures will contribute to the solution. The meeting took note of the activities of the Aerodrome Panel which when completed will go a long way towards contributing to the solutions to the problems associated with runway safety. The meeting was informed that ICAO organized a Global Runway Safety Symposium in Montreal, Canada, 24-26 May 2011 with the aim to highlight the evolution towards a more integrated safety management approach in ICAO's runway safety programme, coordinate a global effort for improving runway safety by identifying what a State can do to improve runway safety, identifying a common framework for the enhancement of runway safety, promotion of commitment from partners to deliver regional runway safety workshops across the globe and identify content and format for subsequent runway safety workshops. In AFI, Regional Runway Safety Seminars are programmed to be held in Cape Town, South Africa 29-30 October 2012 and in Dakar, Senegal in 2013. States are urged to participate fully at these events.

3.1.8 With respect to the review of the terms of reference of the AOP/SG, the meeting approved the inclusion of "Obstacle surfaces control", "runway safety" and "aerodrome planning and design" in its activities and formulated the following decision:

DECISION 18/08: AERODROME OPERATIONS PLANNING SUB-GROUP TERMS OF REFERENCE

That the AOP/Sub-group Terms of Reference be amended to include "obstacle surfaces control", "runway safety" and "aerodrome planning and design".

3.2 Air Traffic Management and Search and Rescue (ATM/SAR)

3.2.1 The Group noted that the ATM/AIM/SAR Sub-Group convened its 12th meeting in Dakar, Senegal 25-29 July 2011.

APIRG Conclusions and Decisions

3.2.2 In an effort to improve the effectiveness of its Conclusions and to facilitate implementation focus, the Group reviewed Conclusions and Decisions adopted by its 17th meeting and took action to:

i) merge Conclusions or Decisions with others that are considered similar or closely related;
ii) identify those that are adequately addressed by other Conclusions, Decisions, procedures, or activities;
iii) identify those that may be included in the terms of reference and work programme relevant to APIRG subsidiary bodies and those that can be included in the APIRG handbook to serve general purposes;
iv) improve the quality of existing Conclusions pursuant to comments from the ANC; and
v) reduce the number of existing Conclusions.

Performance Based Navigation (PBN) and AFI ATS Routes Network

PBN Implementation

3.2.3 The Group having reviewed the available information on the subject determined that the rate of PBN implementation in many States was still low. It was noted that 31 States have developed PBN approaches. However, the Group noted with concern that despite the implementation deadline being December 2009; only thirteen States (Botswana, DRC, Egypt, Ethiopia, Ghana, Kenya, Madagascar, Mauritius, Nigeria, Seychelles, South Africa, Togo and Uganda) have submitted their PBN implementation plans to the Regional Offices.

3.2.4 The Group noted that pursuant to APIRG Conclusion 17/47, ICAO had provided funds for a PBN Seminar. Concern was expressed that, despite past training efforts, the availability of PBN expertise in the Region remained low, and that in many cases, officials who have received the training are not the ones assigned to carry out the PBN implementation tasks. It was agreed that the Region should develop a pool of expertise in order to facilitate optimal use of available capacities in this respect. The Group acknowledged the importance of sensitizing Directors General of Civil Aviation regarding critical issues in the implementation of PBN.

3.2.5 With regard to implementation of the Regional PBN Implementation Plan, in particular airspace optimization in the terminal airspace, the Group noted that although a number of PBN approaches had been developed, most States' implementation in accordance with the global goals in ICAO Assembly Resolution A36-23 as amended by A37-11, was significantly behind

schedule. States were urged to take necessary action to improve the rate of implementation in order to realize the safety and efficiency benefits envisaged in these Resolutions. The Meeting endorsed the revised Regional Performance Framework Forms (PFF) as at **Appendices 3.2A1 to 3.2A3** to the report on agenda item 3.2. The Group adopted the following Conclusions:

CONCLUSION 18/09: NATIONAL PBN IMPLEMENTATION PLANS

That in accordance with Assembly Resolution A37-11 on PBN Implementation, States:

a) That have not already done so, complete preparation of their national PBN implementation plans as a matter of urgency, using the template provided by the PBN GNSS Task Force;
b) Consider the use of planning tools provided by the PBN/GNSS Task Force, as well as project management software; and
c) Provide updates to Regional Offices.

CONCLUSION 18/10: LOWERING OF RNAV/RNP ROUTES UM214 AND UM215

That States that have not already done so, be urged to establish the lowest usable flight level on the RNAV routes UM214 and UM215 as flight level 250 for operational reasons.

(This Conclusion supersedes APIRG Conclusions 17/51)

CONCLUSION 18/11: AFI PBN REGIONAL PERFROMANCE FRAMEWORK FORMS

That the AFI PBN Regional Performance Framework Forms be in the format as at Appendix 3.2A1 to 3.2A3 to the report on agenda item 3.2.

Flight Procedure Programme (FPP)

3.2.6 The Group noted that the letter called for under Special AFI/08 RAN Recommendation 6/10 and APIRG Conclusion 17/52, was dispatched in February 2011 and that responses were received from twenty-seven States and one organization representing 17 States. Significant interest was indicated in the responses. It was also recalled that ICAO HQ had been evaluating a similar project in the APAC Region and it was expected that the results obtained would help guide how to implement the AFI FPP. From among lessons learned from the APAC project, the Group noted that the initial concept which had been limited to procedures design needs to be expanded in order to address PBN implementation issues more comprehensively and that the AFI Region would also benefit from such an approach.

3.2.7 The Group further noted that in view of the above, during the course of the APIRG/18 meeting, a consultative meeting took place between the Director Air Navigation Bureau (D/ANB), States and Air Navigation Service Providers (ANSPs) that had indicated interest in hosting or providing major support to the FPP, as well as donor organizations. Participants of this consultative meeting were informed about the prototype FPP for the APAC Region, including lessons learnt and adjustments made. The participants shared views as well as summary information on their intended support. ICAO welcomed the inputs and an agreement was reached that D/ANB will continue to consult with these States, organizations and donors to ultimately establish an AFI FPP based on the most beneficial and sustainable model tailored for Africa. It is expected that a series of related agreements will be completed in the fourth quarter of 2012, and that under the best circumstances, an FPP will be established in 2013. The group welcomed the approach.

ATS Route development

3.2.8 The Group noted with appreciation that the high rate of user-preferred ATS route development and implementation which has resulted in over Sixty-five (65) new ATS route trajectories in less than two years, and that this was made possible by effective cooperation between the States, users, and the responsible APIRG contributory bodies. States were however, urged to implement the ATS routes agreed during and before the APIRG/16 meeting as a matter of priority. Furthermore, to implement the routes agreed within the framework of APIRG as indicated in **Appendix 3.2B** to the report on agenda item 3.2 by 26 July 2012 AIRAC date, and to update the respective letters of agreement/procedure (LOA/P). The Group noted the ATS routes/trajectories that were regarded as no longer required by users.

3.2.9 In order to facilitate implementation of user preferred ATS routes, the Group considered proposals for workshop type of approach in the development of ATS routes, noting that IATA had sponsored similar events titled “Route Labs”. It was however, agreed that details of the approach should be within the purview of ATM/AIM/SAR Sub-Group.

3.2.10 The Group highlighted that users (represented by IATA) were expected to provide a comprehensive user statement of requirements reflecting user preferred trajectories at the level of the whole of the AFI Region. This is to enable the PBN Route Development Task Force (PRND TF) to undertake a comprehensive review and update of the AFI ATS route network towards the goal of an efficient Regional network as opposed to efficiencies at micro levels.

3.2.11 The Meeting recognized the need to address user requirements in the AFI/APAC/MID interface area including random routings in the Indian Ocean area and routing systems that are coordinated with the Middle East/Asia network through the informal Arabian Sea Indian Ocean ATS Coordination Group (ASIOACG). It was acknowledged that significant efficiencies (fuel and CO_2 reduction could be realized by implementing coordinated user preferred routes (UPR) and random routing system in Regions interface area which is defined by the Global Air Navigation Plan Areas of Routing (AR) AFI AR6, ASIA AR1 and MID AR2. The Group agreed that the ATM/AIM/SAR Sub-Group should, in coordination with the other Regions, address requirements in this area.

3.2.12 It was noted that in the past there have been coordination challenges related to route development in the AFI/APAC interface area, in particular routes involving the Mumbai FIR. The Group agreed that the concerned ICAO Regional Offices should address the matter.

3.2.13 It was recalled that the closure of ATS routes between Addis Ababa and Asmara FIRs continues to cost users significantly due to the major detours for North/South flights. It was noted however that pre-requisites for operation of these routes were subject to developments beyond the scope of the Group. IATA was nevertheless requested to consider and submit proposals for shorter routes than the existing ones, though such proposed ATS routes will still not cross the Addis Ababa/Asmara FIR boundary.

3.2.14 In order to support the process of ATS route network development in the AFI Region, and in accordance with its TOR, the Group agreed to adopt the concept of an AFI ATS Route Catalogue (AARC) as a working depository for ATS route proposals, prior to such proposals being adopted by the ICAO Council for inclusion in the AFI ANP as formal Regional requirements.

3.2.15 The Group agreed that the purpose of the AARC will be to contain a list of ATS route proposals that have been agreed within the framework of APIRG for further consideration and processing, in the near to long term, until such ATS route proposals have been processed as amendments to the AFI ANP (Doc 7474) Table ATS-1 and approved by the ICAO Council. Other ATS route proposals agreed to be removed from the AARC will be for such reasons as being improbable, overtaken by events, or replaced by an agreed alternative. The AARC will be used to

record and track the routes' development, and will as such be a living document updated at relevant meetings and by the Secretariat, within the APIRG framework. It shall not be the purpose or intention of the AARC to duplicate the ANP Table ATS-1 or its purpose.

3.2.16 In view of the above, the Group adopted the AARC template at **Appendix 3.2C** to the report on agenda item 3.2 and agreed on the following Conclusion:

CONCLUSION 18/12: AFI ATS ROUTE CATALOGUE TEMPLATE

That, in order to support the process of ATS route development in the AFI Region, including the keeping of a record of ATS routes proposed for development and facilitating follow- up on the actions pertaining to the routes' development:

a) the AFI ATS Route Catalogue (AARC template) is adopted as at Appendix 3.2C to the report on agenda item 3.2; and

b) AFI States and concerned international organizations are urged to periodically review the Catalogue once completed, note developments and take action as applicable.

3.2.17 In view of latest developments, the Group updated the Terms of Reference (TOR) of the PRND Working Group as at **Appendix 3.2D** to the report on agenda item 3.2.

Atlantic Ocean Random Routing Area (AORRA)

3.2.18 The Group recalled that the Atlantic Ocean Random Routing Area (AORRA) was designed in order to realize increased benefits from the tracks established to maximize wind effect and related fuel savings and reduction of CO_2 emissions from flight operations over the South Atlantic. It was also recalled that AORRA was planned to be implemented in four phases between 2006 and 2009, and that the last phase was implemented on 26 August 2010. The random routing area has the following key requirements:

- *All fixed routes within AORRA are suspended. However the data defining the route trajectories (route, designation and waypoints coordinates) is to be retained in aircraft FMSs, etc. for the routes to be used during contingency situations.*

- *Direct route transitions are required from waypoints on the existing airway structure to discrete Latitude/Longitude waypoints on the AORRA boundaries, in order to optimize random routing benefits.*

3.2.19 The Meeting noted also that pursuant to APIRG Conclusion 17/60, additional direct transition trajectories to/from AORRA airspace have been implemented. It was also acknowledged that additional flexible tracks in the Atlantic Oceanic airspace providing flexible routing between North America and Southern Africa had been developed.

Five Letter Name Codes (5LNC)

3.2.20 The Group noted that an ICAO 5 Letter Name Code database system (ICARD/5LNC) Seminar/Workshop followed by a 5LNC Coordination Meeting were convened in November 2011, Nairobi, Kenya, to enable AFI States to effectively use the system and to address safety issues related to duplication of the 5NLCs and other code usage anomalies. From the two events, participants were able to register on the ICARD system and use it to process over 185 5LNCs including removal of duplications, alignment of geographical coordinates at Flight Information Regions (FIRs) boundaries and release/return of unused codes.

Safety Management

Implementation of Safety Management Systems (SMS)

3.2.21 The Group noted that Kenya was making progress in the implementation of SMS in the provision of air traffic services and associated services. Among the implementation challenges being experienced, human resource limitations was the most significant.

Reduced Vertical Separation Minimum (RVSM)

AFI RVSM Safety Policy

3.2.22 The Meeting endorsed the amended AFI RVSM Safety Policy as at **Appendix 3.2E** to the report on agenda item 3.2 as a safety maintenance policy document, to ensure that the agreed Target Levels of Safety continue to be met.

Sixth Annual Global RVSM Regional Monitoring Agencies Coordination Group Meeting (RMACG/6)

3.2.23 The Group noted the outcome of the RMACG/6 meeting which was held in Montreal, Canada in June 2011, whose main aim was to discuss co-ordination and harmonization of RVSM issues between Regional Monitoring Agencies (RMAs) which ultimately affects RVSM operations within all regions. The following critical issues which had been discussed at the RMACG/6 were also noted:

a) The importance of State RVSM Operational Approvals. It was noted that RMAs made references to AFI aircraft without appropriate approvals;
b) The amendments to the Minimum Monitoring Requirements. (The updated tables will be placed on the AFI Regional Monitoring Agency (ARMA) web page and can be accessed on ARMA website (www.atns.co.za/afi-rvsm).
c) Co-ordination failures between Area Control Centres (ACCs) which appear to be of concern to many Regions including AFI, as this phenomenon creates a Large Height Deviation environment for RVSM.

3.2.24 In view of the foregoing, the Group reiterated the requirement for States to provide the ARMA with the required RVSM documentation for new and de-registered aircraft.

RVSM implementation related deficiencies

3.2.25 The Group agreed that among other deficiencies within the scope of the Council guidance, deficiencies relating to RVSM be listed pursuant to the minimum reporting areas as at **Appendix 3.2F** to the report on agenda item 3.2.

ATS Requirements

3.2.26 The Group recalled the provisions under ICAO Annex 11, Chapter 2, relating to the development and promulgation of Contingency Plans (CPs) and noted that based on information available with the Secretariat, many States had not yet developed or updated contingency plans for airspaces in which they were responsible for provision of ATS. Furthermore, although some States had developed contingency plans since the last APIRG meeting, some of the Contingency Plans were yet to be formatted in accordance with the template adopted in terms of APIRG Conclusion 17/66. The status of development of contingency plans in the AFI Region is provided at **Appendix 3.2G** to the report on agenda item 3.2.

3.2.27 It was noted that in developing the CPs for its member States, ASECNA had achieved essential seamlessness between many FIRs. It was also reported that States were continuing to develop the CPs in accordance with the APIRG Template for this purpose.

3.2.28 The Meeting recognized the need to coordinate the AFI Contingency Plans with the efforts by the South Atlantic (SAT) group and urged the Secretariat to ensure necessary coordination.

3.2.29 The Group urged States that have not already done so to develop contingency plans using the template adopted by APIRG /17, as soon as practical, and to forward the updated contingency plans to the Regional Offices for review and transmission to ICAO Headquarters for approval. The Group recalled that development of CPs includes consultations with various stakeholders and acknowledged that in some cases, the development of contingency plans is by lack of delayed responses from adjacent States. In cases of prolonged delays, the Regional Offices accredited to the concerned States are to be informed and if necessary requested to facilitate completion of the coordination**.**

Volcanic Ash

3.2.30 The Group discussed the safety issues related to volcanic ash and recalled the various hazards to flight operations that accompany the volcanic ash, such as engine failures and malfunctions, communication problems and loss of visibility. The Group noted the developments following the Iceland's Eyjafjallajökull volcanic eruption in April 2010, the subsequent recognition of the need for the development of global response mechanisms, and that the ICAO International Volcanic Ash Task Force, had urged PIRGs to improve existing Regional volcanic ash contingency plans or to establish new plans. The Task Force had also provided a template that could be used by Regions.

3.2.31 The Group recalled APIRG Conclusion 17/84 establishing a *Core Team of Experts* to collect and study information on the impact of the global Air Traffic Management Operational Concept on the provision of Aeronautical Meteorological Services in the AFI Region, and recognizing the additional work envisaged to the planning and response for volcanic ash, agreed on the dissolution of the Core Team of Experts and the establishment of a Meteorology/Air Traffic Management Task Force (MET/ATM/TF**).** It was also agreed that, as a minimum, all AFI States which have active or dormant volcanoes should be members of the Task Force.

3.2.32 In view of the above, the Meeting formulated the following Decision:

DECISION 18/13: ESTABLISHMENT OF THE AFI ATM/MET TASK FORCE

That the Core Team of experts established under APIRG Decision 17/84 is dissolved, and the AFI ATM/MET Task Force be established with the terms of reference and work programme as at Appendix 3.2H to the report on agenda item 3.2.

3.2.33 It was recalled that within and adjacent to the AFI Region there were areas of volcanic activity which were likely to affect flight operation in the AFI Region. In this regard, the Group agreed to the development of the AFI Contingency Plan (CP) based on the draft at **Appendix 3.2I** to the report on agenda item 3.2. Due to the immediate need for the CP, the Group agreed that once the ATM/AIM/SAR and MET Sub-Groups completed development of the AFI Volcanic Ash Contingency Plan, the Plan should be made available to States for implementation without necessarily awaiting the next APIRG Meeting. Accordingly the Group formulated the following Conclusion:

CONCLUSION 18/14: ESTABLISHMENT OF THE AFI VOLCANIC ASH CONTINGENCY PLAN

That:

a) the ATM/AIM/SAR and the MET Sub-Groups finalize development of the AFI Volcanic Ash Contingency Plan;
b) the Plan be provided to States for implementation, without awaiting the next meeting of APIRG.

New ICAO Flight Plan (FPL) 2012

3.2.34 The Group reviewed progress made in the preparation for implementation of the provisions of Amendment 1 to the 15th edition of Doc 4444 related to the ICAO Flight Plan format, including the activities of the AFI Flight Plan Transition Task Force (FPLT TF).

Regional Strategy

3.2.35 The Group adopted the Regional Strategy for implementation of Amendment 1 to the 15th edition of Doc 4444, the updated Regional Performance Objectives, and the proposed revised terms of reference (TOR) of the FPLT Task Force. It was also noted that the Task Force had developed a model for the national performance framework form (PFF) reflecting detailed breakdown of activities relevant for action by States, as well as detailed guidance material for States.

3.2.36 In view of the above, the Group endorsed the following Conclusion and Decision:

CONCLUSION 18/15: STRATEGY FOR IMPLEMENTATION OF NEW ICAO FLIGHT PLAN FORMAT

That, in order to implement the NEW ICAO Flight Plan format in a progressive and harmonized manner:

a) The AFI Strategy for Implementation of NEW ICAO Flight Plan format be as at Appendix 3.2J to the report on agenda item 3.2; and
b) States and users are urged to continue their implementation planning based on the Strategy.

DECISION 18/16: REVISED TERMS OF REFERENCE OF THE AFI FLIGHT PLAN TRANSITION TASK FORCE (FPLT/TF)

That the updated Terms of Reference of the AFI Flight Plan Task Force be as at Appendix 3.2K to the report on agenda item 3.2.

3.2.37 The Group noted that many AFI States have plans for upgrading their flight plan processing systems or part thereof (e.g. FDPS, RDPS, AFTN, etc.) during the transition period, although comprehensive details of such plans are yet to be communicated to ICAO. It was also noted that in many cases, implementation solution delivery dates were yet to be finalized with technology vendors, which placed the concerned States in a situation of critical time constraint, given that the airspace users' testing and implementation period, which is globally coordinated, will start in July 2012.

3.2.38 It was further noted that technology vendors had started expressing inability to meet deadlines for delivery of the technological solutions requested by States in accordance with the Regional transition timelines. In some cases, the planned solution delivery dates were in the October-November time frames, making it impractical for effective testing to be carried out before the implementation date of 15 November 2012. In addition to the issue of solution delivery dates, concern

was expressed at the now nearest date of implementation (15 November 2012) and the high cost solutions offered by vendors. On the issues of implementation date, the Group recalled that flight plan changes were approved by the ICAO Council in May 2008 and duly communicated to States. The Group was apprised that the ICAO Council has not indicated any intention to review the date. Concerning vendor delivery dates and costs, States were encouraged to approach the vendors to do their best to resolve the differences. The Group noted progress being made towards readiness to implement the new flight plan format.

Survey on Missing Flight Plans

3.2.39 The Meeting acknowledged that equipment and human resource issues were among contributory factors to missing flight plans. However, it was reiterated that a detailed study is necessary to address the issue. The Group noted that limited progress had been made in implementing APIRG Conclusion 17/42 on the resolution of missing flight plans. A Regional Technical Survey was conducted in August 2011 to assess the contribution of technical (equipment) aspects to the missing flight plan challenges. A second survey was to be carried out with the participation of the EUR Region (through Eurocontrol) which is also impacted by missing flight plans from the AFI Region. It was explained that the survey process is also being refined and there had been concerns of interpretation of the survey questionnaires. The Group called upon air navigation service providers to implement safety management systems (SMS) requirements as a means of mitigating the safety risks associated with missing flight plans. Airspace users' representatives (such as IATA, IFALPA) were also requested to actively participate in future surveys on missing flight plans.

3.2.40 Concerns were expressed that if the problem of missing flight plans was not addressed in a timely manner, the situation will jeopardize States' efforts in implementing Amendment 1 to PANS-ATM (Doc 4444). Accordingly, the Group agreed to the following Conclusion:

CONCLUSION 18/17: ADDRESSING MISSING FLIGHT PLANS

That AFI States should:

a) address the loss of ATS messages using AFTN, including missing flight plans, as a matter of urgency;

b) continuously monitor missing flight plans through:

i) the AFI Tactical Action Group (TAG); and

ii) conduct regular surveys on missing flight plans for a longer period (e.g. 30 days), or at regular intervals, under the coordination of the ICAO Regional Offices; and

c) ensure that their ATC systems' clocks are synchronized with the GPS time in order to meet Annexes 2 and 11 relevant provisions.

(Note: This Conclusion supersedes APIRG Conclusion 17/42)

3.2.41 The Group also noted that part of the challenges that could be contributing to missing flight plans was the lack of training of staff employed or engaged by air operators to file or submit flight plans (filers) to the air navigation service providers (ANSPs). Accordingly, the Group agreed to the following Conclusion:

CONCLUSION 18/18: TRAINING OF AIR OPERATORS PERSONNEL ON AIRSPACE ORGANIZATION

That, in order to reduce risks of missing flight plans, enhance safety and efficiency, States and concerned international organizations including IATA take necessary

measures to ensure that flight planning personnel are adequately trained on the tasks for which they are engaged in the processing of flight plans.

Guidance for non- automated FPL processing systems

3.2.42 The Meeting noted the guidance that had been developed by the FPLT Task Force, and acknowledged that the guidance will be updated as necessary to sustain their relevance up to and beyond 15 November 2012 where necessary.

Seminars and Workshops

3.2.43 The Group noted that pursuant to APIRG Conclusion 17/62, two FPL 2012 Seminar/Workshops were conducted in Nairobi and Dakar in 2011. However, the need for further support has been recognized in the form of four coordination workshop/meetings and these are planned to be convened at the following venues which host the AFI Main AFTN Communication Centres: Addis Ababa (17-18 April 2012), Nairobi (24-25 April 2012), Johannesburg (8-9 May 2012) and Dakar (22-23 May 2012). Tributary Centres connected to these Main Centres are strongly encouraged to participate.

Civil/Military Cooperation and Coordination

3.2.44 The Group noted that pursuant to the Global Air Traffic Management Forum on Civil/Military Cooperation convened at ICAO HQ in Montreal, Canada from 19 to 21 October 2009, guidance on civil/military cooperation in air traffic management had been developed with the support of civil and military experts from various States and organizations and published as Circular 330 (Cir 330, Civil Military Cooperation in Air Traffic Management, Order Number: Cir330 - ISBN 978-92-9231-693-8).

3.2.45 The Meeting also noted that as a further follow-up to the outcome of the Forum, the 37th ICAO Assembly had approved for the 2011-2013 triennium, five regional seminars/workshops on civil/military cooperation to roll-out the guidance material in Civil/Military Cooperation in Air Traffic Management (Cir 330) in all ICAO regions. The AFI Region seminar is scheduled to be convened in Nairobi, Kenya, during the first quarter of 2013. The seminar will be a Special Implementation Project (SIP).

Search and Rescue (SAR)

3.2.46 The Group deliberated on the challenges that were impeding SAR implementation progress in the AFI Region, and agreed that the single most prominent hurdle was the establishment of agreements. It was however, acknowledged that the establishment of international agreements was the key to effective implementation. In this regard, the Group urged States to focus on the issue of bilateral and multilateral SAR agreements to facilitate cooperation.

3.2.47 It was noted that issues related to SAR integration could still take more time to be implemented. Challenges included lack of political commitment, differing interpretations of sovereignty and political complexities in establishing international agreements. Sensitization of high level State officials on SAR matters was considered essential.

3.2.48 The Meeting acknowledged that in an effort to overcome various challenges, Regional organizations like SADC, ECOWAS, CEMAC, EAC etc. could be good enablers. Likewise, Rescue Coordination Centres (RCCs) could serve as potential base for regional/sub-regional SAR close co-operation.

3.3 AFI Regional Monitoring Agency (ARMA)

3.3.1 The Group reviewed the outcome of the Fifth Collision Risk Assessment (CRA5) and noted that, the estimate of the Technical Vertical Collision risk calculated during (CRA5) was once again found to be below the Technical Vertical TLS of 2.5×10^{-9} fatal accidents per flight hour. However the estimates of the Total Vertical collision risk does not meet the total vertical TLS of 5×10^{-9} fatal accidents per flight hour, which was also the case with previous CRAs.

3.3.2 The Group was cognizant that the estimate of the Technical Vertical Collision risk is affected by a number of limitations in the air traffic flow data used for estimating the passing frequency parameter of the collision risk model (CRM). Amongst others, there was a significant increase (24%) in the number of events attributable to aircraft operating at the wrong flight levels.

3.3.3 Precise and complete traffic flow data is critically important to make the passing frequency estimates more reliable. Furthermore, the aircraft population is integral with regard to the overall Altimetry System Error (ASE) distribution. In this respect however, for the first time ARMA was able to include ASE measurements obtained from the AFI Height Monitoring Program.

3.3.4 The dominant component of the total vertical risk was the risk created due to aircraft having levelled off at a wrong flight level. The estimate is conservative due to a lack of precise and complete information and could therefore be higher as under reporting is symptomatic.

3.3.5 The Group noted that Safety Assessment Data received by the ARMA was as low as 35% of the total that should have been available, which was a 1% increase on the CRA 4 data. It was acknowleged that States should be urged to collect and submitt to the ARMA complete traffic flow data applicable to all AFI FIRs, and for all stakeholders (service providers, users, professional organizations and regulators) to significantly improve the rate of providing Air Safety Reports/Unsatisfactory Condition Reports (ASRs/UCRs), as well as information on Large Height Deviations.

3.3.6 It was noted that there is an unacceptable incidence of Non-RVSM approved aircraft, both civil and State aircraft, specifically where State aircraft fail to flight plan correctly to gain access to RVSM airspace. This aspect has however, not been factored into the CRA and is under discussion for the next Assessment. The Group referred the matter of non-RVSM approved aircraft to the ATM/AIM/SAR Sub-Group to identify solutions.

3.3.7 The meeting recalled that while there are many significant benefits of the accuracy in navigation enabled by technology, the precision also has inherent collision risks, which also affect the CRA calculations. In order to mitigate this situation, APIRG/17 adopted Conclusion 17/43: *Implementation of Strategic Lateral Offsets (SLOP) in the AFI Region*. The Group urged all States responsible for the provision of air traffic services in AFI FIRs which have not already done so, to issue publications authorizing the application of SLOP in accordance with Conclusion 17/43.

3.4 Communications, Navigation and Surveillance (CNS)

3.4.1 The Group reviewed the report of the Fourth Meeting of the APIRG Communications, Navigation and Surveillance Sub-group (CNS/SG/4), which was held in Dakar, Senegal from 25 to 29 July 2011.

Communications Systems

Aeronautical Fixed Service (AFS)

AFS implementation status and performance

3.4.2 The Meeting noted that States had implemented the requirements for AFS communications as contained in the AFI Air Navigation Plan (ANP), FASID Tables CNS 1A (AFTN Rationalized Plan) and CNS 1D (ATS/DS Plan), using digital technology. However, some of the required AFTN circuits (such as Addis-Ababa/Asmara) and ATS/DS circuits (such as Addis-Ababa/Asmara, Bujumbura/Kinshasa, Djibouti/Hargeisa, Kigali /Kinshasa) were yet to be implemented.

AFTN circuit availability

3.4.3 It was noted by the Group that the implementation of aeronautical satellite telecommunications networks had significantly improved AFTN circuits' availability in the Region. However, availability rates remained below the specified minimum of 97% stated in the AFI Air Navigation Plan (AFI/7 Recommendation 9/3) in some cases, thus preventing normal distribution of messages related to flight planning and coordination between ATS units, aeronautical information services (AIS), operational meteorological information (OPMET) and search and rescue (SAR), with a negative impact on the safety and efficiency of air transport operations.

AFTN Transit Time Statistics

3.4.4 From reports made available to the Secretariat, the meeting noted that the transit times prescribed in the AFI Regional Air Navigation Plan (ANP) were not met in many cases. In order to facilitate a thorough analysis of the root causes and identification of appropriate remedial action, States responsible for the operation of AFTN circuits were reminded to monitor transit time statistics on the 23rd day of each third month (January, April, July and October) of each year, and exchange them with correspondents, and provide them to other administrations and ICAO Regional Offices.

AFTN Circuit Loading

3.4.5 The Group emphasized the importance of carrying out performance evaluation of AFTN circuits on the basis of statistics collected for minimum period of three days at the interval of six months from 23 to 25 April and October. It therefore requested AFTN centres and stations experiencing difficulties in taking character count due to system limitations to record circuits loading in accordance with the criteria specified in ICAO Doc. 8259 - *Manual on the Planning and Engineering of AFTN*.

Transmission speed

3.4.6 The Group noted that all AFTN main circuits were operating at 9.6 kb/second or 19.2 kb/second, while some links had the potential for meeting 64 kb/second requirement specified for ATN backbone circuits.

AFI AMHS Implementation

3.4.7 The Group reviewed and endorsed the report of the First Meeting of the AFI ATS Message Handling System Implementation Task Force (AFI AMHS/I/TF/1), which was held at the ICAO Eastern and Southern Regional office, United Nations Complex, Nairobi, Kenya from, 19 to 20 May 2011, back to back with a Regional Workshop on ATS Message Handling System which took place from 17 to 18 May 2011. The workshop was based on ICAO SARPs and Guidance Material contained in *Annex 10 to the Chicago Convention, Doc 9880, Part 2 – Manual on detailed technical specifications for the AN using ISO/OSI Standards and Protocols*.

3.4.8 The meeting noted that a number of States had already implemented AMHS on a national basis, pending guidelines for international AMHS links. It accordingly recommended that

AFI States conclude bilateral and/or multilateral agreements using the model developed by the Task Force, and conduct trials to ensure interoperability between their AMHS systems. It also requested the Secretariat to conduct a regional survey on AMHS implementation. The entire report on AFI AMHS/I/TF/1 is accessible on the ICAO public website *(http://www.icao.int)*.

3.4.9 A draft AFI AMHS Implementation Strategy developed by the Task Force, as shown at **Appendix 3.4A** to this report was endorsed by the Meeting subject to further amendments to be made by the Secretary, based on the data to be provided by States through the recommended regional survey. The following conclusion was formulated:

CONCLUSION 18/19: AFI AMHS IMPLEMENTATION STRATEGY

That AFI States adopt and implement the AMHS Strategy shown at Appendix 3.4A to this report.

3.4.10 The meeting identified further work to be carried out by the Task Force, including the development of an AFI AMHS Manual based on the EUR AMHS Manual (Version 6.0), and of a regional AMHS implementation plan. Accordingly, the Group endorsed the terms of reference, composition and programme of the AFI AMHS Implementation Task Force as shown in **Appendix 3.4B** to this report.

3.4.11 The Group recalled State letter AN 18/XX49.1-09/34 of 14 April 2009, providing States with the procedures established for global coordination of AMHS information. States were therefore requested to designate representatives to register as users of the ATS Messaging Management Centre (AMC), and ensure that the designated users are duly trained on AMC web-based platform before they are actually allowed to enter data in *http://www.eurocontrol.int/amc*, and communicate to the ICAO Regional Offices the relevant details of the AMC users in order to facilitate their accreditation and enable their access the AMC.

Aeronautical Telecommunication Network (ATN) Planning - AFI ATN Routing Architecture Plan

3.4.12 The Group recalled that, in 2005, the APIRG/15 meeting had reviewed a draft AFI ATN Routing Architecture Plan, which provides technical guidance on the planning and implementation of the transition to the ATN for ground-ground communications within the ICAO AFI Region. The Draft AFI ATN Architecture Plan was circulated for comments, and was supported by States. Thereafter, further work carried out by the AFI Aeronautical VSAT Network Managers formulated amendment proposals, based on the existing infrastructure. The Group endorsed the finalized AFI ATN Architecture Plan, which confirms Addis Ababa among the selected backbone boundary intermediate systems (BBIS). The following conclusion was formulated:

CONCLUSION 18/20: AFI ATN ARCHITECTURE PLAN

That AFI States implement the AFI ATN Architecture Plan shown at Appendix 3.4C to this report.

Aeronautical Mobile Service (AMS)

3.4.13 The Group noted significant improvement in VHF radio extension coverage in most FIRs. However, communications problems were reported in Luanda and Kinshasa FIRs. The Group also noted that further extension of VHF radio coverage was limited in many areas where implementation of remote stations was not practicable. In accordance with APIRG Conclusion 16/23, the International Air Transport Association (IATA) informed the Group on the outcome of the regional AMS survey on VHF, HF and controller-pilot data link communications (CPDLC) which was conducted in the AFI Region from 16 January to 5 February 2012, and corrective actions were recommended, including implementation of CPDLC procedures in order to improve aeronautical mobile

service and overcome identified challenges (Conclusion 17/25 refers). However, the Group noted with satisfaction gradual implementation of operational controller-pilot data link communications (CPDLC) by States and Organizations[1], in accordance with the Regional Air Navigation Plan (ICAO Doc 7474).

3.4.14 The Group reiterated APIRG Conclusion 17/26 requesting ICAO to support the implementation of the *Required Communication Performance (RCP)* concept through regional seminars and workshops.

Global Operational Data Link Document (GOLD)

3.4.15 The Group was informed that the Global Operational Data Link Document (GOLD) was finalized and adopted by APANPIRG, NAT SPG and SAT groups, and therefore agreed to adopt it for the AFI Region to replace the current FANS 1/A Manual (FOM) initially endorsed by APIRG/16 in 2007. The following conclusion was formulated:

CONCLUSION 18/21: ADOPTION OF THE GLOBAL OPERATIONAL DATA LINK DOCUMENT (GOLD)

That, in order to ensure regional and global harmonization of data link operations, AFI States adopt the Global Operational Data Link Document (GOLD) in replacement of the previous FANS 1/A Operations Manual.

Note: South Africa coordinates the amendments to the GOLD for the AFI Region, as required.

AFI Frequency Management Group (AFI/FMG) activities

3.4.16 The Group reviewed the Report of the Second Meeting of the AFI Frequency Management Group which took place in Dakar, Senegal, from 18 to 19 April 2011. The entire report of AFI/FMG/2 can be downloaded from the ICAO public website (*www.icao.int/esaf*, *www.icao.int/wacaf*). The Group noted the action plan developed by AFI/FMG/2, including preparations for the ITU WRC-12 and other relevant activities, as shown at **Appendix3.4D** to this report. The AFI/FMG terms of reference, composition and future work programme are provided at **Appendix 3.4E** to this report. The following conclusion was formulated:

CONCLUSION 8/22: IMPLEMENTATION OF AFI FMG ACTION PLAN

That AFI States and Organizations implement the Action Plan proposed by the AFI Frequency Management Group as shown at Appendix 3.4D to this report.

ITU-WRC -2012

3.4.17 The Meeting was briefed on the positive outcome of the International Telecommunication Union (ITU) World Radio communication Conference (2012) (WRC-12) concerning issues of critical concern to aviation, and active support provided by States and Organizations to the ICAO position. Detailed information on the outcome of the conference for aviation was provided to the participants.

[1] In 2011, CPDLC procedures were operational/planned in Antananarivo, Brazzaville, Dakar Terrestrial, Dakar Oceanic, Johannesburg, Mauritius, Ndjamena, Niamey, Sal Oceanic, and Seychelles.

Need for a CNS technology roadmap

3.4.18 The Meeting noted that the Twelfth Air Navigation Conference to be held in 2012 (AN-Conf/12), would develop longer-term planning for ICAO based on an update of the Global Air Navigation Plan (GANP). The Conference would particularly develop global communications, navigation, surveillance, avionics and aeronautical information roadmaps; and regional roadmaps would be derived there from in order to ensure compatibility between air navigation systems.

3.4.19 The Group also requested States to promote collaborative decision making and partnership within the aviation industry for developing and implementing integrated solutions for CNS infrastructure components, based on identified priorities; and called on AFCAC, ICAO and other relevant institutions to facilitate the funding arrangements necessary for integrated programmes aimed at enhancing the regional infrastructure, including human resource aspects, based on the CNS technology roadmaps.

Global survey on aircraft equipage

3.4.20 The Group was presented with the results from a global survey conducted by IATA in 2010, covering 218 airline fleets and more than 6000 aircraft. It emphasized the importance of having such comprehensive information on aircraft equipage for the purpose of air navigation system planning and implementation. Accordingly, AFI States were requested to provide the ICAO Regional Offices with detailed information concerning the level of equipage and capabilities of their registered aircraft. The following conclusion was formulated:

CONCLUSION 18/23: INFORMATION ON AIRCRAFT EQUIPAGE IN AIR NAVIGATION SYSTEM PLANNING AND IMPLEMENTATION

That AFI States:

a) Support surveys conducted on aircraft equipage and capabilities by providing the ICAO Regional Offices with detailed information concerning their registered aircraft; and

b) Use the information for planning and implementation of air navigation systems.

Review of conclusions and decisions of SAT/16 meeting pertaining to CNS

3.4.21 The Group was informed of the results of the SAT/16 meeting pertaining to aeronautical telecommunications. It particularly noted that SAT member States and Organizations had developed efficient cooperative initiatives aimed at ensuring a coordinated implementation of CNS systems (AMHS, GNSS, SSR and ADS-C /CPDLC) through memoranda of understanding to ensure their interoperability and interconnectivity. AFI States participating in SAT activities were urged to promote such initiatives in the AFI Region.

Planning and implementation guidelines for communications, navigation and surveillance (CNS) systems

3.4.22 The Meeting endorsed the strategies for the implementation of the Global Plan Initiatives (GPIs) on CNS systems as described in the Global Air Navigation Plan (Doc 9750), and adopted these strategies for the AFI Region. **Appendix 3.4F** to this report provides a detailed description of the adopted strategies.

AFI Aeronautical VSAT networks

*Joint Meetings of the AFI Aeronautical VSAT Network Manag*ers

3.4.23 The Group noted that, as a follow up to ICAO Special AFI RAN/08 Recommendation 6/19, the First Joint Meeting of the AFI Aeronautical VSAT Network Managers (AFI VSAT/1) was held in Kwa-Zulu Natal, South Africa, from 13 to 15 June 2011, at the kind invitation of the Air Traffic and Navigation Services Company Limited of South Africa (ATNS); and the Second Joint Meeting of the AFI Aeronautical VSAT Network Managers (AFI VSAT/2 was held in Douala, Cameroon, from 28 February to 1 March 2012, at the kind invitation of *ASECNA.*

Challenges facing VSAT networks

3.4.24 The Group identified a number of challenges to be addressed to ensure that the existing aeronautical VSAT networks remain technically and financially sustainable, and continue to operate satisfactorily meeting performance requirements and operational objectives. These include maintenance capabilities, modernization of network components, sustainability of funding arrangements and related cost recovery mechanisms, as well as integration of networks as recommended by the Fifth meeting of All Planning and Implementation Regional Groups (ALLPIRG/5, 2006). ALLPIRG/5 particularly requested PIRGs to work towards integrated regional/interregional digital communication networks, with a centralized operational control and preferably based on the Internet Protocol (IP) (Conclusion 5/16 refers). In this connection, the Fourth Meeting of Directors-General of Civil Aviation (DGCA/4, 2010) accordingly called upon the African Civil Aviation Commission (AFCAC), ICAO and other relevant institutions, including financial institutions, to support the implementation of such integrated programme in the AFI Region, in order to enhance the region's air navigation infrastructure.

VSAT networks – Best practices

3.4.25 The Group noted the analysis of various elements of existing VSAT networks (AFISNET, CAFSAT, NAFISAT and SADC VSAT2) such as system architecture, operations, performance assessment methods, working arrangements, interconnection with other networks, and development plans, against an initial set of relevant best practices, based on ICAO Standards and Recommended Practices (SARPs) and guidance material, as well as industry best practices. The Group approved these best practices which are shown at **Appendix 3.4G** to this report, and requested VSAT Network Managers using legacy practices to develop transition plans towards the implementation of these agreed best practices in order to achieve the required harmonization and interoperability. The following Conclusions were formulated:

CONCLUSION 18/24: CONTINGENCY PLANNING FOR AFI VSAT NETWORKS OPERATIONS

That AFI aeronautical VSAT network managers develop contingency plans in coordination with their space segment provider (Intelsat) to ensure continuity of service in case of disruption or failure of their operated satellites.

CONCLUSION 18/25: ADOPTION OF BEST PRACTICES FOR AFI VSAT NETWORKS

That the AFI States and Air Navigation Services Providers (ANSPs) operating aeronautical VSAT Networks adopt the best practices stated at Appendix 3.4G to this report, as well as any other best practices to be developed or adopted by APIRG.

CONCLUSION 18/26: MODERNIZATION OF VSAT NETWORKS

That AFI States and Organizations adopt and implement strategies to modernize networks and continue to meet regionally/inter-regionally agreed performance requirements.

3.4.26. With respect to the sustainability of the NAFISAT and SADC networks, the meeting was informed that funding from airlines will come to an end in 2014 and 2015 respectively. The meeting urged States to put in place administrative and financial arrangements to sustain the networks in the future. The following Conclusion was formulated:

CONCLUSION 18/27: ARRANGEMENTS TO ENSURE SUSTAINABILITY OF NAFISAT AND SADC VSAT/2 NETWORKS

That, based on experience gained and available capabilities NAFISAT and SADC VSAT/2 participating States should establish administrative and funding arrangements in a timely manner to ensure that AFS requirements continue to be met.

Establishment of a regional project

3.4.27 The Group acknowledged the need for a coordinated regional plan for the migration of the AFI AFS infrastructure towards an integrated regional/interregional digital communication network as a multinational facility/service *(AFI/7, Conclusion 10/6c)*, and agreed to establish a dedicated task force with the terms of reference shown at **Appendix 3.4H** to this report. In addressing its assigned work, the task force should monitor and take advantages of lessons learnt from other ICAO regions' experiences in implementing integrated regional communications networks. The following decisions were formulated:

DECISION 18/28: ESTABLISHMENT OF A TASK FORCE FOR THE AFI AERONAUTICAL VSAT NETWORKS REGIONAL PROJECT

That a Task Force be established to address issues related to the development of a regional project aimed to enhance the overall performance of AFI aeronautical VSAT networks, and converge towards a consolidated regional ATN infrastructure, with the terms of reference shown at Appendix 3.4H to this report.

DECISION 18/29: MULTINATIONAL FACILITY/SERVICE FOR AN INTEGRATED AFI AERONAUTICAL TELECOMMUNICATION NETWORK (ATN) INFRASTRUCTURE.

That the AFI integrated IP-based regional/interregional digital communication network be established as a multinational facility/service as defined in the Regional Air Navigation Plan (Doc 7474), that embraces a consolidated AFI Aeronautical Telecommunication Network (ATN) infrastructure.

VSAT networks – Performance monitoring

3.4.28 The Group recalled that, as part of its work on the harmonization of implementation activities relating to the use of VSAT networks, and pursuant to Conclusion 5/17 of the ALLPIRG/5 meeting, ICAO had developed minimum performance targets for VSAT networks in support of aeronautical ground-ground communications. These minimum performance targets were endorsed by ICAO SP AFI RAN (2008). The Meeting agreed to a monitoring methodology developed by the South Atlantic Informal Group (SAT), which is based on the use of performance data collection forms (PDCFs) shown at **Appendix 3.4I** to this report. The Secretariat was requested to finalize these forms and circulate them to the States and entities responsible for the planning and implementation of VSAT

networks to ensure harmonization of performance measurement methodology within and between ICAO regions.

Outcome of WRC-12 - VSAT C-Band protection

3.4.29 The Meeting considered the critical role of VSAT technology in the provision of all air navigation services in the AFI region and other ICAO regions, and recalled Recommendation 724 (WRC-2007) - Use by civil aviation of frequency allocations on a primary basis to the fixed-satellite service**,** which calls on administrations, particularly in developing countries and in countries with remote and rural areas to:

- Recognize the importance of VSAT operations to the modernization of civil aviation telecommunications systems;
- Encourage the implementation of VSAT systems that could support both aeronautical and other communication requirements; and
- Expedite, to the maximum extent possible and as necessary, the authorization process to enable aeronautical communications using VSAT technology.

3.4.30 The Group noted further work that was carried out through the AFI Frequency Management Group (FMG), regional workshops, WRC-12 preparatory meetings and the Aeronautical Communications Panel (ACP) Working Group on Frequency Spectrum issues, toward an international protection of the C-band (3.400-4.200 MHZ) and the synergy developed between ICAO, regional organizations (ASECNA, ATU, IATA) and AFI States in preparation for, and at ITU WRC-12, which contributed to Resolution COM6/24 (WRC-12)[2]. The Resolution COM6/24 (WRC-12) is shown at **Appendix 3.4J** to this report. The following conclusion was formulated:

CONCLUSION 18/30: IMPLEMENTATION OF RESOLUTION COM6/24 (WRC-12)

That, considering the critical role of VSAT technology in the provision of air navigation services within the AFI Region and its adjacent ICAO regions, AFI States support the implementation of Resolution COM6/24 (WRC-12) aimed at securing international protection of aeronautical frequency spectrum, by participating in related studies, surveys and meetings as may be organized under the coordination of ICAO.

Navigation Systems

AFI GNSS Strategy Update

3.4.31 The meeting discussed and endorsed the Draft Updated AFI GNSS Strategy developed by the Second Meeting of the AFI PBN/GNSS Implementation Task Force. The updated strategy combines the use of all available GNSS technologies standardized by ICAO, including basic GNSS, aircraft-based augmentation system (ABAS), satellite-based augmentation system (SBAS), and ground-based augmentation system (GBAS). The following Conclusion was formulated:

CONCLUSION 18/31: UPDATED AFI GNSS STRATEGY

That AFI States adopt and implement the GNSS Strategy contained at Appendix 3.4K to this report.

[2] According to the Provisional Final Acts of the ITU WRC-12.

3.4.32 The Group recommended that States considering SBAS technology take due account of the following pre-implementation requirements:

a) Availability of conclusive cost-benefit analysis (APIRG Conclusion 17/29 refers)
b) Full compliance with ICAO technical requirements (Standards and Recommended Practices);
c) Agreement between stakeholders on pre-implementation cost benefit analyses on case by case basis; and
d) Application of the user pays principle across all sectors (SBAS users). National authorities shall prevent cross-subsidization of non-civil aviation users of SBAS.

3.4.33 The Meeting was of the view that the implementation of Assembly Resolution A37-11 (PBN implementation) should not be delayed because of SBAS related issues, since the current PBN requirements could be met using the current navigation infrastructure and aircraft equipage. The Group was informed of an on-going SBAS project in the CAR/SAM regions facing the same equatorial area challenges as the AFI Region. It therefore requested its relevant auxiliary bodies and the South Atlantic (SAT) Informal Group, to monitor SBAS developments in other ICAO regions in the equatorial area, for consideration as appropriate when developing/updating its strategy for a cost-effective implementation of GNSS in the AFI Region. The following decision was formulated:

DECISION 18/32: MONITORING OF SBAS DEVELOPMENT IN ICAO REGIONS IN THE EQUATORIAL AREA

That APIRG CNS and ATM/AIM/SAR Sub-groups monitor SBAS developments in other ICAO regions in the equatorial area, for consideration as appropriate when developing/updating its strategy for a cost-effective implementation of GNSS in the AFI Region.

AFI SBAS cost benefit analysis

3.4.34 The Group recalled that APIRG/16 (2007) had noted the lack of consensus between stakeholders on available AFI SBAS cost-benefit analyses, and accordingly decided to delay consideration of an Inter-Regional SBAS for Africa (ISA) until further cost-benefit analysis in coordination with users demonstrates a conclusive need. Subsequently, APIRG/17 (2010) requested a cost-benefit analysis to be conducted by independent experts (Conclusion 17/29 refers), in order to assist States in making an informed implementation decision with respect to SBAS. The Group noted the follow-up action taken by the Secretariat, in coordination with AFCAC and the ICAO Technical Cooperation Bureau (TCB), including development of the terms of reference and selection of consultants for the study. However, a source of funding for the study was yet to be identified. The following conclusion was formulated:

CONCLUSION 18/33: FUNDING OF AFI SBAS COST-BENEFIT ANALYSIS

That in coordination with AFCAC, ICAO facilitates the search for funding to support the conduct of an independent cost-benefit analysis on an AFI satellite-based augmentation system (SBAS).

3.4.35 The Group was presented with the results of a global survey on aircraft equipage conducted by IATA in 2010, with the participation of 218 member airline fleets (covering more than 6000 aircraft), showing the following with respect to GNSS capabilities:

- APV Baro-VNAV: 30% aircraft equipped (13% planned to equip)
- Basic GNSS: 66% aircraft equipped (1% planned to equip)
- LPV/SBAS: 1% aircraft equipped (1% planned to equip)
- GBAS: 1% aircraft equipped (0% planned to equip)

3.4.36 IATA and AFRAA confirmed their member airlines' opposition to participate in an SBAS cost recovery mechanism.

Surveillance Systems

Status of implementation of the current aeronautical surveillance plan

3.4.37 The Group reviewed the status of implementation of aeronautical surveillance requirements for en – route operations against the AFI Air Navigation Plan requirements, in accordance with APIRG Decision 16/26 (Review of CNS system performance). It noted that operational Automatic Dependent Surveillance – Contract (ADS-C) procedures were being implemented by States and Organization in their managed FIRs[3], in order to improve aeronautical surveillance. It recalled that the requirement for AFI ACCs to implement ADS procedures was introduced in the Regional Air Navigation Plan (ICAO Doc 7474) by APIRG/13 in 2001, to support en-route operations, as well as APIRG Conclusion 17/31 reiterating this requirement. France (DSNA) informed the Group of ADS-B implementation in their airspace for the purposes of flight information and alerting services, and Ethiopia and Kenya confirmed their intent to use Mode S Extended Squitter 1090 MHz as the data link for ADS-B, which is consistent with APIRG recommendation to ensure regional and global interoperability.

AFI Surveillance Implementation Strategy

3.4.38 The Group reviewed the Second AFI Surveillance Implementation Task Force (ASI/TF) Meeting which took place on 20-21 June 2011 in Dakar, Senegal. It approved the AFI Surveillance Strategy as amended by the meeting, as shown at **Appendix 3.4L** to this report together with the Terms of Reference of the ASI/TF. The Group noted that its CNS and ATM/AIM/SAR Sub-groups had established an Ad Hoc Working Group to determine the separation minima to be supported by selected surveillance technologies. The following conclusion was formulated:

CONCLUSION 18/34: AFI SURVEILLANCE STRATEGY

That the AFI States adopt and implement the Surveillance Implementation Strategy shown at Appendix 3.4L to this report.

3.4.39 Mindful of APIRG Conclusion 17/28 on GNSS introduction strategy, the Group requested AFCAC to consider organizing a high level meeting on CNS technologies and related roadmaps in order to assist AFI States in making informed implementation decisions, in coordination with ICAO, ASECNA, IATA, AFRAA and other relevant stakeholders.

Exchange and monitoring of surveillance data

3.4.40 The Group discussed the need for neighboring States/ACCs to exchange surveillance data to enhance aeronautical surveillance in the region, and for the AFI Region to implement a

[3] In 2011, ADS-C procedures were operational/planned in Accra, Algiers, Antananarivo, Brazzaville, Dakar Terrestrial, Dakar Oceanic, Johannesburg, Mauritius, Ndjamena, Niamey, Sal Oceanic, and Seychelles.

monitoring system to address reported problems. These issues were included in the future work programme of the CNS Sub-group's Task Force on aeronautical surveillance.

Categorization of terminal areas (TMAs) and aerodromes

3.4.41 The Group noted that a limited number of States had participated in the survey conducted by the Secretariat as a follow up to APIRG Conclusion 17/33, by providing the data that was needed for the categorization of terminal areas (TMAs) and aerodromes. It therefore urged States having not yet done so, to task designated contact persons with collecting and providing the required data.

Automatic dependent surveillance – Broadcast (ADS-B)

3.4.42 The Group was briefed on the progressive evolution of ADS-B standards up to Version 2 (DO-260B) which incorporates changes aimed to address the various problems identified from operational experience and application development activities. It also noted that the future work of ICAO would include the development of low-power and low-cost ADS-B Out/In units, as well as multistatic radar which uses the emissions of other radio transmitters (e.g. broadcasting stations) to get a fix on the aircraft. Accordingly, the Group requested AFI States planning to implement ADS-B to establish a proper regulatory framework based on applicable standards.

Future work programme and composition of the Communications, Navigation and Surveillance (CNS) Sub-group

3.4.43 The meeting reviewed and updated the future work programme and composition of the CNS Sub-group.

3.5 Aeronautical Information Management (AIM)

3.5.1 The meeting reviewed issues as presented in the report of ATM/AIM/SAR SG/12 and took action on the draft Conclusions/Decisions.

3.5.2 The Group was informed about the outcome of the Regional QMS for AIM Services Implementation Workshop and noted that the accomplishment of QMS in AIM Services required commitment from the higher authorities in CAA Administrations. The meeting was apprised on the process of QMS and noted the various benefits which will enhance safety, efficiency, cost effectiveness and customer satisfaction. The meeting then adopted the following Conclusion.

CONCLUSION 18/35: QMS IMPLEMENTATION AND ESTABLISHMENT OF SERVICE LEVEL AGREEMENTS

That, in order to support the effective implementation of QMS, AFI States are urged to:

a) take firm commitment at the level of Directors General of CAA Administrations to implement QMS supported by ISO 9001:2008;
b) share their QMS implementation experience and support with other States; and
c) establish and maintain formal Service Level Agreements (SLA) between data originators and AIS Providers as per sample template at Appendix 3.5A.

3.5.3 The meeting endorsed the proposed amendment of the AFI ANP/FASID (Doc 7474) to include the new FASID(e-TOD) Tables into the AFI FASID, Part VIII (AIS), and that subsequent to the meeting, the Secretariat would carry out updates as necessary prior to circulating the amendment proposal. Accordingly, the Group adopted the following Decision.

DECISION 18/36 PROPOSAL FOR AMENDMENT TO THE AFI ANP/FASID (DOC 7474) RELATED TO E-TOD

That ICAO circulates and processes the amendment proposal for the AFI ANP/FASID (Part VIII) at Appendix 3.5B and C.

3.5.4 The Group agreed that States should organize awareness campaigns and workshops involving all concerned personnel from within and outside the CAA in order to provide an overview of the technical, legal, institutional and financial issues related to e-TOD as well as the actions that need to be taken in implementing e-TOD. Accordingly, the meeting formulated the following Conclusion.

CONCLUSION 18/37: AFI REGION E-TOD IMPLEMENTATION SEMINAR/ WORKSHOP

That ICAO:

a) organize regional seminar/workshop for States to promote harmonized implementation of e-TOD and;
b) encourage States to send participants to the workshop.

3.5.5 The Group further reviewed and adopted the AFI Region e-TOD implementation timelines at **Appendix-3.5D**. The meeting noted the performance goals developed for the transition from AIS to AIM in the AFI Region as listed in **Appendix 3.5 E1 to 3.5E3.**

3.5.6 The Group noted the AIM Parts of the AFI Basic ANP/FASID Tables which introduced/ new planning material related to the transition from AIS to AIM. The meeting then approved the ANP/FASID material related to AIM at **Appendix 3.5F1 to 3.5F9**. The meeting then developed the following decision.

DECISION 18/38: AMENDMENT OF AFI BASIC ANP/FASID TO REFLECT THE TRANSITION FROM AIS TO AIM

That ICAO circulate and process the AFI ANP/FASID (Doc 7474 Vol.1&2) amendment proposals relating to the Transition from AIS to AIM at Appendix 3.5G and Appendix 3.5F1 to 3.5F9.

3.5.7 The Group noted that following a review of the Action agreed by the Air Navigation Commission on 8 March 2011 (ANC 186-6 refers); the Commission noted that the transition in the AFI Region will benefit if a robust communication infrastructure exist. The Commission further called upon the Secretariat to support/monitor the transition of AIS to AIM through regional mechanism. The meeting noted that South Africa has invited AFI States to join the South African Regional AIS Database as an alternative to enhance the AIM implementation process within the AFI Region. The Group further noted that ASECNA is planning to develop a Regional AIS Database to accommodate all the States in the Western and Central African Region. The Group was further briefed that just like the EAD, the concept of the AFI-CAD when implemented, will offer all AIM related tasks classic AIM services to reduce the ANSPs efforts and timeliness needed by the States on their way to the AIS/AIM Transition process.

3.5.8 The Group noted that the AIS-AIM Transition roadmap indicates twenty-one steps in three Phases and AIS-AIMSG has been working to develop related SARPs and guidance materials to facilitate implementation in a worldwide harmonized manner. The Meeting noted that some States have already achieved some steps in the roadmap. Certain States have established a national AIM implementation plan in accordance with the roadmap. The Group noted that the AIM Task Force would conduct a survey to assess the current status of AIM implementation of the States as

per **Appendix 3.5H.** The meeting agreed that States provide their National Plans related to the transition from AIS to AIM or as a minimum, a status report against the 21 steps of the ICAO Roadmap for the transition from AIS to AIM as listed in **Appendix 3.5I**

3.5.9 The Meeting noted that as a consequence of the lessons learned by other regions regarding the need for harmonisation in management of NOTAM related to a volcano eruption event, the ICAO AIS/AIM Study group proposed that the ICAO guidance material be enhanced to include examples of a series of NOTAM related to the operational impact caused by volcanic ash. Finally the Group endorsed the Contingency Plan NOTAM templates at **Appendix 3.5J** which covers the following areas: airspace warnings; airspace restrictions; aerodrome/heliport closure; route portion restriction/flight levels; recommended NOTAM codes for the relevant subject.

3.6 Aeronautical Meteorology (MET)

3.6.1 The Report of the Tenth meeting of the Meteorology Sub-Group (MET/SG/10), held at the ICAO Office in Dakar, Senegal, from 29 June to 1 July 2011, was presented to the Group for consideration.

Review of APIRG Conclusions and Decisions in the MET field

3.6.2 The Group reviewed its Conclusions and Decisions on Meteorology developed at its Seventeenth meeting and those outstanding from its previous meetings under Agenda Items 1.2 and 1.3. Similarly Recommendations in the field of aeronautical meteorology developed at the Special AFI RAN Meeting held in Durban, South Africa, from 24 to 29 November 2008, to address aviation safety were also reviewed. The Meeting noted action taken and progress made so far on the implementation of these conclusions and decisions.

3.6.3 The meeting also noted the efforts made by States and organizations, to implement the Conclusions and Decisions of the MET/SG adopted by APIRG.

3.6.4 The Group however, noted that five States had not yet implemented Satellite Distribution System for Aeronautical Information Relating to Air Navigation (SADIS) as per Conclusion 10/31 of the APIRG/10 meeting. The meeting agreed to formulate the following Conclusion:

CONCLUSION 18/39: RECEIVING WAFS PRODUCTS AND RELATED OPMET INFORMATION THROUGH SADIS

That, the following five States in the AFI region: Burundi, Eritrea, Liberia, Sao Tome and Principe and Sierra Leone which have not yet implemented SADIS, endeavor to address this deficiency in accordance with Conclusion 10/31 of the APIRG/10 meeting as a matter of urgency.

The World Area Forecast System (WAFS) in the AFI Region

3.6.5 The Group reviewed the implementation of the World Area Forecast System (WAFS) in the AFI Region on the basis of the reports from the WAFS Operations Group (WAFSOPSG) and the Satellite Distribution System Operations Group (SADISOPSG). The meeting also took note of information provided by the World Area Forecast Centre (WAFC) in London on the recent and forthcoming developments in WAFS and SADIS.

3.6.6 The Group noted that the sixteenth meeting of the SADISOPSG, held in Paris, France from 23 to 25 May 2011, discussed a number of issues including the SADIS Strategic Assessment Tables. The Group further noted that the SADISOPSG agreed to dissolve the SADIS Strategic Assessment Team and that in future, the team's related reports will be included in the Management Report prepared annually by the SADIS Provider State (SADISOPSG/16 Decision 16/11 refers), and

therefore there was no longer a need for review and updates of the tables by the MET/SG with respect to the AFI Region.

3.6.7 The meeting was further informed that the following enhancements of the SADIS service have been undertaken by the SADIS Provider State in accordance with various Conclusions/Decisions of WAFSOPSG and SADISOPSG:

a) The secure SADIS FTP Service had been implemented in November 2010, on time and within budget, in line with the requirements of ICAO Doc 9855-Guidelines *on the Use of the Public Internet for Aeronautical Applications*. The Group encouraged those users who have not already done so to obtain Secure SADIS FTP log-on credentials from the SADIS Manager.

b) WAFC London GRIB2 Upper Air forecast data was made available on SADIS FTP effective 2 March 2010 and via Secure SADIS FTP from 17 November 2010;

c) WAFS Aviation GRIB2 was made available on the SADIS 2G service from 18 November 2010, excluding the provision of CB, icing, and turbulence data, though these parameters are available via SADIS FTP and Secure SADIS FTP for trial and evaluation purposes only.

3.6.8 The Group appreciated that the satellite-based infrastructure of SADIS will be retained until at least 2015. However, in order to determine the future need and following a survey to be undertaken, an ad hoc team was formed to follow up and make recommendations. The Group then encouraged AFI States to be responding to surveys/questionnaires on this subject to ensure consideration of their views.

3.6.9 The Group noted that the SADIS FTP service was extended to end of November 2012 to accommodate gradual take over by Secure SADIS FTP. The meeting then encouraged SADIS users to migrate to Secure SADIS FTP in good time. SADIS users in the AFI Region were encouraged to apply for WAFS Internet File Service (WIFS) accounts to be used only for backup/contingency purposes and primary data should continue being obtained from SADIS.

3.6.10 Following the above discussions the meeting formulated the following conclusion:

CONCLUSION 18/40: IMPLEMENTATION OF THE WAFS IN THE AFI REGION

That SADIS Users/States in the AFI Region:

a) who have not already implemented Secure SADIS FTP, arrange to obtain Secure SADIS FTP log on credentials from the SADIS Provider State;

b) take action to obtain GRIB2 compatible visualization software from their workstation suppliers;

c) monitor developments for future requirements of a SADIS satellite broadcast beyond 2015 and respond in a timely fashion to any future surveys/questionnaires on this subject in order to ensure their views are noted;

d) apply for WAFS Internet File Service (WIFS) account(s) through the ISCS/WIFS Provider State for use as backup/contingency;

e) review the published workstation evaluation reports in order to assess which systems best meet their needs; and

f) make all efforts to migrate to Secure SADIS FTP before 30 November 2012 or risk losing access to the Internet-based provision of SADIS.

Review of the Recommendations of AFI OPMET Management Task Force Second and Third Meetings (MTF/2 and MTF/3)

3.6.11 The Group was presented with the results of the review of the AMBEX Scheme by MET/SG/10.

Review of the AMBEX Scheme

3.6.12 The Group recalled Conclusion 17/56 of the APIRG/17 meeting, calling for the implementation of OPMET exchange requirements and inter-regional OPMET gateway (IROG) functions by both Dakar and Pretoria Regional OPMET Data Banks (RODBs). The exchange would include new OPMET data types, OPMET bulletin formats, regional exchanges, interregional exchanges and exchanges of OPMET through SADIS, all of which are described in the 7th edition of the AMBEX Handbook.

3.6.13 The Meeting agreed that in order to harmonize the monitoring of OPMET data in the AFI region, the AFI OPMET monitoring procedures contained in the AMBEX Handbook should be adhered to by all States without failure. The Group then formulated the following Conclusion:

CONCLUSION 18/41: IMPLEMENTATION OF AMBEX HANDBOOK PROCEDURES

That Dakar and Pretoria RODB Provider States:

a) implement an automatic OPMET data monitoring scheme using procedures in Chapter 12 and Appendix F of the AMBEX Handbook on quarterly basis (March 31, June 30, August, 31 and December 31 of each year);

b) perform regular 24 hour simultaneous monitoring starting at 0000 UTC on the first Wednesday of every month; and

c) distribute the monitoring statistics to the Chairman of the OPMET Management and the Secretariat with effect from July 2012.

3.6.14 Regarding the development of time validation criteria to implement OPMET monitoring statistics, the Group agreed that these should be developed in accordance with the provisions in ICAO Annexes 3 and 10. Consequently, the meeting noted that the criteria developed by the EUR OPMET Data Management Group (DMG) for the EUR Region had merits and can be adopted. The criteria would be aligned with the AFI Air Navigation Plan (ANP) and included in the AFI AMBEX Handbook.

3.6.15 The Group recalled that Dakar and Pretoria RODBs were assigned IROG functions and inter-regional OPMET gateway responsibilities for the AFI region. The meeting noted that backup procedures were being developed for the AFI RODBs and needed to be finalized by a core team of experts. Considering the need to improve the telecommunication link between Dakar and Pretoria to support the required backup procedures, the Group formulated the following Decision and Conclusion:

DECISION 18/42: DEVELOPMENT OF BACK UP PROCEDURES FOR THE AFI RODBs

That a Core Team of experts consisting of Members from Kenya, Madagascar, Senegal, South Africa and ASECNA be established to develop back up procedures for the AFI RODBs.

CONCLUSION 18/43: IMPLEMENTATION OF AN AFTN CIRCUIT BETWEEN DAKAR AND PRETORIA RODBS TO SUPPORT BACK-UP CONTINGENCY CAPABILITIES

That Dakar and Pretoria RODBs Provider States,

a) investigate the best possible way to implement a backup circuit between the two RODBs for the implementation of the backup procedures between the RODBs, in time for the MTF/4 meeting September 2012 and

b) implement reliable telecommunications facilities to support back-up procedures for the AFI RODBs.

3.6.16 The Group considered the proposals for amendments submitted by the MET/SG regarding changes to the AMBEX Handbook and associated Appendixes and formulated the following Decision:

DECISION 18/44: AMENDMENT TO THE AMBEX HANDBOOK

That:

a) Appendices A and B to the AMBEX Handbook be updated by the MET/SG Secretariat to reflect AFTN addresses for the IROGs Bangkok, Jeddah and Rio de Janeiro; and

b) the amended AMBEX Handbook given in Appendix 3.6A to this report, be

i) endorsed as the AMBEX Handbook Seventh Edition, Amendment 2; and

ii) published by the MET/SG Secretariat by July 2012.

SIGMET Monitoring

3.6.17 The meeting was informed of data exchange procedures of EUR Regional OPMET Centre (ROC) Toulouse with adjacent ROCs including AFI IROGs and also of the annual SIGMET monitoring exercises undertaken in Europe. Following these and analysis of the monitoring results actions were undertaken aimed at improving data exchange. Some centres outside the EUR region were invited to verify the quality of reception of SIGMET and volcanic ash advisories (VAA).

3.6.18 The Group was further informed that the two AFI IROGs should specify to Toulouse, bulletin headers or data they wish to receive and that they also be sending their routing table to the EUR addresses. It was agreed that this would improve the level of data exchange between the IROGs and ROC Toulouse and between their respective areas of responsibility (AoR), in accordance with the AFI and EUR regional air navigation plans.

3.6.19 The meeting agreed that for harmonization, consistency and coherency of OPMET exchange between ICAO AFI and EUR regions, the AFI IROGs and Toulouse ROC should review and exchange their OPMET routing tables. In this regard, the Group developed the following Conclusion:

CONCLUSION 18/45: SIGMET MONITORING AND OPMET ROUTING TABLES

That:

a) the two AFI RODB Provider States be invited to monitor the reception of SIGMET information during the regular (twice yearly) EUR Region SIGMET tests and report;

b) the two AFI IROGs and ROC Toulouse exchange their routing tables and verify the coherency of these tables; and

c) the AFI IROGs be invited to review their current routing tables, the status of OPMET reception, and update the routing tables as necessary.

3.6.20 The Group was informed that Algiers Bulletin Compiling Center (BCC) had not implemented most of the requirements of AMBEX scheme. The meeting advised Dakar RODB to coordinate with Algiers BCC to solve this issue.

Development of OPMET data Catalogue for the AFI ICD

3.6.21 The meeting recalled that the Conclusion 17/59 of APIRG/17 Meeting called for the implementation of the Interface Control Document (ICD) for AFI OPMET database access procedures and noted that the draft data catalogue as given in **Appendix 3.6B** to this report (adapted from the EUR OPMET DMG) was forwarded to RODB Managers for finalization. In this regard, the Group agreed that AFI RODB Managers be urged to finalize the AFI OPMET data catalogue given in the **Appendix 3.6B** to this report, in time for the MTF/4 meeting. The Group then formulated the following Conclusion:

CONCLUSION 18/46: IMPLEMENTATION OF AFI OPMET DATA CATALOGUE

That the OPMET data catalogue given in Appendix 3.6B to this report, be expeditiously finalized and implemented by States in the AFI Region.

SIGMET and Advisories

3.6.22 The meeting was informed that the SIGMET Advisory trials organized by the Meteorological Warning Study Group (METWSG) are aimed at enhancing the issuance of SIGMET information in the AFI Region. It noted that South Africa as one of the hosts of the Regional SIGMET Advisory Centre (RSAC) for the period of the trial has developed a tool called Geocentric Information Briefing (GIB) which generates SIGMET advisories in both text and graphical formats. The tool was also capable of generating advisory messages for the entire AFI Region. In this regard, to enhance SIGMET information preparation and dissemination through AFI annual SIGMET tests, the Group was informed that Geocentric Information Briefing (GIB) will be made available by Pretoria RODB Provider State during the SIGMET advisory trial and it will be used to assist ICAO WACAF and ESAF Regional Offices during WS SIGMET tests for the AFI region. The Group was informed that France having also provided such facility during the SIGMET advisory trials may propose such assistance for test purposes.

3.6.23 The meeting recalled that APIRG/17 had urged ICAO regional offices of Dakar and Nairobi to update the AFI SIGMET guide to include details of VA and TC test procedures. In this regard, the Group agreed to formulate the following Decision:

DECISION 18/47: AMENDMENT TO THE AFI REGIONAL SIGMET GUIDE

That the amendment to the SIGMET Guide given in Appendix 3.6C to this report, is approved as the AFI Regional SIGMET Guide Ninth Edition, Amendment 2.

3.6.24 In view of the lack of implementation of SIGMET information by a number of States in the AFI Region, the Group noted the need to sensitize concerned authorities on the importance of continuous monitoring of hazardous meteorological conditions which would necessitate issuance of SIGMET information by meteorological watch offices (MWOs). In this regard, the Group formulated the following Conclusion:

CONCLUSION 18/48: MEASURES TO IMPROVE THE ISSUANCE OF SIGMET IN THE AFI REGION

That the ICAO Dakar and Nairobi Regional Offices sensitize meteorological authorities in the AFI Region on the importance of continuous monitoring, by meteorological watch offices (MWOs), of hazardous meteorological conditions that would warrant the issuance of SIGMET information in their respective areas of responsibility.

Improving AFI OPMET data availability and Management

3.6.25 On the issue of request for information from non- AOP aerodromes by users, the Group was informed of the need to avoid repetitive State letters on identical requests and the need for the SADISOPG Secretariat to keep track on the requests made and to ensure that a State that had refused to provide the f OPMET information from their non-AOP aerodromes is not approached before three years had elapsed. The SADISOPSG will in this regard maintain a master list to be placed on the SADISOPSG website related to States' willingness to provide OPMET information from non-AOP aerodromes as at **Appendix 3.6D** to this report. The Group then formulated the following Conclusion:

CONCLUSION 18/49: REVISION OF OPMET DATA REQUIREMENTS

That:

a) information related to the requirements of OPMET data from non-AOP aerodromes as given at Appendix 3.6D to this report, be submitted by ICAO Dakar and Nairobi Regional Offices to the concerned States for approval, before amending the AFI FASID MET Table 2A and Annex 1 to the SADIS User Guide (SUG); and

b) the non-AOP aerodromes as listed in Appendix 3.6E to this report, be deleted from AFI FASID MET Table 2A.

3.6.26 The Group was further informed that the required OPMET bulletins from Accra, Conakry, Freetown, Kano, Kinshasa, Lagos, Luanda and Monrovia are received at Dakar RODB less than 30% of the time. To improve the availability of the bulletins the meeting agreed to formulate the following conclusion:

CONCLUSION 18/50: IMPROVEMENT OF OPMET AVAILABILITY FROM AFI STATES AERODROMES

That efforts be made by the concerned States to improve the availability at Dakar RODB, of the required OPMET information from Accra, Conakry, Freetown, Kano, Kinshasa, Lagos and Luanda.

3.6.27 The Group was informed that in the short term (up to 2013), ICAO was planning for the introduction of *enabling clauses* in Annex 3 to use table-driven data representation in extensible mark-up language (XML) for OPMET information (METAR/SPECI, TAF and SIGMET) on a bilateral basis as part of Amendment 76 to Annex 3 (applicable in November 2013). Consequently, the implementation of the use of XML for OPMET information should therefore only be initiated on bilateral basis before the planned MET/AIM Divisional Meeting in 2014 expected to endorse the transition plan which would have its first milestone in 2016 (Amendment 77 to Annex 3). It was noted that there would be ample time after the Divisional Meeting to undertake the necessary regional planning. The meeting then formulated the following Decision;

DECISION 18/51: PREPARATION OF AFI XML TRANSITION PLAN

That the preparation of the AFI XML Transition Plan be deferred until the adoption of Amendment 76 to Annex 3 (July 2013) at the earliest.

3.6.28 Regarding dissemination of OPMET information, the Group noted that a deep concern was expressed that OPMET information and other aviation MET products were available on some Internet websites without any restrictions (only user name and password needed).

3.6.29 The meeting was made aware that it is indicated in ICAO Annex 3 - *Meteorological Service for International Air Navigation* Appendix 10, Section 2 that the use of the Aeronautical Fixed Service and the Public Internet is permissible. In addition, the meeting was further reminded that it is the responsibility of the meteorological authority to determine what and how meteorological service will be provided to meet the needs of international air navigation, as per paragraphs 2.1.3 and 2.1.4 of ICAO Annex 3. However, use of public Internet need also comply with ICAO Document 9855 - *Guidelines for use of Public Internet for Aeronautical Applications.* Further, WAFSOPSG/5 Conclusion 5/9 indicated that OPMET data and WAFS forecasts distribution through ISCS/SADIS services, if only used for flight planning, can be considered non-time critical and therefore can be accessed through the public Internet. The Group then urged users of aviation data to be careful and ensure that all data obtained is only from authorized sources.

Provision of SIGMET, tropical cyclone and volcanic ash advisories for the AFI Region

3.6.30 The Group recalled that the MET Divisional Meeting (2002) formulated recommendation 1/12 b), *Implementation of SIGMET requirements*, which called, inter alia, for the relevant planning and implementation regional groups (PIRGs) to conduct periodic tests on the issuance and reception of SIGMET messages, especially those for volcanic ash.

3.6.31 Concerns by the users for the timely reception of SIGMET information had prompted the need to improve awareness on the critical and important nature of SIGMETs. In order to maintain the International Airways Volcano Watch (IAVW) and International Tropical Cyclone Watch (ITCW) Systems ready-for-action, regular exercises involving the advisory centres and the Meteorological Watch Offices (MWOs) under their areas of responsibility should be performed.

3.6.32 In this regard, Conclusion 16/56 of APIRG/16 adopted the procedures for conducting such exercises in the region and Conclusion 17/82 of APIRG/17 recommended measures to improve the issuance and dissemination of SIGMETs. Three (3) types of SIGMET Tests, incorporating the recommended measures, were conducted in 2010 and 2011 during the month November of the respective year.

3.6.33 The reports on the results of the above tests were distributed to all AFI MWO Providers. The short term recommended actions were implemented by the MWOs concerned after the distribution of the test report. The actions needing medium to long term implementation strategies are presented in **Appendix 3.6F** to this report for review and appropriate action by the meeting. The meeting was further informed that Roberts field and Kinshasa MWOs were not issuing any SIGMET and agreed that steps should be taken to solicit assistance from neighboring States until such time that these MWOs are in a position to issue SIGMET as required. In this regard, the Group agreed to formulate the following Conclusion:

CONCLUSION 18/52: ISSUANCE AND DISSEMINATION OF SIGMET

That:

a) ICAO Regional Offices should make concerted efforts to assist States address shortcomings and difficulties identified;

b) the MWO Provider States listed in Appendix 3.6F take the required measures to remove operational shortcomings in SIGMET provision; and

c) Roberts field and Kinshasa FIRs MWOs consider bilateral arrangements with adjacent MWOs (i.e. Dakar and Brazzaville MWOs respectively) for the provision of SIGMET information on behalf of the States concerned.

Deficiencies in the MET field

3.6.34 The List of deficiencies in the MET field was reviewed and updated based on the uniform methodology approved by the Council for identification, assessing, tracking and reporting of deficiencies of air navigation systems. The review also took into account remedial action from States concerned and inclusion of additional deficiencies identified since APIRG/17 Meeting. The updated list of deficiencies in the MET field is detailed in **Appendix 3.6G** to this report.

3.6.35 The meeting noted with satisfaction the information provided by France that, during EUR METG/20 meeting, IATA had expressed its deep appreciation on the significant increase of availability of AFI OPMET data in the EUR region. That appreciation was also extended to the two AFI IROGs and to the AFI States who contributed to the dramatic improvement.

New challenges facing AFI Meteorological Services

3.6.36 The Group was informed that the second and third meetings of the International Volcanic Ash (VA) Task Force (IVATF/2 and IVAT/3) held in July 2011 and February 2012 respectively provided useful material for the implementation of regional VA Contingency Plans (VACPs) through a harmonized VACP Template. The Group was informed that the draft contingency plan in **Appendix 3.2I** has been updated by the Secretariat in line with the outcome of the IAVTF/2 and IAVWOPSG/6 meetings and agreed by the MET/SG sub-group by correspondence. The meeting was further informed that amendments were incorporated in the VACP Template by the IVATF/3 meeting. Further to the review of the regional VACP Template by IVAT/3 meeting (16 – 17 February 2012), the MET/SG and ATM/AIS/SAR secretariats will review and update the draft AFI VACP. In this regard, the APIRG meeting noted also that a coordinated ATM/MET Conclusion on this subject has been adopted by APIRG in WP/13.

3.6.37 For a better understanding and involvement of AFI States in the VACP, it was considered desirable to conduct regional awareness seminars in coordination with the ATM/MET TF. The Group then formulated the following Conclusion:

CONCLUSION 18/53: AWARENESS SEMINARS ON THE AFI AIR TRAFFIC MANAGEMENT VOLCANIC ASH CONTINGENCY PLAN

That ICAO Dakar and Nairobi Regional Offices through the ATM/MET Task Force, conduct regional awareness seminars on the AFI ATM Volcanic Ash Contingency Plan in view of:

a) Making all aviation stockholders in the AFI region aware of ATM VACP;

b) Supporting its implementation; and

c) Proposing further improvements to the plan.

Note: It is suggested that seminars be convened in 2013 and conducted in both English and French.

3.6.38 The meeting was informed that the World Meteorological Organization (WMO) representative gave a presentation to the MET/SG/10 on the future training and competency requirements for aeronautical meteorological personnel, emphasizing that competency requirement would be made mandatory by December 2016.

Regional Meteorological Procedures

3.6.39 The Group reviewed the MET procedures pertaining to the AFI ANP/FASID as proposed by WAFSOPSG/6 meeting which was held in Dakar from 21 to 24 March 2011. The MET/SG Secretariat was requested to initiate proposals for amendments to the AFI Air Navigation Plan (Doc 7474) as per the changes shown in **Appendix 3.6H** to this report.

Implementation of QMS for Aeronautical MET in South Africa

3.6.40 The Group recalled that ICAO first introduced quality-related standards and recommendations in Annex 15– *Aeronautical Information Service (AIS)* in January 1998. The recommended practices pertaining to Quality Management System (QMS) implementation in the field of aeronautical meteorology were included in Amendment 72 to Annex–*Meteorological Service for International Air Navigation* with applicable date of 1 November 2001 and later upgraded to a standard in Amendment 75 to Annex 3 with a deadline of 15 November 2012. The Group also recalled APIRG conclusions 14/40, 14/55 and 16/59 relating to QMS.

3.6.41 The Group noted that the South Africa Weather Service (SAWS) embarked on the establishment and implementation of QMS in aeronautical meteorological services in 2008. The SAWS appointed a consultant to lead the process to full implementation. The SAWS faced various challenges throughout the process including the need of having functional calibration facility for meteorological instruments. Full and unwavering commitment from top management was critical for the success in implementing QMS.

3.6.42 The Meeting noted that all costs for establishment and implementation of QMS for aeronautical meteorological services are subject to cost recovery mechanism. Considering that many States had not yet established cost recovery mechanism for aeronautical meteorological services and given the remaining period before mandatory implementation, the group agreed that it was important that such States partner and make bilateral arrangements with States that have already implemented QMS. In this regard the meeting formulated the following Conclusion.

CONCLUSION 18/54: ALTERNATIVE FUNDING SOURCES FOR THE ESTABLISHMENT AND IMPLEMENTATION OF QMS FOR THE PROVISION OF AERONAUTICAL METEOROLOGICAL SERVICE AND AERONAUTICAL INFORMATION MANAGEMENT (AIM)

That ICAO and WMO investigate as a matter of urgency other possible sources of funding besides cost recovery to assist States willing to enter into a twinning or bilateral arrangements in order to fast-track the implementation of QMS for the provision of aeronautical meteorological (MET) service and aeronautical information management (AIM) .

Safe Skies for Africa Training Initiative in Aeronautical Meteorology

3.6.43 The Group was informed that two United States of America programmes, Safe Skies for Africa (SSFA) and Operational Meteorology, Education and Training (COMET) were collaborating to develop a comprehensive plan for training African aeronautical meteorological personnel in operational meteorology. The plan would provide free of charge a customized aeronautical meteorology distance-learning curriculum, in both English and French, to any interested Sub-Saharan African Aeronautical Meteorological Service. It was intended that the curriculum would be delivered in various forms such as Internet streaming or download, DVD and even via Smartphone.

3.6.44 States to benefit from this assistance would be identified and the appropriate type of training specified. In this regard, ICAO in collaboration with SSFA could provide the required assistance.

3.6.45 The Group urged States to take advantage of the initiative and formulated the following Conclusion;

CONCLUSION 18/55: STATES PARTICIPATION IN THE COOPERATIVE PROGRAMME FOR OPERATIONAL METEOROLOGY (COMET) THROUGH SAFE SKIES FOR AFRICA (SSFA) PROGRAMME

That States requiring aeronautical meteorology training material from SSFA in collaboration with COMET to contact the ICAO Regional Offices as appropriate.

Terms of reference, work programme and composition of the MET/SG

3.6.46 The meeting agreed not to change the Terms of Reference of the MET Sub-Group.

3.6.47 The Group reviewed the sub-group's work programme in line with the ICAO Business Plan. The Group considered the work programme for 2011 to 2015 and the executive summaries for each recurrent task. The meeting then endorsed the changes proposed and formulated the following Decision:

DECISION 18/56: FUTURE WORK PROGRAMME OF THE MET SUB-GROUP

That the work programme of the MET/SG be updated as shown in Appendix 3.6I.

3.7 Other Air Navigation Matters

State Action Plans on CO_2 emissions Reductions Activities

3.7.1 The meeting reviewed a presentation by the Secretariat on the State Action Plans on CO_2 emissions Reduction Activities.

3.7.2 The Group was informed about the ICAO Assembly resolution A37-19 requesting States to develop and submit their action plans. This information will help ICAO in compiling data on measures being considered by the States, reflecting their respective national capacities and circumstances and information on any specific assistance needs. States to note that the ICAO Secretariat will keep APIRG informed of its future activities and developments related to environmental protection.

3.7.3 The meeting encouraged States to use the IFSET tool, on which there were details provided by ICAO, in order to measure the current and estimated fuel and CO_2 reductions from adoption of operational measures.

3.7.4 The Group was requested to coordinate its efforts directed towards operational improvements with national focal points and the focal point regional officers in the ESAF and WACF Regional Office tasked to facilitate the submission of action plans to ICAO.

3.7.5 The meeting after due deliberations agreed on the following Conclusion:

CONCLUSION 18/57: DEVELOPMENT OF ACTION PLANS ON CO_2 EMISSIONS REDUCTION ACTIVITIES

That States:

a) continue to consider environmental issues in the planning and implementation of regional air navigation systems;

b) bring to the attention of the ICAO Secretariat specific areas where additional guidance on environmental benefits would be valuable;

c) ensure that their national Action Plan focal points collaborate with relevant stakeholders for all the operational measures that States wish to develop, implement and/or include in their action plans;

d) promote use of the ICAO IFSET tool for the quantification of environmental benefits from operational measures, as part of the development of States' action plans; and

e) ensure that civil aviation experts are included in their delegation attending UNFCC meetings where environmental issues are considered.

3.7.6 The Group recalled that the *Global Air Traffic Management Operational Concept* (Doc 9854), describes the expectations of the ATM community and that these include environmental sustainability. Furthermore, Assembly Resolution A37-19 called on States to develop and implement procedures to reduce aviation emissions.

3.7.7 It was recognized that, in addition to technological solutions on aircraft engines, operational improvements have a significant role in the reduction of engine emissions in air transport. It was also noted that operational improvements will generally have benefits in areas such as improved airport and airspace capacity, shorter cruise, climb and descent times through the use of more optimized routes, constant decent operations (CDO) and constant climb operations (CCO), as well as increase of unimpeded taxi times. These improvements have the potential to reduce fuel burn and lower levels of pollutants.

3.7.8 The Group acknowledged the importance of identifying, recording and reporting operational benefits related to environmental protection as part of demonstrating the civil aviation contribution to environmental protection. To this effect, the Group agreed on the estimation and reporting of fuel savings resulting from national and Regional operational improvements through the use of a simple but globally endorsed tool ICAO Fuel Savings Estimation Tool (IFSET) specifically designed for this purpose, noting that this tool does not require specific user skills. The tool as well as its *User Guide* can be downloaded free of charge from the ICAO webpage: http://www.icao.int/environmental-protection/Pages/Tools.aspx

3.7.9 The Meeting also agreed on the establishment of a focal group to undertake the specific tasks related to Regional capturing and reporting of data on environmental benefits, as well as developing related forecasts. It was however, recognized that in order to, amongst others, avoid duplication of efforts and escalation of costs, the number of APIRG contributory bodies should be kept to a minimum. In this regard, the meeting agreed to assign the tasks of operational benefits related to environmental protection to the Performance Based Navigation (PBN) Route Network Development Working Group (PRND WG). The Working Group should however, be complemented by aeronautical meteorology expertise and engage the support of the AFI Air Transport Forecasting Group (TFG) as necessary.

3.7.10 Based on the above, the Group adopted the following Conclusion and Decision:

CONCLUSION 18 /58: ESTIMATIONS AND REPORTING OF OPERATIONAL BENEFITS

That States:

a) are urged to use the ICAO Fuel Savings Estimation Tool (IFSET) or a more advanced tool to estimate environmental protection benefits accrued from operational improvements;

b) include environmental benefits analysis in their plans to implement operational improvements that may reduce fuel burn at a regional or national levels; and

c) report the benefits to ICAO on a quarterly basis using the table to report environmental benefits of operational benefits at Appendix 3.7A to this report .

DECISION 18 /59: INCORPORATION OF OPERATIONAL BENEFITS TASKS IN THE PRND WG TERMS OF REFERENCE

That the terms of reference of the PRND-WG be amended to include consideration of operational benefits related to environmental protection.

3.8 Twelfth Air Navigation Conference (AN-Conf/12)

3.8.1 The Secretariat informed the meeting on the developments related to the convening of the Twelfth Air Navigation Conference (AN-Conf/12) to be held in Montreal from 10 to 30 November 2012. AN-Conf/12 will address the aviation system block upgrades (ASBUs) that were introduced to the international community at the Global Air Navigation Industry Symposium (GANIS) held at Montreal from 20 to 23 September 2011, and will consider the communication, navigation, surveillance and avionics roadmaps for the Global Air Navigation Plan. The ICAO Secretary General and Director, Air Navigation Bureau also briefed the meeting on these developments. State letter ST 13/1-11/71 of 22 December 2011 with the invitation to the conference, was dispatched to all member States and International Organizations, and a copy thereof was distributed to the participants. The Group was informed that, in order to share with States the ASBU approach to performance planning for air navigation systems at the regional and national levels, two workshops will be conducted in Dakar (from 16 to 20 July 2012) and Nairobi (13-17 August 2012).

3.8.2 Considering the critical importance of AN-Conf/12, the Group encouraged States to actively participate in the preparations and in the conference itself in order to contribute to the expected international consensus and commitment. The following Conclusion was formulated:

CONCLUSION 18/60: PARTICIPATION OF THE AFRICA-INDIAN OCEAN (AFI) REGION AT AN-CONF/12

That, in preparation for the Twelfth Air Navigation Conference (AN-Conf/12) to be held in Montreal from 10 to 30 November 2012:

a) AFI States and aviation stakeholders participate in the workshops to be organized by ICAO in Dakar (July 2012) and Nairobi (August 2012); and

b) AFCAC coordinate with States and regional organisations the development of a common AFI position at the AN-Conf/12 Agenda items.

AGENDA ITEM 4: REGIONAL AIR NAVIGATION DEFICIENCIES

4.1 Review and update of the list of deficiencies in the Air Navigation Fields – Implementation of the AFI Regional Database and transition to a Central Database

4.1.1 The Group recalled the definition of air navigation "*deficiency*" as approved by the ICAO Council, and *that it encompasses a situation where a facility, service or procedure does not comply with a regional air navigation plan or with related ICAO Standards and Recommended Practices, and which situation has a negative impact on the safety, regularity and/or efficiency of international civil aviation.*

4.1.2 It was further recalled that due to, amongst others, lack of effective reporting, the AFI list of air navigation deficiencies lacked the information which the Group required to identify impediments to implementation and to effectively address deficiencies in the AFI Region.

4.1.3 The Group acknowledged the critical importance of deficiencies reporting, and agreed that measures have to be taken to address the matter. This issue is addressed under agenda item 4.3 of this report.

4.1.4 The Meeting recalled that the Africa-Indian Ocean Planning and Implementation Regional Group (APIRG), October 2011, European Air Navigation Planning Group (EANPG), CAR/SAM Planning and Implementation Regional Group (GREPECAS) and Middle East Air Navigation Planning and Implementation Regional Group (MIDANPIRG) have developed, established and are maintaining their respective regional air navigation deficiency databases to support the implementation of the Uniform Methodology. ICAO Headquarters has also recently developed a prototype system for the management of air navigation deficiencies at the global level that has been incorporated in the integrated Safety Trend Analysis and Reporting System (iSTARS). The system would result in significant benefits through the harmonization of data structure and content, as well as by providing uniform access to the respective Regional Offices, Member States and other authorized users.

4.1.5 The Group acknowledged the benefits of using the system in iSTARS and accordingly formulated the following Conclusion:

CONCLUSION 18/61: A SINGLE CENTRALIZED AIR NAVIGATION DEFICIENCIES DATABASE

That States and International Organizations:

a) test the centralized database on iSTARS platform using the guidance at Appendix 4.1A;
b) update the data as necessary in coordination with ICAO Regional Offices, Nairobi/Dakar; and
c) provide feedback to ICAO Regional Office, Nairobi/Dakar by 31 August 2012.

4.2 Report on AFI Tactical Action Group (TAG) activities

4.2.1 The Group noted that during the course of 2010 and 2012, due to a high number of Air Safety Reports/Unsatisfactory Condition Report (ASR/UCR), the TAG Secretariat conducted technical assistance missions to four States (Angola, DRC, Nigeria and Zimbabwe) in order to support them in addressing the UCRs and their underlying causes. The TAG missions provided guidance to the concerned States on preparation of action plans for implementation of corrective measures to address the identified deficiencies. However, in some cases improvements following the mission have been significantly lower than expected.

4.2.2 Following the mission to DRC, in December 2009, there have been improvements in such areas as responses to queries regarding specific UCRs. However, many items in the action plan are yet to be implemented. Furthermore, there are still mobile communication deficiencies in the Kinshasa FIR. The mission to Zimbabwe, also in December 2009, resulted in Zimbabwe immediately addressing all issues satisfactorily.

4.2.3 The mission to Angola was in May 2010. Since, then VHF mobile communication has improved. However, there is still a high number of reported ASRs (AIRPROXs; ATS Incidents; Communications and Aircrafts operating in RVSM airspace without RVSM approval). The TAG continues to express concern on the situation and the low level of feedback from Angola on TAG queries. No update on the Corrective Action Plan has been received since the mission.

4.2.4 Following the mission to Nigerian in May 2011, limited improvements have been reported, particularly with respect to mobile communication. An updated Corrective Action Plan was submitted to TAG in February 2012.

4.2.5 Due to a series of air traffic management coordination failures between the Gaborone and Johannesburg FIRs in 2011, the two concerned States, supported by the TAG met in Gaborone in January 2012 and agreed on specific measures to address the coordination issues. Successful implementation of the measure will be jointly monitored by the States and the TAG.

4.2.6 The Group reviewed comprehensive statistical data related to the UCRs and the safety situation in the AFI Region with respect to air traffic management and supporting infrastructure. Amongst others, it was noted that the number of reported incidents including AIRPROXs in many FIRs had increased. It was also noted that the increase was not necessarily an indication of the worsening situation. However, the meeting urged that TAG and the ICAO Regional Offices take necessary measures to address the situation with the concerned States.

4.2.7 It was noted that among the leading causal factors of the UCRs were the deficiencies in the competence of air traffic services and supporting personnel, as well as deficiencies in communication (infrastructure and operations).

4.2.8 The Group noted that from the outcome of annual ATS Incident Analysis Group Meetings, specific recommendations were forwarded to States to address the causal factors of the UCRs. Where necessary, air traffic management (ATM) coordination meetings were also arranged between concerned FIRs under the aegis of ICAO. Such a meeting between Angola, Burundi, DRC, Rwanda, Tanzania, Uganda, Zambia, ASECNA and IATA, is planned to be convened in the near future.

4.2.9 The meeting was of the view that a more detailed and an in-depth TAG database analysis, indicating sub-regional areas of concern and relationship to traffic volumes would be useful to the efforts of Group. It was however pointed out that such detail could not be made available in the near future due to resource limitations.

4.2.10 The Group noted that in some cases, issues of coordination were triggered or rendered difficult to resolve, due to political issues beyond the purview of any technical solutions.

4.2.11 In order to address the situation reflected in this agenda item, the Group requested ICAO Regional Offices to circulate a State Letter urging:

a) States to provide comprehensive written feedback immediately after completion of the UCR investigations, pursuant to Special AFI RAN Recommendation 4/6;
b) States that are not providing information on incidents and timely responses to the TAG queries to do so;

c) States that received TAG missions to implement Corrective Action Plan agreed with the mission without further delay;
d) concerned States to provide timely responses to the ARMA regarding aircraft RVSM approvals and registration issues brought to their attention; and
e) Regional Offices to support TAG missions to States as deemed necessary.

4.3 Strategies to remove deficiencies

4.3.1 In order to address effectively deficiencies in the AFI Region, the Group agreed that the issues of reporting should be significantly improved. In this regard, it acknowledged the crucial role of States (and their ANSPs), users and other stakeholders including professional organizations. It was agreed that, among others, reporting could be encouraged by adopting a list of minimum reporting areas. Accordingly, the Group endorsed the list in **Appendix 4.3A** to the report on agenda item 4.3, which is to be used as a reference for minimum reporting, and instructed the Sub-Groups to ensure the areas include all fields of air navigation and aerodromes and ground aids.

4.3.2 It was highlighted that the intent of the list was not to replace reporting based on ICAO Council policy, but to encourage reporting, noting on the one hand the current critically low level of reporting, and on the other hand the expanse of SARPs and requirements on which reporting may be effected. Without prejudice to the definition of deficiency as approved by the Council, States, (Regulators and ANSPs), users (IATA, AFRAA, etc.), and professional organizations (IFALPA, IFATCA, IFATSEA, etc.) are encouraged to report on deficiencies in the areas listed in **Appendix 4A** to the report on agenda item 4.1, in addition to reporting any other deficiencies as defined by the Council.

4.3.3 Based on the above, the Group formulated the following Conclusion:

CONCLUSION 18/62: IMPROVEMENT OF DEFICIENCY REPORTING

That, in order to encourage reporting of deficiencies, follow up, collection of information on impediments to implementation, and to facilitate identification of solutions, AFI States and other stakeholders are encouraged to use the list of reporting areas at Appendix 4.3A to the report on agenda item 4.3, as a guide to minimum reporting.

4.3.4 The Group noted that one of the challenges facing the effort to reduce deficiencies was follow up on the AFI RAN Recommendations and APIRG Conclusions. It was also noted that in many cases, awareness of the existence of the Conclusions and their relevance is lacking among officials who would be expected to act upon them. The Group was apprised that the Directors General of Civil Aviation Meeting of 2010 had adopted a form for tracking APIRG Conclusions as a tool for use by States in order to support follow up efforts. The Group endorsed the Form at **Appendix 4.3A** to the report on agenda item 4.3, and urged States to apply it as necessary.

4.3.5 As a means to further enhancement of follow-up on deficiencies the Group urged ICAO Regional Offices to use communication means such as email and telephone more intensively, and high level missions to States where necessary.

4.3.6 Among specific interventions that could be implemented, the Group noted that the outcome of TAG and AIAG initiatives indicated the need for addressing Human Factors (HF) and specific infrastructure deficiencies as a matter or priority. It was further noted that, available data on aircraft equipage could be used effectively to guide priorities on infrastructure implementation.

4.3.7 Based on the above, the Group formulated the following Conclusion:

CONCLUSION 18/63: MEASURES TO ADDRESS HUMAN FACTORS AND INFRASTRUCTURE DEFICIENCIES

That, among efforts to reduce deficiencies, States address the following human factors and aviation infrastructure issues:

a) Human Factors
- **i) Undertake training courses to improve the proficiency of controllers on one hand and to assist them in the implementation of runway safety measures on the other hand; and**
- **ii) Undertake pilot training on the implementation of runway safety measures, crew discipline on board and measures preventing loss of control.**

b) Infrastructure deficiencies
- **i) Implement previous APIRG conclusion on CPDLC implementation to back-up VHF and HF in remote areas and**
- **ii) Implementation and usage of PBN in TMAs.**

4.3.8 The Group noted that an AFI Aviation Safety Summit is scheduled to take place on 15-16 May 2012 in Sandton, Johannesburg, South Africa to address specific safety issues, and that States and Organizations were highly encouraged to participate. The event would be preceded by an air operator certification workshop.

AGENDA ITEM 5: FUTURE WORK PROGRAMME

5.1 The Work Programme of APIRG was last reviewed at APIRG/17 meeting. In view of the continuing new developments in the aviation system, there is a need to review and update the work programme of the Group.

5.2 The meeting agreed to the updated Work Programme of the Group as shown at **Appendix 5A** to this report.

5.3 The list of Decisions and Conclusions to the meeting is listed as shown at **Appendix 5B** to this report.

AGENDA ITEM 6: ANY OTHER BUSINESS

6.1 Some delegations raised concern that some stakeholders such as meteorology and airports are not present at APIRG meetings. This affected the quality of Group deliberations in the speciality areas concerned. It was therefore suggested that invitations should be extended to them by national civil aviation authorities and encouraged to participate at APIRG as they are invariably responsible for implementing APIRG conclusions and decisions in their respective fields. The meeting formulated the following conclusion:

CONCLUSION 18/64: PARTICIPATION OF STAKEHOLDERS IN THE APIRG MEETINGS

That States extend invitation to all stakeholders including meteorology and airport operators and Air Navigation Service Providers (ANSPS) to participate in APIRG meetings.

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