Report of the CANSO Airspace User Seminar,
Zanzibar 14 and 15 May 2013
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1. **Introduction**

1.1 **Background**

The twelve CANSO members of the African Indian Ocean Region (AFI) take note of the expectations of airspace users regarding harmonisation and interoperability. These expectations are considered within the context of the Air Traffic Management (ATM) Community, as described in the ICAO Global ATM Operational Concept (ICAO Document 9854).

The ADS-B project group comprising of ANSPs from Botswana, Malawi, Mozambique, Zambia and Zimbabwe undertook to implement ADS-B collaboratively. The project, when implemented, will enhance the safety and efficiency of air transport in that region. Subsequently they invited CANSO to facilitate the consultation with all air space users in Africa.

In view of these considerations CANSO and its members in AFI organised the Airspace User Seminar in Zanzibar, in cooperation with the Tanzanian Civil Aviation Authority (TCAA). The theme of the seminar was “A harmonised and interoperable African Airspace”.

1.2 **Objectives of the Seminar**

The aims of the seminar were as follows:

1.2.1 Explore avenues to achieve harmonisation and interoperability in a cooperative environment for AFI.

1.2.2 Determine actions to pursue harmonisation and interoperability in AFI.

1.2.3 Develop action plans describing the activities, accountabilities and timeframes to achieve the identified actions.

1.2.4 Identify actions for the CANSO Africa Region Office to enhance the position of its members through interventions in regional and global forums.

1.2.5 Develop relationships with the airspace users and identify opportunities and capabilities for consultation with IATA and other airspace user representative bodies.

1.3 **Attendance**

The list of attendees is at *Attachment 1 – List of Attendees.*
2. Report of Proceedings

2.1 Session 1, Harmonisation and Interoperability in Context

Ms. Boni Dibate, the CANSO Region Director Africa Affairs, facilitated the session.

The seminar was opened by Mr. Tahir Moh’d Khamis, the Deputy Principal Secretary in the Ministry of Infrastructure and Communication, Zanzibar.

He welcomed the participants to Zanzibar for the CANSO Africa Airspace User Seminar and acknowledged and thanked CANSO for organising and choosing Zanzibar as the venue for this august seminar. He further thanked the Tanzania Civil Aviation Authority (TCAA) and Air Traffic and Navigation Services (ATNS) South Africa, for their kind sponsorship in making this occasion a success. He also acknowledged all delegates who had traveled from quite a distance.

Mr. Thabani Mthiyane, the CANSO Chairman, Africa Region, who could unfortunately not attend the seminar was represented by Ms. Leago Takalani, who presented the opening address on behalf of CANSO.

Mr. Sidi Gueye, the IATA Assistant Director presented the users’ expectations regarding communication, navigation and surveillance equipage as well as harmonisation and interoperability requirements. Mr. Gueye pointed out that many technological “solutions” have been developed by industry for ATS. However, unless these are adopted as global standards and accepted cost benefits are indicated and implementation timelines agreed with users, these technologies have limited value to international aviation. New technologies must be managed in a manner that will enable airlines to develop a business case with near term investment payback. IATA encourages States and ANSPs to only adopt technologies which have valid business and operational cases as agreed in consultation with airlines and other airspace users.

Mr. Johannes Mwitta Munanka, the President of the Tanzanian Air Traffic Controllers Association (TATCA), made a presentation addressing current CNS technologies and the need for harmonisation and interoperability from an ATM perspective. He discussed a framework for harmonisation including tools. He said the success factors of interoperability were seamlessness, cost–effectiveness, easy migration path, enhanced safety and increased productivity. He noted the success stories of harmonisation and said that for Africa to become harmonised and interoperable it needs to decide on the new timeframe as a consequence of aligning the implementation timelines, needs to plan for implementing the appropriate harmonisation tools and incorporate the relevant changes in the regional air navigational plan (RANP)

2.2 Session 2, User Expectations and Regulatory Environment

Ms. Boni Dibate, the CANSO Africa Region Director, provided an update on the CANSO AFI progress. The African members of CANSO are ENANA (Angola), ATNS (South Africa), Botswana Civil Aviation Authority, NANSC (Egypt), Kenya CAA, Uganda CAA, NAMA (Nigeria),
Aroportos de Mozambique, OACA (Tunisia), SWACAA (Swaziland), Tanzania CAA, and Zambia Airports Authority. CANSO promotes a performance based operational environment in pursuit of seamless, harmonised and interoperable ATM. Ms. Dibate explained the purpose of the seminar. Mr. Hennie Marais of ATNS was appointed as the Chairman of the Seminar and Ms. Lebogang Mofolo was appointed as the Secretary of the Seminar.

Ms. Leago Takalani, Executive Engineering and Technical Services (Acting), ATNS presented the Aviation System Block Upgrade (ASBU) requirements and enabling technologies for CNS. During this presentation she highlighted the need for synchronised, time-coordinated improvements and infrastructure enhancements for CNS systems. She further highlighted the need for collaborative decision making (CDM).

The final presentation of this session, entitled “Expectations and Regulatory Environment, was made by Mr. Mutesigwa Maugo from TCAA. During his presentation he pointed out that users expect quality, value for money services that meet required international standards, and high level of availability and reliability.

2.3 Session 3, Infrastructure/Operational Landscape & Aircraft Equipage/Crew Capability

Mr. Saisi Onga, the Chief of ATM, TCAA, facilitated the session. Mr. Sidi Kone, head of the Air Navigation Department at ASECNA made a presentation to highlight the position of ASECNA related to the topic addressed during the session. He pointed out that Africa needed a vision (operational concept) and implementation framework, based on the ICAO GANP and AFI ANP.

Mr. John Onyegiri made the presentation on behalf of NAMA. He outlined the role of NAMA as responsible for the provision of navigational facilities (en-route and airport), air traffic services (ATS), Aeronautical Information Services (AIS) and aeronautical search and rescue (SAR). area of responsibility, services provided and surveillance coverage.

Mr. Ernesto Manhica, the Director, Maputo International Airport, presented the current and future airport developments in Mozambique and also highlighted the developments in CNS infrastructure including ADS-B implementation as well as domestic VSAT in Mozambique South region.

Mr. Frank Chinambu, the Director of Air Navigation National Airports Corporation Limited, Zambia presented the current and future developments in Zambia as far as airports and CNS infrastructure are concerned.

The session was concluded by a presentation from Capt. Dave Allanby, South African Express Airways, regarding aircraft equipage and aircrew capability. He highlighted the list of ICAO deficiencies, especially in Africa. Capt. Allanby confirmed the need for a centralised en-route control facility in Africa to support harmonisation and interoperability. He called for the expedited implementation of CNS and ATM solutions and initiatives within AFI.
At the end of this session the Chairman adjourned proceedings for day one.

2.4 Session 4 – Enabling Technologies

During this session presentations were made by the following system manufacturers and suppliers.

**Mr. Craig Partridge**, Business Development Manager, INEO presented the REDDIG Communication system to the Seminar. This system was recently deployed in South America. REDDIG relies on IP technology and is supported by VSAT and fiber optic carriers. The solution provides for communication link diversity with built-in hardware redundancy. This system is an example of communication technology which could be deployed in Africa.

**Mr. Derik van Heerden**, Marketing Executive, SAAB Grintek, made a presentation outlining the capabilities of SAAB. The presentation highlighted the specific advantages of ADS-B as a surveillance solution. During the presentation a number of funding options were presented, absolving users to use grant funding to procure technology solutions. He also pointed out that harmonisation and interoperability initiatives should include military operations and not merely focus on civilian aviation activities. The SAAB presentation included information regarding remote aerodrome control solutions.

**Mr. Jochen Petraushke**, Sales Manager, Comsoft GmbH, presented the capabilities of Comsoft to the attendees. He highlighted Multi-lateralion and ADS-B technologies and capabilities. He explained the principles of Multi-lateralion, quadrant architecture and an integrated ADS-B and Multi-lateralion network to the audience.

The capabilities and products of Thales were presented by **Mr. Patrick Lefevre**, CNS-ATM Development Manager, Thales. He provided an overview of surveillance coverage in Africa and the different types of surveillance systems deployed throughout the region. The presentation provided key surveillance issues for Africa as derived from the decisions of APIRG and informed by the AFI Surveillance Task Force. Mr. Lefevre suggested that a surveillance workshop should be arranged with key stakeholders with the objective of aligning airlines/aircraft operators needs’ and strategy, taking account of current and future capabilities of aircraft, ANSP current and future infrastructure, ICAO ABSU, ICAO AFI Regional plan and technology development. The presentation highlighted the absence of a mandate for ADS-B in Africa. The presentation concluded by pointing out that ADS-B should be implemented where aircraft equipage is sufficient to gain early benefits, stressing the need for a mandate, encouraging the sharing of surveillance data, and pointing out that the smooth transition to ADS-B will be through Multi-lateralion.

**Ms. Marcela Ujcova**, Sales Manager, ERA a.s, presented an overview of ERA, the product portfolio of the Company and its achievements. She pointed out that ERA provides surveillance solutions for en-route, terminal and aerodrome control environments. The presentation clarified the capabilities and limitations of dependent/cooperative surveillance related to aircraft equipage. Ms. Ujcova explained the modularity and scalability of Multi-lateralion/ADS-B surveillance systems.
2.5 Session 5 – Critical Issues to be Addressed Towards Implementation

2.5.1 Constitution of Work Groups

The Chairman provided a briefing on the expectations and objectives for the four Working Groups. These objectives are:

- What do you believe we should do in the short and medium term to address the issues in your area of expertise?
- Who should be performing these tasks?
- What are the timelines for these tasks?
- How do we collectively achieve these objectives?
- What should CANSO do to advance our goals?

The Work Groups were constituted as follows:

**CNS Workgroup**, facilitated by Mr. Patrick Lefevre from Thales.

**ATM Workgroup**, facilitated by Mr. Craig Partridge from INEO.

**Regulatory Workgroup**, facilitated by Mr. Muyiwa Adegorite from NAMA

**Capability and Training Workgroup**, facilitated by Capt. Dave Allanby from South African Express Airways.

2.6 Session 6, Workgroup Feedback and Development of Work Programmes

The results produced by the workgroups were presented to the plenary. After discussion consensus was reached and the final results of the activities are as follows:

2.6.1 CNS Workgroup

The CNS workgroup proposed the establishment of a task force under the auspices of CANSO to:

- Develop a common regional surveillance need
- Agree on implementation timelines and framework till 2025

This would be achieved by

- CANSO/IATA gathering and disseminating existing information about surveillance in AFI.
- Task anticipated for completion by September. 2013. This task would focus on
  - ICAO surveillance strategy
  - IATA CNS roadmap
Current (annual) air traffic volume for upper airspace (CANSO/IATA to do projection modeling up to 2025)
Current and future aircraft equipage
Current AFI surveillance infrastructure

- It was proposed that a workshop be conducted during October 2013 combined with Nigeria Regional Safety meeting. This meeting would:
  - Analyse separation requirements for each FIR and airspace type (upper, lower, terminal) to finalise a regional needs document for surveillance
  - Define a road map for ADS-B implementation which will:
    - Propose an ADS-B regulatory mandate in 2020 for upper airspace
    - Define best use of ADS-B data until 2020
    - Improve ATC situational awareness
    - Improve air navigation charges collection
    - Explore the best equipped/best served notion.
  - Investigate how to educate regional airlines/aircraft operators regarding the benefit of ADS-B equipage.
  - Present final regional implementation road map at APIRG 19.

- Present final regional implementation road map at APIRG 19.

- Organisation
  - Proposed establishment (through ICAO/CANSO website) of a depository workspace with internet access containing all the relevant information
  - Proposed joint regular meeting involving ICAO, IATA, AFRAA, ANSP, CANSO, Civil Aviation Authorities, Industry and Airport Operators,

- To develop a common regional communication needs to support:
  - Migration from analogue to digital
  - New enabling surveillance technology
  - Data link for ATC/Pilot
  - Data sharing and SWIM

- Agree on implementation timelines and framework till 2025
• CANSO/IATA to gather and disseminate existing information about Communication infrastructure in AFI region (Sep 2013)
  o ICAO communications strategy
  o IATA CNS roadmap
  o Current communication facilities, capacity and traffic volume (G-G/A-G)
  o Current and future A/C equipage
  o Current AFI communication infrastructure in AFI region

• Workshop (June 2014):
  o Define a road map for G-G/A-G Communication implementation
  o Develop a work plan for navigation road map

2.6.2 ATM Workgroup

The ATM work group proposed the following solution:

• Seamless service provision through the implementation of interoperable surveillance systems, technologies and procedures, guided by the ICAO AFI Plan, with emphasis on regional service provision, the harmonisation of standards and procedures.

The solution will be implemented as follows:

• A dedicated task force, based on the AFI RVSM concept. This task force will consist of ATM experts from a few ANSPs, ICAO, IATA, CANSO and a selected technology partner. (safety case, specifications, procedures etc).
• This task force will be mandated to implement the Terms of Reference within a specified timeframe.
• The taskforce will report to CANSO, and the relevant ICAO (ATM sub-group) forums at regular intervals.

Timelines

• Establishment of the task group, development of Terms of Reference should be facilitated by CANSO and completed within six months.
• Detailed timelines for the implementation of the project will be determined once the TOR and final scope of the project are agreed.
• However the total project time should not exceed two years.

CANSO’s role

• Project facilitation. Establish the workgroup through consultation with all stakeholders. Facilitate communications with stakeholders, States, ANSP’s, Users, Suppliers etc.
2.6.3 Regulatory Workgroup

The Regulatory work group identified a number of institutional concerns and also noted the need for improved safety regulation and economic oversight. The meeting agreed that the focus will be on enabling regulation for ATM and CNS implementation. CANSO will access its various Standing Committees to provide guidance and facilitation concerning the regulatory environment.

2.6.4 Capability and Training Workgroup

The Capability and Training work group identified the following aspects regarding aircraft (equipment) capability:

- What Are The Problems?
  - Some aircraft are fully equipped. The challenge is that smaller aircraft may not have the required capability. We could find that in that instance the ground capability overtakes the aircraft capability.
  - There is a need to quantify the capability of the ‘fleet’ in each country and determine which aircraft comply and which do not. We cannot prevent non-compliant aircraft from accessing airports/airspace in the short- to medium term.
  - Retro-fitting smaller aircraft is very expensive. Could lead to a slow phase-out of aircraft until the aircraft start meeting requirements. At some stage regulators will have to set a date for compliance.
  - The only time that aircraft capability restriction can be set is dependant on the ATM requirement. Various countries are at different stages of maturity. Those operators should endeavour to meet the time-lines of their respective Regulators.

- Who is Going to Fix This?
  - Joint Responsibility: Aircraft Manufacturers, Aircraft Operators, ANSPs and regulators.
  - Aircraft manufacturers to build compliant aircraft and operators to ensure that aircraft are compliant for the airspace that they want to enter.
  - Type certification and modification: manufacturers should be accorded the responsibility for new aircraft and also for retro-fitting equipment, at a cost, prior to submission to the CAA for approval.

- What are the Time-Lines?
  - Compliance to be determined by the regulator in consultation with aircraft operators, based on the ATM performance requirements.
  - Grandfather clause to be considered stating that past a certain date non-compliant aircraft cannot enter specific airspace unless they comply.
The Capability and Training work group identified the following aspects regarding training capability:

- Regulatory authorities must make a statement in respect of the CATS and CARS on what training and certification must be obtained.
- Procedures and systems for regulation to be put in place
- Procedures and training on systems must be determined
- Lack of an enabling regulatory framework for new technologies.
- Technology is ahead of the capability of regulatory authorities in terms of requirements or approval of that technology
- Regulators should be trained adequately to impose regulation of procedures, etc

Training and capability improvements will be supported by:

- A toolkit of training courses:
  - Regulator to create syllabi to enable certification of individuals and relevant equipment
  - Air Crew and ATC interface
  - Technical and Operational personnel
  - Administration
- Additional input into training capability development can be obtained from:
  - Period of beneficial use to be instituted to train technicians for maintenance; etc.
  - Transfer of skills when new equipment is purchased
  - Training for pilots of smaller aircraft to be included at regulatory approved flight schools
  - Exposure of regulator to new equipment at an early stage.
- What Must CANSO Do To Make This Happen?
  - CANSO to cooperate with IATA to facilitate cooperation in training for the operator
  - CANSO can facilitate training at various centres of excellence around training of ANSPs and other industry role-players
  - Adequately engage with regulators regarding new technologies to influence future operations
  - Invite Regulators and industry to conferences/seminars to train industry
- Mobilise required funding to provide training where a need exists

### 2.7 Conclusion

CANSO has undertaken to facilitate the identified activities centrally and to collaborate with ICAO, IATA and other representative organisations to enable progress and finalisation of tasks agreed by the meeting. It was further agreed that CNS and ATM tasks will be prioritised, with the capability and regulatory tasks following thereafter, since the former activities will inform the latter.

The meeting agreed to the activities and actions proposed by the four work groups and no objections were raised. Attendees through their consensus and agreement committed to the agreed activities and tasks.