



THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE A

- Agenda Item 1: Air navigation global strategy**
1.4: Air navigation business cases

STUDY TO INVESTIGATE THE DEVELOPMENT OF SBAS/GNSS IN AFRICA INCLUDING AN INDEPENDENT COST/BENEFIT AND IMPACT ASSESSMENT FOR BOTH AVIATION AND NON-AVIATION USE

(Presented by 54 Contracting States, Members of the African Civil Aviation
Commission (AFCAC)²)

EXECUTIVE SUMMARY

This paper presents the status of implementation of the study to investigate the development of satellite-based augmentation system (SBAS)/ global navigation satellite system (GNSS) in Africa including an independent cost/benefit and impact assessment for both aviation and non-Aviation use. The paper also refers to the introduction of GNSS in the African-Indian Ocean (AFI) region as adopted by AFI Planning and Implementation Regional Group (APIRG) and as recommended by first African Union Commission (AUC) Sectorial Technical Committee on Transport Infrastructure in Lomé.

Action: The Conference is invited to:

- take note of the information that AUC is the Contracting Authority for the study;
- take note of the information that AFCAC shall be in charge for the executive management of the project assisted by the Project steering Committee;
- note the progress reported on the implementation of the Project;
- request additional States who wish so to appoint experts to the Task Team;
- encourage the States of the AFI Region and the Designated Organizations to continue providing the necessary information to AFCAC for the proper conduct of the Study by the Consultant; and
- request ICAO to support AFCAC through relevant working groups on the evaluation of the project deliverables, including the appropriate methodology for economic impact analysis by the consultant; in accordance with the aviation system block upgrade (ASBU) module APTA.

¹ English and French versions provided by AFCAC.

² Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cap Verde, Central African Republic, Chad, Comoros, Congo, Cote D'Ivoire, Democratic Republic of The Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Republic of Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome And Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Togo, Tunisia, Uganda, United Republic Of Tanzania, Zambia, Zimbabwe.

1. INTRODUCTION

1.1 The African Union (AU) ministerial Specialised Technical Committee (STC) Declaration on 17 March 2017 in Lomé has mandated the AU Commission (AUC) to undertake a continental Cost-Benefit study and strategy on the implementation of the satellite-based augmentation system (SBAS) project in Africa taking into consideration existing initiatives in the implementation of EGNOS in Africa. AUC delegated the African Civil Aviation Commission (AFCAC) to setup a Task team comprising key African stakeholders to develop the Terms of Reference (ToRs) of the Cost Benefit Analysis (CBA) study and to supervise the CBA study and strategy.

2. DISCUSSION

2.1 The introduction of GNSS in the AFI Region dates as far back as mid-1990s. A GNSS Study and an AFI-wide EGNOS Test Bed supported by the seventh AFI RAN Meeting held in Abuja in May 1997 (Recommendation 13/4), were carried out, the outcome of which was reported to the ICAO Eleventh Air Navigation Conference (AN-Conf/11) in October 2003. As a follow up, the APIRG had been conducting related activities through dedicated bodies (Task Force, Study Group, communications, navigation and surveillance (CNS)/ air traffic management (ATM) Implementation Coordination and CNS Sub-groups) which culminated with the adoption of the initial AFI GNSS Strategy.

2.2 Whilst aviation has a fully-fledged framework for SBAS application in the realization of PBN procedures and support of automatic dependent surveillance — broadcast (ADS-B) operations, there is no such common framework for non-aviation application. However, the market potential applicability of satellite navigation beyond aviation are immense and varied, particularly in the area of mobile devices. Africa, with a level of devices per capita of 0.2 %, represents a huge potential market for the development of GNSS devices, as it will be the sole immature market by 2025.

2.3 Objectives of the project

2.3.1 The overall objective of this assignment is to investigate the related public and industry benefits and costs/impact of SBAS/GNSS implementation in Africa as a whole.

2.3.2 The specific objectives are to:

- a) Undertake a CBA for all domains of SBAS applications, taking into account existing and planned initiatives related to SBAS provision on the continent; and
- b) Investigate the potential governance and institutional schemes for SBAS provision and use in Africa.

2.4 Scope of the work

2.4.1 The scope of work includes data gathering, the review of relevant documentation and cost/benefit analysis of SBAS/GNSS implementation in Africa for all sectors of application, including aviation, maritime, rail, road, agriculture, surveying and location-based services (LBS), to name just a few of them.

2.4.2 The study will be based on the planning horizon of 30 years by considering the current situation of service provision to the future situation in each AFI airport.

2.4.3 Specifically, the consultant shall undertake the following tasks:

- a) Data Collection and General Assessment Studies;
- b) Cost and Benefits Analysis accruing due to aviation application;
- c) Demand for non-aviation SBAS/GNSS application and implication on CBA;
- d) Governance and Institutional Issues;
- e) Feasibility study of African SBAS/GNSS technology transfer and Risk Assessment; and
- f) Organisation of a continental workshop with the industry Stakeholders.

2.4.4 Concerning Aviation Sector analysis, the CBA shall cover:

- a) All oceanic and continental airspace under African Union Member States jurisdiction;
- b) All operations: PBN, ADS-B, etc.;
- c) All phases of flight from En-route down to CAT-I;
- d) All airports, aerodromes, airfields and heliports; and
- e) All aircraft and rotorcraft operators, including commercial, regional, business and general aviation.

2.5 Deliverables

- a) Inception Report;
- b) Task 1 report: General Assessment Studies;
- c) Review meeting based on Task 1 report;
- d) Task 2 report: Cost/Benefit analysis report;
- e) Task 3/4 report: Governance and Institutional and technological transfer issues;
- f) Task 5 report: Non-aviation application and impact on CBA;
- g) Draft Final Report;
- h) Workshop and workshop report; and
- i) Final Report.

Deadline for overall Project conclusion: May 2019

2.6 Progress status

- a) Task Team formation completed
- b) Draft ToRs developed by AFCAC and the Task Force submitted to AUC on 27 July 2018
- c) Next Step: Hire the Consultant (by AUC) to undertake the Study

3. CONCLUSION

The Conference is invited to note the actions provided in the executive summary.

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