

INTERNATIONAL CIVIL AVIATION ORGANIZATION

**Fifth Meeting of the APIRG Infrastructure and Information Management Sub-Group  
(IIM/SG5)**

*(Virtual, 26 - 29 July 2022)*

**Agenda Item 3: Achievements in AIM, CNS and MET**

**3.1. Status of implementation of applicable ASBU elements**

**WP3.1C10 Outcomes of the Cost Benefit Analysis for the implementation of SBAS**

*(Presented by the Secretariat)*

<b>SUMMARY</b>
<p>This working paper presents the outcomes of the Cost Benefit Analysis (CBA) for the implementation of SBAS and discusses the way to subsequently update the strategy of the GNSS implementation in the AFI Region in support to PBN operations.</p> <p>Action by the meeting in paragraph 3</p>
<p><b>REFERENCE(S):</b></p> <ul style="list-style-type: none"> <li>▪ Fifth and Sixth Edition of the GANP (Doc. 9750 Ed-5 and Ed-6)</li> <li>▪ Reports on APIRG 24 and precedent Meetings</li> <li>▪ Reports on IIM/SG 4<sup>th</sup> and precedent meetings</li> <li>▪ Report on the Regional Workshop on SBAS implementation</li> <li>▪ Report on the CBA for SBAS implementations in the AFI Region</li> <li>▪ Recommendations of the Continental Workshop on the CBA/SBAS Implementation in Africa</li> </ul>
<p>This working document is related to <b>ICAO Strategic Objectives: A: Safety and B: Capacity and Efficiency</b> and <b>ASBUS APTA, ASUR (B0/1, B1/1, B2/1 &amp; B4/1)</b> Threads and Modules supporting PBN and ADS-B service provision.</p>

**1. INTRODUCTION**

1.1 The independent Cost Benefit Analysis (**CBA**) for the implementation of SBAS in the AFI Region was called upon by APIRG meetings since APIRG/17

1.2 Subsequently AFCAC, with the support of the AUC and the assistance of the ICAO Regional Offices conducted a CBA funded by the European Union Commission.

1.3 The outcome of the CBA was presented in Kigali, Rwanda from 30 to 31 May 2022,

## 2. DISCUSSIONS

### Preparatory actions towards the CBA

2.1 The APIRG/17 meeting, Ouagadougou, Burkina Faso, 2-6 August 2010, after noting the lack of consensus for the introduction of GNSS applications in the AFI Region, agreed (**Conclusion 17/28**) on the need to organize a high-level meeting on AFI GNSS Strategy.

2.2 AFCAC was urged to convene the meeting, in close coordination with ICAO, ASECNA, IATA, AFRAA, and other relevant stakeholders, in order to assist AFI States in making an informed decision on the regional strategy for the introduction of GNSS applications.

2.3 The meeting also identified (**Conclusion 17/29**) the need for a cost-benefit analysis to be conducted by independent experts, based on objective assumptions and based on credible and consistent traffic data. The outcome of the study should be reviewed by the high-level meeting on AFI GNSS Strategy.

2.3 Since, then initiatives in the development and implementation of SBAS in the AFI Region have been progressing. The APIRG/23 meeting commended this progress and agreed to reinstate APIRG Conclusion 22/39 calling upon AFCAC, in coordination with the ICAO Regional Offices to convene a regional workshop on AFI GNSS/SBAS.

2.4 In this respect, Regional Workshop on SBAS implementation in the AFI Region intended to facilitate exchange of information and capacity building on SBAS, was held virtually from 4 to 5 March 2021 at the invitation of ICAO after coordination with AFCAC. The workshop involved all supporting stakeholders, namely airspace users (IATA, AFRAA), ANSPs, the JPO, the AUC, AFCAC and ICAO. The Report on the workshop was disseminated in the ICAO State Letter Ref: T 7/7.8.4-283 dated 30 June 2021. The detailed Working/Information Papers and presentations as well as the final report, recommendations and action plan on the Regional Workshop on SBAS implementation in the AFI Region can be downloaded at: <https://www.icao.int/WACAF/Pages/GNSS-SBAS.aspx>

### Conduct and outcomes of the CBA

2.5 AFCAC, with the assistance of stakeholders developed the Terms of Reference of the independent CBA, the AUC launched the consultation and hired DT-Global as a consultant for the conduct of the CBA.

2.6 A SBAS Project Steering Committee was established involving: AUC/DIE, AUC/ESTI, AUC/ARBE, AFCAC, RECs, ACAO, AUDA-NEPAD, AFRAA, ICAO, ANSPS, EUD, DT- Global. The committee was tasked to review step by step the deliverables from the consultant.

In its inception report released on 06<sup>th</sup> August 2021, the consultant described its work plan, outlining the scope of the analysis to be performed, the calendar, project team, milestones definition and risk assessment.

The final report was released on 8<sup>th</sup> April 2022 after circulation of the draft for review and comments

2.7 Furthermore AFCAC and the AUC convened the Continental Workshop on the CBA/SBAS Implementation in Africa, in Kigali, Rwanda from 30 to 31 May 2022. The workshop was attended by 70 physical participants and 90 virtual participants connected via zoom from AU member States, regional organizations, key partners in the area of SBAS (IGAD, EAC, COMESA, ECOWAS..., and international organizations (AFRAA, ICAO, IATA, ASECNA, SATNAV JPO, EU, DT-Global...).

2.8 The DT Global consultants delivered various presentations on Task 1, 2 and 3 for the continental CBA study on SBAS. The presentations were followed by a session of questions and answers as well as presentations and experience sharing from Member States and partner institutions

2.9 The workshop agreed that the report has adequately highlighted the benefits of SBAS application in Africa and the participants have validated the data collection process used to undertake the CBA.

2.10 The comments received from Airlines operating in Africa have demonstrated the value of SBAS in enhancing safety and improving efficiency at African international airports specifically domestic smaller aerodromes not equipped with ILS.

2.11 The workshop noted that airspace users support implementation of SBAS in Africa provided that;

- a) no mandatory requirements by regulatory authorities to fit SBAS equipment to aircraft,
- b) no unjustified restrictions to operations due to a lack of SBAS equipment; and
- c) no costs or charges related to SBAS being imposed directly or indirectly to airspace users who do not use such technology.

2.12 It was agreed that AUC and AFCAC in collaboration with the partners should develop the governance and institutional framework for SBAS including the financing models

2.7 It was also agreed that after incorporation of the comments made during the workshop in the SBAS final report, AUC and AFCAC be requested to submit the outcome of the continental CBA Study on SBAS for consideration by the AU Policy Organs.

he detailed recommendations of the workshop are attached as **Appendix** to this Working Paper.

### **3. ACTIONS BY THE MEETING**

3.1 The meeting is invited to:

- a) Take note of the information provided in this Working Paper
- b) Consider the outcome of the Continental CBA in their planning and implementation policy for the effective implementation of SBAS in support to PBN operation

#### **3.2 Conclusion 5/xx : Update of the AFI FGNSG Strategy**

**That;**

**In line with the outcomes of the Continental independent Cost Benefit Analysis (CBA) for the introduction of SBAS in the AFI Region, the AFI NAV Project Document be revised to consider the need to conduct an update of the AFI GNSS strategy taking into account the consensus made amongst stakeholders.**

#### **3.3 Conclusion 5/xx : Support of the AUC to the implementation of SBAS in the AFI Region**

**That;**

**AFCAC, based on the feedback received after submission of the outcome of the continental CBA Study on SBAS for consideration by the AU Policy Organs, and in collaboration with ICAO and partners, reinforce the support to States for the mobilization of resources for the effective implementation of SBAS in the AFI Region in compliance with the revised Regional GNSS Strategy.**

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