



ASSEMBLY — 42ND SESSION

TECHNICAL COMMISSION

Agenda Item 24: Aviation Safety and Air Navigation Priority Initiatives

DEVELOPMENT OF A STANDARDIZED TOOL FOR MONITORING AND CONTROLLING OBSTACLES AROUND AERODROMES

(Presented by the African Civil Aviation Commission on behalf of 54 African States²)

EXECUTIVE SUMMARY

The effective safeguarding of aerodrome operations and the integrity of instrument flight procedures (IFPs) require continuous monitoring and control of obstacles infringing upon obstacle limitation surfaces (OLS). However, many States, particularly in rapidly urbanizing regions, face persistent challenges due to outdated data, limited inter-agency coordination, and lack of standardized monitoring tools. An analysis of Significant Safety Concerns (SSCs), especially in the Africa-Indian Ocean (AFI) Region, has revealed that the absence of a formalized obstacle monitoring system is a recurring root cause of safety deficiencies. To address this gap, the Assembly is invited to urge ICAO to lead the development of a standardized digital tool that can be adopted globally. This initiative is in line with ICAO's Strategic Goal *Every Flight is Safe and Secure*.

Action: The Assembly is invited to:

- request ICAO to develop appropriate guidance to assist States and concerned stakeholders to ensure proper implementation of the Standards and Recommended Practices (SARPs) on obstacle limitation surfaces;
- urge ICAO to coordinate the efforts and initiatives of developing and usage of a standardized digital tool for obstacle monitoring and control around aerodromes; and
- urge ICAO to enhance training and capacity building in obstacle monitoring and control through ICAO Training Packages (ITPs).

<i>Strategic Goals:</i>	This working paper relates to Strategic Goal <i>Every Flight is Safe and Secure</i> .
<i>Financial implications:</i>	To be determined.

¹ English and French versions provided by AFCAC.

² Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cabo 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, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, São Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Togo, Tunisia, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

References:	Annex 10 — <i>Aeronautical Telecommunications</i>, Volume I — <i>Radio Navigation Aids</i> Annex 14 — <i>Aerodromes</i>, Volume I — <i>Aerodrome Design and Operations</i> and Volume II — <i>Heliports</i> Annex 15 — <i>Aeronautical Information Services</i> Doc 9906, <i>Quality Assurance Manual for Flight Procedure Design</i>, Volume 1 – <i>Flight Procedure Design Quality Assurance System</i> Doc 9137, <i>Airport Services Manual</i>, Part 6 — <i>Control of Obstacles</i> Doc 9981, <i>Procedures for Air Navigation Services (PANS) — Aerodromes</i> Doc 8168, <i>Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS)</i>, Volume II — <i>Construction of Visual and Instrument Flight Procedures</i> Doc 10066, <i>Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM)</i> ICAO Resolution A37- 6: Runway safety
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1. INTRODUCTION

1.1 Presence of obstacles

1.1.1 The presence of obstacles around and in the vicinity of aerodromes and air navigation equipment poses a significant threat to flight safety and aerodrome operations. Obstacles infringing the obstacle limitation surfaces (OLS) can restrict take-off and landing distances, and therefore impact safety by affecting minimum safe altitudes for flight procedures.

1.2 Challenges in implementing effective obstacle monitoring

1.2.1 The OLS were first introduced in the 1950s to ensure the safety of aircraft operations and aerodrome accessibility. ICAO's Standards and Recommended Practices (SARPs), as outlined in Annex 14 — *Aerodromes* mandate that States establish and implement effective mechanisms for monitoring and controlling obstacles around aerodromes.

1.2.2 However, it is noted that the proper implementation of these SARPs, particularly with regard to monitoring and enforcing compliance with OLS requirements remains a significant challenge, highlighting the need for continued improvement in obstacle management practices. A number of States still face challenges in establishing and implementing effective obstacle monitoring mechanisms, leading to outdated obstacle data and increased safety risks.

1.2.3 The recently adopted Amendment 18 to Annex 14, Volume I — *Aerodrome Design and Operations* contains improved provisions that would allow States, aerodrome operators, air navigation service providers (ANSPs) , and cities etc. to collaboratively ensure safeguarding of the airspace against obstacles through sets of surfaces with clear purposes and characteristics that are performance based and are adaptable to the type of operations conducted at the aerodrome. The safety improvements targeted by the aviation community through these amendments to SARPs on obstacle limitation surfaces may not be achieved if poor means of compliance and implementation weakness persists at the level of the States and interested stakeholders.

2. DISCUSSION

2.1 The need for regular obstacle monitoring

2.1.1 The lack of regular obstacle monitoring poses a significant problem, as it makes it difficult to continuously ensure aviation safety in the use of instrument flight procedures (IFPs). Indeed, according to the analysis of Significant Safety Concerns (SSCs) related to air navigation in the AFI region, one of the root causes of the identified SSCs is the absence of a formally established process by States for the regular monitoring of obstacles as part of the supervision of published flight procedures.

2.1.2 Establishing such a process for the regular monitoring and management of obstacles around aerodromes will enable States, ANSPs, and airport operators to effectively oversee OLS and ensure the continuous maintenance of IFPs.

2.2 Challenges in current obstacle monitoring practices

2.2.1 Challenges relating to heights of objects are a key consideration in matters related to aviation safety due to their effect on aircraft safety and operations. The proximity of aerodromes to densely populated cities underscore the importance of regular obstacle monitoring. Rapid urbanization poses a significant challenge to obstacle monitoring and control. It has generated increasing concerns in the last few decades due to changing socio-economic trends resulting from the rapid growth in the number of masts, towers, high-rise buildings, sky lanterns, laser emitters, wind turbines and other such activities as indiscriminate use of directed lights. The overall capacity and capability of oversight in some developing States, particularly in Africa in this field have not risen commensurately. While a number of States may have made significant progress and adopted commendable practices, others are yet to take any meaningful steps.

2.2.2 Many developing States, particularly African States, still grapple with significant management challenges due to inadequate comprehensive databases and non-standardized tools for tracking existing obstacles. This limitation impedes accurate risk assessment, emphasizing the urgent need for robust database development. Moreover, inter-agency coordination poses an additional hurdle in ensuring integrated obstacle control. To overcome these challenges, standardization of monitoring tools and fostering collaborative relationships among relevant stakeholders are crucial for effective obstacle management, ultimately ensuring the safety and efficiency of aviation operations.

2.3 Call for global harmonization

2.3.1 Given the transnational nature of air navigation and the shared safety risks, a globally harmonized solution is warranted. ICAO's leadership is crucial to foster:

- a) a digital, Global Interoperable Systems (GIS)-based obstacle monitoring system integrated with aeronautical information service (AIS)/aeronautical information management (AIM) systems;
- b) interoperability with flight procedure design software;
- c) standard data-sharing protocols across agencies; and
- d) training and capacity building under ITPs or Global Aviation Training Section (GAT) partnerships.

2.3.2 This initiative meets ICAO Assembly criteria by addressing a systemic global issue, promoting a scalable solution, and requiring global consensus and direction for effective implementation.

3. **CONCLUSION**

3.1 Ensuring continuous monitoring and control of obstacles around aerodromes is essential for maintaining flight safety and operational efficiency. There is a need for collaborative efforts by all stakeholders to develop a standardized mechanism such as digital tool for obstacle monitoring to safeguard aerodromes and air navigation systems.

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