



**Agenda Item 3: Review of GREPECAS Programmes and Projects**

**Innovative Strategy for Improving Aerodrome Safety in the CAR/SAM Regions**

(Presented by the United States)

**SUMMARY**

This working paper outlines several ideas to address the region's significant aerodrome certification and runway safety needs within a single, integrated effort. The proposed new strategy, based on previous successes and methodologies, is presented for discussion and adoption. A single, integrated effort promotes:

- Increased collaboration among Member States by promoting their active participation on Regional AGA shortcomings to determine common, regional solutions;
- Integration of several Regional AGA Project Activities under a single umbrella thereby reducing both assigned staffing and several resource expenditures; and
- Improved usage of *Procedures for the Air Navigation Services (PANS Aerodromes, Doc 9981)* to determine regional methodologies allowing Member States to achieve greater compliance with Annex 14 Aerodrome Certification Standards and Recommended Practices (SARPs).

The strategy, which gained support at the E/CAR/DCA/26 meeting, is to perform these and other targeted safety necessities under the umbrella of the former GREPECAS AGA Committee.

**References:**

- Global Aviation Safety Plan (GASP); Runway Safety Global Priority
- Procedures for the Air Navigation Services (PANS Aerodromes, Doc 9981)
- NACC/DCA06
- Annex 14, Volume I, Aerodrome Design and Operations
- E/CAR/DCA/26 – WP21
- Amendment 13A to Annex 14, Volume I
- GANDD – GREPECAS Air Navigation Deficiencies Data Base

**Strategic Objective**

*A – Safety*

**1. Introduction**

1.1. There are 253 international aerodromes under GREPECAS within Latin America and the Caribbean: 149 are located in the CAR Region and 104 are located in the SAM Region. In 2015, these aerodromes facilitated the transportation of over 187 million passengers, with forecasted annual increases of 3-5% throughout the next decade (source: FAA, IATA, ALTA). However, when this large passenger

volume is compared to the rate of certificated aerodromes within both regions, an alarming disparity is realized. Furthermore, there is a significant chance that the agreed-to-target rates for aerodrome certification goals (per the Bogota Declaration and Port of Spain Declaration) of 48% in the CAR Region and 20% in the SAM Region will not be met by December 2016. Clearly, a new strategy is needed to address not only these dismal rates of aerodrome certification, but also runway safety (top priority under Global Aviation Safety Plan (GASP)), wildlife hazard mitigation, and other critical safety issues within these regions.

1.2. The Directors of Civil Aviation for the NACC Region highlighted the urgent need for both regulatory and aerodrome authorities to adopt runway excursion mitigation measures during the ICAO/NACC/DCA/6 meeting. Draft Conclusion, NACC/DCA/6/8, called for, *“The Effective and Joint Work on Aerodrome Certification and Aerodrome Safety Improvements,”* stating that a new joint strategy and action plan for achieving regional targets on aerodrome certification and runway safety improvements should be analyzed, developed, and implemented.

1.3. This working paper outlines several recommendations fitting under a single umbrella that response to the GASP and NACC/DCA/6 concerns for addressing the significant, long-standing, and unmet aerodrome deficiencies within the regions.

1.4. Paragraph 5 lists actions by the group.

## 2. **Increasing State Promotion and Participation of Regional AGA Activities**

2.1. There are currently four projects under GREPECAS Program F that only address some of the overall AGA safety issues:

- Project CAR AGA F1 – Aerodrome Certification Improvements;
- Project CAR AGA F2 – Improve Runway Safety;
- Project SAM AGA F1 – Aerodrome Certification Improvements; and
- Project SAM AGA F2 – Improve Runway Safety;

2.2. An important element to ensuring the effectiveness of these single-targeted projects is the active participation of States. Although the activities to date have showed very limited progress (e.g., as revealed by the extremely low rates of aerodrome certificate), much more can be done with the increased involvement of personnel participating in face-to-face meetings. The action by the group for a required annual meeting provides the vehicle to exchange information on best-practices for infrastructure improvements and operations, and exposure to unknown member state AGA initiatives that could benefit the entire region. In particular, the annual meeting will lead to regional, implementable action plans by member states, followed with an annual status report by the members.

2.3. Another benefit is that member states would be encouraged to internally promote and expedite the review of AGA project documents and proposed amendments to AGA-related standards and recommended practices (SARPs) to Annex 14, plus their implementation.

## 3. **Usage of PANS-Aerodrome Doc 9981 for Addressing Aerodrome Incompatibilities and Achieving Higher Rates of Aerodrome Certification**

3.1. It is common knowledge that there exist many aerodrome incompatibility issues with Annex 14 SARPs which in turn cause difficulties for aerodrome operators to comply fully. Likewise, these incompatibility issues are common to the United States. Fortunately, the problem is addressed by the FAA through a *documented process of regulatory approvals and conditions to achieve an acceptable*

*level of safety.* The documented process permits aerodrome operators with less than standard conditions to operate safely and hold an FAA Part 139 Certification. The process, which uses a systematic method that assesses and addresses operational risks, is called a Modification of Standards (MOS). ICAO used this model among other models to develop and issue *Procedures for the Air Navigation Services (PANS Aerodromes, Doc 9981)* that allow member states to conduct risk assessments for achieving an acceptable level of safety.

3.2. The strategy is for the annual meeting to determine regional methodologies under PANS Aerodrome Doc 9981 that allow Member States greater compliance with aerodrome certification standards and recommended practices. Paragraph 4.6 illustrates examples of past regional solutions to obtain Runway End Safety Areas SARP.

#### 4. **The AGA Umbrella Strategy – Examples of Successes**

4.1. Although the AGA Committee was disbanded a decade ago, many of its accomplishments continue to serve the CAR/SAM Regions and several accomplishments were instrumental in establishing new SARPs under Annex 14, Volume I. It is recommended that the meeting consider re-establishing this committee as a way to improve holistic and coordinate future AGA activities in the region.

4.2. The former AGA Committee played a vital role to resolve and address numerous, specifically-targeted aerodrome safety and operational issues ranging from:

- improving runway safety;
- assisting member states to acquire Runway End Safety Areas (RESA);
- mitigating and monitoring programs for wildlife hazard mitigations;
- implementing pavement maintenance programs for runways;
- increasing operational capacity;
- assisting member states in achieving aerodrome certification; and
- rectifying chronic GREPECAS Air Navigation Deficiency Database (GANND) deficiencies.

4.3. Many of the examples below of AGA accomplishments are *regionally-known* by member states and international organizations, while the other activities provided *contributions that have had global impacts*.

4.4. **Bird and Wildlife Hazard Mitigation.** The beginning years of AGA Committee saw efforts for improved reporting of bird strike information in an effort to monitor aviary behavior and determine workable, mitigation solutions for this hazard. The end result was the establishment of the Bird Strike Committee known today as the *CAR/SAM Regional Bird/Wildlife Hazard Prevention Committee (CARSAMPAF)*.

4.5. **Design-Life of Runway Pavements.** The most expensive airfield investment by any member state is its paved runways. To extend the life of this costly capital investment, early on AGA Committee sponsored workshops and seminars supported by the FAA Technical Center that focused on the understanding of pavement design methodologies and the maintenance programs to maintain and rehabilitate pavements – the objective being extend the life of this investment. The end result was an independent pavement committee known today as the *Latin American and Caribbean Association of Airfield Pavements (ALACPA)*.

4.6. **Runway End Safety Areas.** The first and foremost aerodrome deficiency undertaken by the AGA Committee was assisting member state to comply with the newly adopted 90 meter runway end safety area (RESA) standard under Annex 14. A detailed program was implemented which used the GANDD reported types of RESA deficiency, such as, objects affecting the width or/and length of RESAs (reference: E/CAR/DCA/26 WP21, *Usage and Safety Benefits Gained by the GREPECAS Air Navigation Deficiencies Data Base*). However, in many cases alternative solutions *not recognized by ICAO Annex 14* had to be developed to achieve compliance. They were as follows:

4.6.1. **Declared Distances and Arrestor Beds.** A Special Task Force developed written guidance using aircraft landing and takeoff performance relative to reporting directional runway lengths, known as Declared Distances. This alternative offered potential means of compliance without incurring additional infrastructure costs. For cases where declared distances were not beneficial, additional guidance materials was developed based on EMAS, an overrun arrestor system to achieve compliance. However, Annex 14 lacked SARPs for such applications.

4.6.2. **Annex 14, Volume I Acceptances of CAR/SAM AGA Alternatives.** Over a period of 10 years the ICAO Aerodrome Design Working Group (ADWG) to the Aerodrome Panel (Montreal) recognized the written guidance established by the AGA Committee. Those alternatives gained acceptance as alternatives to RESA SARPs under Annex 14 (reference Chapter 3 and Green pages of Annex 14, Volume I.)

4.7. **Annex 14, Amendment 13A - Adoption of Open-air Water Conveyances.** Removal of tropical storm water from runways has been identified by USOAP as a top-ten global non-compliance issue for international aerodromes. Transportation of water from the runway through the runway strip is normally done by open-air water conveyances (uncovered) in many GREPECAS countries. Beginning over a decade ago, AGA Committee sought clarification on the usage of uncovered water conveyances namely, adoption of SARPs within Annex 14 to permit their usage. GREPECAS member states, primarily Brazil, working within ADWG of the Aerodrome Panel were successful. The 2016 issuance of Amendment 13A to Annex 14, Volume I will now permit their usage.

4.8. **Other Achievements** – See AGA Committee Reports.

## 5. **Conclusion**

5.1. There is an urgent need to address the significant aerodrome certification and runway safety needs in the Latin American and Caribbean Region. A single, integrated effort is therefore proposed as a new strategy for the GREPECAS Member States. The strategy for performing activities under the umbrella of an AGA Committee is based on previous successes and methodologies, and would provide many benefits, including:

- Increasing the collaboration and participation of member States to determine common, regional solutions;
- Integrating several Regional AGA Project Activities under a single umbrella, thereby reducing both assigned staffing and several resource expenditures; and
- Improving the usage of PANS Aerodromes, Doc 9981, to determine regional methodologies allowing Member States greater compliance with Annex 14 SARPs.

5.2. The strategy as presented in this working paper provides a comprehensive solution to the concerns raised by the Directors of Civil Aviation for the NACC Region during their ICAO/NACC/DCA/6 meeting, and helps to address the draft conclusion NACC/DCA/6/8, which calls for, “The Effective and Joint Work on Aerodrome Certification and Aerodrome Safety Improvements.”

6. **Suggested Action**

6.1. The Meeting is invited to:

- a) note the contents of this working paper;
- b) support the AGA Umbrella Strategy, and note that the United States offers to participate in the proposed AGA Committee as an active member state and contributor.

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