



ICAO

*International Civil Aviation Organization***Twenty Eighth Meeting of the Communications/
Navigation and Surveillance Sub-group (CNS SG/28)
of APANPIRG**

Bangkok, Thailand, 01-05 July 2024

Agenda Item 9: Regional implementation review and updates

9.5 Contingency Planning for CNS/ATM Infrastructure

**GUIDANCE DOCUMENT FOR ACHIEVING HIGH RESILIENCE IN
SUSTAINING OPERATIONS OF CRITICAL AERONAUTICAL INFRASTRUCTURE**

(Presented by Hong Kong, China)

SUMMARY

This paper outlines the need for a guidance document to consolidate experience from States/Administrations for achieving high resilience in operations of Critical Aeronautical Infrastructure, summarizes the core elements for inclusion into the guidance document, and proposes a way forward to developing the guidance document.

1. INTRODUCTION

1.1 A Working Paper (WP/17) was presented by Hong Kong, China during CNS Sub-group/27 meeting to share experience and best practices in the planning, design, implementation and maintenance of Critical Aeronautical Infrastructure (CAI) for achieving high resilience in supporting its round-the-clock operations. Considering the significance of this subject, the meeting requested the ICAO Secretariat to consolidate relevant experience from States/Administrations into a guidance document for future reference (**ACTION ITEM 27-11**).

1.2 This paper aims to outline the core elements considered necessary to serve as a framework to the guidance document, and suggests a way forward to developing the guidance document. Recognizing the variety in operational environment in different Air Navigation Service Providers (ANSPs) across the region, sharing of experience, best practices and recommendations from States/Administrations and international organizations are encouraged to further enhance the comprehensiveness and applicability of the guidance document.

2. DISCUSSION

2.1 CAI refers to critical aeronautical infrastructure that needs to maintain uninterrupted operations to sustain the round-the-clock provision of air navigation services. Any degradation in the performance of systems and supporting electrical and mechanical facilities within CAI may lead to disruption to its operations and even induce closure of the Flight Information Region (FIR) as the last resort fail-safe measure. The guidance document aims to provide States/Administrations with a

comprehensive framework with best practices and recommendations for achieving high resilience in supporting round-the-clock operations of CAI, thereby safeguarding the safety and efficiency of air navigation services.

2.2 Based on experience shared by Hong Kong, China during the CNS Sub-group/27 meeting, it is recommended that the following core elements are to be included into the guidance document for planning, design, implementation and maintenance of CAI in achieving high resilience:

Core Elements

- ANS Systems Architecture and Design
- Location and Route Diversity
- Power Source and Genset
- Uninterruptible Power Supply
- Air Conditioning
- Comprehensive Maintenance
- Competence, training and drills

2.3 Resilience, redundancy and robustness are important considerations for the above core elements, so as to cope with unexpected emergency circumstances induced by natural disasters or human errors. These core elements outlined above are not exhaustive and will be further developed and enriched during the course of development of the guidance document. Additional elements may be identified and included to ensure comprehensive coverage and address specific needs or considerations.

2.4 States/Administrations and international organizations are encouraged to actively participate in the development of the guidance document by sharing relevant experience, best practices and recommendations in the planning, design, implementation and maintenance of CAI for achieving high resilience. With the collaborative efforts from the APAC region, the guidance document could be shaped in a way that provides guidelines and recommendations for achieving high resilience in CAI.

2.5 It is recommended that the ICAO APAC Office to organize a workshop and invite relevant experts from States/Administrations and international organizations to participate. The outcomes of the workshop could then form a basis for further consolidating into an initial draft of the guidance document for the region.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) encourage CAAs/ANSPs and international organizations to share their relevant experience, best practices and recommendations in ensuring high resilience in CAI for supporting continuous safe and efficient air navigation services;
- b) request the ICAO APAC Office to organize a workshop to serve as a platform for facilitating (a) and work with volunteered States/Administrations in consolidating outcomes of the workshop into an initial draft of the guidance document for the region; and
- c) discuss any relevant matter as appropriate.
