



WORKING PAPER

ASSEMBLY — 42ND SESSION

EXECUTIVE COMMITTEE

Agenda Item 18: Capacity Development Implementation Support - Policy and Activities

**ADDRESSING GLOBAL SHORTAGE OF QUALIFIED OVERSIGHT PERSONNEL
IN CIVIL AVIATION AUTHORITIES: STRENGTHENING REGULATORY CAPACITY
FOR AVIATION SAFETY AND SECURITY**

(Presented by the United Arab Emirates)

EXECUTIVE SUMMARY

This paper draws attention to the escalating global shortage of qualified personnel across the key functional areas of CAAs, including technical and safety oversight, economic regulation, airspace and environmental management, aviation security, and accident investigation, surveillance, and integration of new aviation technologies and oversight tools.

The paper identifies the root causes of this shortage and proposes three strategic actions, grounded in ICAO's Next Generation of Aviation Professionals (NGAP) Strategy and Global Aviation Safety Plan (GASP) 2023–2025.

The Assembly is invited to endorse these actions and support their integration into ICAO's implementation programs.

Action: The Assembly is invited to:

- a) Acknowledge the global shortage of technical, safety, and aviation security oversight personnel within CAAs and its implications.
- b) Urge ICAO and Member States to integrate comprehensive regulator workforce planning into national aviation safety and security programmes.
- c) Urge ICAO and Member States to enhance regional collaboration for training, capacity-building, and knowledge sharing.
- d) Call upon ICAO to expand access to advanced digital technologies and competency-based training platforms, such as TRAINAIR PLUS.
- e) Support the integration of these actions into existing ICAO frameworks including NGAP, GASP, GAsEP, and the Global Aviation Training (GAT) framework.

*Strategic
Goals:*

This working paper relates to Strategic Goals and high priority enabler on NGAP.

<i>Financial implications:</i>	The proposed actions are expected to be implemented within existing ICAO budgetary allocations and supplemented through voluntary contributions and in-kind support from Member States and industry partners, where appropriate.
<i>References:</i>	Doc 10070, <i>Manual on Competencies for Civil Aviation Safety Inspectors</i> Doc 10140, <i>Assembly Resolutions in Force</i> ICAO NGAP Strategy ICAO Global Aviation Safety Plan (GASP) 2023–2025 ICAO USOAP Audit Results, 2023 ICAO NGAP Survey, 2022-2023 ICAO GAT Annual Training Report, 2023

1. INTRODUCTION

1.1 National Aviation Authorities (NAAs) oversee aviation safety, which includes licensing, certification, surveillance, and enforcement functions. These responsibilities rely on the availability of trained, qualified, and adequately resourced personnel. However, an increasing number of States are experiencing a shortage of such personnel, which undermines their ability to fulfill their obligations under the Convention on International Civil Aviation and ICAO Standards and Recommended Practices (SARPs).

1.2 ICAO's Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach results show that 42 percent of audited states scored below 60 percent in effective implementation in critical areas directly dependent on human resources, including personnel licensing (58% global average), oversight organization (55% global average), and operations oversight (62% global average). Staffing constraints were identified as the primary contributing factor in 67 percent of significant findings, with inspector shortages and inadequate succession planning noted in 78 percent of Coordinated Validation Missions (CVMs) conducted between 2021 and 2023.

2. PROBLEM STATEMENT

2.1 A convergence of long-term structural challenges and acute external pressures has created a critical shortage of qualified oversight personnel within Civil Aviation Authorities (CAAs) worldwide. The primary contributing factors include an aging workforce (with an average age of 52 years in developed countries), inadequate recruitment pipelines, CAAs reporting difficulty in attracting qualified candidates, non-competitive compensation packages that average below those in the private sector, and limited career advancement opportunities within regulatory frameworks.

2.2 The COVID-19 pandemic accelerated attrition through hiring freezes, early retirements, and changes in professional priorities. In a 2023 ICAO survey of 70 States, nearly 50 per cent reported that more than one-third of their technical personnel were expected to retire or leave within the next 10 years, with no formal succession planning in place.

2.3 The shortage is particularly acute in specialized areas such as airworthiness, flight operations, and air navigation services. Emerging oversight domains, including uncrewed aircraft

systems (UAS), cybersecurity, and sustainable aviation regulation, require new competencies that many Civil Aviation Authorities (CAAs) are not currently equipped to provide.

3. OPERATIONAL IMPACTS

3.1 The personnel shortage has led to delayed certification and surveillance activities, reduced responsiveness to safety risks, and limitations in the adoption of performance-based oversight approaches. In several ICAO Coordinated Validation Missions (CVMs) conducted between 2021 and 2023, the absence of qualified inspectors directly contributed to findings related to inadequate surveillance and oversight of the Safety Management System (SMS).

3.2 The lack of qualified personnel also delays the integration of new operators and technologies into the aviation system, hindering innovation and slowing the adoption of digital and sustainable aviation solutions. This has implications for the State-Level implementation of ICAO initiatives, such as the Long-Term Aspirational Goal (LTAG) on climate and the integration of new entrants into controlled airspace.

4. STRATEGIC CONTEXT

4.1 ICAO's Next Generation of Aviation Professionals (NGAP) Strategy and the Global Aviation Safety Plan (GASP) 2023–2025 provide a comprehensive policy framework for addressing workforce sustainability. This includes guidance on competency-based training, raising awareness, fostering institutional collaboration, and promoting inclusion. Digital transformation is specifically highlighted, showcasing data-driven regulatory oversight and the evolving role of digital technologies, including AI, in enhancing training, improving oversight efficiency, and facilitating proactive risk assessment.

4.2 Despite these frameworks, implementation remains inconsistent. A NGAP implementation review undertaken in 2022 found that only 27 percent of states had a formal national workforce development strategy covering their aviation authorities. The effectiveness of existing training programs is limited by resource constraints and uneven access, especially in developing countries and small island developing states (SIDS).

5. CONCLUSION

5.1 The global shortage of qualified oversight personnel represents a structural threat to aviation safety, security and regulatory resilience. Addressing this challenge is crucial to achieving ICAO's strategic goals and enabling innovation and growth in the air transport sector.

5.2 The recommended strategic actions are practical, evidence-based, and aligned with existing ICAO programs. Their adoption and integration into NGAP, GASP, and GAT will provide Member States with the necessary tools to build a resilient and future-ready regulatory workforce.