

**58<sup>th</sup> CONFERENCE OF  
DIRECTORS GENERAL OF CIVIL AVIATION  
ASIA AND PACIFIC REGIONS**

*Dhaka, Bangladesh  
15 to 19 October 2023*

**AGENDA ITEM 3: AVIATION SAFETY**

**ADDRESSING THE WORKFORCE AND ORGANIZATIONAL  
CHALLENGES BROUGHT BY AAM AND OTHER NEW AND  
NOVEL TECHNOLOGIES**

(Presented by the Republic of Korea, and co-sponsored by the United States/Federal  
Aviation Administration)

**SUMMARY**

The aviation safety landscape is evolving at a rapid pace with a confluence of changes in aviation business models, aircraft technologies, new urban mobility modes as well as shifting consumer needs and expectations. The aviation safety workforce, which is highly specialized, will have to respond and adapt to the changing environment in a timely manner. The long term needs for States to attract, train, qualify and retain aviation safety professionals will be vital to ensure the safety of air travel and address the growth required by regulatory bodies to oversee the industry. Therefore, the paper proposes identifying international cooperation measures to meet these changes and to narrow the gap in workforce capabilities.

## **ADDRESSING THE WORKFORCE AND ORGANIZATIONAL CHALLENGES BROUGHT BY AAM OR NEW AND NOVEL TECHNOLOGIES**

### **1. INTRODUCTION**

1.1 Staffing challenges remain a major challenge for CAAs as they adapt to the continued growth and rapid pace of innovation in the aviation industry. The need for qualified aviation safety professionals involved in certification and airworthiness engineering and inspection is amplified as AAM proliferates and new aircraft types challenge regulatory frameworks that were designed to oversee more conventional aircraft and operations. This places greater demand on our abilities to certify aircraft as airworthy and ensure the safe integration of new and novel technologies into our collective airspace.

1.2 In order to respond to the rapidly developing and increasingly complex aviation environment, it is essential to evolve the capabilities required of qualified aviation safety professionals. Of course, traditional technical skills are needed, but there is a need to develop new skills and capabilities to meet the challenge.

1.3 Many CAAs are emerging as States of Design and Modification due to the advent of AAM. CAAs that are emerging as States of Design will need to expand their organizations and train certification personnel to prepare for this new environment

1.4 This paper aims to explain the major international trends shaping the aviation landscape, and their impact on the role of qualified aviation safety professionals, and to discuss possible solutions to address this situation.

### **2. DISCUSSION**

#### **Developing qualified aviation safety professionals to respond to new challenges**

2.1 Countries entering as States of Design due to the introduction of AAM and the development of new technologies may not have technical experience in aircraft certification, nor the appropriate operational experience to integrate these aircraft into their airspace. These countries may also be challenged in training airworthiness engineers to the appropriate levels. ICAO has provided guidance in its Manual on the Competencies of Civil Aviation Safety Inspectors (Doc 10070) on the required core technical competencies of safety inspectors. Government Safety Inspector training programmes have also been developed by ICAO, and conducted by TRAINAIR PLUS Programme (TPP) training centres worldwide, to ensure a high level of quality and standardisation in the training of safety inspectors in core technical competencies globally. However, in ICAO, there are no manuals and education and training programs related to personnel for airworthiness engineering.

2.2 Developing standardized curriculum or training programs on airworthiness engineering subjects would be critical to up-level the abilities of authority staff who oversee these new technologies.

2.3 As the number of certification projects may vary across countries, there is a need to provide sufficient opportunities for certification staff across the region to be able to practice and implement knowledge gained from standardized curriculum or training programs.

2.4 Finally, creating opportunities for mentoring and the regular sharing of best practices and experiences gained from different regional authorities would enhance and help institutionalize growth in certification capability.

#### **The importance of international cooperation**

2.5 In recent years, the State of Design and the State of Manufacture are often different, and suppliers are often placed abroad, so cooperation between the state of design and the manufacturing country is necessary. This provides numerous opportunities for knowledge sharing, on-the-job training,

and the sharing of best practices which contribute to up-leveling the capabilities of CAAs to address this new environment.

2.6 International cooperation may be difficult at the current level due to differences in training curricula and duration between countries. International cooperation may also be difficult due to differences in authority capabilities as well as the availability of human resources. Looking for commonalities to create more standardized training across the region or globally would benefit authorities who are developing certification and airworthiness capabilities.

**Great opportunity to reduce gender gap**

2.7 ICAO's latest global survey on the status of licensed aviation personnel by gender reveals that the participation of women holding positions as pilots, air traffic controllers, and maintenance technicians has increased on an overall basis from 4.5% globally in 2016, to 4.9% in 2021. The percentage of women pilots in service is 4.0% globally, air traffic controllers remained stable globally at around 20.6% and aircraft maintenance engineers and technicians is 3.0% worldwide. It can be seen that the female participation rate in aviation technology is the lowest.

2.8 With the advent of AAM, a strong and diverse workforce to prepare for new technologies is essential. Considering gender equality in the initial preparation for this new workforce training, it expect it would still help close this critical aviation gender gap.

2.9 Given the need for aviation professionals across all specialties and occupations, but especially with engineering and airworthiness specialists, there needs to be a concerted effort to identify opportunities to provide underrepresented groups with focused opportunities to grow their individual technical and professional capabilities.

2.10 Identification of organizations that support underrepresented groups and inviting them to join in addressing the workforce challenge could potentially bring more resources and the ability to grow the certification and airworthiness workforce.

2.11 Connecting underrepresented groups across the region could be an easily implementable first step to address this challenge.

**3. ACTION BY THE CONFERENCE**

3.1 The Conference is invited to:

- a) Request ICAO and States/Administrations to develop more tools and guidance materials to build the new competencies of its airworthiness engineer.
- b) Consider cooperative measures for the training of engineers in the Asia-Pacific region.

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