

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

*Dhaka, Bangladesh  
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**AGENDA ITEM 1:     THEME TOPIC**

**PROMOTING GENDER EQUALITY AND SUPPORTING THE  
DEVELOPMENT OF NEXT GENERATION OF AVIATION  
PROFESSIONALS (NGAP) IN ASIA PACIFIC**

[Presented by India, United States of America and  
the International Coordinating Council of Aerospace Industries Associations (ICCAIA)]

**SUMMARY**

To support the long-term growth of the aviation sector in Asia Pacific, States and the aviation industry have to actively invest in human resources to ensure that the quantity and quality of aviation professionals keeps pace with the needs of the sector. Strategies include advancing gender equality policies; implementing programs to recruit, develop and retain talented, educated and experienced personnel; promoting Science, Technology, Engineering, and Mathematics (STEM) education and advanced technical skills development; and working with educational institutions to establish a career pipeline.

Greater gender equality and diversity plays an important role in addressing the sector's labor challenges and needs. This was highlighted at the ICAO 41<sup>st</sup> Assembly and at the July 2023 ICAO Gender Summit. In collaboration with the industry, India and the United States have taken concrete steps to promote greater gender equality. The Conference is invited to note the positive examples and recommendations in this paper.

## **PROMOTING GENDER EQUALITY AND SUPPORTING THE DEVELOPMENT OF NEXT GENERATION OF AVIATION PROFESSIONALS (NGAP) IN ASIA PACIFIC**

### **1. INTRODUCTION**

1.1 Over the past decade, Asia Pacific has become the fastest growing region in the world for commercial aviation. Even though the region’s recovery post-pandemic was off to a slow start due to the patchwork of States’ policies, traffic in the region has recovered to nearly 75% of pre-pandemic levels and is poised for a strong recovery in traditional operational models this year. The International Air Transport Association (IATA) and a number of aviation consultancies have reaffirmed the fundamental long-term growth drivers in the region, such as the rising middle class, economic growth, along with opportunities for new operations based on innovative technologies such as advanced air mobility. To achieve this growth, States and aviation industry have to actively invest in human resources to ensure that the quantity and quality of human resource keeps pace with the needs of and changes in the sector.

### **2. DISCUSSION**

#### **2.1 Future-Proofing the Aviation Human Resource Pipeline**

2.1.1 In view of an anticipated shortage of educated, skilled and trained aviation professionals in the near future, ICAO launched the Next Generation of Aviation Professionals (NGAP) initiative in 2009 to ensure that enough qualified and competent aviation professionals are available to operate, manage, maintain, and grow the future international air transport system. While considerable progress has been made, the challenges of a lack of harmonized competencies in some aviation disciplines, access to affordable training identified by ICAO in mid-2000s, and professional development and retention programs remain relevant to Asia Pacific today.

2.1.2 The Asia Pacific region will benefit from robust policy and human resource planning, especially in light of the sector’s prospects for sustainable growth in traditional operational models and the need for an expanded workforce to fulfill a quickly changing operational environment due to technological innovation based on current labor challenges. Strategies to future-proof the aviation sector include advancing gender equality policies; implementing programs to recruit, develop and retain talented, educated and experienced personnel; promoting Science, Technology, Engineering, and Mathematics (STEM) education and advanced technical skills development; and working with educational institutions to establish a career pipeline.

#### **2.2 Advancing Gender Equality**

2.2.1 In India, the National Policy for Empowerment of Women was launched in 2001 with the objective of holistically developing and empowering women to fill the existing gender gaps in the country. India has also developed a unique approach to empower women by supporting girls from a young age at the grassroot level. Major female empowerment initiatives such as “Beti Bachao, Beti Pado” (*Save the girl child, educate the girl child*) and “Sukanya Samridhi Yojana” (*Scheme for prosperity of the girl child*), amongst others, have helped to promote gender equality and benefit the aviation industry downstream. In furtherance of its commitment to a “women-led development” of the country, the Indian government launched in 2021 an integrated women empowerment program under the name ‘Mission Shakti’ (*Mission Power*).

2.2.2 Milestones such as the first female pilot flying solo flights in India from as early as 1936 and an all women crew of Air India making history by flying the longest direct flight route from Delhi to San Francisco in 2017 have constantly served as a bedrock of inspiration promoting and enabling women-centric policies and legislations. Today, India has one of the highest percentage of women working in the aviation sector, especially in the pilot community where 15% of pilots are female

and an even greater proportion among flight despatchers, air traffic controllers, and other aviation occupations.

2.2.3 Separately in the United States, the U.S. Federal Aviation Administration (FAA), which put in place specific programs to specifically recruit women over 50 years ago, notes that in the FAA workforce, approximately 16% of air traffic controllers are women and 32.97% of executives are female. While these statistics have improved over the years, they still reflect a comparatively lower proportion of women within aviation systems around the world. By embracing gender equality and diversity, the aviation sector will be able to tap into an expanded and diverse pool of human resources and talent.

2.2.4 Recognizing the importance of gender equality as a key driver in addressing the industry's labor challenges, ICAO passed Assembly Resolution A41-26: ICAO Gender Equality Programme supporting the participation of women in the global aviation sector. Resolution A41-26 provides a framework for the promotion of gender equality and the empowerment of women within the aviation sector.

2.2.5 Efforts to advance gender equality and diversity can be grouped into two broad categories: i) professional development and retention of the current female workforce and ii) creating an education and career path that encourages more women to participate in the sector. The second category will be addressed in tandem with the two other strategies outlined in Sections 4 and 5.

2.2.6 Employers in the aviation sector may retain more women professionals by enforcing the notions of decent work, which include possibilities for fair compensation, a secure, safe, and healthy workplace, and equal opportunity and treatment for all women and men. Initiatives which support an enabling work environment include: enhancing organizational culture; equally valuing and rewarding work done by women; implementing flexible work arrangements while taking into account applicable labor obligations; developing family-friendly policies; providing child care options; re-employment programs for women who previously left the workforce; and promoting work-life balance for women and men. An example of family-friendly policies is the enhancement of paid maternity leave in India. India is amongst few countries which has increased its legal provision of paid maternity leave from 12 weeks to 26 weeks, and mandated the provision of crèche facility in establishments with 50 or more employees. This move has encouraged more women to take up employment.

2.2.7 In addition, employers can also aid women in the advancement of their professional careers by addressing the institutionalized perceptions, biases (overt and unconscious), and discriminatory practices that prevent them from succeeding in their chosen fields, and by creating supportive human resources policies on providing high-quality leadership, technical, vocation and/or professional training, providing opportunities for coaching and mentorship, and actively valuing and promoting women within their own organizations. Employers can also encourage senior male executives to become allies in advocating for equal opportunities. An example of an initiative which aims to address institutionalized bias and develop a network of male allies is the industry-wide cross-company mentorship program launched by the Women in Aviation International Singapore Chapter in March this year. The mentorship program has been designed to achieve these objectives and supports the professional development of mid-level female aviation professionals by connecting them with senior/C-Suite leaders in the industry.

## 2.3 **Promoting Stem Education And Women In Aviation**

2.3.1 STEM subjects should be contextualized in terms of recent technological developments that address the new needs of society, particularly in the fields of sustainability, elder care, biomedical science, the Internet of Things, Artificial Intelligence, Big Data, robotics, and unmanned automated vehicles. This is important to encourage students to pursue STEM fields from an early age. Modernizing courses and relating them to students' real-world experiences would benefit from an explicit effort to connect fundamental ideas with cutting-edge technologies.

2.3.2 It is important to match student interests and skills. This requires designing a set of modular technical challenges with appropriate support for different student needs. To prepare learners for the 21<sup>st</sup> century workforce, schools should consider using technology-enhanced collaborative learning. At the policy level, research is also needed to review the educational goals and policies of countries in Asia Pacific. As every country is unique in culture and constitution and has diverse development needs, countries should review their educational goals for relevance to the new international landscape and contextualize to their countries' development objectives, in order to promote a more coherent and comprehensive STEM curriculum while encouraging the next generation to choose the aviation sector as a career choice.

2.3.3 Consistent with these needs, the FAA has a STEM Aviation and Science Education (AVSED) program for students in kindergarten through high school, in order to introduce them early and often to aviation concepts and careers. This program consists of outreach to students through signature programs, as well as through engagement on a local level by individual FAA employees. On a national level, the FAA has developed an Adopt-a-School program aimed at introducing students at the critical age of 10 years old to aviation concepts and careers. Additionally, the FAA runs a year-round Airport Design Challenge aimed at introducing students to aviation concepts and careers as they recreate real world airports in the Minecraft video game. This challenge is open to students around the world.

2.3.4 The FAA's Federal Women's Program provides public training and outreach throughout the year on YouTube that are available to everyone throughout the world, in addition to a wide variety of FAA, U.S. government and publicly focused efforts. Specifically in advance of DGCA/58, the FAA's Office of International Affairs hosted a Women in Aviation virtual event in March 2023 to promote opportunities for women in aviation and the need for support among policy, finance, workforce development, and education officials throughout the Asia Pacific for diplomats in Washington, DC. Women leaders from the FAA shared their stories about their career paths and experiences while the FAA and industry associations offered insights about challenges, success and opportunities associated with gender equality programs. The goal was to build momentum among key decision-makers to advocate for gender equality and to move forward with efforts identified during DGCA/58 to create a positive environment for women to choose and remain in a career in the aviation sector.

2.3.5 In India, initiatives have been developed to promote women in STEM. Vigyan Jyoti was launched in 2019 by the Department of Science and Technology to create a level-playing field for meritorious girls in high school in order to encourage their pursuit of a career in STEM. It also enhances rural female students' exposure to STEM-related careers, helping them to chart their course from school to a job of their choice in such related fields. Other schemes to promote women in STEM include the Gender Advancement for Transforming Institutions (GATI), Women Scientists Scheme, and the Consolidation of University Research for Innovation and Excellence in Women Universities (CURIE) Program. The efficacy of the aforementioned initiatives has produced a commendable result in India, with nearly 43% of the total graduates in STEM being women – one of the highest in the world. Recently, the Indian Space Research Organization revealed that over 100 women scientists and engineers played a significant role in conceptualizing, designing, realizing, testing and execution of the highly successful Chandrayan-3 (CH-3) mission.

## 2.4 **Establishing a Development and Career Pipeline with Education Institutions and Industry Partners**

2.4.1 A well-designed development pipeline will help to encourage STEM education and close the skills gap. Promoting in-person aviation learning among primary/elementary school students, including Girls in Aviation events encourages interest in STEM education. By offering secondary/high school students demanding coursework as well as early links to and experiences in the sector through work-based learning activities like job shadowing and paid internships solidifies these interests. In the U.S., examples of high school engagement exist in the Choose Aerospace and Aircraft Owners and Pilots Association (AOPA) Foundation High School Aviation STEM curriculum programs, which are

focused on aviation maintenance, piloting and drones. Development pipelines give students the opportunity to investigate potential careers in a range of areas, develop technical skills, and prepare the road for a rewarding career. The aviation sector can invest time and resources to provide work-based learning experiences at the tertiary/university level, from job shadowing to mock interviews to paid internships.

2.4.2 With ICAO's goals in mind, a new initiative is also being initiated by ICCAIA, partner industry associations and likeminded States to address the issue of workforce shortage in the industry. Building on existing domestic programs and international work, a new Taskforce is being created to increase ambition globally on aviation skills. The work will focus on both the current and future skills shortages faced by the global aviation sector, how the sector is anticipated to change and how to ensure we have a workforce that is sustainable and ready for future challenges. The taskforce will contribute to the work of ICAO in the longer term as we prepare for the next General Assembly and provide inputs to the revamped NGAP program.

2.4.3 In similar vein, the Directorate General of Civil Aviation (DGCA) India constituted a committee in August 2023 which will study and analyze the human resources in the Indian aviation industry, and provide suggestions for the steps to be taken by DGCA India to achieve gender equality in civil aviation sector in India within six months from the date of its constitution.

### **3. ACTION BY THE CONFERENCE**

3.1 The Conference is invited to:

- a) Note the contents of the paper and the importance of building a talent pipeline to future-proof the growth of the aviation industry for traditional and innovative operational models;
- b) Recognize the need for and development of gender-specific statistics for the Asia Pacific region and Member States to support implementation of inclusive programs representative of the circumstances;
- c) Encourage continued outreach and promotion of programs and policies to sustain momentum and continue to diversify educated, trained and experienced aviation professionals;
- d) Work with industry associations to promote gender diversity within the aviation sector, in line with ICAO Assembly Resolution A41-26 and the objectives set at the ICAO Gender Summit held in Madrid, Spain, on 5-7 July 2023; and
- e) Consider working with their respective ministries or departments responsible for education, diversity, finance and workforce development within their States and Administrations to promote STEM and aviation studies, as well as vocational and technical skills, to students of all ages.

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