International Civil Aviation Organization

First Meeting of the APAC ANSP Committee (AAC/1)

Bangkok, Thailand, 17 – 18 April 2023

Agenda Item 3: Work Program

REMOTE TOWERS AND REMOTE TOWER CENTER IMPLEMENTATION IN MALAYSIA

(Presented by Malaysia)

SUMMARY

This paper presents the concept of remote tower operation and remote tower centres for air traffic services. Malaysia is exploring the use of remote tower and centres to meet the demands of air travel while maintaining high standards of safety and efficiency. The implementation of remote towers centres will serve as a centralized hub for managing multiple remote towers involving medium-density aerodromes. While there are challenges to implementing this technology, careful planning and execution can help address these challenges and provide a more modern and efficient air traffic control system for Malaysia's airports

1. INTRODUCTION

1.1 The remote tower operation concept aimed for air traffic services to be given remotely without the need for direct observation from a local tower. It provides a view of the aerodrome and its vicinity, enabling the air traffic control officer to conduct visual surveillance using digital means rather than relying on the view provided from the visual control room using the naked eye and binoculars.

1.2 A remote tower centre (RTC) is a centralised facility that manages air traffic control services for multiple airports, which can increase efficiency and reduce costs. Instead of deploying resources at each airport, centralised resources can handle several airports and employ a steady workload, which can result in a more streamlined and cost-effective operation.

2. DISCUSSION

2.1 Malaysia is exploring the use of remote tower technology and remote tower centres to meet the demands of air travel and upgrade airport operations, as there is a need for expansion and upgrading of the infrastructure. These solutions can avoid costly traditional air traffic control infrastructure upgrades and an increase in personnel while improving safety and efficiency through advanced cameras and sensors.

2.2 However, the implementation of remote towers and centres also comes with several challenges. One of the main challenges is the need for reliable and secure communication systems. Remote towers and centres rely on communication systems to transmit data and video feeds between

the remote location and the airport. This requires a reliable and secure network infrastructure, which can be expensive to implement. Another main challenge is stakeholder acceptance. The digital tower environment differs from a conventional tower in various ways, including its setup, tools, and systems, as well as factors such as the aesthetics of the workplace and other elements that may affect the well-being and job satisfaction of air traffic controller.

2.3 While remote tower technology is typically implemented in low-density aerodromes, Malaysia is planning to introduce remote towers as the primary means of air traffic control in medium-density aerodromes. Aside from that, Malaysia is also planning to establish RTC, which will serve as a centralised hub for managing multiple remote towers across the country.

2.4 By centralising the functions of air traffic control, RTCs can achieve optimised air traffic management, greater efficiency, and streamlined operations, all while minimising costs through the full utilisation of their manpower. RTCs eliminate the need for on-site control towers at multiple airports, which can be costly to maintain. Personnel can be fully utilised by enabling one controller to monitor three airports simultaneously during night shifts with low traffic. The introduction of RTCs can foster the adoption of standardised procedures and training across various airports, resulting in a more uniform and efficient air traffic management system.

2.5 In 2022, it was recorded that there were approximately 700, 000 traffic movement across the twenty-five (25) air traffic control towers in Malaysia, and this number is expected to increase in the near future. The traffic movement in the three (3) aerodrome in 2019 are as in table below;

Month	ATS X	ATS Y	ATS Z
Jan	6,410	4,846	6,028
Feb	6,082	4,271	5,814
Mar	6,735	4,841	6,761
Apr	6,752	4,475	6,190
May	6,527	4,556	6,392
Jun	6,808	4,733	6,689
Jul	7,089	5,007	7,784
Aug	6,955	5,150	7,082
Sep	6,569	4,460	6,045
Oct	6,940	4,809	7,059
Nov	7,039	4,904	7,034
Dec	7,131	4,722	7,524
Total	**81,037**	**56,774**	**80,402**

2.6 The implementation of remote tower services at ATS X, ATS Y, and ATS Z will be centralised into a single remote tower centre. The result and lessons learned from this implementation will be shared during the upcoming meetings.

2.7 In conclusion, the demand for air travel in Malaysia is expected to continue to increase in the future, and the implementation of remote towers and centers could help meet this demand while maintaining high standards of safety and efficiency. While there are challenges to implementing this technology, careful planning and execution can help address these challenges and provide a more modern and efficient air traffic control system for Malaysia's airports.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper;

b) encourage APAC ANSP Committee to share information on their experience and knowledge related to the introduction and implementation of remote towers and centres; and

c) discuss any relevant matters as appropriate.

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