International Civil Aviation Organization

Twenty Seventh Meeting of the Communications/ Navigation and Surveillance Sub-group (CNS SG/27) of APANPIRG

Bangkok, Thailand, 28 August – 01 September 2023

Agenda Item 9: Regional implementation review and updates

9.4 Contingency Planning for CNS/ATM Infrastructure

THE IMPORTANCE OF PREPARATION OF EMERGENCY EQUIPMENT FOR ATC AS RISK MANAGEMENT

(Presented by Japan)

SUMMARY

The damage caused by natural disasters has been become apparent all over the world, and in the Sustainable Development Goals (SDGs), Goal 13 target 13.1 states, "Strengthen capacity for resilience and adaptation to climate-related and natural disasters in all countries".
This paper reports preparing for disasters and the usage of emergency equipment for Air Traffic Control (ATC) which enabled for early resumption of flight, among the restoration of function of airport.

1. INTRODUCTION

1.1 In Japan earthquakes occur frequently, and we have experience that Niigata Airport implemented various response to restore functionality during the Niigata Chuetsu Earthquake in 2004, which was a strong earthquake with magnitude of 6.8 on the Richter scale. Based on the experience Japan has compiled the basic idea of the earthquake disaster response and the necessity of improvement of earthquake protection in 2007. We have promoted the development of an airport that can respond to disaster.

1.2 These initiatives enabled early resumption at Sendai airport, which was seriously Damaged by Tsunami caused by Great East Japan Earthquake on March 11, 2011. And the resumption of infrastructure of airport made a significant contribution for recovery in the region from the catastrophe.

1.3 This IP reports the operation of Transportable Radar Control System and Emergency VFR system for ATC, which enabled the early recovery of ATC systems required for operation of commercial flights after the catastrophe by such as earthquake, fire, Tsunami, and the training for the early resumption at the airport.

2. DISCUSSION

2.1 EMERGENCY EQUIPMENTS FOR ATC

2.1.1 Overview

Transportable Radar Control System (TRCS) and Emergency VFR system for ATC (EVA) will be used to ensure basic ATC function of an airport when a radar approach control function of the airport or a control tower of the airport is destroyed by catastrophe such as earthquake, fire, or others, and the recovery of the function is estimated to take a long time.

2.1.2 Transportable Radar Control System (TRCS) is able to transport by a medium size truck or helicopter, and this is composed of a compact shelter with a foldable antenna. A control room can be set up by connecting two shelters and it becomes a radar facility by setting up a foldaway antenna. The maximum coverage range of TRCS is 100 NM in radius and can detect the position and altitude information. The information is displayed by graphic on the radar display. It is also possible to communicate with pilot by VHF and with other ATS facilities by dedicated line or hot-line.

2.1.3 Emergency VFR system for ATC (EVA) is composed of lifting equipment, communication shelter, and control tower shelter for ATC. It is transportable by amedium size truck or helicopter. The control tower shelter and communication shelter have function as VFR operation room. It is equipped with communication function with flights by VHF and UHF, and with other ATS facilities by dedicated line or hot-line. It also enables to measure wind direction, wind speed, and altimeter setting at the area where this system had set up. The lifting equipment is capable of arbitrary height of 6m from 1.5m above ground to raise and lower the control tower shelter.

2.1.4 Storage situation

JCAB has introduced the emergency equipment for ATC since 1997. Currently JCAB has owned three sets of the TRCS equipment and EVA equipment each. Taking into the consideration of the disaster at the storage location, we store them separetely in 3 locations in Japan, Fukuoka Airport, Tokyo International Airport, and Osaka International Airport. Meanwhile we also use them as an alternative facility for temporary use when we renew radar system at an airport.

2.1.5 Training for disaster

JCAB conduct training of these systems regularly in order to enable early recovery when disaster occurs. Continuing training can be able to ensure the transfer of past experience and techniques.

2.1.6 Recent training conducted

2020 Osaka and Fukuoka Airport
2021 Tokyo, Kansai and Fukuoka Airport
2022 Osaka and Fukuoka Airport

2.2 CONCLUSION

2.2.1 Early resumption of operation at the airport is the most important for rapid recovery from disaster. And it is important to prepare emergency equipment for ATC and keep training as a risk management.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matter as appropriate

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