International Civil Aviation Organization

Twelfth Meeting of the South China Sea Traffic Flow Review Group (SCSTFRG/12)

Bangkok Thailand, 11 – 12 November 2024

Agenda Item 3: Review of the Existing Traffic Flow Route Structures in SCS Airspace and Identifying Priorities

ECONOMIC IMPACT OF DELAYED CAPACITY ENHANCEMENTS FOR SOUTHEAST ASIA – NORTHEAST ASIA TRAFFIC FLOW AND ALTERNATE A1 PARALLEL ROUTE STRUCTURE USAGE PLAN

(Presented by Thailand)

SUMMARY

This paper presents conservative economic impact of delayed capacity enhancements for Southeast Asia – Northeast Asia traffic flow and proposes an alternate usage of the proposed A1 parallel route structure.

1. INTRODUCTION

1.1 The meeting is reminded of discussion at the ICAO SEA-RR/TF/1 (December 2009) on instances of flow control restriction applied to eastbound traffic on A1/G86, due to planned route disruptions of ANS infrastructure, in the form of Minutes-in-Trail (MINIT), interval of which increased as the flow restriction passed downstream. In addition, the first proposal to establish parallel uni-directional route structure supplementing A1 and A202 was presented to prepare APAC regional route structure to support expected traffic growth between Southeast Asia – Northeast Asia.

1.2 Subsequently, during ICAO SEA-RR/TF/3 (November 2010), reduction of spacing requirement at FIR Boundary from 40NM in use to 30NM was proposed to increase route capacity by approximately 25 percent, while parallel route structure was being discussed. The reduction of spacing requirement was eventually achieved in April 2012 (19 months since proposal).

1.3 In 2012, the ICAO APANPIRG/23 meeting agreed to dissolve the SEA-RR/TF, while the task of developing A1 Parallel Route Structure was transferred to the South East Asia ATS Coordination Group (SEACG) Task List.

1.4 Consequentially, the ICAO SEACG/23 meeting (March 2016) discussed a proposed South China Sea Operational Concept developed through a workshop activity at ICAO SCS-MTFRG/3 meeting (February 2016) with targeted implementation timing of November 2017, which included parallel route structure supplementing A1.

1.5 ICAO SCSTFRG/4 (October 2016) further discussed blocking of FL390 on A1, while agreeing to the concept of reducing spacing requirement at FIR Boundary from 30NM to 20NM, further increasing capacity by 50 percent. Meanwhile, A1 parallel route structure was discussed. The spacing parameter reduction was subsequently implemented in March 2020 (3 years and 5 months since proposal).

1.6 In parallel, distributed cross-border ATFM operations in the Asia-Pacific region started its first operation in second half of 2016 with cross-border Ground Delay Program (GDP) implemented to address short-term demand-capacity imbalance at destination aerodrome.

1.7 Subsequently, distributed cross-border ATFM operations expanded to support airspace where demand exceeds capacity in 2017. Tactical flow restrictions reacting to airspace demand-capacity imbalance similar to described in para 1.1 was converted into Calculated Take-Off Time (CTOT) from departure aerodromes, providing enhanced predictability for affected stakeholders.

2. DISCUSSION

Economic Impact of Delayed Capacity Enhancement for Southeast Asia – Northeast Asia Traffic Flow

2.1 ATS Route A1 serves as a main trunk route connecting Southeast Asia – Northeast Asia. Traffic Sample Data published in SCSTFRG/12 WP/05 indicated that route segment KANGU-BUNTA (eastbound) and BUNTA-KANGU (westbound) supported total traffic of 7,948 flights in December 2019 (last pre-COVID-19 TSD) or approximately 265 flights/day.

2.2 As traffic resumes post-COVID-19, significant traffic congestion between Southeast Asia – Northeast Asia on A1 resurfaced.

2.3 Between April – September 2024, Bangkok ATFMU forwarded CTOTs for over 7,000 flights departing from aerodromes in Thailand towards Northeast Asia in relation to enroute traffic congestion on A1. These flights were assigned total of over 93,000 minutes of ATFM delay, an average of approximately 12 minutes/flight, with maximum assigned ATFM delay of 237 minutes.

2.4 University of Westminster study in 2004, updated in 2011 and 2015, indicated economic cost of approximately 100 euros for each minute of ATFM delay. This economic cost estimate includes fuel costs, aircraft maintenance costs, aircraft fleet costs, air crew costs, passenger costs and costs associated with further reactionary delays.

2.5 Accordingly, it is estimated that delayed implementation of capacity enhancements for Southeast Asia – North Asia traffic flow may induce at least 187,000 minutes of ATFM delay annually, with economic cost of approximately 18.7 million EUR/year or approximately 20 million USD/year.

2.6 It should be noted that the estimate in para 2.5 only includes eastbound traffic departing from aerodromes in Thailand. Total economic cost of delayed capacity enhancement implementation is expected to be higher if all A1 traffic in both eastbound and westbound direction are included.

A1 Parallel Route Structure Proposal

2.7 Since it has been eight years since A1 parallel route structure was last proposed, Thailand could not afford to wait for regional solution to accommodate Southeast Asia – Northeast Asia traffic increase.

2.8 Accordingly, domestic parallel route structure supplementing A1 route segments in Thailand (Y16 – BKK-BUTRA) was implemented in December 2016 to streamline management of eastbound departures from Bangkok or overflying Bangkok. The domestic parallel route structure mentioned is illustrated in **Figure 1**.

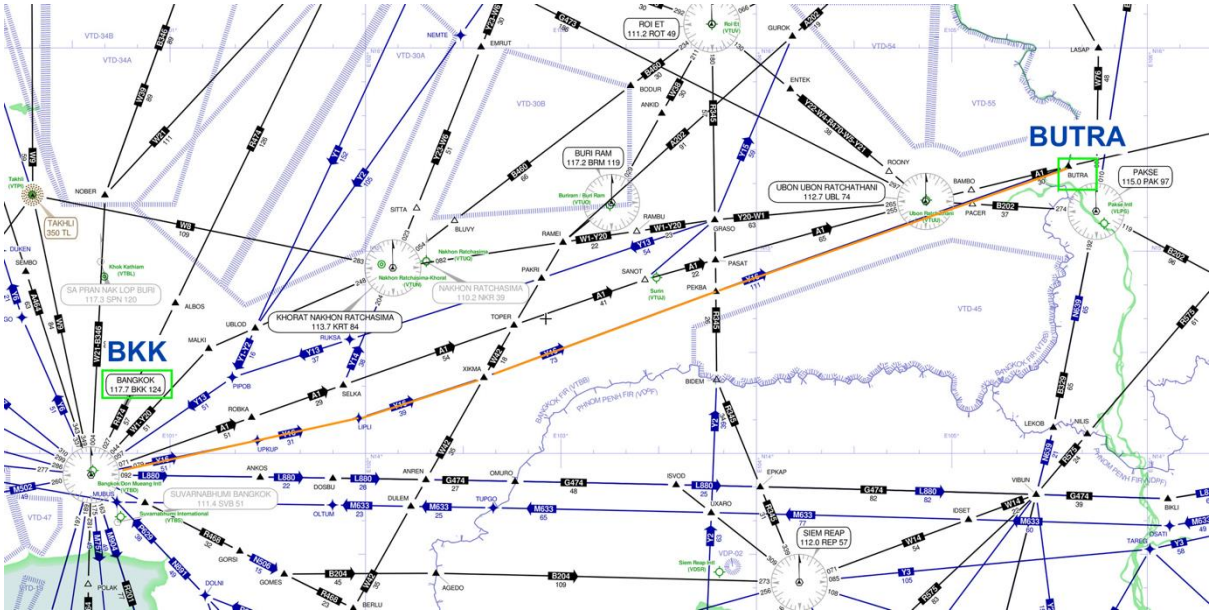

Figure 1: *Domestic Parallel Route Structure Supplementing A1(Y16) within Thailand Airspace (Dec 2016)*

2.9 Moreover, following continued discussion on utilization of planned parallel route structure supplementing A1, apparently with no potential agreement in sight, Thailand propose the following alternate route direction usage as illustrated in **Figure 2**.

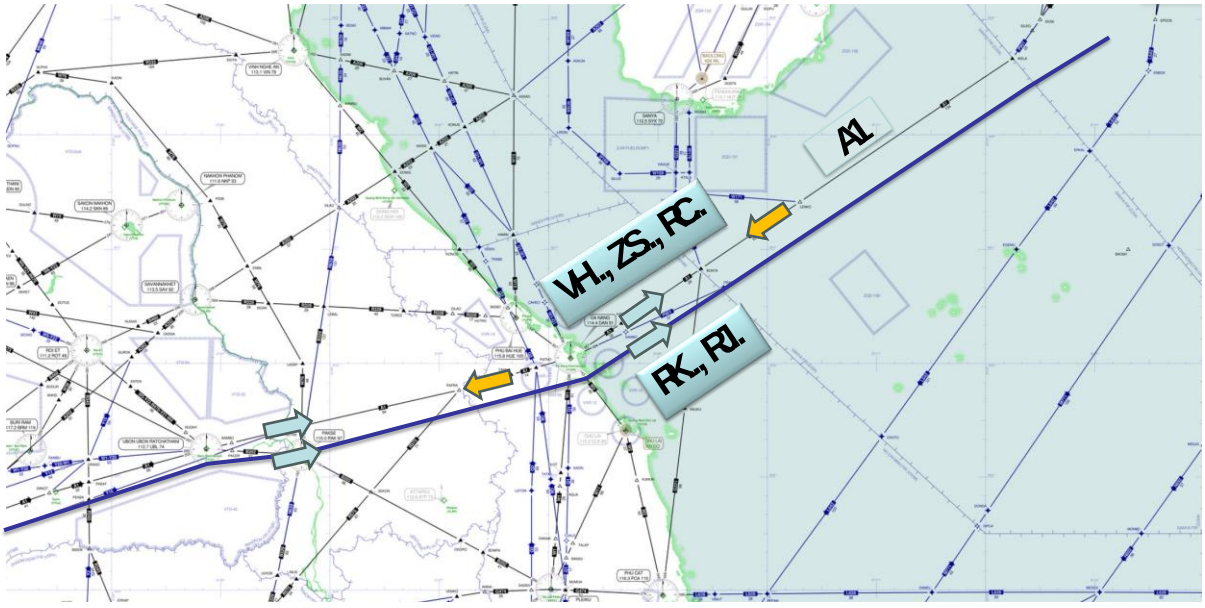

Figure 2: *Proposed Alternate A1 Parallel Route Structure Utilization Scheme*

2.10 It is expected that the proposal in **Figure 2** would serve as an alternate solution to the eight-year impasse, which already is causing significant economic impact as outlined in para 2.5 above.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper including economic cost of delayed implementation of capacity enhancements supporting Southeast Asia – Northeast Asia

traffic flow;

b) discuss potential solutions in implementing A1 parallel route structure to achieve capacity enhancements for Southeast Asia – Northeast Asia traffic flow and

c) discuss any relevant matters as appropriate.

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