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

PROGRESS REVIEW OF SCSTFRG PRIORITY AREAS

(Presented by the Secretariat)

SUMMARY

This paper presents the progress review of SCSTFRG Priority Areas to obtain States'/Administration's progress and commitment to set the implementation timelines for each Priority Area.

1. INTRODUCTION

1.1 Currently, the SCSTFRG has agreed to four Priority Areas. Priority Areas 1, 2 and 3 that were agreed during the SCSTFRG/3 (Bangkok, Thailand, 25 – 27 February 2016) and Priority Area 4 was agreed during the SCSTFRG/7 (Manila, Philippines, 05 – 07 November 2019). Information about the SCSTFRG Priority Areas are as follows:

a) **Priority Area 1: A1/A202** to reduce longitudinal spacing to at least 20 NM and to develop a parallel route to A1.

b) **Priority Area 2: L642/M771** to reduce longitudinal spacing to at least 20 NM and to investigate the possibility of implementing parallel routes for L642 and M771.

c) **Priority Area 3: A461/A583/L625/N892** to reduce longitudinal spacing to at least 50 NM with planning for 30 NM or less.

d) **Priority Area 4: Review of existing Flight Level Allocation Scheme (FLAS)/ Flight Level Orientation Scheme (FLOS) operating within the South China Sea (SCS)**.

2. DISCUSSION

Priority Area 1: A1/A202

Enhancement of Longitudinal Spacing to at Least 20NM

2.1 20 NM longitudinal spacing has been implemented on ATS route A1 (at the Transfer of Control (TOC) points between Ho Chi Minh and Sanya FIRs; Sanya and Hong Kong FIRs; and Hong Kong and Taibei FIRs) and ATS route A202 (at the TOC points between Ha Noi and Sanya FIRs; Sanya and Guangzhou FIRs; and Sanya and Hong Kong FIRs), effective from 26 March 2020.

2.2 This action item is completed.

Parallel Route to ATS Route A1

2.3 The Eighth Meeting of the South China Sea Traffic Flow Review Group (SCSTFRG/8, Bangkok, Thailand, 03 – 05 September 2019) had agreed for ATS route A1 and the proposed parallel route to be designated as RNAV 2, which would involve modification on the existing ATS route A1 route alignment, subject to the concerned States agreement of the displacement of the entry and exit points at the FIR boundary.

2.4 **Figure 1** illustrates the position of the proposed parallel route to ATS route A1, and the traffic flow orientation preferred by Hong Kong China, Lao PDR and Thailand (at SCSTFRG/5 meeting, China commented that they could accept the parallel uni-directional route in any direction).

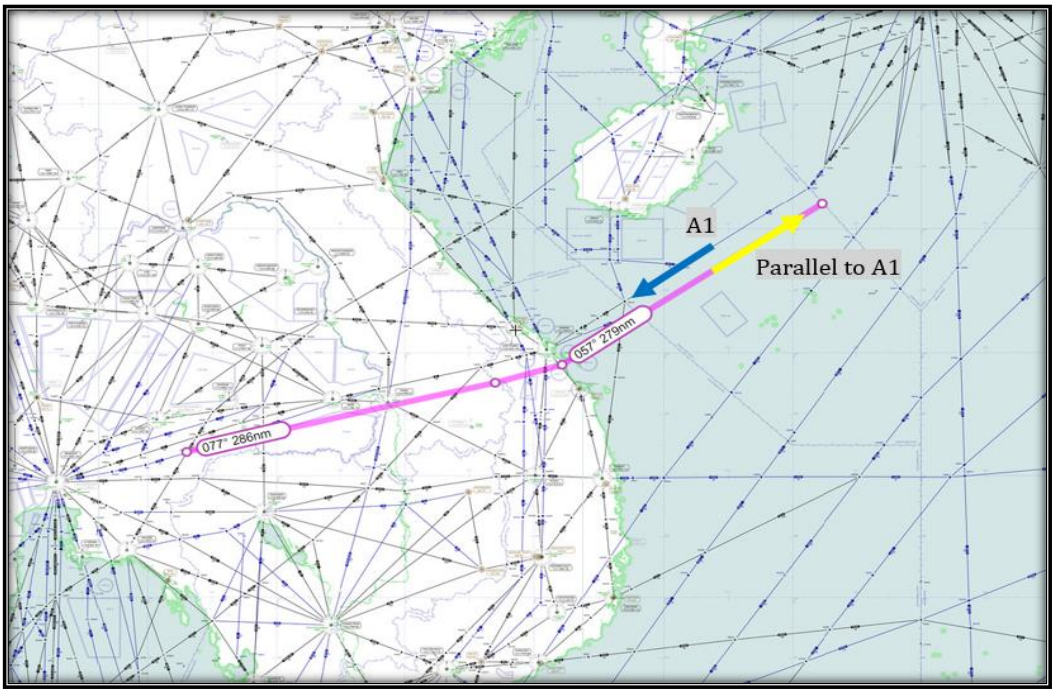

Figure 1: Uni-directional Parallel Route to ATS Route A1

2.5 SCSTFRG/8 was informed of Viet Nam's preference that was on the reverse orientation, which could be more suitable for Da Nang International Airport operations.

2.6 This matter was also discussed at the Eighth Mekong Air Traffic Management Coordination Group Meeting (MK-ATM/CG/8, Da Lat, Viet Nam, 11 – 13 December 2019). Viet Nam commented that the proposed traffic flow orientation (**Figure 1**) would increase flight distance, time and crossing points between arriving and departing traffic from Da Nang International Airport to the Southeast Asia/beyond and vice versa. According to Viet Nam, implementing the route as in **Figure 1** would increase Air Traffic Control (ATC) workload, and therefore requested the States concerned to re-consider the traffic flow orientation.

2.7 At the MK-ATM/CG/8, Thailand had suggested that to minimise the impact on the existing Standard Instrument Departure (SID) and Standard Instrument Arrival (STAR) procedures for Da Nang International Airport, Viet Nam could consider implementing the route segment between Da Nang VOR and BUNTA as bi-directional. A transition route would need to be implemented to support this proposal.

2.8 ICAO conducted preliminary assessment on Da Nang International Airport SID and STAR procedures for Runway 35, in early January 2020. According to the assessment, minimal changes are required to support the implementation of these parallel uni-directional routes (**Figure 2**).

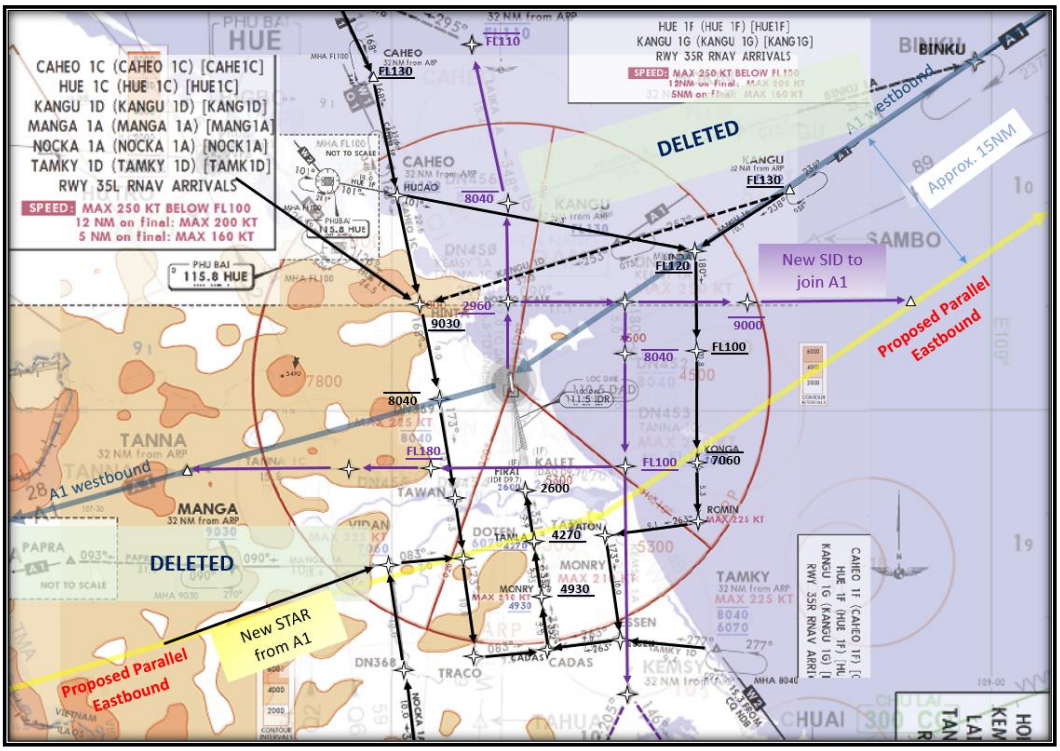

Figure 2: Preliminary Assessment

2.9 Singapore, through the Air Traffic Management Research Institute (ATMRI), offered its assistance to conduct modelling and simulation to facilitate the determination of the most suitable traffic flow orientation for these parallel uni-directional routes, if needed, provided the scope of these activities was well defined by the meeting.

2.10 At SCSTFRG/11 (04-06 July 2023, Bangkok, Thailand), Viet Nam has provided feedback on the assessment of the proposed parallel uni-directional routes provided in **Figure 2** (proposed offer by Singapore); it was pointed out that Viet Nam preferred the reverse orientation on the proposed parallel routes.

2.11 Taking into account the existing route structure, China suggested South-westbound parallel uni-directional route in Sanya FIR IGLEG-SYT13-BUNTA, and the suggested North-eastbound parallel uni-directional route in Sanya FIR was ITBAM-IKELA. The conventional ATS route A1 will be replaced by the new parallel uni-directional routes as designed. Shown in Figure 3 below.

Figure 3: SCSTFRG/11 China Proposed parallel uni-directional routes (Within Sanya FIR)

2.12 Considering the CNS/ATM capabilities, anticipated traffic flow density, airspace capacity requirements and aircraft performance requirements, China recommended RNAV2 navigation specification for this proposed parallel routes group.

2.13 Viet Nam insisted on using reversed orientation on these two proposed parallel routes. In response to Viet Nam's suggestion, Hong Kong China and Thailand supported China's original proposal. Furthermore, Hong Kong China also informed the SCSTFRG/11 that Hong Kong China has already implemented a pair of parallel routes within Hong Kong FIR between KAPLI and IKELA. The traffic flow orientation aligns with China's proposal and Thailand's suggestion. There is no room for Hong Kong China to reverse the orientation.

Priority Area 2: L642/M771

Enhancement of Longitudinal Spacing to at Least 20NM

2.14 Hong Kong China provided information at the ATM/SG/8 (Video Teleconference, 23 – 27 November 2020), that the implementation of 20 NM longitudinal spacing at the TOC points between Hong Kong and Sanya FIRs, on ATS routes L642 and M771 was expected to be implemented in the second quarter of 2021.

2.15 At the SAIOSEACG/2 meeting (Bangkok Thailand, 20-24 March 2023), Hong Kong China reported on their effort to optimize the airspace capacity of major trunk routes L642 and M771. The optimization plan was to reduce the minimum aircraft separation from 50 NM to 20 NM. Hong Kong China completed a comprehensive evaluation on reducing the 50 NM separation to 20 NM within the Hong Kong FIR in the second quarter of 2022. As a result, it was confirmed that the airspace capacity would be doubled. Environmental improvements and economic benefits were expected through reduced separation minima.

2.16 A side meeting between China, Hong Kong China, Singapore and Viet Nam has been conducted during the SAIOSEACG/2 session led by Hong Kong China. The four stakeholders' points of view have been fully exchanged, and technical details have been discussed. A consensus was reached on supporting this proposal.

2.17 Reference SAIOSEACG/2 and SCSTFRG/11 conducted in 2023, all concerned States/Administrations, i.e. China, Singapore, Vietnam and Hong Kong China expressed full support in implementing 20NM longitudinal spacing on L642 and M771. During SAIOSEACG/3 in April this

year, the trial operation proposed by Hong Kong China for this initiative was agreed upon as a result. The trial operation was successfully launched on 7 May 2024 as scheduled.

2.18 As Hong Kong, China reported to the ATM/SG/12 (Bangkok Thailand, 23-27 September 2024), The agreement during SAIOSEACG/3 stipulated that 20NM minimum longitudinal spacing would be applied on L642 and M771 from 0200 to 1200 UTC daily during the trial period, subject to the following conditions:

a) Aircraft cruising at or above FL290;

b) Aircraft equipped with serviceable ADS-B; and

c) Longitudinal spacing between two aircraft are constant or increasing.

2.19 It was also agreed that aircraft without serviceable ADS-B operating on routes L642 and M771 shall cruise at FL280 or below, unless prior approval was obtained from the relevant receiving ATCC/ACC.

Parallel Route to ATS Routes L642 and M771

2.20 SCSTFRG/8 had agreed for the discussion on proposed implementation of parallel routes to L642 and M771 to be deferred, pending the results of the enhancement of longitudinal spacing in Hong Kong and Sanya FIRs, noting the Hong Kong China's assessment, that by enhancing the longitudinal spacing from 50 NM to 30 NM (or possible 20 NM) on the existing ATS route L642 and M771 would be sufficient to cater for current and future traffic demand.

2.21 Hong Kong China further also commented that they had no plan or intention to implement these parallel routes for the time being and would only consider if the traffic demand necessitated in the future.

Priority Area 3: A461/A583/L625/N892

2.22 With the successful implementation of 50 NM longitudinal spacing on ATS route A461 and A583 between Hong Kong ATCC and Manila ACC, effective 23 May and 15 August 2019 respectively, Hong Kong China and the Philippines had planned to further enhance the longitudinal spacing to 30 NM on ATS routes A461 and A583, and 50 NM on ATS routes L625 and N892 between Ho Chi Minh and Manila ACCs (SCSTFRG/9 IP/02).

2.23 At SAIOSEACG/1 (Video Teleconference, 28 March – 01 April 2022), Hong Kong China and Philippines provided information on the Phase 1 trial implementation of 30 NM longitudinal spacing on ATS routes A461 for RNP4 compliant landing aircraft, from December 2021 to April 2022. The implementation of 30 NM longitudinal spacing was planned in the three-phase approach, starting with A461 (Phase 1 and 2) and extending to A583 (Phase 3, targeted in Q4 2023), between pair(s) of RNP 4 compliant aircraft within the Hong Kong and Manila FIRs.

2.24 At ATM/SG/12, the meeting was updated by the below progresses on this action item:

- A461 & M501: Phase 1 and 2 implementation of the 30NM minimum longitudinal spacing on A461 and M501 was completed in February 2023. The enhanced spacing applies to traffic pairs with RNP4 capability at FL290 or above when the longitudinal spacing is constant or increasing. If the succeeding aircraft is faster than the preceding aircraft, 50NM/10MIN will be applied, depending on the aircraft destination aerodromes. The operation has been smooth since implementation. Not only has the

capacity of ATS routes A461 and M501 significantly increased, but there have also been more aircraft assigned with optimum cruising levels.

- A583: With the satisfactory outcomes of Phases 1 and 2, Hong Kong ATCC and Manila ACC proceeded to the Phase 3 implementation for applying the 30NM minimum longitudinal spacing on ATS Route A583. The enhanced spacing applies to traffic pairs with RNP4 capability, CPDLC and ADS-C equipage at FL290 or above when the longitudinal spacing is constant or increasing. If the succeeding aircraft is faster than the preceding aircraft, 50NM/10MIN will be applied, depending on aircraft destination aerodromes. A new Letter of Agreement between Hong Kong ATCC and Manila ACC was signed in September 2024 to officially incorporate these enhancements into the Agreement.

- N892 & L625: The Philippines confirmed that the implementation of 50NM longitudinal spacing would be postponed due to internal issues that need to be resolved first.

Priority Area 4: Review of existing FLAS/FLOS operating within the South China Sea

2.25 SCSTFRG/7 had agreed that the discussion on Priority Area 4 would take place after the completion of Priority Areas 1, 2 and 3.

2.26 the SCSTFRG Priority 4 (optimisation of FLAS/FLOS operation) cannot be considered an isolated project; it has significant interconnectivity with the SCSTFRG Priority 1, 2 and 3 (reduction of longitudinal separation on primary routes). Horizontal efficiency and vertical efficiency are highly correlated and relevant to one another.

2.27 The SCSTFRG/10 meeting was urged to review the current usage of FLAS/FLOS and any discrepancy in LOAs with the neighbouring ACCs, preferably in a periodical manner and whenever CNS/ATM improvement is made in an effort to sustain the performance-based provision of ATM service. To facilitate the discussion on the existing FLAS/FLOS to promote the long-term consideration on post-pandemic scenarios, the group agreed to the ***Decision SCSTFRG/10-1: Review of the existing South China Sea Flight Level Allocation Scheme (FLAS) and Flight Level Orientation Scheme (FLOS)***

2.28 This topic will be further discussed with the *WP07 Review of the Existing FLAS/FLOS in South China Sea* submitted by ICAO in Agenda Item 4 of this meeting.

Further discussion on the development of SCSTFRG priority areas

2.29 The Fourteenth Air Navigation Conference (AN-CONF/14) was held at Montreal, Canada, from 26 August to 06 September 2024. The meeting noted that the air traffic management performance improvement is hampered by the application of different separation minima across flight information region (FIR) boundaries, or separation minima that are inconsistent with those typically applied across a region or sub-region. Many States make every effort to improve the efficiency of their service delivery and minimize the adverse environmental impacts of civil aviation activities. Nonetheless, these same States also contend with downstream bottlenecks due to the absence of seamless operations.

2.30 The Working Paper *PROJECT 30/10 – OPTIMIZATION OF LONGITUDINAL SEPARATION ACROSS FIR BOUNDARIES* (AN-Conf/14-WP/10) presented an initiative to focus attention on this challenge and encourage the seamless implementation of longitudinal separations of 55.5 km (30 NM) or less in oceanic and remote airspace, and 19 km (10 NM) or less elsewhere, with the objective of enhanced operational efficiency of the global air navigation system.

2.31 As a result of the discussion, what is noteworthy is that the Committee approved ***Recommendation 3.1/1: Project 30/10 – Optimised implementation of longitudinal separation minima***.

That States:

a) within the processes of the planning and implementation regional groups, actively collaborate with neighbouring States to implement Project 30/10 – implementation of longitudinal separations of 55.5 km (30 NM) or less in oceanic and remote airspace, and 19 km (10 NM) or less elsewhere;

that ICAO:

b) through the planning and implementation regional groups, develop regional action plans for the implementation of Project 30/10;
c) support inter-regional collaboration for a harmonized implementation of Project 30/10; and
d) consider other minimum service level procedures, via a framework, for implementation in oceanic and remote airspace.

2.32 As clear requirements and goals have been given by the AN-CONF/14, the *Project 30/10 – Optimised implementation of longitudinal separation minima (AN-CONF/14)*, which gives the SCSTFRG the necessity to re-consideration of the existing priority areas, especially the Priority Area 1, 2 and 3. The meeting is invited to consider the following suggestions for the modifications of SCS Priority Areas:

Decision SCSTFRG/12-X: Modifications on SCS Priority Areas

That, modify the SCS Priority Areas to align with the global expectations given by the AN-CONF/14, the Project 30/10 – Optimised implementation of longitudinal separation minima (AN-CONF/14).

a) **Priority Area 1: A1/A202** to reduce longitudinal spacing to at least 20 NM with planning for 10 NM and to develop a parallel route to A1.

b) **Priority Area 2: L642/M771** to reduce longitudinal spacing to at least 20 NM with planning for 10 NM and to investigate the possibility of implementing parallel routes for L642 and M771.

c) **Priority Area 3: A461/A583/L625/N892** to reduce longitudinal spacing to 30 NM ~~at least 50 NM with planning for 30 NM or less~~.

d) **Priority Area 4: Review of existing Flight Level Allocation Scheme (FLAS)/ Flight Level Orientation Scheme (FLOS) operating within the South China Sea (SCS)**.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper;

b) provide feedback and status updates for the relevant Priority Areas;

c) discuss and provide the implementation timeline for relevant Priority Areas;

d) adopt the ***Decision SCSTFRG/12-1: Modifications on SCS Priority Areas***, and

e) discuss any relevant matters as appropriate.

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<table>
<tr><td colspan="3">Decision SCSTFRG/12-1: Modifications on SCS Priority Areas</td></tr>
<tr><td colspan="2">What: Modify the SCS Priority Areas to keep in line with the global expectations given by the AN-CONF/14, the Project 30/10 – Optimised implementation of longitudinal separation minima (AN-CONF/14).</td><td>Expected impact:
☐ Political / Global
☒ Inter-regional
☒ Economic
☒ Environmental
☒ Ops/Technical</td></tr>
<tr><td>Why: clear requirements and goals have been given by the AN-CONF/14</td><td colspan="2">Follow-up: ☐Required from States</td></tr>
<tr><td>When: 11-Nov-24</td><td colspan="2">Status: Draft to be adopted by SAIOSEACG</td></tr>
<tr><td colspan="3">Who: ☒Sub groups ☐APAC States ☐ICAO APAC RO ☐ICAO HQ ☐Other:</td></tr>
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