International Civil Aviation Organization

The Sixth Meeting of the ICAO Asia/Pacific Southeast Asia Route Review Task Force (SEA-RRTF/6)

Bangkok, Thailand, 30 April 2012

Agenda Item 2: Review Outcomes of SEA-RR/TF5 Meeting

REVIEW OF SOUTHEAST ASIA ROUTE IMPLEMENTATION PLAN

(Presented by the Secretariat)

SUMMARY

This purpose of this paper is to review the status of the S**outheast Asia Route Implementation Plan** which was concluded at the SEARRTF 5 meeting.

This paper relates to –

Strategic Objectives:

A: ***Safety*** *– Enhance global civil aviation safety*

C: ***Environmental Protection and Sustainable Development of Air Transport*** *– Foster harmonized and economically viable development of international civil aviation that does not unduly harm the environment*

Global Plan Initiatives:

GPI-1 Flexible use of airspace
GPI-3 Harmonization of level systems
GPI-5 RNAV and RNP (Performance-based navigation)
GPI-6 Air traffic flow management
GPI-7 Dynamic and flexible ATS route management
GPI-8 Collaborative airspace design and management
GPI-12 Functional integration of ground systems with airborne systems
GPI-17 Data link applications

1. INTRODUCTION

1.1 The SEA-RR/ TF5 meeting was tasked by the ATM/AIS/SAR SG/21 Meeting to develop:

a) *"a plan with each ATS route assigned a conceptual outcome, priority, milestones, States, stakeholders, and the means by which the route would be consulted"*.

b) *"determine if the deliverables warranted its future existence beyond this meeting*."

1.2 It was also suggested by the ATM/AIS/SAR SG/21 Meeting that should the SEA-RR/TF be dissolved, the tasks of the SEA-RR/TF could be distributed to the bilateral or multilateral groups such as Mekong ATM group.

1.3 Consequently the meeting had developed the South East Asia Route Implementation Table and a South East Asia Route Implementation Plan, (see **Appendix A** and **B**)

2. DISCUSSION

2.1 Altogether 16 routes had been identified in the Implementation Table and Plan. They were at various stages of implementation and some might already have been implemented. The process for consultation had also been identified and agreed to by the SEA-RR/TF5 meeting.

2.2 The meeting is requested to report the progress of implementation. Where the routes had not been implemented, reasons for the lack of progress, including the difficulties involved, and an assessment as to whether it could be implemented, or whether an extended timeline is required, should be recorded.

2.3 Uncompleted tasks were to be assigned to other suitable groups. The meeting is asked to review if the tasks are properly assigned to the various groups.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) Report the progress of the route implementation;

b) Identify the uncompleted tasks and assign them to the appropriate bi-lateral or multi-lateral groups or organizations, and

c) discuss any relevant matters as appropriate.

…….

SEA-RR/TF/5: Route Implementation Table

Route Name	Benefit	FIR	C/N/S capability	Challenges to implementation	Mitigation	Consultation	Implementation timeline		Remarks
							Start date	Completion date	
Route 1: M635/M774	To facilitate RNP 10 implementation	Singapore/ Jakarta/ Ujung Pandang	VHF in Singapore RNAV rte Long range radar in Singapore FIR VHF and Radar in Jakarta FIR: ADSC /ADSB/ CPDLC/VHF in Ujung Pandang	Consultation needed	Consultation completed	Singapore/Indonesia bilateral	12 Jan 2012	11 April 2012	90 day review to be done. Singapore and Indonesia to issue AIP supplement and submit the BANP amendment.
Route 2: Implement 30 nm longitudinal separation (A1 ,A1//P 901 in Hong Kong FIR) and A202)	Increase capacity on a busy route by using surveillance capability	Bangkok, Vientiane, Hanoi, Ho Chi Minh, Sanya, Hong Kong	Radar surveillance /VHF	LOA(s) to be redrafted.	Safety Case Controller training LOA (s) To be confirmed "good to go" at Mekong ATM Coordination Group Meeting Jan 2012 (TBC)	Thailand, Laos, Viet Nam, China, Hong Kong		AIRAC – 8TH MARCH 2012 (SUBJECT TO CHINA AGREEMENT)	Note: Surveillance based separation (ref: Longer term route structure plan) Refer to remarks under Route 9:

SEA-RR/TF/5: Route Implementation Table

Route 3: R213 TRN-PNH	For better connectivity between Ho Chi Minh and Phnom Penh FIR	Ho Chi Minh and Phnom Penh	VHF Long Range Radar	Overcome	Nil	Viet Nam Cambodia	Completed	Nil-	R213 to be re-named. Viet Nam will take required action.
Route 4: R334 TSN-KANGG						Viet Nam Cambodia Thailand			
Route 5: M756 TSN-ENREP	Reduce flying time. Fuel Saving and CO2 reduction	Ho Chi Minh and Singapore	VHF /Radar Surveillance in Ho Chi Minh FIR ADS/CPDLC in Singapore	Converging routes issue. Lack of surveillance capability	ADS-B surveillance capability required	Viet Nam Singapore (possibility of Malaysia as a peripheral FIR)	Defer the route requirement	nil	The new route would be northbound unidirectional only.
Route 6: CAB- BHY	For access to Guangzhou FIR from CATBI	Hanoi and Guangzhou	Radar/VHF in Hanoi and Guangzhou FIR	Consultation needed.	-	Viet Nam/China	Long term	Nil	Bilateral
Route 7: LPB/CMA/ BGO	Improve accessibility to BGO from Viet Nam	Vientiane, Bangkok Yangon	VHF/Radar in Vientiane and Bangkok HF/ADS/ CPDLC in Yangon	CNS issues in Yangon Fir Danger area	Nil	Laos, Myanmar and Thailand	Not applicable	Not applicable	Thailand reports that the route cannot be approved due to Danger Area in the way

SEA-RR/TF/5: Route Implementation Table

Route 8: NAN TATEL BGO	Improve accessibility to BGO	Vientiane, Bangkok, Yangon	VHF /Radar in Vientiane, Bangkok FIR HF and ADS CPDLC in Yangon	Military issues in Thailand	Military agreement.	Laos, Myanmar Thailand	Upon confirmation from RTAF	2012	Thailand reports that the route is approved, but may be slightly re-aligned within Bangkok FIR. Awaiting confirmation from the RTAF
Route 9: A202/A1 parallel routes New description required for the route.	Increase capacity	Bangkok, Vientiane, Ho Chi Minh, Sanya, Hong Kong, Hanoi	VHF/Radar in all concerned FIRs	Military airspace. Airspace planning issues.	Military agreement Consultation needed	Thailand, Laos, Viet Nam, China, Hong Kong China	Subject to further evaluation	Not applicable	It was agreed To use the Mekong ATM group to address the issue to develop a plan for the restructure of the routes in the area.. Timelines to be developed by the group. To include realignment of M771 and L642.
Route 10: Unidirectional route for L628		Bangkok, Phnom Penh, Ho Chi Minh, Manila	VHF /radar in Bangkok and Phnom Penh FIR. HF/CPDLC in Ho Chi Minh FIR HF and VHF in Manila. Partial radar cover in Ho Chi Minh and Manila	Airspace organization for crossing busy routes W1 and W2	Further consultation needed	Thailand, Cambodia, Viet Nam, Philippines	Subject to further consultation	Nil	

SEA-RR/TF/5: Route Implementation Table

Route 11: Unidirectional route M768 BN-TSN	To increase level availability for M768 and to provide excess levels for busier parallel routes	Bangkok Phnom Penh Ho Chi Minh Singapore Kota Kinabalu	VHF in Bangkok, Phnom Penh Kota Kinabalu. VHF/HF/ CPDLC in Ho Chi Minh FIR HF CPDLC in Singapore FIR	Low traffic volume. Justification for parallel route for future traffic	ADS-B surveillance	Thailand, Cambodia, Viet Nam, Malaysia, Singapore	2011 (Planning for RNP10 Operations), 2014 (planning of new route)	2012/2013 (Implementation of RNP10 Operations), 2015-2016 (establishment of new route)	Nil
Route 12: Unidirectional route A461 MNL-HK HK to report	To increase capacity	Manila Hong Kong	VHF in Hong Kong and Manila FIR Radar in Hong Kong Partial radar cover in Manila	Surveillance	ADS-C CPDLC being implemented in Manila FIR Data Sharing between 2 FIRS	Philippines and Hong Kong China	2nd quarter 2013:Unidirectional Route, RNP10 criteria, 4th quarter 2014 RNP4.	End 2013 1st Quarter 2015	Hong Kong to seek airlines advice thru CPA. Hong Kong cannot implement changes from July 2013 to June 2014 due commissioning of new ATMS and ATCC
Route 13: B462/B348 / MNL/TPE	Increase capacity	Manila Taipei	VHF in Taipei VHF and HF in Manila	Further consultation and evaluation required	Parallel route to be subject to discussion EATMCG meeting(Approx March 2012)	Philippines Taiwan, IATA	2nd quarter 2012	4th quarter 2012	Reported by Philippines that Taipei is amenable to upgrade the route B348 to RNAV rte. Parallel route will not be implemented at this stage.

SEA-RR/TF/5: Route Implementation Table

Route 14: Re-align M771	Fuel savings and CO2 reduction	Ho Chi Minh Sanya, Hong Kong	VHF and Radar for all FIRs	As for Route 9	As for Route 9	Viet Nam, Hong Kong China, China	Subject to further evaluation	Not applicable	To Be combined with the A202 airspace restructure
Route 15: Re-align L642	Fuel savings and CO2 reduction	Ho Chi Minh, Sanya Hong Kong	VHF and Radar for all FIRs	As for Route 9	As for Route 9	Viet Nam, Hong Kong China, China	Subject to further evaluation	Not applicable	To Be combined with the A202 airspace restructure
Route 16: Implement M904	For better Air traffic manageme nt and seamlessne ss	Singapore Kuala Lumpur, Bangkok	VHF Radar for Thailand, Malaysia. VHF for Singapore	Consultation needed	Consultation completed	Singapore Malaysia Thailand	12 Jan 2012	12 Jan 2012	Request for BANP amendment received

Southeast Asia Route Implementation Plan

Version 1.0, 5 October 2011

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Background

The South East Asia Route Review Task Force was requested by the ATM/AIS/SAR/SG/21 to produce a plan with each ATS route assigned a conceptual outcome, priority, milestones, State stakeholders, and the means by which the route would be consulted. The latter could be by bilateral discussion, through the 'Mekong' ATM Coordination Group, or a Small Working Group under SEACG itself.

IATA had no issue with reassigning reporting lines, or conducting the Task Force and SEACG in the same week. In essence, the Task Force was effectively being put 'on notice' and its future would be decided based on its deliverables.

Hong Kong, China was in support of the alternative means of delivering results, especially as the complexity of the task regarding each route varied. Singapore agreed with the Secretariat's plan, and emphasized that the stakeholders must try and meet the identified timeline. Thailand did not mind which format was used to deliver the results. The Sub-Group Chairman suggested that the Secretariat should discuss this matter with the SEACG Chairman to keep the ATM Coordination Group informed.

This route implementation plan was agreed by the Fifth Meeting of the South East Asia Route Review Task Force (SEA-RR/TF/5.

Route Structure 1: M635/M774

Background: The two routes were initiated by Singapore and Indonesia as part of their route re-organisation in order to facilitate the implementation of RNP10 separation, and to provide more seamless operations and increase capacity.

A464 /A576, linking Singapore with Bali and Australian destinations will be re-aligned as described in the diagram above. CNS capabilities required are DCPC, to be achieved through CPDLC.

FIRs: Singapore/ Jakarta/ Ujung Pandang.

Communications: VHF in Singapore FIR, VHF in Jakarta FIR, VHF and CPDLC in Ujung Pandang FIR.

Navigation: RNAV route.

Surveillance: Long Range Radar in Singapore and Jakarta FIR, ADS-C /ADS-B in Ujung Pandang FIR

Priority: High.

Challenges to implementation: Nil.

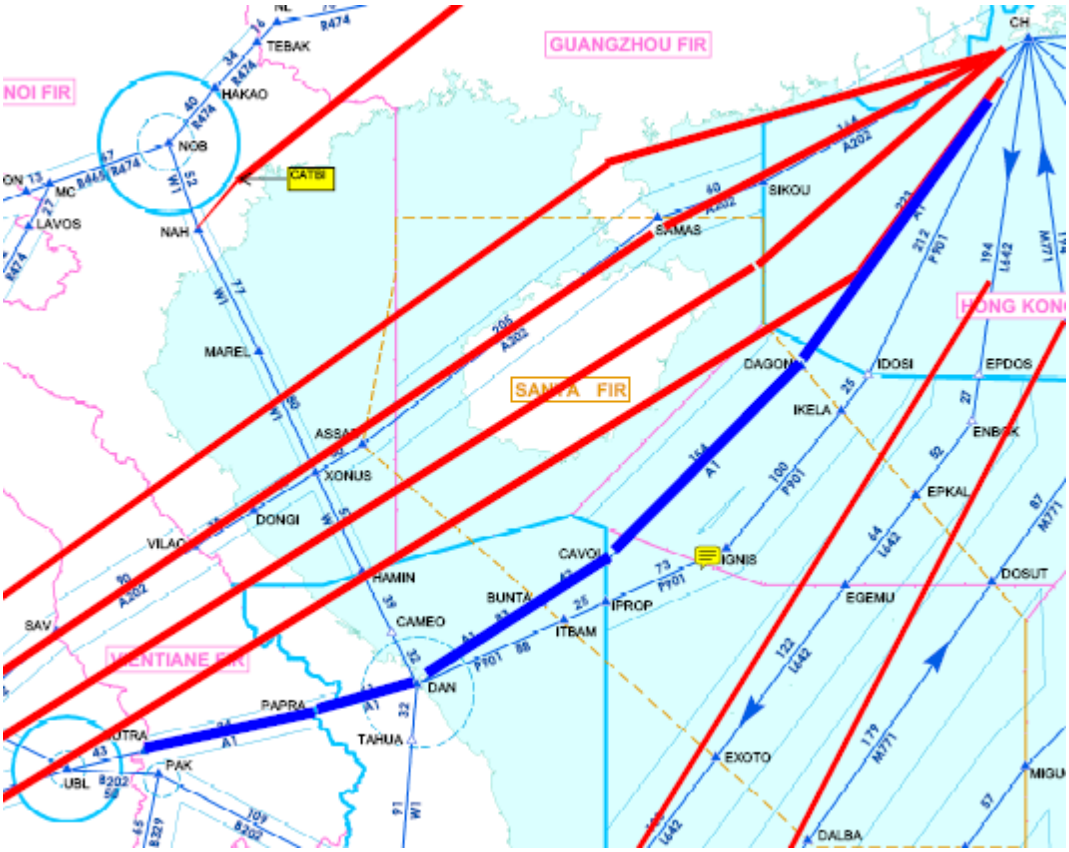
Mitigations: Nil.

Consultation: Completed.

Implementation timeline: Start - 12 Jan 2012, Completion - 11 April 2012.

Remarks: A 90 day review is to be done. Singapore and Indonesia to issue AIP supplement and submit the BANP amendment.

Route Structure 2- A1



Background: There had been considerable discussion between concerned parties to reduce the longitudinal separation on A1 (**blue line**). Currently flights had to be separated by 40NM, and on occasions up to 10 minutes. As far back as 2007, Thailand had at SEACGG/14 suggested that the existing radar facilities and coverage be utilized to allow for radar spacing to be applied from the Bangkok FIR through to Taipei FIR.

This was a very busy bi-directional route (approximately 1,000 flights a week) serving flights between airports east of Hong Kong such as Taipei and southern Japan and destinations west of Hong Kong such as Bangkok and Phnom Penh.

The interim requirement was to provide 30NM in-trail separation for flights with no closing speed. This requirement was identified at the SEA-RR/TF/5 meeting to increase the capacity of the route pending a re-organisation of the route structure to a parallel unidirectional route structure (**refer to Route Structure 9**).

FIRs: Thailand, Laos, Vietnam, China, Hong Kong China

Communications: VHF in Hong Kong, Sanya, Ho Chi Minh , Vientiane , and Bangkok FIRs.

Navigation: RNAV route.

Surveillance: Long Range Radar in Hong Kong , Sanya , Ho Chi Minh , Vientiane , and Bangkok FIRs. All the ACCs in the FIRS concerned were providing radar service to flights within radar coverage in their respective FIRs. The entire route through the 4 FIRs was within radar surveillance.

Priority: This was a high priority item as the traffic flow is very high and there was an urgent need to use the available capability to enhance operations to increase capacity.

Challenges to implementation: Close consultation between Thailand, Laos, Vietnam, China, Hong Kong China was required. Letters of Agreement needed to be amended to include new Transfer of Control requirements.

Mitigations: a Safety Case, controller training, and revised Letters of Agreement was required.

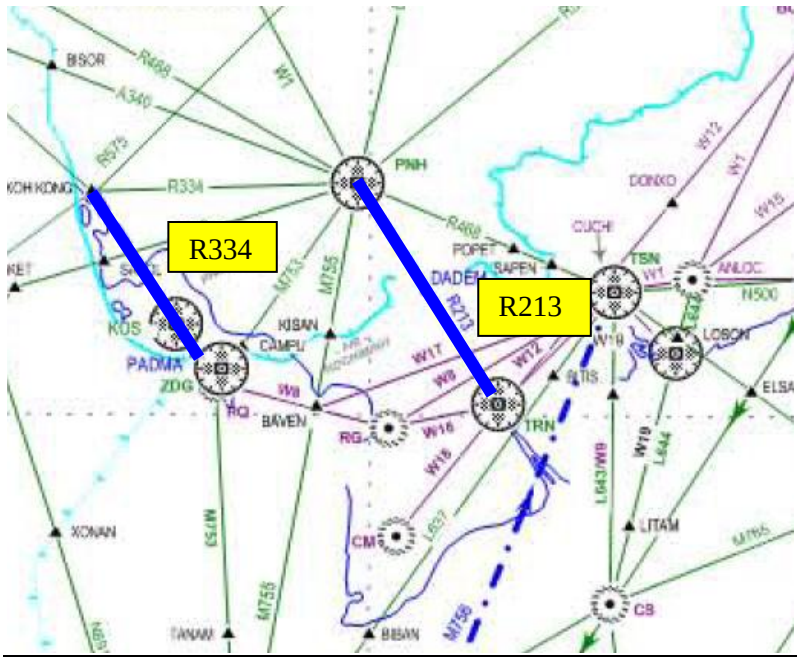
Consultation: Thailand, Laos, Vietnam, China, Hong Kong China. To confirm, "**good to go**" at Mekong ATM Coordination Group Meeting Jan 2012. Date of meeting not confirmed as yet.

Implementation timeline: 8 March 2012 (pending China's agreement).

Remarks: Surveillance based separation (see Remarks under Route Structure 9 for longer term airspace re-structure plan).

Route Structure 3- R213 TRN-PNH

Route Structure 4- R334 TSN-KANGG



Background: Requested by Vietnam, to improve connectivity for flights between Ho Chi Minh FIR and Phnom Penh FIR. Route 3: R213 TRN-PNH. Route 4: R334 TSN-KANGG

FIRs: Ho Chi Minh and Phnom Penh FIR.

Communications: VHF in Ho Chi Minh FIR and Phnom Penh FIR.

Navigation: Conventional route.

Surveillance: Long Range Radar in Ho Chi Minh FIR and Phnom Penh FIR.

Priority: High.

Challenges to implementation: Nil.

Mitigation: Nil.

Consultation: Completed.

Implementation Timeline: Implemented.

Remarks: No further action, except to change route designator of R213, as R213 was not available.

Route Structure 5 – M756 TSN-ENREP

Background: The route is requested by Vietnam to reduce the flying time from TSN to ENREP.

FIRs: Ho Chi Minh and Singapore FIRs

Communications: VHF in Ho Chi Minh FIR, VHF and CPDLC in Singapore FIR

Navigation: RNAV Route

Surveillance: Long Range Radar in Ho Chi Minh FIR and ADS-C / ADS-B in Singapore FIR

Priority: Medium

Challenges to Implementation: As the requested route converges at ENREP with L642, M753, and N891, there is a need for traffic separation to be considered along the other routes prior to the transfer of control to the next ACC. Also northbound traffic on the requested route will cross M765 inside Ho Chi Minh FIR. Malaysia may be required to participate in the discussions as northbound traffic on M765 originating from Kuala Lumpur FIR, routing via VKB. After discussion between Malaysia, Singapore and Viet Nam, it is acknowledged that the route is a long term requirement due to traffic growth in Viet Nam.

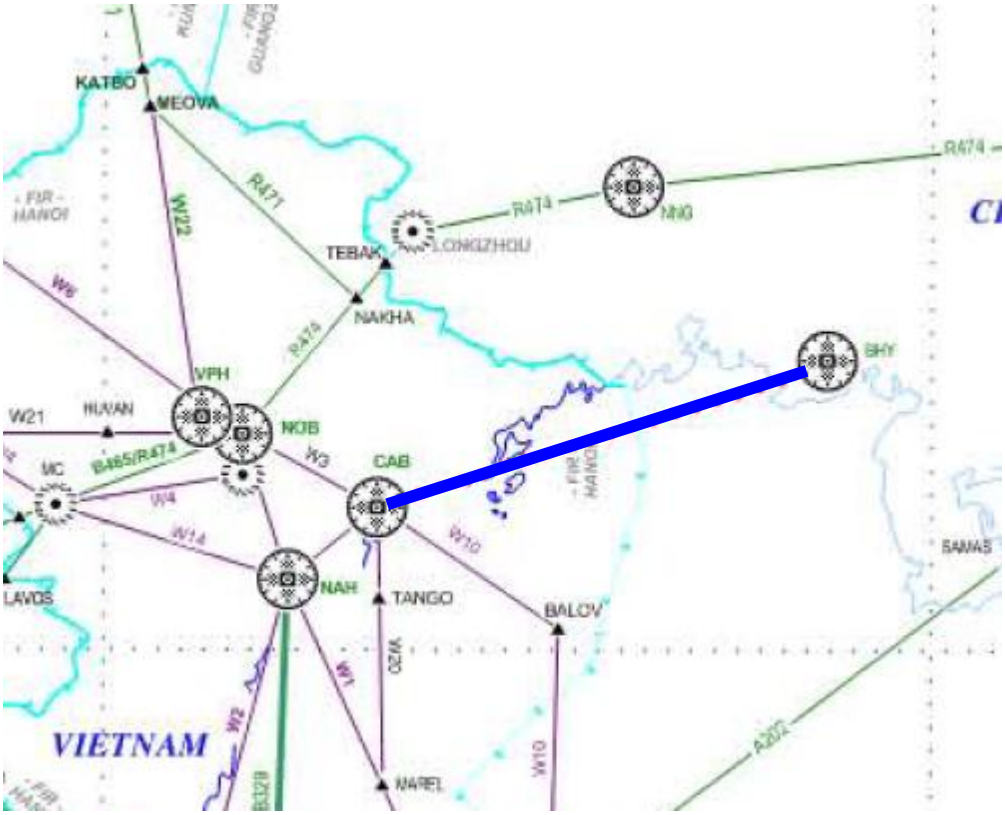
Mitigation: Arrangements needed to ensure separation prior to convergence. The three States agreed that once ADS-B implementation is in place, the establishment of the new route will be revisited as the CNS infrastructure would have been in place to mitigate the safety and efficiency concerns

Consultation: Malaysia, Singapore and Viet Nam.

Implementation Timeline: start 2010, completion 2013/2014.

Remarks: The new route would be northbound unidirectional only.

Route Structure 6 – B224 CAB-BHY



Background: Vietnam has requested the route to provide access from CATBI in Hanoi FIR to BHY in Guangzhou FIR (see chart above).

FIRs: Hanoi FIR and Guangzhou FIR.

Communications: VHF in Ho Chi Minh FIR, VHF in Guangzhou FIR.

Navigation: RNAV route.

Surveillance: Long Range Radar in Hanoi FIR, and Guangzhou FIR.

Priority: High.

Challenges to implementation: Nil.

Mitigation: Nil.

Consultation: China and Vietnam.

Implementation Timeline: Long term.

Remarks: Bilateral between China and Vietnam.

Route Structure 7 – LPB/ CMA/ BGO

Background: Vietnam has requested the route LPB /CMA/ BGO to improve accessibility to BGO in Yangon FIR. (see blue line)

FIRs: Vientiane FIR, Bangkok FIR and Yangon FIR.

Communications: VHF in Vientiane and Bangkok FIR. HF/CPDLC Yangon FIR

Navigation: Conventional route.

Surveillance: Long Range Radar in, Vientiane, Bangkok FIR. ADS-C in Yangon FIR

Priority: High.

Challenges to implementation: CNS issues in Yangon FIR, Danger area in Thailand FIR.

Mitigation: Nil. Thailand reports that the route cannot be approved due to a Danger Area in the way

Consultation: Completed, but Thailand unable to process the requirement.

Implementation Timeline: Not Applicable

Remarks: Nil

Route Structure 8 – NAN /TATEL / BGO

Background

Vietnam has requested the route NAN /TATEL/ BGO to improve accessibility to BGO in Yangon FIR. The route will serve traffic between Yangon, Chiang Mai, Luang Prabang and Hanoi (see blue line).

FIRs: Vientiane FIR, Bangkok FIR and Yangon FIR.

Communications: VHF in Hanoi, Bangkok and Yangon FIR, HF and ADS CPDLC in Yangon

Navigation: Conventional route.

Surveillance: Long Range Radar in Hanoi, Vientiane and Bangkok FIR.

Priority: High.

Challenges to implementation: Military issues in Thailand.

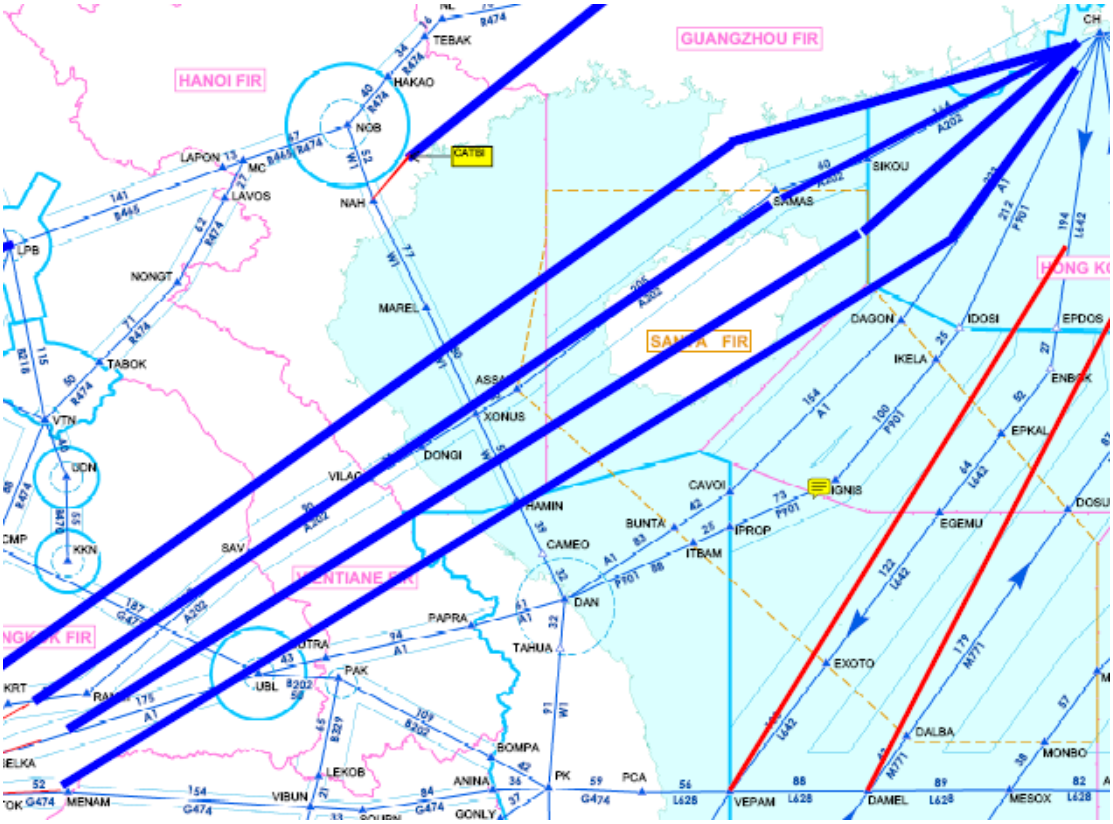
Mitigation: Military agreement.

Consultation: Completed.

Implementation Timeline: Upon confirmation from RTAF, 2012

Remarks: Thailand reports that the route is approved, but may be slightly re-aligned within Bangkok FIR. Awaiting confirmation from the RTAF.

Route Structure 9 – Re-align A202 & A1



Background: IATA has proposed a unidirectional routing scheme for A202, and A1/P901 some years ago, as a means of providing better capacity and efficiency. With a unidirectional routing scheme, the same levels can be used in both directions, thereby doubling capacity with just a single step. A1/P901 (approximately 1000 movements per week) and A202 (approximately 600 movements a week) are among the busiest routes in the region.

FIRs: Hong Kong, Ho Chi Minh, Hanoi, Vientiane, and Bangkok.

Communications: VHF in Hong Kong, Ho Chi Minh, Hanoi, Vientiane, and Bangkok FIRs

Navigation: RNAV

Surveillance: Long Range Radar in Hong Kong, Ho Chi Minh, Vientiane, and Bangkok FIRs

Priority: High

Challenges to implementation: Military airspace, Airspace planning issues.

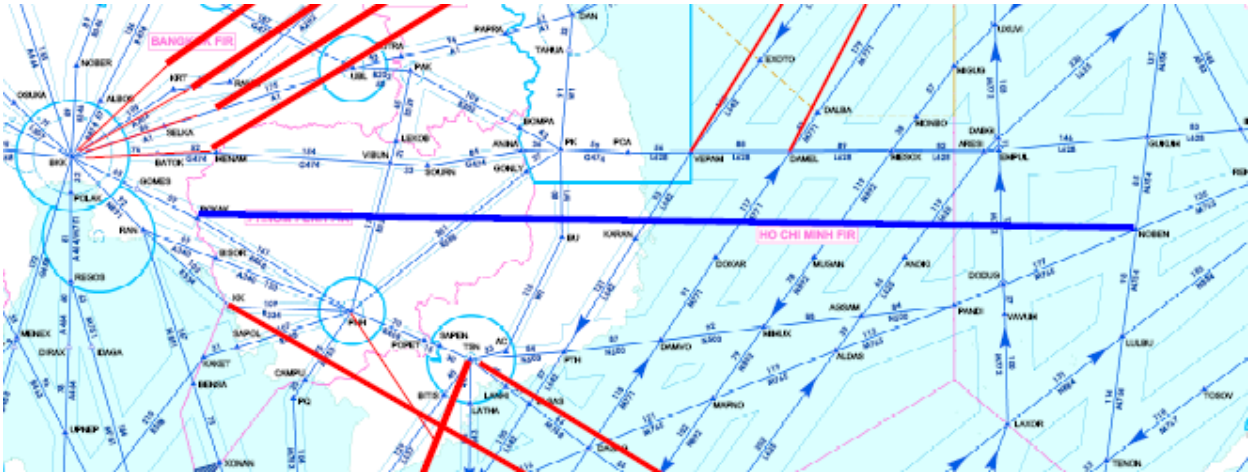
Mitigation: Military agreement and consultation needed

Consultation: Thailand, Laos, Vietnam, China, Hong Kong, China.

Implementation Timeline: Subject to further evaluation.

Remarks: It was agreed to use the **Mekong ATM Group** to address the issue to develop a plan for the restructure of the routes in the area. The evaluation for the route restructure of the area will include the re-alignment of M771 and L642. Timelines were to be developed by the group.

Route Structure 10 – Unidirectional route for L628 MNL/BKK



Background: L628 serves mainly traffic between Manila and Bangkok airport and airports west of Bangkok. It carries approximately 200 movements per week. However, it is advantageous to provide a unidirectional, parallel route structure, which will double the level availability on this route. As L628 crosses 2 pairs of parallel routes excess levels can be freed and allocated to the busier routes. However, this does not preclude the implementation of a unidirectional parallel route structure.

FIRs: Bangkok, Phnom Penh, Ho Chi Minh, and Manila FIRs.

Communications: VHF in Bangkok and Phnom Penh FIR. VHF and HF/CPDLC in Ho Chi Minh FIR. HF and VHF in Manila FIR

Navigation: RNAV.

Surveillance: Long range radar in Bangkok, Phnom Penh FIR. Partial radar cover in Ho Chi Minh FIR. Partial radar cover in Manila FIR. Manila FIR in the process of implementing ADS-C.

Priority: High.

Challenges to implementation: Vietnam advised that new route structure would seriously affect the airspace organization, and ATM operations, for crossing busy routes W1 and W2. Vietnam suggested that the introduction of RNP10/RNP 4 as a first phase and introduction of a parallel route as a second phase on L628 subject to traffic requirements.

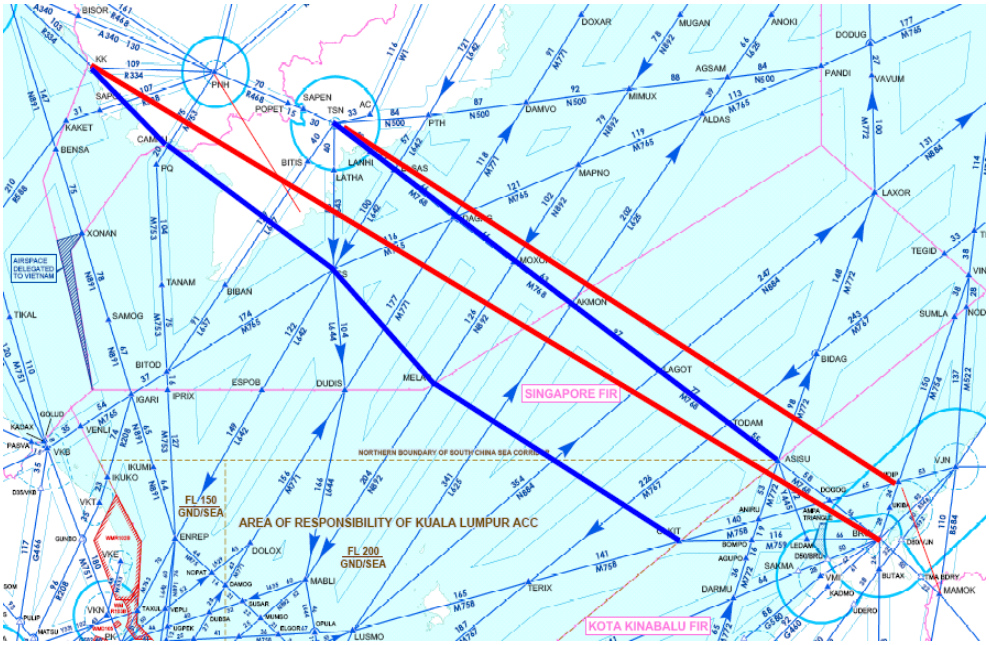
Mitigation: Further consultation needed.

Consultation: Bangkok, Phnom Penh, Ho Chi Minh, Manila.

Implementation Timeline: Nil.

Remarks: IATA indicated that the rationale for implementing a parallel route for L628 is not to address a capacity issue on L628 but to increase capacity of the crossing routes by freeing up excess flight levels.

Route Structure 11 – Unidirectional Route M768 BN-TSN



Background: M768 serves traffic between Bangkok, Tan Son Nhat and Brunei, Bali, and points in Australia. It carries approximately 120 flights a week. However, as it cuts across 3 pairs of busier parallel routes it would be advantageous to provide a parallel route structure which would double the route capacity.

FIRs: Bangkok, Phnom Penh, Ho Chi Minh, Singapore and Kota Kinabalu.

Communications: VHF in Bangkok, Phnom Penh and Kota Kinabalu FIR. VHF/HF/CPDLC in Ho Chi Minh FIR. CPDLC/HF in Singapore FIR.

Navigation: RNAV Route.

Surveillance: Full radar coverage in Bangkok, Phnom Penh FIR and Kota Kinabalu FIR. Partial radar coverage and ADS-C in Ho Chi Minh FIR. ADS-C in Singapore FIR.

Priority: Medium

Challenges to Implementation: Currently the traffic volume does not warrant the establishment of a parallel route to M768. The current NPDC levels available are able to cope with the traffic volume and all other levels are coordinated between the ACCs concerned. Also with the current CNS infrastructure available, there would be an impact on the traffic capacity on some of the higher density routes. However during the discussion, consideration was given to traffic increases in the near future and the first step would be the introduction of RNP10 operations (50NM longitudinal separation) as the first phase between Ho Chi Minh, Singapore and Kota Kinabalu FIRs. The second phase will be to establish a parallel route to the south of M768 (without realigning M768 as shown in the diagram above).

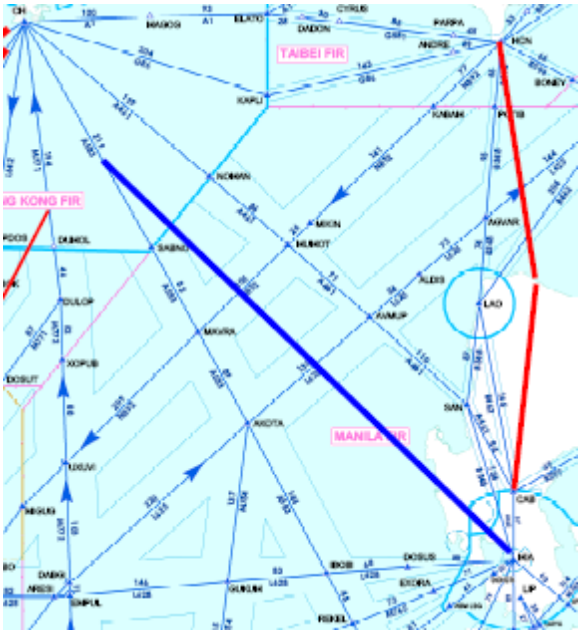
Mitigation: All States agreed that once ADS-B implementation is in place, the CNS infrastructure would have been in place to mitigate the safety and efficiency concerns currently faced. Also the new parallel route is recognised as a long term solution for the traffic increase.

Consultation: Cambodia, Malaysia, Singapore, Thailand and Viet Nam

Implementation Timeline: 2011 (start planning for RNP10 Operations), 2014 (planning of new route), completion Date:2012/2013 (Implementation of RNP10), 2015-2016 (establishment of new route).

Remarks: Cambodia, Thailand and Viet Nam are also working towards upgrading R468 within Bangkok, Phnom Penh and Ho Chi Minh FIRs (extension to M768) into an RNAV Route. The plan is also to implement surveillance separation in the near future.

Route Structure 12 – Unidirectional Route A461 MNL-HK



Background:

IATA made the proposal to implement a unidirectional route to parallel A461 to increase the capacity (**blue line**). A461 serves the Hong Kong /Manila city pair as well as airports from Australia. Currently A461 carries approximately 560 movements per week. A461 also crosses N892 and L625.

FIRs: Manila and Hong Kong.

Communications: VHF in Hong Kong FIR, VHF in Manila FIR

Navigation: Conventional route.

Surveillance: Long Range Radar in Hong Kong, and Manila FIR (partial radar cover).

Priority: High

Challenges to implementation: Lack of Surveillance capability in Philippines

Mitigation: ADS-C CPDLC being implemented in Manila FIR, a Data Sharing between Hong Kong and Manila FIRS.

Consultation: Philippines and Hong Kong

Implementation Timeline: **u**nidirectional Route, RNP10 criteria, 2nd quarter 2013
RNP4 - 4th quarter 2014.

Remarks: Hong Kong cannot implement changes from July to June 2014 due to commissioning of new a ATMS and ATCC.

Route Structure 13 – B462/B348 MNL/TPE

Background: IATA proposed the implementation of a unidirectional route to B462/B348 as a means of increasing flight level availability. B462/B348 serves Manila and Taipei and airports northwards. B348 carries approximately 550 movements per week.

FIRs: Manila and Taipei

Communications: VHF in Taipei, HF and VHF in Manila FIR.

Navigation: Conventional route.

Surveillance: Long Range Radar in Taipei, and Manila FIR

Priority: High.

Challenges to implementation: Consultation needed.

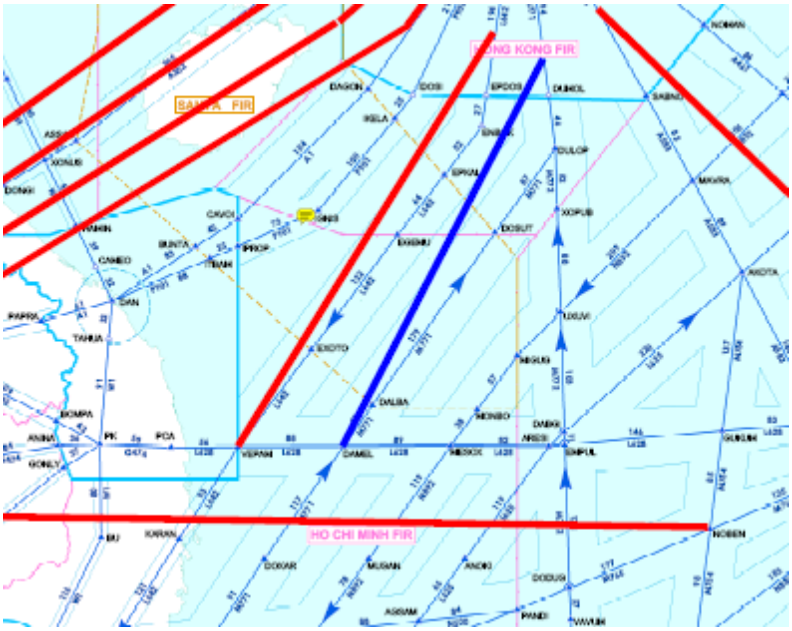
Mitigation: Parallel route to be subject to discussion EATMAG meeting.

Consultation: Philippines, Taiwan, IATA.

Implementation Timeline: To be confirmed following EATMAG Meeting.

Remarks: Reported by Philippines that Taipei is amenable to upgrade the route B348 to RNAV rte. Parallel route will not be implemented at this stage.

Route Structure 14 – Re-align M771



Background: IATA requested the re-alignment of M771 to reduce the track distance for flights departing Hong Kong, in view of the new reduced horizontal separation requirements. The route was spaced 60NM from the adjacent routes when they were conceived.

This is a very busy uni-directional route (approximately 500 flights a week) serving flights between Hong Kong and airports such as Ho Chi Minh, Kuala Lumpur, and Singapore. Even a minor reduction of track miles will translate into significant savings in terms of fuel and CO2 emissions.

FIRs: Ho Chi Minh, Sanya, and Hong Kong.

Communications: VHF in Ho Chi Minh FIR, Sanya, and Hong Kong FIR.

Navigation: RNAV route.

Surveillance: Long Range Radar/ADSB/ADS-C in Ho Chi Minh FIR, Long Range Radar in Sanya and Hong Kong FIR.

Priority: High

Challenges to implementation: As for Route 9.

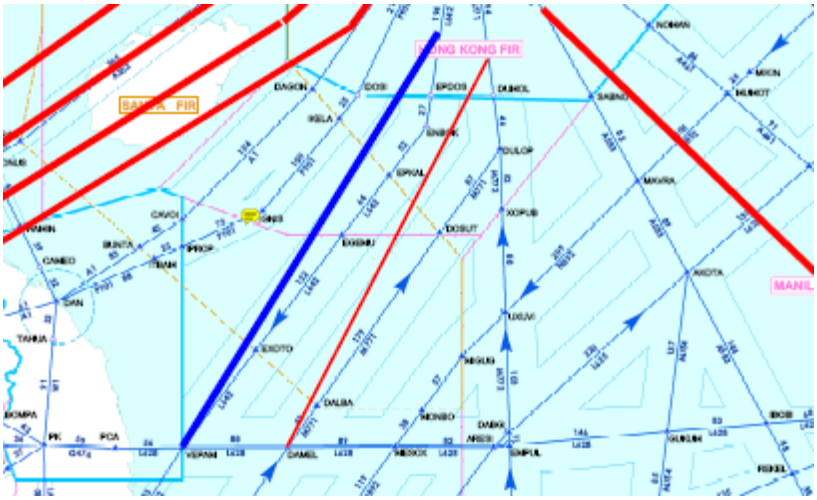
Mitigation: As for Route 9.

Consultation: Vietnam, Hong Kong China, China.

Implementation Timeline: Subject to further evaluation.

Remarks: To be combined with the A202 airspace restructure.

Route Structure 15 – Re-align L642



Background: Like M771, IATA has also asked for a re-alignment of the route to take advantage of the reduction of horizontal separation for flights on L642 and M771 on account of RNP10 implementation.

As with M771 the traffic movements number approximately 500 per week and even a small reduction in the track miles will yield significant savings in terms of fuel and CO2 emissions.

FIRs: Ho Chi Minh, Sanya, and Hong Kong.

Communications: VHF in Ho Chi Minh FIR, Sanya, and Hong Kong FIR.

Navigation: RNAV route.

Surveillance: Long Range Radar/ADSB/ADS-C in Ho Chi Minh FIR, Long Range Radar in Sanya and Hong Kong FIR.

Challenges to implementation: As for Route 9

Mitigation: As for Route 9

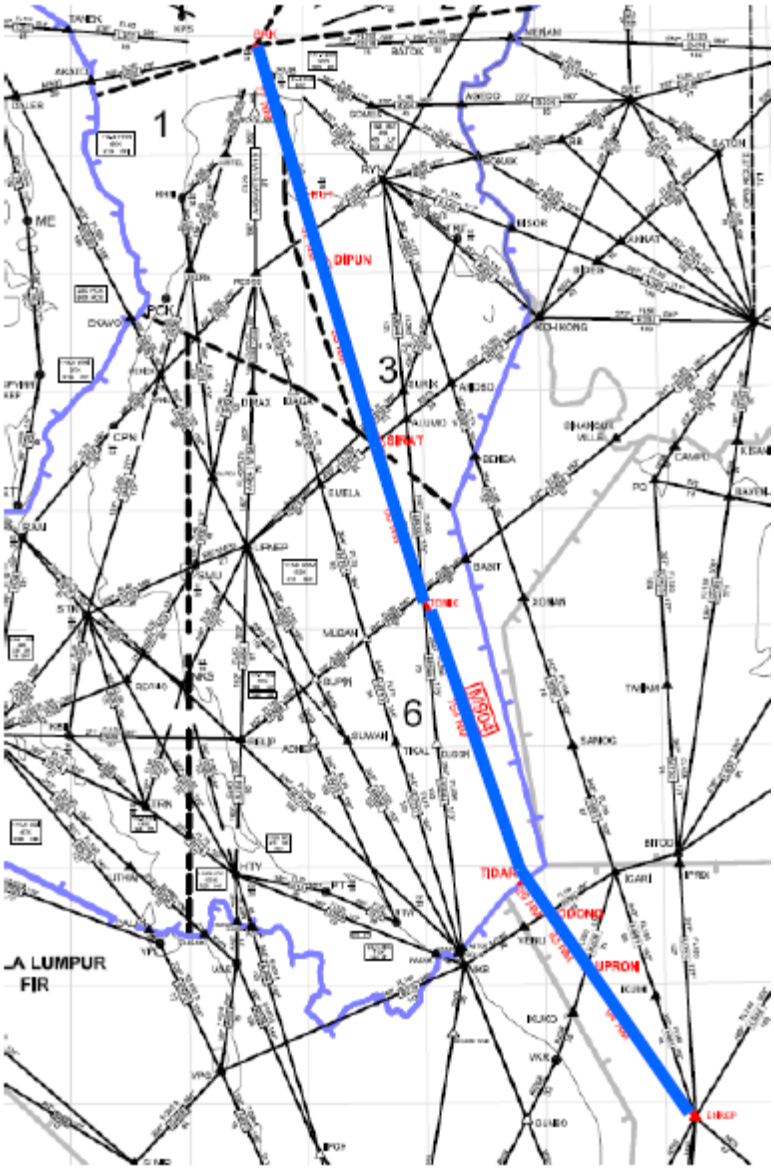
Consultation: Vietnam, Hong Kong China, China.

Implementation Timeline: Subject to further evaluation.

Remarks: To be combined with A202 airspace re-structure.

Route Structure 16 – M904

New route requirement SEA-RR TF/5



Background: For the purpose of achieving better ATM seamlessness and traffic management , Thailand, Malaysia and Singapore collaborated to implement a new route between Bangkok and Singapore.

FIRs: Bangkok, Kuala Lumpur, Singapore

Communications: VHF in Bangkok, Kuala Lumpur and Singapore FIR

Navigation: RNAV route

Surveillance: Long Range Radar in Bangkok and Kuala Lumpur FIR

Challenges to implementation: Nil

Mitigation: Nil

Consultation: Consultation completed

Implementation Timeline: 12 Jan 2012

Remarks: Request for BANP amendment received by ICAO APAC Office