International Civil Aviation Organization

The Twentieth Meeting of the APANPIRG ATM/AIS/SAR Sub-Group (ATM/AIS/SAR/SG/20)

Singapore, 05 – 09 July 2010

Agenda Item 4: Review and process the tasks assigned to the ATM/AIS/SAR/SG by APANPIRG

SUMMARY REPORT OF THE SOUTHEAST ASIA ROUTE REVIEW TASK FORCE (SEA-RR/TF) − FIRST AND SECOND MEETINGS

(Presented by the Secretariat)

SUMMARY

This Working Paper presents a summary report of the first and second meetings of the Southeast Asia Route Review Task Force. Two further meetings of the task force are being planned in the 2nd half of 2010.

The paper relates to

Strategic Objectives:

A: Safety – Enhance global civil aviation safety
D: Efficiency – Enhance the efficiency of aviation operations

Global Plan Initiatives:

GPI-1 Flexible use of airspace
GPI-5 Performance based navigation
GPI-8 Collaborative airspace design and management

1. INTRODUCTION

1.1 The meeting would recall that, at the 19th Meeting of the APANPIRG ATM/AIS/SAR Sub−Group (ATM/AIS/SAR/SG/19), which was held at the ICAO Asia and Pacific Regional Office, Bangkok, Thailand from 22 to 26 June 2009, after extensive discussions, the sub group agreed to create a specific ICAO focus group to review and modernise the ATM arrangements in the Southeast Asia area reflecting the modern technological capabilities becoming available.

1.2 Accordingly, the Sub−Group agreed to suitable Terms of Reference for the Southeast Asia Route Review Task Force (SEA−RR/TF) (provided as an attachment to this WP), which would report to the Sub−Group, and accordingly adopted the following Decision:

ATM/AIS/SAR Sub-Group Decision 19/1 – Establish Southeast Asia Route Review Task Force (SEA−RR/TF)

That the RNP-SEA/TF be renamed as the Southeast Asia Route Review Task Force (SEA−RR/TF) and re-tasked in accordance with the Terms of Reference shown at Appendix E to the ATM/AIS/SAR/SG/19 Report of Agenda Item 5. The SEA−RR/TF will report to the ATM/AIS/SAR Sub−Group of APANPIRG.

2. DISCUSSION

2.1 The 1st meeting of the SEA-RR/TF took place in the ICAO Asia and Pacific Regional Office in Bangkok on 8 – 11 December 2009 and the 2nd meeting was held at the same location on 22 – 26 March 2010. Both meetings were well attended by concerned States and international organizations. The 3rd meeting is scheduled to be held on 24 – 27 August 2010.

2.2 The Terms of Reference (TORs) of the Task Force which were agreed to at the ATM/AIS/SAR/SG/19 meetings are in Attachment 1 of the WP:

2.3 The Task Force noted that, over the past decades, there has been several ICAO Groups or Task Forces which were established in this high profile area for the purpose of enhancing air traffic management capabilities to benefit the aviation community and air traffic service providers alike. The area of Southeast Asia comprises 12 States and 14 FIRs south of the Fukuoka FIR. It also involves a mixture of international oceanic as well as continental airspace which needs to be considered.

2.4 The task force recalled that other ICAO forums are also doing work in this area, therefore it was deemed appropriate that any decisions taken at this meeting should not be in conflict with work in progress by these groups.

Basic Area to be considered by the Task Force

2.5 It was agreed by the task force that, taking into consideration the broad TORs given, work would be devoted to broadening the scope of the present route structure in the South China Sea oceanic area and where necessary, appropriate sections of continental airspace where appropriate.

2.6 The task force observed that extensive positive contributions had already been commenced within this area with the implementation of 50 NM longitudinal separation on two RNAV parallel routes, L642 and M771 between Hong Kong and Singapore. The focus of the task force was to now enhance operational efficiencies on other routes within this airspace, taking into consideration present and future aircraft capabilities commensurate with safety requirements. This includes not only aircraft operating on the major northeast/southwest flow, but also aircraft using routes crossing this major traffic flow.

Realigning L642 and M771

2.7 Regarding L642 and M771, it was noted that these routes were part of the South China Sea parallel unidirectional route structure and were originally designed to be RNAV routes laterally separated by 60 NM, with convergence of routes occurring within surveillance coverage. However, as a consequence of the improved surveillance and communications they have been upgraded to RNP 10 routes but left at 60NM spacing to allow further enhancements to RNP4.

2.8 The task force was informed that re-aligning L642 and M771 would reduce the route lengths by 10NM and 14NM. More than 2 100 flights per month operate on L642 and a similar number on M771. It was suggested that any changes to the present route structure needs to be taken in a more holistic approach so as not to cause further issues with the current route design.

Statistical Aircraft Data Collection and Analysis

2.9 The task force considered that a thorough analysis of aircraft data was required to ensure that proposals for a route review is based on updated data in regards to present and forecast traffic operating in the area. This data collection would be required for the present major parallel route structure as well as for routes crossing the major traffic flow.

2.10 It was noted that, since the implementation of RVSM in the Asia and Pacific region, traffic data collection has been undertaken by States to assist in determining that the Target Level Safety has, and continues to be met. This same traffic data could also be used when a route review in this airspace is undertaken. This traffic data sample for RVSM is generally only for one month each year and it was considered that a more expansive collection covering many aspects would be required when a major route review is programmed. For example, there are certain factors which need to be assessed across a broader timeframe such as:

a) Seasonal figures;
b) Identifying busy periods, both on the major routes and crossing routes; and,
c) The number of FANS equipped aircraft operating in the area.

2.11 In order to achieve this additional traffic collection, cooperation from all States is required over the period of the data sample and in addition, the assistance of an organization who could then translate the data into a useful product to assist in the route review process.

Establishment of a Data Statistics and Analysis Working Group

2.12 The task force decided to establish a Data Statistics and Analysis Working Group. Each State would provide a contact point and for the purpose of the data collection process.

2.13 Further discussion evolved on the subject of data collection of aircraft operating in this area as well as analysis of that data to judge strategies to be used the review process. It was also suggested that this data would be useful in the development of a safety assessment of any recommended changes made.

2.14 It was the view of the task force that this subject was an important issue. What data should be collected and analysed was also raised and it was finally agreed that live data would give a better picture of the status of aircraft rather than flight plan information.

2.15 Thailand and Singapore offered their services to carry out the task of collation and analysis of the data. Both States have shown extensive past experience in producing effective results in this important area. The task force agreed that States involved in data collection would supply one week data catch every month to Thailand and Singapore commencing in January 2010 together with the name of their designated representative on the working group. The third week of each month commencing in January 2010 at 0001UTC on the third Sunday was also agreed to.

IATA Outlook on Southeast Asia Route Review

2.16 The task force was advised that, in accordance with the IATA User Expectations concept, which were submitted and accepted by APANPIRG, routes should be designed to enable the shortest possible distance between airports, as well as delivering aircraft into and out of the Terminal environment with the maximum efficiency.

2.17 It was also mentioned that routes should be based on RNAV/RNP utilising existing aircraft capabilities with separation standards applied based on ATM capabilities. Where possible, this capability should be enhanced with direct surveillance and communication capability.

2.18 Taking into consideration the Regional PBN Plan, in areas with direct surveillance and communication capability, routes could be based on RNAV5/ RNAV2 and the routes structure predicated on RNAV1/ RNP2 implementation in accordance with the Plan.

2.19 IATA also requested the task force to consider the following initiatives:

a) Over-flight (or transiting) traffic should not be restricted by terminal airspace requirements by establishing bypass routes around busy terminal areas.

b) Crossing routes and/or conflict points should be planned to occur within direct surveillance coverage where possible.

c) Primary routes should be unidirectional enabling greater capacity and increased safety.

2.20 IATA submitted several proposals for route enhancement within the Southeast Asia area which are attached to this working paper. It was mentioned that these proposals were indicative only. They were not meant to be considered exact points but rather for States to consider and define their own requirements that would meet the intent of each proposal. They included:

a) The establishment of uni-directional routes and realignment of A1 and A202 between Hong Kong and Bangkok;

b) A proposal to establish uni-directional routes crossing the primary traffic flow of South China Sea traffic. Suggested routes were the present bidirectional routes, L628 (Manila - Bangkok), M768 (Brunei - Ho Chi Minh - Bangkok) and finally A461 (Hong Kong - Manila).

2.21 States involved were asked to consider the proposals as concepts, review the basic requirements and assess the operational impact within their own FIRs.

Viet Nam planning enhancements

2.22 Viet Nam advised that they fully supported all ICAO past initiatives in the area of South East Asia as well as the work contemplated by the SEA-RR/Task Force. They also expressed a willingness to also take into account proposals which have been put forward by the users of the ATM service.

2.23 The task force noted the progress of ATS route implementation since 2001 by Viet Nam, and the continued ongoing work between Viet Nam and their national airlines as well as their neighbors, especially in regard to Laos PDR, China, Thailand and Cambodia.

Regional Performance Framework and Metrics

2.24 The task force noted that, at the APANPIRG ATM/AIS/SAR/SG/19 meeting, held on 22 – 26 June 2009, the ICAO planning objective was to achieve a performance based global air traffic management (ATM) system through the implementation of air navigation systems and procedures in a progressive, cost-effective and cooperative manner.

2.25 The performance-based approach to planning stems from requirements associated with the results based environment that ICAO, industry and States have been steadily moving towards. The ICAO *Global ATM Operational Concept* (Doc 9854) provides a clear statement of the expectations of the Air Traffic Management (ATM) Community. Eleven of these expectations, also

referred to as key performance areas (KPAs), have been identified in the operational concept. To support this approach, the *Manual on Global Performance of the Air Navigation System* (Doc 9883) was developed. Doc 9883 provides a step by step approach to performance-based planning on the basis of the KPAs identified in the operational concept. The performance-based approach is structured upon the following principles:

a) strong focus on desired/required results through adoption of performance objectives and targets;

b) informed decision making, driven by the desired/required results; and

c) reliance on facts and data for decision making.

2.26 The task force agreed to use this approach in the development of any new initiatives in the area under consideration.

Proposals for improvements to South China Sea airspace operations

2.27 Singapore presented the task force with a comprehensive working paper detailing the background to the methodology used in the implementation of RNP 10 procedures, both lateral and longitudinal, on RNAV routes L642 and M771.

2.28 The meeting noted that, taking into consideration the amount of work required, especially in regard to the required safety assessment process as well as other considerations, after a consistent and methodical process over two and a half years, the L642 and M771 were approved for use for 50NM lateral and 50NM longitudinal separation on 2 July 2008.

Communications, Navigation and Surveillance Requirements for 30NM and 50NM Separation Minima

2.29 The task force noted that these requirements adequately described in ICAO PANS – ATM (Doc 4444) and Attachment B to Annex 11, and have been typically associated with the application of 50NM and 30NM separation minima in remote and oceanic areas where line-of-sight communications and surveillance systems are unavailable.

2.30 The task force also noted that very high frequency (VHF) radio and secondary surveillance radar (SSR) coverage are presently available throughout almost the entire length of L642 and M771, except for about 100NM in the northern portion of the Singapore FIR. As a result, the CNS requirements for 50NM longitudinal separation are satisfied almost everywhere on the two routes using line-of-sight communications and surveillance equipment.

Data Link Capabilities of Aircraft Using the Six South China Sea RNAV Routes

2.31 The task force noted that, in December of each year, there is a one-month collection of traffic movements in all Asia and Pacific Region FIRs where RVSM is applied. Although this data collection, termed the Traffic Sample Data (TSD), is intended to support the work of the Asia and Pacific Regional Monitoring Agencies, the traffic movement information is useful for other purposes, such as ongoing monitoring by SEASMA of the safety of horizontal-plane separation minima applied to the six RNAV routes in the South China Sea (SCS). The results of the December 2008 TSD collection were examined in order to offer a tentative assessment of the data link capabilities of aircraft using these six SCS routes.

Introduction of 50NM as the Basic Lateral Separation Standard for South China Sea RNAV Routes

2.32 The task force recalled that, notwithstanding that a comprehensive safety assessment established 50NM as the lateral separation between L642 and M771, the air navigation service providers (ANSPs) responsible for these routes chose to leave the spacing of these route unchanged at 60 NM. Nevertheless they opted to use the 50NM lateral minimum on a tactical basis, allowing air traffic controllers to move aircraft up to 10NM from route centerline for weather deviations without affecting the operation of aircraft on the laterally adjacent route.

2.33 Considerable discussion took place regarding this initiative and it was finally decided that the same philosophy should also be used for the other established parallel routes in the South China Sea area. The meeting therefore endorsed Recommendation 1 as follows:

Recommendation 1: That South China Sea ANSPs adopt 50NM as the lateral separation standard for the six RNAV routes, with controllers using this 50NM value on a tactical basis when required. and that, as the Task Force proceeds with its work of route realignment, this reduced lateral separation minimum value be kept in mind.

2.34 Information was given on the methodology used by the FAA in the introduction of 30NM/30NM separation in the Oakland FIR. Part of that methodology was the use of a phased approach in that the gradual extension of a reduced longitudinal minimum was accompanied by expert examination of data-link, automation-system and aircraft navigational performance. In addition, an internal FAA scrutiny group, with members drawn from the FAA's regulatory and air traffic services organizations and supported by FAA Technical Center data collection and analysis, provided expert examination at periodic meetings.

Recommendation 2: That the Task Force adopts a phased approach to introducing horizontal-plane separation minima based on advanced CNS requirements.

2.35 The task force was reminded that, regardless of the manner in which the Task Force chooses to proceed, it will need to have confidence that requisite performance in all relevant aspects is satisfactory. One source which can help to build this confidence is the work of the South East Asia FANS Implementation Team (FIT SEA). It is important to note, however, that the focus of the FIT SEA is only on the technical performance of data link.

Recommendation 3: That the Task Force confirm that the air traffic procedures and automation systems of those ANSPs who will provide data link services for operations in South China Sea airspace are capable of providing 50NM and 30NM longitudinal separation minima safely, based on the recommendation by the FANS Implementation Team, Southeast Asia, and that the navigational and data link performance of aircraft in the airspace will support safe introduction of such minima.

2.36 The task force agreed that SEASMA has a support role to play in this proposed comprehensive review. It was also considered that, if the FAA model is adopted, is may be desirable to establish a similar group of experts to assist in this review.

Use of a 50NM Longitudinal Separation Standard on a Tactical Basis

2.37 Information was provided to the task force which indicated that there is a high level of data link equipage aircraft conducting operations on L625, M767 and N892. In light of the fact that full data link capability is not yet available for all South China Sea FIRs through which these routes pass, an incremental approach to use of 50NM longitudinal separation suggests the following:

Recommendation 4: That the Task Force establish operational-trial use of 50NM longitudinal separation standard between suitably equipped pairs of aircraft on N892, L625, N884 and M767 in those South China Sea FIRs with current capability for managing data-link communications and surveillance, with the first phase of the trial limited to application of the 50NM longitudinal standard as a means of facilitating climbs and descents.

2.38 The start of the trial will depend on a successful outcome of the review cited in Recommendation 3 above, and a supporting safety assessment from SEASMA. That safety assessment can follow the form of such examinations already presented by SEASMA to RASMAG. Nevertheless, they should reflect information developed during the comprehensive review proposed in Recommendation 2 – including actual aircraft data-link position reports from the routes in question. The proposed operational trial should be able to commence within six months of completion of this comprehensive review.

2.39 It was mentioned that, assuming that the Task Force or a body established by it, determines through review of the results of the first phase of the operational trial that the system is operating safely in all operational aspects, it should be possible to transition smoothly to the second phase, which would be the use of the 50NM longitudinal minimum between suitably equipped aircraft pairs in level cruise.

Use of a 30NM Longitudinal Separation Standard on a Tactical Basis

2.40 Using an interim report by FAA on the operational trial use of reduced longitudinal separation minima to the Informal Pacific ATC Coordinating Group in October 2006, aircraft able to be approved for 50NM longitudinal separation operations are readily approvable for 30NMlongitudinal separation operations. Hence:

Recommendation 5: That the Task Force, assuming a satisfactory outcome of the use of 50NM longitudinal separation on N892, L625, N884 andM767, adopt as the next phase of its incremental plan the application of a30NM longitudinal separation on those routes.

Use of a 30NM Longitudinal Separation Standard on L642 and M771

2.41 The data collected indicates that roughly 57 percent of all RNAV route operations occur on L642 and M771. Further, there is a relative even mix of data-link and non-data-link capable operations on these routes. As a result of higher density and lower data-link equipage, introduction of a 30NM longitudinal separation standard on these routes between suitably equipped aircraft pairs may not offer as much benefit as on other RNAV routes. This matter should be considered carefully by the Task Force. Hence:

Recommendation 6: That the Task Force examine, in light of the current and projected data link capability of South China Sea ANSPs and of relevant traffic characteristics, the feasibility of applying a 30NMlongitudinal separation standard on a tactical basis to operations on L642 and M771.

2.42 The meeting had extensive discussion on Recommendation 5 & 6 and felt that more in-depth study would be required. The meeting agreed to further discuss the two recommendations at the next SEA-RR/TF/2 meeting.

High Level Objectives of the SEA-RR/TF

2.43 The task force was advised that the work of the Task Force should take into account two high level objectives:

a) To develop a route structure capable of meeting the expected/forecast traffic growth over the next 10-20 years; and,

b) To minimise the production of carbon emissions to the greatest extent possible.

2.44 It was agreed that any plans developed should be assessed against these two high level objectives in the areas of Safety, Operational Efficiency and Environmental Impact. Taken together this would form a qualitative methodology which could satisfy the needs and responsibilities of all stakeholders.

2.45 Consequently, the task force agreed to include environmental considerations (reduction of CO2 emissions) to the agenda in order to capture and address this important subject in the work programme of the task force.

Initiate Teams/Groups to address specific measures with regard to the Route Review

2.46 The task force recalled that, under the Terms of Reference of the SEA-RR/Task Force, mention was made in para. f) that the Task Force shall "*Consider setting up appropriate teams/groups which might but not necessarily, include the entire Task Force, to address and implement specific agreed measures within specific airspaces."*

2.47 The area under consideration covers a considerable amount of airspace and is managed by many FIRs. To influence a beneficial result in all areas under consideration, it weas considered that when appropriate, management of the changes should be specific to the many sub-areas within the whole framework of the SEA.

2.48 By establishing appropriate teams/groups within the Task Force, it enables agreed changes to be made which enhances the coordinated work accomplished by the task force in an appropriate time frame. An example of this type of working arrangement was the EMARSSH project which covered changes to the ATS route structure from Australia to the Eastern shores of the Black Sea.

2.49 The task force noted that the title of the group, Southeast Asia Route Review, opens many areas for discussion. Amongst these subjects are:

a) Introduction of RNP 10 horizontal separation (both lateral and longitudinal);

b) Unidirectional RNAV routes on tracks crossing the major traffic flow SW/NE

c) Unidirectional routes between Bangkok and Hong Kong including matters which need to be addressed in the strategic plan;

d) Data collection and analysis on most project items to ensure that qualified data indicates a reason to proceed;

e) Necessary safety related issues which are required to be addressed before implementation; and,

f) Realistic target dates to complete all projects within the overall framework of the SEA-RR/Task Force.

2.50 Where a particular subject can be separated from most other items, a small working group consisting of States and international organizations could discuss in detail the work required and submit the recommendation back to the plenary task force meeting for final analysis and evaluation.

2.51 The task force considered that in the initial phase of the work of the SWG, three such groups should be formulated with specific tasks:

a) SWG/1 - Data Collection and Analysis. This SWG has already been formed by agreement from SEA-RR/TF/1;

b) SWG/2 – Improvements and modifications to the major traffic flow. This SWG would also be tasked if requested to look at other international route proposals submitted to the task force outside the major traffic flow; and,

c) SWG/3 - RNAV Routes crossing the major traffic flow.

Analysis of one week traffic sample data submitted by States

2.52 The meeting was advised that an analysis of a one week traffic sample data submitted by the States in the region to the Data Statistics and Analysis Working Group had been undertaken. It highlighted the traffic loading of routes, city pairs as well as the filed PBN capability of the aircraft flying on these routes. Further work in this area is ongoing.

Unidirectional routes replacing A202and A1

2.53 In order to increase efficiency in route design which would also reduce track miles and carbon emissions, the task force were presented two examples where changes to the present route structure could be used in respect to ATS route A202 and A1. The diagram shown below was generic in nature however it gives examples of 2 pairs of routes under full radar coverage, where significant benefit could be obtained to both the users and the providers of the ATS service.

2.54 As an example of close spaced parallel RNAV routes, the task force noted that in the Gulf area of the Middle East region, States concerned have developed a route structure under full radar/VHF coverage which optimises the airspace by the development and implementation of RNAV 5 procedures. Lateral spacing of RNAV routes varies between 10 to 20 NM, depending on the circumstance. This innovative route orientation has been in effect for several years in several FIRs and ACCs and reports indicate that the procedures provide safe, efficient and operational benefits to aircraft and ACCs alike.

2.55 It was suggested to the task force that this type of model deserves serious consideration in the SCS area, especially where, by slight amendment to the present route structure, some routes presently outside full radar/VHF coverage could be included under RNAV 5 procedures and gain the benefits of these standards.

2.56 The task force recognized that there were other considerations to consider such as military issues which could affect the nature of this proposal. Nevertheless, with appropriate civil/military coordination, which has brought positive results in the past this type of change is worth consideration.

Realignment of L642 and M771

2.57 The task force was also asked to consider moving the northern segment of the present L642 and M771 between Ho Chi Minh FIR and Hong Kong FIR to the west of their present position so that both routes would be under full radar and VHF coverage and therefore be considered for reduced spacing of aircraft in this area.

Introduction of Data Link services within the Manila FIR

2.58 The Philippines confirmed that datalink installation in the upgraded Manila ACC was scheduled to take place mid 2010 with an expected datalink trial commencing Q4 2010. The initial trial will be in the Eastern portion of their airspace to test the capabilities in this low density traffic area of their FIR. It is expected that the trial will expand to the western portion of the Manila FIR within the SCS area in 2011. The task force noted that this indicated full operational datalink services could be ready in 2012.

Introduction of RNP4 on L642/M771

2.59 As mentioned earlier, the primary SCS routes L642/M771 already enjoy almost complete surveillance and VHF coverage with only one gap between Singapore and Vietnam.

2.60 The South China Sea ADS-B project represents a solution to this gap with ADS-B receivers and VHF transceivers to be co-sited at defined locations. At the SEA-ADS-B WG/5 in January 2010, proposed timelines were presented that should enable operational separations to be applied based on ADS-B late 2011/early 2012. As such the principles of RNAV5 may provide more advantages to stakeholders than RNP4, based on the complete surveillance and VHF coverage. However it was also mentioned that there were several requirements that still need to be fulfilled which may delay RNAV5 until approximately 2014.

2.61 In the meantime, based on the traffic data available, it was mentioned that there is potential benefit in pursuing the application of RNP4 separations between suitably equipped aircraft on L642/M771. With the potential for RNAV5, there is no need to redesignate the route, but availability could provide ATC with increased efficiencies and capacity.

2.62 There was general support for the proposal that RNP4 separation could be considered on L642/M771 in the short term.

Establishment of Uni-directional RNAV Routes between South East Asia and China

2.63 IATA believed significant operational benefits would be gained by establishing uni-directional RNAV routes between Bangkok-Beijing and Bangkok-Shanghai. This would not only serve traffic between these airports but also for Malaysia, Singapore and potentially beyond.

2.64 IATA noted that the extensions was outside the prime area of focus for the SEA-RR/TF but requested endorsement of the concept and referral to the appropriate forum for consideration.

2.65 China advised the meeting that all proposals put forward at this task force affecting China will be carefully considered by CAAC and ATMB.

Proposal to Implement Unidirectional Parallel Tracks Crossing the Major Traffic Flow

2.66 The task force recalled that there are several ATS routes which cross the main traffic flow serving major airports in the northeast/southwest portions of the SCS. It was recognized that these crossing aircraft also need to be accommodated with economically efficient levels. The crossing routes are presently bidirectional and are mostly of a shorter distance than the major traffic flows. The 3 charts shown gives examples where, by duplicating these crossing routes and using a spacing of 60 NM minimum apart, fewer levels would be required for these aircraft and as a consequence, additional levels may be able to be transferred to the major NE/SW traffic flows.

2.67 The following crossing routes to be considered were listed as follows:

a) M768 Brunei to Ho Chi Minh
b) L628 Manila to PCA
c) A461 Manila to Hong Kong
d) B462/ B348 Manila to Taipei

2.68 Other crossing routes which may also be considered for unidirectional pairs are:

a) M772 Jakarta to Hong Kong; and,
b) A583 Australia via Zamboanga to Hong Kong

2.69 Malaysia presented a safety study to the task force on the proposed unidirectional route to M768 crossing the South China Sea based on an original proposal brought forward by IATA This study arrived at the conclusion that the proposed parallel route to M768 should be located to the East of the present M768 rather than to the of west of the present route. IATA expressed the view that, by moving the proposed parallel route from the west of M768 to the east would cause an additional 40NM in distance to the original proposal. The task force decided to allow time for both parties to have consultation together and re-visit this issue at the next task force meeting.

2.70 Other items which would need consideration included:

a) A safety management assessment on the change;

b) Realistic benefits to both crossing traffic and the traffic using the major flow traffic; and,

c) Workload on ACCs concerned in each proposal.

2.71 The Philippines gave support to the establishment of a unidirectional parallel route to L628 which crosses the major traffic flow from Manila to Bangkok. They also pointed out that L628 also interacts with three other routes, namely M772, M754 and A583.

2.72 The task force considered that further discussion on level allocation for routes crossing the major traffic flow was required. It was observed that a benefit of introducing parallel unidirectional crossing routes would be to allow the primary traffic flow additional flight levels to adequately cope with the expected traffic growth. The task force noted the proposals and could see benefit in the establishment of parallel routes crossing the main traffic flow. However some States would require further study on this matter, especially in two important areas:

a) the effect on the present routes structures by the implementation of another crossing route; and,

b) the effect on present routes within a States FIR outside the major traffic flows.

2.73 In developing a proposal to implement parallel unidirectional routes crossing the primary traffic flow, it was strongly suggested to study each proposal separately to confirm that there are benefits to both the users and ACCs concerned. In addition, any difficulties should be assessed and consideration to overcome these difficulties taken, even if it means changing the position of the new parallel route design.

Establishment of RNAV5 Corridor between Singapore and Indonesia

2.74 Indonesia and Singapore jointly presented their plans for the redesignation of two routes as RNP 10 and for the application of 50nm longitudinal separations on these routes commencing in Q4 2010.

2.75 IATA noted that the "triangle of routes" between Singapore-Bali-Jakarta-Singapore enjoy complete coverage utilising radar and VHF. This will be further enhanced in the future with ADS-B. It was also noted that Indonesia had experienced traffic growth of approximately 20% over the past few years with many routes being heavily loaded.

2.76 While endorsing the current plans for the implementation of RNP10 and associated separations, IATA suggested that in establishing RNP4, the needs of all stakeholders could be better supported with the establishment of RNAV5 uni-directional routes within this "triangle". Singapore recognized the benefits of RNAV5 however guidance material from ICAO on the safety assessment methodology and requirements for RNAV5 Operations would be appreciated. ICAO agreed to look into this matter through RASMAG.

2.77 IATA noted that some experience in the region already existed with Japan establishing their "Sky Highway" in Oct 2009 and the "triangle" could easily be extended into adjacent routes based on the capabilities and traffic needs.

Efficient Routing for Bangkok/Hong Kong/Pearl River Delta

2.78 The task force noted that there are high traffic levels from Bangkok to Hong Kong/Pearl River Delta and Bangkok to Taipei/Japan and beyond. Major improvements had been achieved in ATM capabilities to cater for this increased traffic. In particular the surveillance capability in the area concerned has improved to the extent that the entire area between Pearl River Delta and Bangkok is under radar surveillance.

2.79 The task force recalled that at a previous meeting of SEACG, it was agreed that it was entirely feasible to implement radar spacing along most ATS routes in this airspace. As an example. the current enroute longitudinal spacing applied on A1 and A202 is 40 NM. This translates to about five minutes between successive aircraft, in a radar surveillance environment. The task force considered that this could be reviewed in agreement with FIRs concerned to gain operational simplicity as well as efficiency on these high density routes.

2.80 With regard to A202, it was also suggested that consideration be given to a pair of appropriately spaced uni-directional parallel routes from Bangkok to Hong Kong. States concerned would study this proposal and report back to future task force meetings after further consultation with their military counterparts.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) Discuss the Summary Report of the 1st and 2nd meetings of the Southeast Asia Route Review (SEA-RR) Task Force;

b) Support the methodology and strategies being developed to improve the safety and operational efficiency in the defined area in accordance with the Terms of Reference of the Task Force, in particular:

i) In line with the introduction of Data-Link Services, implement RNP 10 longitudinal spacing on all RNAV routes within the South China Sea;

ii) The introduction of unidirectional routes where safety and operational efficiency benefits have been demonstrated or are contemplated in the near future;

iii) Where considered appropriate, re-alignment of routes to gain the benefits of RNAV 5 procedures using VHF and radar capabilities

iv) Dual parallel unidirectional routes crossing the major traffic flow in the South China Sea which will allow a better distribution of flight levels based on air traffic numbers;

c) Consider and as appropriate support the Recommendations put forward by Singapore in paras. 2.34 to 2.43 inclusive.

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Terms of Reference

Southeast Asia Route Review Task Force (RR/TF)

1) The objective of the ICAO RR/TF is:

   In collaboration with affected stakeholders and ensuring inter-regional harmonization, develop and implement strategic, benefits-driven plans to improve en-route airspace efficiency.

2) To meet this objective the Task Force shall:

   a) Review the existing route structures in the WPAC/SCS area south of the Fukuoka FIR, taking into consideration the AR9 traffic flow.

   b) Determine the reduced horizontal separation required, taking into account the aircraft approval status of the traffic operating on the relevant route.

   c) Examine the possibility of a step-by-step or phased implementation of new route structure and detail the phases required and the areas/routes concerned.

   d) Develop and action the necessary strategic plans with appropriate timelines to implement the new route structure based on the APANPIRG Regional PBN Implementation Plan and ICAO Standards and Recommended Practices, whilst taking into account the need for inter-regional harmonization, State and user requirements.

   e) Ensure the conduct of Annex 11 compliant pre-implementation safety assessments and make arrangements for States to conduct ongoing post-implementation safety monitoring in accordance with ICAO provisions.

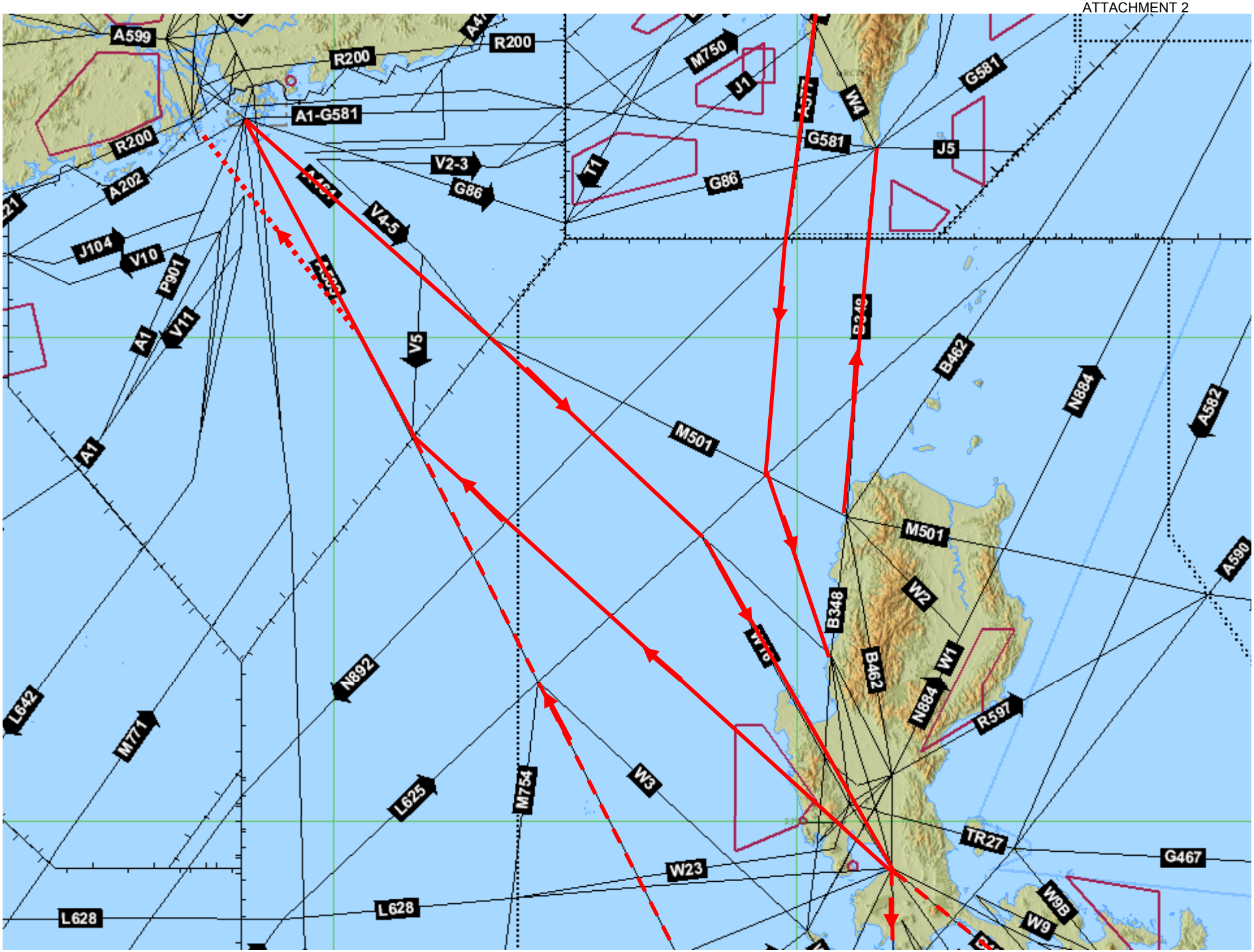
   f) Consider setting up appropriate teams/groups which might but not necessarily, include the entire Task Force, to address and implement specific agreed measures within specific airspaces.

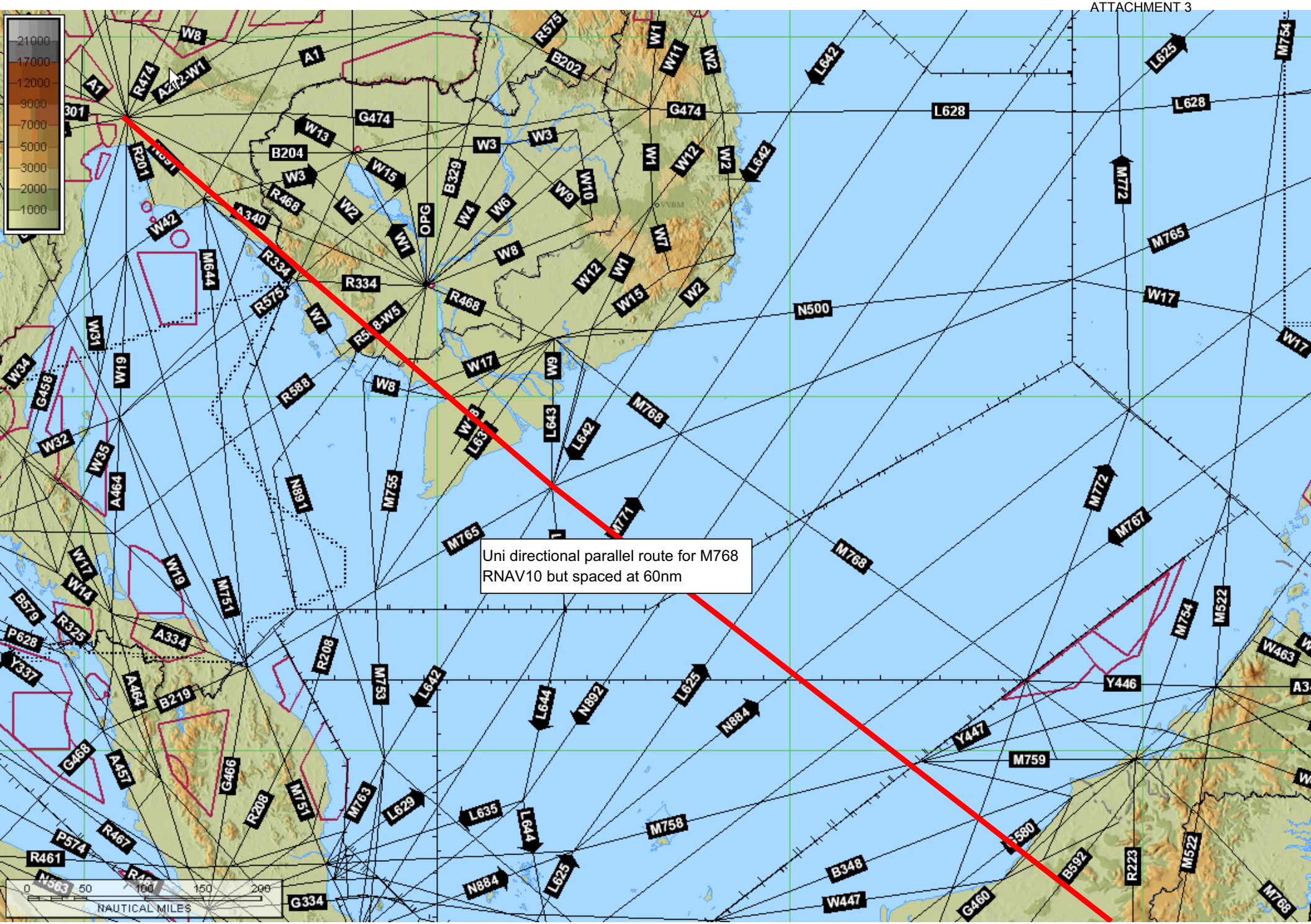
   g) Cooperate with other Task Forces and groups which are involved with similar work in adjacent airspaces in order to achieve harmonized inter-regional solutions.

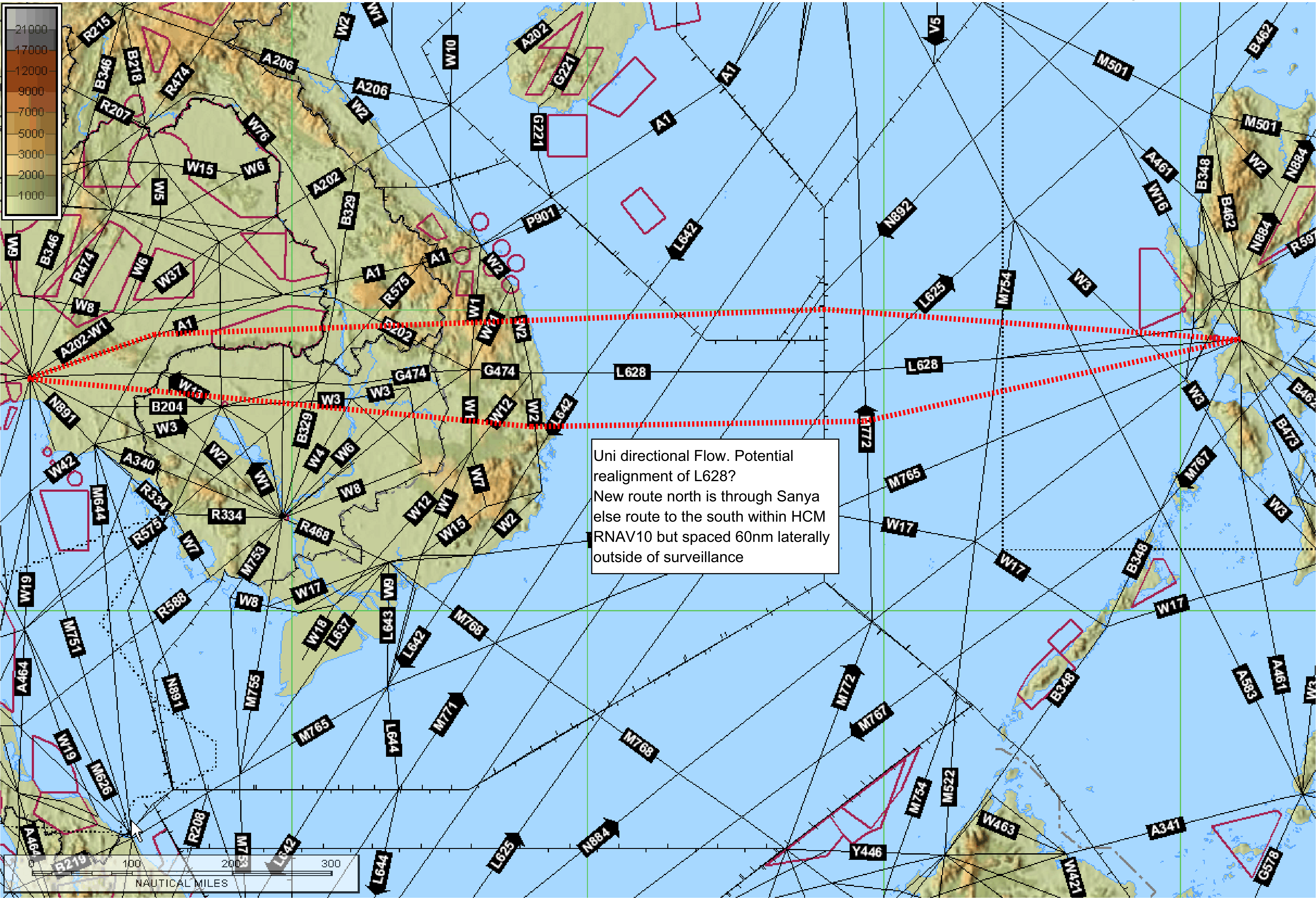
   h) Explore possibilities for further enhancements to operational efficiency of route structures through reconfiguration and/or enhanced surveillance.

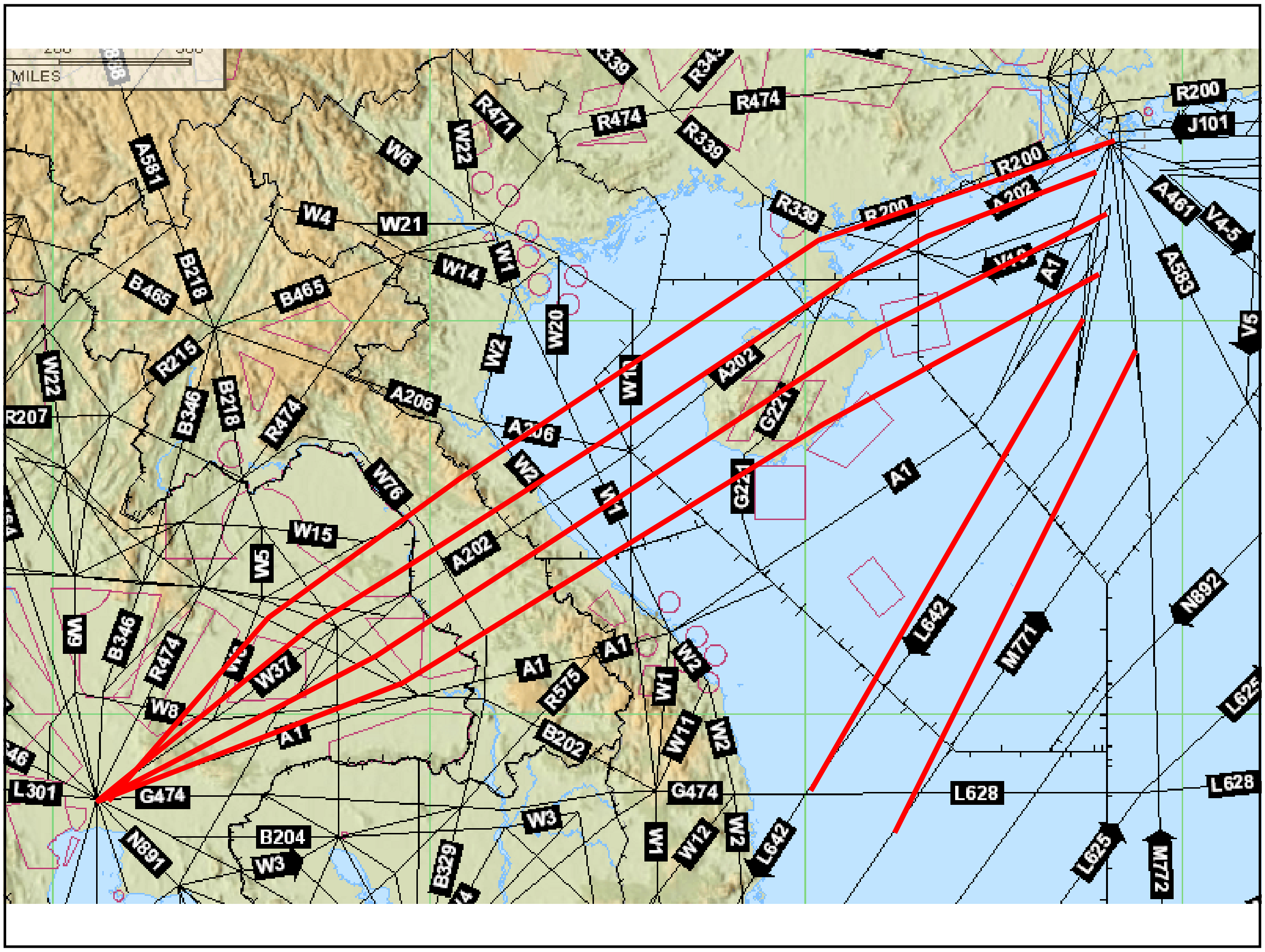
3) Membership of the RR/TF should include, but not be limited to: Cambodia, China (for Sanya FIR), Hong Kong China, Indonesia, Lao PDR, Malaysia, Philippines, Singapore, Thailand, Vietnam and IATA.

4) The RR/TF reports to the ATM/AIS/SAR Sub Group of APANPIRG


A599
R200
R200
R200
A1-G581
A202
V2-3
G86
V4-5
J104
V10
P901
V11
A1
A1
V5
M501
M750
J1
W4
G581
G581
J5
T1
G86
B462
N884
A582
M501
A590
W2
B348
B462
W1
N884
R597
N892
L642
M771
L625
M754
W3
TR27
G467
W23
L628
L628
W9B
W9


Uni directional parallel route for M768
RNAV10 but spaced at 60nm
NAUTICAL MILES


Uni directional Flow. Potential realignment of L628?
New route north is through Sanya else route to the south within HCM RNAV10 but spaced 60nm laterally outside of surveillance
L628
NAUTICAL MILES


MILES
R200
J101
R474
R474
R471
W22
W6
A581
R339
R200
A202
A461
V4-5
W4
W21
W14
W1
R339
A1
A583
B218
B465
B465
W20
W2
V5
R215
W22
R207
B346
B218
R474
A206
A206
A202
G221
W76
W2
W1
A1
G221
W15
W5
A202
W9
B346
R474
W37
W8
A1
R575
A1
W2
W1
L642
M771
N892
L625
B202
W11
W2
A1
L301
G474
G474
L628
L628
B204
W3
W3
N891
B329
W1
W12
W2
L642
L625
M772