INTERNATIONAL CIVIL AVIATION ORGANIZATION

ASIA AND PACIFIC OFFICE

REPORT OF THE FIRST MEETING OF THE ICAO REQUIRED NAVIGATION PERFORMANCE (RNP) IMPLEMENTATION TASK FORCE (RNP/TF/1)

SINGAPORE

13 – 15 March 2006

The views expressed in this Report should be taken as those of the Task Force and not of the Organization

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History of the Meeting

Report of SEARHSM/TF/1

Appendices

1.1 Introduction

1.1.1 The First Meeting of the ICAO Required Navigation Performance (RNP) Implementation Task Force (RNP/TF/1) was held at Singapore Aviation Academy, Singapore from 13 to 15 March 2006.

1.2 Attendance

1.2.1 RNP/TF/1 was attended by 34 participants from China, Hong Kong China, Indonesia, Japan, Malaysia, the Philippines, Singapore, Thailand, IATA and IFALPA. A complete list of participants is at **Appendix A** to this Report.

1.3 Officers and Secretariat

1.3.1 Mr. Peter E. Rabot, Head Air Traffic Services, Civil Aviation Authority of Singapore (CAAS), Singapore served as the Chairperson of the Task Force. Mr. Kyotaro Harano, Regional Officer, Air Traffic Management (ATM), ICAO Asia and Pacific Office served as the Secretary for the meeting.

1.4 Opening of RNP/TF/1

1.4.1 Mr. Peter Rabot extended his welcome to the participants. He began by saying that this was his first opportunity to serve as a chairman on an ICAO Task Force. Mr. Rabot said he had spent more than a quarter of a century in ATC and still had so much to experience. He had seen tremendous advancements made in the technology both onboard aircraft and at the ATC units.

1.4.2 He further stated that the objective of the meeting was to develop the Terms of Reference and Task List for the implementation of RNP 10 operations in Southeast Asia. As he looked around the room, he saws a number of familiar faces but, more importantly, he saw experience in them. He hoped that that familiarity and experience would be harnessed for the good of improving the air traffic flow and airspace capacity in the region.

1.4.3 At the 15th Meeting of the ATM/AIS/SAR Sub-group (ATM/AIS/SAT/SG/15, July 2005), it was acknowledged that there was a need to implement a reduced longitudinal separation based on RNP 10 operations in Southeast Asia due the significant increase in traffic volume over the South China Sea. The challenge of this increase had to be met and he was sure the Task Force was up to that challenge. Finally, he wished everyone a fruitful meeting, a pleasant stay at Singapore Aviation Academy and to his overseas members, a pleasant stay in Singapore.

1.4.4 Mr. Kyotaro Harano welcomed all the participants on behalf of Mr. L.B Shah, Regional Director, ICAO Asia and Pacific Office. He expressed appreciation to CAAS for their warm welcome and generous support in hosting this significant meeting. He recalled that Singapore had hosted some meetings for the RVSM Task Force before, and was now very grateful for Singapore to take an initiative again for the horizontal aspect. Benefits of the reduction of the longitudinal separation were significant; in particular, to the reduction in ground delays and better management of air traffic on major ATS routes.

1.4.5 Mr. Harano drew to the attention of the meeting that as this was the first meeting of the Task Force, it was important to ensure that all the key factors were covered to facilitate the introduction of reduced longitudinal separation. Also, it was necessary to address all the requirements

for reducing longitudinal separation such as communication requirement, navigation performance and safety assessment. He wished all concerned to cooperate and work closely so that the critical elements of reduced longitudinal separation could be addressed to allow for the implementation as soon as possible.

1.5 Documentation and Working Language

1.5.1 The working language of the meeting as well as all documentation was in English.

1.5.2 Eight Working Papers and two Information Papers were presented to RNP/TF/1. A list of papers is included at **Appendix B** to this Report.

Agenda Item 1: Adoption of Agenda

1.1 To support the activities of the Task Force, Singapore generously nominated Mr. Peter E. Rabot, Head Air Traffic Service, CAAS to act in the role of the Chairperson. Japan seconded the nomination by Singapore. The meeting unanimously elected Mr. Rabot as the Chairperson of the Task Force.

1.2 The meeting reviewed the provisional agenda proposed by the Secretariat for RNP/TF/1, and adopted the following agenda:

Agenda Item 1: Adoption of Agenda

Agenda Item 2: Development of Terms of Reference

Agenda Item 3: Development of RNP/TF Task List

Agenda Item 4: Develop a Coordinated Plan for Implementation of Actions Agreed by the Task Force

Agenda Item 5: Any Other Business

Agenda Item 6: Date and Venue for the Next Meeting

Agenda Item 2: Development of Terms of Reference

Review of the Current Situation as Reported from Singapore

2.1 Singapore reported to the meeting that they drew attention of ATM/AIS/SAR/SG/15 to the significant increase in traffic volume that had been experienced on RNAV routes L642 and M771 in the South China Sea parallel route structure. The traffic volumes on L642 and M771 increased significantly in 2005 by approximately 40% since the implementation of the revised South China Sea route structure on 1 November 2001 and RVSM on 22 February 2002.

2.2 Singapore further informed the meeting that currently only RNP 10-approved aircraft could flight plan at FL 290 or above on the parallel routes in the South China Sea area and the applicable longitudinal separation was 10 minutes based on Mach Number Technique or 80 NM without closing speed. With the implementation of RVSM operations in the South China Sea area, there were six additional flight levels available for aircraft operating on the parallel routes. However, in light of the increasing traffic volumes forecasted for Asia and Pacific Region, the route capacity would be saturated during the peak periods. This would result in frequent ground delays and/or aircraft operating at an uneconomical flight level. Moreover, with high fuel costs and the need to utilize the aircraft optimally and efficiently, this situation would not be acceptable to operators. Thus, there was a need to implement reduced longitudinal separation from 80 NM to 50 NM to enhance the route capacity.

2.3 The meeting was invited to consider the implementation of reduced longitudinal separation from 80 NM to 50 NM based on RNP 10 operations to enhance the route capacity in the South China Sea area and, as a start, on RNAV routes L642 and M771 as these routes had seen the largest increase in traffic volumes.

2.4 The meeting was informed of having seen the greater than expected increasing traffic movements since 2002. The meeting was requested to consider a way forward from a time-based separation to a performance-based separation. The meeting also noted that the figures presented far exceeded the estimates by ICAO for the region.

User Requirements for South China Sea Area and Beyond

2.5 IATA presented current situation focusing on the South China Sea and the surrounding region that had seen sustained traffic growth for a number of years. The South China Sea parallel route structure introduced in 2001 and the subsequent implementation of RVSM doubled the route capacity, and resolved many of the prevailing air traffic management issues. The meeting noted that the growth in air traffic since then was beginning to impact on the capacity of one pair of the parallel routes and causing delays to departing flight for the northbound. Concurrently, airport and ATM issues, which are interlinked with airspace capacity, were also becoming more urgent.

2.6 The meeting recognized that the objective of this meeting was to develop a Task List for the Task Force, with a view to implementing separation minima based on RVP 10 in Southeast Asia. While it was important that this meeting achieved its immediate objective to address the issue of increasing the capacity of the pair of routes by applying a 50 NM lateral/50NM Longitudinal separations (50/50 separations), IATA was of view that it must not lose sight of the fact that this should be an interim step towards capacity enhancement and improved efficiency over the entire traffic flow between Southeast Asia and Northeast Asia.

2.7 Attention of the meeting was drawn to IATA's statistics showing the busiest 21 airports in the region with more than 100,000 traffic movements per annum in 2004 as follows:

***State*/airport**	**Aircraft movement**	**Passengers (million)**
China		
Beijing	305,000	35
Shanghai/ Pudong	178.000	21
Shanghai /HongQia	151,000	15
Guangzhou	183,000	20
Hong Kong	248,000	37
Shenzhen	140,000	14
Chengdu	110,000	11
Taipei	150,000	20
Japan		
Tokyo/Narita	186,000	31
Tokyo/Haneda	304,000	62
Osaka/Itami	127,000	19
Osaka/Kansai	102,000	15
Fukuoka	136,000	18
Naha	115,000	13
Republic of Korea		
Incheon	153,000	24
Kimpo	115,000	15
Thailand		
Bangkok	262,000	38
Malaysia		
Kuala Lumpur	165,000	21
Singapore		
Changi	192,000	30

***State*/airport**	**Aircraft movement**	**Passengers (million)**
Indonesia		
Jakarta	233,000	26
Philippines		
Manila	167,000	15

2.8 The meeting noted that these airports were continuing to grow despite at different rates. Beijing had seen an increase of 12% in aircraft movements and a 17% increase in passenger movements in 2005. Hong Kong saw a 6% growth in aircraft movements and a 10% growth in passenger movements in 2005. IATA was of view that unless the meeting developed a longer term plan which goes beyond the implementation of the separations of 50/50, the safe, regular and efficient flow of traffic in the region would be seriously affected.

2.9 IATA presented the meeting with IATA User Requirement Statement for the South China Sea area and Beyond, as shown below. IATA requested the meeting to accept the IATA User Requirement Statement as guidance for its planning. The meeting did not have a sufficient time to consider the contents of the statement.

Communications

a) Current communications meet 50/50 separation requirements. Direct controller-pilot communications (DCPC, i.e. CPDLC, VHF voice or SATCOM) is required for transition to 30/30 NM separation minima.

b) AIDC for ATC/ATC communication.

c) Pre-Departure Clearance (PDC, ARINC 623) for aircraft/ATC communication.

d) Ensure availability of 121.5 MHz and 243.0 MHz emergency transceivers at all ACCs.

Navigation

a) Navaids other than those serving aerodromes are not required for en-route navigation.

b) Runway aligned RNAV and RNAV GPS approaches.

c) RNP 10 meets 50/50 separation requirements. States to plan for RNP 4 to meet 30/30 separation minimum requirements.

Surveillance

a) Current surveillance capabilities meet 80 NM or 10 minute longitudinal separation requirements. Automated Dependent Surveillance – Contract (ADS-C) with 27 minutes update rate required for 50 NM longitudinal separation, and 14 minutes update rate required for 30 NM longitudinal separation.

b) Enroute radars to be replaced by Automated Dependent Surveillance – Broadcast (ADS-B).

ATM

a) Implementation of revised South China Sea flight level orientation scheme (FLOS) in accordance with IATA FLOS requirements to ensure vertical separation on crossing tracks, and better integration with adjacent FIRs.

b) Straighten L642, M771, N892 and L625 for greater efficiency.

c) Reduce maximum runway occupancy time to 60 seconds or less at Chep Lak Kok, Singapore, Kuala Lumpur and Taipei airports.

d) Consider future ATFM for identified city pairs.

Others

a) AIPs, AIP amendments/supplements and NOTAM to be in accordance with Annex 15 – *Aeronautical Information Services*.

b) ATC to comply with ICAO English Language Proficiency Level 4 or better.

Activities of FANS Implementation Team for South East Asia (FIT-SEA) and ASEAN-Japan New Air Navigation Project Reported by Japan

2.10 Japan advised the meeting of activities of FIT-SEA, which was established by the South East Asia ATS Coordination Group (SEACG) in 2004. FIT-SEA had already met three times and made significant progress on implementation plan of ADS and CPDLC in the South China Sea area, e.g. the development of FIT-SEA Terms of Reference and work plan, selection of a central reporting agency (CRA), and identifying the potential area where ADS/CPDLC system would bring benefits.

2.11 Major progress made up to its third meeting held in November 2005 was as follows:

a) The offer of Japan to provide services as the CRA for FIT-SEA was accepted by FIT-SEA, and it was confirmed that the provision of CRA services would be on a voluntary and temporary basis until a formal CRA is established.

b) The geographical area of the FIT-SEA CRA services would be within the Ho Chi Minh, Manila and Singapore FIRs.

c) Joint operational trial could be carried out phase-by-phase whenever operational capability becomes available in any country.

Phase 1: Singapore and Viet Nam may commence a trial in the Singapore and Ho Chi Minh FIRs by the end of 2006:

Phase 2: Philippines may join the trial by the end of 2007.

2.12 Japan also briefed the meeting on the recent work of "ASEAN-Japan New Air Navigation System Project" under the ASEAN-Japan Transport Partnership Project adopted by the ASEAN-Japan Transport Ministers Meeting in 2003. Expert Group Meetings of "ASEAN-Japan New Air Navigation System Project" were organized three times by January 2006, and the following conclusions were developed in relation to satellite data link system in South China Sea area:

The experts group:

a) recognizes that ICAO had progressed ADS/CPDLC implementation plan for South East Asia region;

b) recognizes that JCAB had extensive knowledge and experience of ATS datalink operations from the trial operations in the Pacific since 1997, including monitoring of datalink operations of FANS-1/A;

c) supports the work of ICAO FIT-SEA and the offer of Japan to provide monitoring services as CRA for FIT-SEA; and

d) supports the initiative of the Philippines, Singapore and Viet Nam to commence joint operational trial of ADS/CPDLC in South China Sea airspace.

2.13 Japan pointed out that DCPC was required for reduction of longitudinal separation to 50 NM in the RNP 10 operation environment without ADS, and CPDLC would be a solution to meet this communication requirement, filling the present gap of communication coverage in the middle of the South China Sea airspace.

2.14 The meeting recognized that Japan Civil Aviation Bureau (JCAB) developed "RNAV Roadmap for Japan" in April 2005, and decided to implement RNAV procedures for all flight phases for providing efficient operations and accommodating the increasing air traffic. In addition, the meeting noted that JCAB was actively involved in the activities of the ICAO RNP Special Operational Requirements Study Group (RNPSORSG). In this regard, the meeting requested Japan to continue participating in future meetings of the Task Force in anticipation of their contribution in the RNP implementations in Southeast Asia.

2.15 Japan considered it important for them to be involved in Task Force activities in order to ensure a harmonization of RNP operations in the South China Sea area and in the Fukuoka FIR, both of which have direct linkage in terms of the major traffic flow between Southeast Asia and North Asia including Japan. Japan also clarified that Japan was given a membership of SEACG and had been invited to SEACG meetings since 2002. Thus, Japan confirmed their continued participation in the Task Force.

Terms of Reference of RNP/TF

2.16 Hong Kong China urged the meeting to focus on the task indicated in the Report of ATM/AIS/SAR/SG/15 to implement 50 NM longitudinal separation on RNAV routes L642 and M771.

2.17 IATA reiterated to the meeting that a more holistic approach should be considered for the implementation of reduced horizontal separation. Also, IATA drew to the attention that Viet Nam was not present at the meeting, and was of view that it would be essential for Viet Nam to attend the meeting. However, the meeting noted that Viet Nam would attend SEACG/13 where the draft Terms of Reference will be submitted and agreed to develop the Terms of Reference. In this regard, the Secretary informed the meeting that the Regional Office had reminded Viet Nam of this meeting and would undertake to coordinate with Viet Nam for their attendance to the next meeting.

2.18 Singapore suggested that the implementation of reduced horizontal separation should be in phases, beginning with RNAV routes L642 and M771 and then progressing to other ATS routes in the Southeast Asia area. The meeting agreed that implementation of 50/50 separations based on RNP 10 operations on L642 and M771 would be a good start, but that the Task Force should have the whole region in mind as a long term goal.

2.19 The meeting discussed the objectives of the Task Force and agreed that as a first step, the Task Force would focus on L642 and M771 and eventually address other routes in the region. The meeting developed the draft Terms of Reference of the Task Force as follows:

TERMS OF REFERENCE OF THE RNP IMPLEMENTATION TASK FORCE

The objective of the Task Force is to:

Develop strategic, benefits-driven implementation plans in collaboration with stakeholders, to improve en-route airspace efficiency by means of reduced horizontal separation based on RNP operations within the Southeast Asia area, ensuring inter-regional harmonization.

To meet this objective the Task Force shall:

a) Review the current South China Sea route structure and examine its suitability for application of reduced horizontal separation based on RNP operations.

b) Identify routes where the application of reduced horizontal separation would bring immediate operational efficiency.

c) Determine the reduced horizontal separation required, taking into account the aircraft approval status of the traffic operating on the relevant routes, capacity increase desired, and communication and surveillance capability of ATS providers.

d) Examine the possibility of a phased implementation of reduced horizontal separation based on RNP operations and to detail the phases required and the areas/routes concerned.

e) Develop the necessary strategic plans to implement the agreed horizontal separation taking into account airspace user requirements, the need for inter-regional harmonization, and ICAO Standard and Recommended Practices.

f) Explore the possibility of further harnessing operational efficiency of the routes through re-reconfiguration and enhanced surveillance.

g) Consider setting up appropriate teams/groups which might but not necessarily, include the entire Task Force, to address and implement specific agreed measures within their airspace; and

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

Scope of Initial Work

The Task Force shall adopt a phase-by-phase approach, beginning with the 50 lateral/50 longitudinal separations based on RNP 10 operations on RNAV routes L642 and M771 as Phase 1.

The Task Force reports to the South East Asia ATS Coordination Group (SEACG).

2.20 Based on the discussion of the Terms of Reference, the meeting discussed the proper name of the Task Force. IATA suggested the name of *ICAO South East Asia Reduced Horizontal Separation Minimum Task Force* (SEARHSM/TF). It was agreed that the Chairperson would seek comments from participants later and coordinate the matter with Secretary, before proposing a new name to the next SEACG meeting for their adoption.

2.21 The meeting further discussed how the Task Force could be operated. In this regard, ATM/AIS/SAR/SG/15 agreed that affected States should collaborate to form a task force, which would operate with minimal resources from the Regional Office, and provide reporting to ICAO via the SEACG. The meeting noted that the participation of all States concerned was vital to the successful implementation of RNP 10 operations and agreed that if the Task Force was to operate outside the auspices of ICAO, some States might find it difficult to participate in meetings, thereby rendering the work of the Task Force ineffective.

2.22 The meeting was of the opinion that it would be beneficial if the work of the Task Force is supported by the Regional Office. Responding to queries from Hong Kong China and IATA, the secretary highlighted the remarks already made to some meetings in respect of the insufficient resources at the Regional Office to provide secretarial support to new regional group in the ATM field. It was recalled in this regard that one of the ATM posts in the Regional Office had been abolished. On a positive note, Aerothai had seconded one ATM staff to assist the Regional Office. The Regional Office would consider the level of assistance to the Task Force, based on the available resources and meeting schedule.

2.23 The meeting considered the support of the Regional Office was of utmost importance for the success of the Task Force. Therefore, the meeting urged the Regional Office to provide the level of support commensurate to the scope of the work of the Task Force.

2.24 The Task Force would recommend to SEACG to adopt the Terms of Reference including the widening of the work scope to cover all other ATS routes in Southeast Asia and for ICAO presence in subsequent Task Force meetings.

Agenda Item 3: Development of RNP/TF Task List

3.1 The meeting reviewed the draft Task List and addressed the need to capture all the items required for the implementation of RNP 10 operations. The meeting agreed that further scrutiny of the Task List could only be done after the SEACG had adopted the Terms of Reference of the Task Force.

3.2 The meeting noted the outstanding safety assessment for the existing route structure was vital for the work of the Task Force and agreed the recommendation of the Fourth Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/4, October 2005) that the safety assessment by Airservices Australia be carried out as soon as possible.

3.3 The meeting also agreed that all States concerned should review the Task List as in **Appendix C** to this Report in detail based on the Terms of Reference after SEACG.

Agenda Item 4: Develop a Coordinated Plan for Implementation of Actions Agreed by the Task Force

4.1 Nil.

Agenda Item 5: Any Other Business

Review of RASMAG/4

5.1 The meeting reviewed the relevant section of the Report of RASMAG/4.

Review of APANPIRG/16 and 42nd DGCA Conference Outcomes

5.2 RASMAG/4 reviewed the status of the safety assessment for RNP 10 operations in the South China Sea area and noted that APANPIRG/16 had been advised that a safety assessment had not been undertaken since implementation of the revised route structure in November 2001, approximately four years ago. Australia had reported to RASMAG/4 that Airservices Australia was in a position to complete the required safety assessment as a one off event, on the basis of a formal request for assistance from the Regional Office.

5.3 The meeting recognized that when the revised South China Sea route structure was implemented on 1 November 2001, an essential aspect of the project was the establishment of RNP 10 monitoring arrangements along the four routes, i.e. L625, M771, N884 and N892. Hong Kong China, Philippines and Singapore were made responsible for the collection of relevant data concerning flight operations along these routes, including examples of Gross Navigational Errors (GNE, >15NM lateral displacement) and a letter of agreement was established in this respect. Civil Aviation Authority of Singapore (CAAS) was responsible for collating the data.

5.4 With regard to the GNE data collection, RNP/TF/1 was informed that it had been carried out by CAAS for the South China Sea area. MAAR was expected to become an SMA for this region after the APANPIRG's approval. Singapore offered that, after the APANPIRG approval for MAAR to be the SMA, they could continue at no cost the current arrangement for the collating data from Hong Kong China, Philippines as well as other States concerned where reduced horizontal separation would be implemented and forwarding them to MAAR. This would reduce operating costs for the SMA, States and operators. RNP/TF/1 agreed with the generous offer by CAAS.

5.5 RNP/TF/1 recalled that APANPIRG/16 had adopted December every year as the standard example period for the Traffic Sample Data (TSD) for safety assessment. As the SMA had not been officially established yet, the States concerned would be advised from the Regional Office on the submission of the data to the SMA.

Non Provision of Safety Related Data by States

5.6 RASMAG/3 had expressed significant concern in respect of the non-submission of data and drafted a formal statement for consideration by APANPIRG/16. After reviewing the information from RASMAG/3, APANPIRG/16 adopted the following Conclusions:

APANPIRG Conclusion 16/5 – No implementation of reduced separation unless compliant with Annex 11

That, recognizing that some States had not adequately complied with safety management provisions, the Regional Office advise States of the Asia/Pacific Region that further regional implementation of reduced separation minima should only proceed in circumstances where implementing States can demonstrate an ability to comply with Annex 11, Chapter 2, safety management provisions for the continuous monitoring and regular assessment of the safety level achieved.

APANPIRG Conclusion 16/6 – Non Provision of safety related data by States

That the Regional Office advise that States not providing safety related data to approved regional safety monitoring agencies, including RMAs, in accordance with the requirements of safety monitoring agencies will be included in the APANPIRG List of Deficiencies in the ATM/AIS/SAR fields.

Airspace Safety Monitoring Documentation and Regional Guidance Material

5.7 RNP/TF/1 was informed that Australia and the United States had presented RASMAG/4 with a draft of *A Handbook to Guide Monitoring in the International Airspace of the Asia/Pacific Region in Connection With Introduction and Continued Safe Use of a Horizontal-Plane Separation Minimum Where Required Navigation Performance (RNP) Is Applied*.

Review the Airspace Safety Monitoring Arrangements in the Asia/Pacific Region and the Activities of Regional Airspace Safety Monitoring Agencies

5.8 The meeting also noted that MAAR had reported to RASMAG/3 that in order to expand its role to provide safety monitoring agency (SMA) services in addition to the regional monitoring agency (RMA) services currently provided at no charge, MAAR would require financial support on a cost-recovery basis. RASMAG/3 had expressed appreciation for MAAR's existing RMA work and encouraged MAAR to pursue its present initiatives to provide SMA services.

5.9 During APANPIRG/16, MAAR also reconfirmed the willingness to assume the additional safety monitoring responsibilities as an organization approved by regional agreement to provide airspace safety services in international airspace of the Asia/Pacific Region for the implementation and operation of reduced horizontal separation.

5.10 The meeting noted that Thailand had updated RASMAG/4 in respect of the progress being made towards the establishment of a SMA for the Asia Region, following up MAAR's intention to fulfill the role of SMA to support the implementation of RNP-based horizontal-plane separation minima in the Asia Region in addition to its current RMA duties.

5.11 In noting expressions of support from a number of States represented at RASMAG/4, including Australia, Hong Kong China, India, Japan, Singapore and the United States, as well as the Regional Office, RASMAG again supported the initiatives of Thailand and encouraged MAAR to proceed in accordance with the proposal as presented to the meeting. The SMA services in the Asia Region were very limited and having ready access to an SMA would greatly assist States in meeting their obligations in respect of ICAO safety provisions.

Funding of Regional Safety Monitoring Activities

5.12 In considering the funding of regional safety monitoring activities, RASMAG/4 noted that the primary reason for establishing such multinational facilities or services is to enable two or more States to carry out the services each has responsibility for under the regional plan more efficiently and in a more cost effective manner than each of them could achieve on its own. APANPIRG/16 agreed to the following Conclusion:

APANPIRG Conclusion 16/2 – Funding arrangements for regional airspace safety monitoring

That, a study group be convened to develop a feasible and sustainable proposal to equip States to organize and finance necessary safety monitoring mechanisms for the provision of safety services for the international airspaces in the Asia/Pacific region and that States be represented at that meeting by their appropriate legal, financial and organizational experts who would be best equipped and empowered to resolve any difficulties. The study group should report to RASMAG not later than the end of June 2006.

Traffic Sample Data (TSD) Collection

5.13 In considering the requirements for routine safety assessment, the meeting noted that the Second Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/2, October 2004) agreed that an annual provision by States of TSD as well as ongoing provision of Large Height Deviation (LHD) and Gross Navigational Error (GNE) reporting was sufficient for vertical and horizontal safety analysis. It was also further agreed that as the month of December routinely experienced high traffic levels, APANPIRG has adopted December every year as the standard sample period for vertical and horizontal traffic sample data collection, commencing from December 2005.

5.14 In regard to the continuous monitoring and regular assessment of target levels of safety in reduced separation applications, during November 2005 the Regional Office issued a State letter advising States of a standardized approach to the collection of vertical and horizontal traffic sample data and emphasizing a number of relevant Conclusions adopted by APANPIRG 16 (August 2005).

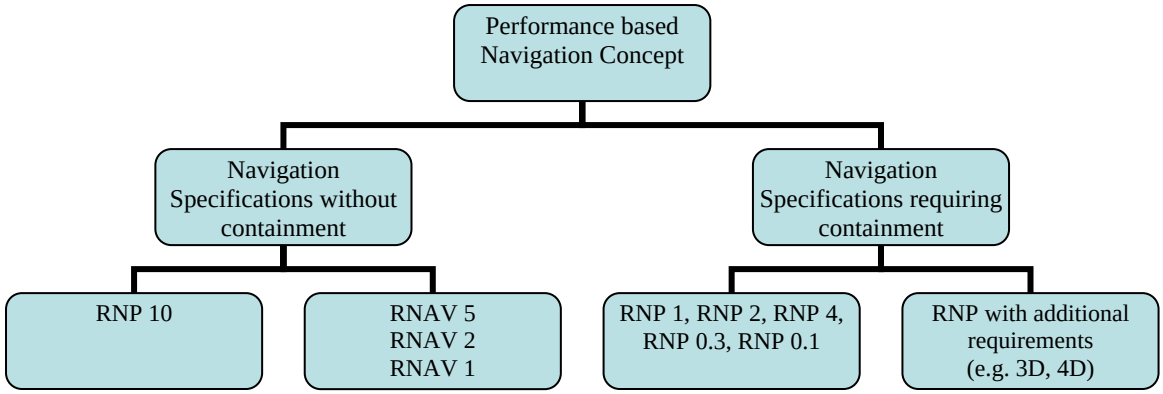
Review of the Work by RNP Special Operational Requirements Study Group on Implementation of RNP Operations

5.15 The meeting noted that in light of new technologies and capabilities and experience gained over previous years with RNP and area navigation (RNAV) implementations at the global level with respect to navigational performance, discussions were focused in different perspectives and implementations of RNP and RNAV between the international civil aviation community and some individual States, which evolved towards a divergence of interpretations and resulted in a lack of harmonization. In particular, the naming conventions associated with RNP have not provided clear understanding regarding concepts, terminology and definitions.

5.16 In addition, ICAO concept deemed not sufficient to obtain realistic separation standards for terminal airspace application. In light of this, RTCA developed RNP RNAV concept (RTCA DO236). Main differences between ICAO "RNP" and industry "RNP RNAV" is functional integrity[1] vs. containment integrity[2] and continuity.

5.17 In order to address the lack of global harmonization resulting from the differing RNP/RNAV naming conventions, ICAO, with the assistance of the RNPSORSG commenced work to ensure a common global understanding of RNP/RNAV and the relationship between RNP and RNAV system functionality.

5.18 Considering that the navigation containment is based on accuracy, functional integrity, continuity and systems availability, the RNPSORSG agreed on the need for specifying future applications of a **performance based navigation concept without containment integrity and continuity, which will be designated as RNAV, and with containment integrity and continuity, which will be designated as RNP**, as follows:



5.19 Work of the RNPSORSG is presently progressing very well and the future RNAV and RNP applications were agreed to be as follows:

Area of Application	Navigation Accuracy	Designation of Navigation Standard: Current	Designation of Navigation Standard: New
Oceanic/Remote	10	RNP 10	RNP 10
	4	RNP 4	RNP 4
Enroute – Continental	5	RNP 5 Basic RNAV	RNAV 5
Enroute – Continental and Terminal	2	USRNAV type A	RNAV 2
	2	n/a	RNP 2
Terminal	1	USRNAV type B P-RNAV	RNAV 1
	1	n/a	RNP 1
Approach	0.3	RNP0.3	RNP0.3
	0.3-0.1	n/a	RNP03-0.1 (AR)

[1] Integrity: The ability of a system to provide timely warnings to users when the system should not be used for navigation. (ICAO *Manual of Required Navigation Performance*, Doc 9613)

[2] Containment integrity: A measure of confidence in the estimated position, expressed as the probability that the system will detect and annunciate the condition where the TSE is greater than the cross track containment limit. (RTCA DO236)

5.20 Japan noted that the *Performance Based Navigation Manual* would be available and State consultation on ATC separation criteria would start in late 2006, and drew the attention of the meeting that the Task Force activities should be aligned with those by the RNPSORSG. The Secretariat undertook to keep the Task Force updated with the development of the concept.

Revised ATS Route Designators for the Bay of Bengal Area

5.21 The Regional Office informed the meeting of the change of ATS route designators for the Bay of Bengal area. APANPIRG/11 (October 2000) concluded that revised ATS Route Structure – Europe, the Middle East and Asia south of the Himalayas (EMARSSH) should be developed. The States concerned agreed with the implementation of the EMARSSH routes at the EMARSSH Task Force, and most of the EMARSSH routes were implemented on 28 November 2002.

5.22 The proposal for amendment of the Basic Air Navigation Plan (APAC 05/17-ATS) was submitted to ICAO headquarters on 4 July 2005 to update the plan. Subsequently, the headquarters advised the Regional Office that the ATS route designators with the suffixes of N, E, S, W and A were not compliant with Appendix 1 of Annex 11 – *Air Traffic Services* and should be changed after coordinating with the States concerned. The Regional Office informed the meeting that the coordination with India and Pakistan to change the route designators had been undertaken, and India, Pakistan and ICAO had agreed to new route designators as follows:

Current designator	New designator
A453W	A455
A453E	A472
A466E	A466
A466W	A589
A474N	A347
A474S	A474
A791E	A791
A791W	A325
A791S	N894
B466E	B211
B466W	B466
G202N	G201
G202S	G202
G208E	G210
G208W	G208
G452E	G452
G452W	G333
G472W	G451
G472E	G472
G787E	G216
G787W	A454
R460E	R460
R460W	R594
R461N	R461
R461S	R458
R462N in the Karachi FIR	R471
R462N in the Delhi FIR	R462
R462S in the Karachi FIR	R462
R462W in the Delhi FIR	R218

Current designator	New designator
R581N	R581
L301A	L505
L759N	L760
L759S	L759
M770A	M773
N895W	N895
N895E	N893
P318N	P518

5.22 The meeting also noted that India and Pakistan were pursuing to agree on the common implementation date of 11 May 2006 and the publication date of 16 March 2006. The meeting was advised that this information was based on the proposal for amendment of the Basic Air Navigation Plan, and this information should not be used for operational purpose, and be confirmed with the AIP Amendment India and Pakistan.

Agenda Item 6: Date and Venue for the Next Meeting

6.1 The meeting agreed that stakeholders such as Viet Nam should be present at meetings to facilitate the activities of the Task Force, and requested the Secretariat to remind Viet Nam of the Task Force. The Secretariat would undertake to send a reminder to Viet Nam, and the date for the next meeting would be informed by the Regional Office after coordination with the State together with Singapore.

Closing of the Meeting

7.1 On behalf of the RNP/TF, Mr. Peter Rabot thanked all delegates for their participation. He was very grateful to the meeting for their excellent job to develop the Term of Reference, and for the success of the meeting.

7.2 IATA thanked CAAS for Mr. Rabot's chairmanship and hospitality for hosting the meeting.

7.3 China mentioned that the RNP/RNAV Seminar would be held in Beijing in May 2006. The delegation of China wished to see all the participants at the seminar, and extended welcome to Beijing.

7.4 Hong Kong, China thanked the Regional Office for providing the meeting with secretarial service and thanked the Secretary for his excellent job. The delegation also thanked IATA and IFALPA for their focus and professional views given to the meeting.

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LIST OF WORKING PAPERS (WPs) AND INFORMATION PAPERS (IPs)

WORKING PAPERS

NUMBER	AGENDA	WORKING PAPERS	PRESENTED BY
WP/1	1	Provisional Agenda RNP/TF/1	Secretariat
WP/2	2	Terms of Reference of RNP/TF	Secretariat
WP/3	3	Task List for the Implementation of the RNP	Secretariat
WP/4	5	Review of the RASMAG/4	Secretariat
WP/5	5	Traffic Sample Data (TSD) Collection	Secretariat
WP/6	5	Review the work by RNP Special Operational Requirements Study Group on the Implementation of RNP Operations	Secretariat
WP/7	2	Implementation of Reduced Longitudinal Separation (50 NM) Based on RNP10 Operations on ATS Routes L642 and M771	Singapore
WP/8	3	User Requirements for South China Sea Areas and Beyond	IATA

INFORMATION PAPERS

NUMBER	AGENDA	INFORMATION PAPERS	PRESENTED BY
IP/1	-	List of Working Papers (WPs) and Information Papers (IPs)	Secretariat
IP/2	5	Revised ATS Route Designators for the Bay of Bengal Area	Secretariat

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SN	Activity	Start	Complete	Present Status	Group Responsible	
1	**Identify Operational Need**					
2	Agree operational needs for a 50 NM longitudinal separation in South China Sea area	13-Mar-06			RNP Task Force	
3	**Safety Assessment**					
4	Review available summary data (non-compliant aircraft, aberrant aircraft etc)	13-Mar-06			RNP Task Force	
5	Examine history of navigational errors and assess possible impact on safety	13-Mar-06			RNP Task Force	
6	Confirm collision risk model assumptions/parameters are consistent with airspace where the 50 NM longitudinal separation is to be applied	13-Mar-06			RNP Task Force	
7	Conduct simulations to predict occupancy after the 50 NM longitudinal separation implementation	13-Mar-06			RNP Task Force	
8	Collect weather and turbulence data for analysis	13-Mar-06			RNP Task Force	
9	Report monthly navigational errors (including operational errors) to Safety Monitoring Agency	13-Mar-06			RNP Task Force	
10	Collect traffic sample data for safety assessment for the 50 NM longitudinal separation implementation	13-Mar-06			RNP Task Force	
11	**Feasibility Analysis**					
12	Examine the operational factors and workload associated with the 50 NM longitudinal separation implementation	13-Mar-06			RNP Task Force	
13	**Determination of Requirements (airborne & ground systems)**					
14	States assess the impact of the 50 NM longitudinal separation implementation on controller automation systems and plan for upgrades/modifications	13-Mar-06			RNP Task Force	
15	**Aircraft & Operator Approval Requirements**				RNP Task Force	
16	Promulgate the operational approval process of RNP 10	13-Mar-06			RNP Task Force	
17	Notify States when significant changes occur to the 50 NM longitudinal separation documentation	13-Mar-06			RNP Task Force	
18	**Perform Rulemaking (if required)**					
19	Recommend State airspace regulatory documentation	13-Mar-06			RNP Task Force	
20	**Perform Necessary Industry & International Co-ordination**					
21	Establish target implementation date	13-Mar-06			RNP Task Force	
22	Report to SEACG				RNP Task Force	
23	Process Doc 7030 amendment	13-Mar-06			RNP Task Force	
24	Publish advance AIC	13-Mar-06			RNP Task Force	
25	Publish AIP Amendment containing the 50 NM longitudinal separation policy/procedures	13-Mar-06			RNP Task Force	
26	Review inter-facility coordination procedures	13-Mar-06			RNP Task Force	
27	Finalize changes to Letters of Agreement	13-Mar-06			RNP Task Force	
29	**Approval of Aircraft & Operators**					
30	Establish approved operations readiness targets	13-Mar-06			RNP Task Force	
31	Assess operator readiness	13-Mar-06			RNP Task Force	
32	**Develop Pilot & ATC Procedures**					
34	Review weather and contingency procedures for applicability under the 50 NM longitudinal separation	13-Mar-06			RNP Task Force	

SN	Activity	Start	Complete	Present Status	Group Responsible	
37	Conduct simulation modelling to assess impact of the 50 NM longitudinal separation operations	13-Mar-06			RNP Task Force	
38	Report on simulation activity					
40	Develop procedures for handling non-compliant aircraft in ATS documentation	13-Mar-06			RNP Task Force	
41	Develop mutually acceptable ATC procedures for non-approved State acft to transit the 50 NM longitudinal separation airspace	13-Mar-06			RNP Task Force	
42	Implement procedures for suspension of the 50 NM longitudinal separation	13-Mar-06			RNP Task Force	
43	Liaise with State defense authorities regarding military operations	13-Mar-06			RNP Task Force	
44	**Pilot & ATC Training**					
45	Provide Pilot/ATC training documentation based on past experience	13-Mar-06			RNP Task Force	
46	Conduct local the 50 NM longitudinal separation training for air traffic controllers	13-Mar-06			RNP Task Force	
47	**Perform System Verificiation**					
48	Navigational performance monitoring needed to undertake initial safety analysis	13-Mar-06			RNP Task Force	
49	Provide representative traffic movement data to Safety Monitoring Agency	13-Mar-06			RNP Task Force	
50	Undertake initial safety analysis	13-Mar-06			RNP Task Force	
51	Prepare/maintain regional status report detailing the 50 NM longitudinal separation implementation plans	13-Mar-06			RNP Task Force	
52	**Final Implementation Decision**					
53	Review aircraft navigational performance and operational errors	13-Mar-06			RNP Task Force	
54	Complete ATS State documentation	13-Mar-06			RNP Task Force	
55	Publish Trigger NOTAM	13-Mar-06			RNP Task Force	
56	Complete readiness assessment	13-Mar-06			RNP Task Force	
57	Complete safety analysis	13-Mar-06			RNP Task Force	
58	**Declare Initial Operational Capability**					
59	**Monitor System Performance**					
60	Perform Follow-On Monitoring				RNP Task Force	
61	Adopt RNP	13-Mar-06			RNP Task Force	
62	**Declare Full Operational Capability**					
63	**Meetings**					
64	Task Force/1 (Singapore)	13-Mar-06			RNP Task Force	