INTERNATIONAL CIVIL AVIATION ORGANIZATION

REPORT OF THE SECOND MEETING OF THE ASIA/PACIFIC AIRSPACE SAFETY MONITORING TASK FORCE (APASM TF/2)

BANGKOK, THAILAND, 5 – 8 MARCH 2002

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

Adopted by the Task Force
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PART I – HISTORY OF THE MEETING

1. Introduction

1.1 The Second Meeting of the Asia/Pacific Airspace Safety Monitoring (APASM) Task Force was held in Bangkok from 5 to 8 March 2002 at the ICAO Asia/Pacific Office.

2. Attendance

2.1. The meeting was attended by 25 experts from 7 States and 2 International Organizations. A list of participants is at Appendix A to this report.

3. Officers & Secretariat

3.1. Ms. Leslie McCormick, Acting Deputy Manager ATS International Staff, Federal Aviation Administration of the United States acted as Chairperson and presided over the meeting throughout its duration.

3.2. Mr. John E. Richardson, Regional Officer ATM, was the Secretary for the meeting. He was assisted by Regional Officers ATM Messrs. Hiroshi Inoguchi and Ron Rigney and Regional Officer CNS Mr. Li Peng.

4. Opening of the Meeting

4.1. The meeting was opened by Mr. John E. Richardson on behalf of Mr. Lalit Shah, Regional Director of the Asia/Pacific Regional Office, who welcomed the participants to Bangkok and introduced Ms. Leslie McCormick, the Chairperson of the meeting.

4.2 Ms. McCormick reminded the meeting of their goal which was to progress the work in developing an airspace safety monitoring organization and structure for the Asia/Pacific Region. This included examination of the requirements of regulatory bodies, operators and service providers as well as to determine the size and functions of the monitoring services to meet safety goals. It was pointed out that this meeting needed to work in earnest to identify the structure and functions of the new airspace safety monitoring organization. Ms. McCormick asked the meeting to offer ideas which will contribute to developing an organization that meets all of the Region's needs.

5. Language and Documentation

5.1. All discussions were conducted in English. Documentation was issued in English. A total of 10 Working Papers and 2 Information Papers were considered by the meeting. A list of the Working and Information Papers is at Appendix B.

PART II - REPORT ON AGENDA ITEMS

Agenda Item 1: Adoption of Agenda

1.1 The meeting considered the provisional agenda and adopted it as the agenda for the meeting:

Agenda Item 1:	Adoption of Agenda
Agenda Item 2:	Review of Terms of Reference and Guiding Principles
Agenda Item 3:	Consider regional airspace monitoring requirements and identify the functions of the monitoring services necessary to meet safety goals
Agenda Item 4:	Financial arrangements
Agenda Item 5:	Review the action plan
Agenda Item 6:	Future Work – Meeting Schedule
Agenda Item 7:	Other Business

Agenda Item 2: Review of Terms of Reference and Guiding Principles

2.1 The meeting discussed the amended Terms of Reference which were agreed to at APASM TF/1 and decided that no further amendment was necessary at this stage.

Agenda Item 3: Consider regional airspace monitoring requirements and identify the functions of the monitoring services necessary to meet safety goals

3.1 The meeting was presented with a proposed framework for safety oversight in the international airspace of the Asia Pacific Region based on the experience of the Asia Pacific Approvals Registry and Monitoring Organization (APARMO). It was noted that APARMO was established as the endorsed regional monitoring agency to provide safety oversight in connection with implementation and continued safe use of reduced vertical separation minimum (RVSM) in the Region.

3.2 This proposed framework consisted of the following:

a) objectives of the structure
b) prerequisites for establishing the structure
c) a provisional list of duties and responsibilities
d) a functional description of the structure necessary to carry out these duties and responsibilities, and
e) linkages which the structure must establish with specialist groups and States both within and outside the Region.

Overview

3.3 In developing the proposal the APARMO had drawn on its own experience in supporting safe implementation and continued safe use of RVSM in the Asia Pacific Region. While this experience will be cited as a means of providing specific examples, there is no intent to suggest that the APARMO has a uniquely correct approach to developing the airspace safety system performance monitoring structure for the Region.

3.4 The meeting was advised that several States and other entities are, or will be, conducting activities within the Region which have safety oversight aspects, although without close coordination. Whether the airspace safety system performance monitoring structure called for by APANPIRG is provided by a confederation of these organizations, or through some other means, was not material to this discussion. Rather, the intent was to suggest, in broad terms, what the structure should do and how it should do it.

3.5 Prior to making these proposals, the meeting noted that it was useful to examine the desired structure in the overall context of safety management and to identify some terms which would aid the discussion.

Safety Management

3.6 The APARMO considered that its activities have been aimed at supporting both safe implementation and continued safe use of RVSM. This dual role for a regional monitoring agency was addressed at the First Meeting of the RVSM TF in the overall context of safety management. It was suggested that a safety management programme for an ATS system must perform two major functions, which while they may share many common techniques, have different aims. These functions are:

a) safety assessment of proposed additions and changes to the system; and

b) monitoring and evaluation of the level of safety being achieved in the operational system.

3.7 The meeting was advised that the APARMO believed that an airspace safety system performance monitoring structure would have some overall use as a safety management program despite Task Force emphasis on safety oversight in initial development of the organization.

Use of Important Terms: Risk, Safety, Monitoring, Safety Oversight, Remedial Safety Action and Safety Assurance

3.8 The meeting was advised that the framework presented below employs certain terms to which the APARMO attaches very specific meanings.

Risk

3.9 The meeting was advised that Risk is described as the hazard of a fatal aircraft accident as an outcome of aircraft operation in the airspace where the APANPIRG airspace safety system performance monitoring structure will be applied

3.10 In general, risk is an expectation about the possible occurrence of an event in the future, with “future” being the key concept. In the case of the aviation system or other important enterprises which have high consequences associated with accidents, risk is often **estimated** using mathematical, statistical, simulation or other sorts of **models**.

3.11 In the case of RVSM, the hazard is the loss of planned 1000-ft vertical separation between a pair of aircraft at adjacent flight levels. There is a form of the ICAO-endorsed collision risk model which is used to estimate the risk of occurrence of this event in the airspace where the RVSM has been or will be introduced.

Safe

3.12 Safe is described as the decision that the risk of a fatal aircraft accident due to collision is tolerable, that is, that the risk is below a threshold of risk which is acceptable for operations in the airspace where the APANPIRG airspace safety system performance monitoring structure will be applied.

3.13 In general, risk is associated with many endeavors, including air transportation. Despite the existence of risk, the fact that many people are willing to engage in an endeavor can be taken as a **qualitative** indication that the endeavor is considered to be safe. That is, people **judge** that the benefit which they derive from the endeavor outweighs the hazard or risk associated with it.

3.14 "Safe," as used in many examinations of international airspace changes has an explicitly **quantitative** meaning. The ICAO-endorsed Target Level of Safety (TLS) concept provides the means to examine a value of estimated risk and declare whether the value is low enough so that the airspace change can be said to be "safe." The TLS has different **values** depending upon the change under consideration. For example, there is a TLS value applicable to decisions involving a change in an airspace lateral separation standard and a different value used when examining the possible risk which obstacles pose to safe approach and landing of aircraft.

Monitoring

3.15 Monitoring is the periodic collection and analysis of data pertinent to the estimation of risk in the airspace where the APANPIRG airspace safety system performance monitoring structure will be applied

3.16 In general, monitoring plays the same role in contributing to safe airspace operation, as does quality control in contributing to the satisfactory operation of a manufacturing process. Both monitoring, as used in the context adopted at APANPIRG/12, and quality control are **inspection** programs.

Safety Oversight

3.17 Safety oversight is the process of using monitoring data and applicable analysis tools in order to assess whether risk meets the safety criteria established for the airspace where the APANPIRG airspace safety system performance monitoring structure will be applied

3.18 It will be noted that, as understood by the APARMO, safety oversight is reasonably equivalent to the process described as "monitoring and evaluation of the level of safety."

3.19 In the case of RVSM, the APARMO conducts safety oversight through an application of a series of procedures and processes which follow from its duties and responsibilities as listed in Appendix C to the Report.

3.20 Safety oversight ends with a comparison of estimated risk to safety criteria and a conclusion about whether the criteria are satisfied. While this function is necessary, it is not, in itself, sufficient to ensure that safety goals are met. There is a need for action if the safety oversight process detects adverse trends in risk.

Remedial Safety Action

3.21 Remedial Safety Action is the review of safety oversight information by specialists and the introduction of changes to reduce the risk of collision in the airspace where the APANPIRG airspace safety system performance monitoring structure will be applied.

3.22 Just as quality control cannot inspect quality into a manufacturing process, safety oversight cannot reduce risk. Only work by specialist groups – such as air traffic service (ATS) experts, aircraft operations/airworthiness authorities, and the like – can remove, or mitigate the effects of factors in the airspace which are the causes of adverse trends in risk.

3.23 The meeting was advised that, in the case of RVSM, the FAA Technical Center identified a few aircraft types whose height-keeping performance did not meet the requirements established in State approval documents. Bringing those types into compliance, however, required the action of State authorities and aircraft manufacturers. This remedial action removed the basic cause of the adverse trend in risk detected by safety oversight.

Safety Assurance Process

3.24 The Safety Assurance Process is the combination of safety oversight and remedial safety action to ensure meeting the safety goals expressed as a Target Level of Safety (TLS) established for the airspace where the APANPIRG airspace safety system performance monitoring structure will be applied.

3.25 The meeting noted that it was the APARMO's view that the Task Force should take into account the value of establishing this overall safety assurance process by carrying out the mandate contained in Decision 12/44 of APANPIRG/12.

Objectives of the Airspace Safety System Performance Monitoring Structure

3.26 Amendment 40 to Annex 11 to the Convention on International Civil Aviation requires that States establish safety management programs applicable to air traffic services (ATS) provided within their sovereign airspace by 2003. Decision 12/41 of the Twelfth Meeting of the APANPIRG adopted a TLS value applicable to any future changes in separation minima applied by ATC within the Asia Pacific Region, consistent with Standards and Recommended Practices (SARPS) for the provision of ATS specified in Annex 11.

Relation between ATS and the Airspace Safety System Performance Monitoring Structure

3.27 The ATS system exists to provide services to users which ensure safe and efficient conduct of flight. As broadly conceived by the APARMO, this provider-user system consists of the following input elements:

a) Airspace structure, such as routes and fixes
b) ATS infrastructure, such as automation, communications and surveillance systems
c) ATS procedures
d) Communications service
e) Ground-based and satellite position-fixing aids
f) Aircraft navigational systems
g) Aircraft communication systems

3.28 It is possible to examine operation of the system in order to determine how well the safe and efficient conduct of flight is being achieved. The APARMO uses the term "safety oversight" to identify the process of using monitoring data and applicable analysis tools in order to assess whether risk meets the safety criteria established for the airspace.

3.29 This "monitoring data" is collected periodically during system operation. From the APARMO's experience, examples of such data, or sources from which data may come, are:

a) Reports of navigational errors or height deviations that exceed a certain parameter
b) Secondary surveillance radar data
c) Ground- or airborne-based aircraft height-keeping performance monitoring systems
d) Traffic movement data
e) Communications system messages or indicators of performance
f) Operator reports
g) Approvals databases
h) Safety databases internal or external to the Region

3.30 Conduct of safety oversight requires, as a prerequisite, the provision of credentials, safety goals and risk assessment methodology. This work is, for the most part, analytical in nature. Based on the APARMO's experience, the principal activities are:

a) Safety assessment
b) Assessment of aircraft height-keeping performance
c) Establishment and maintenance of databases of State approvals and the results of assessing aircraft height-keeping performance
d) Summarizing risk relative to TLS in reports

3.31 In addition to staff with analytical competence, sustaining the APARMO's contributions has required:

a) Automatic data processing equipment
b) Specialized equipment to monitor aircraft height-keeping performance
c) Ability to communicate with States, operators, and ATS providers
d) Ability to communicate with specialist groups, such as the Operations and Airworthiness Working Group of the RVSM TF, and support them in the development of remedial safety actions

3.32 The communications and cooperation noted in this last area have resulted in remedial safety actions which met the desired outcome of the structure which the APANPIRG identified as necessary at its Twelfth Meeting.

Provisional List of Duties and Responsibilities for the Airspace Safety System Performance Monitoring Structure

3.33 The APARMO proposed a provisional list of duties and responsibilities for the airspace safety monitoring organization which have been incorporated into the Business Plan and addressed later in this report.

Proposed Business Plan

3.34 The meeting was presented with a proposed Business Plan Framework which was developed by a small group of Task Force members. This draft Business Plan Framework is at Appendix F.

3.35 The meeting was advised that this plan was still evolving and needed further discussion and work before it could be considered a complete and robust Business Plan. Nevertheless, in line with ICAO's recommendation to use a business case approach in projects of this nature, it was considered that this framework would allow the Task Force to meet its Terms of Reference in developing an airspace safety monitoring organization and structure.

3.36 In discussions relating to the Business Plan Framework, it was the view of the meeting

that what had been presented was an important development in achieving the goals of the Task Force. There were several amendments and additions to the Business Plan. It was agreed that some of the headings and content in the plan would need to be amended to meet the aims and direction of the proposed organization.

3.37 It was further decided that on-going development of the Plan would take place between Task Force members prior to the next meeting to bring the plan closer to maturity. A Point of Contact List was developed and included in Appendix D.

Provision of RVSM Monitoring Services by Japan

3.38 The meeting was advised that the Electronic Navigation Research Institute (ENRI) Japan is developing the Navigation Accuracy Measurement System (NAMS) as a ground based height monitoring unit (HMU). The experiment of NAMS is in its final stage and positive results are expected. Since NAMS is still an experimental facility, the cost for actual operation is not yet available. However, Japan would be prepared to assume the role of a sub regional monitoring unit using NAMS in addition to GMU, under a regional funding arrangement scheme.

Aeronautical Meteorological Services in Airspace Monitoring requirements.

3.39 The meeting was given information on a proposal to include aeronautical meteorological services within the scope of work of airspace safety monitoring.

3.40 It was agreed by the meeting that the monitoring of metrological reports would not be included as a separate item. However, it was acknowledged that meteorology was an important part of an air traffic service and, as such, would be dealt with in the future.

RNP-10 Monitoring Arrangements for Routes in the South China Sea Route Structure

3.41 The meeting noted information presented by Singapore on the establishment of RNP-10 monitoring arrangements along four of the routes providing 60NM lateral separation in the revised South China Sea route structure. Hong Kong China, the Philippines, and Singapore were made responsible for the collection of relevant data concerning flight operations along L625, M771, M884 and N892. States were also required to forward the data to the monitoring authority, which at the present time is the Civil Aviation Authority of Singapore (CAAS).

3.42 Procedures for the assessment of aircraft navigation errors in support of the implementation of a revised ATS route structure in the South China Sea area were reviewed, and relevant information was included in the provisional list of duties and responsibilities for the airspace safety monitoring agency, detailed in the business plan.

FANS Interoperability Teams and Central Reporting Agencies

3.43 The United States and Japan presented information regarding the responsibilities of the South Pacific FANS Interoperability Team (FIT) and the North and Central Pacific FIT, respectively, as well as the associated Central Reporting Agencies (CRAs). The FITs were initially established to resolve problem reports and monitor end-to-end system performance of controller-pilot data link communications (CPDLC) in the Pacific flight information regions. The processes were designed to ensure that ATS data link systems met established performance and interoperability requirements and to confirm that operations and procedures were working as planned. As a result of these aims and subsequent evolution, the terms of reference for an interoperability team monitoring ATS data link systems include problem identification and resolution, assessment of system performance, formulation of plans for long-term procedural enhancements that take advantage of ATS data link benefits, and reporting annually to the APANPIRG

sub-groups and other interested stakeholders. In addition, Japan's CRA also is tasked with the analysis and resolution of problems related to their automatic dependent surveillance (ADS) operation. The CRAs provide daily monitoring, coordination, testing, and problem research. Both the United States and Japan contract with external organizations to perform tasks requiring specialized technical expertise, equipment and facilities.

3.44 The meeting noted that the FITs would continue to operate to resolve issues identified. The CRAs would become contributory bodies to the RASMA and continue to collect and process data that would be provided to the RASMA and responsible FIT.

3.45 After discussion by the meeting on the appropriateness of including communications system performance as a task for monitoring by the airspace safety monitoring organization, it was agreed that communications was an integral consideration in the future reduction of separation standards. The meeting noted the staffing and equipment requirements of the CRA, and included appropriate material on roles and responsibilities in the business plan to provide for the monitoring of communications and data link performance. Japan further offered to consider expanding their CRA services to include adjacent FIRs.

Preparation by AEROTHAI to perform airspace safety monitoring

3.46 The meeting was provided with information on AEROTHAI's preparation to become The Regional Monitoring Agency for the Asia section of the Asia/Pacific Region. The objective of AEROTHAI is to collaborate with APARMO in providing a similar service to cover the Asia section of the Asia/Pacific Region.

3.47 AEROTHAI has engaged in discussions with APARMO to arrange for the transfer of the databases and knowledge on the safety assessment and safety oversight with regards to RVSM monitoring. A Memorandum of Understanding will be signed between the two organizations to achieve the mentioned objectives and also for the training of AEROTHAI personnel.

3.48 The meeting noted that AEROTHAI is also aware that RVSM is just a part of the whole activity of the airspace safety system performance monitoring and is willing to participate in other functions associated as required.

3.49 The meeting was advised that APANPIRG had acknowledged the offer from AEROTHAI to become the Regional Monitoring Agency. However, until this offer is endorsed by APANPIRG, AEROTHAI will only make internal preparations. In the event that an endorsement is given by APANPIRG, AEROTHAI will be functional to assume their responsibilities for the Asia region within 6 months of notification.

3.50 The meeting noted that the cost for continuing the airspace safety monitoring, the safety assessment and the safety oversight for RVSM may be able to be absorbed within the AEROTHAI's operational budget, however this still needs some analysis before a final decision can be announced.

Agenda Item 4: Financial arrangements

4.1 The meeting noted that the financial arrangements were being progressed through the development of the Business Plan and accordingly, it was agreed that this agenda item would be carried over to the next meeting of the Task Force.

Agenda Item 5: Review an action plan

5.1 The meeting recalled that an APASM/TF Action Plan was formulated at APASM/TF/1 to ensure that work is completed in a timely manner prior to the APANPIRG/13 meeting in September 2002.

5.2 After discussion, the meeting revised the Action Plan which is at Appendix E to the Report.

Agenda Item 6: Future Work – Meeting Schedule

6.1 The next meeting of the Task Force will be held in Bangkok from 22 to 24 July 2002.

Agenda Item 7: Other business

7.1 The meeting voiced its appreciation and thanks to the Chairperson for her efforts in leading the meeting.

7.2 The meeting further expressed its appreciation to Brian Colamosca, Neil Jonasson and others who assisted in the development of material to establish the business plan.

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LIST OF INFORMATION AND WORKING PAPERS

WORKING PAPERS

WP No.	Date	Agenda Item	Presented by	Subject
1	05/03/02	1	Secretariat	Provisional Agenda
2	05/03/02	2	Secretariat	Terms of Reference and Guiding Principles for the APASM/TF
3	06/03/02	5	Secretariat	APASM Task Force Action Plan
4	*INTENTIONALLY LEFT BLANK*			
5	05/03/02	3	United States	A Proposed Framework for Safety Oversight in the International Airspace of the Asia Pacific Region based on the Experience of the Asia Pacific Approvals Registry and Monitoring Organization (APARMO)
6	05/03/02	3	Singapore	RNP10 Monitoring over the South China Sea
7	05/03/02	3	IATA	Proposed Business Plan
8	05/03/02	3	United States	Terms of Reference for an Asia Pacific FANS Interoperability Team and Central Reporting Agency in support of FANS 1/A Implementation
9	05/03/02	3	Japan	IPACG-FIT CRA Services
10	*INTENTIONALLY LEFT BLANK*			
11	05/03/02	3	Japan	RVSM in Tokyo and Naha FIR
12	05/03/02	4	Australia	Meteorological Involvement in the APASM TF
Flimsy No. 1	06/03/02	3	Secretariat	Proposed Business Plan

INFORMATION PAPERS

IP No.	Date	Agenda Item	Presented by	Subject
1	05/03/02	3	United States	An Example of Possible Airspace Safety System Performance Monitoring Structure Linkages with External Entities: Asia Pacific Approvals Registry and Monitoring Organization Information Flows
2	06/03/02	3	Thailand	Progress report on AEROTHAI's preparation to become Regional Monitoring Agency

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DUTIES AND RESPONSIBILITIES OF THE APARMO

The Asia Pacific Approvals Registry and Monitoring Organization (APARMO) has the following duties and responsibilities:

a) to establish and maintain a central registry of State RVSM approvals of operators and aircraft using the Asia Pacific Region airspace where RVSM will be applied;

b) to facilitate the transfer of approval data to and from other RVSM regional monitoring agencies;

c) to establish and maintain a data base containing the results of height keeping performance monitoring and all altitude deviations of 300 ft or more within Asia Pacific Region airspace, and to include in the database the results of APARMO requests to operators and States for information explaining the causes of observed large height deviations;

d) provide timely information on changes of monitoring status of aircraft type classifications to State authorities and operators;

e) to assume overall responsibility for

   i) administration of the Global Positioning System Monitoring System (GMS) and

   ii) assessing compliance of operators and aircraft with RVSM height-keeping performance requirements

   in conjunction with RVSM introduction in the Asia Pacific Region;

f) to provide the means for identifying non-RVSM approved operators using Asia/Pacific airspace where RVSM is applied; and notifying the appropriate State approval authority; and

g) to develop the means for summarizing and communicating the content of relevant databases to ICAO RVSM Task Force decision makers for use in agreeing on the timing and extent of RVSM application within the airspace under their administration.

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APASM/TF ACTION PLAN

ID	Description	Start	Finish	Resource Names
~~1~~	~~Examine requirements of regulatory bodies, operators and service providers~~	~~12-Dec-01~~	~~8-Mar-02~~	~~Task Force~~
~~2~~	~~Review ICAO documentation on regulatory and legal framework~~	~~12-Dec-01~~	~~14-Dec-01~~	~~Task Force~~
~~3~~	~~Identify the duties and responsibilities of organizations currently monitoring separation and other safety critical systems~~	~~12-Dec-01~~	~~8-Mar-02~~	~~Task Force~~
4	Clearly describe airspace monitoring requirements in accordance with ICAO provisions	12-Dec-01	Ongoing	Task Force
5	Follow the development of ICAO Separation and Airspace Safety Panel guidance as it relates to RVSM regional monitoring agencies	12-Dec-01	Ongoing	Task Force
6	Develop the organization and structure of an airspace safety monitoring organization for the Asia/Pacific Region	12-Dec-01	9-Sep-02	Task Force
7	Identify States/agencies to provide monitoring services	12-Dec-01	24-Jul-02	Task Force
~~8~~	~~Develop system monitoring matrix to identify initial functions and tasks of airspace safety monitoring organizations~~	~~13-Dec-01~~	~~8-Mar-02~~	~~Task Force~~
9	Develop a business plan for the airspace safety monitoring organization	14-Dec-01	9-Sep-02	Task Force Business Plan Group
10	Identify responsibilities for States to provide data to the airspace safety monitoring organization	14-Dec-01	24-Jul-02	Task Force
11	Establish a core management team to oversee regional airspace safety monitoring	14-Dec-01	24-Jul-02	Task Force
~~12~~	~~Determine the size and functions of the monitoring services to meet safety goals~~	~~12-Dec-01~~	~~24-Jul-02~~	~~Task Force~~
~~13~~	~~Obtain terms of reference, size and functions of current monitoring organizations~~	~~12-Dec-01~~	~~8-Mar-02~~	
14	Integrate all regional monitoring activities in a regional monitoring structure under APANPIRG	12-Dec-01	9-Sep-02	Task Force
15	Determine responsibility and coverage of monitoring agency (Regional, by State, by function, or major traffic flow)	12-Dec-01	24-Jul-02	Task Force
16	Determine appropriate support and expertise	12-Dec-01	9-Sep-02	States/organizations performing monitoring activities
17	Identify the cost of operating monitoring services and system for its funding	12-Dec-01	24-Jul-02	Task Force
18	Identify methods of collecting charges from ANS charges for providing monitoring services in accordance with ICAO policies	12-Dec-01	24-Jul-02	States/organizations performing monitoring activities
19	Obtain information on the cost of performing current monitoring services	14-Dec-01	24-Jul-02	States/organizations performing monitoring activities
20	Examine information to determine an appropriate level of user charges for airspace safety monitoring	14-Dec-01	24-Jul-02	Task Force
21	Coordinate with other regional monitoring organizations to ensure inter-regional harmonization of charges for ANS	14-Dec-01	Ongoing	ICAO, Task Force
22	Provide support and assistance to the regional safety oversight programme	14-Dec-01	Ongoing	Australia, Japan, US, Singapore, Boeing, CSSI
23	Encourage current States/agencies providing airspace safety monitoring services to share technology and information	14-Dec-01	Ongoing	Australia, Japan, US, Singapore, Boeing, CSSI
24	Consider the need to develop documentation for airspace safety monitoring organizations (collision risk models, ICAO guidance, etc)	14-Dec-01	24-Jul-02	Australia, Japan, US, Singapore, Boeing, CSSI, ICAO

APASM/TF ACTION PLAN

ID	Description	Start	Finish	Resource Names
25	Address any other matters as appropriate and relevant to establishing an appropriate monitoring system	12-Dec-01	Ongoing	Task Force
26	Report progress to the APANPIRG	11-Mar-02	13-Sep-02	Task Force
27	Report progress to CNS/ATM/IC/SG/9	11-Mar-02	15-Mar-02	Task Force Chairperson
28	Report progress to ATS/AIS/SAR/SG/12	17-Jun-02	21-Jun-02	Task Force Chairperson
29	Report progress to CNS/MET/SG/6	15-Jul-02	19-Jul-02	Task Force Chairperson
30	Make final recommendations to APANPIRG/13	1-Sep-02	30-Sep-02	Task Force
~~31~~	~~APASM/TF/1 (Bangkok)~~	~~12-Dec-01~~	~~14-Dec-01~~	
~~32~~	~~APASM/TF/2 (Bangkok)~~	~~5 Mar 02~~	~~8 Mar 02~~	
33	APASM/TF/3 (Bangkok)	22-Jul-02	24-Jul-02	
34	Determine requirement for APASM TF/4	22-Jul-02	24-Jul-02	

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(Introduction to Include Words From Annex 11, Para 2.26)

Previous Business Experience
The regional air navigation service providers and safety regulators have always been responsible for developing and ensuring standards of flight safety within their sovereign airspace and in that international airspace for which they have accepted responsibility to provide air navigation services. Several States within the Asia & Pacific (APAC) region have already established sound arrangements for the collective overview of airspace safety with regard to vertical and horizontal separation minima, as well as end-to-end communications system performance.

Evidence for Success
Within the APAC region a number of actions have been taken to oversee airspace operations and safety. With respect to the implementation of reduced vertical separation minima (RVSM), the monitoring of aircraft altimetry system performance has been delegated by the Asia Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) to the Asia/Pacific Approvals Registry and Monitoring Organisation (APARMO). The United States Federal Aviation Administration (FAA) currently performs the functions of the APARMO. In addition, the accomplishment of airspace safety performance assessments and oversight for the implementation of both vertical and lateral separation minima in various parts of the region has also been delegated by States to the FAA. Other States' safety authorities, for example Australia, have also successfully provided safety assessment services to other States and ATS providers through either collective arrangements of States, such as the Informal South Pacific ATS Co-ordinating Group (ISPACG), or at the request of the ICAO APAC Regional Office for areas such as the South China Sea and the Bay of Bengal. ICAO has also made arrangements with individual States for the ongoing overview of safety data for specific parts of the region, one example being Singapore for the South China Sea. Other States, such as Thailand, India and Japan, have indicated a willingness to provide regional or sub-regional safety monitoring and/or oversight services.

Additionally, considerable experience has been gained in the system performance monitoring and enhancement of data link equipment and procedures used to provide air traffic control services. The latter function has been carried out by the States that are signatories to ISPACG and the Informal Pacific ATC Co-ordination Group (IPACG) by their respective central reporting agencies (CRAs) and FANS Interoperability Teams (FITs). All of the States and aircraft operators concerned with these CRA and FIT activities have expressed satisfaction with the standards of the services provided. ICAO has established A third FIT, the FANS Action Team – Bay of Bengal (FATBOB), for the Bay of Bengal area, but to date actual progress in this area has been limited. It is the intention that the regional airspace safety monitoring agency (RASMA) also be responsible for the administrative responsibilities for airspace monitoring from all of these CRAs/FITs.

Market Segments
The focus of this enterprise is that of a single market within the whole of the airspace of the APAC region, although it may be possible to segment the marketing of some services to separate parts of the region. This reference to segmentation refers to the provision of services such as aircraft altimetry system performance monitoring, airspace collision risk modeling assessments and suchlike.

Reasons for Choosing Segment
The States within the APAC region have decided through the medium of APANPIRG that it would be in their best collective safety, efficiency and administrative interests to have one central agency take the overall responsibility for the functions associated with airspace monitoring in support of safety assessments. In many cases, because of the large oceanic areas of the APAC region, the agency will also be asked to provide services within the sovereign airspace of some smaller States encompassed by the high seas. Overall this agency, known as the Regional Airspace Safety Monitoring Agency (RASMA), will hold an exclusive contract for regional airspace safety monitoring and safety assessment services.

Meeting Stakeholders' Needs
The stakeholders being served by this agency are a diverse group, not all of which have a financial obligation, or in some cases a financial capability, to contribute to the agency. All however have an interest in the output of the agency in terms of the safety assurance product due to its mandate by ICAO provisions or the use of the airspace for international operations by their national aircraft. The financially involved stakeholders are:

a) the States and their associated air traffic service providers who are responsible to provide airspace modeling and safety assessments in selected areas of regional airspace;

b) the aircraft operators using this airspace;

c) international organisations representing their aircraft operators, flight crews and public safety; and

d) other service providers within the airspace, such as communications companies, will also be beneficiaries of the RASMA.

Ready for Market
Because the region has in the past decade been developing its abilities through the collective efforts of its individual States' aviation authorities, its aircraft operators with the assistance of the major commercial aircraft manufacturers, and communications service providers, the region is well placed to create a 'business' entity in the form of RASMA to provide the safety monitoring and assessment functions in an economical and businesslike manner.

Type and Size of Premises
The accommodation requirements for the administration of the RASMA are modest and of low cost. This may not however be the case with some of the services that RASMA may be required to contract with during the course of its work, e.g. test bench and analytical tools. The location of the administration of the agency in the ICAO Regional Office building or some other donated space could minimize the overall cost of accommodation.

Uniqueness
This business plan is a unique opportunity for APANPIRG and the APAC region to establish an essential and ICAO-mandated airspace safety service, which will introduce uniform airspace safety monitoring standards. The Contracting States of ICAO and the international air transportation industry have already generally accepted these standards on a worldwide basis.

Provided the agency is properly established and managed there should be no reason for airspace users, airspace managers or safety regulators to duplicate the services of this regional airspace safety monitoring agency. It should also be unique in its demand for funding and therefore be a cost effective regional facility.

Market Growth Potential
If the experience with APARMO is to be repeated, then there is strong potential for RASMA to expand its full range of airspace and air traffic safety monitoring and safety assessment services on a cost effective commercial basis. This will help any sovereign State or other region meet their obligations for airspace safety monitoring and assessments. This is not however a prime consideration at the time of writing this business plan.

Skills and Experience
Not all of the personnel with the necessary technical and administrative skills and the experience required to provide the RASMA services are presently employed directly in the APAC region. States' safety regulatory authorities, aircraft manufacturers, communications service providers, aircraft operators and international and regional organisations outside of APAC contribute considerably to the present airspace monitoring efforts.

It will be necessary for the agency to either continue to use the present human resources on the same donated or contractual basis, or to recruit the services of competent human resources on a commercial basis to provide the expertise required. The qualifications and experience needed for the airspace safety risk monitoring and safety assessments are very specialised and limited in availability. These specialised human resources will need to be developed to provide a sustainable safety service in the long term.

Human resources for the maintenance of aircraft and air traffic databases, together with airspace modeling capacity, will need to be funded by the agency.

Prerequisites to Establishing the Regional Airspace Safety Monitoring Agency
1. Provision of Credentials to the Structure
The regional airspace safety monitoring agency will need to deal directly with States, aircraft operators, and monitoring agencies in other ICAO regions. Without APANPIRG designation or regional agreements, these interactions would not be possible. The airspace safety monitoring agency requires formal recognition and credentials.

2. Provision of Safety Goals
The second objective proposed for the airspace safety monitoring agency is to contribute to achieving the safety goals set for the Asia Pacific Region. The agency itself cannot set these goals because they apply within international, and in some cases sovereign, airspace and because of their potential effect on ATS providers and airspace users. Thus, these goals must be established either by APANPIRG, or through regional agreements, or as a consequence of global ICAO agreements.

3. Provision of Methodology for Assessing Risk
In order to achieve the second objective of the airspace safety monitoring agency, it will be necessary to estimate risk and then compare it to the applicable safety goal. Because the structure will be applied to Communications, Navigation, Surveillance and Air Traffic Management (CNS/ATM) and other systems which have global application, there is a need for the structure to assess risk in a manner consistent with other ICAO regions. Hence, the methodology for assessing risk also needs to be agreed by APANPIRG or provided through ICAO channels.

Provision of RASMA products
The potential market for these services consists of the majority of States within the APAC region. With respect to vertical separation minima, the provision of services for altimetry system error verification, to aircraft operators, is presently being catered for by the companies who have access to approved GPS Monitoring System (GMS) equipment to put on aircraft. The processing of the altimetry system error is to be performed and recorded by the agency.

The bulk of the products from RASMA will come from the provision of airspace safety monitoring and modeling or from the current functions of the CRA activities in respect of communications systems performance and regional interoperability. The functions of the CRA also require the deployment of specialised technical equipment such as flight management simulators and technical human resources. The agency will take the responsibility for the acquisition and payment for the provision of those specialised services by suitably qualified contractors as required.

Objectives
The initial objective is to establish a robust and functional RASMA management team to ensure that the required functions of the RASMA are provided to all regional airspace and safety authorities, air traffic service providers and aircraft operators, in an efficient and cost effective manner.

The objectives proposed for the airspace safety monitoring agency are to:

1. Contribute to compliance with Annex 11 changes requiring system airspace safety management system within the Asia Pacific Region by 2003;

2. Contribute to meeting the agreed quantitative safety goal for Asia Pacific Region established by Conclusion 12/41 of APANPIRG/12 and any goals established by future regional agreements;

3. Contribute to making the Asia Pacific Region a model for comprehensive airspace safety system performance monitoring structure; and

4. Contribute to fostering implementation of advances in CNS/ATM within the Asia Pacific Region.

Achieving Objectives
The establishment of a professional management team, which will provide the necessary daily services to the air transport industry to meet their safety monitoring obligations, will achieve the objectives of RASMA.

Refer to Appendix 1.

Profit
This is a non-profit agency that will need to function in a completely businesslike manner if it is to attract the funding support needed to provide the quality of service expected. It is expected that within the budget process it will be preferable for the agency to work with a small annual surplus rather than a deficit.

Start-Up Funds
Provision will be made from existing financial sources/contributors to provide start up funds. The majority of the work that needs to be completed to establish the agency should be

achieved by 'in kind' funding by States and other involved institutions. Therefore initially the demand for a cash reserve should be low.

Estimated requirement???

Level of Gearing
There will be no need to financially gear this agency with commercial loans. The States with mandatory responsibilities under the ICAO provisions for airspace safety monitoring, along with other industry beneficiaries of these services, will be asked to make provision for these services in their budgets.

Source of Funds
It is recognised that the cost of many of these safety services will be recovered either directly or indirectly from the users of the airspace. The provision of resources to meet States' obligatory safety obligations may be acquired by the Agency in one of two ways:

a) Direct injection: Cash from State civil aviation authorities, air navigation service providers, air transport operators, air-to-ground communications service providers, aircraft manufacturers; and

b) Indirect injection: Provision of technical services and human resources provided in-kind by any entity.

Benefit to Investors
The benefits for investors are:
a) Airspace safety assurance programmes that meet the highest standards and expectations of the regional populations for air transportation;

b) Assurance of the cost-effective and timely provision of collective regional safety data from airspace and aircraft systems monitoring services for safety analysis use to all interested parties;

Comment: Does this addition of a reference to 'collective regional safety data' answer the concern? I was thinking a different way. The benefit is derived by everyone having access to consolidated regional airspace safety assessments. For instance it was more than useful to see how each of the Pacific airspace's compared.

c) Regional standardization of airspace safety assessments; and

d) Availability of high quality airspace safety assessment resources to all regional States.

1. THE BUSINESS AND ITS MANAGEMENT

History and Position to Date

Business Idea
The idea for the establishment of this agency was formulated from experience gained in the various endeavours undertaken within the region over recent years, to meet the requirements of States, airspace and air traffic managers and aircraft operators for adequate and efficient airspace, controller pilot data link communications (CPDLC) and aircraft altimetry and navigation (both area navigation (RNAV) and required navigation performance (RNP)) system monitoring services to meet the needs of the region.
Adequate resources are available in the region from various States and commercial entities, but there is no centralised management of these resources. With the ICAO requirement for more formal and collective airspace safety assessments, the idea of creating a single regional airspace safety monitoring and assessment agency was developed.

Business Success
The success of this business enterprise on behalf of the region must be assured. Without the cost-effective availability of the required standard of airspace safety monitoring and evaluation services, the region will be unable to sustain the current development of airspace efficiencies and communications services. Because of the mandatory and very specialised nature of these services, they will be provided by a monopoly provider (RASMA). The services form an essential part of the international airspace operational management and as such have an equal draw on adequate operational funds.

Sources of Historical Figures
Adequate resources have been available in the region for the provision of all of the services now envisaged as being placed under the management control of this single Agency. There is no reason to believe that it should be other than cost effective to establish this single agency.

Historical Figures
APARMO *(cost estimates to be added courtesy of FAA)*
ISPACG FIT *(cost estimate to be added courtesy of Boeing?)*

Business Name
Regional Airspace Safety Monitoring Agency – Asia and Pacific
Abbreviation: RASMA - APAC

Reasons for Business Name
To reflect the prime functions and mandated responsibilities of the enterprise.

Total Sales
(This section will require us to have some idea of the services eventually offered. I have listed some thoughts - only>)(we could probably get this from the task lists for the APARMO/FITs/etc)

a) From airspace traffic collision risk modeling; $……

b) From aircraft altimetry system monitoring functions; $……..

c) From data base maintenance for the region; $…….

d) From ?????????

Profit
This is a non-profit agency.

Note: RASMA will use the balance sheet approach to financial planning and accounting. This will be a new feature to better display the assets and liabilities of providing these services to aviation.

Achievements to Date
The region has, on a collective basis, already been successful in establishing aircraft altimetry system performance monitoring services on a “user pays” basis. In addition airspace data collection, reduction and safety risk assessments have been carried out on a regional basis with the use of human and technical resources donated by some States. The former will continue to be used, while the users under the management of the RASMA will reimburse the latter.

Mission

Market Segment
This is a captive specialist aviation market without competition. In commercial terms, however, it is a very specialised niche market that will attract more bidders for the provision of some services as time passes, especially if the RASMA can properly establish cost effective services and products. It will be important to the region that RASMA is able to effectively manage the technical resources and services offered to the region by both commercial and state enterprises.

Geographical Area
The boundaries of this enterprise are initially confined to the ICAO Asia/Pacific Region. This represents approximately 35% of the world's commercially used airspace and contains the world's three most populated countries. The region also contains the world's largest oceanic area and the most dispersed island archipelagos.

Stakeholder Needs
The stakeholders both on the ground and in the air need these services to continue the development and reorganisation of the regional airspace, and to provide a safe and efficient environment for aircraft operators. This development is not confined to individual stakeholders but is reliant on continuous close and financially equitable cooperation between all the stakeholders.

Meeting Stakeholder Needs
The RASMA must be able to provide for all needs of the stakeholders under the mandate from which it is created. The RASMA must be a stakeholder driven enterprise that is fully responsive to not only the safety role of the agency but also to the commercial realities of the need for cost effective safety services. Without the benefit of cost effectiveness it will be difficult for RASMA to fulfill its primary role of providing standardised airspace safety assessments to the region.

Objectives

Short-term Financial Objectives
To obtain sufficient financial and human resources to continue, at a minimum, the present airspace safety monitoring and assessment services for the region.

Long-term Financial Objectives
To be a well managed, not for profit, regional airspace safety and monitoring agency that is capable of providing for all the airspace safety monitoring and assessment needs of the APAC region.

Other Objectives
To be recognized globally for its performance and effectiveness as a safety monitoring and assessment agency in a diverse regional airspace setting.

The Management Team

Business Experience
THIS IS THE COLLECTIVE REGIONAL EXPERIENCE
Pacific and South Pacific reduced horizontal and vertical separation: Australia, Japan, United States, and CSSI Inc (operation of the GPS Monitoring System for RVSM),
North, Central and South Pacific, FANS Interoperability Team (FIT) (ADS/CPDLC): Boeing, Japan, United States

Asia reduced horizontal and vertical separation: Australia, Singapore, United States
Airbus
ARINC
SITA
etc
(need to list the present resources being deployed. Should include titles of important human resources.)
(this to followed by possible content of the RASMA management team at appendix 1 that sensibly should comprise a major component of the present providers)

Skills and Qualifications
To be listed *(of companies and states??)* as names are collected to show the composition of the present providers to the services.

Other Team Members
Less than 5
This to me is the core team of managers/ management that will eventually be RASMA management.
6 and Above
other useful members who contribute continually. E.g. the ex-officio ICAO and others (IATA???)

Filling Personnel Gaps
Recruitment of a permanent manager???
Database maintainers??

Structure

Functional Description of Structure And Linkages
This portion of the discussion provides a view of the functional manner in which these duties and responsibilities could be discharged. Appendix 4 presents a view of the way in which the airspace safety monitoring agency could function. System inputs are in the form of provision and use of ATS services that produce system operations, as is shown in the flow across the top of the figure from left to right. In turn, these operations provide various types of monitoring data, as are shown in the upper box at the left side of the figure. These monitoring results flow into the safety assurance process, leading first to the risk assessment of safety oversight and, if necessary, to link with specialist groups and States which develop remedial safety actions. These remedial safety actions are then fed back into the ATS system as inputs, resulting in, for example, changes in to ATS procedures.

Legal Structure
ICAO and the Contracting States operating in accordance with the Annexes to the Convention on International Civil Aviation. Individual States will need to enact appropriate air navigation legislation to accept the quality of the RASMA safety assessment outputs as valid for the airspace under their control.

Reasons for Legal Structure
To comply with the obligations of State civil aviation authorities under the Convention on International Civil Aviation.

Legal Requirements
The same as for other cooperative efforts on airspace in the region. For example ATC letters of agreement.

Professional Advisers

Legal Adviser
(some might say that this will be the ICAO Council??? Not so sure that it doesn't need some advice on regional liability)
Status
Ex-officio

Accountant
ICAO Council??? Depending on the volume of work it may be necessary to employ one person as a bookkeeper.
Status

Information Technology Adviser
Many??????????????????
Website???
Databases
Status
Hired????

Other Professional Advisers
Maybe list contributing aircraft manufacturers, certifying authorities, communications service providers, etc. ????

2. PRODUCTS AND SERVICES

Description
List needed
RVSM
GMU
SEP
RISK

The following is a provisional list of duties and responsibilities for the airspace safety monitoring agency:

a) to establish and maintain central registries of State approvals of operators and aircraft using Asia Pacific Region airspace for RVSM, RNP and other CNS/ATM operations;

b) to facilitate the transfer of such approval data to and from approved monitoring agencies in other ICAO regions;

c) to establish and maintain databases containing the results of navigational performance monitoring, large lateral navigational deviations, aircraft height keeping performance monitoring, altitude deviations of 300 ft or more within Asia Pacific Region airspace; and to include in the databases the results of Asia Pacific Region requests to operators and States for information explaining the causes of observed deviations;

d) to establish and maintain databases containing the results of monitoring the performance of communication systems, and to include in the databases the results of Asia Pacific Region requests for information in response to observed unsatisfactory performance;

e) to provide timely information on changes of RVSM monitoring status of aircraft type classifications to State authorities and operators;

f) to assume overall responsibility for application of all specialized systems used to monitor navigational, height-keeping and communications system performance;

g) to assume overall responsibility for assessing compliance of operators, aircraft and communications systems with performance requirements related to implementation and safe use of changes to separation standards and other relevant CNS/ATM improvements in the airspace of the Asia Pacific Region;

h) to provide the means for identifying non-approved operators using Asia Pacific airspace where a State approval for RVSM, RNP or other CNS/ATM operations is required; and notifying the appropriate State approval authority;

i) to conduct periodic examinations of traffic movements within Asia Pacific airspace as a means to estimate parameters of models used in application of approved risk methodologies;
j) to conduct periodic assessments of risk within Asia Pacific airspace;

k) to develop the means to communicate information related to adverse trends in risk to specialist groups and to States within the Asia Pacific Region; and

l) to develop the means for summarizing and communicating the results of risk assessments and related information to the APANPIRG and other appropriate groups and organizations within the Region.

Readiness for Market
YES all?

How Long Until Ready for Market?
Need some timelines

Cost of Making Market Ready
Contract negotiations/pricing, staff employment, and office???

Skills: What do you need?
Skills: How will you acquire these?
Technical Capabilities
Provision of Technical Capabilities
New Products or Services

Navigation Accuracy Measurement System (NAMS): The Electronic Navigation Research Institute (ENRI) Japan is developing the NAMS as a ground-based height monitoring unit in support of RVSM monitoring. The experimental system is in its final stage and good results are expected. Since NAMS is still experimental, the cost for actual operation is not yet clear. Japan considers that the Air Traffic Control Association Japan could assume the role as a sub-regional monitoring organization utilizing NAMS to supplement the GMU for RVSM monitoring.

AEROTHAI: APANPIRG/12 acknowledged the offer from AEROTHAI to become a regional monitoring agency in support of RVSM in the Asia portion of the Asia Pacific Region. Until this offer is endorsed by APANPIRG, AEROTHAI can only make internal preparations. To this end, AEROTHAI has engaged in discussions with the FAA Technical Center to arrange for the transfer of the data bases, as well as training on the safety assessment and safety oversight functions with regards to RVSM monitoring. A memoradum of understanding will be signed between the two organizations to achieve the mentioned

objectives. AEROTHAI would be prepared to become functional within 6 months of notification of endorsement.

Guarantees and Stakeholder Protection

Guarantees
After Sales Service
Product or Service Differentiation

3. MARKETS AND COMPETITORS

Markets, Projections, and Market Segments

Market Growth
Geographic Scope
Reasons for Geographic Scope
Stakeholder Description
Factors for Success
Uniqueness
Are all of these already adequately addressed? Not needed??? Delete???

Stakeholder Needs and Benefits

Needs
Should be able to do this.
Features
Should be able to do this.
Benefits
Should be able to do this.

4. BUSINESS STRATEGY

Pricing Policy

Consumer Perceptions
Elasticity of Demand
Company Policy
Business Conditions
Channels of Distribution
Production Capacity
Other
Are Your Target Market Segments Price Sensitive?

Promotional Plans

Types of Advertising and Promotion
Brochures

Business Stationery and Cards
ICAO

Internet
Website??

Public Relations
needed

Press Releases
needed???

Choice of Location and Premises

Choice of Location
Choice of Premises

Channels of Distribution
Channels of Distribution used in your Field
Channels of Distribution you will use
Reasons for using these

Wider Factors Affecting Strategy

Economic
Political
Social
Legal
Technological

5. OPERATIONS

Sales

Sales Methods
Monitoring Sales
Sales Records

Suppliers

Who will you use and why?
Terms and Conditions
Engineering/Design Support
Plant and Equipment
Output Limits
Quality Control

Facilities and Premises

Size
Description
Suitability
Factors in the Choice of Premises
Sales Capacity
needed???

Comparison with Sales Forecast
Needed??

Hours of Business
needed???

Factors in Deciding Hours
needed???

Office Equipment
needed

Cost
needed

Staffing

Recruitment
Motivation
Stakeholder Service

6. FORECASTS AND FINANCIAL DATA

The Sales Forecast

Firm Orders
Finding Stakeholders
Market Research

Market Share
100%

Key Assumptions

Cash Flow Projections and Sensitivity Analysis

Key Assumptions
Changes to Forecasts
Effect of Changes

Profit and Loss Account

Profit After Tax
Key Assumptions
No tax

Balance Sheet

Current Assets
Need to do

Current Liabilities
Need to do

Comparison
??

Funding Position
??

Key Assumptions

Performance Ratios

Changes in Profit
Other Ratios

Break Even

break-even Sales
Period
Current break-even Point
Factors in Achieving Sales

7. FINANCING REQUIREMENTS

Funds Required and Timing

Start-up Funds
Funds Required For
ICAO's Investment??
Gearing Ratio

Funding Options

Sector
Debt
Equity
Grants, Awards, or Other
Timetable for Funds
Sale of Equity
Exit Route
Loan Security

8. BUSINESS CONTROLS

Financial

Bookkeeping System
Reasons for Choosing System
Auditors

Sales and Marketing

Description
Stakeholder Records
Business Performance
Market Research Included

Other Business Controls

Production
Personnel Records
Accident Records
Quality Control
Stakeholder Feedback/Complaints
Design

Financial

Cash Flow Forecast
Profit and Loss Accounts
Balance Sheets (Appendix 3)
Other

Miscellaneous

Other

APPENDICES

1. **Board of Directors**
2. **Market Research (under preparation)**
3. **Balance Sheets**
4. **Functional Description of Structure and Linkages**

Asia/Pacific - Regional Airspace Safety Monitoring Agency (RASMA)

Management Organization

Board members

- Board of five members.
- Members appointed by a simple majority of Asia/Pacific States for a period of three years.
- ICAO Regional Director, or nominated representative, as an ex-officio member.

Member Limitations

- Board members should not be directly involved in the delivery of any contract, or service.[1]
- Board members are not rewarded[2].

Roles

- Establish scopes in accordance with regional requirements for:
  - The airspace functions to be monitored;
  - The airspace to be monitored;
  - The contractors required to achieve the requirements.

- Establish contract scopes for:
  - What is to be monitored
  - What area is monitored
  - What tasks form part of the contract

- Evaluation and selection of contractors
- Contract supervision
- Approval of payments
- Financial management
  - Budget
  - Revenue
  - Expenses

Reporting

- The Board reports[3] on behalf of the Agency to member States and APANPIRG.

Governance

- Financial and general governance follows ICAO practices.

[1] This does not preclude a State with a Board member from participating as a contractor or as a provider of a service to the RASMA.
[2] RASMA may pay travel costs for Directors traveling for Agency business purposes.
[3] The Board is responsible to the Contracting States under the terms of the Regional Agreement.

FINANCE BALANCE SHEETS

Balance sheet approach to the financial positions for each function

1. All groups that will be eventually involved in performing work for or on behalf of RASMA will need to be covered by a balance sheet to clearly show the financial contribution to the agency in terms of dollars.

2. Not all dollars will be cash expenses. The dollar will be represented as either hard or soft money value. Hard money is either cash contributions or services, hires contracts, equipment or systems use provided to RASMA at cost. Soft money will be reported for all goods, services , equipment and contracts supplied to RASMA free of cost.

3. Possible government agencies and involved aviation industry companies for which the provision of balance sheets covering contributions to airspace safety monitoring costs will be needed are:

Government:

- ICAO
- APARMO
- FAA (Technical Centre)
- Australian (CASA/Airservices)
- New Zealand (CAA)
- Japan (CAB)
- Singapore (CAAS)
- Thailand (DOA/Aerothai)
- India (Airports Authority)

Industry:

- Airbus Industries
- Boeing Company
- CSSI
- Aeropearl
- SITA
- ARINC Inc.
- Inmarsat
- IATA (financial services)

Only an indicative cost is required at the early planning stage. Some balance sheets will be very similar and therefore could be combined into one in the plan. E.g. CSSI and Aeropearl GMU services, ARINC and SITA services.

Appendix 4 – Functional Description of Structure and Linkages