



WORKING PAPER

FIFTH MEETING OF THE ALLPIRG/ADVISORY GROUP

(Montreal, 23 – 24 March 2006)

Agenda Item 5.1: Funding for regional safety monitoring agencies for reduced vertical separation minima (RVSM), required navigation performance (RNP) and automatic dependent surveillance – contract/controller-pilot data link communications (ADS-C/CPDLC)

**A GLOBAL APPROACH TO COST RECOVERY
OF REGIONAL MONITORING AGENCIES (RMAs)**

(Presented by the Secretariat)

SUMMARY

This paper presents an approach to cost recovery of regional monitoring agencies (RMAs) for the reduced vertical separation minima (RVSM) and suggests a step-by-step procedure on how to implement a cost-recovery arrangement. Appendix A to this paper provides a questionnaire that was sent to all ICAO Regional Offices. Appendix B provides a summary of a survey made by the Secretariat on existing cost-recovery arrangements for RMAs in the various ICAO regions.

Action by ALLPIRG/5 is in paragraph 4.

1. BACKGROUND

1.1 At the tenth meeting of its 172nd Session, the Council approved a recommendation by the Air Navigation Commission requesting the Air Transport Committee to include in the Air Transport Program the development of a global method for cost recovery of the required Regional Monitoring Agency (RMA) infrastructure. The method should be based on existing ICAO guidance material on cost recovery of air navigation services. The request stemmed from a review by the Commission of a report by the European Air Navigation Planning Group (EANPG/45).

1.2 Further, the Council, at its fourteenth meeting of the 176th Session, when reviewing a report of the Middle East Air Navigation Planning and Implementation Regional Group

(MIDANPIRG/9), requested that the subject of a global approach for establishing, funding and determining the basis for cost recovery for regional monitoring mechanisms be placed on the agenda for the upcoming fifth meeting of All Chairmen of the Planning and Implementation Regional Groups (ALLPIRG/5), to take place in Montreal from 23 to 24 March 2006.

1.3 Also, when the Council at its first meeting of the 177th Session reviewed a report of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/16), it urged the Secretary General to take specific action on the issue of funding arrangements for cost recovery of regional airspace safety monitoring mechanisms.

1.4 It should be noted that the RMA for reduced vertical separation minima (RVSM) is required by Annex 11 – *Air Traffic Services provisions* (paragraph 3.3.4.1).

2. AN APPROACH TO IMPLEMENTATION OF AN RMA COST-RECOVERY ARRANGEMENT

2.1 A questionnaire inquiring about the current situation in the establishment of RMAs was sent to ICAO's Regional Offices under cover of a Memorandum dated 6 October 2005 (Appendix A refers). A summary of responses is shown in Appendix B.

2.2 The review of the responses to the questionnaire confirms that there is a need to fund RVSM monitoring activities through a cost recovery mechanism. In some of the regions the funding of these activities is the main obstacle for the continuation of monitoring operations. Present arrangements under which States, on a voluntary basis, absorb all costs are not sustainable in the long term. Some regions have even established study groups to consider this issue.

2.3 It should be noted that international cooperative ventures in the provision of air navigation services have normally proven to be highly cost-effective for the provider States, as well as the users, and in some instances have constituted the only means for implementing costly facilities and services which offer capacity that exceeds the requirements of individual States. By cooperating in such a facility or service provision, the States concerned have been able to provide more efficient services and at a lower cost than if they had had to finance the facilities concerned themselves. In fact, *ICAO's Policies on Charges for Airports and Air Navigation Services* (Doc 9082/7) encourage international cooperation in the provision and operation of air navigation services where it is beneficial for the providers and users concerned (paragraph 12), and States or their delegated service providers are particularly recommended to consider participating in joint charges collection agencies (paragraph 18).

2.4 The international cooperation may take different forms. In its simplest form there is a coordination and harmonization process initiated as a sub-regional activity between a limited number of States. There are significant synergies to be created and savings to be made by coordinating the planning, implementation and operation of air navigation facilities and services across borders with neighbouring States.

2.5 The most obvious arrangement for the financing of an RMA is to establish it as a Multinational (ICAO) Air Navigation Facility/Service for which guidelines are included in the regional air navigation plans.¹

2.6 The participation of States in the provision of a multinational facility/service is based on the assumption that any State, having supported and agreed to the implementation of such a facility/service and making use of it, should also shoulder its share of the costs involved. The participating States would need to formalize in an agreement the terms under which the multinational facility/service is to be provided. If the participating States were to assign the operation of a multinational facility/service to an international organization or an international agency, this would need to be covered in the agreement.

2.7 Considering the moderate costs involved, an “administrative agreement” would be preferable to an international treaty. An administrative agreement is at a lower level of requirement in respect of formalities and procedures than a treaty and can be signed by a minister, the Director General of Civil Aviation (DGCA) or some other authorized person and could be concluded by an exchange of letters or notes. It would also come into force with minimum delay, and would permit greater flexibility in cases where subsequent modifications are required.

2.8 Basic provisions that would normally have to be part of an agreement include, *inter alia*: definition and description of the facility/service; establishment and operation of the facility/service; managerial aspects (including governing bodies and decision making arrangements, organization, and staffing and consultation); financial aspects (including cost determination, cost sharing, budgeting, authority to approve the budget and financial auditing); procedures for settlement of disputes; and withdrawals, amendments to and termination of the agreement. The agreement should specify who will establish and operate the RMA concerned, namely whether this is to be done by a State or an existing international organization or agency.

2.9 The agreement should outline the procedure to be applied for determining the cost share to be borne by each participating State. Any cost-sharing method should, to the extent possible, be equitable, simple and easy to apply. The question of equity should not only be considered in the context of the participating States, but also with respect to the final users (aircraft operators) since it may be assumed that in most instances the participating States would include the costs they incur in the cost base for their air navigation services charges, where levied.

2.10 Any method of cost sharing should, in principle, be based on the extent of the use of the multinational facility/service concerned by each participating State. Thus, the parameters or keys used to determine each State’s cost share should reflect the extent of such use. However, if the use made of a multinational facility/service can only be measured by applying complex procedures, and at a cost which is not commensurate with the costs to be shared, other methods of cost sharing based on readily available and relevant statistical data could be applied. Whatever method is selected it must provide for the just and equitable sharing of the costs involved.

2.11 It would be up to each participating State to decide whether or not it wishes to recover its cost share from the users. A State could either include these costs in its cost base for route charges (if it levies such charges), or, alternatively, recover the costs by levying a separate charge (normally a more complex and costly procedure to administer). The users would probably find it easier to accept the former solution. It is suggested that the levying of a separate charge be avoided, considering also the limited

¹ This concept is also described in Doc 9161/4, *Manual on Air Navigation Services Economics*, Chapter 3 – Part D – Multinational Facilities and Services.

costs involved and that the latter solution would increase the administrative burden for users as well as providers. However, this does not exclude that the funding required is technically collected as a surcharge (the cost is identified separately) but included in the ordinary route charge levied, since this would satisfy the users' requirements on transparency.

2.12 It should be mentioned that there are other options for the operation and cost recovery of RVSM monitoring. One option would be to establish a joint financing arrangement administered by ICAO, similar to the existing arrangements for traffic on the North Atlantic, which in addition to cost recovery of air navigation facilities and services operated by Denmark and Iceland, also regulate cost recovery of the RVSM monitoring function in that region. Still, another option would be the establishment of a new agency specifically for the purpose of operating and recovering the costs of the RVSM monitoring function. Both these options would, however, most likely lead to heavier administrative arrangements and more staff with related higher costs. They would also require more formal and complicated procedures in the establishment phase. The investment in implementing a more firmly established arrangement would probably not be cost-effective. Therefore, a simpler and less costly solution is advocated.

2.13 Where a region (i.e. a Planning and Implementation Regional Group (PIRG)) would not be able to find a State or an existing organization or agency willing to accept the responsibility to operate an RMA, one possibility would be to approach an RMA operator in a neighbouring region to operate the RVSM monitoring functions for both regions, on a cost recovery basis.

2.14 As a conclusion, the cost recovery mechanism chosen should be simple, but at the same time transparent and fair, as the cost to be recovered by each participating State is modest and also because the need for a monitoring agency is of an interim nature.

3. IMPLEMENTATION OF AN RMA: A STEP-BY-STEP PROCEDURE

3.1 On the basis of the approach described in section 2 above and existing guidelines on the establishment of a multinational ICAO air navigation facility/service, the implementation of an RMA could include the following steps:

- a) define, at a PIRG meeting, the RVSM monitoring function as a Multinational ICAO Air Navigation Service in accordance with the existing guidelines, on the establishment and provision of a multinational ICAO air navigation facility/service, included in the regional air navigation plan concerned;
- b) agree to a cost sharing arrangement based on, for example, distance flown or number of flights within the airspace for which each of the respective States has assumed responsibility, it being understood that distance flown may offer more precision while allocation based on the number of flights is simpler to administer;
- c) find and assign a State or an existing organization or agency to establish and operate the RMA (the PIRG's responsibility);
- d) develop and establish an administrative agreement to regulate the establishment and operation of the RMA, including the cost sharing arrangement and procedures for

collection of contributions from the participating States (the PIRG, assisted by the ICAO Regional Office);

- e) sign the administrative agreement (DGCAs or some other authorized person in the participating States);
- f) establish and operate the RMA as a Multinational ICAO Air Navigation Service in accordance with the administrative agreement (the assigned operator); and
- g) recover the contributions to the financing of the RMA through additions to the cost bases for route charges and transfer the amounts to the RMA operator (each State).

4. **ACTION BY ALLPIRG**

4.1 The ALLPIRG/5 Meeting is invited to:

- a) note the developments of arrangements at the regional level and the financing difficulties encountered by certain regions in the implementation of RVSM monitoring; and
- b) consider and comment on the approach and procedure for the implementation of an RMA cost-recovery arrangement proposed in sections 2 and 3.

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APPENDIX A

QUESTIONNAIRE

**COST RECOVERY ARRANGEMENTS FOR
REGIONAL MONITORING AGENCIES (RMAs)**

1. Has your region implemented reduced vertical separation minima (RVSM) in its airspace? If so, what is the present arrangement for the monitoring of RVSM operations?
2. Has the region established an RMA mechanism?
3. When was it established?
4. What are the costs of the present RMA arrangement, how are they recovered and collected?
5. Are there any plans or suggestions on how to monitor RVSM operations and provide an RMA mechanism in your region in the future?
6. Is there any need in your region for guidelines on cost recovery of the RMA mechanism?
7. Is there any need in your region for the development of a global method for cost recovery of the RMA infrastructure, including the exchange of data between regions?
8. Is the Reduced Horizontal Separation Minima (RHSM) monitored in your region? If so, is it done by the RMA mechanism (for RVSM) or is it done by a separate monitoring establishment?
9. What are your views on merging the monitoring of RVSM and RHSM operations into a common RMA arrangement?

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APPENDIX B

ESTABLISHMENT OF REGIONAL MONITORING AGENCIES (RMA) – DEVELOPMENTS AT THE REGIONAL LEVEL

1. ASIA AND PACIFIC REGIONS

1.1 At its 16th Meeting held in Bangkok, Thailand, from 22 to 26 August 2005, the ASIA/PAC Air Navigation Planning and Implementation Regional Group (APANPIRG) recognized an urgent need to develop feasible and sustainable funding arrangements for the regional safety monitoring activities in order to permit the ongoing initiatives of carrying out safety trials and of implementing CNS/ATM systems in the region to progress without delay or compromising efficiency. APANPIRG's experts had previously found it difficult to resolve the legal, financial and organizational issues involved in establishing a regional safety monitoring agency. The meeting decided (Conclusion 16/2) that a study group be formed to develop a feasible and sustainable proposal to assist States of the region to organize and finance necessary safety monitoring mechanisms for the provision of safety services in the international airspace of the ASIA/PAC region.

1.2 The matter was taken up again by the Directors General of Civil Aviation of ASIA/PAC at their 42nd Conference held at the Gold Coast, Australia from 26 to 30 September 2005. The Directors General urged the Administrations concerned to support initiatives by APANPIRG to come up with sustainable funding arrangements. It should be noted, however, that RVSM monitoring is being conducted in the region by the following three bodies:

- a) the Pacific Approvals Registry and Monitoring Organization (PARMO) operated by the Federal Aviation Administration (FAA) in respect of the Pacific RVSM airspace;
- b) the Monitoring Agency for the Asian Region (MAAR) operated by AEROTHAI (Thailand) in respect of Asian RVSM airspace; and
- c) Airservices Australia undertakes monitoring functions for relevant portions of the Brisbane and Melbourne FIRs.

1.3 The costs have been absorbed by the respective States, namely the United States (PARMO), Thailand (AEROTHAI) and Australia (Airservices Australia). Such costs are not known to the Secretariat. It would seem that current arrangements for service provision in the monitoring process are appropriate; only funding and cost recovery mechanisms are problematic and need to be urgently addressed according to the Directors General of Civil Aviation of ASIA/PAC.

2. EUROPEAN AND NORTH ATLANTIC REGION

2.1 RVSM monitoring has been implemented in the European (EUR) and North Atlantic (NAT) regions. Both regions have established Regional Monitoring Agencies (RMAs).

2.2 The EUR region RMA was established in 2001 (EANPG Conclusion 43/36) and its functions are carried out by EUROCONTROL. Costs in the EUR region are unknown to the Secretariat; they are recovered by EUROCONTROL.

2.3 The NAT region has its own monitoring agency, the Central Monitoring Agency (CMA), which was established in the early 1980s. Its role was expanded to include RVSM by the LIM NAT RAN Meeting in November 1992. The costs for the NAT region are reported to the ICAO Joint Financing Committee on an annual basis and a fee is charged to all aircraft operating North of 45° North. Operators in the NAT region are responsible for costs incurred if using the Global Monitoring System (GMS) for monitoring purposes. Reduced Horizontal Separation Minima (RHSM) is not monitored in the EUR region, whereas it is monitored in the NAT region by the NAT CMA.

3. MIDDLE EAST REGION

3.1 RVSM monitoring was implemented in the Middle East region (except Baghdad and Kabul FIRs) on 27 November 2003 through the Middle East Central Monitoring Agency (MECMA). The United Arab Emirates provided full support (financially and technically) to the activities of MECMA until June 2004, when they withdrew their support. Since then a number of follow-up actions have been undertaken by the States concerned to re-establish a monitoring agency in the region (MID RMA). A supervisory Board has been established to function on the following basis:

- a) The activities of the MID RMA shall be funded by contributions from member States.
- b) The contributions for the first year shall be set on an equal basis between member States based on the estimation of total costs for the set up, the operation of the agency (USD 300,000) and the number of member States.
- c) The contributions of States for the subsequent years shall be revised by the MID RMA Board in coordination with ICAO's Technical Cooperation Bureau (TCB). Contributions shall be based on up-to-date statistics and data related to the number of flights for each FIR.
- d) The Agency shall be managed as an ICAO TCB project.
- e) ICAO TCB shall be responsible for the collection of States' contributions and accounting activities in cooperation with the host State.
- f) Bahrain to host the MID RMA (it was established on 24 November 2005).
- g) Bahrain will pay the initial set up costs on the condition that they can be recovered through advance payments by participating States on the basis of the agreed funding mechanism in coordination with ICAO's TCB.

4. CARIBBEAN AND SOUTH AMERICAN (CAR/SAM) REGIONS

4.1 RVSM was implemented in the CAR and SAM regions on 20 January 2005. The monitoring of RVSM operation is carried out by the Caribbean and South American Monitoring Agency (CARSAMMA) hosted by Brazil with the assistance of CAR and SAM States. CARSAMMA was

established in 2003 by the CAR/SAM Regional Planning and Implementation Group (GREPECAS) and covers the airspace over CAR/SAM States with the exception of the airspace of Mexico, which is under the monitoring of the FAA (United States of America).

4.2 GREPECAS agreed that Brazil would provisionally provide RMA functions. Brazil also accepted financial responsibilities for the set up and operation of the agency. The annual costs of the monitoring activities are roughly USD 302,400, including full-time and part-time employee costs. The main duties of CARSAMMA are *inter alia* to:

- a) establish and maintain a central registry of RVSM approved operators and aircraft of each State/Territory that uses the CAR/SAM airspace;
- b) facilitate the transfer of approved data to and from other RVSM regional monitoring agencies;
- c) establish and maintain a database containing the results of height-keeping performance monitoring and height deviations of 300 ft or more within CAR/SAM airspace, and to include in the database the results of CARSAMMA requests to operators and States for information on the causes of large height deviations observed;
- d) provide timely information to State authorities and operators on changes or monitoring status of aircraft type classifications;
- e) administer the GPS monitoring system (GMS);
- f) assess compliance with RVSM height-keeping performance requirements by operators and aircraft, and introduction of RVSM in the CAR/SAM region;
- g) provide means of identifying non-RVSM approved operators using CAR/SAM RVSM airspace and to notify the appropriate State authorities accordingly;
- h) develop the means for summarizing and communicating the content of relevant databases to RVSM Task Force decision makers so that it can be used to decide when and to what extent RVSM will be applied in the airspace under their responsibility; and
- i) conduct CAR/SAM airspace safety assessment.

4.3 FAA has offered its support to CARSAMMA by providing the same Global Monitoring Units (GMU) as the ones used in the airspace under the responsibility of the United States.

5. AFRICA/INDIAN OCEAN (AFI) REGION

5.1 The AFI Regional Monitoring Agency (ARMA) has been established in South Africa and is hosted by the Air Traffic and Navigation Services Company (ATNS) pursuant to Conclusion 2/1 of the Second APIRG RVSM/RNAV/RNP, Task Force 2, held in Dakar, Senegal, in November 2003. ARMA has consequently assumed the tasks and responsibilities of monitoring RVSM safety in the AFI region in conjunction with RVSM implementation activities and processes. RVSM implementation is still pending

an acceptable Total Target Level of Safety. The duties and responsibilities are clearly defined in the AFI RMA Manual and are being systematically realized as the ARMA matures. RVSM Height Monitoring will be accomplished via the Global Positioning System (GPS) Monitoring Unit (GMU) process that will be provided by an appropriate service provider. The costs per Height Monitoring mission will be for the account of the aircraft operator with all other associated costs being carried by ARMA/ATNS for the AFI region.

5.2 By agreement, IATA has initially assisted financially with the funding of the Functional Hazard Assessment (FHA), Collision Risk Assessment (CRA) and the Pre- implementation Safety Case (PISC). This agreement does not include the costs of establishing and operating the ARMA which is carried solely by the host, ATNS, for the entire AFI region. The total financial impact to ATNS has as yet not been fully realized due to the fact that the associated processes of the ARMA are not yet mature.

5.3 South Atlantic (SAT)/EUR/SAM Corridor: South Atlantic Monitoring Agency (SATMA) has been established and hosted by Aeropuertos Españoles y Navegación Aérea (AENA) to cover the Canary Islands and Spain. A Task Force established by the SAT Group has been assigned, *inter alia*, to carry out a study on the appropriateness of a cost recovery mechanism to support SATMA operations. The States or organizations who have accepted to assume the RVSM monitoring activities are shouldering the costs involved.

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