FOURTH MEETING OF THE ALLPIRG/ADVISORY GROUP

(Montreal, 6 – 8 February 2001)

Agenda Item 2.1: Interregional coordination and harmonization mechanism — Harmonization of air navigation systems

INTERREGIONAL PLANNING MECHANISM AND IDENTIFICATION OF MISSING ELEMENTS

(Presented by the Secretariat)

SUMMARY

As the formulation of regional, subregional and national plans for air navigation systems — including CNS/ATM systems — is progressively gaining maturity, States and aircraft operators are investing in the enabling technologies to gain early benefits. As this equipage progresses, both on the ground and in aircraft, further steps in the planning and implementation of CNS/ATM systems need to be addressed to meet the challenge of integration, interoperability and harmonization of the systems. This working paper discusses the interregional planning mechanism and a framework for harmonization of CNS/ATM systems, and identifies a list of interface issues at the regional level and missing elements at the global level that require the attention of all CNS/ATM partners.

Proposed action by ALLPIRG/4 is at paragraph 5.

1. INTRODUCTION

1.1 The strategic vision of the civil aviation community is to achieve integrated global air traffic management through the worldwide implementation of CNS/ATM systems in a progressive, cost-effective and cooperative manner. This would enable aircraft operators to meet their planned times of departure and arrival and adhere to their preferred flight profiles with minium constraints and without compromising agreed levels of safety.

1.2 To achieve this goal, ICAO has been addressing the planning strategy for the implementation of CNS/ATM systems at the global and regional levels, leaving the responsibility for structuring the national plan to the Contracting States. In addition, a number of States are coming together to forge a joint venture — known as *subregional planning* — to implement CNS/ATM systems.

1.3 As the formulation of regional, subregional and national plans for CNS/ATM systems is progressively gaining maturity, States and aircraft operators are investing in the enabling technologies to gain early benefits, eventually migrating to CNS/ATM systems. As this equipage progresses, both on the ground and in aircraft, there is a need to address further steps in the planning and implementation of CNS/ATM systems that would face the challenge of the integration, interoperability and harmonization of the systems.

2. NEED FOR INTEGRATION, INTEROPERABILITY AND HARMONIZATION OF CNS/ATM SYSTEMS

2.1 With the gradual and phased implementation of CNS/ATM systems, it becomes necessary to reconcile the differences both within the region (i.e. intraregional) and with neighbouring regions (i.e. interregional) by adopting an approach of cooperation and consensus building, as well as by utilizing harmonization tools and techniques. The ultimate objective of integration and harmonization in the CNS/ATM systems environment is to provide transparent air traffic services with seamless systems, so that users can fly globally with uniform equipage and controllers can effectively handle mixed aircraft equipage on the same situation display/environment.

2.2 The need for intra- and interregional planning and coordination to ensure harmonized CNS/ATM systems implementation arises from:

a) the diversity in air traffic control infrastructure;

b) a lack of similar functionality;

c) differing requirements at the national, subregional and regional levels;

d) multiple operational/technical options;

e) divergent media and protocols; and

f) differing timings in implementation.

3. INTERREGIONAL PLANNING AND COORDINATION

3.1 In many regions, a number of States, in addition to their own individual approaches, have formed a subregional group based on a common understanding and are proceeding with the planning and implementation of CNS/ATM systems. As the individual States and subgroups adopt their respective strategies, there is a requirement within the region to see that these national plans/subregional plans are within the framework of a regional plan and in harmony with each other. This intraregional coordination is part of the work programme of each planning and implementation regional group (PIRG).

3.2 It may be recalled that, in 1996, the Council had established the ALLPIRG/Advisory Group to provide a high-level interface to achieve interregional harmonization in the implementation of CNS/ATM systems. In addition, to accommodate a lower-level interface, the interregional groups were established by PIRGs with a specific objective. Although these interregional groups are meeting the requirements for which they were formed, they have been further enlarged, through periodic meetings of the ICAO Regional

Directors, to undertake the task of interregional coordination for the harmonization of CNS/ATM systems planning and implementation on the basis of homogeneous air traffic management areas and major international traffic flows.

3.3 The first such interregional coordination meeting, between the Asia/Pacific, Europe and Middle East Regions, was held in Bangkok in October 2000. During such coordination meetings, the groups discuss regional CNS/ATM plans (covering such topics as planning strategy, implementation options — technical/operational/institutional — and implementation time lines), identify the major international traffic flows which interconnect different regions, list the areas of differences in interfacing CNS/ATM systems and then determine the approach to address the interregional differences. The outcome of these coordination meetings will be brought to the attention of the respective PIRG for approval and implementation. This may give rise to a revision of each regional CNS/ATM systems plan. As these modifications will in turn be reflected in the CNS/ATM systems plan of the subregions and States, follow-up action by the respective ICAO Regional Director would ensure uniform application. A framework for the harmonization of air navigation systems, which is the main thrust of the interregional planning effort, is shown in Appendix A.

4. IDENTIFICATION OF INTERFACE ISSUES AND MISSING ELEMENTS

4.1 In order to progress with the implementation of CNS/ATM systems, further steps are required in terms of the identification and addressing of interface issues (at the regional level) and missing elements (at the global level) that would accelerate the process. A general list of interface issues and missing elements, as identified by the different PIRGs, that require the attention of all CNS/ATM partners is provided at Appendix B. An examination of the list indicates that ICAO, States, the International Air Transport Association, service providers and industry will have to focus collectively to address the next steps to achieve an integrated, global air traffic management system using a single sky approach which is safe, seamless and smart. Although some of the issues/elements listed in Appendix B are ongoing tasks being addressed by ICAO, States and industry, they have nevertheless been included as part of the list to highlight the urgency of the situation.

5. ACTION BY ALLPIRG

5.1 In light of the above, the meeting is invited to note the ongoing efforts of ICAO in terms of the interregional coordination process for the planning and harmonization of air navigation systems. The meeting may also wish to call upon ICAO and the other CNS/ATM partners, through the following conclusion, to emphasize the need to address, on a priority basis, the interregional issues and missing elements as outlined in Appendix B.

Conclusion 4/X – Increased emphasis on addressing interregional issues and missing elements

That, with a view to facilitating interregional planning and the harmonization of air navigation systems, ICAO and the CNS/ATM partners put more emphasis on the addressing of interregional issues and the missing elements as outlined in Appendix B.

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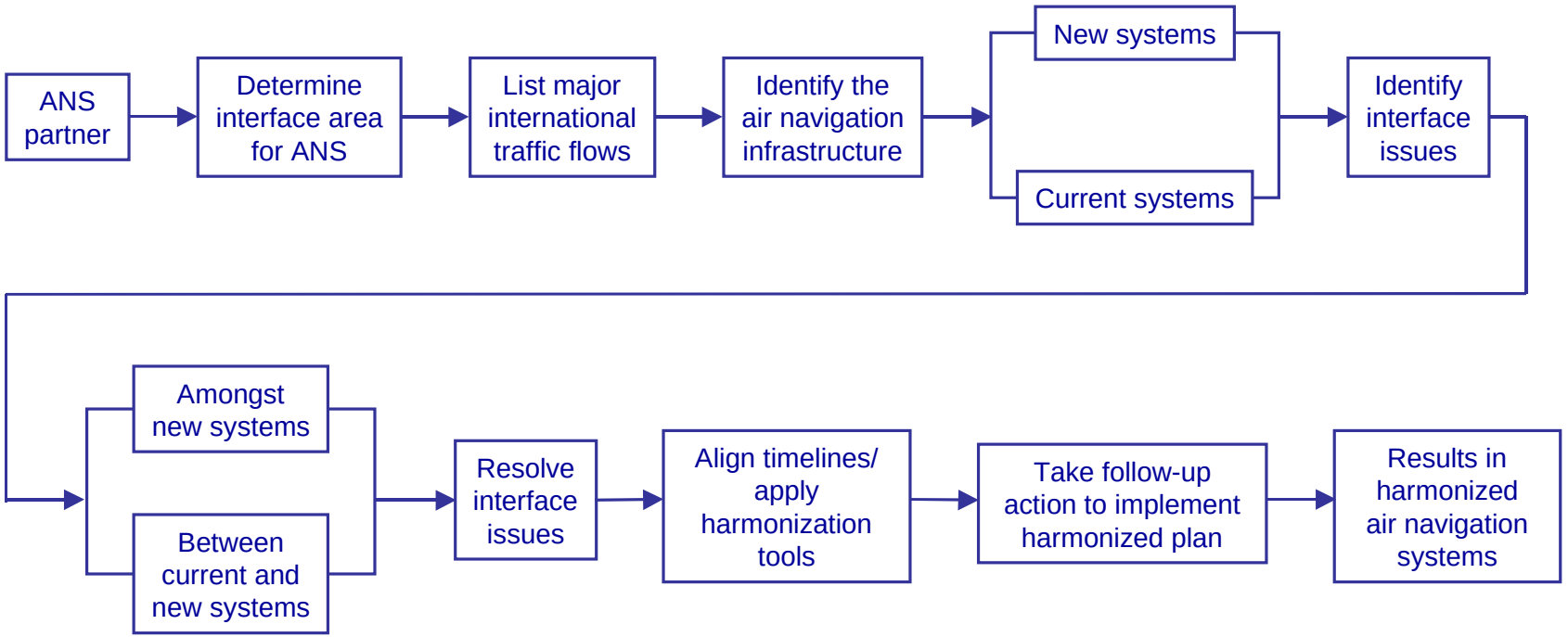
Approach to Harmonization of Air Navigation Systems

A Global Framework



APPENDIX B

INTERREGIONAL ISSUES AND MISSING ELEMENTS WHICH NEED TO BE ADDRESSED TO FACILITATE INTERREGIONAL PLANNING AND THE HARMONIZATION OF AIR NAVIGATION SYSTEMS

S.No	Interregional issues/ missing elements	Source	Comments	To be addressed by
1	ATS route planning and implementation between regions	APANPIRG EANPG MIDANPIRG	Being addressed as part of the work programmes of interregional coordination meetings	ICAO Regions
2	Provisions for RVSM minimum monitoring requirements	APANPIRG EANPG	Although ICAO is not currently developing SARPs on this subject, guidance is contained in Doc 9474, which is to be updated to clarify minimum requirements	ICAO
3	State approval of aircraft for RVSM operations	APANPIRG	The operational approval process is established in various documents. The main issue is for States to develop their own approval process and documentation	States
5	Harmonization of procedures for transition from RVSM levels to non-RVSM levels	APANPIRG EANPG MIDANPIRG	Being addressed as part of the work programmes of interregional coordination meetings	ICAO Regions
6	Additional guidance material on the RNP operational approvals process for RNP types	MIDANPIRG	Guidance on the RNP 10 generic approval process has been provided in Doc 9613 and in new RGCSP/10 material for Doc 9613. Further development of additional, detailed guidance on the operational approval process for each RNP type is required	ICAO
7	Provisions and guidance material for annotation of RNP requirements on aeronautical charts	MIDANPIRG	This is presently under development	ICAO

S.No	Interregional issues/ missing elements	Source	Comments	To be addressed by
8	Progressive implementation of ATN islands, domains, backbones and their interconnections	APANPIRG EANPG MIDANPIRG GREPECAS	Guidance material has been developed; to be addressed in due course by the interregional coordination meetings	ICAO Regions
9	Interfacing OLDI and AIDC	APIRG	To be addressed in due course	Industry
10	Frequency planning criteria for VDL modes	APANPIRG	This is presently under development	ICAO
11	Combined GNSS receiver to integrate signals from different constellations	ALL PIRGs	SARPs for combined GPS/GLONASS receiver have been developed; for new elements, they are presently under development	ICAO
12	Harmonization of different satellite-based augmentation systems for GNSS (WAAS/EGNOS/MSAS)	ALL PIRGs	SARPs for SBAS have been developed; the draft SARPs for integration of SBAS are presently under development	ICAO
13	Multi-mode receiver (MMR) for ILS/MLS/GNSS	EANPG	MMR specifications have been developed; the equipage is presently under development	Industry
14	Availability of ANP/FASID documents	ALL PIRGs	This is presently under development by PIRGs; as and when finalized, the documents will be made available on priority	ICAO
15	Availability of a legal planning tool	EANPG	This is presently being addressed	ICAO
16	Protection of aviation frequency band	ALL PIRGs	Successfully addressed at WRC-2000; preparations for WRC-2003 are under way	ICAO/States/ Industry
17	Guidance material for a business case methodology for the implementation CNS/ATM systems	APANPIRG	This is presently under development	ICAO
18	Methodology for determining the environmental benefits of CNS/ATM systems	APANPIRG MIDANPIRG	This is presently under development	ICAO

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