

ELEVENTH AIR NAVIGATION CONFERENCE**Montreal, 22 September to 3 October 2003****Agenda Item 4: Capacity enhancement measures****4.2: Regional measures****REGIONAL AND GLOBAL MEASURES
TO ENHANCE AIRSPACE CAPACITY**

(Presented by the Secretariat)

SUMMARY

This paper recalls the problems being experienced by many regions with respect to increasing demand and limited capacity and identifies some of the efforts being made at both the global and regional levels to enhance capacity and to establish a more efficient operating environment. Additionally, as the ICAO provisions are the key to enabling a more efficient and effective use of available airspace, these are reviewed. In particular, the role ICAO provisions is examined.

Action by the Conference is in paragraph 5.

1. INTRODUCTION

1.1 Because of the continued growth in civil aviation, in many places, demand often exceeds the available capacity of the air navigation system to accommodate air traffic, resulting in significant negative consequences not only to the aviation industry, but also to general economic health. One of the keys to maintaining the vitality of civil aviation is to ensure that a safe, secure, efficient, and environmentally sustainable air navigation system is available, at the global, regional and national levels. This requires the implementation of an air traffic management (ATM) system that allows maximum use to be made of enhanced capabilities provided by technical advances.

1.2 In the intervening years since the Tenth Air Navigation Conference endorsed the future air navigation systems (FANS) concept, later to become known as communications, navigation, and surveillance/air traffic management (CNS/ATM) systems, most States and all ICAO regions embarked on implementation programmes intended to improve aviation operations by making use of new technologies. It

was later recognized that a comprehensive concept of an integrated and global ATM system, based on clearly-established requirements, was needed. This concept, in turn, would form the basis for the development of ATM requirements and the coordinated implementation of CNS/ATM technologies.

1.3 In addition to the above, ICAO, at the global level, continues to develop technical and operational Standards and Recommended Practices (SARPs) for new systems as well as procedures and guidance material for implementation and use of such systems. Worldwide events, such as the Tenth and Eleventh Air Navigation Conferences, and documents such as the *Global Air Navigation Plan for CNS/ATM Systems* (Global Plan, Doc 9750), also help to ensure harmonization and coordinated implementation of CNS/ATM systems. The global ATM operational concept (AN-Conf/11-WP/4 refers) and the Eleventh Air Navigation Conference are, in particular, efforts to harmonize and encourage implementation of a more efficient and integrated global ATM system aimed at meeting the expectations of the aviation community.

2. DIFFERING REQUIREMENTS AND EXPECTATIONS

2.1 The ATM operational concept and indeed all efforts to enhance capacity and improve aircraft operations must be adaptable to the unique operational environment and needs of the different States and regions. Additionally, there are a range of economic, legal, political, financial environmental and institutional issues that vary from region to region.

2.2 In many areas, simple solutions based on regional harmonization or cooperation across homogeneous areas may provide satisfactory short- or medium-term responses, while in other areas more complex ATM systems and sophisticated political and legal arrangements may be required. Recognizing that States and regions are different from each other with different requirements, needing different solutions, is a fundamental aspect of the ATM operational concept which is why the concept contains details on an expected planning and evolutionary process within the ICAO framework.

2.3 The implementation of a global ATM system is provided for by strategic plans, inter alia, the Global Plan, regional plans and State implementation plans, which also describe the progressive intermediate steps toward that goal. The plans of all States need to be aligned to ensure, to the greatest extent possible, that solutions are internationally harmonized and integrated, and do not unnecessarily impose multiple equipment carriage requirements in the air components of the ATM system, or multiple systems on the ground.

3. PLANNING FRAMEWORK

3.1 The planning framework to realize the desired outcomes for a particular State or region necessary to move towards the goal of a seamless and global ATM system is complex which requires a level of strategic collaborative decision-making by all of the partners in an open and cooperative environment. The cost/benefit analysis and business case process will help to identify areas where resources may be applied to maximum benefit while the safety case process will expose points of weakness in the system that may require change, and a change of emphasis, for instance, from economy to safety.

3.2 The planning process at the global, regional and national levels should provide a well-understood, manageable and cost-effective sequence of improvements that keeps pace with user needs, culminating in a system meeting safety, capacity, efficiency and environmental demands. The ATM operational concept provides the basis from which the ATM requirements, objectives and benefits will be derived, thereby providing the foundation for the development of regional and national ATM implementation plans.

3.3 The regional air navigation plans (ANPs) set forth the requirements for facilities and services to support international air navigation. The operational concept should form the basis of regional air navigation planning. It is here that the top-down approach, comprising global guidance and regional harmonization measures, merges with the bottom-up approach consisting of system architecture and implementation plans of States and aircraft operators.

3.4 The planning and implementation regional groups (PIRGs) have made considerable progress on implementing CNS/ATM systems and, in some cases, have worked inter-regionally to progress global initiatives. Such examples, which include the Europe, Middle East, Asia Route Structure South of the Himalayas (EMARSSH), reduced vertical separation minima (RVSM) across several regions (e.g. South Atlantic Corridor), and the air route structure over the North Pole linking the North American continent with Southeast Asia and the Pacific Region, were the result of the efforts of several PIRGs and States which demonstrated an unprecedented international spirit of cooperation in resolving this most complex task. In addition to these examples, the PIRGs, in accordance with the Global Plan, have identified several major international traffic flows. Working through the combined efforts of several CNS/ATM sub-groups, the PIRGs have identified the airspace user needs and are developing the requirements for facilities and services across these major traffic flows.

Single sky

3.5 In the European Region, a specific set of objectives was identified to address the unique problems that the region faces with respect to increasing air traffic and the problems associated with this increase. The initiative came to be known as “single sky” and was first used by the transport ministers of the European Union (EU) following a proposal by the European Commission to address the unique problems of air transport in the EU which included an exponential growth of air traffic and increasing delays. Additionally, the intense increase in traffic was beginning to seriously damage the environment. The subsequent agreement followed the Transport Commissioner’s call for harmonization of rules and incident reporting, better cross-border coordination and increased cooperation between civil and military aviation control systems. The ministers also called for training to be standardized allowing air traffic controllers to take jobs in other member States where skills shortages were occurring. A more unified airspace was also expected to streamline safety procedures and save fuel by allowing aircraft to fly more direct routes as opposed to the indirect routes that were established because of the many different national systems that existed. There are a series of technological, political and institutional issues that are being addressed in order to achieve the single sky policy in Europe.

3.6 As can be seen from the above, the single sky was one initiative developed to deal with the unique problems of a particular region. It is possible, however, that as progress is achieved with implementation of the single sky initiative, the concept, or parts of it, could be adapted for other regions or global use as part of the ongoing effort to achieve an interoperable and more seamless global ATM system in follow-up to the work of the Conference. However, it is appropriate that a more thorough investigation,

analysis and review of the progress achieved as well as difficulties encountered would need to be undertaken to determine if, where and how, the concept could be adapted for global use, or perhaps, for use by other regions. Therefore, the Conference may wish to agree on the following recommendation:

Recommendation 4/ — Investigation and analysis of the “single sky” approach to global harmonization

That ICAO investigate and analyse the “single sky” concept for possible use in other regions or at the global level.

4. ICAO PROVISIONS

4.1 It is recalled that the globally accepted framework for the harmonization of civil aviation is developed and maintained by ICAO and published as SARPs in Annexes to the Chicago Convention, which cover procedures of worldwide applicability. These Annexes are complemented by Procedures for Air Navigation Services (PANS) which specify, in greater detail than the SARPs, the actual procedures to be applied by air traffic services (ATS) units.

4.2 To accommodate specific needs on a regional basis, the development of international civil aviation is further governed by regional ANPs, which evolve from recommendations of Regional Air Navigation meetings and which set forth in detail the facilities and services to be provided by States pursuant to Article 28 of the Convention. Complementing the ANPs are the ICAO *Regional Supplementary Procedures* (Doc 7030), which form the procedural part of the ANPs to meet those needs in specific areas, which are not covered in worldwide provisions.

4.3 As safety, regularity and efficiency of air traffic depends, to a large extent, on a uniform application of procedures on a global basis, it is of paramount importance that Regional Supplementary Procedures are not in conflict with the provisions contained in the Annexes and PANS. They must, in fact, either specify detailed regional options for those provisions or promulgate a regional procedure of justifiable operational significance, additional to existing provisions in Annexes or PANS, and should furthermore avoid variations in text of procedures with similar intent applicable to more than one area.

4.4 More specifically, Regional Supplementary Procedures should indicate a mode of implementing procedural provisions in Annexes and PANS, as distinct from a statement or description of required facilities and services as published in the ANPs. Regional Supplementary Procedures may also indicate permissible additions to provisions in Annexes and PANS.

4.5 There seems to be an increasing need, however, for a number of States to develop and implement capacity-enhancing procedures, particularly in the vicinity of aerodromes, in response to more recent demands from airspace users and accompanying industrial and political pressures. Furthermore, the desire to harmonize capacity-enhancing procedures among neighbouring States has led to several proposals for inclusion of such provisions in the Regional Supplementary Procedures.

4.6 As a long term goal, the implementation of an ATM system that allows maximum use to be made of enhanced capabilities provided by technical advances holds the key to a safe and efficient global

ATM system. The ATM operational concept addresses what is needed to increase user flexibility and maximize operating efficiencies in order to increase system capacity and improve safety levels in the future system.

4.7 Therefore, and although it is appreciated that it can be time-consuming to accommodate regional needs for capacity enhancement within the framework of existing SARPs and PANS, it is vital that States and PIRGs continue to propose any capacity-enhancing amendment to ICAO with a view to possibly amending global provisions rather than for implementation on a regional basis. Ultimately, this will avoid the danger of disparity between existing global ICAO provisions.

5. ACTION BY THE CONFERENCE

5.1 The Conference is invited to:

- a) note the contents of this paper;
- b) agree on the recommendation following paragraph 3.6; and
- c) agree on the following recommendation:

Recommendation 4/ — Regional and global capacity-enhancing procedures

That ICAO remind States and international organizations:

- a) of the criteria for the development of Regional Supplementary Procedures;
- b) that Regional Supplementary Procedures cannot conflict with the provisions contained in the Annexes and PANS; and
- c) that, with respect to ATM procedures, global provisions are preferable to regional provisions.

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