



WORKING PAPER

TWELFTH AIR NAVIGATION CONFERENCE

Montréal, 19 to 30 November 2012

**Agenda Item 4: Optimum capacity and efficiency – through global collaborative ATM
4.2: Dynamic management of special use of airspace**

**CIVIL/MILITARY COORDINATION/COOPERATION
AND FLEXIBLE USE OF AIRSPACE**

(Presented by the Secretariat)

EXECUTIVE SUMMARY

In many areas of the world, the limited access by civil traffic to military segregated airspace continues to add unnecessary miles to flights, resulting in significant fuel consumption and related emissions. This situation has improved little in recent years even though ICAO has held global and regional events throughout the world, as well as widely distributed significant guidance material on the subject. States need to take a balanced and collaborative approach to airspace management in a way that meets military activity needs and those of air transportation. Successful cooperation between civil and military airspace users and planners requires collaboration based on education, communication, and mutual trust. The time has come to become more proactive and focus our collective efforts to improve the sharing of airspace in specific areas serving international traffic flows.

Action: The Conference is invited to:

- a) agree to steps outlined in paragraph 2; and
- b) agree to the recommendation in paragraph 3.

<i>Strategic Objectives:</i>	This working paper relates to the Safety Strategic Objective by updating and strengthening the policy framework for ICAO's activities in the air navigation field.
<i>Financial implications:</i>	Mechanisms to plan, schedule and promulgate collaborative airspace management may create some cost to the State, but will result in benefit for all aviation system users.
<i>References:</i>	Doc 9854, <i>Global Air Traffic Management Operational Concept</i> Doc 9958, <i>Assembly Resolutions in Force (as of 8 October 2011)</i> Circ 330, <i>Civil/Military Cooperation in Air Traffic Management</i>

1. BACKGROUND

1.1 The 37th Session of the ICAO Assembly (2010) resolved that “the common use by civil and military aviation of airspace, and of certain facilities and services, shall be arranged so as to ensure the safety,

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regularity and efficiency of civil aviation as well as to ensure the requirements of military air traffic are met (A37-15, Appendix O refers). It was also resolved that the Secretary General shall provide guidance on best practices for civil/military coordination and cooperation. The 37th Assembly also concluded that ICAO serves as an international forum that plays a role in facilitating improved civil military cooperation, collaboration and the sharing of best practices with the support of civil/military partners.

1.2 Standards and Recommend Practices (SARPs) are already in place related to sharing of the airspace and ensuring coordination among civil and military authorities. To achieve the objectives stipulated by the 37th Assembly, ICAO developed guidance material (Circ 330 refers) on civil/military cooperation in air traffic management (ATM) and conducted activities to improve cooperation, coordination and interoperability between civil and military authorities and systems.

1.3 Coordination with military authorities was discussed at the Eleventh Air Navigation Conference, which adopted Recommendation 1/2 – “that States take appropriate action to coordinate the global ATM operational concept with their military authorities with a view to achieving maximum cooperation and integration in an effort to implement a flexible and cooperative approach to airspace organization and management”.

1.4 In summary, ICAO:

- a) developed a vision of an integrated, harmonized and globally interoperable ATM system (contained in the *Global Air Traffic Management Operational Concept* (Doc 9854)). This vision is summarized in the following statement:

“To achieve an interoperable global air traffic management system, for all users during all phases of flight, that meets agreed levels of safety, provides for optimum economic operations, is environmentally sustainable and meets national security requirements.”;

- b) held a Global Civil/Military Cooperation Symposium in 2009;
- c) held two Civil/Military Cooperation Seminars/Workshops for the NAM/CAR/SAM and APAC Regions in August 2011 and February 2012 respectively, and plans three more events in 2012 and 2013 for MID, AFI and EUR regions; and
- d) published ICAO Circular 330, *Civil/Military Cooperation in Air Traffic Management*.

1.5 ICAO recognizes the need to develop a strategy that would assist Member States with a continued collaborative approach to civil/military airspace management.

1.6 Successful cooperation between civil and military airspace users and planners requires collaboration based on education, communication and mutual trust.

2. ASBU BLOCK ZERO IMPEMENTATION – NEXT STEPS

2.1 The benefits of the implementation of civil/military cooperation and sharing of the airspace include:

- a) capacity increases and reduction in routine delays as measured by traffic volumes on major traffic flows;
- b) consequent fuel and emission reductions; and

- c) documented environmental improvements through the use of the ICAO fuel savings estimation tool (IFSET).

2.2 The Global Air Navigation Plan outlines the aviation system block upgrade (ASBU) concept, modules and supporting technology roadmaps. Block 0 modules are ready for implementation, and in fact are implemented in some States. For proactive civil/military cooperation, the building of mutual trust and understanding and the sharing of resources and information between the Civil Aviation Administrations (CAAs) and military organizations based on recognition of the operational constraints on both sides is a basic principle, as shown in Figure 1 below.

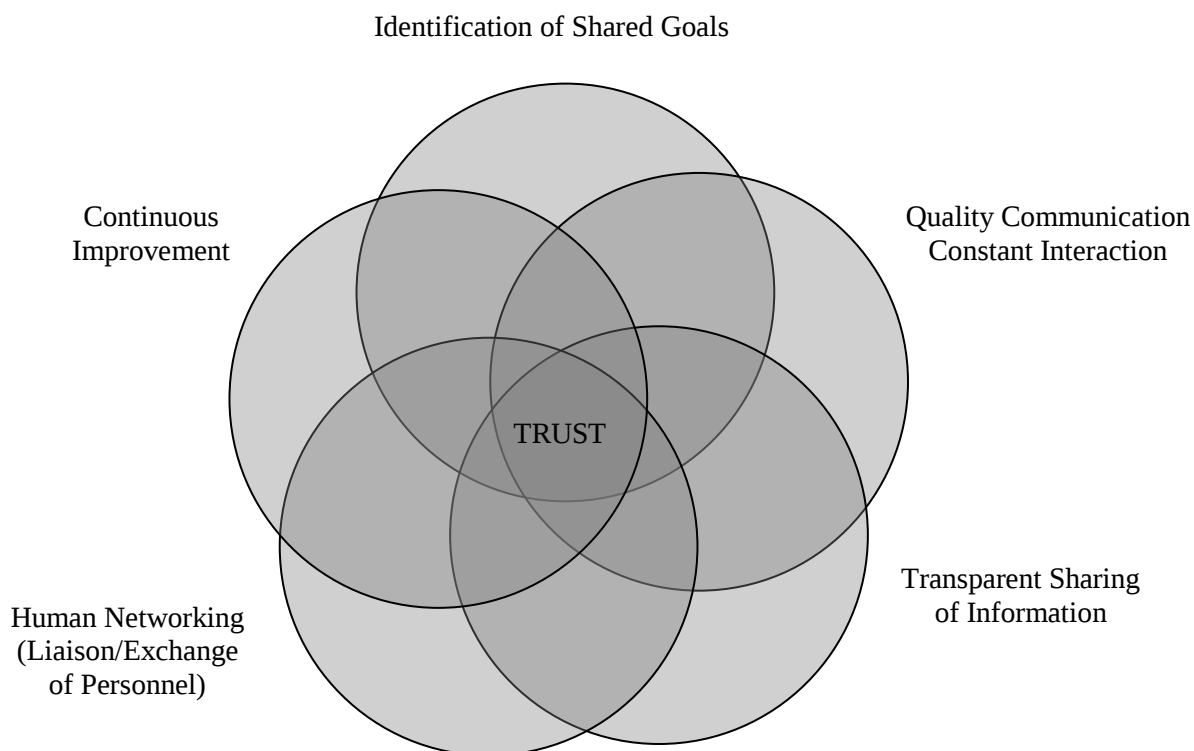


Figure 1. Sharing of resources and information

2.3 In keeping with the methodologies associated with the implementation of Block 0 components in general and focussing on the achievement of clear operational benefits in particular, the following steps are proposed to deliver the benefits of civil/military cooperation and sharing of the airspace with civil operations. States are encouraged to follow these steps using a collaborative approach between civil and military organizations:

- a) Step 1: *States review and identify priority areas of opportunity that can benefit most from the implementation of civil/military cooperation and sharing of the airspace.* Taking into account the traffic growth forecasts as published by ICAO and the routes contained in the ICAO Basic Air Navigation Plan (ANP), States would analyze the impact of all current military segregated airspace affecting significant international traffic flows including those depicted as major traffic flows in regional air navigation plans. States would then share this information within each region through the Planning and Implementation Regional Groups (PIRGs). On a regional basis, PIRGs would identify the top areas of opportunity and the associated resources and strategies required to meet concrete targets for improvements. The top areas of opportunity would be identified by the PIRGs based upon the criteria given in paragraph 2.1.

- b) *Step 2: Development of implementation plans for each area of opportunity that can benefit most from the implementation of civil/military cooperation and sharing of the airspace.* Each State responsible for airspace identified as a top area of opportunity based on the analysis in Step 1 would be urged to develop a plan for making improvements to the civil/military cooperation and sharing of airspace as well as provide progress reports to their PIRGs. Each State and its civil and military sectors should use a collaborative approach that to the extent possible would employ the principle of flexible use of airspace (FUA). In accordance with ICAO guidance material, consideration should be given to implementing practical ways to support and provide continuity to internal negotiation in the States, such as establishing a standing Joint Civil/Military Coordination Committee. Concrete targets could be identified and reported upon. States could use, as benchmarks, the best practices outlined in Circ 330. In the future, ICAO will continue to update the best practices based on the experience gained by States and their PIRGs.
- c) *Step 3: Reporting and monitoring.* Each PIRG, based on the information provided by States, would maintain up-to-date information related to routes in the Basic ANP that are not yet implemented. Based on that information, ICAO will assist in the calculation and reporting on both global and regional levels of the environmental benefits of the civil/military cooperation and sharing of segregated airspace.

2.4 Additionally, States are encouraged to include as members their respective military counterparts as part of their State delegations to PIRG meetings and their associated subgroups and task forces that involve traffic flows and route planning. Such participation could assist both a military understanding of air transportation as well as a civilian understanding of military airspace requirements and challenges.

2.5 Further development and implementation of FUA principles are needed worldwide. FUA principles will need to be taken into account in respect of the ASBUs and technological roadmaps and should take into account the standardization of airspace design processes and application of other concepts based on collaborative decision-making (CDM).

3. CONCLUSION

3.1 In building plans to improve civil/military cooperation, ICAO recommends not only to focus on the dynamic sharing of airspace between military and civil air traffic but to ensure the implementation of sound principles in airspace design and planning as well. Military authorities should be encouraged to take an active part in these developments.

3.2 In order to measure progress in civil/military cooperation, in using ICAO's new electronic tools, it is proposed that States benchmark the current situation against defined criteria to be established by ICAO, such as the percentage of airspace only available to military, percentage of conditional routes, airspace, numbers and daily availability of special use areas, etc. Subsequent periodic reviews should then be able to readily demonstrate the improvements made over time.

3.3 ICAO has made the tools available to support the cooperative use of airspace between civil and military authorities available in the form of SARPs and guidance material, and to measure the progress being made. Some States have already made progress and their experience will be useful in the future as a means for other States to benchmark their own progress. However, overall global progress in this area is important. To refocus attention on this issue, which is a significant component of the near-term strategy for enabling the safe and orderly growth of civil aviation, the Conference is invited to agree to the following recommendation:

Recommendation 4/x – Civil/military coordination/cooperation and sharing of airspace

That the Conference:

- a) direct States, planning and implementation regional groups, and ICAO to analyse the benefits that could be achieved through improved civil/military cooperation and sharing of the airspace serving international traffic flows and express the results of this analysis in terms of:
 - 1) capacity increases and reduction in routine delays as measured by traffic volumes on major traffic flows; and
 - 2) document fuel savings and emission reductions through the use of the ICAO fuel savings estimation tool;
- b) based on the analysis made by States, planning and implementation regional groups, and ICAO, urge States to develop plans to implement improvements for the cooperative use of airspace related to the top areas of opportunity and establish concrete targets using tools already available for this purpose;
- c) in relation to international traffic flows, for each ICAO region urge the planning and implementation regional groups and their associated States to identify the top areas of opportunity that could benefit the most from improvements in civil/military cooperation and sharing of the airspace and develop concrete targets for improvement;
- d) direct ICAO to develop a set of criteria or metrics to enable objective measurement of progress in civil/military cooperation; and
- e) direct ICAO, as additional progress is gained, to continue to document best practices in relation to civil/military collaboration.

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