



International Civil Aviation Organization

WORKING PAPER

A36-WP/156¹
TE/40
7/9/07
(Information paper)

ASSEMBLY — 36TH SESSION

TECHNICAL COMMISSION

Agenda Item 37: Other air navigation matters

THE CONCEPT OF ESTABLISHMENT AND DEVELOPMENT OF THE AIR NAVIGATION SYSTEM OF THE RUSSIAN FEDERATION

(Presented by the Russian Federation)

EXECUTIVE SUMMARY

This paper presents information on the work carried out by the Federal Air Navigation Authority on the Concept of establishment and development of the Air Navigation System of the Russian Federation, which defines principles of establishment of the Joint Air Traffic Management System as well as provision of air navigation services to users, including principles of providing integration of the Air Navigation System of the Russian Federation into the Global Air Navigation System.

<i>Strategic Objectives:</i>	This working paper relates to Strategic Objective D: Efficiency – <i>Enhance the efficiency of aviation operations</i>
<i>Financial implications:</i>	N/A
<i>References:</i>	Doc 9750, <i>Global Air Navigation Plan for CNS/ATM Systems</i> Doc 9854, <i>Global Air Traffic Management Operational Concept</i>

¹ English and Russian versions provided by the Russian Federation.

1. INTRODUCTION

1.1 Provision of air navigation services in the Russian Federation has been carried out by the Joint Air Traffic Management System (Joint ATM System) established in 1973. While providing air navigation services, the Joint ATM System interacts with facilities and systems providing meteorological service, aeronautical information, search and rescue.

1.2 De-jure an integral system, the Joint ATM System is de-facto operated as a dual-core system, with its organizational structure is based on co-located civil and military ATC sectors. Such system has ensured the required safety performance and airspace capacity. However, with the growth in air traffic, the maintenance of the system has been found to lack a strategic perspective due to its dual-core nature.

1.3 Co-location of civil and military operational units and division of the airspace into area of responsibilities of these units impose limitations on effective and flexible use of airspace and hampers integration processes of the Joint ATM System into the Global Air Navigation System. The basis of the Joint ATM System technical facilities is composed of traditional radio technical systems with inadequate functional and technical capabilities. A considerable number of these systems require replacement due to the end of service life. In the framework of the Joint ATM System, systems providing air navigation services have been reporting to different federal executive bodies, not linked by a joint organizational functional structure. This has put constraints on their coordinated development and provision of “gate-to-gate” services.

1.4 In this context, air navigation services quality enhancement and implementation of advanced airborne equipment to reduce operational costs in pursuance of Russian airspace users’ requirements turn out to be a considerable challenge.

2. DISCUSSION

2.1 In March 2006, the Federal Air Navigation Authority (Ros aeronavigatsia) was established responsible for state policy, state regulation and oversight of Russian airspace.

2.2 Exercising entrusted functions for increasing flight safety and effective functioning of the Air Navigation System of the Russian Federation, in 2006, the Federal Air Navigation Authority in cooperation with Russian ministries and administrations concerned, developed the Concept of establishment and development of the Air Navigation System of the Russian Federation. This document along with its Implementation Plan, was approved by the Government of the Russian Federation.

2.3 The basic provisions of the Concept define principles of establishment of a single-core joint air traffic management system of Russian airspace and provision of air navigation services to its users, including the area of international responsibility as well as principles for integration of the Air Navigation System of the Russian Federation into the Global Air Navigation System.

2.4 According to the Concept, the Air Navigation System of the Russian Federation includes ground, airborne and satellite systems and communications, navigation, landing, surveillance, air traffic management, aerospace search and rescue, aeronautical information, provision of meteorological service as well as aviation personnel which performs air traffic management in Russian airspace and provides air navigation services to users in accordance with established rules and procedures.

2.5 Establishment and development of the Air Navigation System is envisaged in the following stages:

- a) in the short-term (until 2008) the formation of its organizational functional structure with joint civil-military bodies and implementation of potential benefits of existing technical aids and technologies for safety and economical enhancement of airspace utilization;
- b) in the middle-term (until 2015) the transition to advanced ground, airborne and satellite systems and further performance enhancement according to estimated air traffic growth; and
- c) in the long-term (until 2025) the completion of transition to advanced technical aids and technologies and integration of the Air Navigation System into the Global Air Navigation System.

2.6 In 2015, the modernization of airspace utilization is expected to generate a revenue of 4 billion US dollars, and 20 billion US dollars in 2025. ACCs consolidation, implementation of procedures for flexible use of airspace, RNAV routes, RVSM, cost-effective flight trajectories in terminal areas and “free flight” concept will further promote it.

2.7 With the establishment of the Air Navigation System, improvement of the economical situation in provision of air navigation services and enhancement of the quality of services, air traffic growth is expected to grow at an annual rate of 6 per cent. Russian airspace capacity will increase by a factor of 1.8 by 2015 and by a factor of 3.2 by 2025. The Concept inter alia envisages implementation of airspace capacity management, “gate-to-gate” operations and low-visibility operations at aerodromes.

2.8 Implementation of measures aimed at enhancing capacity and flexible use of airspace will enable to reduce flying time and aircraft emissions, as well as mitigate environmental impact and global climate change. By upgrading maneuvering procedures in terminal areas, the ecological situation in the vicinity of aerodromes will be improved. As air traffic grows, fuel savings will total 17 million tons until 2025, with 8 million tons in terminal areas.

2.9 The Concept of establishment and development of the Air Navigation System envisages transition to advanced aids and systems of communication, navigation and surveillance, air traffic management, airborne equipment, meteorological service, aeronautical information, search and rescue. Satellite systems, digital data links, high level automated ground and airborne equipment, automated dependent surveillance, traffic alert and airborne collision avoidance systems will form the basis of the technical facilities.

2.10 The Concept foresees coordinated implementation of compatible systems and technologies. It takes into account the trends and implementation deadlines of international programmes SESAR and NextGen, which will enable gradual integration of the Air Navigation System into the Global Air Navigation System.

2.11 The Concept has been developed to ensure a steady improvement of ATM safety level through a reduction of aircraft accident rate by a factor of 2.7 in 2015 and by a factor of 4.8 in 2025. The Concept takes into consideration the human factor, the aspects of personnel adaptation to conditions associated with the implementation of new equipment and technologies, need for solving of social problems which can directly affect safety.

2.12 The Concept implementation (without airborne segment) requires 155 billion Roubles (approximately 6 billion US dollars) in investments until 2025. This investment consists of the revenues gained through air navigation charges, federal budget allocations for the Air Navigation System development and cost recovery related to the military component of the system. Airlines' investment in advanced airborne equipment is estimated at 126 billion Roubles (some 5 billion US dollars); the major part of this amount will be allocated to acquisition of new aircraft to replace the existing fleet.

2.13 Nevertheless, the cumulative economic benefits from the measures stipulated by the Concept are expected to be at least twice the costs for their implementation

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