



BY IGOR LEVITIN

# A System Approach to Safety

**The state flight safety program being implemented in the Russian Federation addresses common problems in international civil aviation.**

In tackling flight safety problems in the Russian Federation, we must take into account the rapid growth of air traffic, the renovation of the fleet and the development of a new generation of aviation experts.

The International Civil Aviation Organization (ICAO) has said that, in light of these trends, the most efficient way to enhance flight safety is to implement a system approach to flight safety management. As a result, ICAO adopted changes in its international standards, telling states that it is up to them to establish an acceptable level of safety and to develop state flight safety programs.

The state flight safety program being implemented in the Russian Federation addresses common problems in international civil aviation and includes proposals for research and development that would enable a switch to higher standards for personnel training and aircraft operations. Preliminary estimates are that the program could cut the accident rate at least in half.

The civil aviation authority is working with operators, airports, aircraft and equipment manufacturers, maintenance organizations and air traffic control (ATC) units to achieve a minimum acceptable goal — an acceptable flight safety level.

To reach this goal, we must complete the following tasks:

- Establish a flight safety management system in the Russian Federation;
- Develop modern requirements in the field of aircraft, airport and air traffic services (ATS), and aviation personnel training;
- Provide for a systems approach for determination of the causes of dangerous situations and risk factor control to minimize fatalities and damage, including financial, ecological and social losses; and,
- Harmonize the distribution of responsibility and accountability between the state and operators, airports, aircraft and equipment manufacturers, maintenance organizations and ATC units.

The program sets forth the order in which the tasks should be addressed.

First, in 2008–2015, interagency procedures will be established to consider flight safety issues, federal and industry programs will be set up to meet the obligations, and provisions will

be made for agency and interagency actions to enhance flight safety.

Second, beginning in 2009, long-term arrangements will be implemented to establish the flight safety program. The arrangements will include the development of rules and regulations, including those that will deal with implementation of international standards in aircraft operations; rules of the air, including assessment of airworthiness and maintenance standards pertaining to aircraft and equipment; ATC systems in airlines; maintenance organizations; airports; and ATS units.

We will encourage consolidation and coordination among agencies and organizations that provide for civil aviation safety and develop a legal tool for interagency consideration of flight safety issues. This coordinated approach will be based in part on the implementation of the civil aviation safety control system; monitoring advances in technology and industry best practices to enhance the efficiency of the state aviation system; creating a database to include information on personnel licensing, aircraft airworthiness, certification of aviation enterprises, violations of the Air Code of the Russian Federation, accidents and incidents; analyzing trends, including information on accidents and incidents, and assessments of compliance with the Air Code and international flight safety requirements; and disseminating safety materials and holding workshops and conferences.

Russia uses contemporary international standards of flight crew training to help reduce the impact of human factors on flight safety. To ensure the quality of training, we use modern integrated simulators to instruct both flight crews and air traffic controllers on how to react to emergencies and to monitor their in-flight behavior.

A federal program, scheduled for 2010–2015, to develop Russia's transport system will be supplemented by long-term flight safety proposals. At the same time, new federal aviation regulations will be introduced for aviation personnel training and licensing.

Other elements of the program call for the training of state inspectors who will oversee operations and airworthiness.

To reduce human factors-related accidents, we must renovate our fleet and provide modern aviation technology. The Law of the Air will include measures to equip aircraft with modern flight data recorders, air-to-air and air-to-ground proximity warning systems, and accurate navigation systems. To meet requirements aimed at maintaining the airworthiness of the existing fleet, aircraft manufacturers will continuously monitor aircraft operation processes to be able to eliminate dangerous factors and improve oversight activities in civil aviation.

The program also provides for the technical renovation of ground infrastructure and the creation of conditions to make the operation of modern aircraft more efficient, such as implementation of reduced vertical separation minimum (RVSM) airspace and improvement of meteorological services.

In addition, we have developed measures to improve aviation medical services, including updating medical documents, upgrading preflight checks of aviation personnel and developing rehabilitation procedures to maintain health, fitness and professional longevity.

Scientific studies are needed to evaluate the effectiveness of flight safety efforts and the role of human factors, aviation technology and other initiatives.

The program stipulates flight safety procedures to control the establishment and modernization of the air navigation system and to mitigate risk factors. These procedures are to be carried out

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beginning with development and design of the air navigation system and continuing through its certification, implementation and operation.

The procedures apply to all parts of the air navigation system, as well as to supporting organizations, and call for development of interdependent flight safety indices for different flight stages and different segments of the air navigation system, definition of their acceptable task levels and assessment of quantitative values of these indices and trends.

Among other things, the procedures also call for elaboration of scientific methods to enhance flight safety for air navigation purposes based on a flight safety related risks model; implementation of advanced technical and organizational approaches approved by ICAO and based on a scientific approach to flight safety provisions and management, including RVSM and joint air navigation service areas; and improvements in the professional training of engineers, technicians and ATC officers in charge of air navigation services, including inspectors.

Other provisions involve upgrading aviation safety requirements with respect to the new responsibilities of air traffic management organizations and improving interaction with air navigation service subsystems, including search and rescue and meteorological offices.

Implementation of the program depends on further improvement of state regulatory authorities, airspace users, aircraft owners, civil aircraft and equipment manufacturers, aviation enterprises, airports, maintenance and air traffic management organizations, in accordance with the legislative and international obligations of the Russian Federation.

The program evaluation process will be based on the work of the Interagency Civil Aviation Flight Safety Commission, taking into account critical elements of the State Safety Oversight System, stipulated by ICAO.

The program should, within the next three to five years, result in stabilization of the level of flight safety and serve as a prerequisite for enhanced flight safety and increased air traffic. ➤

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