



DIRECTORS GENERAL OF CIVIL AVIATION CONFERENCE ON A GLOBAL STRATEGY FOR AVIATION SAFETY

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Theme 2: Improving aviation safety

Topic 2.2: Management of aviation safety

SAFETY MANAGEMENT SYSTEMS AND STATE SAFETY OVERSIGHT

(Presented by Japan)

SUMMARY

As a series of incidents involving Japanese air carriers have occurred since 2005, the Japan Civil Aviation Bureau (JCAB) analyzed root causes of these incidents, in cooperation with human factors experts and representatives of pilots, maintenance engineers, cabin crews, unions and the media, to identify proactive safety measures for air transport safety. Based on this study, the amendment to the Civil Aeronautics Law requiring air carriers to implement the safety management systems (SMS) has been proposed. In addition, the JCAB decided to establish a new office exclusively for safety oversight this year. This paper outlines the importance of SMS for air carriers and State safety oversight under the changing circumstances of the airline industry of the world, and recommends States to require air carriers to implement SMS in accordance with the new amendment of Annex 6, and encourages States to reinforce safety oversight activities.

Action by the DGCA/06 is in paragraph 4.

1. INTRODUCTION

1.1 Japanese air carriers have had no fatal accidents involving passengers since 1986. However, several serious incidents and a series of other incidents involving human errors and mechanical failures or malfunctions have occurred since 2005. Although no passenger has been injured in these incidents, the public confidence in air transport safety seemed to be compromised and the Japanese media extensively reported those incidents focusing on the lack of effective countermeasures to ensure safety of the airline operations.

1.2 In June 2005, based on the direct instructions by the Minister of Land, Infrastructure and Transport, the Director General of the Japan Civil Aviation Bureau (JCAB) established a Committee for Air Transport Safety, which consists of human factors experts and representatives of pilots, maintenance engineers, cabin crews, unions and the media for the purpose of analyzing not only direct causes but root causes of the series of incidents and proposing effective measures to improve air transport safety.

2. THE ROOT CAUSES AND PROPOSED CORRECTIVE MEASURES

2.1 After the Japanese government amended the Civil Aeronautics Laws and Regulations in 1999 aiming at relaxation of economic regulations governing the air transport industry, situations of the airline business has significantly changed in Japan. Many newly established airlines, which are subsidiary companies of major incumbent airlines have emerged, along with independent low cost carriers, and since then, competition has been intensified and mergers and alliances have been increasing in the Japanese airline industry. As a result, the airline business has become more complicated and diverse and major airlines have also established subsidiary companies specialized in maintenance and have expanded outsourcing of their aircraft/parts maintenance to them and foreign maintenance, repair and overhaul organizations (MROs) to reduce maintenance costs.

2.2 The aforementioned Committee analyzed several incidents using one of human factors analysis methods to point out several root or latent causes. The analysis by the Committee pointed out that Japanese air carriers might have failed to adjust their safety management systems to the changes of the business environment mentioned above, and this results in the following concerns which may exist in the current situations:

- a) deterioration of the safety culture within a company, which resulted from a lack of good communication and understanding between top management and operating staff in the process of the company's restructuring or cost reduction;
- b) lack of reporting and sharing safety information, and incomplete planning and implementation of corrective measures against identified safety deficiencies, while a company structure has become complicated or diverse;
- c) insufficient programme of human factors training;
- d) inappropriate descriptions in manuals and standard operating procedures (SOP); and
- e) insufficient safety oversight resources and activities for air carriers by the JACB, while the airline business has become more complicated and diverse.

2.3 Considering the root causes and concerns mentioned above, the Committee proposed the following proactive safety measures:

- a) reconstruction of SMS in Japanese airlines:

Although some major Japanese air carriers have already introduced SMS, their SMS might not have worked well. Major air carriers should review their SMS so that it can be implemented in a more active and effective manner, and other air carriers, which have not introduced the SMS yet, should consider its implementation.

b) reinforcement of the collection and analysis of safety information:

Air carriers should review their system of collection and analysis of safety information so that they can identify and manage potential safety risks appropriately. The JCAB should develop proactive safety measures actively by sharing and analyzing safety information in cooperation with the aviation industry.

c) review of human factors training and manuals/SOP:

Air carriers should review the current human factors training and consider the establishment of more advanced human factors training, by introducing the threat and error management concept. In addition, air carriers should review their manuals/SOP, based on analysis from the viewpoint of reducing and managing human errors.

d) reinforcement of State safety oversight:

Corresponding to the complication and diversification of the airline business, JCAB should reinforce its function of safety oversight of air carriers. JCAB should establish a new system audit method based on PDCA - Plan, Do, Check, Act - cycle concept.

3. INTRODUCTION OF SMS AND REINFORCEMENT OF STATE SAFETY OVERSIGHT

3.1 Following the report of the Committee, the JCAB has proposed an amendment to the Civil Aeronautics Laws, which would require air carriers to introduce and implement SMS, and has submitted it to the national Diet. The proposed amendment provides that each air carrier shall develop a Safety Management Manual and appoint a safety manager, which would maintain good communication and understanding between the company's management and staff, share safety information and implement risk management.

3.2 The JCAB is also studying the system of collection and analysis of safety information and the establishment of the database system, which would serve as a tool to develop proactive safety measures based on analysis of safety information, utilizing the risk management concept. The JCAB will cooperate with air carriers in exchanging and sharing safety information among them.

3.3 In addition, considering the increasing importance of safety oversight by the authorities, the JCAB has decided to establish a new office specialized in the safety oversight functions this year. The new office will focus on audits and on-site inspections. At the same time, the JCAB is planning to adopt a new system audit method using the PDCA cycle concept.

3.4 ICAO proposed the amendment of Annex 6 — *Operation of Aircraft* to require commercial air transport operators to implement SMS by January 2009, and the ICAO Council has adopted the amendment this month. It is recognized that several States such as Australia, Canada, the United Kingdom and the United States have already taken the lead in this area. It is a crucial time for ICAO to adopt SARPs regarding SMS and promote it on a global basis. Considering the changes of the worldwide airline industry, each State should require its operators to implement SMS as soon as possible.

3.5 Based on our study and experiences, SMS includes a systematic process for air carriers to establish safety policy at the company's management level, collect safety information, identify safety

hazards, analyze safety risks, develop corrective actions and so on. It is not enough for air carriers to have a framework and procedures for SMS. What is most important is that each operator should implement SMS actively and effectively. Under a strong commitment by top management, every staff member of a company has to fulfil his/her role and responsibility. It is essential for States to closely monitor implementation of SMS and evaluate the performance.

3.6 The requirements of SMS are very flexible. Each operator can develop and have its own system, which is suitable for the size and characteristics of each operator. Therefore, States need to recognize each operator's system and closely monitor its implementation. And, if necessary, States should direct or order operators to improve SMS according to analysis and evaluation of safety risks, based on safety oversight activities.

4. ACTION BY THE CONFERENCE

4.1 The conference is invited to conclude:

- a) note the importance of proactive safety measures, such as SMS, collecting and sharing safety information, and human factors training, under the recent changes in the circumstances of the airline industry;
- b) urge Contracting States to develop or amend their regulations to require their operators to implement SMS in accordance with the relevant Annexes as soon as possible; and
- c) encourage Contracting States to allocate and concentrate their resources to safety oversight activities.

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