

DEVELOPING A FRAMEWORK FOR CIVIL AVIATION OCCUPATIONAL HEALTH AND SAFETY SYSTEM IN INDONESIA

MENGEMBANGKAN KERANGKA KONSEP SISTEM KESEHATAN DAN KESELAMATAN KERJA PENERBANGAN SIPIL DI INDONESIA

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ABSTRACT

A series of aircraft accidents in the past three years exposed serious safety problems in Indonesian civil aviation. Latest aviation accident investigations reported that flight crews were mainly responsible for two major accidents happened in 2007. This indicates that occupational health and safety (OHS) is an integral part of civil aviation. Improvement in OHS system would then contribute to the development in Indonesian civil aviation safety in general. This paper seeks to present applicable OHS designs in Indonesian civil aviation by carefully considering local situations, current problems and their determinants. Furthermore, ideal designs based on literature reviews and good practices in some developed countries were examined to show the main principles and components needed in designing a civil aviation OHS system.

Keywords: OHS system, civil aviation, Indonesia

ABSTRAK

Serangkaian kecelakaan pesawat udara dalam tiga tahun terakhir telah menunjukkan masalah keselamatan yang serius di dunia penerbangan sipil Indonesia. Dari hasil investigasi terbaru, kru penerbang dilaporkan bertanggung jawab terhadap dua kecelakaan maut yang terjadi tahun 2007. Hal ini mengindikasikan bahwa kesehatan dan keselamatan kerja (K3) merupakan bagian yang sangat penting dalam penerbangan sipil. Perbaikan dalam sistem K3 akan memberikan kontribusi dalam peningkatan keselamatan penerbangan sipil di Indonesia secara umum. Tulisan ini menunjukkan desain K3 yang bisa diterapkan di penerbangan sipil Indonesia dengan mempertimbangkan situasi lokal, permasalahan saat ini dan faktor-faktor penentunya. Lebih jauh, desain yang ideal berdasarkan studi kepustakaan dan praktik-praktik yang baik di beberapa negara maju dianalisis untuk menunjukkan prinsip-prinsip dan komponen-komponen utama yang diperlukan dalam merancang sebuah sistem K3 penerbangan sipil.

Kata Kunci: sistem K3, penerbangan sipil, Indonesia

INTRODUCTION

The government of Indonesia has implemented a National Civil Aviation Security Programme (NCASP) which aims mainly to improve aviation safety and security. This programme is based on main legal frameworks currently applied including Act No. 15 of 1992 on aviation, Government Regulation No.3 of 2001 on aviation security and safety, Ministry of Transportation Decrees on current

Civil Aviation Safety Regulations (CASRs), and other Ministry of Transportation and Directorate General of Civil Aviation Decrees and Safety Circulars related to aviation safety and security.¹ The current CASRs are adopting the United States Federal Aviation Regulations. The main provisions of the main government regulation on aviation security and safety are airworthiness standards, aircraft structure, component and maintenance standards, airworthiness certification, airport security and safety, air traffic services, aviation personnel health, aviation personnel training, aviation health, aviation accident management and investigation.² The main OHS Act (Act No. 1 of 1970) has been also applied for the OHS in general under Ministry of Labour, but it is not part of the main legal frameworks for the NCASP.

Along with the programme and available regulations however, Indonesian airlines have suffered a series of accidents from skidding off runway to more fatal crashes in the last three years. During that period, fatal aircraft accidents have cost the lives of more than 280 people in Indonesia. In addition, it is estimated that one major accident occurred in every 150,000 flights. This number is almost thirty folds higher than the aviation accident statistics in the United States of America (USA) which is only one major accident in 4.5 million flights.^{3,4} Another important fact to consider is that all Indonesian airlines including the national carrier, Garuda, are being banned by the European Union. The main reason is that all of the carriers have not met the applicable international safety standard requirements.⁵

MAJOR DETERMINANTS

In identifying major factors that determine civil aviation safety, it is important to look at two types of error i.e. active error, who has immediate effects and latent error whose impacts may be hidden within the system for a long period. Active errors are generally related to the performance of operators

such as pilots and air traffic controllers, while latent errors are associated with management, maintenance, airport and other ground conditions.⁶

Recent reports from the investigation of two major aircraft accidents in Yogyakarta and Makassar Strait in 2007 suggest that there were some operational issues to note. It was found that crews were poorly trained, especially in dealing with emergencies, and struggling with substandard navigation system as well as lack of recurrent training.^{7,8}

Rapid growth in new carriers, with 51 different companies since 1990s, has also caused concern over whether safety has been cooperated; and aviation infrastructure and personnel can deal with the vast increase.⁹

The role of the Directorate General of Civil Aviation (DGCA) in ensuring the continued safety standard for all flight operations is imperative. It is reported from the last investigations that the DGCA has not been consistent yet in applying the regulations and complying with the International Civil Aviation Organisation (ICAO) standards for civil aviation safety. The airworthiness of aircrafts and maintenance that met safety standards are important factors in civil aviation safety. One example can be drawn when one of the airlines had not resolved the airworthiness problems that had been reoccurring on their fleet for a couple of months, and resulted in a fatal accident.^{7,8}

It is also important to consider the role of environmental factors. Indonesia has many remote areas and some of them are geographically more difficult to reach. Some of all Indonesia's 187 airports in those places have not met the safety standard yet. Some main airports are even reported did not meet the ICAO Annex 14 standard with regard to the runway end safety areas.^{4,7}

The provision of OHS systems for front-line operators as well as ground personnel is important in maintaining safety by preventing the occurrence of active and latent errors.

IDEAL CIVIL AVIATION OHS SYSTEM

Literature Reviews

There is an array of occupations in the airline industry. Some of employees work in the air, on aircraft such as flight and cabin crew. Others work in office or airport environment on the ground such as air traffic controllers (ATC), aircraft engineers, and other maintenance and support personnel.¹⁰ In maintaining safety, a good OHS system in civil aviation should consider the important components that can address both front line operators as well as ground personnel.

Similar to OHS system in other workplaces, an aviation occupational health program should consist of: "pre-placement examinations, health hazard reduction, management of job related illness and injury, return to work evaluations, health maintenance, hazard communication and worker's compensation".¹¹

Pre-placement examination is regarded as the most important components and having a potentially beneficial role in preventing work related illnesses or accidents. It is crucial to identify at the pre-employment phase people who have a particular health condition relevant to airline safety or who have special susceptibility to harm from a work process. This can minimise future risk by performing work adjustment whenever reasonable or by exclusion if necessary.^{10,11,12}

Assessment and control of workplace hazards are imperative to address stressors in aviation industry such as noise, physical, chemical and psychosocial hazards. In this light, three important measures including "engineering controls, administrative controls, and personal protective equipment" should always be implemented.^{11,13,14}

The other important elements including management of work-related diseases and injury, return to work evaluations, health maintenance, health promotion, hazard communication, and workers' compensations, should be compromised in implementing ideal OHS system in civil aviation.¹¹

Continued improvement in safety performance is also determined by safety climate. Safety climate reflects employees' perceptions concerning general safety within their organisation. It is beneficial in recognising main factors that contribute to safety by reducing organisational errors. Evans, Glendon and Creed¹⁵ identified that there are six themes linked to aviation safety including "management commitment to safety, safety communication, rules and procedures, shifts and schedules, safety training, equipment and maintenance".

Civil Aviation OHS Systems in Other Countries

In the USA, there is a good partnership between the Federal Aviation Administration (FAA) and the Occupational Health and Safety Administration (OSHA). The collaboration aims to recognise the extent of hazards in aviation sector and the feasibility of compliance with OSHA requirements in addressing possible hazards. In the implementation, this partnership program consists of some important elements including "identification of partners, clearly defined goal, creation of a safety and health program, employee involvement, industry involvement,

measurement system, verification, evaluation and termination".⁶ This model shows the active role of the FAA and its air carrier partners, under the guidance and support of the OSHA, to apply occupational health and safety regulations and standards to the working conditions of workers on aircraft in operation and to achieve the highest levels of aviation safety in the air carrier industry.

There is an Aviation Occupational Health and Safety (AOHS) Programme in Canada which aims mainly to ensure the health and safety of flight and cabin crew on board aircraft. The success of this program is based on the implementation, enforcement and promotion of Part II of the Canada Labour Code and of the Aviation Occupational Safety and Health Regulations. In addition, supervisions, investigations and promotional visits are regularly performed to ensure that air carriers are committed to the health and safety of their employees.¹⁷ Some important components on the Labour Code Civil Aviation OHS regulations are the provisions of levels of sound, electrical safety, sanitation, hazardous substances, safety materials, equipment, devices and clothing, appliances and machine guards, materials handling, hazardous occurrence investigations, recording and reporting, first aid and lighting.¹⁸ Furthermore, Transport Canada committed to the implementation of safety management systems in aviation organisations. This is a more proactive management that results in the improvement of safety practices nurturing stronger safety climates within the civil aviation industry.¹⁹

In the United Kingdom (UK), the Civil Aviation (Working Time) Regulations 2004 generally known as the 'Aviation Directive' concerns on two core elements related to working time requirements and OHS entitlements. Some important elements highlighted in the regulation are entitlement to annual leave, health assessments, health and safety protection at work, and pattern of work, provision of information, maximum annual working time and rest days.²⁰

In Australia, the role of safety managers on how to fix safety issues are pointed out. Safety management system has been incorporated to emphasise the importance of organisational factors. It highlights the responsibility of management in the broadest perspective to increase safety, not necessarily just technical management such as flight crews.²¹ The role of designated aviation medical examiner (DAME) to maintain aviation safety in general is interesting to note. The availability of DAME in every state with regular support and

monitoring from the Civil Aviation Safety Authority (CASA) could improve the civil aviation safety by reducing human errors.

DEVELOPING INDONESIAN CIVIL AVIATION OHS FRAMEWORK

While there are some available civil aviation regulations currently available, there is no specific regulation which focuses on occupational health and safety in civil aviation. There is a missing link between the Department of Labour and the Department of Transportation in Indonesia, to provide an ideal civil aviation OHS system. Therefore, there is a need to develop a civil aviation OHS system which combines aviation safety and occupational health. The ideal models developed by the USA and Canada could be adopted by establishing a partnership between the Ministry of Labour and the Ministry of Transportation. The Directorate General of Civil Aviation (DGCA) should be the leading institution in developing this partnership to create a civil aviation OHS system.

The first objective of the partnership is to develop a framework for civil aviation OHS regulation. The system should include the application of all OHS principles and elements including pre-placement examinations, health hazard reduction, job related illness and injury management, return to work evaluations, health maintenance, hazard communication and worker's compensation; into civil aviation areas. Furthermore, the DGCA should be more proactive in promoting civil aviation OHS system, performing supervision and assistance to all airline operators and all sectors involved in civil aviation. The leadership role should be strengthened and a strong commitment should be built and maintained for more effective and beneficial partnership.

In addition, the partnership model should also form safety management systems. This will allow the involvement of decision makers, airline operators, front-line aircraft operators and ground personnel to create a good safety climate and build safety culture among all employers and employees that would be beneficial for the long term programmes.

Some recommendations related to the last two major accidents in Yogyakarta and Makassar straits underlined the importance of the DGCA to require all operators to review their training and operational procedures especially for flight crew. In addition the DGCA should ensure all airlines' maintenance organizations have appropriate procedures, all airlines' maintenance personnel have an appropriate training, and all airline operators have published

procedures related to runway end safety area requirements. Furthermore, the DGCA should review its policy and guidelines related to flight operation's surveillance, to ensure that DGCA attains and sustains adequate and suitable regulatory oversight.^{7,8} Those recommendations should be firstly applied by the DGCA and all airline operators.

The fact that Indonesia has 187 airports that spread in all provinces and many of them are not met the safety standards should be addressed. It is a big challenge and needs many resources. One of the opportunities here is to shift the responsibility in the development of airports into local government projects. This is feasible because currently the decentralisation process is happening and developing in all sectors. Vertical coordination should be build between the central and local governments. The central government through the DGCA should promote the ICAO Annex 14 standards concerning runway end safety areas in the development of airports. It is also important to provide assistance to resource-poor places particularly in the eastern parts of Indonesia.

Considering that Indonesia has many airlines that operate in all provinces there is a need to provide aviation medical examiners in every airport or at least one in every province. Currently, all medical certifications for flight crew are only issued in the capital city, Jakarta. Given the number of medical practitioners who get training in aviation medicine is very small, there is a challenge to promote the importance of aviation medicine among medical practitioners. By looking at what CASA has implemented in Australia, the DGCA could perform special training for medical practitioners in aviation medicine as a requirement for the placement as an aviation medical examiner. This is an importance step to do to overcome the main problems related to human errors and ensure that flight crew and ground personnel are fit to perform their task.

CONCLUSION

The latest major accident investigation reports underlined the involvement of flight crew errors indicating that OHS is a concern in Indonesian Civil Aviation. There are many determinants that influenced the current situation from human, organisational and environmental factors. Despite the main OHS regulations prescribe all principles and elements in OHS; and current civil aviation safety regulations have adopted the US regulations, there is a gap between the OHS and civil aviation sectors that should be integrated into one civil aviation OHS

system. This enables the implementation of OHS principles and elements into aviation safety areas.

A good coordination between the central and local governments at practical levels is needed especially to support the improvement in airport conditions and the provision of aviation medical examination in all provinces.

Finally, the degree to which these ideas will have an effect will depend on the leadership taken to address the serious safety problems in Indonesian civil aviation.

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