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**INTERNATIONAL AVIATION SAFETY STANDARD: REDUCING  
AVIATION RISK IN MALAYSIA THROUGH LEGAL MANDATE**

Nor Akhmal Hasmin (a) \*, Ainul Hafiza Zainudin (b), Rohani Mohd Shah (c), Ahmad Waseem  
Dhiny Yunus (d)  
\*Corresponding author

(a) Faculty of Law, Universiti Teknologi MARA, Shah Alam, Selangor, norakhmal5559@salam.uitm.edu.my

(b) Faculty of Law, Universiti Teknologi MARA, Shah Alam, Selangor, hafiza82@gmail.com

(c) Faculty of Law, Universiti Teknologi MARA, Shah Alam, Selangor, rohanimohdshah@salam.uitm.edu.my

(d) Faculty of Law, Universiti Teknologi MARA, Shah Alam, Selangor, waseem@salam.uitm.edu.my

***Abstract***

Safety management of civil aviation industry should not be taken conscientiously as consequences arising out from aviation crisis is beyond imagination. Recently the numbers of aviation disasters have increased compared to a century ago due to the continued growth of global aviation conduct. A comprehensive regulatory framework on safety management has been established to improve the safety standard of this industry and to minimise the risks of flying. This paper offers a discussion of the concept of statutory factors as part of the essential safety tool in the aviation sector. It is believed that risk factor could be minimised through compliance with safety regulation and safety standard imposed upon regulatory authority. This paper also intend to discuss the current legal position in relation to safety standard adopted by Malaysian aviation authorities. The reference is made to the security regulation under Annex 19 on the Safety Standard of Chicago Convention under the purview of International Civil Aviation Organization (ICAO) and Operational Safety Audit administered by International Air Transport Association (IATA). The methodology used is the doctrinal research methodology in the discipline of law. The findings of this study serve to demonstrate that Malaysia have implemented certain provisions of the convention on civil aviation activities, nevertheless the effectiveness is questionable. It is suggested that, the harmonization between domestic law and international convention is deem to be necessary as it may minimise the unwanted aviation risks.

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**Keywords:** Aviation safety standard, ICAO, IATA, Annex 19, State Safety Program.



## 1. Introduction

In the age of modern globalisation, the demand for high-quality, fast and reliable transportation has been consistently increased. Such selective application could only be materialised by air traffic. Nowadays the business of air travel is considered a major industry in its own right whereby the growing demand has inspired other to invest in this sector and led to the formation of new airlines. In the year 2017, Malaysian is going to witness the birth of another two new airlines Bayu Air and Suasa Airline as a respond to the increasing demand from the individual flyer and business organisations. However, the expected increase in air traffic over the next decades may put the current safety levels in danger (Meszaros, 2016). The desire to improve efficiency and profit may result in sacrificing safety standards and regulations. Civil aviation industry unlike any other transportation industry is a complicated business that closely associated with risk in its operation (Chen, Lin & Vincent, 2016). For air operator risk is regarded as a central operational feature that the industry has to deal on a regular basis (Stolzer et al., 2015). Therefore, the functional aspect of safety performance should be considered as one of the primary objective despite focusing on thick profit margin. But then, safety management in aviation industry always created new challenges to the air operator.

Not only limited to air operator, but the receiver of the service i.e. the air travellers are also voluntarily subjected to various kinds of risks while travelling on board. Most of the aircraft accidents occurred while flying thus the passengers and crews on board are the primal target group that expose to risk of an accident and in given situation individuals on the ground could also be exposed to the same risk (Janic & Netjasov 2008). Due to this fact, risk management in this industry is considered as significant challenges that need to be regularly and systematically monitored. It is admitted that when it comes to risk management total elimination of risk is somehow impossible but it can be mitigated or minimise where possible (D. Rios Insua et al., 2016).

Minimising aviation risk could only be possible with a proper system of safety management because the idea of free risk has evolved around the aspect of safety management (D. Rios Insua et al., 2016). There are numerous schemes involves in aviation safety management such as technical point of technological integration (Ochieng et. al, 2003, Maurino et. al, 2017, the flight operation, economic and management strategy (Soekkha, 1997; Cui & Li, 2015), quantitative risk assessment modelling (Huan-Jyh Shyur, 2008; Lee, 2006), safety information (Kim, 2016) and aviation linguistic aspect (Alderson, 2009). The latest model to mitigate aviation risk is based on qualitative evaluation model that will enable airlines to identify human errors and select an intervention strategy so as to reduce the unnecessary risks in the industry (Chen, Li & Vincent, 2016).

Despite all the above mentioned, aviation safety management could also be related to the rule of law (Huang, 2009) whereby it is believed that, risk in aviation industry could also be reduced by observance with legal mandate imposed by the domestic or international regulatory bodies such as International Air Transport Association (IATA) or International Civil Aviation Organization (ICAO). Therefore, it is crucial to ensure that state authority and air operator complied with the stringent rules and practices governing aviation safety. The service providers must splurge their limited resources in enhancing the safety operation. The first part of this paper will highlight on the concept of risk in the civil aviation industry and safety management that is critical in minimising flight risk. The second part focuses

on to examine the international security regulation. Finally, this paper will discuss on the safety standard adopted by the authorities in Malaysia. This paper employs qualitative research design.

## **2. Problem Statement**

Failure for air operator to control the existence of risks in their operation by neglecting the aspect of safety management would undoubtedly lead to a disastrous event such as aircraft accidents. When the major aviation-related accident occurred the whole world shaken with fear as the scale of a disaster usually massive that it may involve thousands of casualties (Huang, 2009). Take for example the recent Colombia plane crash in the Andes that killed 71 passengers on board (Associated Press, 2016). In this heart-breaking tragedy, there was evidence indicate that the aircraft embarked with insufficient fuel, thus it reflect an inadequate safety management on the part of the air operator. Such disastrous event not only injurious to human life but also negatively affects the commercial life of air operator's businesses whereby it creates a chance of being exposed to the hazard of losing business opportunity (Stolzer et.al., 2015). This is what had happened to Malaysia national carrier Malaysia Airline Berhad (MAB) after being hit with deathly tragedies that involve two separate aircraft. Malaysia Airline not only suffered financial losses but also trust and confidence of the customer. If five years ago Malaysia national carrier were listed as one of the world best airlines by Skytrax but currently it had been removed from the list.

## **3. Research Questions**

This research paper will attempt to answers two main questions, namely whether law could be one of the element in reducing aviation risk and enhancing safety. The next question for this paper is, whether civil aviation authorities in Malaysia comply with the international legal framework on aviation safety.

## **4. Purpose of the Study**

The purpose of this research paper is to examine the practicality of using law as an instrument to mitigate risks and enhance aviation safety. This study also seeks to discuss Malaysia compliance with the international legal frameworks on aviation safety as provided by international regulatory bodies.

## **5. Research Methods**

This research aimed to explore the practicality of legal framework in reducing risks in aviation industry and to investigate the degree of compliance among the local aviation authorities with the international aviation safety standard. The two research questions posed were examined through the collected data based on the available literatures with regard to aviation safety. Review of literatures is important for this research as it gives a valuable explanation on the concept of risk and safety in this industry. Furthermore, available literature is used as a tool to identify the current safety standard implemented in other jurisdictions especially the United States. Besides that, reference to the current legislations was made as it provides an indication to what extend the authorities in Malaysia complies with the international legal frameworks on aviation safety.

## 6. Findings

The concept of risk itself is treacherous in the sense that there is no precise definition of risk. According to Milan Janic (2000) risk can be defined as the probability of occurrence of a hazardous event in given period. It also could be considered as the possibility that an individual or group be impaired through the effect of the particular action. In addition, the term risk is usually linked with a negative connotation in which it is related to the possibility of loss or injury, the potential for having a negative impact, and the likelihood of an undesirable event (Hampton, 2009). Aviation risk is commonly associated with a disaster such as aviation accidents or incidents that caused by known and unknown reasons which can be classified as human errors, mechanical failures, hazardous weather, the act of terrorism and military or semi-military operations. The available literature further explained that there are four types of risks in civil aviation industry namely real danger to the individual, statistical risk, predicted risk and perceived risk (Sage and White, 1980). The above classification indicates that threat in a controllable element that could be reduced through proper measures which includes legal measure.

In general, safety is a complex and uncertain issue since it may involve different determining variable (Esipov, 2003) and not a quantifiable entity that rely more on personal judgement (Vick, 2002). Safety Management Manual issued by ICAO defined aviation safety as the state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and safety risk management (International Civil Aviation Organization, 2013). It is a treacherous concept whereby it indices of an involved collaboration between man, machine and environment. According to the literature, it is important to understand the safety culture in relation to identifying hazards, mitigate and managing risk and find solutions to the potential problem before the actual accidents and incidents occur (Iordache & Balan, 2016). However, the risk is an uncertain element even an airline has an excellent safety record it does not mean that its totally safe or would not crash (IATA Operational Safety Audit, 2015). This is what had happened to Malaysia Airlines Berhad, even its operation is in line the industry performance and with highest operational safety standard but unfortunately in 2014, Malaysia Airlines Berhad have to dealt with two severe blows, the disappearance of MH370 and the shooting down of MH17 (Gaurav Raghuvanshi, 2014). It is believed by the industry players that risk of aviation accidents or incidents may be avoided by employing better technology, adequate human and organisation management and efficient safety system (Soekkha, 1997; Cui & Li, 2015). Unfortunately aviation security does not solely depend on the technical or technological aspect of aviation engineering per se but conformity with regulations is also considered as fundamental and should not be underestimated. In the absence of safety regulations that mandate the aircraft to be inspected for airworthiness or registration for air operator certificate for operational competence and examination of pilots' fitness would increase risks element in this industry. By imposing various regulatory regimes it would minimise the possibility in this industry and ensure that aviation safety is stronger than ever. Though the law is not quantifiable but from a legal perspective, law is a mechanism that responsible to reduce risks by imposing safety rules and regulation. It is a legal mandate that helps to mitigate the risk, thus it is possible to say that aviation safety is a matter of law.

## **6.1. Safety Management Manual**

Generally, the safety aspect of civil aviation industry is guided by a document known as Safety Management Manual published by International Civil Aviation Organisation (ICAO) and the ultimate goal of the manual is to eliminate aviation disasters (International Civil Aviation Organization, 2013). In order to materialize this objective, the state authority must at their best reduce the possibility of harm or damage either toward person or property (International Civil Aviation Organization, 2013). This can be done through a continuing process of hazard identification and safety risk management (Stolzer et.al., 2015) whereby it could at least reduce any unwanted air accidents especially for the new airline companies. For instance, Malaysian Civil Aviation Department has revoked the operating licence that had been granted to Rayani Air only after six months in operation (Hashini, 2016). According to the statement by Civil Aviation Department the airline has contravened some provisions in the Civil Aviation Regulations 1996. Thus, how could the operational license was initially granted to Rayani Air especially when the company's financial standing is incredibly weak. As reported, the aircraft experienced a few technical problems with hydraulic system and also with the poor condition of the window (Edward, 2016). Such technical issue may increase if not properly fix could potentially lead to an aviation accident. For airline operator, it is important for them have a secure economic authority so that they could devote ample amount of money for pilots and crews' training and maintenance of faulty aircraft, which may directly improve safety operation of the airline (U.S Department of Transportation, 2015).

## **6.2. Safety Regulations Under the Domestic Legislations and International Conventions**

Despite the Safety Management Manual issued by ICAO, state authority and air operator must also conform to the international safety regulations. According to Huang Jiefang (2008), regulations and standard procedures are enacted to avoid injuries to persons and property as well as deprivation of man most valuable attribute which is life. Whereby he believed that, law and regulations could be an element to reduce aviation risks and enhance safety. Unfortunately, as the aviation industry has expended, the issue concerning compliance with safety regulations among the service providers was disputed particularly after three disastrous events involving local claimants. The civil aviation industry is a profit driven industry therefore it leads to the question of whether safety is the top priority for a service provider or is it just a promotional theme to attract air travellers using their services. It is also disputed that whether the claimants especially the newly established airlines are willing to invest a significant amount of money for safety purposes (Cui & Li, 2015). The next part of this paper will continue with the discussion on compliance by the state authority and service providers in Malaysia in relation to adherence to the aviation security regulations either at the domestic level or international level.

### **6.2.1 The Chicago Convention 1972**

The Chicago Convention is one of the earliest international treaties on aviation that helps on the development of international civil aviation. It is supported by 19 Annexes which contains the Standard and Recommended Practices adopted by the ICAO ". Unfortunately, the Annexes do not have the legal binding force because annexes are not international treaties as States only agreed to "undertake to collaborate in securing the uniformity" (Ainul Hafiza et. al, 2015). The newest edition to this convention

is Annex 19 which was introduced in November 2013. Annex 19 is dedicated to safety management of aviation industry and to enhance safety management provisions at the State level so as to minimising flight risks (International Civil Aviation Organization, 2013). It promotes the implementation of State Safety Program (SSP) and Safety Management Systems (SMS) to ensure a high level of safety responsibilities among the member states. Chapter 3 of Annex 19 outlines the security management responsibilities of the State through the compliance of ICAO Standard and Recommended Practices (SARPs).

### **6.2.2 ICAO Standard and Recommended Practices (SARPS)**

This episode underlines the responsibility of the state member to organize its own safety management function to conform with Annex 19 by establishing the SSP. The objective of SSP is to ensure that countries are able to achieve an acceptable level of safety performance in civil aviation (International Civil Aviation Organization, 2013). There are four principal components of SSP namely safety policy and objectives, safety risk management, safety assurance and safety promotion. The failing point of Annex 19 is that it silent on the security level that should be established by the state. Its only provides guideline for an acceptable standard of safety performance in the Safety Management Manual. In addition to the SSP, Chapter 4 of Annex 19 requires the service provider inter alia airline companies, approved training organization, maintenance organization to implement the SMS framework into their operation which involves a systematic approach to managing safety, risk and hazard. The SMS also incorporates few critical processes in reducing aviation risk namely safety reporting, hazard identification, performance measurement, risk management and security assurance.

### **6.2.3 Malaysian Civil Aviation Act 1969**

Domestically, there are three separate bodies that responsible over the aviation governance namely the Ministry of Transport, the Department of Civil Aviation and the newly established independent entity known as Malaysian Aviation Commission (MAVCOM). However, matters related to aviation safety vested under the exclusive purview of Ministry of Transport and Department of Civil Aviation for which they are responsible for enacting and enforcing any relevant legal framework that concern aviation industry including the safety standard and practises. The main statutory frameworks governing commercial aviation in Malaysia are Civil Aviation Act 1969 and the Civil Aviation Regulation 2016. These two important documents is supported by directives from the Director General or Secretary of the Ministry of Transport. It should be noted that domestic aviation laws must be concurrent with the international standards and practices since Malaysia is one of the signatories' countries to the Convention on International Civil Aviation (or known as Chicago Convention). Article 12 of the convention clearly spells out that, that each contracting states undertake to keep its own regulations in these respects uniforms, to the greatest possible extent, with those established from time to time under this Convention. In addition, Article 37 stated that each contracting states must undertake the highest practicable degree of uniformity in regulations, standards, procedures, and organisation in relation to aircraft, personnel, airways and auxiliary services in all matters in which such uniformity will facilitate and improve air

navigation. In respond to this, Section 3 of Malaysian Civil Aviation Act 1969 gives power to effect Chicago Convention and to regulate civil aviation as stated under the Civil Aviation Regulation 2016.

In Malaysia, Annex 19 of the Chicago Convention has been embedded into the Civil Aviation Regulation 2016 through legislative amendment in 15 April 2016. Part XXIII was incorporated in the Regulation and it is dedicated to safety programme and safety management system. According to Regulation 166, the Secretary General of the Ministry of Transport need to established the Malaysian Safety Programme for the control of civil aviation security in Malaysia as regulated under Regulation 166. This is consistent with the requirement SSP as prescribed in Chapter 3 of Annex 19. Annex 19 not only imposed responsibility toward the state authority whereby service providers also need to formulate the SMS as required under Chapter 4 of Annex 19. Regulation 167 further enunciated that the SMS must be in accordance with the requirement as may be determined by the Director General of Civil Aviation Department (Department of Civil Aviation, 2008). It is not disputed that the new regulations were satisfactorily drafted to reflect the absorption of Annex 19 into the domestic law, but it is disputed as to whether such safety programme does in reality exist?

The SSP mandate the member states to establish a national safety legislative framework to define how the state will conduct the management in their respective jurisdiction (Ilson, 2014). In Malaysia, the national safety legislative framework is available in a separate documents whereby each legislation were formulated independently for instance Civil Aviation Act 1969, Civil Aviation Regulation 2016, Aviation Offences Act 1984, newly enacted Rules of the Air 2016, Civil Aviation (Aerodrome Operation) Regulation 2016, Runaway Safety Programme, Airport Standard Directive No 106, Airworthiness Standard and Recommended Practices, Runaway Safety Programme. The rationale of having separate safety legislations is because of the different authority responsible for various security aspects such as Ministry of Transport, Department of Civil Aviation, service provider, and airport management. This sort of practice is permitted under the guideline provided in the Safety Management Manual 2013.

The implementation of SMS by the service provider in Malaysia is considers as non-issue since all currently operated commercial airlines has its own SMS. For Malaysia Airline Berhad and Air Asia X it is mandatory for both airlines to incorporate SMS in their operation since they are the members of IATA which is subjected to periodical safety audit (Anderson, n.d). For other commercial airlines such as Malindo Air and FireFly, though they are non-members of IATA, they still need to implement SMS into its operations as part of the pre-condition imposed by the Department of Civil Aviation before they can obtained their Air Operator Certificate (Department of Civil Aviation, 2008). According to ICAO Safety Report 2015, Malaysia is one of the states that exercising an effective implementation of conventions that concerns civil aviation activities which is above the global average of 62 percent (International Air Transport Association, 2015). However, the implementation of SMS is regarded as tremendous challenge for the entire industry due to lack of understanding, uniformity and standardisation of practices.

In maintaining the drive to reduce aviation accidents and increase good reputation in aviation industry, Malaysian government has made a good move introducing the recent amendment to the Civil Aviation Regulation 2016. The new amendment is said to be capable of further strengthening the regulatory framework for aviation safety and in return will minimising aviation risk. But then again, the effectiveness of the new legal framework is questioned due to the absence of standardising regulation or

directive on safety standard unlike our counterpart the United States. According to a study, the United States has the highest adherence to the international safety standard in aviation (Fitzpatrick, Hunt and Irvine, 2013). To walk in line with the recent development of law particularly Annex 19, the United States has formulated a single SSP meant for national level whereby such document provides detail safety information at federal and state level to ensure effective integration of aviation security standards and practices (Federal Aviation Administration, 2015). Furthermore, in order to maintain their triumph in aviation safety, the FAA also has solidified its national aviation SMS (Ostrowski et.al., 2014), in January 2015, the FAA has issued the Final Rule (regulatory guidance) directing the application of new SMS to all certified service providers comprises of passenger and cargo airlines (Sigda, 2015). This mandatory guidance is believed by the FAA as the next evolution of safety doctrine that may preserve the incalculable human life (Ostrowski, 2014). This is what has been missing in Malaysia legislative framework for managing risk in aviation industry. Therefore, it is highly recommended that the Ministry of Transport or Department of Civil Aviation to formulate a single integrated regulatory framework that reflects the four components of safety program as stated in Annex 19.

Besides that, state authority must constantly review the national security framework for aviation industry so that it is at par with international standard and consistent with the continual transformation of the industry especially with the advancement of technology. Lastly it is believed that state authority should be stricter in evaluating safety management system of the service provider before granting them with Air Operation Certificate as to avoid the operation of the incompetent service provider as in the case of Rayani Air. This may work as a way to minimise the aviation risk especially among the newly operated service provider. Compliance with the international aviation standard is possible to reduce air danger in the airline industry as it is proven that the accident rate for airlines registered with IOSA is much lower as compared to none IOSA member because of the stringent standard in safety audit (Hounsell, 2015; Peterson, 2015). These can be an indication that by complying with the level of enforcement it can help in minimising aviation risk.

## **7. Conclusion**

In civil aviation industry safety is considers as non-negotiable asset that need to be put on top of the list. This paper has illustrated the importance of law as one of the integral element in safety management whereby compliance with the international aviation standard on safety system by the state authority and service provider is deem to be the key in reducing aviation risks. It is true that it impossible to reach for zero aircraft accident or incident but by adhering to safety standard imposed by the relevant international regulatory bodies it may at least reduce the number of aviation accidents. The 62 percent compliance with the international convention as reported by the IATA in 2015 is definitely not a remarkable statistic and need to be improved. Moreover, state authority together with service provider must at all time revising and updating the safety management framework since aviation industry deals with constant and rapid changes especially with regard to aviation technology. It is believe that, strong observance with safety mandate either with international safety standard or national regulations, it would reduce the aviation risk and in return will increase travellers' confidence to choose local service provider as Malaysia is walking its way as an aviation core for Asia Pacific Region.



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