



**Asia-Pacific
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Security Management Systems

Submitted By: New Zealand

1. Introduction

1.1 The importance of Safety Management Systems (SMS) in ensuring aviation safety is increasingly being recognised by regulatory authorities and the aviation industry.

1.2 Within the safety environment SMS presents regulators and industry with an approach to the prioritisation of resources towards safety concerns that hold the greatest risk potential, and towards activities likely to produce the biggest return on resources invested. Benefits of such an approach include:

- (a) Reduced incident and accident rates;
- (b) Greater operating efficiencies with resultant benefits for movement of passengers and cargo;
- (c) Tangible economic savings arising from all concerned knowing the operational safety risks and preventing incidents.

1.3 This paper explains the approach taken by the Civil Aviation Authority (CAA) of New Zealand to safety and security regulation and the focus of this approach on effective management systems. It then considers the role of management systems in the aviation security environment and identifies the benefits of a Security Management System (SEMS) based approach to security regulation and the operational delivery of security controls. It also highlights the benefits that such an approach can provide in supporting the ongoing development and maintenance of a secure and effective aviation transport system and in meeting the International Civil Aviation Organisation (ICAO) requirements of Annex 17-*Security*, to the International Convention on Civil Aviation.

2. New Zealand approach to safety and security management

2.1 Within New Zealand, aviation safety and security regulatory requirements are considered holistically within an overall safety framework administered by CAA. This is consistent with Standard 2.1 of Annex 17-*Security*, which provides that ICAO Contracting States shall have as their primary objective the safety of passengers, crew, ground personnel and the general public in all matters related to safeguarding against acts of unlawful interference with civil aviation.

2.2 In the early 1990's New Zealand was one of the first countries to implement a safety and security regulatory approach based on effective management systems. Many countries subsequently adopted the Quality Management approach employed at that time. CAA is in the process of reviewing international best practices for managing safety and security regulations, and New Zealand's international obligations to ensure it is not only meeting but, where appropriate, exceeding minimum standards to enhance safety and security. This is happening at a time when the world is increasingly focussed on SMS in the safety environment.

2.3 New Zealand's current regulatory regime is based on a clear division of safety and security responsibility between the regulator and participants in the civil aviation system, with the emphasis on the CAA having a systems oversight role, rather than a purely inspection-based regulatory role. These principles are reflected in the Civil Aviation Act 1990 (the Act), with Civil Aviation Rules (the Rules) providing regulatory detail in specific areas. A key

principle in New Zealand civil aviation legislation is the acknowledgement that effective management responsibility should rest with those exercising privileges within the aviation system - the “aviation document holders”. In a security context this includes airlines, aerodromes, and security service providers (screening authorities).

2.4 In order to effectively monitor this responsibility, the Act and Rules expressly provide for aviation organisations to have an appropriate management system as a prerequisite for entry to the aviation system. From the outset of the enabling legislation in 1990, the Rules have required such management systems for the certification of organisations conducting safety and security activities. In New Zealand this was achieved through the concept of internal quality assurance (based on ISO 9000 principles) being promoted amongst organisations as a tool for managing safety and security as an integral part of their business. CAA also holds ISO 9001:2000 certification as an organisation.

2.5 The existing internal quality assurance process specified in the Rules for the aviation system, while not preventing the exercise of a comprehensive SMS by industry participants, do not address all SMS components at a regulatory level. Using an ISO 9001:2000 Quality Management system is not necessarily directly applicable in all cases for SMS. The Act does not specify the type of management system to be used but does state the purpose and effect of such a system. This allows the CAA to move from an ISO 9000 based Quality Management system to SMS easily. However, CAA acknowledges that a number of certificated organisations in New Zealand are actively moving towards SMS of their own accord having recognised the safety and efficiency benefits themselves.

2.6 CAA recognizes that maximum benefit of SMS implementation will be gained through the associated development of a State safety programme setting safety targets and desired outcomes, with industry organisations developing SMS to achieve those goals.

3. Management Systems in the Security Environment

3.1 When considering the appropriateness of comprehensive organisational management systems in an aviation security environment it is firstly necessary to acknowledge some fundamental differences that exist when considering safety and security risks and the manner in which they are mitigated.

3.2 In an aviation safety environment a range of parallel and independent measures, each providing some degree of redundancy, work together to ensure safety. These measures include but are not limited to:

- (a) Standard Operating Procedures, checklists, read-backs, and crosscheck and mutual monitoring;
- (b) Crew Risk Management;
- (c) Line Operational Safety Audits;
- (d) Instrument scan and alerts and warnings;
- (e) Training;

- (f) Back-up systems;
- (g) Automation;
- (h) Redundant hardware and software;
- (i) Manual reversion modes;
- (j) Pre-flight and in-flight weather forecasts;

3.3 These measures, and the systems that support them, are focussed on threats to safety that are neither deliberate nor the result of intelligence and planning on the part of potentially determined attackers.

3.4 Within a security environment consideration is given to threats to that are often ill-defined, constantly evolving and the result of deliberate and intentional actions. In addition specific security threats must be considered unpredictable and likely to be indiscriminate in nature. For example, while intelligence and law enforcement agencies involved in preventing terrorist activity may uncover information suggesting pending attacks, it is necessary and prudent to assume they may not be able to identify and stop all possible threats all of the time.

3.5 In addition many aspects of the preventative security systems established in response to these threats lack the layers of redundancy that feature in a safety environment - for example the detection of explosives concealed on an intending traveller who is intent on committing an act of unlawful interference. At present such detection relies on passenger screening activity at the screening point to prevent the catastrophic consequences of a suicide bomber concealing explosives on their person and detonating these in-flight.

3.6 It is also a fundamental principal of aviation security that control measures must be capable of being strengthened quickly at any time as a result of increased levels of security risk. This is consistent with current Standard 3.1.4 of Annex – *Security*, which provides that each Contracting State shall keep under constant review the level of threat to civil aviation operations within its territory and adjust relevant elements of its national civil aviation security programme accordingly.

3.7 Finally, security measures, by virtue of their nature, are usually highly visible and intrusive and often conflict with passenger and air cargo facilitation needs that require ready access to facilities and services to expedite the process of air transportation. This is not the case with the vast majority of controls in a safety environment.

3.8 These factors require recognition and assessment when specific preventative security controls and associated regulatory standards are considered and developed.

3.9 Acknowledging these differences a range of common factors exist across the aviation safety and security environments when the need for **effective and efficient implementation and ongoing maintenance of security controls** is considered. These include but are not limited to the need for:

- (a) Organisational senior management commitment;
- (b) Creation of a department organisational structure that supports the delivery of required outcomes;
- (c) Promotion of an appropriate organisational culture;

- (d) Training of personnel with specific responsibilities;
- (e) Awareness training for all employees;
- (f) Regular evaluation of personnel;
- (g) Effective day to day operations;
- (h) Incident and accident investigative reporting;
- (i) Continuous correction and improvement from the outcome of incident and accident investigation reports;
- (j) Emergency response procedures;
- (k) Regular audits and protocols for correction and/or prevention of any identified deficiencies to support outcomes of continuous improvement.

3.10 In addition the need, within a security environment, for threat and risk assessment and management and common understanding of these subjects and current, emerging and potential threats by economies, regulators and industry, is consistent with the need for effective hazard analysis and risk management in a safety environment.

3.11 Common across many, if not all, of the areas identified above is the need to consider human factors across both the safety and security environments and apply fundamental knowledge of human and organisational performance in both cases to enhance the delivery and maintenance of desired outputs.

3.12 Recognising these factors, the need exists for an integrated systems managed approach within various organisations, at both regulatory and industry level, that have responsibilities relating to the delivery of safety and security outcomes. Such an approach has the ability to offer a range of benefits including:

- (a) Integration of existing organisational Quality Management systems into a comprehensive and aligned organisational structure that ensures a more cohesive and standardized approach to how security processes should be implemented with overall better and more uniform standards of service delivery;
- (b) Introduction into existing processes, at both regulatory authority and industry level, of effective security risk assessment and management activity that can contribute to making security processes pro-active and targeted¹ and therefore potentially more efficient and effective without unduly impacting on export trade and passenger movements;
- (c) Increased emphasis on a layered approach to the treatment of security threats that can reduce the need for reliance on singular measures, provide for redundancy within security systems and resulting greater levels of control and assurance.

3.13 These benefits, if realised, will support the ongoing development and maintenance of a secure and effective aviation transport system.

¹ This is consistent with the need for effective hazard analysis and risk management within a safety environment.

3.14 CAA is aware that the International Air Transport Association (IATA) has been developing the concept of Security Management Systems (SEMS) specifically for air operators based on the need for its member airlines to comply with regulatory requirements flowing from Annex 17 – *Security*. CAA considers this as a logical development and extension of the increasingly recognised need for SMS in the safety environment. Furthermore CAA has examined the results of the IATA work on SEMS to date and considers that an airline adopting a SEMS approach to security in the New Zealand regulatory environment would more than adequately demonstrate compliance with existing New Zealand security requirements.

3.15 CAA also considers that a SEMS based approach is not only applicable to participants in New Zealand’s aviation system but also potentially with regard to its activities, functions and internal processes in its role as a security regulator. CAA is intending to carry out more work with reference to the role of SMS and SEMS in particular and how they can be most beneficially utilised in the New Zealand regulatory environment.

3.16 CAA recognises that a “one size fits all” approach will not be appropriate and that any economies that may choose to adopt a SEMS based approach to aviation security at any stage in the future will need to do so with cognisance to their national policies and legislation.

4. Linkages to ICAO Requirements

4.1 Amendment 11 to ICAO Annex 17- *Security*, becomes effective on 01 July 2006. This amendment contains measures to ensure that the Annex remains consistent with the level of global threat. These include:

- (a) The reinforcement of Quality Control provisions;
- (b) Risk assessment concepts-Reinforcing the need for utilisation of risk assessment processes by Contracting States in appropriate instances when determining regulatory requirements.

4.2 CAA considers that a comprehensive systems managed approach to security regulation, as offered by SEMS, will enable New Zealand to more effectively maintain compliance with the provisions of Annex 17 both now and in the future. This recognises the benefits inherent in integrating risk assessment and regulatory quality control programmes together within a comprehensive and aligned organisational structure that ensures a more cohesive, standardised and layered approach.

4.3 By way of specific example the ongoing conduct of timely and accurate risk assessment activity can be supported by an effective quality control system that ensures continuous correction and improvement of assessment procedures. This contributes to the ongoing development of robust regulatory requirements to address identified and potentially emerging threats and vulnerabilities.

4.4 Also, and in recognition of the fact that regulatory resources are not unlimited, effective risk assessment processes offer the potential to allow CAA to focus its oversight activities in a timely manner in those areas that require it most.

4.5 Very importantly a SEMS approach in no way distracts from or lessens the need for effective Quality Control systems - a need which is reinforced in Amendment 11 with its

promotion to Standard level of prior guidance material on this subject contained in ICAO Doc 8973 – *Security Manual*. Rather SEMS provides a framework for these systems to be aligned and harmonised together with wider organisational process to ensure a cohesive and standardised approach to aviation security within and across economies. This provides opportunities for overall better and more uniform standards of service delivery and achievement of Annex 17 SARPs.

5. RECCOMENDATIONS

5.1 It is recommended that:

- (a) The sub-group note
 - (i) The important role of effective management systems in the aviation security environment;
 - (ii) The potential benefits of a Security Management System (SEMS) based approach to security regulation and the operational implementation of security measures in supporting the ongoing development and maintenance of a secure and effective aviation transport system;
 - (iii) The specific benefits that such an approach can potentially provide economies in meeting the requirements of ICAO Annex 17- *Security*;
 - (iv) That CAA intends to carry out further work to review international best practices for managing safety and security regulations with reference to the role of SMS and SEMS in particular and how they can be most beneficially utilised in the New Zealand regulatory environment at both State oversight and operational implementation levels.