

**THE IMPACT OF THE APPLICATION OF INTERNATIONAL AIR CARGO  
SECURITY REGULATIONS IN SOUTH AFRICA**

**by**

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## LIST OF ABBREVIATIONS

AASA	Airlines Associations of South Africa
ACI	Airports Council International
ACS	Air Cargo Security or Aviation Coordination Services
ACSA	Airports Company South Africa
ACSEC	Air Cargo Security
AEO	Authorized Economic Operator
AIID	Accident and Incident Investigation Division (SACAA)
ATNS	Air Traffic and Navigation Services
ATSA	The Aviation and Transportation Security Act
AVSEC	Aviation Security
CBP	US Bureau of Customs and Border Protection
CCSF	Certified Cargo Screening Facilities
C-TPAT	Customs-Trade Partnership Against Terrorism
CAA	Civil Aviation Authority
CAPEX	Capital Expenditure
CATS	Civil Aviation Technical Standards
CCTV	Closed Circuit Television
CT SCAN	Computer Tomography Scan
CCSP	Certified Cargo Screening Program
CDCAA	Chief Directorate, Civil Aviation Authority
DGR	Dangerous Goods Regulations
DHS	Department of Homeland Security
DO	Designated Official
DOT	Department of Transportation
ECAC	European Civil Aviation Conference
EDS	Explosive Detection System
ETD	Explosive Trace Detection
EU	European Union
FAA	Federal Aviation Administration
FCA	Firearms Control Act
FedEx	Federal Express
FF	Freight Forwarding (Company)
GAO	Government Accountability Office
GH	Ground Handling (agent)
GSA	General Sales Agent
GSP	Ground Service Provider
HBS	Hold baggage Screening
IATA	International Air Transport Association
ICAN	International Commission for Air Navigation
ICAO	International Civil Aviation Organisation
IED / IID	Improvised Explosive Device / Improvised Incendiary Device
IFALPA	International Federation of Airline Pilots Associations

INTERPOL	International Police
JHB	Johannesburg
KC	Known Consignors
K9	Canine - refer to a dog / Sniffer Dog
MANPADS	Man Portable Air Defence Systems
MEDDS	Mechem Explosives and Drug Detection System
MOP	Memorandum of Procedures
NASC	National Aviation Safety Committee
NASP	National Aviation Safety Program (security)
NATA	National Air Transportation Association (US)
NDOT	National Department of Transport
OEM	Original Equipment Manufacture
OJT	On the Job Training
OPEX	Operating Expenditure
ORTIA / OR Tambo	Oliver Reginald Tambo International Airport
OSO	Office of Security Operations
PETN	Pentaerythritol Tetranitrate (Explosive material)
RA	Regulated Agent
RASCO/RASCARGO	Remote Air Sampling for Canine Olfaction
REST	Remote Explosive Scent Tracing
SA	South Africa
SA-CATS	South African Civil Aviation Technical Standards
SAA	South African Airlines
SACAA	South African Civil Aviation Authority
SADC	Southern African Development Community
SAPS	South African Police Service
SARP/SARPs	Standards and Recommended Practices
SARS	South African Revenue Service
SIM	Subscriber Identification Module
TSA	Transportation Security Administration
TWA	Trans World Airlines
UK	United Kingdom
UPS	United Parcel Services
USA	United States of America

## **ABSTRACT**

This research project, within the context of security risk management in general and aviation security in particular, aimed to explore the impact of the application of international and local air cargo security regulations on South Africa, with specific reference to the regulations of the International Civil Aviation Organisation (ICAO), as well as the European Union (EU) and the United States of America (USA).

In South Africa, since the early 2000s, the South African Civil Aviation Authority (SACAA) has been the lead agency for dealing with and managing the needs for air cargo security. This oversight by SACAA culminated in 2009 with the promulgation of the SACAA Regulation commonly known as Part 108. Accordingly the primary research focus was on the impact Part 108 has had on the air cargo industry in South Africa. In addition, it compared the South African regulations with those of the USA and EU regulations; explored the compliance of the various roleplayers; sought to understand the enforcement of the regulations; and examined the effectiveness of the available security and screening methods. Furthermore, the research attempted to determine whether these regulations had any effect on preventing or deterring crime in the air cargo sector.

**Key terms:** Aviation Security (AVSEC); Air Cargo Security (ACSEC); terrorism; international air cargo security regulations; South African Air Cargo Security Regulations; Part 108; South African Civil Aviation Authority (SACAA); cargo screening; air cargo crime.



## EXECUTIVE SUMMARY

This research project, within the context of security risk management in general and aviation security in particular, aimed to explore the impact of the application of international and local air cargo security regulations on South Africa, with specific reference to the International Civil Aviation Organisation (ICAO), as well as European Union (EU) and United States of America (USA), regulations.

Since the events of 11 September 2001 (the so-called 9/11) bombing attacks, as well as the 29 October 2010 incident, referred to as: '*The Cartridge Plot*', air cargo security has begun receiving some of the attention it actually deserves.

Air cargo security has been referred to as 'the ugly step-child', hinting that Aviation Security (AVSEC) and air safety take precedence over Air Cargo Security (ACSEC) with the former somehow more important than the latter (Hoffer, 2008: 148). Air cargo security does not even have its own acronym. In this study the researcher coined the term ACSEC – Air Cargo Security – similar to AVSEC (Aviation Security) but still different, unique and specialised. Air cargo deserves this special treatment, since on one hand it contributes major revenues to the air industry, yet on the other hand, it presents various challenges with regard to its overall safety and security.

Realising the potential challenges faced by aviation security in general and air cargo security in particular, ICAO formulated strict rules and regulations whereby each contracting state must establish a 'civil aviation authority' to handle each country's aviation responsibilities, including aviation and air cargo security.

In South Africa, since the early 2000s, the South African Civil Aviation Authority (SACAA) has been the lead agency for dealing with and managing the needs for air cargo security. This oversight by SACAA culminated in 2009 with the promulgation of the SACAA Regulation commonly known as Part 108. Part 108 of the Civil Aviation Regulations was operationalised as from the 1 July 2009. Part 108 places certain responsibilities and duties, in terms of cargo security on, "all personnel involved in the acceptance, forwarding, storage, and carriage of cargo by air" (South African Civil Aviation Authority (SACAA), 2009f).

Furthermore, from this date only so-called 'known cargo' would be allowed to be loaded for air transporting to foreign destinations by all recognised and licensed air carriers. 'Known cargo', is defined in Part 108 as "a consignment to which the [applicable] security controls, [as] prescribed by Part 108, have been applied". This means that a Regulated Agent (RA) is the only person able to formally hand over and despatch a consignment of goods to an air cargo company and attest to the fact that all security as outlined in Part 108 have been applied to such consignment. In other words, a licensed forwarding agent who is the initial handler of the cargo assignment, is the only person from whom the licensed air carriers are allowed to accept 'known cargo'. In addition, such acceptance is on the basis that the Regulated Agent has also applied the requisite security controls to the air cargo consignment before handing over such as 'known cargo' to an air carrier (SACAA, 2009f).

Part 108 also prescribes a further obligation to air carriers to "protect cargo whilst on the ramp prior to loading on board an aircraft [and] must also check that cargo consignments are visually inspected [in order] to ensure that they have not been interfered with" (SACAA, 2009f).

This research, as a primary focus, explored and examined the impact Part 108 has had on the air cargo industry in South Africa. In addition, it compared the South African regulations with those of the USA and EU regulations; explored the compliance of the various roleplayers; sought to understand the enforcement of the regulations; and examined the effectiveness of the available security and screening methods. Furthermore, the research attempted to determine whether these regulations had any effect on preventing or deterring crime in the air cargo sector.

It is imperative to explore, examine and understand the question of compliance and compare South Africa to other leading jurisdictions such as the USA or the EU. This is done in order to ensure that South Africa strives for international best practices and make sure the flying public is safe and secure in the air, as well as on the ground.

The researcher has been involved with aviation security for the past ten years. This allowed him unprecedented access to individuals, companies and government organisations due to his first-hand knowledge and experience in this specialised industry.

The above points combined with the fact that this research is the first of its kind in South Africa, conducted specifically on the air cargo industry in South Africa, make this research project unique and keenly anticipated by the industry and the various roleplayers in the air cargo supply chain.

This research focused on the act and following impact of the promulgation of air cargo security regulations in South Africa as directed by ICAO and shaped by other jurisdictions (USA/EU) experiences. Data was collected from various literature sources, as well as through one-on-one interviews with aviation and air cargo security professionals implementing Part 108 and combating any unlawful interference with civil aviation.

The primary aims and objectives of the research were five-fold:

- Examine and explore the extent and impact of new, as well as existing regulations, policies and laws on the air cargo industry in South Africa;
- Explore the transformation that has taken place since the introduction of new air cargo security regulations in 2009 and to probe into future developments;
- Analyse the application of screening methods and explore their effectiveness, as well as the overall security measures of the air cargo supply chain;
- Evaluate the current situation of air cargo security in South Africa and consider the strengths and weaknesses of current security regulations and measures, as well as compare them to those of other leading states (USA and EU), in an effort to study its correct implementation, effectiveness and highlight possible improvements, and;

- In light of international as well as local regulations, to contribute to the industry's and public's knowledge and understanding of the different aspects which impact on the security of the South African air cargo industry.

Semi-structured interviews were conducted with responsible security officials and stakeholders in Gauteng, until information into the phenomenon investigated reached its saturation level (saturation level was reached at about 20 interviews, but for reliability and validity sake, 30 interviews were conducted to ensure the most accurate levels of data collection). It was established that Part 108 indeed had a profound and mostly positive impact on the airfreight industry in South Africa.

Part 108 had indeed improved security levels, as well as heightened awareness levels in the air cargo security arena, leading to a safer and more secure environment.

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## CHAPTER 1

### INTRODUCTION AND MOTIVATION FOR THE RESEARCH

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#### 1.1 INTRODUCTION

The air cargo network is an intricate, multi-faceted system that handles a massive amount of goods, including express parcels and mail on-board commuter (passenger) and all-cargo airplanes. The air cargo structure is susceptible to various security threats. These typically comprise of credible strategies to place explosives on board aircraft; illicit consignments of harmful (including hazardous) materials; unlawful undertakings such as illegal trafficking and theft, as well as possible hijackings (of airplanes) and disruption by persons with access to these aircrafts (Elias, 2008: 1).

Accordingly, several practical and technology-based enterprises to heighten air-cargo security and discourage equally criminals and terrorists and unlawful risks have been implemented worldwide or are being considered for future operationalisation (Elias, 2009: 1).

In November 1979, for the first time in the history of aviation, cargo was used as a delivery method for explosive devices. The American, Theodore Kaczynski, (the so-called 'Unabomber') concealed a bomb in a mail parcel of the United States (US) Mail Service on board American Airlines Flight 444 enroute from Chicago to Washington, DC. Luckily the device failed to detonate (Price & Forrest, 2012: 52).

In October 2010 there occurred the attempted bombing of airplanes by using improvised explosive devices (IEDs) hidden in printer ink toner cartridges inside desktop printers. This incident highlighted the fact that terrorists continued to have an uncanny insight into critical flaws in the air cargo security chain. It was also an indication that they had grown more sophisticated in their attempts to smuggle IEDs on board commercial aircraft utilising diverse methods (Wolff, 2013: 36).

Cargo pilots and US officials strongly believe that America's cargo industry is dangerously susceptible to such terrorist bombing plots. In November 2013 the US Department of Homeland Security (DHS) had issued a warning to state and local authorities that Al-Qaeda<sup>1</sup> operatives could well be planning to commandeer cargo aircraft from abroad and fly them into the USA for the targeting of nuclear-powered plants, bridges and dams (Mendenhall, 2013: 1).

Air cargo is an ideal vehicle for a terrorist bombing attack on aircraft for numerous tactical reasons. Firstly, it leverages the point that effective aircraft attacks have a substantial effect well beyond the direct loss of life. For example, many more people die per year from accidental shootings in the USA than were killed in the 9/11 bombing attacks in the USA (Wolff, 2013: 36).

Secondly, for cargo, a successful attack, and especially government agencies' response to it, has the potential to impact severely on the flow of commerce and hence detrimentally affect the global economy. This in the context that airfreight is vital for the swift movement of goods and components in a 'just in time' (often 'just in the nick-of-time') economy that emphasises fast and effective delivery of imported goods and material to manufacturers and consumers (Wolff, 2013: 36).

A 2010 Centre for American Progress report on air cargo security stated that: "[i]ntroducing a bomb in a commercial consignment via global supply chains is an apparent and achievable means to bring down an American airliner without having to board it or even enter the United States" (Juul, 2010).

Terrorists and their surrogates have for many years shown themselves to be creative and innovative when it comes to ways and means to strike at selected targets. They have used airlines to transport explosives by concealing such in the shoes and underwear of passengers. Explosives have also been hidden in printer cartridges in laser printers that were consigned as air cargo. Furthermore, cargo containers sent by sea also offer terrorists a 'Trojan Horse' to deliver, for instance, weapons of mass

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<sup>1</sup> A radical militant fundamentalist Islam terror organisation which claimed responsibility for the 11 September 2001 (9/11) bombings in the USA. Alternatively spelt as 'al-Qaida' and sometimes 'al-Qa'ida'

destruction to a target country. As the Harvard political scientist, Graham Allison, put it, a nuclear attack “is far more likely to arrive in a cargo container [in the US] than on the tip of a missile” (Nadler, Markey & Thompson 2012: 1).

As economic disruption of the West is one of Al-Qaeda’s strategic objectives, a successful attack against air cargo (or attacks against mass transportation if they led to draconian screening methods that impacted on commerce), would have a more widespread economic impact than an attack via other threat means, such as passengers or baggage (Wolff, 2013: 36).

Crowley and Butterworth (2007: 1), maintain that in the United States of America (USA) in particular and the world in general, in the five-year period following 9/11, due to the strong efforts by the Transportation Security Administration’s (TSA) cargo security professionals, air cargo security has distinctly upgraded and become more stringent in its application and implementation. However, it is not yet exhaustively ‘adequate’. The US Congress, following up on the remaining recommendations of the 9/11 Commission continued annually to consider how to bolster air cargo security (Elias, 2010: 1). The effectiveness of all of the new measures, however, centre on the following question: Should the Transportation Security Administration ‘screen’ or ‘inspect’ air cargo (Crowley & Butterworth, 2007: 1). That is the core focus of any implementation of air cargo security measures.

As per Crowley and Butterworth (2007: 1), there is a distinction between the two terms ‘screen’ or ‘inspect’, (semantically speaking), but in reality is fundamental in its distinctions. One can inspect air cargo in a number of ways, namely:

- i) examine it physically, item by item; or
- ii) merely to screen the cargo consignment.

By inspecting cargo piece by piece will assist in determining whether there are any explosives present. This manner of inspection, if correctly implemented, will establish that there is no threat present in the properly inspected cargo. In contrast, to merely screen cargo, means to only administratively inspect the records of a cargo consignment to check that the ‘paper trail’ is in order and only possibly do an

external inspection or only inspect a lesser part (an element) of the cargo freight itself and then only if there is probable cause to suspect that there might be 'suspicious' or irregular/illegal/illicit insertions being smuggled in the cargo consignment.

Unsafe or incorrectly inspected air cargo provides terrorists – and criminals for that matter to exploit such shortcomings for various criminal activities – an opening to bring down an airliner without having to board a flight or even cross a border. According to Crowley and Butterworth (2007: 1), constructing a bomb with a timing device can be quite easily accomplished by a university-level engineering student. It is therefore, as easy to place such an explosive device in a commercial cargo shipment on a passenger aircraft. In other words, a simple explosive with a timing device can potentially bring down an aircraft without the 'bomber' being on board.

In October 2010, two bombs concealed within the ink toner cartridges of Hewlett-Packard P2055 LaserJet desktop printers, made their 'trip' by Federal Express (FedEx) and United Parcel Services (UPS) from Sana'a, Yemen, to cargo hubs in Dubai and Britain. These two parcels travelled part of the way in the luggage holds of two passenger aircrafts, before being stopped (on an intelligence tipoff from the Saudis) in the UK just hours before their scheduled take-off for Chicago. This bombing attempt, which could potentially have turned into a devastating incident, served as a timely reminder of the vulnerability of air transport to acts of terrorism. Fortunately, there were no fatalities in this incident, but the 'could-have-been' consequences were sobering (Eisenberg, 2001: 1).

According to Eisenberg (2001: 1), if successful, this attack could have led to the deaths of hundreds of passengers on board the targeted airplanes and many more on the ground if the aircraft had crashed into a heavily built up populated urban area. This attempt to blow up the airplanes might well have succeeded if the USA and Saudi Arabian intelligence services had not timeously discovered the threat. While the bombers failed in their attempt, they still managed to 'grab the attention' of the world and more specifically that of the air cargo industry.

Minnaar (2003: 11), mentions that over the latter half of 2002, levels of security at South African airports were elevated in response to a number of events and issues relating to or emanating from a number incidents that occurred globally, inter alia the 11 September 2001 (commonly referred to as 9/11) attacks in the United States of America (USA). In addition, domestic developments impacted on security as well with reference to the application of the new South African Firearms Control Act (FCA); the implementation of the new South African Police Service (SAPS) National Firearms Programme; and the final drafting and acceptance (in May 2002) by Cabinet of the *Border Police Procedure Manual*. Furthermore, a number of other problems and incidents occurred which led to heightened security measures and a tightening of security procedures at all international ports of entry in South Africa. These included the efforts to prevent the theft of valuable cargo and the increased surveillance measures for combatting drug trafficking and smuggling at airports.

The events of 11 September 2001 (9/11) were something of a watershed case in the lifecycle of aviation security. Much has happened since then to improve the industry's understanding of the threats facing it and its ability to counter them. However, aviation security has also, perversely, become the object of criticism – mostly contradictory – namely: that it is too expensive, too intrusive and too slow to respond to critical situations as they develop. It is also often said that 'there is too much or too little of it' [security] or that it is 'all too predictable or too inconsistent'. So more than twelve years on from 9/11, it is time to ask: If aviation and cargo security are not where one would like it to be, what needs still to be done? (Tompkinson, 2011: 4).

Taking into consideration the above facts and threats that air cargo is facing during these turbulent times, this research will be specific with reference to the introduction of international and local air cargo security regulations. These regulations have been put in place, as part of global efforts, to counter threats to civil aviation.

The introduction of both international and South African air cargo security regulations led to major changes in aviation and air cargo security. Accordingly, this research aims to examine the impact these regulations had on the air cargo industry in South Africa.



Focus areas will include an evaluation of screening methods, a comparison between South African regulations and those in the USA and the EU, the financial constraints Part 108 had on the industry and various linked issues.

Since crime is a major concern in South Africa and even though air cargo security specifically relates to any acts of unlawful interference with civil aviation, this research study will also seek to explore the potential impact the introduction of air cargo security regulations have had on criminal activities. This focus, even though of a secondary nature, will seek to establish whether there has been any impact (prevention and deterrence) on criminal activities in practical and reduction terms since the introduction of the air cargo security measures.

Another area of intended research exploration in this study will be the level of co-operation between the various government agencies and regulatory bodies operating at the airports, as well as their interaction with commercial entities. In this context, an examination will also be done on the aspect of whether there is a formal co-operative model in place and whether any information sharing is occurring.

## **1.2 RATIONALE OF THE RESEARCH**

In a South African Civil Aviation Authority (SACAA) press release of the 13 May 2008, Captain Colin Jordaan, CEO of the SACAA and Commissioner for Civil Aviation, said that the SACAA was “very pleased that South Africa has reached the stage where cargo security regulations [could] be implemented”. Furthermore, that these “regulations have been in the making for a number of years, largely because of the challenges posed by cargo security”. He had additionally indicated that the time had arrived for “a decision to be made to start implementing them”. Moreover, Jordaan said that the air cargo sector had “nothing to fear from these regulations” (South African Civil Aviation Authority (SACAA), 2008).

Furthermore, this research aims to assist in informing and updating the air cargo and aviation security industries regarding the effectiveness and impact the new air cargo security regulations and policies have had on the industry. The researches also aims to provide an assessment of the implementation of current procedures, methods and

technology used, as well as to afford an in-depth analysis of the current situation in the air cargo security arena.

Furthermore, the research findings will inform and impart on the industry valuable information regarding current and future threats, as well as best practice methods and available technologies to counter such threats.

The research will also explore the attitude that the industry has exhibited towards the various state entities in charge of these regulations, primarily the SACAA and its effective operations and communications over the past few years.

Another target aspect is the potential impact air cargo regulations had on crime trends and on potential terrorist attacks.

### **1.3 RESEARCH AIMS AND OBJECTIVES**

The research aims, objectives and purpose are to examine the impact air cargo security regulations promulgated in 2008, as informed by international standards and regulations and coming into force as from January 2009, had on the air cargo industry in South Africa.

The debate about South African air cargo security regulations started in the early 2000s, culminating in 2009 with the publication and promulgation of the regulations, also referred to as 'Part 108'. The finalisation and development of these regulations had been announced on 13 May 2008 via a SACAA press release that stated the following:

"The South African Civil Aviation Authority, (SACAA) has developed new regulations that will govern how air cargo is handled and managed. These regulations will come into force in January 2009, and will ensure that stringent measures are applied when handling air cargo so that aviation safety and security are not compromised. The SACAA is confident that once implemented, all weaknesses and deficiencies in the current system of handling air cargo will be adequately addressed" (SACAA, 2008).

The primary aims and objectives of the research being the following:

- Examine the impact of new, as well as existing regulations, policies and laws on the air cargo industry in South Africa;
- Explore the transformation that has taken place since the introduction of new air cargo security regulations in 2009 and probe into future developments;
- Analyse the application of screening methods and explore their effectiveness, as well as the overall security measures of the air cargo supply chain;
- Evaluate the current situation of air cargo security in South Africa and consider the strengths and weaknesses of current security regulations and measures, in an effort to study its correct implementation, effectiveness and highlight possible improvements, and
- Contribute to the industry's and public's knowledge and understanding of the different aspects that impact on the security of the South African air cargo industry.

#### **1.4 RESEARCH QUESTIONS**

The primary research questions this study seeks to answer will be:

- *What has been the impact of the changing international and South African air cargo security regulations on the South African air cargo transport industry?*
- *How has the air cargo industry transformed since the implementation of air cargo security regulations?*
- *What screening methods have been approved and how effective are they?*
- *Do the South African regulations meet international standards and how do they compare to those of the USA and EU?*

Ancillary research questions will deal with specific aspects relating to the changing regulations and standards in the South African air cargo environments:

- The impact on opportunities for criminal and terrorist activities versus security measures and has there been a change in crime statistics and trends;
- Tracing the changing modus operandi by exploiters of air cargo security shortcomings – has the nature of crime or potential terrorist act changed?;
- Monitoring of air cargo security in South Africa as compared to other international jurisdictions – how does South African regulations compare to those of the USA and the EU?;
- Extent of implementation and utilisation of policies, procedures, methods and measures to prevent unlawful interference in air cargo – does the industry apply best practice methods and risk based approaches to security?;
- Review of new and/or improved air cargo security screening measures and methods;
- Establishing the use of best practices by the South African air cargo industry to ensure air cargo security;
- Explore the way state organs monitor and enforce the regulations, as well as how they co-operate, communicate and share intelligence in respect of air cargo security;
- Enquire about training levels and are training levels adequate; and
- Investigate the cost benefits of Part 108 and try to ascertain whether Part 108 is a necessary or unnecessary burden on the industry.

Since crime is a major concern in South Africa and even though air cargo security specifically relates to any acts of unlawful interference with civil aviation, this research study will also seek to explore the potential impact the introduction of air cargo security regulations have had on criminal activities. This focus, even though of a secondary nature, will seek to establish whether there has been any impact on criminal activities in practical and reduction terms since the introduction of air cargo security measures.

## **1.5 GLOSSARY**

In this section the technical terms and key concepts most commonly utilised in the ACSEC industry and mentioned throughout this study, or are relevant to the understanding of the environment, are defined and explained.

### **Acts of unlawful interference**

Acts of unlawful interference are defined as “acts or attempted acts such as to jeopardize the safety of civil aviation and air transport”, namely:

“[the] unlawful seizure of aircraft in flight; ...unlawful seizure of aircraft on the ground; ...hostage-taking on board aircraft or on aerodromes; [the] ...forcible intrusion on board an aircraft, at an airport or on the premises of an aeronautical facility; [the] ...introduction on board an aircraft or at an airport of a weapon or hazardous device or material intended for criminal purposes; [and][the] ...communication of false information such as to jeopardize the safety of an aircraft in flight or on the ground, of passengers, crew, ground personnel or the general public, at an airport or on the premises of a civil aviation facility” (International Civil Aviation Organisation (ICAO), 2011).

### **Access control**

Access control refers to the: “security methods applied to confirm that only authorised persons, vehicles and items carried by such individuals or transported in such vehicles, are permitted access into the premises, area or zone being controlled” (SACAA, 2009).

**Air cargo**

Air cargo (broadly speaking) includes any sort of merchandise, express post or courier packages and mail carried on passenger aircrafts and/or all-cargo aircraft (Crowley & Butterworth, 2007: 30).

**Airside**

This is the: “movement area of an airport, adjacent terrain and buildings or portions thereof, access to which is controlled” (ICAO 2011; International Air Transport Association (IATA) 2013).

**All cargo carriers**

Companies (such as UPS and FedEx) dedicated exclusively to the transport of cargo. These companies are frequently called ‘integrated carriers’ because they have aircraft dedicated to carry only cargo, and also fleets of trucks and vans that transport the cargo and parcels to their final endpoint outside of airports. In addition, some all-cargo airlines are divisions or affiliates of passenger airlines, such as Lufthansa Cargo (Crowley & Butterworth, 2007: 30).

**Background check**

A background check refers to the checking of a “person’s identity and previous experience, including where legally permissible, any criminal history, as part of the assessment of an individual’s suitability to implement a security control and/or for unescorted access to a security restricted area” (ICAO, 2011).

**Cargo**

“Any property [goods/packages/luggage, etc.] carried on an aircraft other than mail, stores and accompanied or handled baggage” (ICAO 2011).

**Certification**

Certification is the document production process which entails officials undertaking an: “...evaluation and confirmation by or on behalf of the appropriate authority for aviation security that a person possesses the necessary competencies to perform

assigned functions to an acceptable level as defined by the appropriate authority” (ICAO, 2011).

### **Explosive Detection System (EDS)**

These are apparatuses that automatically detect explosives in un-opened baggage and cargo containers. EDS are certified by TSA as having high rates of detection of the “types, amounts and configurations of explosives” that can bring down an aircraft, while not surpassing a set rate of false positives. All the EDS equipment certified to date employ X-ray computed tomography (CT SCAN) technology. Most EDS were intended to be integrated with baggage conveyors and function at high speeds. Several, however, have been mounted as stand-alone systems in airport lobbies, where bags are manually fed into them (Crowley & Butterworth, 2007: 30).

### **Explosive Trace Detector (ETD)**

These are devices that detect and categorise vapours and microscopic residues of explosives. Human operators gather samples, for example, by rubbing bags with swabs, which are then chemically analysed in the ETD to isolate any traces of explosives. ETDs are significantly less expensive than EDS, but their operation is labour-intensive (Crowley & Butterworth, 2007: 30).

### **Freight forwarder**

An individual or enterprise that acts on behalf of a shipper by dispatching or else organising space for shipments via ships, airplanes, trucks or rail. Sometimes referred to as international freight forwarders, they have the know-how that allows them to prepare and process the documentation and perform related activities concerning international shipments. From a regulatory perspective, they are often also Indirect Air Carriers (Crowley & Butterworth, 2007: 30).

### **Human factors principles**

“Principles [that] apply to design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance” (ICAO 2011).

### **Human performance**

“Human capabilities and limitations [that] have an impact on the safety, security, and efficiency of aeronautical operations” (ICAO 2011).

### **Known cargo**

With effect from the 1 July 2009, air carriers in South Africa were only allowed to accept ‘known cargo’ as consigned freight. ‘Known cargo’ further refers to a shipment that all the required security controls as prescribed by Part 108, have been applied. This means that a Regulated Agent (RA), see definition below) is the only person from whom the licensed air carriers are allowed to accept ‘known cargo’. In addition, such acceptance is on the basis that the Regulated Agent has also applied the requisite security controls to the air cargo consignment before handing over such as ‘known cargo’ to an air carrier (SACAA, 2009).

### **Known consignor**

A ‘known consignor’ is the: “consignor who originates cargo or mail for own account and whose procedures meet common security rules and standards sufficient to allow carriage of cargo or mail on any aircraft” (IATA 2013). In other words a consignor is the person who hands over or delivers/transfers the cargo consignment to another party.

In the South African context a ‘known consignor’ means the “originator of goods for carriage by air”, which has a “recognised business relationship with a Regulated Agent” on the basis of the required Part 108 security standards and who further “conforms with the [Part 108] criteria” for a known consignor. In addition these known consignors will be required to “pack and secure their cargo on secure premises and protect the cargo against unlawful interference. Cargo will be required to be sealed with tamper evident seals and personnel involved in the handling of cargo or cargo documentation will be required to undergo prescribed training and must be subjected to background checks” (SACAA, 2009).

### **Known shipper**

The term ‘known shipper’ is used both in the United States and internationally, and is also a recognised part of the TSA’s security Programme. Becoming a known shipper is comparatively easy – it means achieving a reputation as an established company



in the shipping community, finalising an application, being vetted by TSA against commercial databases and providing supplementary documentation upon request by TSA, an airline or an Indirect Air Carrier (Crowley & Butterworth, 2007: 30).

### **Regulated agent**

A 'regulated agent' is an: "...agent, freight forwarder, or any other entity that conducts business with an operator and provides security controls that are accepted or required by the appropriate authority in respect of cargo or mail" (ICAO 2011; IATA 2013).

### **Regulated agent (South Africa)**

According to the South African Civil Aviation Authority, in South Africa, a regulated agent must appoint, as prescribed by Part 108, a 'designated official'. This person is accountable, inter alia, for the: "...implementation, application and supervision of the security controls". In addition, Regulated Agents must develop a Security Plan/Security Manual that outlines and clearly sets out how they will conduct their operations, including the: "...safeguarding cargo against acts of unlawful interference and applying security controls, which will include the screening of 100 percent of unknown cargo and ten percent of cargo received from Known Consignors". This Plan/Manual must also be approved by the CAA. Furthermore, all Regulated Agents' staff involved in the "...handling of cargo or cargo documentation will be required to undergo prescribed training and must be subjected to background checks" (SACAA, 2009).

### **Screening**

Screening is the: "...application of technical or other means which are intended to identify [and/]or detect weapons, explosives or other dangerous devices, articles or substances which may be used to commit an act of unlawful interference" (IATA 2013).

### **Security**

In the context of this study the term 'security' will indicate the: "safeguarding [of] civil aviation against acts of unlawful interference. A combination of measures and

human and material resources” will consequently achieve this stated objective (ICAO 2011; IATA 2013).

### **Security control**

“A means by which the introduction of weapons, explosives or other dangerous devices, articles or substances which may be used to commit an act of unlawful interference can be prevented” (ICAO 2011; IATA 2013).

### **Security inspection**

A security inspection entails: “[an] examination of the implementation of relevant national civil aviation security programme requirements by an airline, airport, or other entity involved in security” (ICAO 2011).

### **Security programme**

As an adjunct to the security inspection is the overarching security programme which contains the: “[m]easures adopted to safeguard international civil aviation against acts of unlawful interference” (IATA 2013).

### **Security restricted area**

These are those zones of the airside of an airport which are:

“...recognised as priority risk areas where, in addition to access control, additional security controls are applied. Such areas will generally include, *inter alia*, all commercial aviation passenger departure areas between the screening checkpoint and the aircraft, the ramp, baggage make-up areas, including those where aircraft are being brought into service and screened baggage and cargo are present, cargo sheds, mail centres, airside catering and aircraft cleaning premises” (ICAO 2011).

## **South Africa: Civil Aviation Technical Standards – Air Cargo Security (SA-CATS-ACS)-Part 108-Air Cargo Security (known in short as ‘Part 108’)**

The document, *South Africa: Civil Aviation Technical Standards – Air Cargo Security (SA-CATS-ACS)*, contains the standards, rules, requirements, methods, specifications, characteristics and procedures that are applicable in respect of the carriage of cargo by air.

Part 108 of the Civil Aviation Regulations came into effect on 1 July 2009. Part 108 applies to all individuals engaged in the acceptance, forwarding, storage and carriage of cargo by air.

Under Part 108, “air carriers are required to safeguard cargo whilst on the ramp prior to loading on board an aircraft and must also check that cargo consignments are visually inspected to ensure that they have not been tampered with” (SACAA, 2009)

### **1.6 VALUE OF THE RESEARCH**

The value of this research has many facets, since it is the first specific study into air cargo security in South Africa, as well as the first study to measure or explore the impact of a specific security regulation on a specific industry.

This research will provide a valuable tool for air cargo security managers, since it will allow them to better understand the industry, offer an insight into the various facets discussed by this research project, as well as serve as a tool to educate others within the organisation, enabling them to better understand the threats relating to air cargo security.

While seeking to compare South African regulations with USA and EU regulations, the researcher explored the benchmark South Africa fits into, evaluating if South Africa employs international best practices, this evidence can be used both by the SACAA and the industry to maintain and improve their compliance levels, ensuring South Africa remains in the forefront of global efforts to prevent any acts of unlawful interference with Civil Aviation.

The research also assessed the effectiveness of the SACAA in enforcing these regulations, as well as the compliance of various roleplayers, the examination of screening methods can also assist the industry and the SACAA in employing the best suitable air cargo screening methods.

All these elements and various others dealt with in this research, will greatly contribute to a better understanding of the air cargo industry in South Africa, thereby adding great value to the SACAA and various companies taking part in the air cargo supply chain.

## **1.7 RESEARCH PLANNING: DISSERTATION LAYOUT**

### **Chapter 1: Introduction and motivation for the research**

This chapter details the rationale for the study, the research aim and objectives, explains the various research questions, touches on the value of the research, as well as explain the main key operational concepts used in this research.

### **Chapter 2: Research Methodology**

This chapter explains the methodological exposition of the research approach, creates the framework for the research and details the way it was conducted, clarifies the research design and methods applied and used; it also describes the problems faced during the research process and justifies the information collection instruments utilised in the field.

### **Chapter 3: International Civil Aviation Organisation (ICAO) and international aviation security regulations**

This chapter consists of detailed literature review in respect of ICAO's (International Civil Aviation Organisation) international aviation security regulations.

### **Chapter 4: United States of America (USA) and the European Union (EU) specific regulations and regulatory bodies for cargo security**

Chapter Four details the specific regulations in the USA and the EU, since the research compares these regulations with those of South Africa. It also explains the

regulating body in the USA – the Transportation Security Administration – which has become the driving force for AVSEC and ACSEC regulations worldwide.

### **Chapter 5: South African specific regulations on cargo security**

Chapter Five deals with the specific South African regulations regarding air cargo security, being Part 108, it also mentions the South African Civil Aviation Authority, its mandate and responsibilities, furthermore this chapter discusses the approved screening methods used in South Africa and touches of future methods, this chapter also mentions the current threats to the air cargo security industry.

### **Chapter 6: Research findings in respect of the direct impact of Part 108 on the air cargo industry in South Africa**

In this chapter the researcher explores the various findings, which had a direct impact on the air cargo industry as a result of Part 108 regulations, it details whether the impact was positive or negative, has it actually improve air cargo security in South Africa? Do companies comply with the regulations? Do they deploy best practice and apply a risk-based approach? It will also touch on the various methods or concepts as mandated by Part 108.

### **Chapter 7: Research findings in respect of the general impact of Part 108 on the air cargo industry in South Africa**

This chapter details the relevant findings emanating from the data collection and the analysis process, which are more general in respect of the application of Part 108, issues such as the possible impact of Part 108 on potential terrorist and criminal activities, the actual impact Part 108 had on reducing crime or changing its trends in relation to air cargo security, it also explores the financial burden Part 108 had on the industry, this chapter examines the screening methods used and their effectiveness as well as compare local regulations to the USA and EU air cargo regulations, it also deals with training matters and ends with exploring the possibility of creating a new dedicated forum.

### **Chapter 8: Recommendations and Conclusions**

The final chapter presents various recommendations based on the findings as per chapters six and seven.

The recommendations are divided in two portions; one is directed at the SACAA while the other is directed at the industry as a whole.

Chapter 8 ends with final conclusions reached while examining the various recommendations as mentioned above.

## **1.8 CONCLUSION**

This Chapter is intended to provide an introduction to the overall thrust of the research study; its aim is to provide the basic understanding of the subject at hand as well as the topics the research intends to explore.

It further provided the rationale for the research and sets out the research aims and objectives as well as details the research questions.

By detailing the key theoretical concepts this chapter assists in understanding the intricacies of the air cargo industry and provides the initial guide for the reader to navigate through these concepts.

The chapter ends by giving an overview of the value of the research and outlines the whole dissertation layout.

## CHAPTER 2

### RESEARCH METHODOLOGY

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#### 2.1 INTRODUCTION

The methodological exposition for this research will be discussed in this chapter. It creates the framework for the research, which allows the researcher to measure the impact of the application of international and local air cargo security regulations in South Africa since 2009 to the present. The impact of the introduction of new regulations also referred to as Part 108, will be explored, as well as future developments and the impact of these on the industry as a whole.

This study was done mostly in and around OR Tambo International Airport (situated in Kempton Park, west of Johannesburg in Gauteng Province of South Africa). However, it is imperative to understand that the individuals interviewed, hold positions in national or at times international companies or organisations, hence their reply encompasses a national consideration rather than a Gauteng or ORTIA specific perspective.

The study utilised the expertise of various experienced individuals working in the field of air cargo security, these individuals were carefully selected and chosen to proportionally represent the air cargo industry. Their background, experience, expertise, knowledge and willingness to participate were assessed and the final list was created accordingly.

During the literature review process, it was noticed that there is a dearth of published research material broadly on aviation security and more specifically with regard to the impact of specific cargo or security regulations on the air cargo industry. The same problem was encountered in relation to the impact on crime statistics.

This fact led to limited availability of quality research literature, leading the researcher to use similar sources at times.

## **2.2. RESEARCH APPROACH**

The research approach was investigative, and sought to study the impact of the application of new air cargo security regulations in South Africa, as well as the implementation of various security measures currently in place to counter acts of unlawful interference with air cargo.

A qualitative research method was incorporated using interviews with key individuals within the airfreight industry in South Africa. This method was used as it seeks to find the meaning or reasons for a specific question, event or interactions from the researcher's point of view – drawing as it did on the researcher's experience, position and exposure to the air cargo security industry. Shank (2002: 5) describes qualitative research as “a form of systematic empirical inquiry into meaning.” Denzin and Lincoln (2000: 3) state that qualitative research comprises an “interpretive and naturalistic” approach, meaning that “qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them”.

Creswell (1998:2) defines the approach or strategy as follows: “an approach to qualitative research that has a distinguished history in one of the disciplines and that has spawned ...distinct methodologies that characterised its approach” These traditions of inquiry are also described as “strategies of inquiry” or mere “strategies”.

This methodology also allows an in-depth and detailed study of the chosen topic, allowing the researcher to investigate and understand the information emanating from the data and information collected.

By conducting one-on-one, in-depth interviews with various key air cargo industry roleplayers, the researcher was able to establish how the changes in the industry are experienced and explore what areas were impacted since the introduction of air cargo security regulations in South Africa. This approach was further enhanced by a comparative analysis between the international standards and local ones.



## 2.3 RESEARCH DESIGN

The purpose of a research design is to assure that the information and evidence acquired, enables the researcher to answer the initial research question as unambiguously as possible.

Fouche (2002: 271) claims that characterisations of research design from quantitative perspective are rather vague, the same is true for the qualitative approach.

Obtaining relevant and reliable information or evidence necessitates specifying the kind of evidence required to answer the research question, to test a theory, to evaluate a programme or to correctly describe some phenomenon. When designing the research theory, the question was: what kind of evidence is required to answer the research questions in a convincing way?

Qualitative research can be defined as a study whereby the “variables are usually not controlled, because it is exactly this freedom and natural development of action and representation [that the researcher wishes] ...to capture” (Henning, Van Rensburg & Smit, 2004: 19). This type of research aims to understand and explain, by using evidence from the data and from the literature, what the phenomenon or phenomena [the researcher is] ...studying [is all] about (Henning et al, 2004: 19).

According to Donalek (2004: 24), “...[p]henomenological studies examine human experiences through the descriptions provided by the people involved. These experiences are called ‘lived experiences’. Furthermore, the purpose then of phenomenological studies is to: “describe the meaning that experiences hold for each subject. This type of research is used to study areas [wherein] little or no knowledge” exists (Donalek, 2004: 24).

The way the researcher looks at phenomenology is the attempt to look at, explore or try appreciating and deciphering the significance of a phenomenon, like the application of air cargo security rules on an industry and its participants, explore how they experienced the changes and try understand the impact this action had on them and the industry as a whole Fouche (2002: 271).

Donalek (2004: 24), goes further and states that in phenomenological research your “respondents are asked to describe their experiences, as they perceive them. They may write about their experiences, but information is generally obtained through interviews” (Donalek 2004: 24).

Since there is no previous research into the impact of air cargo security regulations in South Africa, this research is new and original in its nature; hence the Phenomenological Studies design fits such research.

The researcher found that, as noted above, interviews are the best way to obtain quality, in-depth information.

According to Creswell (1998:61), a case study can be regarded as “an exploration or an in-depth analysis of a ‘bounded system’ (bounded by time and/or place) or a single or multiple cases over a period of time”. A case study type of approach will therefore be used for this study, since the impact in 2009 of the introduction in South Africa of the new regulations (Part 108) will be explored, and should therefore be viewed as an on-going process. Babbie (2001: 285), points out that the “case being studied [can] refer to a process, activity, [an] event, programme, individual or multiple individuals”.

The researcher's ability to understand the topic due to his first-hand experience over the past 10 years, contributed to a better material obtained from the respondents. Since the researcher was an active participant in the air cargo supply chain and his experience and personal understanding greatly assisted the data collection process.

## **2.4 RESEARCH METHODS AND DATA COLLECTION**

The research methods used to collect relevant and applicable data shall be described herein.

### **2.4.1 Interviews**

Sewell (2001: 1) describes qualitative interviews as “....attempts to understand the world from the participant's point of view, to unfold the meaning of people's experiences [and] to uncover their lived world prior to scientific explanations.”

Berry (1999:1) suggests three basic approaches to conducting qualitative interviewing. The researcher found that the most suitable way for collecting the research information in this study was the general interview guide approach also known as the 'guided interview'. When utilising this method for interviewing, a basic checklist, or schedule of questions are prepared beforehand to make sure that all pertinent subjects are covered. This type of interview approach is "useful for eliciting information about specific topics" (Berry, 1999: 1).

The researcher conducted one-on-one in-depth interviews with selected national/international companies or organisations representatives based on a schedule of interview questions (see Annexure C). The majority of the interview questions used, were open-ended questions.

The interview questions were developed over a time period and tested both with the research supervisors as well as with a selected group of respondents.

The initial interview questions schedule contained over 60 questions, 13 were deemed not relevant when tested, while other questions were reworded several times until the desired outcome was clear.

Several questions were changed or adapted as a direct result of input from respondents, where they suggested a related topic or a more detailed exploration of the topic.

Once the schedule of interview questions was drafted, the researcher approached various, carefully selected, individuals to set up interviews with.

Interviews across a range of relevant industries (to the broad industry of airfreighting and cargo security) took place with 30 individuals who were willing to volunteer and take part in this study. Some of these national/international companies and/or official organisations were: the Department of Transport; Civil Aviation Authority; Airports Company of South Africa; various airlines (e.g. South African Airways and Lufthansa); various freight forwarding companies, (e.g. Safcor Panalpina and

Swissport); a range of organisations, (e.g. Aviation Co-ordination Services); as well as various other companies relevant or having links to the industry.

All interviews took place in Johannesburg, as all the above-mentioned companies or organisations head offices are based in Gauteng, close to ORTIA. The interview with the Department of Transport took place in Pretoria, however, the outlook and replies were relevant to the national footprint of these companies or state organs.

#### **2.4.2 Observation**

Bryman (2000: 96) states that: “for qualitative researchers, it is only by getting close to their subjects and becoming an insider that they can view the world as a participant in that setting”.

The researcher has been an active participant in the AVSEC and ACSEC environment for the past ten years. As a consequence, his own experience and noting of the changes and the impact of the regulations were critical to the in-depth viewpoint and understanding of the replies and issues raised during the research process. The researcher’s professional relationship with most respondents allowed him closer and a more insightful and reflective point of view, which also led to more open and unguarded replies from the respondents.

Participant observation also has a very long history in social science and humanities research and has been described as being fundamental to all research methods in respect of data collection. According to Denzin and Lincoln (2000: 673), participant observation is a “typical qualitative approach to data, which implies that data cannot really be reduced to figures”. During this research study most of the information was collected during interviews, amplifying the input from various respondents, as well as the experience of the researcher in this field.

#### **2.4.3 Field notes**

Emerson (1995: 155) defines field notes as “accounts describing experiences and observations the researcher has made while participating in an intense and involved manner.” The researcher took field notes at all times during the interviews; electronic

recordings of all interviews also took place. Field notes and recordings were referred to during the transcription process, ensuring authenticity and accuracy.

## **2.5 POPULATION AND SAMPLING PROCEDURES**

This section describes the various ways in which the researcher dealt with the population and sampling process employed for the purpose of interviews and what had been the rationale for choosing these specific companies and individuals.

For the interviews, a Non-Probability Sampling method was used and in particular, the Purposeful Sampling technique was applied. The researcher on three occasions also used Snowball Sampling, since, on those occasions, he was referred to another person via some of the respondents.

According to Brynard and Hanekom (2003: 43), for the purpose of sampling, target population does not refer to the population of a country but to objects, subjects, and phenomena that the researcher wishes to study in order to establish new knowledge.

As such, representatives of specific industries or organisation were carefully and selectively chosen as a 'sample' to represent the group or industry in which they operate. The individuals were all chosen carefully from various environments, in order that the study would extract the maximum amount of information from a variety of sources, ensuring it was all inclusive, covering state entities, local and foreign airlines, local and foreign ground handling companies, local and foreign freight forwarding companies.

Denzin and Lincoln (2000: 370) point out that a "qualitative researcher seeks out individuals, groups and settings where the specific processes being studied are most likely to occur". As such only organisations and companies involved in the air cargo security supply chain were sampled.

Candidates for the interviews were carefully selected, based on their position in a specific industry sector, as well as their position in relation to their knowledge, experience and expertise in the specialised field of air cargo security.

The criteria for choosing these respondents were that they had first-hand, in-depth knowledge and hands-on experience in the selected field of research. Specific people were sought out since they had participated in the consultative discussions that had led directly to the formulation and implementation of Part 108 – the accepted term commonly used by those associated with this industry in referring to the South African ACSEC regulations. Other respondents were chosen due to their current positions as individuals who implement current regulations. Some of the respondents are also currently part of the structure overseeing the implementation and compliance with the Part 108 regulations.

The researcher intentionally tried to gather as many people as possible from as wide a variety of industries – linked to the core industry of airfreighting/air cargo. This industry-focused selection (deliberate targeting) was also extended to other role-players from the side of the State such as the Department of Transportation (DOT), SACAA, Airports Company South Africa (ACSA) and SAPS. From the various industries, airlines such as South African Airways (SAA) and Lufthansa, and freight-forwarding companies and cargo-handling companies such as Swissport and Bidvest Panalpina, were included.

The total sampled population was 30 individuals from the following cross sections:

Training and/or service providers:	6
Freight forwarders/Regulated Agents:	5
Express couriers/Regulated Agents:	3
Airlines/Regulated Agents:	6
Ground Handling/Regulated Agents:	5
<u>State Organs:</u>	<u>5</u>
<u>Total:</u>	<u>30</u>

## **2.6 PROBLEMS ENCOUNTERED DURING THE RESEARCH**

In this section the researcher deals with the challenges encountered during the data/research information collection process, sharing some problems and the solutions applied to deal with such challenges.

### **Sensitivity of information, reluctance to be associated with certain answers**

In some cases, the researcher found a degree of reluctance by respondents in answering some of the questions. It appeared that several respondents/interviewees thought that the researcher might use direct quotes or opinions of individuals. In other words, they were under the impression that they could be identified by what was said by them to the researcher, which in turn might reflect negatively on them, the company for which they worked (or owned), the SACAA or their peers.

The researcher then explained that unless specific permission is granted, no individual would be identified in the report. Their privacy would, therefore, be safeguarded throughout in this study. It was explained that all information is collated and general findings are reached by calculating the total response from all respondents and formulating the resulting findings into a conclusion, by supporting, rejecting or formulating an idea in relation to the questions asked.

[Note that even the interview list at the end of the list of references is devoid of names or specific job titles, ensuring that their identities would be protected by applying the mentioned anonymity as outlined above].

### **Availability of candidates**

Most candidates were very accommodating and made themselves available upon being asked to participate. A few interviews were rescheduled due to operational reasons.

A few candidates were very busy and it took several weeks to set up a date for the interview. On looking back, the researcher found the experience to be very rewarding. The researcher is therefore grateful to the respondents for giving their time and insight so openly and willingly.

It must also be noted that all the candidates who were interviewed, were very keen to see the final report, stating that it may impact on their duties and on the industry as a whole.

### **Limited available data pertaining to the topic**

The researcher found very little available research data in South Africa about the topic and the application of International air cargo security regulations.

There was also a lack of research data describing in detail various organisations, acts, conventions, or regulations. The best information sources for such data were the websites of the relevant organisations, such as ICAO, TSA or SACAA. Hence the researcher had no option but to make use of websites as a primary information resource and the references are therefore directly linked to those websites.

There were several reports about air cargo security from various countries, yet very little about the impact on the industry, either in South Africa or elsewhere. Most of the data gathered were from open sources or from the few research reports that were obtained.

### **The researcher being ‘too familiar’ with respondents**

The researcher found that at times his professional previous relationship with some of the respondents played a role in the interview process. In some instances, it allowed an unrestricted open discussion, where candidates allowed themselves to express their views and opinions very openly; being completely unreserved and trusting the researcher who they knew would not betray such trust. In other cases, such familiarity led to both the researcher and the interviewee, straying from the subject. This sometimes led to interviews taking much longer than expected. However, both phenomena are viewed in a positive light, as only positive results were derived from those interviews.

### **Issues relating to ‘too much information’ and going off track**

At times, some respondents were ‘running’ with the information. Their train of thought led to them giving too much information and at other times straying from the research topic. During the first few interviews, the researcher found it difficult to bring them back to the topic. As the researcher became more proficient in conducting the interviews, he learnt how to control the flow and tempo of the interview, allowing some lee-way, but bringing it back on track without insulting the interviewee or detracting from the respondent’s answer.



It was a fine balance between being a supporting interviewer and an unsupportive one that only cares about data. The human interaction in such cases was critical and the researcher hopes that the right balance was found with most of the interviews.

### **Problems in transcribing interviews**

The researcher found it difficult at times to ask a question, listen attentively to the answer and write field notes all at the same time. This took some practice and as mentioned above, the first few interviews were difficult, yet once a system and pattern were found, the process became much easier and the researcher worked more efficiently.

Moreover, all interviews were electronically recorded, which helped in the actual transcribing at a later stage of the answers and putting the results into specific topics. The actual transcribing of the answers, collation of data and reaching a clear outcome, also took time at the beginning, but after several attempts, a system emerged and the process became easier and flowed naturally.

## **2.7 DATA/INFORMATION ANALYSES AND INTERPRETATION**

Creswell (1998:142-165) supposes that the progression of data analysis and explanation is best symbolised as a coiled image, or as the data analysis coil. The researcher moves in a continual systematic circle as opposed to taking a direct methodology.

One enters the collected data, in this case text and ideas and on the other end he or she gets a detailed account. Along the way the researcher traces various aspects of examination, while encircling around in an upward motion towards a final product or conclusion.

Emanating from the above the following steps were followed accordingly during the data collection and analysis process:

1. Collection and chronicling of data – while interviewing the respondents, the researcher developed a systematic method of cataloguing the information for easy retrieval and analysis.

2. Managing the data – all collected data was managed appropriately and transcribed into word document, and saved in electronic format, tied to the actual recording of the interview.
3. Reading, memorising and transcribing – while reading the transcribed data in combination with field notes, the researcher made further notes and commenced with theme identification process.
4. Describing, classifying and interpreting - Marshall and Rossman (1995: 114) claim that this is the most challenging, multifaceted, equivocal, imaginative and gratifying stage within the process. Creswell (1998:144) comments that classifying means breaking the text and the qualitative data into small pieces and exploring into which classifications, themes or scopes they all fit. This is where the actual analysis process takes place and the information is interrogated, broken into and put together again in a meaningful and clear manner.
5. Representing in visual form – this is the last phase where the information is transformed into graphs, charts and tables for easy understanding and representation.

According to O'Donoghue and Punch (2003: 78) triangulation is a "method of cross-checking data from multiple sources to search for regularities in the research data". The respondents' responses were triangulated, coded and computerised in order to categorise themes and ensure correct reading of results. At all times field notes were made during interviews, regarding respondents' opinions. All interviews were also electronically recorded. Once transcribing commenced, the researchers compared his field notes, with the actual recordings made during the interviews, to ensure the validity and completeness of the information recorded and transcribed.

Altrichter, Feldman, Posch and Somekh (2008: 147), contend that triangulation "gives a more detailed and balanced picture of the situation." Data triangulation was used on the data obtained during the interviews and correlating with literature review information.

When all data had been saved, codified and collated, it was then clustered into mutual subjects/categories fitting into and with literature review as well as interviews. Data collected from the different respondents was compared, as well as data gained as part of the literature review process with regard to international regulations, USA and EU regulations and authorities, comparison of screening methods and technology, best practice methods, procedures and regulations.

The research approach was such that the researcher sought to come up with a scientific solution to the main research question of what was and still is the impact of the application of air cargo security regulations in South Africa. Accordingly, the data was analysed with the view of the possible impact of various factors on the air cargo industry, in terms of incidences or interference with air cargo, which have occurred in the recent past. The impact and effectiveness of various methods and forms of security technology were scrutinised and the relative effectiveness of various forms of cargo screening and security measures was also researched.

A comparison was made between South African regulations to those of other jurisdictions, as questions were asked about the difference or similarities between the South African, USA and the EU efforts on security measures and regulations. The research explored whether such comparisons had any impact on current regulations.

The findings are presented in the form of a report, illustrating the various dimensions of the study. The best way the researcher found to explain certain results, was to present such data in charts, either pie or column charts. This gives the reader both visual and explanatory results. The charts are coupled with detailed findings, reports, and recommendations, based on such findings.

All the data collected during the research were collated, put into order, clustered into groups or information categories, and interpreted to make sense thereof. The data collected during interviews were coded and then entered into a Microsoft Excel and word programme for further statistical comparative analysis and data capturing.

All interviews were captured and recorded onto word documents without the name of the person interviewed mentioned. For each question, several key words/phrases or themes were identified and all relevant answers were grouped according to those key words/phrases or themes. Accordingly a pattern emerged from those answers, whereby the relevant data was then fed into an Excel Programme for further statistical analysis and simplified results were derived accordingly, allowing the mentioned charts to be created.

### **The research target group**

- South African Civil Aviation Authority (SACAA);
- Department of Transport (DOT);
- Airports Company South Africa (ACSA);
- South African Police Service (SAPS)
- South African Airways (SAA);
- Aviation Co-ordination Services (ACS);
- Various airlines (SAA, Lufthansa etc.);
- Airlines associations (BARSA, AASA);
- Various freight forward companies; and
- Cargo handling companies.

Note that the researcher sought permission from the SACAA to conduct this study. (Annexure A – Request from UNISA to the SACAA to conduct research). Approval to undertake and implement the research project was granted by the Director of the SACAA (see attached letter- Annexure B). Since the SACAA is the ultimate responsible state organ overseeing and controlling the aviation industry in general and air cargo security in particular, their approval to conduct this research has an overarching consent and therefore covers all companies and entities within the air cargo security industry. Once such permission was granted, all regulated companies within the industry, as well as all relevant state entities, the same overall consent was used as the basis for their voluntary participation as respondents in the study. For clarity sake, all Regulated agents and Known consignors, as well as screening companies, training companies and such are all regulated and under the SACAA

oversight, hence the SACAA approval is all that was required in terms of granting permission for this research project.

## **2.8 VALUE OF THE RESEARCH AND ENSURING VALIDITY AND RELIABILITY**

### **2.8.1 Value of the research**

The value of this research rests with the fact that it will be an original study, the first study of its kind done on air cargo security in South Africa, as well as the first study to measure or explore the impact of a specific security regulation on a specific industry within the aviation security environment.

While seeking to compare the South African regulations with USA and EU regulations, the researcher explored the benchmark that South Africa fits into, evaluating whether South Africa applies or makes use of international best practices. This research also examined the effectiveness of the SACAA in enforcing these regulations, as well as the compliance of various roleplayers.

While exploring the impact these regulations had on the industry, various concerns, as well as positive comments were raised by the respondents. It is postulated by the researcher that these results and input will greatly assist the SACAA to evaluate its position and the effect the regulations had and are still having on the industry. Overall the research study provides a measuring tool or a benchmark, indicating where South Africa is currently positioned in respect of its air cargo security regulations.

It is further put forward that all these elements greatly contribute to a better understanding of the air cargo industry in South Africa, thereby adding great value to the SACAA and various companies taking part in the air cargo supply chain.

### **2.8.2 Ensuring validity and reliability**

Marshall and Rossman (1995: 143) observe that all research must correspond to standards, norms or canons that stand as criteria, against which the trustworthiness of the project can be evaluated. These canons can be phrased as questions to which all researchers must respond.

The prerequisites for internal validity and reliability, as considered by Welman and Kruger (1999: 100), were utilised throughout the research process. Every attempt was made to warrant that the study data gathered was authentic and precise at the same time as upholding all ethical matters.

Significant attention was required in the choice of appropriate individuals to be interviewed. In this the Researcher followed the same approach as implemented by Schneider (200), namely:

“The identical interview schedule of questions was utilised with each respondent without the interviewer (the Researcher in all instances) affecting the respondent's replies in any way, [either with] body language, pitch of voice or facial expressions or adversely communicated or guiding questions. [Moreover, efforts] were made to establish a comfortable interview setting whereby respondents were reassured to be candid and forthright in their replies. Every attempt was made to make the environment relaxed and non-confrontational (Schneider, 2005)

Once permission to conduct the research was granted and the research information/data had been collected all the respondents' information provided was crosschecked. Anonymity and confidentiality (protection of identity) of respondents were upheld at all times. The same standardised questions were asked of all the respondents. The questions were clear and understandable. In the interviews the researcher tried to avoid, as much as possible, the use of any biased and leading questions, inter alia by presenting clear and straightforward questions. All these factors assisted in ensuring the validity of the collected information.

## **2.9 ETHICAL CONSIDERATIONS**

The researcher obtained consent (permission) to undertake the research study from the relevant authorities, being the South African Civil Aviation Authority which in turn allowed all regulated companies to participate in this study, by virtue of the SACAA's overall oversight role. The participation in the study was on a voluntary basis.

All respondents signed the consent form (see Annexure D for the sample form). The researcher explained all pertinent issues as per form and all the respondents agreed to the content and returned consent forms in good time.

All the respondents were informed of the reason for the study and what it aimed to achieve. In the process, no respondents were harmed either physically or emotionally, since the researcher made sure to ask questions in a clear manner, with no judgments being made or any expressions of disputing or disagreeing with information provided by each respondent. All the information gathered was handled confidentially with the assurance of guaranteeing the anonymity of all the respondents.

Once all the data was collected and analysed, the researcher wrote up the findings and recommendations as accurately and objectively as possible.

The data collected was disseminated and collated without the person's information, meaning the data was treated as in its "raw" form and then analysed accordingly.

Another aspect of ethical considerations was the translation of data into percentage points rather than numerical representation by way of saying: 'one or two responders out of 30 said....'. This was an extra measure ensuring complete anonymity of respondents. Since the industry is very small, that way of analysing or presenting the data may lead to wrong interpretation or possible mistaken identification of specific individuals based on such presentation of results, hence the use of percentages rather than specific numerical breakdown.

The UNISA Code of Ethics was, as a matter of course, adhered to at all times in order to maintain the quality, confidentiality and anonymity.

## **2.10 CONCLUSION**

This chapter dealt with the research methodology as used and applied by the researcher in the field. The research design and approach were discussed and explained. Data collection, the interviewing process, as well as the data analysis process were discussed in order to ensure validity and reliability.

The researcher found the interview process to be very stimulating for both the interviewer and respondents, since several respondents commented that the questions asked during the interview, had made them re-think their strategies and measures currently in place.

The choice of a qualitative rather than a purely quantitative method was, in the opinion of the researcher, the correct choice with the in-depth, one-on-one interviews yielding detailed data and insights that would not be achieved by any other means. That fact that the researcher has a professional relationship with most of the respondents, as well as his professional background and experience in this field of expertise, greatly assisted to achieve the correct data input required.

The fact that the researcher has been involved in the industry for the past ten years, also greatly assisted and simplified the process. The kind of information obtained and the unrestricted access and openness the researcher was granted, led to a better insight and an in-depth examination of the topic at hand.

All challenges were handled in a timely and professional manner and in most cases, the simple solutions worked best and as the researcher became more proficient with the interview techniques, as well as data analysis, the process became more straightforward and quicker. Interview hints as per Seidman (1998: 63-77) and Holstein and Gubrium, (1995: 46-47) were considered and followed.

The following three chapters emanate from parts of the literature review process and deal with the prevailing international legislation; Chapter 3 deals with the formation of ICAO and the establishment of ICAO's various conventions and regulations. Chapter 4 expands on the TSA as well as detailing USA and EU regulations. Chapter 5 then deals with the local South African regulations pertaining to air cargo security as well as explains in brief the threats to air cargo security.



## **CHAPTER 3**

### **INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) AND INTERNATIONAL AVIATION SECURITY REGULATIONS**

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#### **3.1 INTRODUCTION**

This chapter will detail the foundation of the International Civil Aviation Organization (ICAO), as well as the development of its legal instruments, which impact on each member state. In the following chapters, the measures the USA, the EU and South Africa took to comply with such framework will be explored.

The South African regulations, as well as the USA and the EU regulations will be examined and compared, thereafter the following chapters will also touch on some of the events that caused shifts in legislation. When both the international legal framework and the threats to AVSEC in general and those coming via air cargo security are understood, can the approach that South Africa took in promulgation of its own rules and regulations in respect of air cargo security be fully appreciated. The impact, which such regulations had and continue to have on the freight industry in South Africa, will then be explored.

In order to fully comprehend the current international legal framework in relation to aviation and cargo security, the root causes that necessitated these international and national rules and regulations need to be explored.

According to Buzdugan (2005: 3), in the wake of the 11 September 2001 (commonly referred to as 9/11) attacks on the USA, there occurred an “overemphasis on passenger air travel security, [with] ...the air cargo system [potentially becoming] the prime focus for terrorists” because of the perceived ‘softer’ security measures applied to the latter. As a result governments have implemented both technological and operational actions using diverse regulatory methodologies. These methods are aimed at tackling the apparent security risks in the air cargo industry.

For example, an event such as the 11 of September 2001 attacks leads to changes and new developments in terms of such laws. An event in the USA or in South Africa will have a similar global effect on the approach that AVSEC experts take in drafting laws to counter such events from reoccurring.

### **3.2 INTERNATIONAL REGULATORY FRAMEWORK**

Currently a number of international conventions and treaties regulate the various security measures and standards for the inspection of all cargo goods and the movement of air travellers. These are largely governed and overseen by international organisations affiliated to the United Nations (Minnaar 2003:12).

For air ports-of-entry the applicable organisation is the International Civil Aviation Organisation (ICAO). There are a number of conventions applicable to ICAO. These typically set out the compulsory regulatory frameworks and standards to which international airports must adhere to if they seek recognition and certification as international entry and exit points (Minnaar, 2003: 12).

### **3.3 INTERNATIONAL AVIATION AND CARGO SECURITY**

According to Minnaar (2003: 12), governments have since the early years of air travel found international aviation security to be somewhat problematic. In 1910 the very first conference “for the creation of an international air code law” took place in Paris (Minnaar, 2003: 12). After World War I, aviation quickly advanced technically and the era of international air travel begun. However, governments soon realised that air travel needed to be planned and organised on an international level.

According to Minnaar (2003: 13), at the 1919 Paris Peace Conference 26 of the 32 Allied and Associated Powers supported the first International Air Convention. This Convention also established the International Commission for Air Navigation (ICAN) which was mandated to: “oversee developments in civil aviation”. However, after only slow growth in international air travel in the inter-war period World War II provided the impetus for renewed growth and development. In November 1944, an International Civil Aviation Conference was hosted by the USA in Chicago. It was at this conference that the Convention on International Civil Aviation (the so-called Chicago Convention) was drafted and endorsed by 32 states (Minnaar, 2003: 13).

This Convention was the first comprehensive international aviation regulatory framework dealing with “all aspects of civil aviation from passenger safety to technical aspects of flying” (Minnaar, 2003: 13). In addition, it put in place the permanent International Civil Aviation Organisation (ICAO) which came into operation in April 1947. Furthermore, in October 1947 ICAO became a specialised agency of the UN linked to the Economic and Social Council (UN ECOSOC). The main objective of ICAO being to secure “international co-operation and the highest possible degree of uniformity in regulations and standards, procedures and organisations relating to civil aviation matters” (Minnaar, 2003: 13).

### **3.4 INTERNATIONAL CIVIL AVIATION ORGANISATION (ICAO)**

According to Minnaar (2003:13) the early work of ICAO dealt mainly with “technical matters ranging from air traffic control to international air navigation, registration, and aeronautical maps and charts”. At a later stage aircraft and passenger safety became included in its technical responsibilities. With reference to this aspect was the “inspection of goods and baggage ...required to protect aeroplanes in flight from carrying dangerous goods like explosives, which might pose a threat to air safety” (Minnaar, 2003: 13).

The International Standards and Recommended Practices, Security (Safeguarding International Civil Aviation Against Acts of Unlawful Interference) document, labelled as Annexure 17 of the Chicago Convention, specifies the safety processes necessary at any airport, inter alia “securing of the apron area, boarding gates and baggage handling areas, and baggage and passenger screening functions” (Minnaar, 2003: 13).

As a signatory to the Chicago Convention, South Africa set up its own Civil Aviation Authority (CAA) making it the responsible agency to regulate all operators at any airport nominated as an international port of entry and ensure they comply with all Annexure 17 security requirements and safety measures. These standards apply to all airport users, namely: “airlines, maintenance and technical staff, caterers and agents or freight forwarders” (Minnaar, 2003: 13).

### **3.5 INTERNATIONAL CIVIL AVIATION ORGANISATION INITIATIVES**

The central aim of ICAO, as a specialised agency of the UN, is outlined in the preamble to the Chicago Convention, namely: “the future development of international civil aviation can greatly help to create and preserve friendship and understanding among nations and peoples of the world, yet its abuse can become a threat to general security” (Buzdugan, 2005: 15).

According to Buzdugan (2005: 15) under the Convention, a major objective of ICAO is to “ensure the safe and orderly growth of international civil aviation throughout the world” and to “meet the needs of the peoples of the world for safe... air transport.” Accordingly, a core responsibility of ICAO is the international regulating of a variety of technical aspects of international civil aviation, particular providing support for the total safety and security of all air travel in the civil domain (Fitzgerald, 1976: 47 & 52).

At the 1944 Chicago Conference, those governments attending had also made a decision that technical standards needed to be harmonised internationally. As a result ICAO was duly authorised draft and set standards. For example: the licensing of aircraft, airworthiness certification, registration of aircraft, international operating standards, and airways and communications controls (Buzdugan, 2005: 15).

According to Dr Michael Milde, former head of ICAO’s Legal Bureau, the Chicago Convention created ICAO as “an international organization with wide quasi-legislative and executive powers in the technical regulatory field and with only consultative and advisory functions in the economic sphere.” (Milde, 1984: 119).

Since its foundation, ICAO has implemented a number of International Standards and Recommended Practices (SARPS), standardising safety, security, and navigation in air transportation. The ICAO standards are obligatory, unless a signatory formally indicates their inability to implement them, and all are encouraged to act in accordance with these practices for their overall advantage for the optimal functioning of an international system of standards in civil aviation (Giemulla & Weber, 2011: 14).

According to Abeyratne (2010: 16), a number of additional conventions dealing in more detail with the more recent threats to aviation security, namely: hijacking and terrorism, were implemented under the auspices of ICAO. These are the Tokyo Convention (1963), The Hague Convention (1970); The Montreal Convention of 1971, The Montreal Protocol of 1988, (which expands on the provisions of the 1971 Montreal Convention) and the most recent one, the Montreal Convention of 1991 (this one is most relevant to this study's focus in that it lays out the instructions for the prevention of the "manufacture, possession and movement of unmarked explosives" (Abeyratne, 2010: 237). [All these will be discussed in more detail below].

Although these Conventions are seen as "major legal tools in addressing terrorist acts against aviation" they are only applicable to signatory member states. A number of the 188 ICAO member states have failed to ratify all of them, "particularly the convention on plastic explosives" (Abeyratne, 2010: 237).

In the aftermath of the 1983 shooting down by Soviet fighter planes of Korean Airlines Flight 007, ICAO implemented Article 3bis. This article "prohibits the use of weapons against civilian aircraft as a codification of customary law" (Trapp, 2011: 168).

A major step forward in aviation security was the adoption in 1974 by ICAO of Annexure 17 to the Chicago Convention. Annexure 17 (usually shortened to Annex 17) draw on several of the requirements of the Tokyo, Hague and (both) Montreal conventions. In addition, Annexure 17 made it obligatory for signatory states to set up a government agency for to regulate a "national civil aviation security program, with the aim to prevent the presence of weapons, explosives, or other dangerous devices aboard aircraft." Annexure 17 requires, *inter alia*, the "checking, and screening of aircraft, passengers, baggage, cargo and mail" (Abeyratne, 2010: 217, 230 & 237).

A further comprehensive review of the above-mentioned conventions follows in the sections below.

### **3.5.1 The Tokyo Convention**

The Convention on Offences and Certain Other Acts Committed on Board Aircraft (branded as the Tokyo Convention since it was signed in Tokyo, Japan, on 14 September 1963) and came into effect on 4 December 1969. This convention (ICAO 1963) stipulates that “the state of registry is competent to exercise jurisdiction over offenses committed aboard an aircraft when it is in flight, on the surface of the high seas, or in any other area outside the territory of any state” (Alemán, 2008: 68).

The Tokyo Convention was initially envisioned to address offences committed on board an airliner in general, and did not centre specifically on hijacking. The value of this Convention was to place the airplane (that might have been hijacked in another country) under the jurisdiction of the State where an airline is registered for any offences (including hijacking) committed on-board an aircraft wherever such offences are committed. Furthermore, according to Article 11 of the Tokyo Convention, the country in which a hijacked airliner is forced to land – if a signatory to the Convention – is obliged to “take all appropriate measures to restore control of the aircraft to its lawful commander”, to “permit its passengers and crew to continue their journey as soon as practicable” and then to ensure the safe return of the airplane and its freight to the lawful owners/company as soon as possible (Abeyratne, 2010: 217-221).

However, the Convention applies only “to offenses committed by a person who is on board the aircraft, thereby omitting acts or offenses committed by persons such as saboteurs who remain on the ground” (Alemán, 2008: 68).

According to Abeyratne (2010: 223) the Tokyo Convention fully recognised the difficulties of identifying all the threats to the security of an aircraft, but was criticised from various quarters for not having included a far more comprehensive approach to address all the potential threats to aircraft security. Nor did the Convention outline a clearer obligation by signatories to prosecute or extradite offender(s). Article 16 of the Convention also clearly stipulated that there was no duty or compulsion on a signatory state to extradite a hijacker. It was also notable that the Convention did not pronounce hijacking as an international crime/offence.

In addition, the Tokyo Convention's relevance is "limited to unlawful acts committed on board an airplane 'in flight', and covers only acts committed when all its external doors [of an aircraft] are closed following embarkation until the moment when any such door is opened for disembarkation" (Abeyratne 2010: 226). Accordingly implied in this omission is that an "act of sabotage that occurs prior to the departure of the aircraft does not fall within" the scope of the provisions of the Tokyo Convention (Abeyratne 2010: 227). Nonetheless, despite its limitations, the Tokyo Convention put forward the legitimate basis for ensuing inter-state agreements for dealing with incidents of air hijacking (Abeyratne 2010: 226-228).

### **3.5.2 The Hague Convention**

The Convention for the Suppression of Unlawful Seizure of Aircraft (The Hague Convention), (ICAO 1970) which is also known as the 'Hijacking Convention', was signed in The Hague on 16 December 1970, and came into force on 14 October 1971. In effect the Hague Convention was ICAO's response to the spate of terrorist attacks against aircraft in the late 1960s. It was also an attempt to classify and define these as unlawful actions (international criminalisation) (Abeyratne, 2010: 230).

The Hague Convention described the unlawful seizure of aircraft "as a separate offense." It further obligates signatory states "to punish or to extradite offenders and also provides for coexisting jurisdiction over the offenses covered and makes these offenses punishable by severe penalties" (Alemán, 2008: 69). In other words joint jurisdiction for prosecution would reside in the country where an airline is registered and with the country where the offence occurred or the aircraft "with the offender still on board" landed (Alemán, 2008: 69).

This Convention was a significant breakthrough in the combatting of aircraft hijacking while simultaneously making the "unlawful seizure of an aircraft by force or threat thereof or by any other means of intimidation ...an international offense" [sic] – a term considerably 'weaker' than the inserted term 'international crime.' However, the most significant new emphasis in the Hague Convention was that of making the prosecution or extradition of offenders a compulsory compliance for all signatory States (Abeyratne, 2010: 232).

In addition, the Hague Convention placed an additional three core obligations on signatory States. Firstly, they were compelled to make in their national legislation the offence – as defined in the Convention – punishable by “severe penalties”. Secondly, that signatory States had to formally claim their jurisdictional authority over the committed offence(s) since it was not automatically established by the Convention. Such jurisdictional authority was applicable only to the following States: “...the State of registration of the aircraft; ...the State in which the aircraft lands with the offender on board; [and] the State of the principal place of business or permanent residence of the lessee of the aircraft” (Abeyratne, 2010: 232). Finally, if a signatory State makes a decision “not to extradite the offender, it must prosecute [the offender] in the same manner as it would for any offense of a[n equivalent] serious [criminal] nature within [such] State” (Abeyratne, 2010: 232).

Abeyratne (2010: 236), also mentions that by compelling signatory States to either prosecute or extradite, the intention of the Hague Convention was clearly to encourage signatories to introduce criminal proceedings against hijackers, which would then thereby hopefully reduce the number of ‘safe haven’ countries (Abeyratne, 2010: 236).

The Hague Convention has been criticised for its failure to unpack in greater detail the term ‘severe penalties’. In effect this would mean the application of differing penalties according to each signatory State’s internal legislation. Accordingly, the Convention was not able to set a uniform structure of offender prosecution and standard set of penalties or sanctions. In addition, the Convention did not deal with the issue of pre-flight acts of terrorism (Abeyratne, 2010: 236).

### **3.5.3 Montreal Convention of 1972 and the Montreal Protocol of 1988**

In 1971, in an effort to remedy the identified shortcomings in The Hague Convention, as well as in response to the rise in acts of sabotage against aircraft, ICAO drafted and submitted to all signatory States the Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation (also known as the Montreal Convention or the ‘Sabotage’ Convention (ICAO, 1971). This particular Convention, signed in Montreal, Canada, on 23 September 1971, came into force on 26 January 1973. (Abeyratne, 2010: 237).



The Montreal Convention treaty deals with sabotage and armed attacks against international civil aviation facilities and compels signatories to comply to the same set of responsibilities and actions as for The Hague Convention stipulated offence/ international crime of hijacking, namely strict penalties/sanctions, extradition, jurisdictional competency) (Alemán, 2008: 69).

Furthermore, the Montreal Convention of 1971 focuses on a number of issues regarding airport security and pre-flight sabotage of an aircraft, inter alia the following to be offences:

- “Acts of violence probable to compromise the safety of an aircraft”;
- “Destruction of or severe impairment to an aircraft or air navigation facilities”;
- and
- “Communication of false information that threatens the safety of an aircraft” (ICAO, 1971)

According to Buzdugan (2005: 20), in various matters, the Montreal Convention of 1971 is comparable to the Hague Convention. For example, under both conventions, signatory States are compelled to severely sanction (punish with penalties) the offences as defined in this (and preceding conventions) and must take “such measures as are necessary” to establish their authority (jurisdiction) over the offenders and the punishable offence (Buzdugan, 2005: 20).

The Montreal Convention, similarly to the Hague Convention, was criticised for its lack of clarity and for not distinctly describing the meaning, applicability and enforcement of the terms: ‘severe penalties’ that are stipulated for application to prosecuted and convicted perpetrators of aircraft hijackings (and other offences against civil aviation) (Buzdugan, 2005: 20). Furthermore, the use of the terms ‘severe penalties’ did not in either of the Conventions imply compulsory prosecution or extradition, but rather only an “obligation to present the case to the appropriate authorities [and that they] ...decide, at their discretion, whether prosecution is appropriate”. With reference to ‘prosecution of extradited offenders’ there was clearly no standardisation across the various signatory state jurisdictions. Furthermore, the

lack of a binding definition of the term 'severe penalties' has allowed, in some cases, certain States to side-step and not apply 'severe punishment(s)' to detained hijackers (Abeyratne, 2010:241).

After a series of bombings that occurred at the Frankfurt, Tokyo, Rome, Munich and Vienna airports, ICAO adopted the 'Protocol for the Suppression of Unlawful Acts of Violence at Airports Serving International Civil Aviation, Supplementary to the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation'. This addendum Convention further extended the provisions of the 1971 Hague Convention directly to the physical site of airports. This new Convention made it a punishable offence internationally of any sabotage or act of deliberate damage to facilities perpetrated at airport sites worldwide (Abeyratne, 2010: 242).

#### **3.5.4 The Montreal Convention of 1991**

Resulting from the bombing, caused by plastic explosives concealed in hold luggage, of the Pan Am Flight 103 that occurred over Lockerbie, Scotland, in 1988, the UN Security Council approved Resolution 635 of 14 June 1989. This UN Resolution called on ICAO "to intensify its work... on devising an international regime for the marking of plastic and sheet explosives for the purpose of detection" (Milde, 1995: 157).

Soon after this 'ultimatum' ICAO, in 1991, had submitted to its member States a draft of a new convention, the Convention on the Marking of Plastic Explosives for the Purpose of Detection (ICAO, 1991). On 1 March 1991 this Convention was signed in Montreal, Canada, and on 21 June 1998. According to this Convention the signatory States were required to take "necessary and effective measures" to prevent the manufacturing of "unmarked" plastic explosives, and to implement the required controls "over the ownership and movement of such explosives and destroy current stocks". The drafters of the Convention decided not to include a classification of 'plastic explosives' in the main body of the instrument but to place such classification definitions in an annexure (Abeyratne, 2010: 253). Accordingly, the Montreal Convention of 1991 requires "each state to prohibit and prevent the manufacture of unmarked plastic explosives in its territory. Plastic explosives are to be marked during the manufacturing process by introducing any one of the four detection agents

agreed upon by the international air law conference and defined in the technical annexure to this convention” (Alemán, 2008: 69).

This Convention signified an advance in terms of the advancement of international law, since it placed a clear obligation on ICAO member States not to produce unmarked plastic explosives unless they were ‘marked’ formally by a government representative at a registered manufacturing facility. Additionally, the Convention provided for a very adaptable method for amending the requirements inserted into the annexure while simultaneously recognising the sovereign rights of member States (Abeyratne, 2010: 257).

Without denying its value for being the first covenant to regulate the manufacturing and export/import of plastic explosives, this Convention was criticised for not delivering an all-inclusive resolution to a very real risk and threat (use of unmarked/unregistered plastic explosives for bombing civilian aircraft) but did represent a first step enacting into international law a legal measure to combat this threat (Abeyratne, 2010: 261).

### **3.6 ANNEXURES TO THE CHICAGO CONVENTION**

This section will discuss some of the additions, in response to certain subsequent events, to the 1944 Chicago Convention, in the form of the added specialised annexures to supplement the regulations of this Convention.

#### **3.6.1 Annexure 17**

The most significant legislative function implemented by ICAO was the creation and implementation of the Standards and Recommended Practices (SARPs) for international civil aviation. These are assimilated into the eighteen (18) technical annexures to the Chicago Convention (Convention on International Civil Aviation). These annexures emphasise the “methods [to be used to avert] and suppress all acts of unlawful interference against civil aviation throughout the world” (ICAO, 2011). In March 1974 the ICAO Council adopted the international aviation safety and security SARPs - titled ‘Safeguarding International Civil Aviation Against Acts of Unlawful Interference’ (ICAO, 2011).

The most comprehensive and important of the Safeguarding International Civil Aviation Against Acts of Unlawful Interference SARPs was the annexure [17] designated simply as 'Security'. The series of 1972 terrorist attacks on aircraft had prompted the ICAO Council to implement Annexure 17 (Buzdugan, 2005: 23).

The primary purpose of Annexure 17 is to provide civil aviation authorities/agencies in member countries with an inclusive document detailing required standards and recommended practices and procedures dealing with all aspects of aviation security (Alemán, 2008: 69).

### **3.6.2 Annexure 17: Air cargo security standards and recommended practices**

According to Milde (2008: 245), Annexure 17 reiterates and expands particular ICAO member state obligations and procedures as outlined in the Tokyo, Hague, and Montreal Conventions. According to this annexure, every Member State of ICAO must provide for the protection of passengers and crew in their own jurisdictions up until such aircraft flies out of the country's airspace. Furthermore a member state must "detain any unlawfully seized aircraft that has landed in its territory, unless its departure must be permitted by the obligation to protect human life" (Milde, 2008: 245). There is also an obligation that a member state should inform with immediate effect ICAO and the country where such aircraft is registered that it has been illegally seized. Any State whose citizens are also on board and may have been injured or killed or held hostage, must also be informed accordingly (Milde, 2008: 245).

In addition, Annexure 17 recommends that member states implement all of the following: "precautionary procedures for aircraft, airports, passengers, baggage, cargo and mail... [and] ...criteria and requirements for security personnel and responsive processes to acts of unlawful interference". It also requires that each Member State has "as its 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" (Milde, 2008: 247).

Annexure 17 further imposes on all Member States the development of a National Civil Aviation Security Programme and the creation of a governmental organisation committed to aviation security. Such agency to develop and implement appropriate

regulations. In addition, Member States must develop “a security-training platform, share aviation threat information, and otherwise co-operate with other [ICAO Member] States on their national security programmes” (Milde, 2008: 247).

In ICAO’s meaning ‘security’ represents “a combination of measures, both human and material resources intended to safeguard civil aviation against acts of unlawful interference.” (European Union (EU), 2008).

Also, under its General Principles, Annexure 17 includes a heading: “Security and facilitation” containing a recommendation for each State to organise, “whenever possible, for the security controls and procedures to cause a minimum of interference with, or delay to the activities of, civil aviation, provided the effectiveness of these controls and procedures is not compromised” (Buzdugan, 2005: 24).

### **3.6.3 Specific cargo issues as addressed in Annexure 17**

There are several standards and recommended practices focusing on air cargo security included in Annexure 17 specifically focused on “preventing explosives or incendiary devices from being loaded on board aircraft, either through concealment in otherwise legal consignments or through gaining access to aircraft via cargo handling areas”. Accordingly ICAO Member States are compelled to protect all “cargo, baggage, mail, and operator’s materials being moved within an airport” (Buzdugan, 2005: 24).

Additionally, Member States are required to operate within an acceptable security framework in order to apply suitable controls for all “cargo, baggage, mail, ...intended for carriage on passenger flights and to warrant that operators do not accept consignments of cargo on passenger flights unless their security has been accounted for by a ‘regulated agent’ or that they are subjected to other security controls” (Buzdugan, 2005: 24-25).

According to Annexure 17, a ‘regulated agent’ is defined as “[a]n agent, freight forwarder, or any other entity that conducts business with an operator and provides security controls that are accepted or required by the appropriate authority in respect of cargo, courier and express parcels or mail.” (ICAO, 2011).

In order to provide practical guidance to Member States for the implementation of more national aviation security programmes, ICAO drafted comprehensive procedures for air cargo security that were simultaneously cost-effective and practical. These were based on three core principles, namely:

1. “Imperative for aircraft to have secure operational conditions”.
2. “The subjection of every consignment to security controls allied to optimal attention given to the screening of cargo that is not easily accessed (able to be opened or viewed) prior to being loaded onto a passenger aircraft”; and
3. “Protection from interference of security-cleared cargo” (Trelawny, 2000: 22).

The appropriate security measures may be divided into two categories: active procedures for cargo clearance (e.g., use of X-ray equipment, hand searches, various detectors and sniffer dogs to identify and find any explosive devices that may have been hidden in cargo), and preventive measures, aimed at eliminating the placement into cargo of any dangerous devices or prohibited (hazardous) materials (Trelawny, 2000: 22).

The main reasoning for preventative security measures is that if the shipment was packed in a protected environment and is subsequently kept secure (protected from any interference), there is no need to examine it. That packing has occurred in a secure environment is usually accepted (certified) if done under the supervision of regular consignors, in conjunction with inspections by a regulated agent, that have a history of compliance with all the required Annexure 17 security measures (Trelawny, 2000: 22).

ICAO recommends frequent monitoring of such security systems by both the airline operator and the regulated agent by means of unplanned checks and inspections on cargo that has been security cleared. This to be done particularly to establish whether the information specified in the cargo goods consignment documentation is correct. If any anomalies or inconsistencies are found, the consignment should then be comprehensively screened or be opened, and if necessary unpacked and

physically searched. How much cargo is to be searched at random would obviously depend upon the level of identified risk or perceived (Buzdugan, 2005: 26).

While aircraft operators usually take responsibility for implementing cargo security measures this can be delegated (permissible under the ICAO Cargo Security Programme) to regulated agents. In addition, if such delegation occurs the regulated agents must also be monitored by means of inspections and supervision by the national civil aviation agency in a country. This implies that such regulated agents must also then in turn certify the security measures being practised by their clients (consignors) (Trelawny, 2000: 22).

### **3.6.4 Air cargo facilitation standards and recommended practices:**

#### **Annexure 9**

Annexure 9 of the Chicago Convention sets out the recommended procedures for air cargo entering and exiting a country.

A particular emphasis in Annexure 9 is the free (unrestrained and uninterrupted) movement of air cargo (i.e. facilitating interruption avoidance). Annexure 9 also stipulates that signatory States consult with air carriers and other parties involved when regulations and procedures are implemented or modified to ease and smooth the clearance of goods carried by air (Buzdugan, 2005: 27).

There are three main categories or classifications with reference to clearance of cargo procedures and practices, namely:

1. "Cargo inspection";
2. "A focus on information required by public authorities"; and,
3. "Streamlining of customs procedures" (Buzdugan, 2005: 27).

### **3.7 SECURITY MANUAL FOR SAFEGUARDING CIVIL AVIATION AGAINST ACTS OF UNLAWFUL INTERFERENCE**

The *Security Manual for Safeguarding Civil Aviation Against Acts of Unlawful Interference* (Document 8973 – Restricted) provides guidelines for signatory States when implementing the Annexure 17 SARPs.

This Security Manual, first released in 1971, was developed by an ICAO Secretariat study group drawn from various international organisations, namely: the International Air Transport Association (IATA); the International Federation of Air Line Pilots' Associations (IFALPA); the Airports Council International (ACI); and the International Criminal Police Organization (INTERPOL) (Alemán, 2008: 72).

Both Annexure 17 and the Security Manual (Document 8973) are regularly evaluated and modified taking into account any new emerging threats, identified new risks and also technological developments that might impact on aviation security.

The Seventh Edition of Document 8973 (2010), contains five volumes, namely:

#### **1. *National organisation and administration***

Outlines steps for developing a national legal framework and supervision accountabilities with reference to aviation security, inter alia international collaboration; implementing national civil aviation security and quality control programmes; protocols for information sharing and protection and even the use of in-flight security officers and armed personnel;

#### **2. *Recruitment, selection and training***

This volume deals with selection, recruitment, training development, training and certification of aviation security personnel as executed under a national training policy and a national civil aviation security training programme (included in such programmes is the selection and training of non-security personnel as well).

#### **3. *Airport security, organisation, programme and design requirements***

This volume is applicable in terms of organisational requirements for airport operators (and any one responsible for the design of airport infrastructure).



#### 4. *Preventive security measures*

This volume describes how security measures are to be implemented by security personnel and security operators (of for example equipment) with regard to facility/building access control, passengers and cabin baggage security screening, hold baggage, cargo and mail and security measures extended to aircraft operators (it even outlines how to deal with potentially unruly passengers).

#### 5. *Crisis management and response to acts of unlawful interference*

This outlines, for all accountable persons/entities (agency/authority, airport and aircraft operators), the plans in terms of disaster/crisis management and emergency response. This volume also offers advice regarding “threat and risk assessment, contingency plans, collection and transmission of information during an act of unlawful interference, [and for the resulting] review, analysis and reporting of any act of unlawful interference” (ICAO, 2011a).

### **3.8 CONCLUSION**

This chapter described in some detail the global drive and initiatives taken over the past decades to protect civil aviation against acts of unlawful interference. Once the risks faced by the international air travel industry were clearly understood, various conventions, and practical guidelines were formulated and implemented. The realisation that terrorism could target citizens of every state, just by virtue of their location on a specific flight or airport, led to these global regulations.

The global and far reaching consequences of a single successful attack also played a role in the drafting of these regulations. There was a sharp decline in travel after 9/11 and similar such incidents, with the public reacting to the loss of life resulting from such attacks, by avoiding what was perceived as more risky air travel.

These regulations are not final and are constantly evolving and being added to as risk and threat reviews are implemented by various agencies. The challenges all jurisdictions and agencies face are ever changing and the hope exists, that more proactive measures rather than reactive ones are put into place. It would appear that ICAO is rather slow in responding, and for lack of a better word, appear ‘soft’ in

creating or updating the various protocols. The more 'aggressive' approach that, for instance the USA or Israel employ, may be a better way to look at the appropriate countering of potential terror attacks, as it is more risk based.

In the following chapters the application of these regulations will be detailed, since ICAO set the global minimum standards, which each state is allowed to exceed.

The next chapter will also explore the regulations in the USA and the EU, as well as the co-operation between these two jurisdictions.

## **CHAPTER 4**

### **UNITED STATES OF AMERICA (USA) AND THE EUROPEAN UNION (EU) SPECIFIC REGULATIONS AND REGULATORY BODIES FOR CARGO SECURITY**

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#### **4.1 INTRODUCTION**

The following chapter will describe the initiatives, regulations and controlling agencies overseeing and implementing aviation and cargo security in the United States of America (USA) and the European Union (EU).

Seen as the leading voices and trendsetters, the USA and the EU are in the forefront of the global fight against terrorism and acts of unlawful interference with civil aviation, as such they set strict rules and regulations which impact on the destination countries into which their airlines fly.

In order to compare South African regulations to those of the USA and the EU, it is important to understand their respective regulations.

#### **4.2 AIR SECURITY REGULATIONS IN THE UNITED STATES**

As a result of a number of civil/commercial aviation incidents, notably the bombing in 1983 of Pan Am Flight 103 and 9/11, the United States emerged as the leading promoter for more stringent aviation and air cargo security measures (Buzdugan, 2005: 60).

These intensified concerns led, in 1990, to the passing of the US Aviation Security Improvement Act (Price & Forrest, 2008: 101). This law mandated the US Federal Aviation Administration (FAA), which at the time was mostly accountable for oversight of civil aviation security, to undertake the investigation and analysis of any identified weaknesses in the whole US civil aviation system. With the additional focus on air cargo security the FAA also needed to formulate and find applicable and efficient methods of explosives' detection by screening as much baggage and cargo as feasibly possible (Price & Forrest, 2008: 101 & 224).

The 1996 crashes of ValueJet flight 592 and TWA flight 800 had also initially led to the establishment on 22 August 1996 of the White House Commission on Aviation Safety and Security (known as the Gore Commission) to evaluate any identified vulnerabilities in commercial aviation (Buzdugan, 2005: 61). One of the proposals put forward in this Commission's final report (released on 19 February 1997) was that the FAA implement an all-inclusive approach to tackle the threat of explosives and other potentially dangerous devices being placed in cargo. Allied to this proposal was that the FAA collaborate with the whole aviation industry in order to develop new initiatives for cargo security (for example, full body-scan machines). To assist and drive these initiatives forward the FAA established the Baseline Working Group and the Cargo Working Group, in order to study ways to improve air cargo security (Sweet, 2009: 284).

#### **4.3 THE AVIATION AND TRANSPORTATION SECURITY ACT (ATSA)**

The disastrous terrorist attacks of 11 September 2001 on targets in the US re-introduced national interest in aviation security and led to robust regulatory responses. In November 2001 The Aviation and Transportation Security Act (ATSA) was passed. This Act removed responsibility for aviation security from the FAA and transferred it to the newly established agency, the Transportation Security Administration (TSA). The Act more pertinently mandated a federal workforce (taking such responsibility away from local and state personnel) of security screeners to undertake all screening and inspections of incoming and outgoing airline passengers and their baggage at all US airports (Elias, 2009: 74).

In terms of air cargo security, ATSA also mandated the TSA to screen all cargo and baggage taken on board any commercial passenger aircraft. In addition, ATSA stipulated that the TSA had to draw up a strategic security plan for the screening and inspecting of cargo carried on all-cargo aircraft (Elias, 2009: 93).

This growing concern regarding all-cargo security was outlined in the strategic document, Vision 100. This strategy extended "armed federal flight deck officers programme to include all-cargo pilots" (Elias, 2009: 64). In addition, the National Intelligence Reform Act of 2004 incorporated several stipulations focusing on cargo security, inter alia the setting up of a trial programme to test "the deployment of blast

resistant cargo containers, and for the encouragement of the development and use of improved more effective air cargo security technology” (Buzdugan, 2005: 62). The NIRA also required the US intelligence agencies to be involved in the analysis and intelligence risk appraisal of international air cargo threats (Buzdugan, 2005: 62).

In May 2003, another significant development in terms of air cargo security, was the approval of the US Air Cargo Security Improvement Act by the US Senate (Price & Forrest, 2008: 26). One of the foci of this Act was passenger aircraft cargo security. This stipulation compelled TSA to draw up a strategy that would ensure the screening, inspection and securing of all air cargo going on board any flight, especially commercial passenger flights. Included in this strategy was the implementation of a “system of regular inspection of air cargo transport facilities and a security training of all persons handling air cargo”. Furthermore, “all cargo operators/carriers were required to have written” security policies that also had to be submitted to the TSA for certification (acceptance and approval) (Elias, 2003: 1).

In November 2003, the TSA rolled out their new ‘Air Cargo Strategic Plan’. According to Buzdugan (2005: 62), this plan was a “multi-phased, risk-managed approach to [strengthen] air cargo security throughout the [entire] supply chain.” The Plan aimed at “the screening of all cargo shipments in order to determine their level of relative risk”; ...working [closely] with industry and other federal agencies to ensure that [all] items that are [deemed to be] of high risk are inspected; ...developing and deploying new information and technology solutions, [and] ...implementing operational and regulatory programs that support heightened air cargo security measures” (Buzdugan, 2005: 62).

In order to achieve these goals, the TSA’s strategy focused on four major components, namely:

1. “Consolidating and strengthening the ‘Known Shipper Programme’;
2. “Establishing cargo pre-screening procedures that allow [for the] identification of risk cargo through pre-screening and confirming that 100 percent of it is inspected”;

3. “Initiating “research and development programmes for air cargo”, and
4. “Partnering with stakeholders to implement supplementary measures such as improved background checks on persons with access to cargo and new measures for securing aircraft between flights” (Transportation Security Administration (TSA), 2012).

#### **4.4 THE ‘KNOWN SHIPPER’ PROGRAMME**

The Gore Commission of 1996 was also delegated the task of developing the concept of a ‘known consignor’ (Buzdugan, 2005: 68). Accordingly the FAA had drafted a detailed ‘Known Shipper’ Programme that required air carriers and freight forwarders to check on the security measures of known recurrent customers. Included was the FAA Strategy for handling cargo from both known and unknown shippers. A known shipper was considered as a person having a “proven standing of compliance and thus is ‘known’ to the industry and to the FAA” (Elias, 2003: 1).

The Known Shipper program made provision for an “air carrier or indirect air carriers (IAC, also known as freight forwarders) to transport a consignment from a known shipper with no extra screening [other than] an examination of the package exterior, while shipments from unknown shippers would be screened by X-ray or physically inspected before being placed aboard a passenger aircraft.” Freight forwarders were not permitted to simply, without doing all the security checks, accept consignments from unknown shippers. Instead, if they did not have a longstanding relationship with the shipper wanting to send off goods the regulations had to be complied with in order to ensure such shipper’s business was trustworthy (were compliant and followed the required security measures) (Elias 2003:38).

Before the 9/11 attacks, a number of cargo security investigations had been done by the Department of Transportation Inspector General (IG). The IG had found that air carriers and indirect air carriers were not always fulfilling their legal obligations under the FAA’s Known Shipper Programme. In addition, there were considerable shortcomings in the FAA’s oversight functions (Elias, 2003: 38).

As a result the oversight function for the Known Shipper Programme was redirected from the FAA to the TSA but with the continued reliance by the TSA on a risk-based tool for the pre-screening air cargo. After 9/11 a number of regulatory modifications were instituted that affected the Known Shipper Programme. For instance, only cargo from known shippers to be accepted on passenger aircrafts, while cargo from unknown shippers was not accepted but redirected to all-cargo carriers (that fulfilled all known shipper requirements) (the latter being non-passenger flights) (Buzdugan, 2005: 69).

The way in which a shipper becomes 'known' was further facilitated by the setting up of a national database of known shippers. Within five years of its establishment the TSA estimated that at least a third of air carriers and indirect air carriers in the US had voluntarily placed themselves on this database (Elias, 2010: 7).

#### **4.5 THE CUSTOMS-TRADE PARTNERSHIP AGAINST TERRORISM (C-TPAT)**

Prior to 9/11 the customs authorities were largely responsible for the clearance of imported cargo but only after such cargo landed at the US border. But as a consequence of these attacks, the cargo security programmes subsequently established in the US laid the emphasis on the pre-shipment inspection of exports and the full inspection of imported cargo (Peterson & Treat 2008).

The Customs-Trade Partnership Against Terrorism (C-TPAT) policy initiated by the US in November 2001, refers to the application of security measures along the entire supply chain. This new approach to supply chain security is firmly premised upon public/private co-operation in order to speed up the crossborder processing of correctly security cleared (lawful) consignments of goods. A core aim of the C-TPAT Programme being the 'voluntary participation' by all roleplayers in global supply chain 'best practices'. (Buzdugan, 2005: 69).

Initially participation in C-TPAT was limited to US passenger and cargo air carriers and certain foreign manufactures based in the US. But it was soon extended, on application, to selected manufacturers from Mexico, Europe, and Asia (Mento, 2004: 21).

On application, companies must undertake to not only design but also implement a comprehensive security plan throughout their supply chain to specifically prevent unmanifested consignments of goods entering their supply chain. This security on their supply chain systems includes allied security such as the physical security to safeguard all manufacturing sites, warehouse buildings and transport system (e.g. trucks and/or rail despatch yards). In particular there must be heightened focus on access controls at these sites to prevent any unlawful entry to the protected facilities (Buzdugan, 2005: 70).

In addition, applicant companies must ensure that all employees (and new applicants security verified) undergo regular security background checks. Furthermore, such companies to institute security awareness programme to all staff members with security personnel in particular being incentivised in terms of their successful implementation of security. Overall the integrity of their supply chains must be ensured at all times to prevent the introduction of any unauthorised persons and material at any point in the supply chain system (Buzdugan, 2005: 70).

To validate that all C-TPAT participants have effectively and efficiently implemented the security procedures as outlined in their submitted Security Plans, the US Customs authorities and a participant representative of the industry jointly conduct a validation process at participant company premises. Each validation is customised for the participant and usually involves an on-site appraisal of the participant's C-TPAT supply chain security profile. The results of the validation exercise are shared with the C-TPAT participant via a written report. While central to C-TPAT programme participation is the voluntary aspect of such partnerships, both parties have opportunities during the validation process to discuss issues of security but also to share any emerging best practices for the further safeguarding of the international supply chain (McNicholas, 2011: 118).

One of the advantages of C-TPAT participation is the reducing of the number of required inspections of partners' shipments (but only on the finalisation of the validation process and acceptance that implemented security measures are effective and secure) as well as the speeding up of the processing of partners' consignments (McNicholas, 2011: 119).



#### **4.6 THE CREATION OF TRANSPORTATION SECURITY ADMINISTRATION**

The Aviation and Transportation Security Act, approved by the 107th Congress and endorsed on 19 November 2001 (Sweet, 2009: 29), founded the TSA and necessitated the completion by the end of 2002 of more than 30 mandates which included the following:

- “Assuming responsibility for all civil aviation security roles from the FAA”;
- “Employing, training and positioning security officers for over 400 commercial airports from Guam to Alaska in 12 months”; and
- “Providing 100 percent screening of all checked baggage for explosives by 31 December 2002” (DHS, 2002).

In March 2003, the TSA was transferred from the Department of Transportation (together with a number of other departments, for example Border Policing and Immigration) to the Department of Homeland Security (DHS), which was formally set up by the Homeland Security Act of 2002 (Price & Forrest, 2008: 112).

In 2013, more than a decade since its formation, the TSA continues to make use of a “risk-based, intelligence-driven, multi-layered strategy to secure US transportation systems, working closely with stakeholders in aviation, rail, transit, highway and pipeline sectors, as well as partners in the law enforcement and intelligence community” (TSA, 2012).

Furthermore, with reference to aviation security the TSA works towards enhancing its “layered approach through the use of constantly updated and improved technology, expanded data analysis capabilities and enhanced understanding of current intelligence” (TSA, 2012).

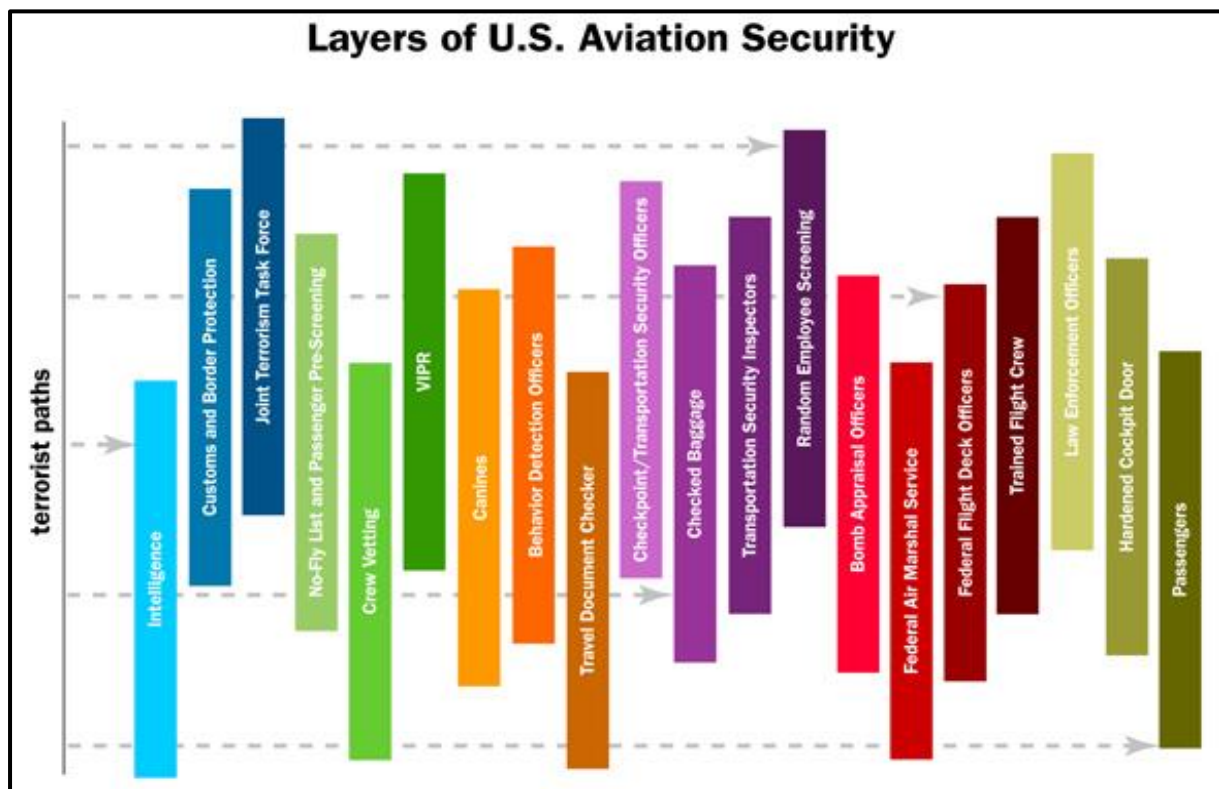
In June 2010, John Pistole was appointed TSA Administrator. He subsequently directed the TSA to improve their focus on counterterrorism measures. The TSA accordingly launched an investigation of “what works well” in order to formulate improvements to the security chain as well as to screening practices at airports (TSA, 2012).

#### 4.6.1 Layers of security

The TSA makes use of the concept 'layers of security' for their implementation of transportation security. One of these layers of security is checkpoints at airports. Other layers of security in aviation security refer to "intelligence gathering and analysis; checking passenger manifests against watch lists, random canine team searches at airports, federal air marshals, federal flight deck officers, [and] supplementary security methods" (TSA, 2012a).

Individually, each of the above security measures are capable of stopping a terrorist attack. But the multiplier effect of combining them adds immeasurably to the effective strengthening of security measures. A terrorist faced with such a combination of multiple security layers is more likely to either be deterred, pre-empted or foiled in their attempt (TSA, 2012a).

**Figure 1: Layers of US aviation Security**



(Stewart & Mueller, 2011).

The above figure illustrates the different layers of security employed by the TSA, ranging from intelligence, customs and border protection to hardened cockpit doors and various screening methods.

#### **4.6.2 Strengthening global supply chain security**

One of the primary stipulations of the Effecting of the 9/11 Commission Recommendations Act of 2007 (the 9/11 Act), is the 100 percent screening of all exiting the US cargo carried on passenger aircraft. This full screening corresponds with the screening of passenger-checked baggage and 100 percent of identified high-risk cargo on international flights destined for the United States (Sweet, 2009: 134).

The Container Security Initiative (CSI), launched in 2002 by the US Bureau of Customs and Border Protection (CBP), now an agency within the Department of Homeland Security, is currently operational in 58 foreign seaports in 32 countries, categorises and screens US-bound maritime containers that pose a conceivable threat (TSA, 2012c).

#### **4.6.3 Innovation and technology**

The use of innovative and state-of-the-art technology assists the TSA to stay ahead of any new or emerging threats focused on harming the US aviation security infrastructure. This use of technology, combined with additional layers of security aims at reducing any existing vulnerabilities. Included in these measures is the gathering of information and intelligence analysis thereof. This is supplemented by regular passenger vetting making use of so-called 'watch lists' or 'red flagging' of suspects. The use of biometrics, such as facial recognition programme, further assists the TSA in implementing more effective aviation security (TSA, 2012d).

The utilisation of technology has developed significantly in the years since the TSA was delegated responsibility for all airport and aviation security in the US. Most people remember the walk through metal detector, which still performs a significant role at checkpoints. However, there is now a new crop unfamiliar machines at local airports. Below are some examples of the new technologies being deployed as part of aviation security:

- Advanced and new biometrics systems;
- Bottle liquids scanners;
- CastScope (the screening of casts and prosthetics);
- Explosive detection systems (for the screening of checked or carry-on baggage);
- Explosives trace detection (using small mobile machines to detect small traces of explosives);
- Threat image projection; and
- Imaging technology (at checkpoints) (TSA, 2012d).

## **4.7 AIR CARGO SECURITY**

This section will detail the TSA's specific efforts aimed at securing and safeguarding air cargo security in the USA and abroad.

### **4.7.1 Overview**

TSA's transportation security system for air cargo is divided into two distinct programme areas:

1. "The Office of Security Policy and Industry Engagement Air Cargo Division"; and
2. "The Office of Security Operations" (OSO).

The Security Policy and Industry Engagement Air Cargo Division and the Security Operations sections are respectively charged with the "strategic development of programmes" and with "programme compliance". The Air Cargo Division is responsible for working across TSA, Department of Homeland Security and other governmental agencies (domestic and international) to "develop air cargo regulations, technological solutions and policies that constantly improve the security of the air cargo supply chain while maintaining TSA's commitment to ensure the flow of commerce" (Price & Forrest, 2008: 389).

The TSA's concept for air cargo security is the further development layered security allied to the use of intelligence gathering and analysis and technology-based

solutions (TSA, 2012e). In response to potential threats to air cargo security, the TSA employs a multi-layered methodology that includes:

- “Scrutinising companies that distribute and transport cargo on passenger aircrafts to confirm they meet TSA security standards”;
- “Creating a structure to enable Certified Cargo Screening Facilities (CCSFs) to actually screen cargo using appropriate screening approaches and technologies”;
- “Utilising random and risk based assessment to classify high-risk cargo that necessitates increased examination”, and
- “Reviewing industry compliance with security directives through the utilisation of TSA examiners” (TSA, 2012f).

#### **4.7.2 Programmes and initiatives within air cargo security**

On 3 August 2007, Pres. George Bush endorsed into law the Effecting of the 9/11 Commission Recommendations Act of 2007 (9/11 Act) P.L. 110-53 (2007). This legislation stipulated that, within three years, the Secretary of Homeland Security was to establish a structure that would enable the aviation industry to screen 100 percent of all cargo transported on airplanes. This screening to be on a par with the security screening already being implemented for all air passenger baggage (Sweet, 2009: 33 & 134). In addition, the Act set a provisional target, to be reached within 18 months of enactment of the Act, of a 50 percent screening of all cargo conveyed on passenger planes (TSA, 2012f).

The effect of the 100 percent screening requirement meant that all cargo was to be screened using the piece-by-piece method before being loaded onto an airplane and then only in accordance with TSA approved processes and systems (TSA, 2012f).

Among the TSA efforts to meet the 100 percent screening condition are initiatives throughout the supply chain to empower the industry to meet this requirement, including such initiatives as the “Narrow-Body Cargo Screening, [the] Certified Cargo

Screening Programme (CCSP), [the] Indirect Air Carrier Screening Technology Pilot Programme, [and expanding] [i]nternational [c]ollaboration” (TSA, 2012f).

#### **4.7.3 TSA proposal to escalate 100 percent screening**

In an effort to escalate the level of screening for air cargo carried in the USA the TSA instructed passenger air carriers to increase screening from 50 to 75 percent by 1 May 2010 specifically to try and meet the 9/11 Act 100 percent screening requirement deadline of 1 August 2010 (Sweet, 2009: 33 & 134).

But the deadline was not met and in May 2012, the TSA reset the deadline for 100 percent screening(including the screening for explosives) by passenger air carriers to the 3 December 2012 (TSA, 2012g).

#### **4.8 CERTIFIED CARGO SCREENING PROGRAMME (CCSP)**

The 9/11 Act also stipulated that from 1 August 2010 all cargo shipped on passenger planes be screened for explosives (Sweet, 2009: 33 & 134).

This requirement, together with the obligation for full 100 percent screening of all passenger baggage and air cargo, meant that every consignment of cargo transported on passenger aircraft, would have to be physically screened at piece level, before being loaded onto any passenger aircraft. Skids and pallets (onto which goods are packed) will have to be taken apart, screened and reconfigured. The 9/11 Act particularly classifies the types of screening that would be acceptable, namely physical inspection and the use of various technologies (TSA, 2012h).

To enable the industry to comply with the 100 percent screening requirement the TSA established the Certified Cargo Screening (CCSP) Programme (first phase pilot being launched in 2008). The Programme allowed for freight forwarders and shippers to pre-screen cargo prior to the delivery of the cargo at an airport, i.e. in a shipping agent warehouse and not specifically at an airport cargo receiving point. Most CCSP shipper participants have been able to speedily integrate physical screening into their shipping process at a trivial cost to their operation (TSA, 2012h).

**Chart 1: Certified Cargo Screening (CCSP) Programme participants:  
December 2012**

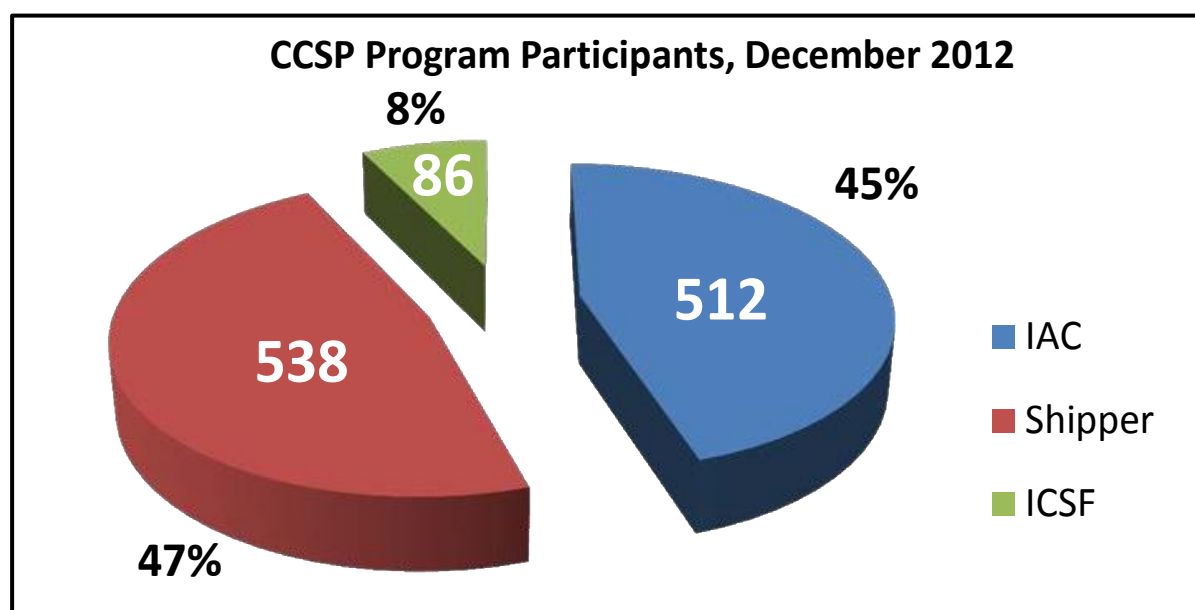


Chart 1 above describes the demographic breakdown (in 2012) of the CCSP participants, where 47 percent are shippers, 45 percent are indirect air carriers and Eight percent are independent cargo screening facilities (TSA, 2013).

#### **4.9 THE EUROPEAN UNION**

This section will deal specifically with the EU's efforts to counter terrorism and acts of unlawful interference with civil aviation. EU members took further the initiatives undertaken by the International Civil Aviation Organization (ICAO) by accepting, in the late 1970s two multilateral instruments, namely: the European Convention on the Suppression of Terrorism, and the Bonn Declaration of 1978

##### **4.9.1 The European Convention on the Suppression of Terrorism 1977**

The European Convention on the Suppression of Terrorism, specifies that hijacking is not to be treated as a 'political offence', and further aimed to enforce the extradition of hijackers and not allow States to deny an extradition request on the basis of "political grounds" (Elagab & Elagab, 2007: 583). In other words this Convention looks to ensure that "perpetrators of acts of terrorism do not elude prosecution and punishment by negating the power of Contracting States to invoke

the political offence with the exception in the case of hijacking and thus, refuse extradition of perpetrators” (Elagab & Elagab, 2007: 593-594). Furthermore, several offences are stipulated in Article 1 of the Convention that should not be considered as “political offences for the purposes of extradition.” However, in Article 5, the European Convention permits an extradition to be refused if such government has “substantial ground for believing that the request for extradition had been made in order to punish a person for, *inter alia*, his/her political opinions” (Buzdugan, 2005:43).

According to Buzdugan (2005: 44), some critics of the European Convention claim that it has various shortcomings. One being that Article 13, allows a State, “at the time of signing or ratifying the Convention, to reserve the right to decline extradition with respect to any of the offences listed in Article 1, if that State unilaterally believes the offence prompting the extradition request to be politically inspired” (Raven, 2004: 8). Another one being that the Convention does not provide for an enforcement method other than the submission of disagreements to arbitration (Raven, 2004: 8).

#### **4.9.2 The Bonn Declaration on Hijacking of 1978**

On 17 July 1978, the heads of state of the G-7 issued a consensual declaration that outlined their governments’ resolve to take action against any nation refusing to accept their international responsibilities following a hijacking (Buzdugan, 2005: 43). This declaration statement of intent, though not a treaty *per se*, employed robust language echoing the signatory governments’ stated intent to “immediately terminate all flights to or from any State that fails either to return the hijacked aircraft or to prosecute or extradite a hijacker” (Alexander & Sochor 1990:103).

The intended sanctions to be imposed by the Bonn Declaration signatories raised a number of legal issues. Firstly, there was a presumption that the obligation defined in the Tokyo and Hague Conventions to “return aircraft and to extradite or prosecute hijackers”, had become entrenched (precedent setting) in international law and thus binding on all States, irrespective of whether they are signatories (parties) to those specific conventions. At the time of the Bonn Declaration this assumption was considered contentious but in more recent times it has generally become



internationally accepted that “aerial terrorism is prohibited under customary international law” (Alexander & Sochor 1990:104).

A further legal issue emanating from the Bonn Declaration was whether, by stipulating specific sanctions, the signatory governments (G-7 countries) would be “in violation of their international obligations under the Chicago Convention, the Transit Agreement, and any applicable bilateral air service agreements”. It follows then that if the G-7 states were to impose the Bonn Declaration sanctions that the State that did harbour an aircraft hijacker, would be permitted to “bring the sanctioning States before the ICAO Council under the dispute resolution provisions of the Chicago Convention” (Buzdugan, 2005: 45).

In 1986 the G-7 countries had reaffirmed, in a joint statement, the principles of the Bonn Declaration, by condemning international terrorism and encouraging collective countermeasures against terrorism and those supporting in any way or funding any acts of terrorism anywhere in the world (Buzdugan 2005:46).<sup>2</sup>

#### **4.9.3 Regulatory measures regarding cargo security and facilitation**

In July 2003, the European Commission submitted to the European Parliament and Council a set of draft procedures for dealing with customs-related security issues. These measures were designed to underpin new security management model for the external borders of the enlarged EU (for example, a harmonised risk assessment system) (Buzdugan, 2005: 46).

These new plans are aimed at tightening the security around any commodities and goods crossing EU borders by including more effective and target-specific inspections. The new recommended methods aimed to address three core supply chain security issues, namely: “advance information on goods; recognition of the status of Authorized Economic Operator (AEO) to reliable traders [and] rewarding

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<sup>2</sup> Interestingly, even though the Bonn Declaration had no legal international statutory enforcement powers it was subsequently used in the early 1980s to pressurise the South African government of the time, who had formally associated themselves with it, to act against a group of mercenaries (most from South Africa) who in 1981 had hijacked an airplane to escape from the Seychelles after their failed *coup d’ état* in that country (Buzdugan 2005: 46).

them with trade facilitation benefits; setting up a mechanism for developing uniform risk-selection standards for [computerised] control” [systems] (Buzdugan, 2005: 46). To assist in the implementation of these new systems the European Commission developed set of guidelines in the so-called Customs Security Programme (Buzdugan, 2005: 46).

#### **4.9.4 Monitoring of EU Regulations 2320/2002, 622/2003, 1217/2003 and 1486/2003**

The EU Resolution 2320/2002 (on common rules in the field of civil aviation security) (approved in 2002) contains (in an annexure) detailed guidelines with reference to airport security, including access control and the requirement of 100 percent cargo screening, as well as screening of staff handling such cargo and other protection measures as applicable at any airport in the European Union (European Union (EU), 2002). Annexure 1 of this Resolution, by focusing on the issue of “cargo, courier and express parcels”, reiterates the requirement that “all cargo to be carried on passenger or all-cargo aircraft” must undergo, prior to being loaded onto such airplanes, “security controls” in accordance with the “rules” outlined in Annexure 1 (Buzdugan, 2005: 49).

Furthermore Regulation 2320 also defines a ‘regulated agent’ as “an agent, freight forwarder or other entity that conducts business with an operator and provides security controls that are accepted or required by the appropriate authority in respect of cargo.” In addition, a regulated agent must be “designated, approved, or listed by the appropriate authority and subject to specified obligations as defined by the appropriate authority” (Price & Forrest 2008:120).

In 2003 Regulation 622/2003 (on measures for the implementation of common basic standards for aviation security) was issued by the EU in support of EU Regulation 2320/2002 to promote the harmonisation and implementation of standards contained in the latter Regulation. Regulation 622/2003 detailed a “National Civil Aviation Security Programme” for EU-wide civil aviation security implementation (EU, 2003).

In 2003 the EU also issued the supporting Regulation 1217/2003 (on the establishment of National Aviation Security Programmes) to assist member states to

establish their individual National Aviation Security Programme, which also aimed at the integration of EU-wide required standards as stipulated in Regulation 2320/2002 and 622/2003, implementation of which to be monitored by the establishment of National Quality Control Programmes (EU, 2003a).

The EU regulation 1217/2003 detailed comprehensive requirements on how the National Quality Control Programmes were to be implemented and the procedures to routinely evaluate via the required monitoring measures the implementation of the National Aviation Security Programmes. Furthermore, also the procedures for reporting to the European Commission on the activities implemented by these programmes. According to this Regulation, member States must also provide the applicable authority with the required enforcement powers (EU, 2003a). In addition, National Quality Control Programmes to monitor and evaluate the following components: “organisational structure, responsibilities and resources, job descriptions and qualifications of all auditors responsible for carrying out the quality control programme, operational monitoring activities, deficiency rectification activities, enforcement measures and communications and reporting of undertaken activities relating to the aviation security requirements compliance” (Sánchez, 2009: 337).

All this implementation evaluation and monitoring of a National Civil Aviation Security Programme must be cognisant of risks and threats, as well as the “type and nature category and type of the operations, standard of implementation, and other factors and assessments which will require more frequent monitoring”. Finally the inspections of compliance can be either “announced or unannounced” (Buzdugan, 2005: 54). A last implementation requirement being that “member States must inform the Commission of best practices with regard to quality control programs, audit methodologies and auditors and the Commission must share this information with the other member States” (Buzdugan 2005:54).

Actual assessments of the aviation security programmes take place in accordance with EU Regulation 1486/2003 which designates and outlines how EU Commission inspectors are provided access to all EU airport facilities. But the EU Commission inspectors must, however, provide a minimum of “two months’ notice of an intended

inspection to the appropriate authority in whose territory the inspection is to be conducted [and] within six weeks of completion of an inspection, the Commission must communicate [the findings of the inspection in] a report to the appropriate authority". Furthermore, if the report identifies shortcomings at the inspection site the relevant EU member agency must submit a written report with an Action Plan outlining "actions and deadlines to remedy any identified deficiencies". Finally, if a site inspection has revealed a "serious deficiency, which is deemed to have significant impact on the overall level of civil aviation security in the community, the community members must immediately inform the appropriate authorities" (Buzdugan 2005:54-55).

#### **4.10 CHANGES TO THE EUROPEAN AND UNITED STATES AIR CARGO SECURITY PROGRAMMES**

##### **4.10.1 US and EU alignment of cargo security rules**

On 1 June 2012 the US Transportation Security Administration (TSA) and the European Commission approved the recognition of each other's air cargo security rules (Carey, 2012: 1). Under the terms of this agreement, which took effect on 1 June 2012, there occurred the reciprocal recognition of each other's set rules on the screening of cargo and supply chain security for all air carriers and freight shippers flying cargo and mail into or through the European Union and the USA (Clark, 2012: 1).

As a result of this joint recognition arrangement, industry was able follow a single set of security rules in moving air cargo through the 27 member states of the European Union, the USA and Switzerland. The agreement removed any duplication of procedures by harmonising and standardising them. At the time Siim Kallas, EC Vice President for Transport, had stated that it was "a big step forward and will have a major business impact ..." and would furthermore, save "several tens of millions of euros per year" (Carey, 2012: 1). Kallas, was also cited as saying that by: "[c]utting out the duplication of security procedures will mean huge savings for cargo operators in terms of time and money" (Clark, 2012: 1).

Up to that time, only five of the 27 members of the EU, namely: Great Britain, Finland, France, the Netherlands and Ireland, had endorsed the air cargo security

agreements with the US (Clark, 2012: 1). Pistole, the TSA administrator, had at the time also noted that the parties' commitment to share information would further improve security while the agreement with the EU and Switzerland would "ease the burden on industry and allow for the free movement of goods and commerce between our nations" (Carey, 2012: 1).

At the time of the reciprocal agreement shippers were annually transporting "more than one million tons of cargo by air" between the EU and the USA with a value €107 billion (\$133 million). This was "27 percent of the value of all goods exported by air" from the EU, with security costs being put at from "one to four percent of turnover, depending on the carrier's profile" while the duplication of the required security measures "for transatlantic freight account[ed] for up to one-fifth of that amount" (Carey 2012:2).

The USA-EU cargo security arrangement meant that all air carriers flying out of the EU and Switzerland would continue to apply all EU security measures but they would, by the reciprocal agreement, be in full compliance with US law. Correspondingly, cargo flying from the US into the EU and Switzerland would not be subjected to any added EU security measures at USA airports since these are now equally recognised as applicable (Anon., 2012: 1).

Prior to the reciprocal agreement the USA had mandated that cargo screening to take place at the final point of departure before arriving in the country. For example, USA-bound cargo screened in Budapest, Hungary but transferring in Frankfurt, Germany had to undergo re-screening in Frankfurt. In October 2010, the Al-Qaeda had attempted to send explosives enclosed in printer cartridges from Yemen to the USA via Dubai and the UK. Fortunately this had been thwarted by the authorities, but as a result the EU had implemented new rules requiring supplementary security controls in the cargo source country before any such cargo entered the EU (Carey, 2012: 2).

On 31 May 2012, the USA and Canada had also agreed on reciprocated recognition of their respective air cargo security measures, including the screening of cargo at the point of origin destined for any passenger airplane (Carey, 2012: 2).

At the time of the agreements the International Air Transport Association (IATA) indicated that they represented the culmination of a seven-year effort by regulators and industry stakeholders to align all international air cargo security measures. Tony Tyler, IATA Director General and CEO also stated that: “[w]e [IATA] hope that this agreement [US-EU] is the cornerstone for further alignment, especially for passenger security” (IATA, 2012).

#### **4.11 CONCLUSION**

This chapter detailed the rules, regulations and organisations charged with overseeing and enforcing AVSEC and ACSEC in the USA and the EU. The chapter also discussed the mutual recognition of air cargo security measures between the USA and the EU as agreed upon in 2012.

Since the USA and the EU have been on the receiving end of various terrorist acts and plots over the past several years, both set strict regulations to combat such terrorist efforts and plans. This research (reported on later in this dissertation) will explore the comparison between the USA and EU regulations versus those in South Africa, and seek to learn whether the South African regulations are on par or higher/lower than the US/EU regulations.

The following chapter will detail the South African local regulations, which have been implemented throughout South Africa and demonstrate the extent of compliance with ICAO and international standards.

A further comparison, which will be discussed in Chapter 6, will be made between the USA, EU and South African regulations.

## **CHAPTER 5**

### **SOUTH AFRICAN SPECIFIC REGULATIONS ON CARGO SECURITY**

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#### **5.1 INTRODUCTION**

This chapter provides an overview of the designated state agency, namely: the South African Civil Aviation Authority, which was established by the South African government to oversee all matters of civil aviation in the country.

This chapter also details the current and specific South African aviation security regulations, with an emphasis on the relevant air cargo security regulations, requirements and screening methods. It will conclude with the most recent threats to air cargo security globally including the potential risks in South Africa accordingly.

#### **5.2 THE SOUTH AFRICAN CIVIL AVIATION AUTHORITY (SACAA)**

##### **5.2.1 Establishment and organisation of the SACAA**

The South African Civil Aviation Authority (SACAA) was established on the 1 October 1998, with the enactment of the now repealed South African Civil Aviation Authority Act No. 40 of 1998. As a signatory to the Chicago Convention, South Africa is obligated to comply with all its stipulations and its establishment was in line with all the international developments of aviation security. The CAA was mandated to play the “key oversight role for aviation in South Africa in the areas of aircraft, airports, airspace, and personnel... [and monitors and supervises] the procedures followed [at] airports for the screening of passengers and baggage, for access control in terms of fencing and lighting and for the handling, packaging and documentation of hazardous substances” Generally, the CAA’s role is to oversee and ensure that “personnel and standards meet international [security] levels” [of competency] in the field of aviation safety and security (Minnaar, 2003: 20).

Prior to 1998, the Directorate Civil Aviation (DCA) reported under the Department of Transport (DoT). (Minnaar, 2003: 20). The formation of the CAA is consistent with international developments in regulating civil aviation safety. According to Minnaar (2003: 20), the impact of ICAO, IATA and other international bodies’ security

requirements on the implementation of airport and air-cargo security in South Africa should not be underestimated.

The new CAA had a Board of Directors appointed by the Minister of Transport and governs the operations of the Authority. The Board is representative of industry, management and business expertise (SACAA, 2008b).

Furthermore, the SACAA was delegated, among others, the role of: "...oversee[ing] [the] standardis[ation of] civil aviation safety and security, in line with international standards" (SACAA, 2009a).

As an agency of the Department of Transport (DoT) the SACAA's activities are directed by a performance contract signed between the Board of Directors and the Minister of Transport. Its directive, defined more fully in the South African Civil Aviation Authority Act No. 40 of 1998, can be summarised as follows:

"The Authority is mandated with promoting, regulating, supporting, enforcing and continuously improving levels of safety and security throughout the civil aviation industry. The above is to be achieved by conforming to the International Civil Aviation Authority (ICAO) Standards and Recommended Practices (SARPs) whilst considering the local context. This mandate relates to aviation safety and security oversight of airspace, airports, aircraft, operations and personnel" (SACAA, 2009b).

The administration of the SACAA has been organised along three primary responsibility levels, namely:

- i) Strategic Management (Executive Management);
- ii) Project Management (Senior Management); and
- iii) Operational (structured according to technical departments) (SACAA, 2009c).

The main function for the Executive level is the strategic direction of the organisation as well as the co-ordination of policy design. The Executive's role is to cultivate and



support positive relations with the industry and to co-ordinate the SACAA's international affairs with other bodies such as the Southern African Development Community (SADC), the African Civil Aviation Commission (AFCAC), ICAO, and other national CAAs. The Project Management level co-ordinates the technical undertakings of the key areas of supervision. For example, the Accident and Incident Investigation, Aircraft Safety, Aviation Security, Air Safety Infrastructure, Air Safety Operations Risk and Compliance. Operational level is where technical departments account to the areas of oversight applicable to their particular activities. This means that dependent on the activity, a technical department may report to a different oversight area. Within each area of oversight, the key accountabilities are to set, monitor, and enforce standards, as well as to promote safety (SACAA, 2009c).

### **5.2.2 SACAA areas of oversight**

The functions and obligations of the CAA revolve around the following six areas of oversight:

#### **1. Accident and Incident Investigation (AIID)**

The AIID “scrutinizes accidents and incidents to determine the probable cause of such accidents. The investigation philosophy will eventually result in the necessary corrective interventions being undertaken in order to prevent the repetition of similar aircraft accidents. It is important to remember that investigations are not meant to assign blame or legal liability” (SACAA, 2009c).

#### **2. Aircraft safety**

“The Aircraft Safety Division [ensures that] all aircraft that fly in [South Africa] airspace are airworthy... [responsible for the] upkeep of the civilian aircraft register, ...that civilian aircraft are maintained in accordance with requirements, oversight of Aircraft Maintenance Organisations, ...the approval of aircraft modifications and Supplementary Type Certificates... [and to determine that] maintenance engineers adhere to the applicable regulations” (SACAA, 2009c).

#### **3. Aviation security**

This refers to “...security of airports, air operators, cargo, and the safe transportation of dangerous goods, as well as the oversight of aviation security training organizations” (SACAA, 2009c).

#### 4. Air safety infrastructure

The Air Safety Infrastructure Division of the SACAA monitors and ensures that South African “airports, helistops, heliports, and airspace are safe... [and] off-airport structures that may affect the safety of air navigation [comply] with all safety standards as required by the Regulations”. The “approval of flight procedures and the licensing of Air Traffic Controllers...[and] ...the provision of aeronautical safety information to the industry” also fall within this Division’s responsibilities (SACAA, 2009c).

#### 5. Air safety operations

This division oversees “regulatory compliance and safety oversight of all Air Operators, Aviation Training Organisations, Designated Flight Examiners, Designated Aviation Medical Examiners, and Aircraft Maintenance Engineers” and is responsible for “[f]light Inspections, Maintenance of Examinations, Testing Standards, and Aviation Medical Standards” and the certification “technical safety compliance of Aviation Navigation Aids” (SACAA, 2009c).

#### 6. Risk and compliance

“Enterprise Wide Risk Management ...and risk assessments focused on the areas of Strategic Core Operational and Support Service related risk” fall within the management competencies of this SACAA Division, as well as “Client Services, Aviation Personnel Licensing and Examinations, [and] Information Management” (SACAA, 2009c).

### **5.2.3 SACAA training and certification**

The AVSEC Division of SACAA, in compliance with Part 109 (which deals with the training standards and certification of training organisations) and Part 110 (outlines the required certification of screeners) of the ICAO regulations, established a new department charged with overseeing and regulating the personnel training and certification for Aviation Security in South Africa, as per the set standards in Part 108 and Part 109, as well as certifying screeners under Part 110 of the ICAO regulations. Historically there has been a gap in that this sector was not suitably controlled and training from an Aviation Security standpoint has been disjointed (SACAA, 2009g).

#### **5.2.4 The National Safety Committee (NASC)**

The National Aviation Security Committee (NASC) is a consultative body to the Minister of Transport with respect to any safety- and security-related aviation issues. This body is sanctioned by the Civil Aviation Safety Regulations of 1981, regulation 3(1) which stipulates that the Minister shall establish a Civil Aviation Safety Committee (SACAA, 2009h).

One of the ICAO's main objectives was the creation of International Standard and Recommended Practices (SARPs) as contained in the various Annexes to the 1944 Chicago Convention (and subsequent conventions). As a signatory to the Convention South Africa is compelled to uphold and maintain these SARPs. Annexure 17, Paragraph 3.1.6 stipulates that each signatory State to set up a suitable authority to inaugurate means of co-ordinating undertakings amongst the departments, agencies and other organisations of the State involved with or accountable for diverse aspects of the National Aviation Security Programme (SACAA, 2009h).

Accordingly, the NASC's outlined objectives are to:

- “Co-ordinate the development and application of aviation security measures and procedures”;
- “Recommend and reviews the effectiveness of civil aviation security measures and procedures, commensurate with the threat”; [and]
- “Ensure that both the CAA and other pertinent agencies in the aviation industry are represented to advise on security policy”, (SACAA, 2009h).

The following government departments, organisations or parastatals have representation on the Committee:

- South African Police Service;
- South African National Defence Force;
- South African Secret Service;
- National Intelligence Agency (changed to State Security Agency: SSA);

- Department of Transport;
- Department of Provincial and Local Development;
- Air Traffic and Navigational Services Company Limited;
- Airports Company South Africa; and
- National Intelligence co-ordinating Committee (SACAA, 2009h).

### **5.2.5 The National Aviation Security Programme (NASP)**

The Civil Aviation Safety Regulations of 1981 Section 4(1) stipulates that the Director Civil Aviation Safety shall draw up an all-inclusive safety plan.

The applicable authority for security must oblige operators delivering service from the state to implement a security programme that meets the requirements of the state's National civil aviation security programme. To verify that an operator's programme does meet these requirements, operators are required to present a written copy of their security programme to the Civil Aviation Security Department for evaluation and endorsement by the Minister (SACAA, 2009i).

### **5.2.6 The National Aviation Safety Plan**

The National Aviation Safety Plan to provide for the following:

- "The establishment of a central control centre to establish communication with airport management's and air carriers";
- "Liaison with international organization concerning matters of civil aviation security";
- "Liaison with government departments concerning matters of civil aviation security";
- "Involvement of airport management's and air carriers in the application of a comprehensive aviation security committee";
- "Efficient methods of communication between all bodies responsible for civil aviation security";
- "Preventative measures in general to prevent occurrences jeopardising civil aviation safety"; [and]
- "The integration of safety plans drawn up by airport management and air carriers in such comprehensive plan" (SACAA, 2009i).

### **5.2.7 International and regional involvement**

In 2003 South Africa was chosen as a member of the ICAO Council, a move that sees the country participating at the principal forum with regards to international aviation matters. The SACAA has also been the regional leader in setting the benchmarks for management of civil aviation security issues on the continent. Since 1994 the SACAA has presented and hosted numerous regional meetings and seminars in the efforts to standardise aviation regulations and improve levels of aviation surveillance, in particular in the SADC region (SACAA, 2008b).

## **5.3 LEGISLATION**

For any entity to be organised and recognised by other institutes, either legal or civil, there must be a specific system of control or by-laws to administer and direct, as well as inform those entities about innovative and current developments in that field of operation.

### **5.3.1 Annexure 17: Security**

Annexure 17, deals broadly with the “security of airports, airlines and aircraft facilities to safeguard them against acts of unlawful interference”. As a signatory to the Chicago Convention (and all its subsequent expansions in annexures), South Africa, therefore is obliged to implement all the ICAO international instruments and related standards. Accordingly, Annexure 17, as the foundational document on aviation and cargo security, was been integrated into South African Legislation as Technical Standards in terms of Section 22A of the Civil Aviation Act of 1962 (DoT 2008).

### **5.3.2 The South African Legislation**

The South African National Aviation Security Programme (NASP) was developed to comply with the Annexure 17 Standards and Recommended Practices (SARPs) as well as being aligned with all the other aviation security provisions found in other annexes. Accordingly the South African NASP has legal standing by virtue of South African common law (as applied to situations impacting on civil aviation). In accordance with the five ICAO legal instruments, South African legislation was developed to give national legal standing for implementing the international SARPs

outlined in the ICA documents. The following, in terms of aviation security relevancy, are the primary South African aviation security-related laws and regulations:

### ***South African Civil Aviation Act (Act 13 of 2009)***

This Act provides for the setting up of the South African Civil Aviation Authority (SACAA); stipulates how the ICAO legal instruments are to be implemented in South Africa and the SACAA to oversee the control and regulation of all civil aviation in South Africa. SACAA falls under the jurisdiction of the Department of Transport. This new Act repealed and consolidated the following legislative Acts:

- Aviation Act 74 of 1962;
- Civil Aviation Offences Act 10 of 1972; and
- South African Civil Aviation Authority Act 40 of 1998) (DOT, 2011).

### ***Civil Aviation Safety Regulations, 1981***

Although this Act is mainly aimed at safety, it also regulates the implementation and functioning of a National Aviation Security Committee; the appointment of the Chief: Civil Aviation Security by the Minister of Transport, as well as the appointment of the Airport Security Officer and it outlines his/her responsibilities (DoT, 2004).

### ***Civil Aviation Regulations, 1997 as amended (SA-CATS)***

In this Act the following technical standards have impacted on AVSEC and contains the “standards, rules, requirements, methods, specifications, characteristics and procedures which are applicable in respect of all South African Civil Aviation Standards”, including the following:

- “Dangerous Goods - the conveyance of dangerous goods in terms of ICAO Document 9284.
- Accident and Incident Investigations - aviation accident and incident investigations.
- Air Cargo Security - protecting air cargo from acts of unlawful interference” (DoT, 2008).

Other Acts of Parliament which impact directly on civil aviation security are the following:

- The Criminal Procedure Act (Act 51 of 1977), [with specific reference to] “procedures on search, seizure, forfeit, arrest, detention, witnesses, evidence, and criminal proceedings in general” (Ministry for Justice and Constitutional Development, 1977).
- The South African Police Act (68 of 1995), provides for the police to maintain “law and order in South Africa”(Department of Police, 1995).
- The Defence Act (Act 44 of 1957), stipulates that the country’s armed forces are mandated for the “protecting and providing stability within South African borders” (Department of Defence, 1997).
- The Private Security Industry Regulations Act (Act 56 of 2001), regulates “all legal entities providing or performing security services” (including airport security services) (Ministry of Safety and Security, 2001).
- The Explosives Act (Act 15 of 2003), “deals with the manufacture, marking of explosives, storage, sale, transport, import, export, and the use of explosives” (Ministry of Safety and Security, 2003).
- ‘The Extradition Act (Act 67 of 1962), “lays down the procedures to be followed when South Africa receives a request from a foreign State for extradition, as well as where extradition of an individual is requested from a foreign State to South Africa, for the purpose of trial or sentencing” (Department of Justice and Constitutional Development, 1996).
- The Firearms Control Act (Act 60 of 2000) “aims to control legal firearms and to reduce the proliferation and availability of illegal firearms. In terms of this Act, all international and domestic air carriers in South Africa must apply for a licence to transport/handle firearms, i.e. provisions for lawful carriage of firearms” (Ministry of Safety and Security, 2000).

- The Immigration Act (Act 13 of 2002) “regulates anyone who enters, or remains in South Africa in contravention of this Act, or any illegal foreigner who fails to depart when so ordered” (Department of Home Affairs, 2000).
- The National Key Point Act, as amended (Act 102 of 1980), “deals with the minimum requirements of any installation (including airports) which is of strategic importance to the wellbeing of South Africa; the aim is to minimise total loss and severe damage that would critically impair the reputation, or the economy of South Africa” (Ministry of Safety and Security, 2007).
- The Post Office Act (Act 44 of 1958), “regulates the authorised Postal Company to handle mail in terms of the Chicago Convention (1944)” (Department of Telecommunications, 1997).
- The Protection of Constitutional Democracy against Terrorist and Related Activities Act (Act 33 of 2004), “contains measures to effectively deal with the prevention, investigation and combating of terrorist and related activities” (Ministry of Safety and Security, 2004).

#### **5.4 AIR CARGO SECURITY**

The primary purpose of international civil aviation security is to ensure the:

“safety and protection of passengers, crew, ground personnel, the general public, aircraft and facilities of an airport serving international civil aviation, against acts of unlawful interference perpetrated on the ground or in flight” (SACAA, 2009e).

Furthermore, this is done by means of a variety:

“measures and the positioning of various human and material resources at the international and national airport levels. The implementation of an aviation security policy is based upon the requirements of the aviation security programmes at each of these levels, for both the administrations and operators in the area of air transport. Aviation security shall be in



conformity with the principle that the level of security measures is proportionate with the assessed threat” (SACAA, 2009e).

#### **5.4.1 Part 108 and SACAA regulations of 2009**

Part 108 of the ICAO Civil Aviation Regulations was adopted by South Africa in 2008 and came into effect in South Africa as from 1 July 2009. Part 108 regulates all individuals involved in the acceptance, forwarding, storage, and carriage of cargo by air.

With the SACAA implementation of Part 108 on 1 July 2009, in terms of cargo, “air carriers will only be allowed to upload ‘known cargo’” and can only receive such cargo from a Regulated Agent (RA) who has applied the appropriate security controls and hands the cargo over to the air carrier as ‘known cargo’ (SACAA, 2009f). Furthermore, in compliance with Part 108, “air carriers are obliged to protect cargo whilst on the ramp prior to loading on board an aircraft and must also check that cargo consignments are visually inspected to ensure that they have not been interfered with”. (SACAA, 2009f).

The SACAA Regulations, following Part 108, insisted that Regulated Agents are in possession of “a certificate of approval issued by the Civil Aviation Authority [and] Known Consignors (KC) must also be possession of “a certificate of accreditation issued by the Civil Aviation Authority” (SACAA, 2009f). In pursuance of the SACAA regulations for the implementation of the Part 108 requirements a Regulated Agent had to “appoint a Designated Official (DO) ...accountable for the implementation, application, and supervision of the security controls.. [and Regulated Agents were obligated to draw up and obtain SACAA approval of a “security manual that sets out the approach in which such regulated agent will operate” (SACAA, 2009f).

Included in the duties of a Regulated Agent was the “safeguarding [of all] cargo against acts of unlawful interference... affecting security controls” (inclusive of the 100 percent screening of) “unknown cargo [and] ...ten percent of [known] cargo received from Known Consignors”. There was the further requirement that “[p]ersonnel involved in the handling of cargo or cargo documentation ...to undergo prescribed training [and must be] subjected to background checks (SACAA, 2009f).

Accordingly Known Consignors had to “pack and secure their cargo on protected premises and safeguard the cargo against unlawful interference [with the cargo consignment] ...sealed with tamper evident seals” (SACAA, 2009f).

By the end of 2009 approved Regulated Agent sites had passed the 150 mark with continued growth in entities obtaining Known Consignor status (SACAA, 2009f).

On 1 September 2012 Part 108 was extended becoming more stringent and onerous, with new technical standards being set for X-Ray machines, as well as for the sniffer dog (K9) services; training standards and various other issues. The amended Act also gave the SACAA more power to enforce these regulations.

#### **5.4.2 SACAA approved screening methods**

This section will describe the SACAA approved screening methods. In South Africa, similarly to the US and EU jurisdictions, there are several approved screening methods as per Part 108 regulations. These are the only approved screening methods, which are also audited and approved by the SACAA, namely:

- Hand search or physical check;
- X-ray screening;
- Simulation chamber;
- Technical or bio-sensory screening, using an ETD to detect explosives' vapour or traces of it; and
- the use of sniffer dogs/K9s.

Previously another ‘method’ used, referred to as screening by delaying the cargo or ‘maturing’ it. Here the idea was to delay the cargo for a period of 24 hours, hence rendering it ‘safe’. This concept was based on 1970s thinking and was no longer relevant, and was taken off the approved list (Department of Transport (DOT), 2008).

#### **5.4.3 Current technology-based screening solutions**

There are two principal classifications into which explosives detection technologies fit, namely: trace and bulk inspection.

Both types of inspection technology are presently in use or permitted for use, as communicated by the various civil aviation authorities and are discussed in this chapter.

According to Neeman and Banerjee (2011:34) trace detection is “based on the physical transport of explosives particles or vapour from the source to the inspection system, allowing the detection of the existence of explosives, without indication of size or quantity”. But using technologies such as “Non-Computed Tomography Transmission X-Ray and Explosive Detection Systems” allows for the remote bulk detection sensing of the “physical (or chemical) composition of an object [by] indicating the type and amount of explosives” present (Neeman & Banerjee 2011:34).

Electronic Metal Detection is a “bulk inspection technique that does not identify the presence of explosive substances at all, but rather looks for metal components of improvised explosive devices (IED)” (Neeman & Banerjee 2011:34).

In addition to the US, EU and South Africa, other governments and countries have also approved the use of these technologies (as outlined above) and use them for air cargo screening purposes.

According to Roder (2007: 8-9):

While passengers may endure (if not support) security measures, the same cannot be said of the air cargo industry. Cargo carried on passenger flights is packed in the same hold as passenger luggage and is subjected to the same environmental influences as checked baggage. It is therefore only common sense that aircraft are equally susceptible to improvised explosive devices (IEDs) in either cargo or checked baggage. However, this does not mean that checked baggage and air cargo should be subjected to the same security measures. Aircraft vulnerability to an IED may be the same, but cargo and checked baggage have various and different characteristics, and must therefore be processed very differently (Roder 2007:8-9).

Only ten percent of air cargo transported on passenger flights is security checked - notwithstanding the fact that it denotes 70 percent of total air cargo. Accordingly the industry as a whole needs to tackle this self-evident shortcoming and potential disaster situation. But the solution is not merely a blanket 100 percent physical screening, which is essentially counter-productive, not cost effective and far too simplistic a solution. Instead the industry needs to initiate an intelligent threat assessment response that utilises intelligence information from a variety of sources that is analysed in order to build cargo profiles that can be used for pre-emptive screening (i.e. as early as feasible). Furthermore, the industry needs to ensure that the maximum levels of screening are focused on cargo that has been evaluated as highest risk, comparable to the profiling methods that support passenger security programmes (Fernandez, 2011: 1).

### **Explosive Trace Detection (ETD)**

ETD is possibly the most prevalent worldwide of the screening technologies for air cargo used by airlines and freight forwarders. But in South Africa it is not as popular as in the rest of the world. With ETD, “samples of particles are collected from the [unpacked] pieces of cargo being screened...[they are then] ...analysed for traces of explosives or vapours which explosives may give off” (Neeman & Banerjee 2011:34).

ETDs are comparatively reasonably priced in comparison to other more expensive and advanced technologies even though they are not manufactured in South Africa. Their operations are also quick with results being obtained within a few seconds even if the whole process is labour intensive (ETDs are relatively small units and can be used in either a fixed installation or as part of a mobile operation) and takes time to apply to cargo goods being inspected (i.e. they have to be unpacked and individually scanned by the machine). Other time consuming activities associated with the ETD machines being that due to the sensitive technology used in the machines, they need to be frequently re-calibrated and are also sensitive to changing environmental conditions (e.g. variations in humidity and air pressure) (Neeman & Banerjee, 2011: 34).

### **Non-Computed Tomography Transmission X-Ray (Non-CT X-Ray)**

X-ray technology is widely accepted and there are many 'off-the-shelf' solutions readily available for purchase. Currently, there are 60 systems available from seven different original equipment manufacturers (OEMs). X-ray technologies in South Africa are the largest but also most diverse (in terms of equipment, machines and technologies) among the TSA-approved cargo screening devices/systems commonly used in South Africa. One of the advantages of using X-ray machines are their versatility in processing multiple pieces of cargo simultaneously in a processing chain/belt scanning method. By using x-ray machines it does not mean that the cargo pieces being scanned need to be unpacked. In other words a whole pallet of packed and diverse goods can be scanned by an x-ray machine big enough to accommodate the whole pallet. So it speeds up throughout in terms of quantities of cargo able to be scanned in a continuous scanning operation (although the bigger machines are more expensive). (Neeman & Banerjee 2011:34). However, efficient operation of an X-ray machine is affected by operational needs where the bigger machines typically require 2-3 operators as well as the Part 108 and Part 109, stipulation that a screener may only operate an X-ray machine for a maximum of a 20 minute stretch at a time with an enforced 40 minute layoff, hence the need for a minimum of three screener operators per eight hour shift.

Other drawbacks of using X-ray machines being their fixed siting in a specifically designated operational area (i.e. only the smaller machines being mobile or able to be wheeled/pushed to different locations). Another important restriction is the density of any materials being screened and high density materials may not provide an accurate or an x-ray image of good quality. Given this drawback in penetrating certain high density materials, X-ray technology is fully suited for screening all types of air cargo. Objects such as metal machine parts or having a high water content – which could possible generate ambivalent images that could pose difficulties for a human screening operator and could increase the false alarm rates – may therefore require screening by alternative screening technologies. In this context for optimal screening using current X-ray systems the specialised training of the operators is critical, since their interpretation of the images improves with practice and experience (Neeman & Banerjee 2011:34).

#### **5.4.4 Non-technology current screening solutions**

Technological advances in explosives detection have made significant progress over the past few years and there is much ongoing research and development in this area. However, there are two popular non-technological methods that will be discussed below, namely: physical inspection and screening by trained explosives sniffing dogs (technically referred to as canines (and abbreviated as K9s)).

##### **Physical search**

People trained to detect improvised explosive devices (IEDs) play an important role in the additional screening of air cargo, both in primary screening, as well as in alarm resolution processes. This method is labour intensive and requires careful physical inspection of the contents of air cargo shipments. In primary screening, physical inspection can be a viable alternative to technological solutions, particularly in settings where few and/or large pieces of cargo need to be examined. Aside from upfront and recurring training costs no further investments are needed and the deployment of such trained security personnel is highly mobile (Neeman & Banerjee 2011:34).

##### **Search by trained sniffer dogs/K9s**

Trained dogs can effectively detect – oftentimes more efficiently than some of the ETD technologies – the scent (vapours) of explosive materials. Sniffer dog teams (handler with a dog) are extremely mobile and are also capable of quickly and competently screen large volumes of cargo – provided the different pieces can be reached (i.e. easily accessible) by the sniffer dog. In order to sustain their full detection capabilities trained dogs need to take repeated breaks resulting in continuous screening periods of 20 to 40 minutes at the most. Environmental conditions (e.g. temperature and humidity) can also impact the effectiveness of a sniffer dog on duty. The costs of a sniffer dog programme are also quite substantial (primary and recurrent training, maintenance, trainer-related costs, etc.), but they are essentially an excellent adjunct to technological systems that might be affected by electricity load-shedding and other malfunctions periodically (Neeman & Banerjee, 2011: 34).

#### **5.4.5 Emerging screening technologies**

The urgencies and requirements for explosives' detection in air cargo may vary between countries and governmental organisations. The above-mentioned technologies used to detect explosives in air cargo consignments are not only accepted and in use in the US, EU and South Africa, but also find extensive application elsewhere. In addition, several other technologies and methods presently not accepted for use of air cargo screening in many countries have been developed and – in some cases – are used by other countries for the purpose of explosives detection in air cargo, including South Africa (Neeman & Banerjee, 2011: 34).

#### **Remote Air Sampling for Canine Olfaction (RASCO)**

RASCO is a high-tech amalgamation of technology and application dog use. In comparison to conventional screening by sniffer dogs, this method takes advantage of the acute sense of smell and detection ability of dogs. In contrast to the conventional sniffer dog screening, the sampling takes place remotely, at the cargo site, while the analysis by the dogs takes place at an analysis centre. Using small filter air samples gathered from closed cargo volumes, such as containers, trucks, unit loading devices (ULDs) or wrapped pallets. The filter collects all cargo smells and is consequently presented to dogs specifically trained in explosives' detection. The practice is comparatively rapid, non-intrusive and allows the screening of consolidated consignments without the need to unpack the goods (i.e. break it down). It is predominantly suited for the screening of large volumes of cargo and is in use at various airports both in Europe and South Africa. To achieve full potential of the system, larger and regular cargo flows are needed, since the analysis room requires a certain structure and needs to be set up on site. While the analysis room could be remote (i.e. away from where the cargo samples are taken) this would then require the transport of air samples from the cargo site to the analysis room which then need to be factored into efficiencies, quick turnaround time and costs (Neeman & Banerjee, 2011: 34).

#### **Vapour sampling technology**

The explosives detection technique via ETD technology outlined above relies on the sampling of elements that adhere to and contaminate surfaces. Alternative form of trace detection relies on the analysis of vapours, rather than particles. Vapour refers

to the gas-phase particles emanating from the explosive's surface (solid or liquid). While much of the analysis technology is the same as that used with ETDs (usually Ion Mobility Spectrometry), the sampling techniques for vapour detection are different to those applied in particle detection. Rather than wiping the exterior of the article in question, sample collection is conducted by means of air suction from an article's surface or through holes (sometimes drilled into a cargo container), chinks, and slots in its body. Sample analysis is conducted in a comparable manner to explosives particles gathered. The commercially available handheld vapour sampling apparatuses are small, extremely portable, easy to use and comparatively economical, since they work without the use of consumables (Neeman & Banerjee, 2011: 34).

Speaking at a Lufthansa-sponsored security conference, R. John Hansman, Professor of Aeronautics, Astronautics and Engineering Systems at Massachusetts Institute of Technology (MIT), proposed a "Swiss cheese" model to encourage a more comprehensive approach to cargo security. It is a layered methodology using diverse techniques; whereas one screening technique might be 80 percent efficient, it can be 99 percent+ effective when coupled with other measures/methods that have different weaknesses but also different strengths. In other words, by adding 'layers' or 'slices' to an air cargo security system, it will become almost be practically impossible (unfeasible) for offenders to find any loopholes in it (Hoffer & Beadling, 2009: 1).

## **5.5 THE CURRENT THREAT**

As mentioned in the introduction of Chapter 1, the current threat to air cargo security is real and current. The terrorist bombing attempt in October 2010 created the necessary international awareness of the very real and/or potential threats to cargo security. Described below is an account of the events.

### **5.5.1 How safe is the cargo on passenger flights?**

In reference to cargo security on passenger flights and in the aftermath of 9/11, as early as 2005. Connecticut Republican Representative in the US Senate, Christopher Shays, who co-sponsored the legislation to improve and tighten cargo security, is quoted as saying: "This [threats to aircraft via explosives planted in cargo]



is a disaster waiting to happen. We are checking luggage but not cargo? It only takes a pound or two of explosives to blow up a plane.” More than twelve years after the 9/11 terrorist attacks on the USA, detractors such as Shays, as well as industry groups, say maladministration, a multibillion-dollar price tag and pressure from airlines and shippers are hindering the US government from applying stricter air-cargo inspection regulations (Bliss, 2005: 1).

The very real possibility of explosives hidden in aircargo became a reality in October 2010. Early on the morning of 29 October 2010, the call came through to the London Metropolitan Police bomb squad. Set aside at East-Midlands Airport in central England was an UPS parcel shipped from Yemen. Inside there was a laser printer that Saudi intelligence suspected to have been turned into a bomb. Before sunrise, a bomb squad arrived on site. The plane had checked in and departed again at 4:20 am, but without the parcel, identified by its waybill number as a laser printer. Police officers examined the printer and lifted out the ink toner cartridge but discovered no explosive device. According to security sources, they also brought in specially trained bomb-sniffer dogs, as well as putting the printer through an X-ray scanner. Neither methods of examination were able to detect any explosives in the laser printer (Cruickshank, Robertson & Shiffman, 2012: 1).

This lack of detecting any traces of explosives was, in itself, a matter of great concern based on the provided intelligence information and also pointed to possible shortcomings in both detection methods used. The security ring around the area where the laser printer had been isolated was lifted. But Saudi counter-terrorism officers appealed to British authorities to re-examine the printer. When they did, they discovered 400 grams of the highly explosive PETN concealed within the ink toner cartridge. The device had been scheduled to explode hours earlier. But the bomb squad had unintentionally neutralised the device earlier when they had lifted the printer cartridge out of the printer, disconnecting the explosives from the timing device. On the same day at Dubai Airport in the United Arab Emirates another similar printer ink toner cartridge bomb been discovered hidden in a printer. Responsibility for both explosive devices was claimed by the terrorist group, al Qaeda. Both printer ink toner cartridge bombs found were some of the most

sophisticated explosive devices discovered emanating from al Qaeda (Anderson, 2012: 20).

See Picture 1 below for a combined photo collage showing the contents of a USA-bound package exhibited by police in the Gulf emirate of Dubai. Powerful explosives attached to a mobile phone detonator were exposed inside the printer's and its cartridge (Cruickshank, Robertson & Shiffman, 2012: 2).

**Picture 1: Composite picture showing the contents of a USA-bound parcel**



The 29 October 2010 bomb discoveries shocked many Western governments. Not only had these devices gone through security screenings at a number of airports without being detected. Of more concern, the devices had also been transported on passenger aircraft on the first legs of their respective journeys. But most disturbing of all, the explosive devices went unnoticed by bomb specialists in two countries, notwithstanding being right in front of them, albeit 'hidden' in seemingly innocuous printer ink toner cartridges inside a laser printer.

A few weeks after these two incidents, US Senator Susan Collins queried Transportation Security Administration chief, John Pistole, on whether the devices would have been discovered by existing security systems being used at US airports. Pistole's response to this query was a cryptic: "[i]n my professional opinion, no" (Cruickshank, Robertson & Shiffman, 2012: 1).

While extensive security efforts at airports are expended on the screening of passengers and their checked bags, about half the hold on an average passenger flight consists of freight cargo. In fact, according to the US Department of Transportation, in 2010 over a third of cargo by volume that arrived in the US came in on passenger airplanes. The US DoT estimated that proportion (a third) represents 3.7 billion tons of cargo while an additional 7.2 billion tons of air cargo came in on all-cargo aircraft (Cruickshank, Robertson & Shiffman, 2012: 2).

The screening obligations for such cargo are not as stringent as they are for passengers and their checked bags. If it took experts in Britain and Dubai hours to uncover a device that was right in front of them, what are the odds of discovering such devices amidst the millions of tons of air cargo flying into the United States each day?

### **What were the devices used?**

The bomb found in Dubai on a FedEx flight from Sana'a, the capital of Yemen, was crafted in a "professional manner" and exhibited the hallmark of terrorist groups such as Al-Qaeda. According to the Dubai police, it was concealed in the toner cartridge and case of a commonplace office computer printer and comprised of explosives and an electrical circuit connected to a mobile phone SIM card, which could have acted

as the detonator. Pictures show the cartridge of the printer laden with pentaerythritol tetranitrate or PETN, a potent plastic explosive that is colourless, odourless and is not easily detected. Sally Leivesley, a terrorism expert, said the Dubai bomb seemed to be "sophisticated" and of a scope that could have resulted in "devastation." (Sawer, Barrett, Rayment & Hennessy, 2010: 1-5)

The device discovered at East Midlands airport was similar. It had arrived on a plane belonging to UPS, the parcel carrier, in a container that had also originated in Yemen (Sana'a). Similarly the UK-discovered device also contained PETN and the printer had "cleverly hidden" cellular phone components in it (Sawer, Barrett, Rayment & Hennessy, 2010: 1-5)

### **5.5.2 The weak spot in air security: Cargo screening**

Of the approximate 7.3 billion tons of cargo carried annual on US passenger flights, about 42 percent of it comes aboard flights entering the US from overseas. Foreign governments and airline companies make use of a variety of screening techniques, "involving X-rays, chemical testing and human and canine [dog] inspections, to screen cargo" in order to prevent any bombing attempts. However, all these different methods are not equally comparable in terms of systems compatibility or standardisation of effective results (Calabresi, 2010a: 1).

For a number of years US Federal security officials have issued warnings concerning the potential risks of ineffective or 'poor' screening being done on aircraft coming from abroad entering the US. These warnings appeared to become a reality when, on 2 February 2004, three men landed at Miami International Airport on board an all-cargo airplane having bypassed the screening in a foreign country. This incident was a worrying (for US authorities) repeat of an event in 2003 where a man had shipped himself in a box on an internal (US) cargo flight. Commenting on the 2004 incident, Paul Rancatore, a security expert for the Coalition of Airline Pilots Association, said that "[t]his is more disconcerting evidence that without actual inspection of cargo, our security system will remain vulnerable" (Donnelly, 2004: 1).

While the US Transportation Security Administration (TSA) takes the word of other governments about the level of screening being conducted in their countries, a US

Government Accountability Office (GAO) report, released in June 2010, revealed that the TSA had little knowledge of how much definitive screening is being done by foreign governments. The 2010 GAO report found that: "[i]f a country requires that 100% of its cargo be screened, [the] TSA counts all the cargo coming from that country as [having been 100 percent] screened" (Calabresi, 2010b: 1).

The TSA in August 2010 missed a Congress imposed target date, set three years prior, for the commencement of the screening of all cargo freight coming into the US on passenger flights. In late June, John Sammon (of the TSA) had testified at a Congressional hearing that the TSA would miss this imposed deadline since most enforcement of international screening requirements "ultimately" depended "on foreign government cargo programs and inspectors". At the same inquiry, a GAO regulator confirmed that the TSA had only commenced gathering information on foreign screening practices earlier that month (June) (Calabresi, 2010b: 1).

Philip Baum of Green Light Aviation Security states that the present 'known consigner' system is extremely administrative and relies worryingly on trust. In other words, the shipper trusting the material specified to him by the business tendering the parcel. And the procedures in place in the UK and US are restricted to flights taking off from those countries; commodities on incoming flights, like the package from Yemen headed to the US would not have gone through these controls (Lighton, 2010: 1).

The GAO report did discover certain areas of development by the TSA: national cargo is now 100 percent screened, and the TSA asserts that at least 65 percent of inbound cargo from overseas is also screened. Further, TSA administrator John Pistole said, "Even before this incident, 100% of identified high-risk cargo on inbound passenger planes was being screened." TSA officials declined to say whether the devices, which were in printers intended to reach the Chicago synagogues from assumed Yemeni educational institutes, qualified as 'high-risk cargo' by TSA definitions (Elias, 2010: 4-5).

It is not certain just how secure so-called screened cargo really is. British officials maintain that all freight reaching their shores has been screened. TSA officials

concede that the printer bomb that landed in East Midlands, England, could have been accepted on a US-bound passenger aircraft as screened cargo (Calabresi, 2010:1).

The subject of screening has been a prickly one for the TSA, Congress, and the air-cargo industry. Brandon Fried, executive director of the Air forwarders Association, says conforming to the congressional mandate to deliver 100 percent cargo screening has cost "hundreds of millions of dollars." A great deal of the domestic screening undertaken to conform to the mandate has been done voluntarily by the air-cargo enterprises and by freight handlers (Elias, 2010: 4-5).

The TSA has created other programmes internationally and is attempting to increase the international standards for screening air cargo. But the GAO report found that the TSA still "has not yet determined how it will meet the screening mandate as it applies to inbound cargo." At the hearing in June 2010, the TSA said it would require time until at least 2013 to meet the congressional mandate. Doing so just became a lot more vital (Elias, 2010: 4-5).

There is a huge gap in aviation security, a gap so vast about one billion pounds of freight fly right through it every year, cargo on passenger aircrafts coming into the USA that never gets scrutinised. Stephen Lord, director at the Government Accountability Office told CBS News, : "[t]o the extent it is not screened, we believe that represents a potential vulnerability" (Keteyian, 2010: 1).

Lord authored an enlightening report on air cargo security published in June 2010. He found "a significant percentage" of inbound cargo on passenger aircrafts is "not required" to be screened. The report also recorded: There remains "no technology approved" to screen bulky pallets and containers in a way that meets federal standards. While the TSA approximates 65 percent of inbound freight is screened, the report found that estimations "are not based on actual data" (Keteyian, 2010: 1).

The above describes international experiences and opinions mainly relating to the USA, since the USA is often the preferred target and therefore one of the leading

voices in respect of AVSEC and ACSEC regulations. South Africa faces the same threat in principle, as an American airline, namely 'DELTA Airlines' fly directly between the USA and South Africa, several other American companies operate in South Africa and our own national carrier South African Airlines also has direct flights to and from the USA.

These factors and the threat of global terrorism places South Africa and many other states in danger from potential terrorist groups, a fact that amongst others led to the establishment of Part 108.

## **5.6 CONCLUSION**

This chapter detailed the establishment of the SACAA, its functions and responsibilities. It is imperative to understand the governing laws that the cargo industry must comply with as most respondent's replies are directly related to these regulations.

This chapter also furnishes the correct context in relation to this research and its findings. Firstly the international framework (chapters 3-4) that informs the local legal framework (chapter 5) in South Africa must be understood, as one is directly derived from the other. The various measures other countries implement and the expectancy that South Africa has to comply with their standards should be understood, without which, any country could not send cargo into those countries. Each state also audits South African regulations to ensure compliance. Those matters will also be mentioned and explored under research findings.

The above-mentioned legal framework and the international focus on South Africa by the various EU countries and the USA, coupled with our own local regulations have a direct impact on our local air cargo industry. This issue is exactly what this research aims to explore.

One also needs to understand the air cargo threat, as many people know about 9/11 or the liquid plot, but how many people are aware of the 'cartridge plot' of October 2010?

Air Cargo Security (ACSEC) was labelled by one expert as the 'the ugly step child' of Aviation Security. It is not in the 'limelight's' enough and it is correct that a cargo bomb has not been used to successfully bring down an aircraft, however, that does not mean it could not happen in future.

The attempt in October 2010 was viable and was only avoided with the hard work by various intelligence networks in place worldwide, but it was clear that the current screening methods totally failed, the parcels travelled on several aircrafts and even though the police were informed, the methods they used were inadequate to detect the explosives.

In the following chapters the actual findings of the research will be discussed in detail, as well as an analysis will also be given of current SA approved screening methods with an analysis of their pros and cons.



## **CHAPTER 6**

### **RESEARCH FINDINGS IN RESPECT OF THE DIRECT IMPACT OF PART 108 ON THE AIR CARGO INDUSTRY IN SOUTH AFRICA**

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#### **6.1 INTRODUCTION**

This chapter will detail the specific findings as derived from the interviews and data analysis process. All the answers were collated and analysed, the total number of answers or replies per developed theme were calculated and a percentage representing such reply or theme was calculated accordingly for each question. The findings are depicted in a graph or pie chart format and each finding is then discussed and explained in detail. The same question was asked of all respondents and the total replies then constituted the total (100%). Based on each reply, a formula was used to calculate the percentage of each segment.

The researcher felt that percentage rather than the number of replies will be a more appropriate way of delivering a clear result. (The reasons for this choice are also mentioned in Chapter 2)

The findings are divided into two chapters for ease of reading and follow the rational and schedule of interview questions asked during the interviews process.

This chapter will explore the direct impact areas affecting the air cargo industry in South Africa. The next chapter will explore ancillary research areas; the flow of the chapters follows the rationale of the questions asked of the respondents.

#### **6.2 GENERAL BACKGROUND INFORMATION ABOUT THE RESPONDENTS**

This section will detail some biographical information about the respondents, as the researcher deemed it important to show the depth of knowledge that the group of respondents exhibited, as well as describe the reasons for choosing these specific respondents as the sample group, representing a typical cross section of the air cargo industry in South Africa.

The first few questions centred on respondents' background and history. The following questions were asked: how many years had they been involved in the air freight industry; how many years had they been in their current position; what were their roles and responsibilities, as well as when was their first introduction to Part 108.

***Question 1: Please Describe in brief your current position in your company?  
(including role, duties and responsibilities).***

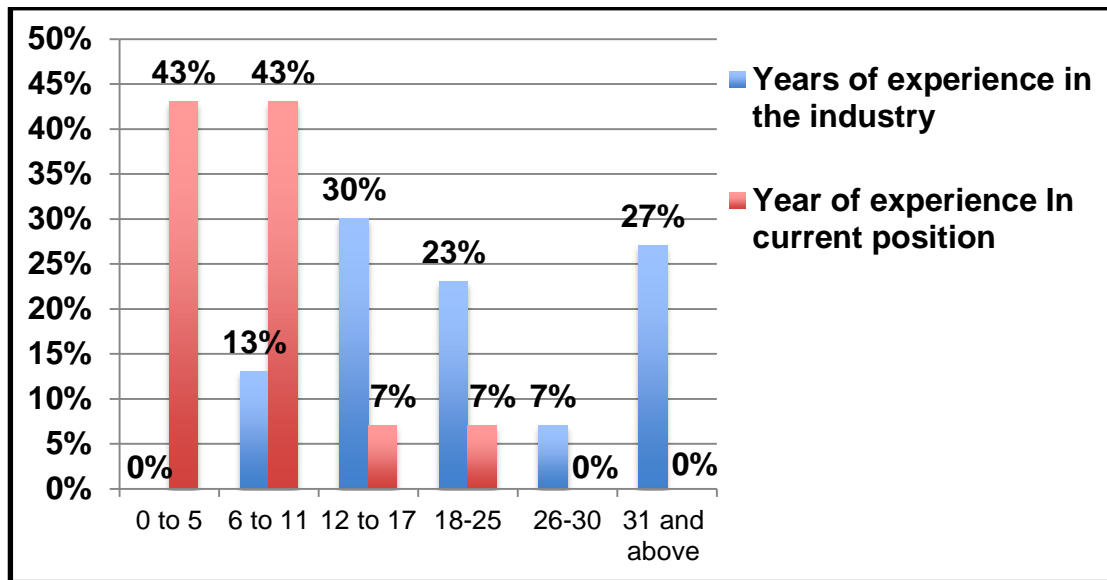
Most of the respondents hold senior positions in their respective organisations, from MDs and CEOs, to security managers, GMs, and similar management positions. All respondents have first-hand knowledge and experience in air cargo security at various levels.

Some of the respondents were on the committees drafting the regulations; some of them represented airlines or are part of the airlines themselves; others were from cargo handling companies or freight forwarding companies. They were all registered and regulated under Part 108.

It was found that most of the respondents had been tasked with implementing Part 108 for their organisations, from drafting Memorandum of Procedures (MOPs), testing and choosing screening methods to evaluating and developing processes and access control systems and in general running the day to day operations in compliance with Part 108. Some of the respondents are providing services to the various Regulated Agents, such as screening services, training or Designated Official (DO) services, while others are part of the various state entities, in charge of overseeing the correct adoption of Part 108, auditing and inspecting the various companies.

**Question 2: Please detail how many years have you been involved in the air cargo industry?**

**Chart 2: Years of experience in the industry**



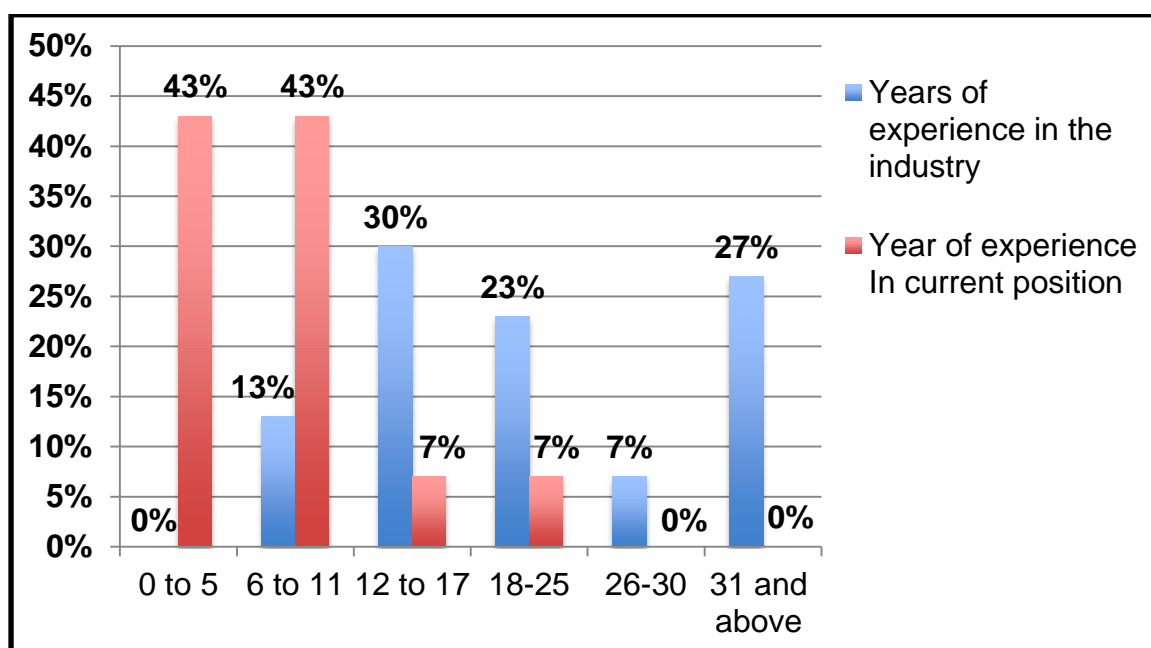
It was found that all of the respondents had at least five years of experience or more, there were no respondents with fewer than six years of experience. The researcher noted that all people interviewed also had prior experience in the field of security. It would therefore seem that the companies specifically recruited individuals with relevant experience when employing security managers.

It was found that 13 percent of respondents had between 6-11 years, a further 60 percent, the majority of respondents, had had between 12-30 years of experience, leading to a wealth of knowledge and expertise. They can attest to the benefits these regulations have had on the safety and security of the industry and most of the respondents, if not all, agreed that Part 108 is a great assistance in this regard.

A further 27 percent of the respondents had over 30 years of experience in the industry. These are the pioneers and 'grandfathers' of the industry. They have experienced it all. Their input has been invaluable, detailing the transformation of the cargo industry from its infancy to its current state.

**Question 3: Please detail how many years you have been in your current position at your company?**

**Chart 3: Years in current position**



It was found that at the time of the interviews, 43 percent had been in their current position less than five years and a further 43 percent had been in their current position between 6-11 years. These positions only became available during 2008/9, hence the relatively low number of years in their current position.

The balance of 14 percent had been in their current positions between 12-25 years. These are mainly respondents within the state organs or long standing companies that existed in a different form prior to Part 108 taking effect.

**Question 4: Please detail when was your first introduction/interaction with Part 108?**

It was found that 60 percent of respondents were introduced to Part 108 around 2008-2009, just before it was promulgated. However, 20 percent, had been involved with Part 108 previously and took actual part in the drafting the regulations. This input and perspective came across in the interviews, since these respondents had a

deeper understanding and were actually part of the whole process from inception. A further twenty percent of the respondents were introduced to Part 108 as it was enacted in 2009, or later as they were recruited to their current position from other fields.

### **6.3 WHAT IS PART 108 AND HOW DOES IT IMPACT ON THE INDIVIDUAL'S DUTIES AND COMPANIES' OPERATIONS?**

This section will describe the respondents' understanding of what Part 108 mean to them and begin explore the impact Part 108 had on the air freight industry in South Africa.

As described in Chapter 5, point 5.4 detailing Part 108 regulations and obligations of regulated agents and known consignors, below is a short recap of these regulations.

Part 108 of the Civil Aviation Regulations was implemented on 1 July 2009. Part 108 applies to all persons engaged in the acceptance, forwarding, storage, and carriage of cargo by air.

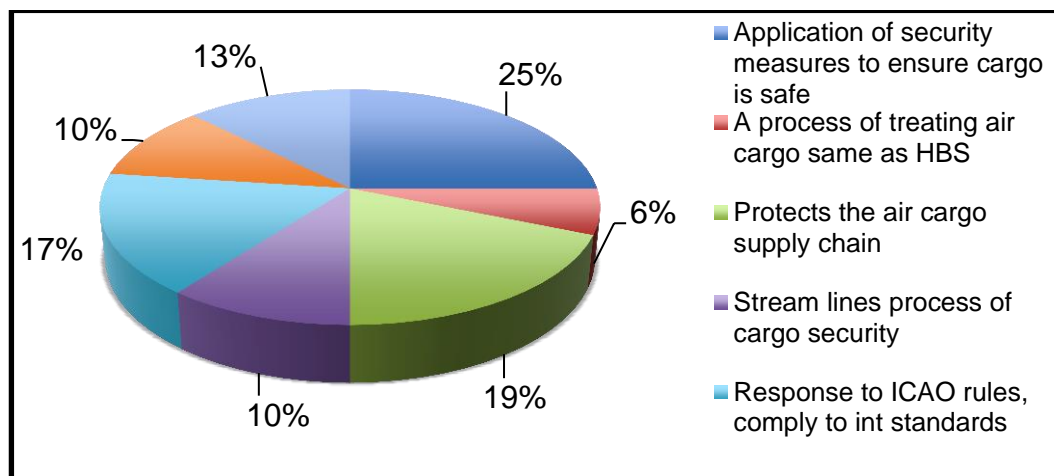
As from 1 July 2009, in terms of cargo, air carriers will only be permitted to upload known cargo'. 'Known cargo,' means a shipment to which the appropriate security controls, approved by Part 108, have been applied. Basically an air carrier must receive cargo from a Regulated Agent (RA) who has applied the applicable security controls and hands the cargo over to the air carrier as 'known cargo' (SACAA, 2009f).

Under Part 108, "air carriers are required to safeguard cargo whilst on the ramp prior to loading on board a plane and must also check that freight shipments are visually scrutinised to ensure that they have not been tampered with" (SACAA, 2009f). In addition, "regulated Agents are required to draw up a security manual that sets out the manner in which such regulated agent will operate. The Civil Aviation Authority must approve the security manual" (SACAA, 2009f). While the "duties of a Regulated Agent will include safeguarding cargo against acts of unlawful interference and applying security controls, which will include the screening of 100 percent of unknown cargo and 10 percent of cargo received from Known Consignors.

Personnel involved in the handling of cargo or cargo documentation will be required to undergo prescribed training and must be subjected to background checks” (SACAA, 2009f).

**Question 5: Please detail your understanding of Part 108?**

**Chart 4: Respondent’s understanding of Part 108?**



One of the answers from the respondents to this question was: ‘We just make sure the cargo is safe to fly at the same level passengers and their belongings are’.

All passengers know what processes and procedures they must go through to board an aircraft, some passengers even know that their bags go through a similar process. After the 1988 Pan Am 103 disaster over Lockerbie, Scotland (Crowley & Butterworth, 2007: 1), the hold luggage undergoes several levels and layers of screening, referred to as the HBS (Hold Baggage Screening) process. Since that process takes place away from the public eye, very few passengers envisage and realise that while they fly, just a few meters below them, in the hold of the aircraft, there are actually several tons of cargo.

Twenty-five percent of the respondents agreed that Part 108 in essence, is a series of measures; set to ensure that the cargo in the hold of the plane is safe. A further 19 percent said the same thing in different words, In other words, Part 108 is there to protect the air cargo supply chain.

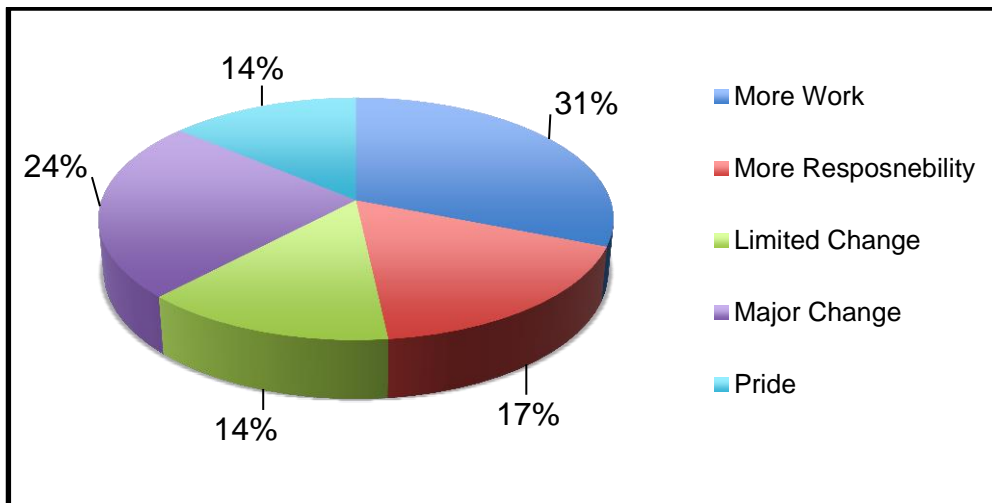
Seventeen percent felt that the main reason that Part 108 was in place is to get South Africa in line with ICAO regulations. Another 13 percent felt that Part 108 is actually a measure to counter terrorist's attempts from using cargo as a delivery method. Ten percent felt that it is in reaction to the various global incidents, while another 10 percent felt it is actually a measure to streamline the supply chain.

According to the respondents' interpretation, Part 108 is actually the application of various security measures or controls, designed to ensure that the cargo is safe to be loaded into the hold, It places the whole supply chain in a position to ensure that the cargo they are sending is safe.

From background checks of all employees, to different levels of training; from access control and Closed Circuit Television (CCTV) to X-ray, K9 and ETD, from 'known cargo' stickers to seals on the trucks, there are many measures and procedures to apply. It may seem like a lot of work and it is. Initially there was resistance to the regulations and many companies were worried about costs, delays and such. Today, however, they concede that the process actually helps their functions; it also raises pride within the organisation. Part 108 is sometimes used as a marketing tool. In other words, the view of: 'see how safe and secure we are' and also the feeling that 'you can trust our company to handle your cargo safely'.

**Question 6: Please explain how does Part 108 impacts on your individual duties?**

**Chart 5: Impact on individual duties**



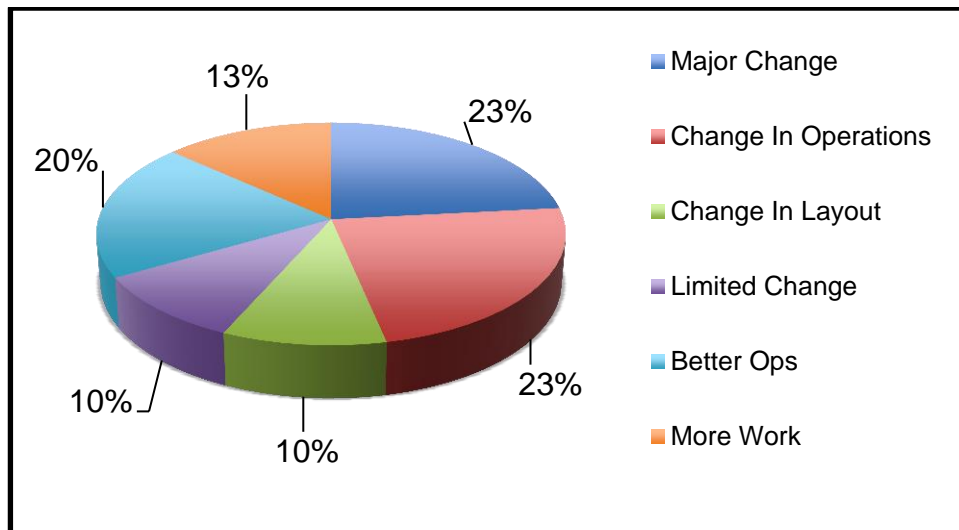
It was found that 31 percent of the respondents commented that Part 108 meant a lot more work; a further 17 percent mentioned that Part 108 meant a lot more responsibilities in their role and function; 24 percent felt that Part 108 signified a major change in their role within the company, while 14 percent claimed it represented limited change since they always operated in a similar fashion. The last group at 14 percent commented that it 'raised pride levels' as a change. They experienced their success in implementing Part 108 at their company, as a source of pride.

In summary, the role of a security manager at a freight company has grown substantially; his/her areas of responsibilities and the importance thereof have undergone a significant change since the introduction of Part 108.



**Question 7: Please explain how does Part 108 impacts on your company's operations?**

**Chart 6: Impact on company's operations**



It was found that 24 percent of the respondents felt that there had been a major change, which impacted on the company operations and a further 23 percent felt that the major change is mostly in the operational manner in which the company operates.

A further 20 percent mentioned that Part 108 had actually resulted in better, more streamlined and structured operations. Ten percent mentioned an actual change in the warehouse layout, which again lead to a more streamlined operation, while another 13 percent mentioned the extra workload that Part 108 had brought about. According to the respondents the outcome is therefore a better operation with high security levels. Further ten percent claimed limited change, since they operated in a similar fashion beforehand.

Some of the respondents answered that without Part 108, they actually do not have a job, or even a company to run, as Part 108 did present some opportunities for new companies to provide much needed services, such as aviation and cargo security training, screening services, Designated Officials (DO) services and general management of the Part 108 process. Where a cargo company is not a security

company, they do not have the skills, infrastructure or will to handle security, they rather concentrate on their job and sub contract these aspects to the experts.

Most respondents remarked that Part 108 had a major impact on their position and responsibilities. It changed many aspects of their duties and even the actual layout of some warehouses, their access control, their recruitment procedures and such.

Part 108 had both an effect on the individual functions of the security managers and department, in most cases it necessitated more people, more hardware, more processes and more work of course.

It also had a drastic effect on the company processes and procedures; however, the general impression was that those changes are for the better.

Part 108 also placed a financial burden on some companies. They had to spend vast amounts of unbudgeted CAPEX (Capital Expenditure), investing in screening equipment such as X-ray machines, upgrading access control measures and CCTV infrastructure, spending on training and various others costs in order to comply with Part 108 regulations and requirements.

It also allowed some early adopters to use their Part 108 accreditation as a marketing tool in order to gain new business.

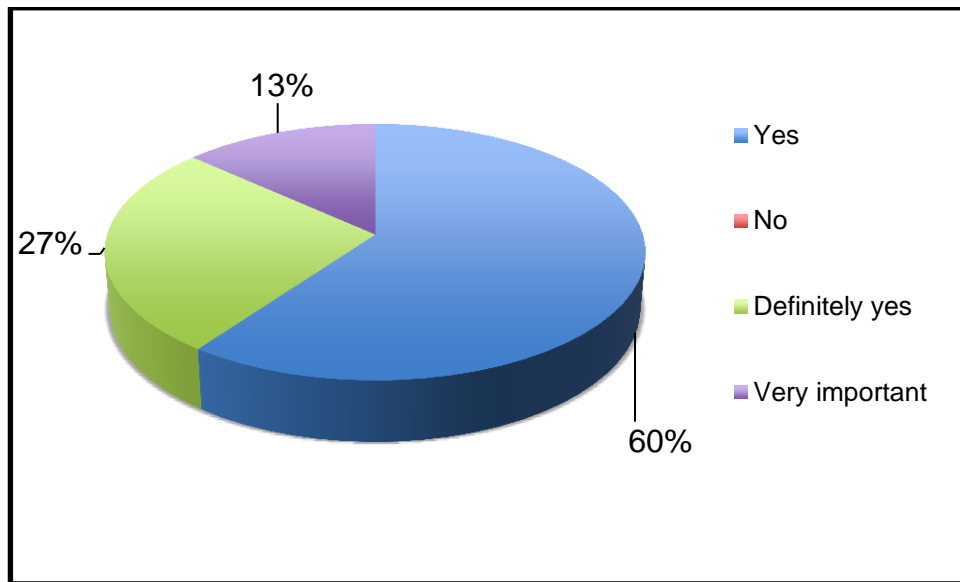
#### **6.4 WHAT HAS BEEN THE DIRECT IMPACT OF PART 108 ON THE AIR CARGO INDUSTRY IN SOUTH AFRICA?**

This section details with the actual impact which Part 108 had on the air cargo industry in South Africa.

This section explores if Part 108 contributed to heightened security and details the positive and negative impact of Part 108 on the air cargo industry in South Africa.

**Question 8: From your own experience, has Air Cargo Security (ACSEC) become an increasingly important issue in South Africa?**

**Chart 7: Is air cargo security becoming an important issue in South Africa?**



There was unanimous sentiment that air cargo security is indeed becoming an increasingly important issue not only in South Africa but also in the rest of the world. Most respondents cited the events of 9/11, as well as the 'cartridge plot' of October 2010 as mentioned in Chapter 5, as 'mile-stones'. They took note of those events and referred to them as key events that actually and eventually 'woke people up'.

It was found that 60 percent of the respondents stated a simple yet emphatic 'yes' to the above-mentioned question, however, the balance of 40 percent was more enthusiastic in their reply where 27 percent said 'Definitely yes' and a further 13 percent stated it had become 'very important'.

Looking at the watershed changes that took place in the late 1990s and early 2000s, culminating with the events of 9/11, which was undoubtedly a turning point, a defining moment, affecting all AVSEC matters, as well as air cargo security.

According to the 9/11 Commission Report, government officials experienced a 'failure of imagination' that excluded the possibility of the conceivable threat of terrorists using planes as guided missiles. Even more ominous is the fact that various previous incidents demonstrated the intention among Islamic radical terrorists to carry out this kind of attack. The AVSEC industry should have known from history and from intelligence that the use of planes as missiles was a possibility. Thus, when it comes to the future of aviation security, perhaps the most insistent question is this: What will the 'failure of imagination' of tomorrow be? The hope is that it would not be a cargo bomb (Forest, 2008: 115).

Some respondents mentioned that the world powers, led by the USA drafted lengthy and tough regulations, all ICAO state members had to comply. The SACAA took this seriously and drafted its own local regulations, referred to as Part 108. These regulations have at last placed air cargo security high on the agenda of airlines, freight companies and of course each civil aviation authority in all ICAO Member States.

The researcher was told by many respondents that looking at the air cargo industry prior to 2009 and even prior to that, before the 'known shipper' concept, that it was a 'free for all' type of 'cow-boy' operation. Some respondents recalled stories of persons sending wine, beer, meat and such, between airports, using aircrafts as their private shuttle service. They felt they owned the airport and basically could fly anything, anytime, anywhere.

The respondents claim that this has changed somewhat as the industry has become more professional in the early 2000s, yet was still naive somewhat. The idea that if you know and work with someone, makes him trust-worthy, as the 'known shipper' old concept, seems almost derisory today.

Even though SAA and the major airlines have always had X-ray machines, access control, CCTV and such, it was in place but did not seem to have the importance and legal power that exists today with Part 108. These companies have done so since they already were international and were more exposed to the dangers. Most of the companies outside the airport continued operating without these measures at all.

All respondents were unanimous in their opinion that indeed cargo security has and is still increasing in its importance in South Africa. The events of 9/11 have indeed changed the approach most people have towards AVSEC and more so the dedicated people at the relevant authorities worldwide.

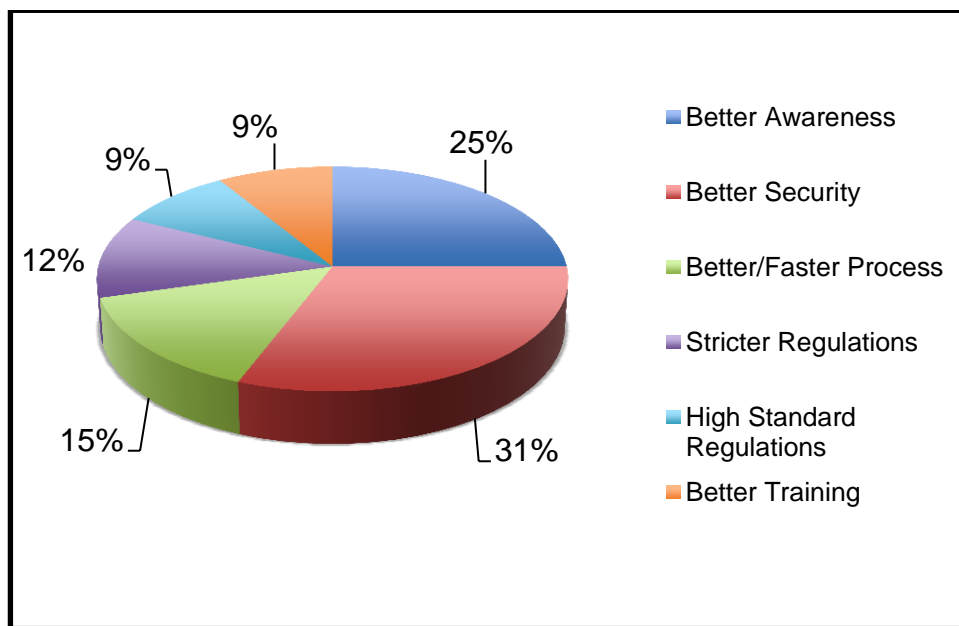
Respondents declared that since 9/11 events, the world and AVSEC experts understand the lengths a terrorist organisation, such as Al Qaeda, is willing to take, the dedication, years of planning, sacrifice of life etc. to target and harm civil aviation. The use of cargo as a delivery method of explosives is actually easier, simpler and potentially without or with limited danger to the perpetrators, as was evident in 2010 where two viable IEDs were sent from Yemen, on FedEx and UPS aircrafts and even flew part of the way in passenger aircrafts (See Chapter 5).

These devices were highly sophisticated and escaped detection, even after authorities had them in their hands. The lack of imagination as to the design and type of explosive led to them not being able to determine that those were indeed IEDs, leading some to question screening methods in several countries (Vinsik, 2011: 1).

The sentiment the researcher received was that Part 108 started by a decision to get 'something' in place and improve it as the industry moves along and grows. It was met with resistance at first, due to ignorance and lack of understanding, but after 9/11 and the 2010 cartridges incident, as well as ICAO and SACAA regulations, the attitude changed as most companies fully support Part 108 and it continues to grow and will do so for many years to come.

**Question 9:** *In your position, since the introduction of Part 108 regulations, what has been the greatest positive impact on the air cargo industry in South Africa?*

**Chart 8: The impact: Positive**



It was found that 31 percent of the respondents sensed that security levels as a whole are better now. The combination of all the measures, such as background checks, access control, CCTV, screening and so on, all contributed to much higher and stricter security controls, leading to a safer environment.

A further 25 percent of respondents felt that the awareness levels have improved. Where ignorance was cited as one of the main culprits, leading to accidents and incidents, better awareness was viewed as a major positive impact factor.

Another 15 percent of the respondents cited better or faster processes. This means that the regulations actually forced the companies to re-structure operations and the warehouse lay out, leading to better and more streamlined operations. Faster and better processes mean more cargo moving through the warehouses.

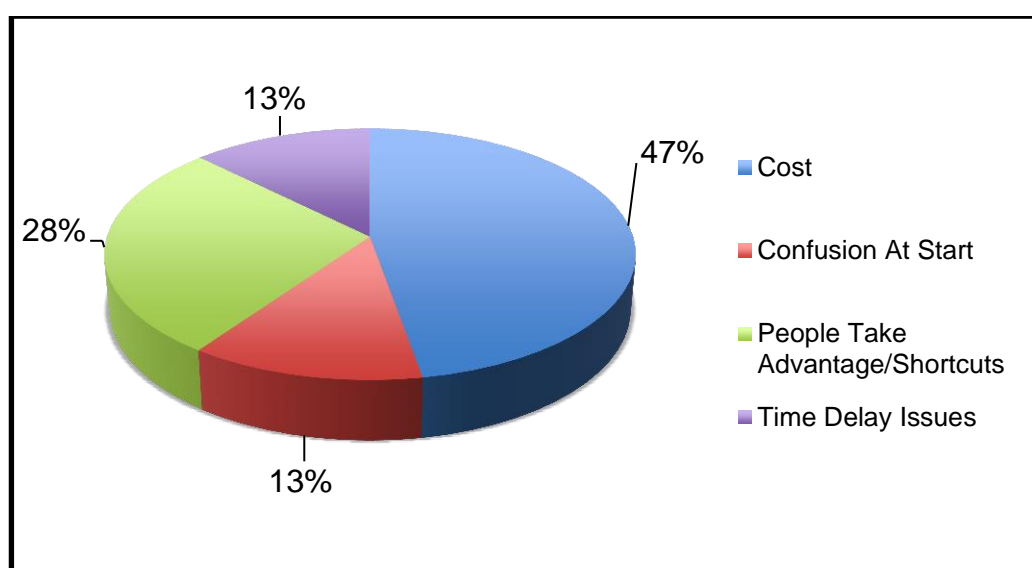
A further 12 percent of the respondents noted stricter regulations, mainly closing loopholes and forcing companies that tried in the past to take an easier route, now are forced to follow the correct route. The strict notion was also noted in referring to the SACAA, which now has actual powers to punish when needed and yield a 'bigger stick', which was viewed as being very positive.

Another nine percent of the respondents cited higher-level regulations, feeling that South Africa is now at a higher, internationally accepted, level.

A further nine percent of respondents also stated that the training issues have been addressed and corrected to a better degree. This has a huge positive impact on two levels. First it curbed the ignorance discussed earlier and made sure that more people in the industry understand the risks and second, it ensured that security personnel are trained to a higher level.

***Question 10: In your position, since the introduction of Part 108 regulations, what has been the greatest negative impact on the air cargo industry in South Africa?***

**Chart 9: The impact: Negative**



On the negative side, a large number of respondents, almost half, at 48 percent, cited costs as a negative issue. Their reasoning was on several levels. When Part 108 was introduced, there was some confusion at the start. Some companies went out and purchased equipment and hired personnel at very high costs. These costs were un-budgeted for. The return on this capital and operational expenditure had taken a long time, which in turn had a negative impact on many companies.

The current costs in respect of running a fully accredited regulated agent operation are substantial, both from the set up aspects, as well as on-going maintenance. The regulations requires access control measures, CCTV, background checks, screening of cargo, training and other security means, which cost money to set up and maintain at appropriate operational levels.

This is coupled with the feeling of 28 percent of respondents that some companies are still taking 'advantage' or 'short cuts', saving costs, or applying measures that to some people may be inappropriate, hence having an unfair advantage in relation to costs. A further thirteen percent of respondents noted that a negative issue is the confusion or possible miscommunication, which launched or started off the implementation process.

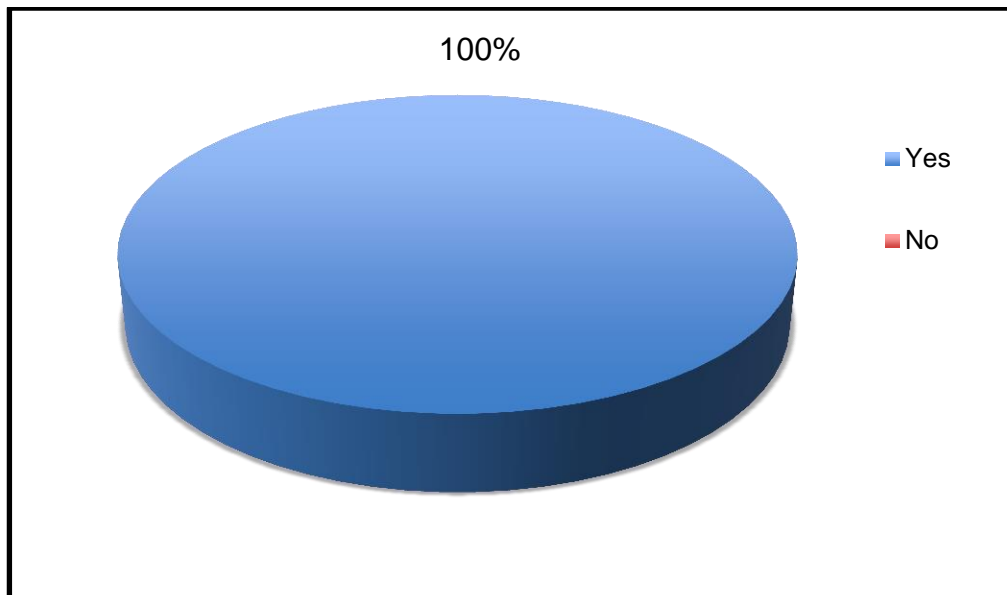
Some respondents felt that the way it was done was incorrect and the approach was wrong. This has left a bad taste and they view that as a negative issue reflecting on the process.

Another thirteen percent of respondents also felt that the regulations cause time delays, not in the way it's written but by its implementation. They felt there are areas that can be altered to accommodate faster transactions.



***Question 11: In your current position, has the introduction of air cargo security regulations improved air cargo security?***

**Chart 10: Has Part 108 improved air cargo security in South Africa?**

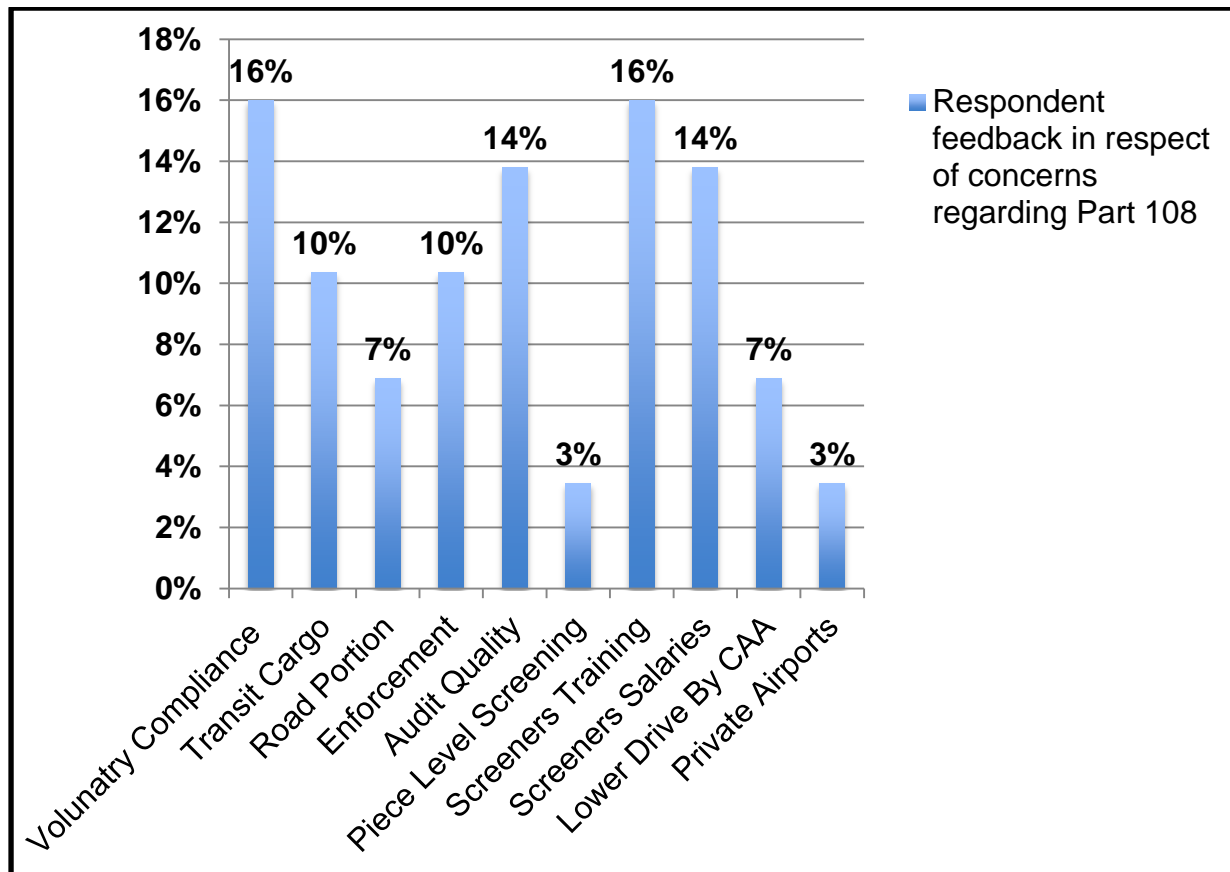


The respondents gave a unanimous 'yes' to this question. There was no doubt on anyone's mind that Part 108 had indeed improved air cargo security in South Africa, with all the personal feelings, politics, competition and such other issues and matters. All the respondents were in total agreement that Part 108 has been a huge positive improvement in respect of air cargo security.

There may be areas of concern, areas that can and should be corrected and upgraded, but the outcome was clear, Part 108's biggest impact was improving air cargo security in South Africa.

**Question 12: From your own experience, what areas of concern can you raise in respect to the implementation of Part 108?**

**Chart 11: Respondents' feedback in respect of concerns regarding Part 108**



Several concerns were raised about Part 108. It was found that 16 percent of respondents felt that in its current format, meaning 'voluntary compliance' it is less effective, whereas the SACAA audits and inspects only regulated already compliant companies and ignores all the non-regulated ones. Although the whole supply chain is secured, some parts are allowed to choose if they wish to participate or not, hence Part 108 in their opinion should become obligatory for anyone shipping cargo. Some respondents even suggested to link SARS application to become an exporter to a RA status, without which, one could not register as an exporter.

A further 16 percent of respondents noted the screener training (which will be discussed in greater detail under the training heading) as a great concern, citing poor

screeners quality, insufficient 'hands on' and practical training, specifically in the cargo field, where screening of large volumes are commonplace.

In relation to the above issue, 14 percent of the respondents felt that the remuneration of screeners was poor and not in line with their function and furthermore they felt that low salaries do not encourage high calibre personnel, as well as cannot guarantee loyalty of personnel. Where the risk of temptation is so high in the industry, low salaries contribute to potential collaboration with criminal or even terrorist elements.

Another 14 percent of the respondents felt that the SACAA audit quality was of concern (SACAA effectiveness will be discussed in further detail in a separate section). Issues such as lack of manpower and the experience and expertise of current manpower were cited. Another issue was the inconsistency of audits, where one auditor is satisfied with certain aspects and in the next audit a different auditor is not satisfied with same aspect.

Further issues noted, was the enforcement or lack thereof of sufficient enforcement. Ten percent of the respondents were seeking further and tougher enforcement and if a company does not comply, it must be corrected immediately and if it repeats the same error, an appropriate punishment must apply.

In this respect the researcher must note that pride played a big role, as most companies were so proud of their set up, they wanted the SACAA to test them accordingly. Where they had shortcomings, they were willing to correct those, but if they were first-class, they expected recognition and appreciation from the SACAA and the industry.

Seven percent of the respondents noted lack of drive by SACAA. This issue may lead to the above two points, where some of the respondents felt that SACAA had lost some interest in Part 108. It was almost as if they felt, 'Ok, it's in place, we can relax now'.

A further ten percent of the respondents raised the issue of transit cargo, where the regulation notes that all cargo must be screened. Transit cargo may have been screened at a different country, or not at all; also that cargo may pass on airside, from one aircraft to another, without passing through the RA warehouse and process. Such cargo may not receive the appropriate attention and may 'slip' through the system (see cartridge plot issue, where cargo was transferred on passenger aircraft to courier aircraft, without being discovered at all at any stage, (see Chapter 5).

Seven percent of the respondents noted road transport as a concern, where all the measures are applied at the end point, where the road transport may be manipulated. Three percent of respondents noted private airports as a concern, where Part 108 is mostly implemented at ACSA airports. South Africa has many private airports that can be used to ship any cargo without complying with Part 108 or any other law they wish to avoid. Three percent of the respondents noted piece level screening, since the TSA has stipulated it as a standard, South Africa is not following this route, as well as many other countries, however, some people felt it must be noted and discussed.

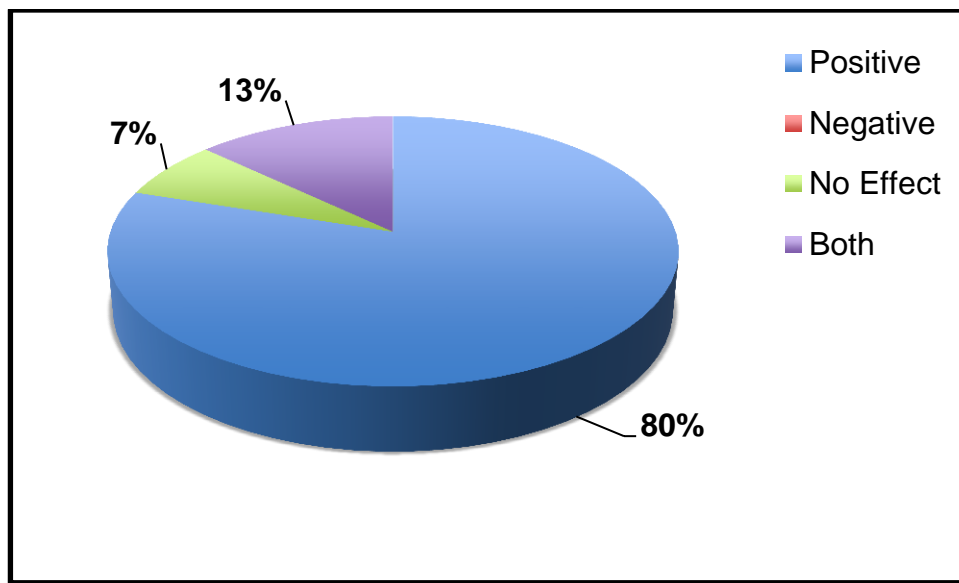
#### **6.4.1 New regulations: The 2012 upgrading of Part 108**

In 2012, Part 108 was updated and upgraded, several changes were implemented, such as the addition of technical standards for Screening equipment such as X-Ray and K9s, extra requirements in respect of training, as well as some upgrade to procedures.

The respondents were asked if the amendment had a positive or negative impact on the industry.

***Question 13: Looking ahead, and preparing for the newly approved amendments to Part 108; do you envisage these to have a positive or negative impact on the industry?***

**Chart 12: Respondents' feedback in respect of the updated Part 108 (2012)**

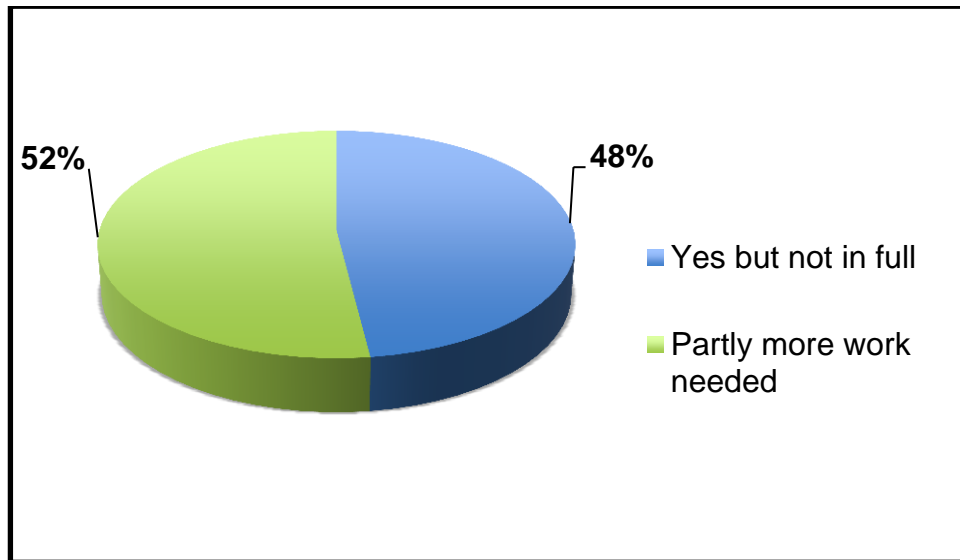


It was found that 80 percent of the respondents were confident that a positive change is derived from the amended Part 108 regulations. The next section will detail the actual positive impact in more detail. The two major outcomes were: better security compared to the 'pre-Part 108' era and better awareness due to the regulations.

A further seven percent of the respondents felt there was no change. When asked to explain that, they stated that companies who currently comply will continue doing so and those that take 'short cuts' will also continue doing so. It could be that they were looking for more enforcement from SACAA to ensure everyone to comply. A further 13 percent felt there are both negative and positive aspects to the amended regulations.

**Question 14: From your experience, have local South African companies and organisations consistently and fully adopted the new ACSEC regulations and implemented such accordingly?**

**Chart 13: Respondents' feedback in respect of compliance levels in the industry**



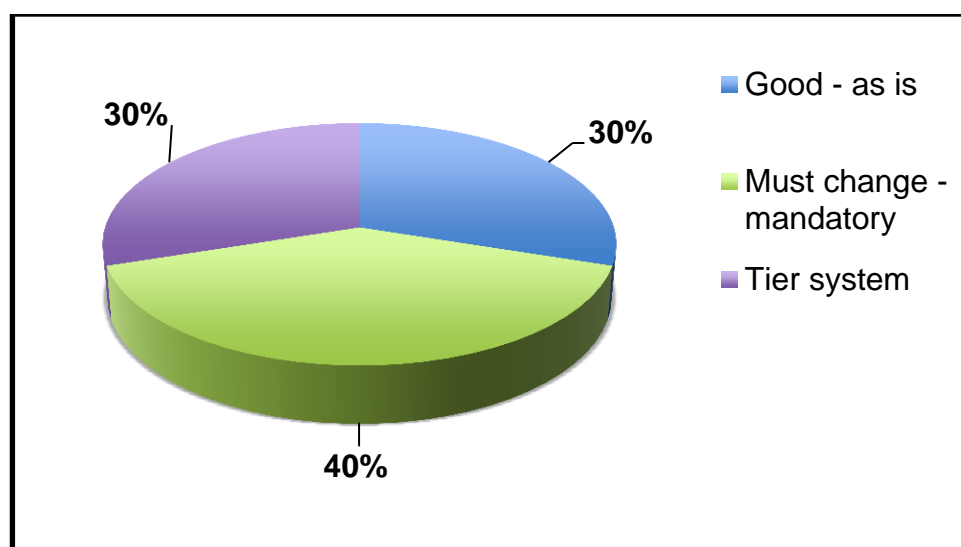
There was a distinct feeling among the respondents and comments were made about some companies that choose the easy route or take 'short cuts' while other companies, mainly the large multinationals, comply and actually 'go the extra mile'. It was found that 48 percent of respondents answered, "Yes, but not in full" while 52 percent replied "partly and more work is needed". The sentiment is very similar and corresponds with the notion of the preceding paragraph.

The general sentiment was positive, that most companies do comply with Air Cargo Security (ACSEC) regulations and the impression was that the regulations are improving security. There was a 'BUT', however, with all the positive notions some negative issues were mentioned. Part 108 is not perfect; it's a very good start but must be taken a step or two further, to 'tighten the screws' on the few companies that still are not fully in compliancy, was the message from the respondents.

One issue that was raised under the concerns section was the voluntary compliance nature of Part 108. While all companies handling cargo must be regulated, they must apply to become regulated. They can also choose not to become regulated and send cargo as 'unknown cargo'. The researcher felt it was an interesting topic and therefore presented the question to the respondents.

**Question 15: Please state, from your own experience, does the concept of “voluntary compliance” work for or against Part 108?**

**Chart 14: Respondents' feedback in respect of 'voluntary compliance'**



Voluntary compliance in respect of Part 108 means that companies can choose to become regulated or not, it is a voluntary process.

However, the regulations define clearly which entities must comply depending on the functions and responsibilities of such entity.

The choice of some companies is to become regulated and comply with the regulations, or not, which means they can only send cargo as “unknown Cargo” which will oblige them to work through a regulated agent. In some countries the duty to register and be regulated is mandatory.

The matter of voluntary compliance versus compulsory is a matter of opinion and at times depended on the position of the respondents. It was found that 30 percent of the respondents are happy with the systems 'as is', while 40 percent of the respondents felt it must change and become compulsory.

The group that felt it must change were largely the same people that felt that too many companies are taking 'short cuts' and enjoy an un-fair advantage against companies that fully comply as 'short cuts' allow some cost saving.

There was also a concern about the protection of the whole supply chain, where some parts are allowed to be un-regulated, leaving in essence the responsibility for security and screening as the last link in the chain, whereby, instead of multiple layers of security and checks, there is only one last security check point which leaves the supply chain potentially vulnerable.

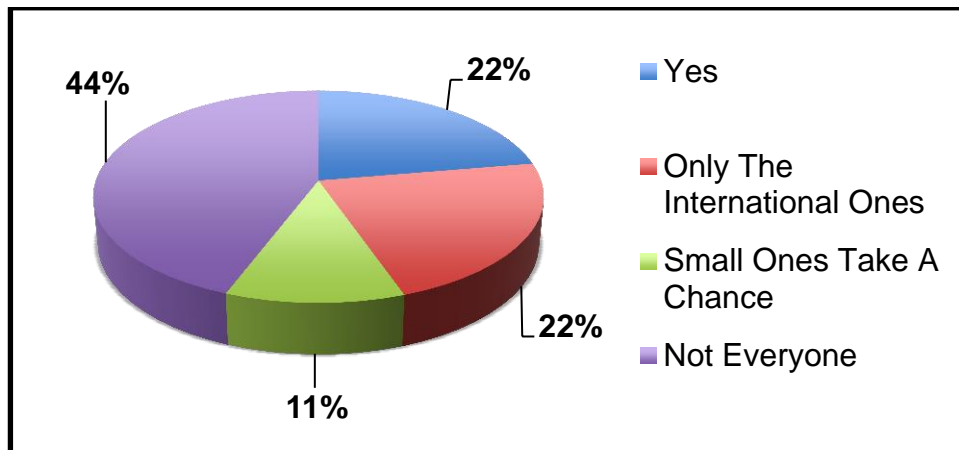
On the other hand if the regulation becomes compulsory, it will undoubtedly place a huge financial burden on the smaller companies that currently just break even. It will also place a huge burden and responsibility on the SACAA, which according to some replies, at the time of the interview, suffers from limited manpower. The question arises, how will they be able to handle and police the whole industry?

Thirty percent of respondents actually felt that a tiered system is the solution. Certain companies, the 'last link' entities, the airlines, cargo handling companies and such must comply, as they actually load the cargo on board the aircraft. Thereafter a middle tier where some companies are supporting the process, such as freight forwarding and consolidators that can become regulated, or are recommended to be regulated. As this will speed up the process, it can be regulated and lastly the rest that being regulated would not change the security risk of the cargo. In actual fact the regulated agent is tier one and the known consignor is tier two, or that appeared to be the idea, yet none of those are compulsory.



**Question 16: Please state, from your own experience, does the industry adopt best practice principles for air cargo security?**

**Chart 15: Respondents' feedback in respect of best practice principles?**



On the subject of best practice methods, many respondents asked and correctly so, what the definition of best practice methods was?

Best practices are used to sustain quality as an alternative to mandatory promulgated standards and can be based on self-assessment or benchmarking. Best practice methods should be apparent or accepted to be among those practices producing greater outcomes and being judged as good examples within the area of expertise (Began & English 1994:5).

The agreement was in relation to internationally accepted best practice methods, a system or process that is accepted worldwide, where a majority of companies will choose to incorporate it into their procedures, since it works and works well.

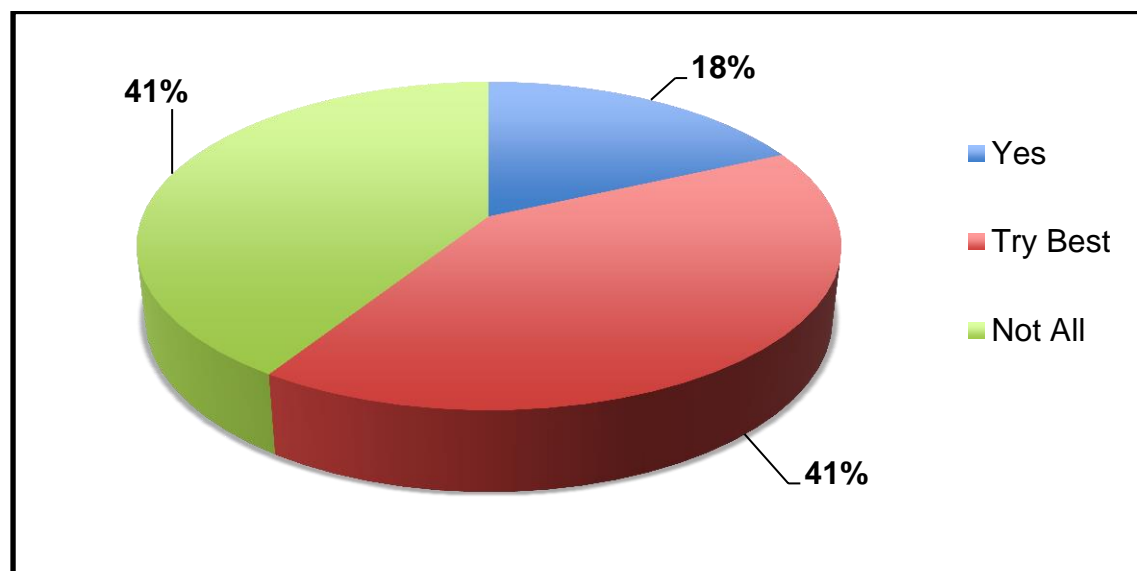
It was found that 22 percent of respondents replied 'yes' that the industry is using best practices and a further 22 percent of respondents replied 'yes', but only the big companies', where 11 percent of respondents noted that the small ones 'take chances', meaning they do not really apply the best practice approach.

When asked to provide further details, it was found that the 22 percent of respondents that said 'yes' are from the bigger and more established companies. Most of these respondents work for large international companies and as such their international standards are by default defined as best practice. These same respondents also felt that some smaller companies do not apply the same measures and referred to them as 'taking chances'. This it tied up to the voluntary compliance issue, the SACAA effectiveness and enforcement points raised earlier.

Forty four percent of respondents also felt that many companies do not apply best practice standards, which ties up with the feeling that mostly it is the big companies that apply these standards where the rest do not.

***Question 17: Please state, from your own experience, does the industry adopt a risk-based approach in respect of air cargo security?***

**Chart 16: Does the industry adopt a risk-based approach in respect of ACSEC?**



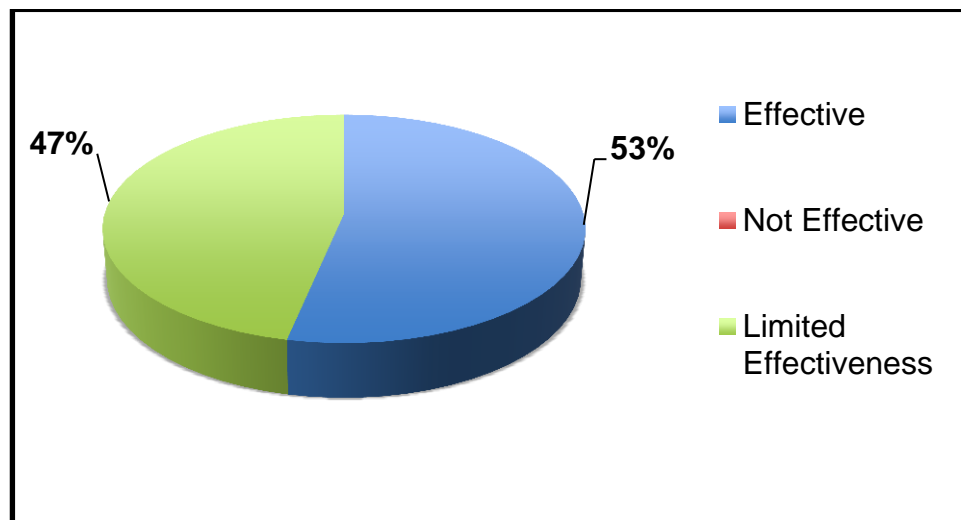
It was found that 41 percent of respondents felt that companies try their best to apply a risk-based approach and a further 18 percent of respondent were confident that companies actually do apply a risk-based approach.

However, as per charts 39 & 40, relating to intelligence sharing, 67 percent felt that intelligence sharing is very poor or non-existent. The respondents raised the question: 'how can one apply a risk-based approach, when one has no Intelligence to rely on or sufficient applicable information to do so?'

The respondents that noted the lack of intelligence sharing (charts 39 & 40), felt stronger about the issue of companies applying a risk based approach and 41 percent of respondents replied that there is no risk-based approach in many cases.

**Question 18: Please explain, from your own experience, how effective is SACAA in enforcing air cargo security regulations in South Africa?**

**Chart 17: How effective is the SACAA?**



This was a sensitive subject and some respondents were somewhat reluctant to answer, worrying that their response may reach the SACAA. The researcher had to assure and guarantee them that all answers are completely anonymous and that no names will be used without specific permission from the respondents.

It was encouraging to note that no respondent was completely negative. While 53 percent of respondents felt the SACAA is effective and is executing its duties as best

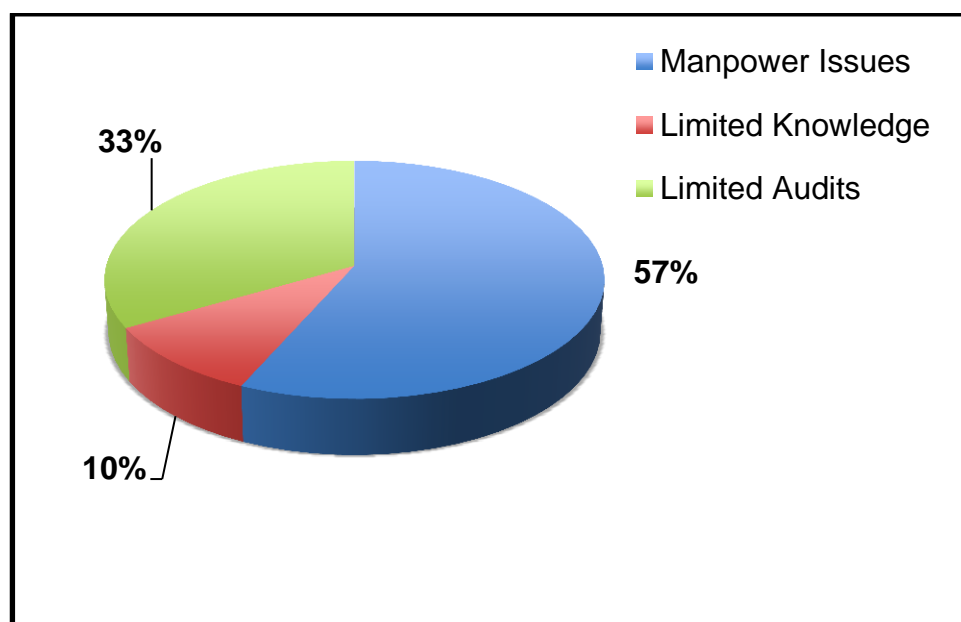
it can, a further 47 percent of respondents felt that that SACAA has limited effectiveness; the researcher then asked them to expand on the reasons for said limited effectiveness.

Even the group, which noted limited effectiveness, admitted and noted that the SACAA is doing its best in carrying out its mandate. At no time or stage were there outright negative tones to any reply. There was consensus that the SACAA approached the industry in a very co-operative manner, always open and willing to discuss matters.

It was clear that in most cases the SACAA saw itself as a positive regulator, aiming to co-operate with the industry rather than be a dictatorial regulator.

**Question 19: *What reasons can you advance that may cause the SACAA's limited effectiveness?***

**Chart 18: Respondents' feedback in respect of the SACAA limited effectiveness?**



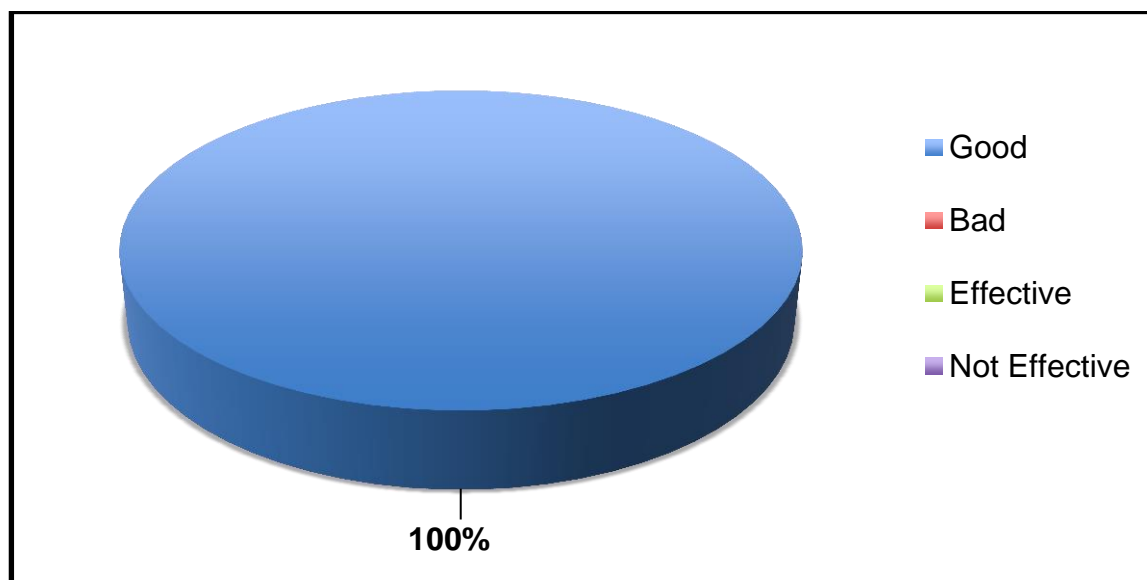
It was found that 57 percent of respondents felt that the SACAA has manpower issues, by way of limited staff. It also emerged that there are only a handful of inspectors to audit the whole country in matters of cargo security and this is obviously insufficient to police and enforce such regulations.

A further ten percent noted that they thought that there is some limited or a lack of specific knowledge amongst the SACAA staff and if they had further training and support, they would be able to deliver a much better service.

Thirty three percent of respondents felt that the reason for limited effectiveness is because of the limited number of audits. Some were so proud of their systems and measures that they were almost disappointed at the level and frequency of audits that were carried out.

**Question 20: Please explain, from your own experience, whether the 'regulated agent' concept under Part 108 works well?**

**Chart 19: Respondents' feedback in respect of the regulated agent concept**

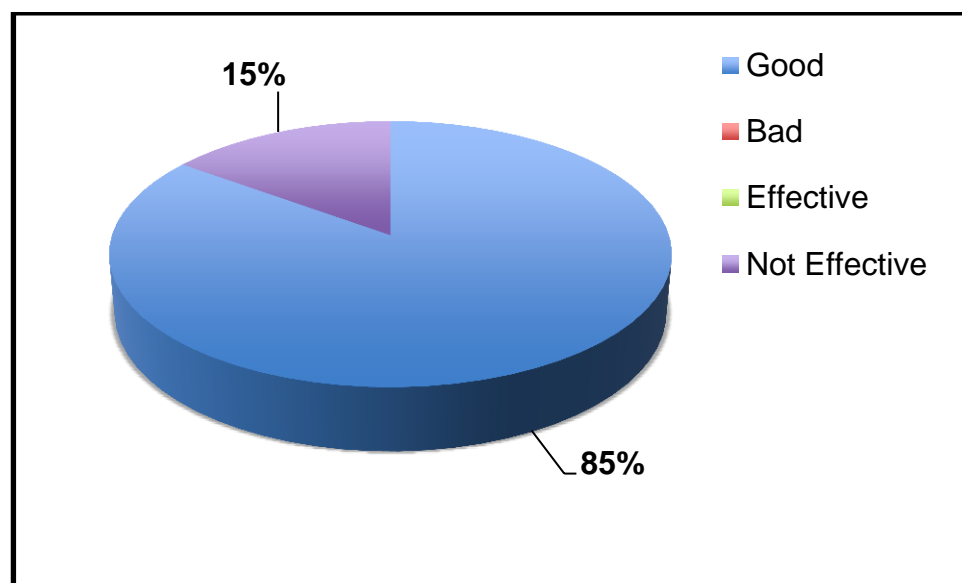


There was unanimous consensus that the Regulated Agent (RA) concept was indeed working and working well. The requirements, implementation and application of the regulations in respect to RA were well accepted and in fact compared to international levels, even exceeding other EU countries.

It was found that 100 percent of respondents supported and found that the RA concept to be a good concept that works well. That was excluding the issue of voluntary compliance, where some respondents wished it to cease and become obligatory.

***Question 21: Please explain, from your own experience, whether the ‘known consignor’ concept under Part 108 works well?***

**Chart 20: Respondents’ feedback in respect of the known consignor concept**



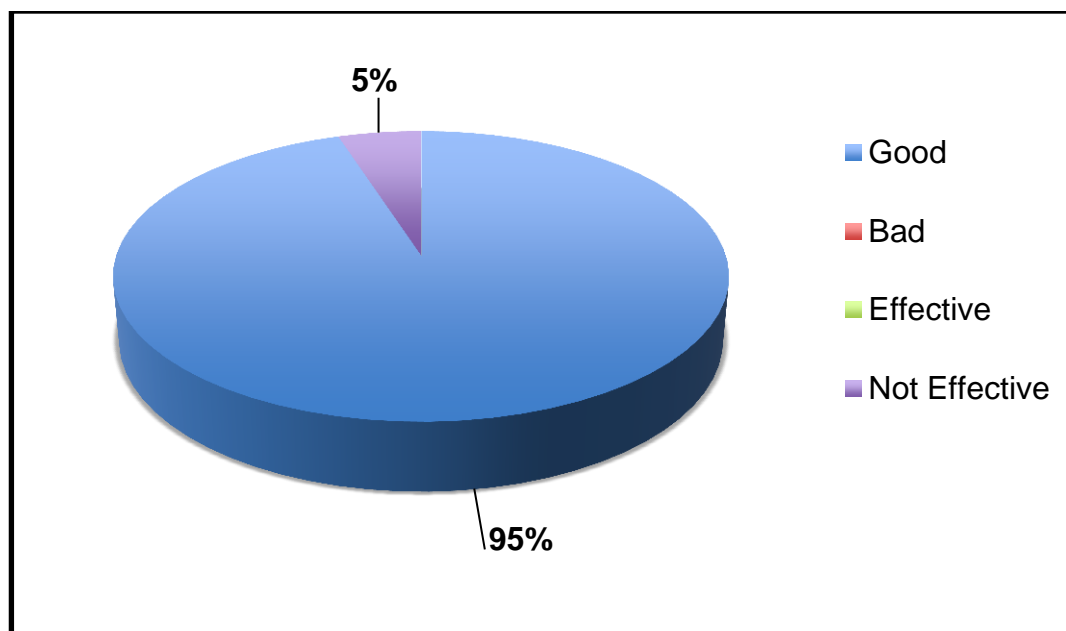
The opposite sentiment was aired about the known consignor (KC) concept. Eighty five percent said it was a good concept but the implementation was lacking and 15 percent said it was not effective.

The sentiment confirmed that it is a good concept, but too similar to the RA, where manufactures and smaller companies, simply cannot afford to get regulated and

maintain such accreditation thereafter. It is easier for them to pay extra and send their goods as 'unknown cargo'. They have no real incentive to become regulated. To prove their point, some respondents were quoting figures of only 40 companies choosing to become regulated as a KC out of thousands of potential candidates.

**Question 22:** *Please explain from your own experience, whether the 'designated official' concept under Part 108 works well?*

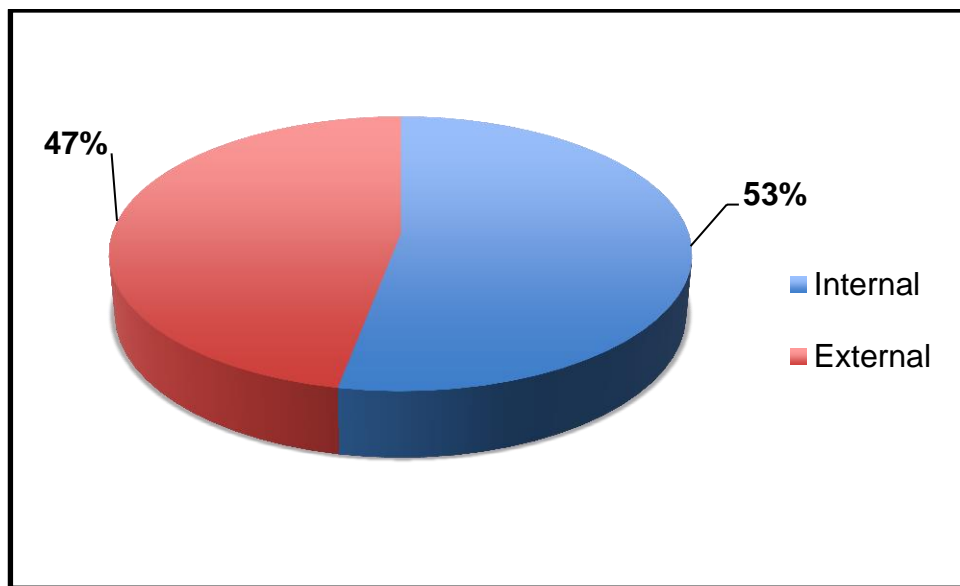
**Chart 21: Respondents' feedback in respect of the 'designated official' concept**



The Designated Official (DO) concept was supported by a vast majority at 95 percent. Only five percent of the respondents felt it was not effective. The consensus was that it is a positive concept, assisting the cargo security process, however, as illustrated below in Chart 22, there were opposing opinions among the respondents and an almost 50-50 split between having an internal or an external DO as the best option. Fifty three percent claimed internal DO was the best way and 47 percent claimed that external DO is the best way.

**Question 23: Please explain, from your own experience, should the designated official be an external or internal position?**

**Chart 22: Respondents' feedback in respect of internal designated official versus external designated official**



Fifty-three percent claimed internal DO was the best way and 47 percent claimed that external DO is the best way. The opposing opinions of the respondents are completely different, but both have merit. Where an internal DO is part of the operations, he/she is part of the team, hands on and always present. He/she actually 'lives' the job and this is the downside mentioned by those who oppose the internal DO. The internal DO is too involved, since he/she is part of the organisation. He/she may be too lenient and open for influence by the powers that be, or possibly hide or ignore issues that can harm their company.

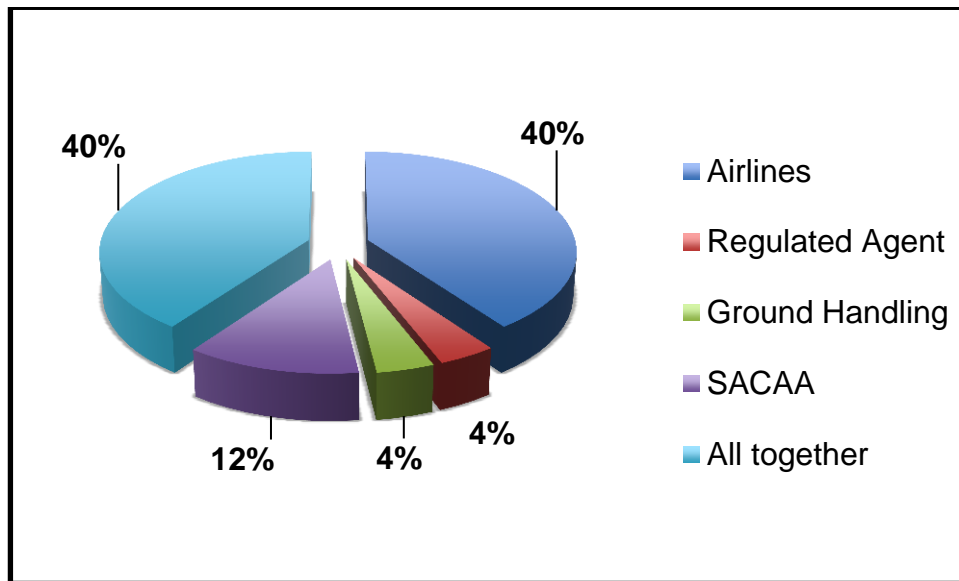
On the other hand, an external DO, while an outsider and deemed objective, is not on site all the time and may miss issues, or the company can hide issues they know are done incorrectly. At the same time, the external DO is still contracted to the RA Company and may feel obliged to be lenient at times.

Each company had its own reasoning and choose what best suited its philosophy.



**Question 24: Please explain from your own experience, who should be the responsible party for ACS? The consignor? Regulated agent? Airline? Other? All together?**

**Chart 23: Respondents' feedback in respect of where does the responsibility rest for Part 108?**



It was found that 40 percent of respondents felt that the airlines are the responsible party, as the last link in the supply chain. The same percentage at a further 40 percent felt every one, every party is equally responsible for the integrity of the supply chain.

In most cases, even the respondents that commented that everyone is responsible, noted that the airline seems to be the most logical responsible party.

The above is unique, if one compares cargo and passengers, since the airport authority is the responsible party for screening passengers and their hand luggage, as well as in most cases hold luggage, yet cargo is left out of that responsibility.

Twelve percent of the respondents placed the responsibility actually with the SACAA directly and four percent placed the responsibility with either the RA or the GH agent.

## **6.5 CONCLUSION**

This chapter detailed the various findings, which had a direct impact on the air cargo industry as a result of Part 108 regulations.

It opens with general background information about the respondents in order to provide sufficient understanding for the reader about their position, experience and expertise.

It details whether the impact was positive or negative, has it actually improve air cargo security in South Africa? Do companies comply with the regulations? Do they deploy best practice and apply a risk-based approach?

This chapter also explored the various methods or concepts as mandated by Part 108 and how each concept was experienced by the respondents.

The next chapter details further findings of a more general nature.

## **CHAPTER 7**

### **RESEARCH FINDINGS IN RESPECT OF THE GENERAL IMPACT OF PART 108 ON THE AIR CARGO INDUSTRY IN SOUTH AFRICA**

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#### **7.1 INTRODUCTION**

In this chapter further findings will be discussed, as derived from the interviews and data analysis process. All the answers were collated and analysed and the total number of answers was calculated and a percentage was arrived at for each question.

The findings are depicted in a graph format and each finding is then discussed and explained in detail. The findings were divided into two chapters (chapters 6 and 7) and followed the rationale of the questions asked during the interviews process.

Chapter 6 dealt with the specific impact that Part 108 had on the air cargo industry in South Africa. Chapter 7 will detail the general impact on terrorist and criminal acts, as well as the comparison of various screening methods, amongst other factors.

This chapter will also explore the difference between South African regulations and the USA/EU regulations.

#### **7.2 PART 108's IMPACT ON POTENTIAL TERRORIST AND CRIMINAL ACTIVITIES.**

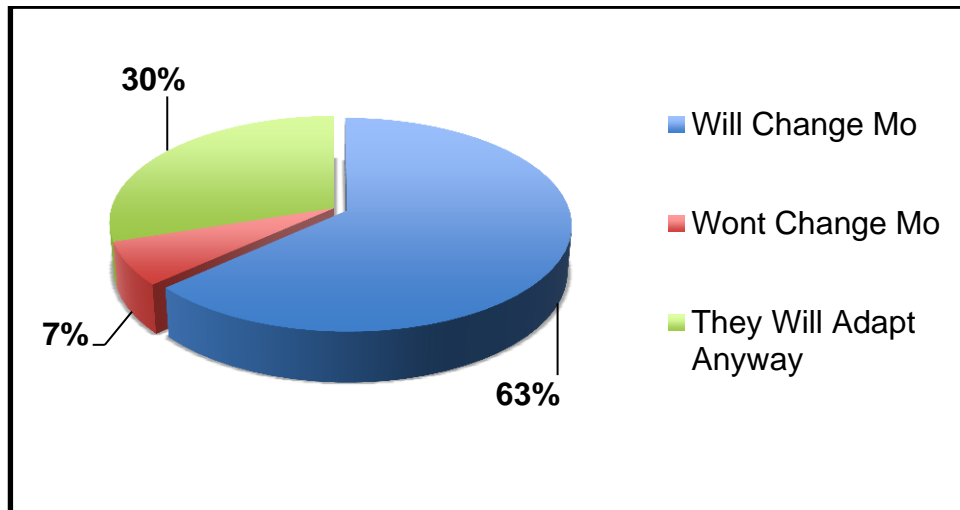
This section details the respondents' experiences in respect of Part 108's impact on potential terrorist acts and criminal activities.

Aviation security's primary function is to prevent acts of illegal interference with civil aviation, meaning that the main aim is the prevention of terrorist acts in the air and on the ground. By default, such measures also influence and limit potential criminal acts from taking place.

This section will explore the respondents' opinions in respect of Part 108's potential impact of such activities.

**Question 25: Please explain from your own experience, will Part 108 regulations change the opportunities or the modus operandi for potential terrorist activity?**

**Chart 24: Respondents' feedback in respect of Part 108's potential impact on terrorist acts – will it change their modus operandi?**



When asked about the impact which Part 108 may have had on potential terrorist acts, it was found that 63 percent of respondents considered that Part 108 will change the potential terrorist modus operandi, or force them to rethink their strategy. This could mean that Part 108 poses a hurdle to potential terrorists, possibly making air cargo a less attractive target.

Thirty percent of the respondents believed that once a potential terrorist understands the regulations, he would adapt the modus operandi to counter the measures. They further noted that as in most criminal or terrorist operations, the attackers observed and studied the opponents before making a move, hence Part 108 will force them to adapt and reconsider their plans in order to curb any measures in place.

Only seven percent of respondents deemed that Part 108 would not change a potential terrorist modus operandi, meaning, they know what measures are in place and will plan around those measures regardless.

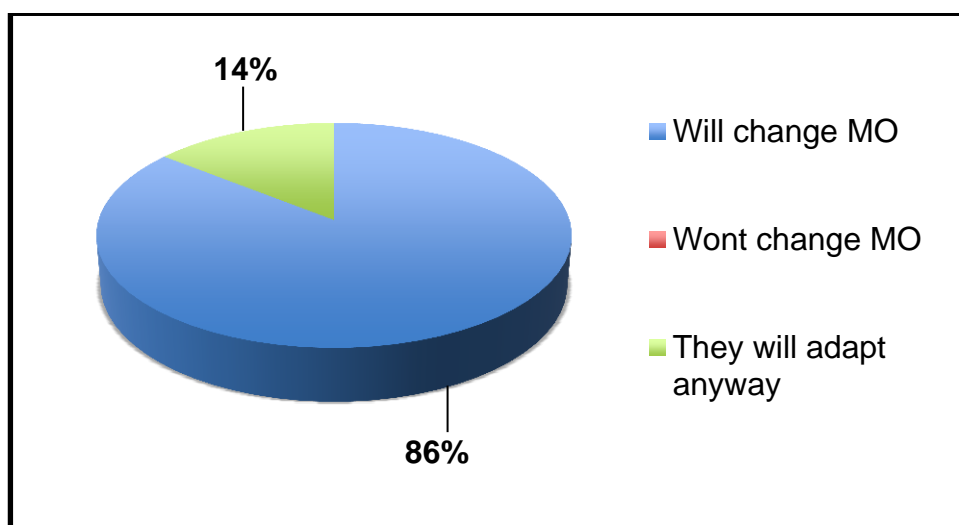
A point raised by several respondents was that considering terrorists are patient and resourceful, what would stop any terrorist from opening a local company; become a regulated agent, and send any cargo in the hold if they wish?

The consensus amongst many respondents was that a determined organisation, with sufficient resources, would always find a way to circumvent any security system, no matter what the industry does. If they cannot bypass it, they will 'buy' or bribe a person on the inside. If they cannot bribe, they will threaten. There are various ways to attack civil aviation, most are foiled due to intelligence and basic human nature, some unfortunately do succeed and the results can be as devastating as 9/11 or worst.

The respondents wish or request was that more information and intelligence sharing must take place. This issue is discussed in segment 7.5 of this chapter.

**Question 26:** *Please explain, from your own experience, will Part 108 regulations change the opportunities or the modus operandi for potential criminal activity?*

**Chart 25:** Respondents' feedback in respect of Part 108's potential impact on criminal activities – will it change their modus operandi?

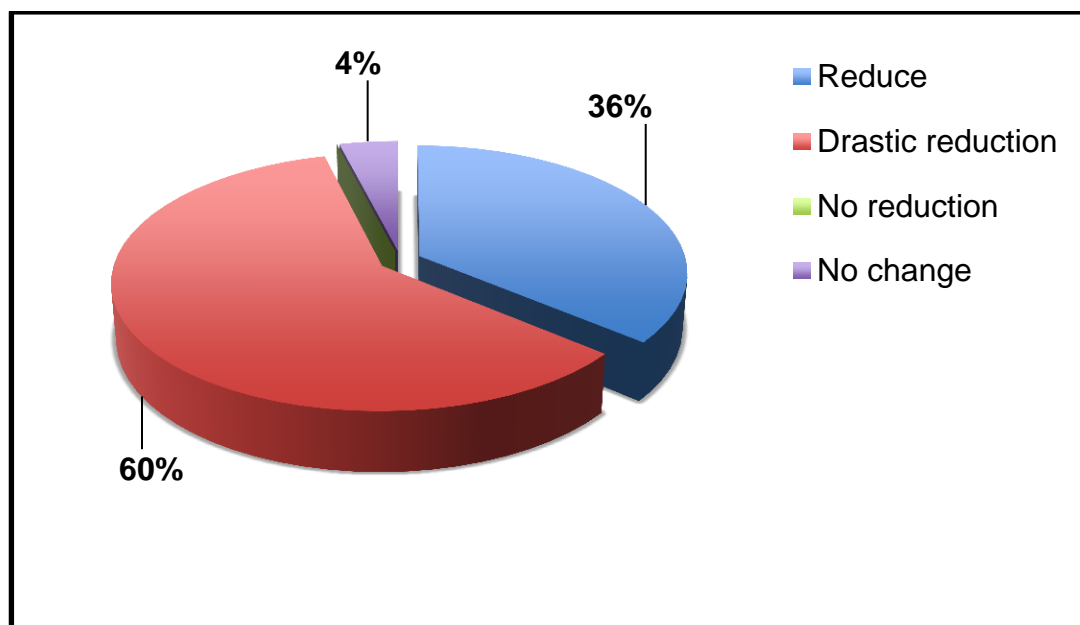


The impact that Part 108 had on crime is undisputed. Unfortunately, the researcher could not source official information from the SAPS. However, some interviews with SAPS officials, both on and off the record, confirm that there has been a huge positive impact on crime concerning cargo security.

As illustrated in Chart 25 above, it was found that 86 percent of respondents agree that Part 108 had positively impacted on the modus operandi of criminal elements. The respondents mentioned that simple measures such as access control, CCTV, background checks, X-ray screening and such measures as required by Part 108, have definitely contributed to criminals changing their modus operandi. Only 14 percent of respondents said that criminals would adapt anyway, which in a way confirms that the trends in crime have undoubtedly changed.

***Question 27: In your environment, with background checks, access control, perimeter security and such, has there been any reduction in general crime, theft, stock loss, etc.?***

**Chart 26: Respondents' feedback in respect of Part 108's impact on criminal activities – will it reduce crime statistics?**

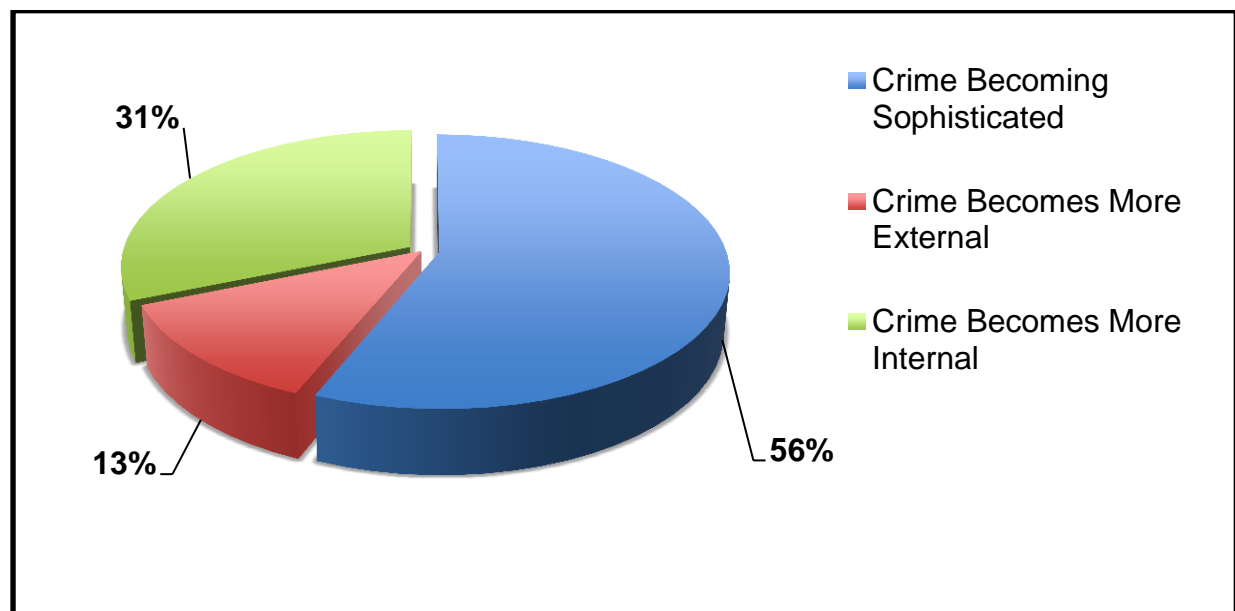


As shown in Chart 26 above, It was found that 60 percent of respondents confirmed a drastic reduction in air cargo related crimes, a further 36 percent of respondents confirmed that there had been a reduction and only four percent said there had been no change in crime. In that case the respondents had zero crime beforehand, so that the result was an anomaly, yet a positive one.

An overwhelming 96 percent of respondents corroborated that the reduction in crime contributed mainly to Part 108 regulations. Besides the actual measures, one of the main reasons mentioned by the respondents was the heightened awareness, both from the potential impact if the company is compromised, as well as a better understanding of the risks and threats. Internal employees avoided crime and therefore reported matters if brought to their attention.

**Question 28:** *Please explain, from your own experience, how has the nature of crime changed since the introduction of Part 108?*

**Chart 27: Respondents' feedback in respect of Part 108's impact on criminal activities – has it changed crime trends?**



When asked how crime has changed, 56 percent of respondents remarked that crime has become more sophisticated, meaning more 'paper based'. They cited more fraud, more forged withdrawal documents and such being used.

Changing security regulations caused criminals to adapt and instead of a 'frontal assault', or direct theft from a warehouse, since it is more difficult now, the criminals choose an easier route and manage to mislead and misrepresent themselves as the 'rightful' owners of the goods and by way of deception and fraud, get hold of the goods. Hence violent robberies are less frequent.

Coupled with that, a further 31 percent of respondents remarked that crime is now becoming more internal, with a further 13 percent of respondents stating that crime has actually become more external. This would depend on each company and its layout and in most cases it was easier to have an 'inside man/woman' that furnishes the criminals inside information used to commit crimes. In certain cases, however, that proved too difficult, according to the respondents, due to the various measures and then the criminals chose a more direct approach and used 'old fashioned' methods.

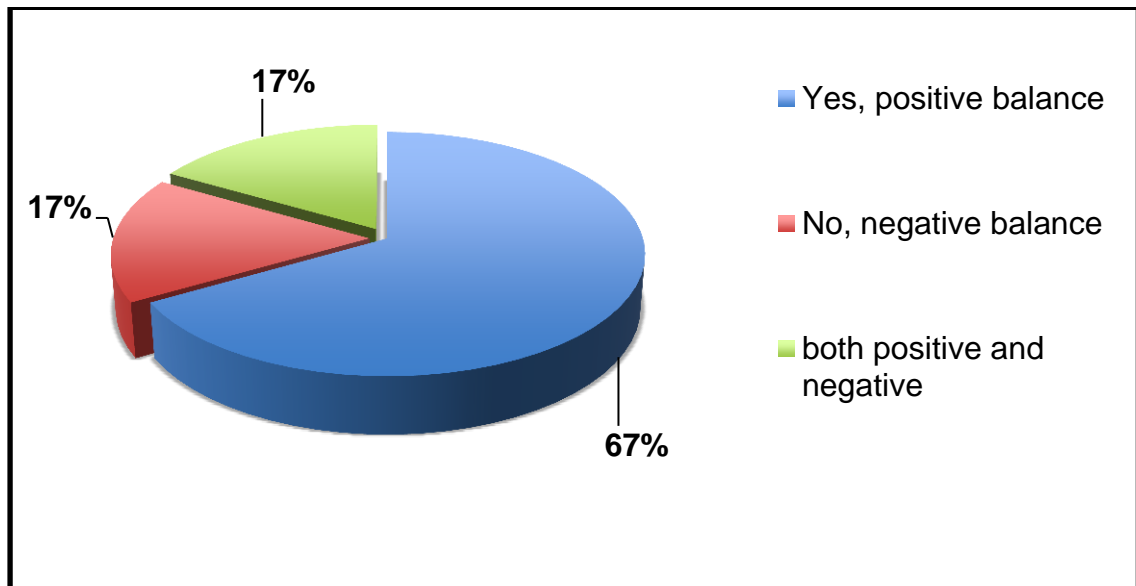
### **7.3 FINANCIAL CONSTRAINTS VERSUS OPERATIONAL REQUIREMENTS**

Respondents raised concerns relating to the financial constraints that Part 108 places on Regulated Agents. This section will explore the relations between those financial constraints and operational requirements as per Part 108.

***Question 29: Please explain, from your own experience, in the light of Part 108 implementation, is there a good balance between financial costs and security?***



**Chart 28: Respondents' feedback in respect of costs versus security in the light of Part 108 implementation**



After the discussions about costs and benefits, when asked if the industry had reached a good balance, 67 percent of respondents agreed that there is a positive balance. Seventeen percent of the respondents did not agree, while a further 17 percent of respondents were in two minds.

The positive response to this question is easy to explain, because of costs spent on hardware, systems, screening etc. ,would balance out with the various charges which the RA charge the end user, resulting in costs being mostly covered and the company achieving greater efficiency. Several times the researcher heard a phrase along the lines of 'how can we put a price on human life, as well as our reputation'? Meaning that whatever the costs are, they are negligible in consideration against a potential air disaster and its implications.

Several respondents felt that compliance, when used correctly, is a valuable marketing tool that attracts more business and gives the company a competitive edge.

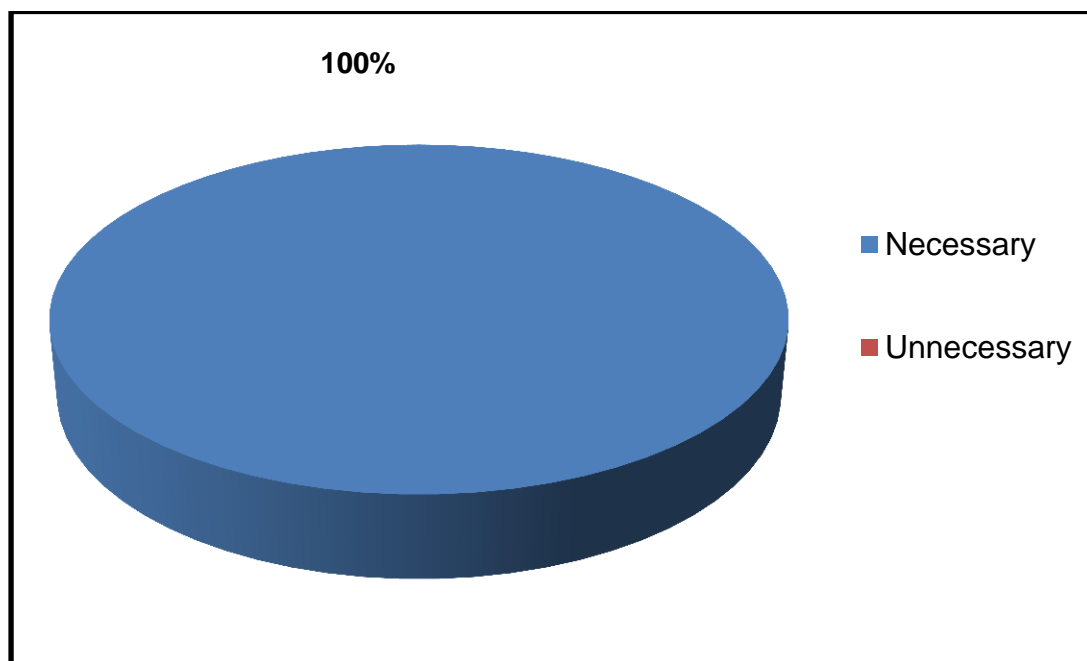
The group that commented in the negative to this question, felt that the costs are just too high and do not justify the investment versus the return. They felt that the same results could be achieved in different ways.

These two groups had both sides of the argument covered, but added that since some companies comply with greater degree than others, the balance is skewed against the ones that invest more.

However, there was a general feeling amongst the respondents, that the more superior a company's reputation as a secure company is, the higher level it achieves in securing its cargo and warehouse and therefore the more marketing and prestige is attached to it and the more business it attracts.

**Question 30:** *Please explain, from your own experience, is Part 108 a benefit or an 'unnecessary burden' on the industry?*

**Chart 29:** Is Part 108 an unnecessary burden?



Several times the researcher heard an expression against Part 108; some termed it an 'unnecessary burden'. When asked directly and allowed time to reflect and apply their minds, 100 percent of respondents actually said that Part 108 may be a bit of a burden, as it is not easy to comply and maintain, it adds a lot of responsibilities and higher workloads to many managers, yet it is absolutely correct and necessary.

Not one of the respondents said he would do away with Part 108, and all respondents agreed that Part 108 had a huge positive effect on the industry.

This was a very positive finding, while some respondents had reservations and concerns; they all supported Part 108 and wished it to succeed.

#### **7.4 FINDINGS IN RESPECT OF SCREENING METHODS**

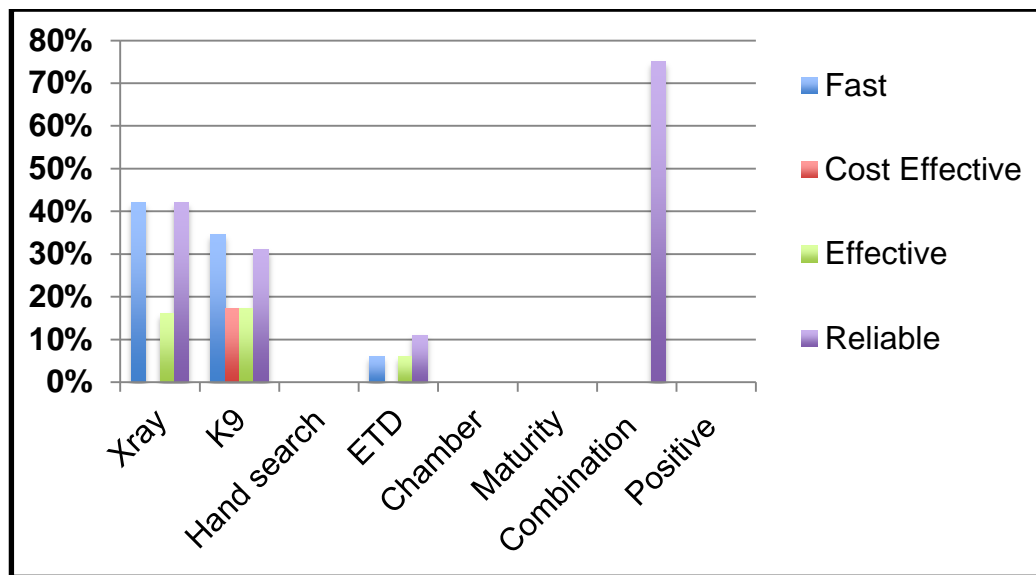
An analysis was made of the current SACAA approved screening methods.

Below are the charts and findings as based on several questions posed to the respondents. The desired result was to identify the effectiveness of each method, as well as the shortcomings and advantages, based on the personal input and experience of the users.

Some of the respondents only use one method for screening and are more familiar with its function, yet they have assessed various other methods and have a good understanding of its pros and cons. However, this led to a very difficult analysis of the results, since some respondents could not answer all the questions about all available methods. Hence the results are analysed with only the applicable input of respondents per screening method.

***Question 31: Please list the approved screening methods your company uses to screen cargo and highlight the positive attributes of each method.***

**Chart 30: Screening methods: Positive notes**



Each screening method is discussed with its positive notes according to the responses of the respondents:

### **X-ray machines**

The overall feedback in respect of the X-ray machines was conflicting at times. While it is probably the most commonly used screening method, it had the most concerns about its use, effectiveness, and implementation. Forty two percent of respondents noted reliability as a positive attribute with a further 42 percent of respondents noting speed as a positive attribute of the X-ray machine and 16 percent of respondents noted effectiveness as a positive note.

Since an X-ray is a mechanical solution, it is highly reliable; the machine can operate almost around the clock. By design the X-ray solution is fast as it gives the operator an immediate picture of what the parcel contains, allowing the operator to make a determination whether there is a threat or not.

Combining the above three positive attributes the X-ray is a reliable, fast and effective method when used correctly.

### **K9/Canine (AKA - K9 as referred to the use of sniffer dogs)**

A smaller percentage of respondents RA (Regulated Agent) are using the K9 solution. It seemed that these respondents also thought that this was the best option. The K9 route was described as highly reliable and effective by 48 percent of respondents, as well as fast by 34 percent of respondents and cost effective by further 17 percent of respondents.

Almost half of the companies using K9s felt it is a reliable and effective solution. The Canine nose is so sensitive and effective that when trained correctly it is seldom mistaken. The conventional free running dogs' solution as described below is very fast: the dog will sniff a parcel and will immediately indicate if there is any threat by sitting next to the parcel. If no threat is identified the dog and his handler will continue to screen other cargo. The cost of such a service is usually based on weight or time spent and in most cases the service is sub-contracted to external companies, minimising capital expenditure and running costs.

It was noted by the respondents that there are several K9 services companies, offering various services at varying levels. Two of these companies are also accredited by the SACAA as accreditation centres for other K9 companies. This was part of the updated Part 108, where technical standards were set for the K9 services, which till then had been wide open, leading to some companies not supplying the expected service levels. This has now been regulated by the SACAA.

The respondents confirmed that there are two different services offered by the two major players. The first being 'free running' dogs, where the K9 arrives at the client and sniffs the cargo on site. This will give an immediate indication if it is positive or negative, therefore, safe or suspicious. Since the technical standards came into effect, there is a size limit on what a 'free running' K9 can and should screen and clear, being 1.3M x 1.3 M. Anything bigger than that must be cleared by another method.

The second service or method is defined as RASCO, REST or MEDDS (as explained earlier in Chapter 5). This means that an air sample is drawn from a closed volume, usually a large container or box, it is even designed to screen 40-foot

sea containers. The air is passed through a filter, which absorbs all scents within the closed volume. That filter is then presented to the K9, which makes a determination by giving an indication if it is positive or negative, being safe or suspicions. There are only two companies offering this service, Mechem, a division of Denel and Bidvest Magnum, the security division of Bidvest.

### **Hand search**

It was found that 48 percent of respondents deemed this method as a secondary method rather than a primary one. Issues such as identification of threats were mentioned amongst others. To properly identify an IED (Improvised Explosive Device), one must open all boxes and examine each item or object within that box, which is a mammoth task.

The respondents however, mentioned some positive aspects, even though they did not use that method as a primary method. Several respondents felt that if done properly and by trained professional personnel, this method has merit in certain situations, mostly as a secondary method, or verification method. Therefore, the only confirmed response noted was negative, since all positive input had caveats.

### **Explosive Trace Detection (ETD)**

Very few companies seem to use the ETD and those that do, felt it is a reliable method, fast and effective, yet costly. Most respondents felt though that the ETD is too 'finicky' and is too problematic to use as a primary method. Fast, effective and reliable was the response of 23 percent of the respondents, yet with a caveat, the balance of 77 percent of respondents had concerns and felt that only professionals must use it and the machine must be maintained to the highest level.

### **Combination of methods**

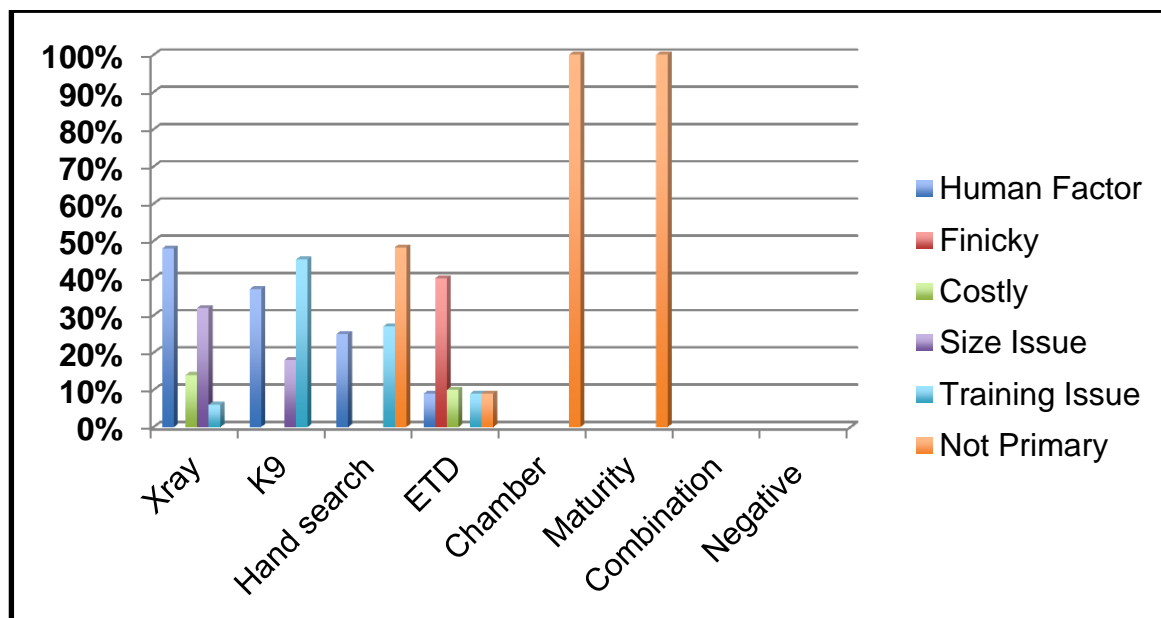
From the various answers it appeared that the best solution is to use a combination of various measures or methods. Seventy five percent of the respondents felt that the best way is a combination of several methods. It may be costly, but it is probably the best route, both from the higher detection rates, flexibility and the ability to screen various types of cargo using different methods, as well as from the deterrence factor (unpredictability), since the 'other side' does not know what

screening method the company uses. They therefore cannot plan sufficiently to counter a specific method.

The most popular combinations may be the X-ray machine and K9 or ETD, where one plays a lead or a primary role and the other is a verification role. Hand search can always be used as a secondary screening.

**Question 32: Please list the approved screening methods your company uses to screen cargo and highlight the negative attributes of each method**

**Chart 31: Screening methods: Negative notes**



Each screening method is discussed with its negative notes according to the responses of the respondents:

### **X-ray machines**

The respondents mentioned major concerns about the human factor, which was raised by 48 percent of respondents. Issues such as training levels, low remuneration and the quality of manpower were raised as a huge concern to most respondents and a genuine worry existed about the quality and effectiveness of screeners, leading to the 'Human Factor' concerns.

The conflict appeared to be between the technology and the human interaction on the interpretation of the images. It was understood that the technology in itself is sound, however, the way it is used and by whom, was the concern. Respondents raised issues such as low remuneration, long hours and a general low image of the security industry as contributing factors.

These factors did not contribute to security being the first option of employment, which at times is the last choice and people do it when they have no other choice. Add to that the level of training that is based on classroom and PC based teaching mostly. With little practical, hands-on training, the end result is a serious concern of the competence of cargo screeners, leading to almost 50 percent of respondents worrying about the 'human factor,' with a further six percent of respondents stating that training specifically was a concern.

Another downside for the use of the X-ray that was raised is the limited capacity in respect of size. Thirty-two percent of respondents raised this issue as a major drawback. Each machine has a certain opening size, from 50cm x 50cm to maybe 1 200cm x 1 200cm, anything bigger than the opening cannot be screened. At the same time, depending on the type of cargo screened, the actual penetration capacity of the X-ray is limited and therefore threat identification is difficult.

Lastly the issue of cost was raised, as 14 percent of respondents had an concern relating to costs, both on the capital expenditure side, as a purchase of an x-ray machine or machines is substantial, as well as the running costs, in the form of training, salaries, maintenance etc. These were major concerns to some companies.

Respondents mentioned that while some costs can be recovered by charging the clients, this is not the main business of the freight companies or the airlines. This is a cost-recovery exercise, yet even a recovery over five years, places a serious financial burden on small and medium companies, especially when such expenditure is not budgeted for.



### **Trained sniffer dogs (canine/K9)**

On the negative side, the human factor and the 'K9 factor' were also raised as an issue by 38 percent of respondents. The training of the handler, as well as the certification and accreditation (i.e. level of required training received) of the K9 were a concern to the respondents as mentioned by 45 percent.

The matter of training, or better-said, correct and appropriate training of the K9, their accreditation, as well as the handlers, was raised as a serious concern. There seems to be a belief amongst some respondents that some K9 companies use standards that do not comply with the regulations. Concerns were raised that some regulated agents are more concerned about the cost than the service levels they receive from certain K9 companies, placing passengers at risk.

The size issue was raised by 18 percent of respondents, yet, since only two companies offer the complete solution, some of the respondents are aware of the size restriction on the 'free running dogs' and raised that as a concern. Since it is thought that some companies, may at times, 'take short cuts' and allow a K9 to screen a large container in strict contradiction of the regulations.

### **Hand search**

It was found that 48 percent of respondents deemed this method as a secondary method rather than a primary one. Issues such as identification of threats were mentioned amongst others. To properly identify an IED, (Improvised Explosive Device), one must open all boxes and examine each item or object within that box, which is a mammoth task. The hand search method can be used as a verification method if something is suspected to pose a threat inside a container or box, or may be suitable for certain shipments, but certainly not as a primary method for hundreds or thousands of tons of container goods.

A further 27 percent of respondents considered it too slow a method, as to manually open and inspect each object in a specific shipment. This may take many hours and to top it all, the risk of damage and breakage is greater, as well as the risk of theft and pilferage.

On the positive side, however, respondents felt that if done properly and by trained professional personnel, this method has merit in certain situations, mostly as secondary method, or verification method. Therefore the only confirmed response noted was negative, since all positive input had caveats. The issue of the 'human factor' and training issue was raised by 25 percent of respondents. To be able to find a concealed IED in a large shipment is akin to looking for the proverbial 'needle in a hay stack', as mentioned by several respondents. In the 2010 'cartridge plot', the IED was not discovered by several teams, even though having passed through an X-ray machine, they could not identify the threat (see Chapter 5).

About 50 percent of respondents also mentioned that electronic equipment is almost impossible to search by hand, as one would actually have to open each, printer, laptop and TV set to confirm that it is not concealing an IED as part of the internal set up. This is an impossible task for hand search, as there are other methods that can achieve the same output, without the human touch.

### **Explosive Trace Detection (ETD)**

The ETD is a wonderful piece of equipment. It is literally a mechanical nose; it mimics the process of identifying a scent, by heating the materials introduced to it and comparing the chemical composition to its database. Forty Percent of respondents said the ETD is a 'finicky' machine; since it is sensitive to many aspects and is easily influenced by outside factors.

The human factor, being the operator and his training, are concerns as well, raised by 18 percent of respondents. The samples taken to be introduced to the ETD must be taken with as little contamination as possible, which is a function of training and understanding of the ETD. The actual handling of the ETD itself is also an issue, from its location, the cleaning and various other issues. Nine percent of respondents did not consider the ETD to be a primary screening method, citing those issues and its limited capacity to screen large volumes of cargo.

An ETD machine is not cheap, it may be less expensive than an X-ray machine, but it is still a capital expense that not many are keen to take, and hence ten percent raised this issue.

## Simulation chamber

Very few RA if any are using this method, it was found that 100 percent of respondents felt it's not a primary method and can be removed as it is not really a viable option. There is only one such chamber at ORTIA and it cannot service all the cargo passing through.

## Maturity

Maturity means the screening of cargo by delaying it for 24 hours. The idea behind this concept was to defeat a mechanical timing device, the delay will cause such device to detonate on the ground and not in the air. This method is no longer allowed as it was removed as an approved screening method in 2012. It was found that 100 percent of respondents felt that it is not a primary method and fully agreed with the fact it was taken out, as it is not really a viable option.

Findings from past research in respect of screening methods:

**Table 1: A comparison table of various screening methods**

BREAKDOWN OF SCREENING METHOD CHARACTERISTICS						
	COST	SCREEN FOR	TIME TO INSPECT	MATERIAL DISCOVERED	MATERIAL ID'd	INSTALLATION
<b>ACTIVE SYSTEMS</b>						
<b>X-ray</b>	\$1-10 million	Explosives, stolen goods, drugs	2-5 min	No	No	Mobile or fixed. Fixed sites need power, road access, personnel facilities and attention to radiation safety. Vehicles need mobility
<b>Standard</b>	\$1-5 million		2-5 min	No	No	
<b>Dual view</b>	\$10 million		2-5 min	No	No	
Backscatter	\$2-5 million		2-5 min	No	No	
Gamma ray	\$500 000-3 million		2-5 min	No	No	
Pulsed Fast Neutron analysis	\$10-25 million	Explosives, drugs	1 hr+	Yes	Yes	

Thermal Neutron activation	\$500 000-3 million	Explosives	1 hr+	Yes	Yes	
<b>PASSIVE SYSTEMS</b>						
<b>Vapour detection</b>	\$30-50 000	Prohibited gases	30-60 sec	Yes	Yes	Portable or desktop equipment operated by battery or electrical wallplug
<b>Trace detection</b>	\$30-50 000	Explosives, drugs	30-60 sec	Yes	Yes	
Radiation detection	\$10-50 000	Radiation	30-60 sec	No	Yes for radioactive material	
<b>Canines (dogs)</b>	\$7 000- 100 000 per year per unit	Explosives, drugs	10-60 sec	Limited by amount of training received	Yes	Require care, feeding, shelter

(Source: US Customs Services, [sa]).

The above table illustrates the various available screening methods in the USA (some of the highlighted ones are applicable to South Africa as well).

It is divided into two sections, being active and passive systems, it demonstrates the estimated cost of each method, what its detection capabilities are, the time it takes to inspect cargo and whether it is a fixed or mobile installation (Rountree & Demetsky 2004:26).

The above information is an apt comparison and can be used as a reference to evaluate the approved screening methods employed in South Africa, against the replies and input as detailed above.

**Table 2: Risks detected by each screening method**

<b>DETECTION CAPABILITIES OF SCREENING METHODS RESEARCHED</b>	
<b>X-ray</b>	Explosives, stolen/mislabelled goods, illegal drugs
Gamma Ray	Explosives, stolen/mislabelled goods, illegal drugs
Pulsed Fast Neutron analysis	Explosives, illegal drugs
Thermal Neutron activation	Explosives
<b>Vapour detection</b>	Dangerous gases
<b>Trace detection</b>	Explosives, illegal drugs
Radiation detection	Radioactive materials
<b>Canines (dogs)</b>	Explosives, illegal drugs

(Source: US Customs Services, [sa]).

The above Table 2 demonstrates the risks detected by each screening method, showing the capabilities of each method (Rountree & Demetsky 2004:53).

The above information is an apt comparison and can be used as a reference to evaluate the approved screening methods employed in South Africa, against the replies and input as detailed above.

## **7.5 COMPARING SOUTH AFRICA REGULATIONS TO UNITED STATES OF AMERICA AND EUROPEAN UNION REGULATIONS**

This section will explore the respondents' experience and understanding, when comparing South African ACSEC regulations to those of the USA and the EU.

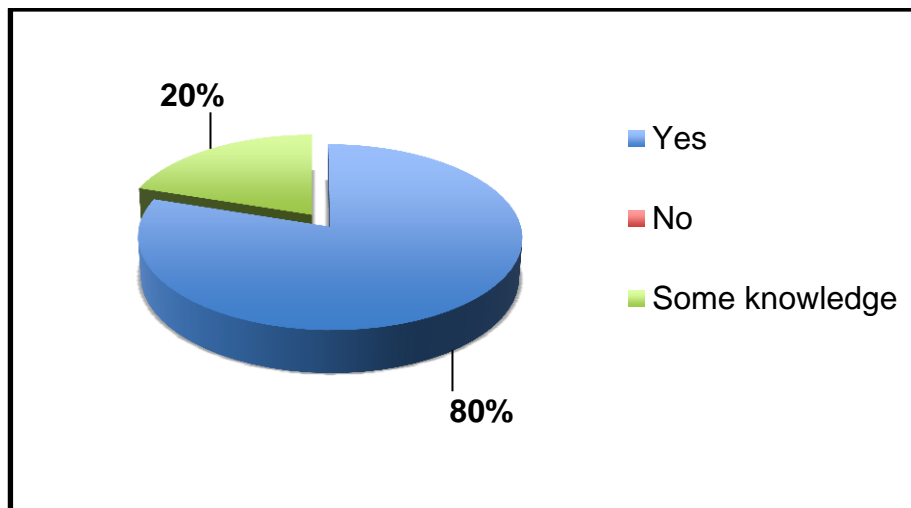
It is imperative for the country as a whole and for individual companies to comply with international best practices and standards.

Both ICAO and foreign airlines audit states and individual companies, failure to comply may result in cessation of operations leading to sever financial loses.

The first question was general, in order to establish the knowledge of respondents in respect of the USA and EU regulations.

**Question 33: Are you familiar with similar air cargo security regulations in different jurisdictions like the USA and in the EU?**

**Chart 32: Respondents' feedback in respect of familiarity with foreign regulations**



The vast majority, at 80 percent of respondents mentioned they are very familiar with international regulations from the USA and EU, as well as various other countries, depending on the exposure they have, the airlines they work with, and the destinations they fly to.

These respondents in most cases had first-hand experience and knowledge in respect of the relevant regulations in other countries, from on-site visits, as well as regular contact with the airlines they work with. Moreover most foreign airlines actually visit South Africa and audit local regulations versus the home country regulations. In so doing, they ensure that their regulations are met or at times are exceeded.

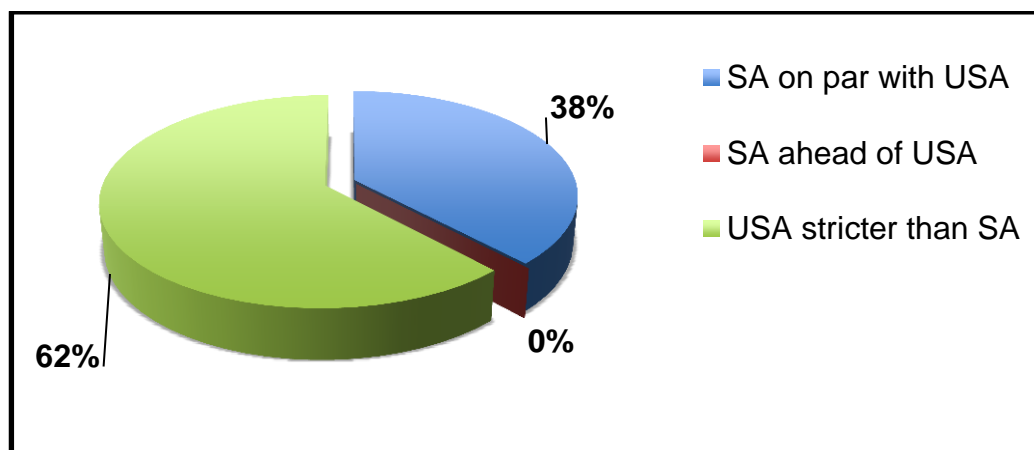
As an example, the researcher was referred to a recent visit by the American TSA to specifically audit the K9 capabilities and regulations in South Africa. Various airlines and several major regulated agents were visited and found that one company was providing K9 screening services. The TSA then visited this company's premises and witnessed their screening process. The researcher can mention that the feedback

from the TSA was very positive, the auditing team was highly impressed by the regulations, as well as the K9 standards that they witnessed.

Twenty percent of respondents were less familiar than the other respondents who actually worked in line with South African, as well as foreign regulations as part of their day-to-day duties. However, they were aware in general of the other countries' regulations, mostly from off the record discussions within the industry, as well as their own assessments and conclusions or views in this regard.

***Question 34: From your experience working in an international ACSEC environment, how does South Africa's regulations compare with the USA regulations?***

**Chart 33: Comparing South Africa regulations with USA regulations**



The initial differences cited between the USA and South African regulations, were that actually South Africa and the EU are more similar in their approach and regulations. Most of the respondents, at 62 percent felt that the USA is much stricter in its approach and regulations than South Africa, yet they mentioned that the USA only focuses, or cares about cargo entering the USA, while they seem to care less about cargo leaving the USA.

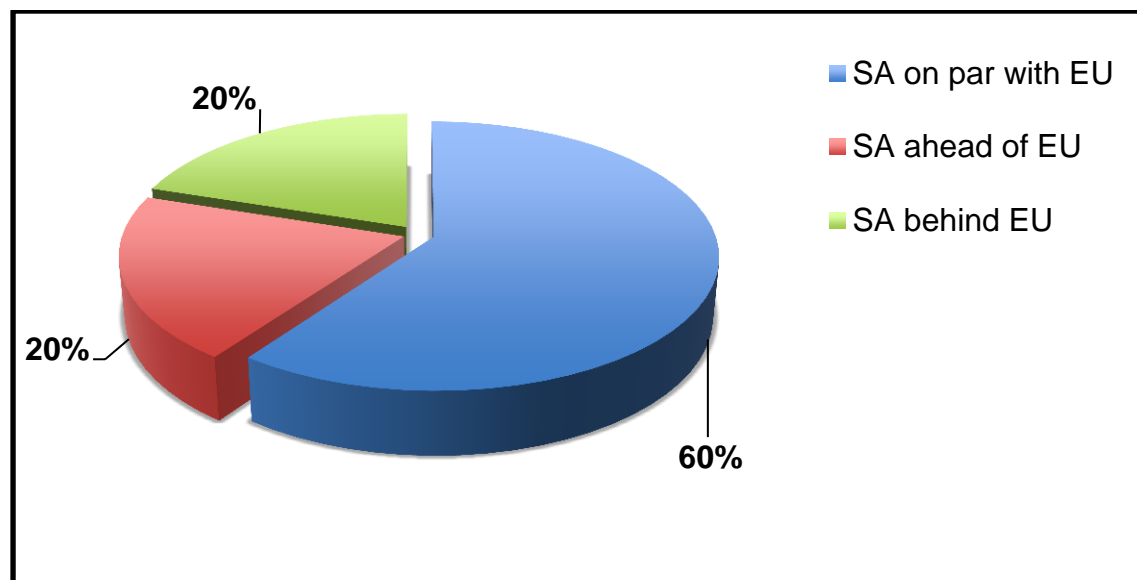
There was also a feeling that in the USA there is a compulsory or mandatory regulation, not like South Africa where compliance is deemed voluntary. The balance

of 38 percent of the respondents actually noted that the South African regulations are on par with the USA regulations.

A definite sense of criticism was noted towards the USA approach, where the feeling was that USA sets high standards and expects everyone to comply with their high standards in respect of cargo coming into the USA, yet their own standards in the USA for cargo leaving are not as strict as they make everyone else comply to. On the positive side, there was a definite feeling that the USA takes this seriously and they mean business, once they set regulations they make sure everyone complies. Their attitude of compulsory compliance was commended and the feeling of some of the respondents was that South Africa should follow suit and ensure everyone complies with Part 108 regulations as set in South Africa.

**Question 35: From your experience working in an international ACSEC environment, how does South Africa's regulations compare with the EU regulations?**

**Chart 34: Comparing South Africa regulations with EU regulations**



It was found that 60 percent of the respondents believed that the South African regulations are on par with the EU regulations, while 20 percent of the respondents



felt South Africa is behind the EU and an equal 20 percent of respondents felt that South Africa is actually ahead of the EU.

In this regard the level of exposure to the actual EU regulations played a part in the answer as most of the respondents that work closely with the EU, felt that South Africa is on par and both jurisdictions are at the same level more or less, where South Africa leads in certain areas but lack in others and vice versa.

All respondents were adamant that South Africa is in line and fully comply with ICAO standards and many referred to the ICAO audit conducted in 2011, as well as the many audits conducted by various international airlines, where they are all in agreement that South Africa is complainant with ICAO and all RA and KC comply with SACAA Part 108. There was a sense of pride and confidence that the South Africa regulations are compliant and in line with ICAO.

The EU's attitude of compulsory compliance was commended and the feeling of most respondents was that we should follow suit and ensure everyone complies with our regulations as set in South Africa.

## **7.6 QUESTIONS' RELATING TO TRAINING MATTERS AND GENERAL FINDINGS AND NOTES IN RESPECT OF PART 108**

This section details with training-related matters as well as general findings in respect of Part 108, issues such as the level of training, state entities co-operation, intelligence sharing and a proposed way forward are described below.

Levels of training in the air cargo industry were raised several times, in respect of various questions and matters.

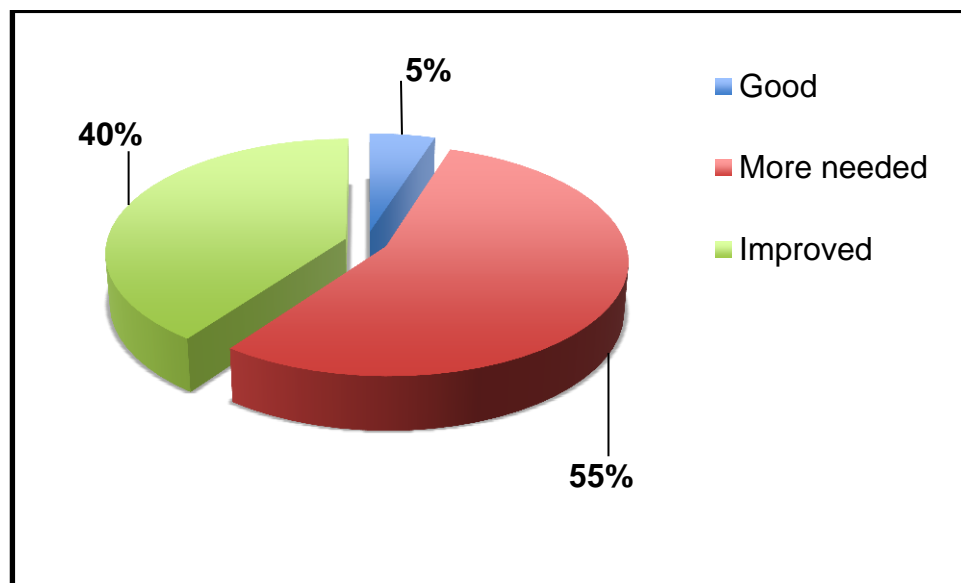
The human factor, which is closely related to training, was also raised, combined, these two factors are crucial for the correct implementation of Part 108 and the safeguarding of civil aviation against acts of unlawful interference.

This section also explored the co-operation between state entities as experienced by the respondents; it also explored the level of intelligence sharing in the air cargo environment.

**Questions' relating to Training matters and general findings and notes in respect of Part 108**

***Question 36: Please explain from your own experience, the level of awareness training as stipulated under Part 108?***

**Chart 35: The respondent's feedback in respect of Awareness Training**



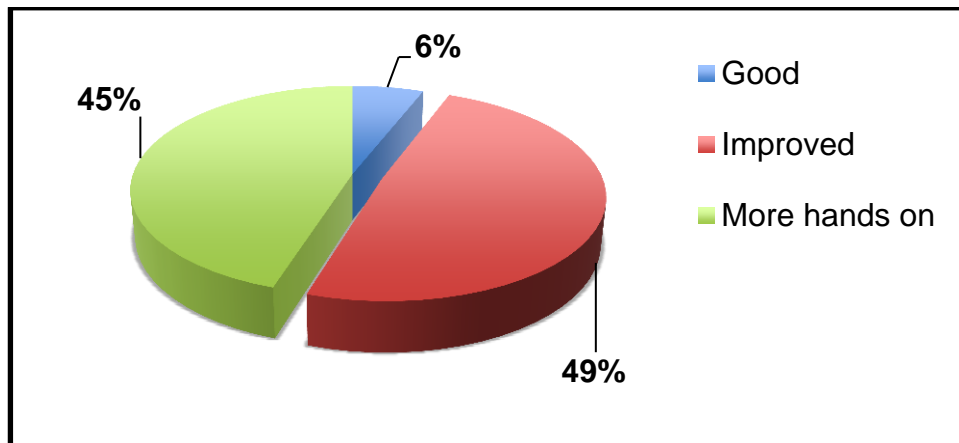
It was found that the awareness training was viewed generally in a positive light, where only five percent felt that awareness training is good in its current format and a further 40 percent noted it has improved from the past but the majority of the respondents at 55 percent stated that more is needed, meaning that it is acceptable, but it can still be improved on.

Awareness training is a basic course, designed to introduce the risks that the air cargo industry faces. Every person in the supply chain must undergo such training, as well as regular refresher training courses.

The sentiment of the majority of respondents that more is needed must be taken into account and more effort must be placed on such training. This type of training must continue and form the basis of each employee, only when security becomes everybody's business, can the industry view it as successful.

**Question 37: Please explain from your own experience, the level of screeners' training as stipulated under Part 108?**

**Chart 36: The respondent's feedback in respect of screeners' training**



There is a difference between the training of screeners and the awareness training. Screeners' training is designed specifically for screeners, teaching them to use the appropriate screening method and recognise explosive devices hidden within cargo.

It was found that the same sentiment was expressed in respect of screeners' training. Only six percent felt it is good in its current format, 49 percent felt that it has improved, while 45 percent felt more hands-on training was actually needed.

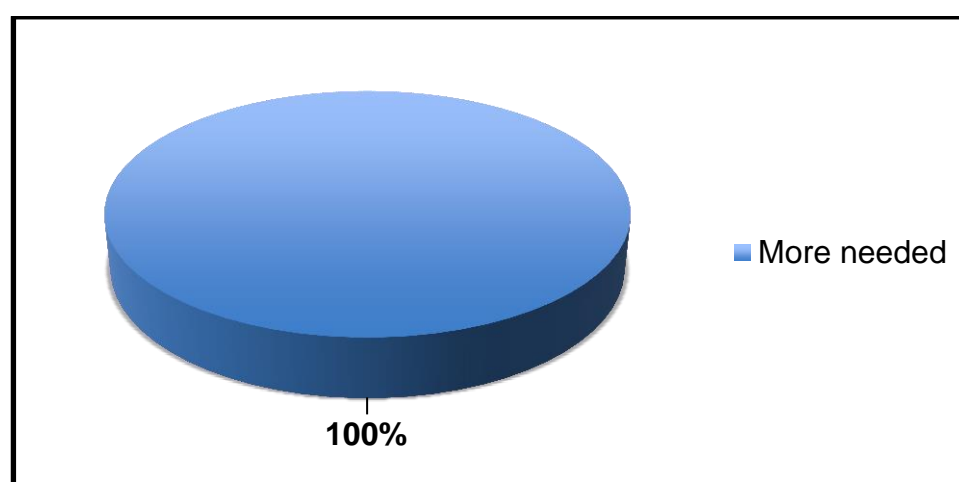
The fact that the training is mostly computer based and the 'On the Job Training' (OJT), is left for the individual companies to decide on, was raised as a concern, as well as the fact that very few training institutions have the necessary skills to actually train and show the screeners actual simulated devices, materials etc. This was also viewed as a concern.

Some respondents felt that a different approach must be taken in respect of screeners' training. Perhaps a more outcomes based system could be used; a system that truly trains them to identify Improvised Explosive Devices (IEDs). It was felt and expressed that training should be more practical; allowing the screeners to learn about the components of an IED and see them in a live situation (within reason

and safety of course). The respondents felt that new and innovative threats must be presented as part of the curriculum. The curriculum must therefore be more dynamic and improve constantly.

***Question 38: Please explain from your own experience, the level of general education in the industry in respect of ACSEC***

**Chart 37: The respondent's feedback in respect of general education of the industry in respect of ACSEC**



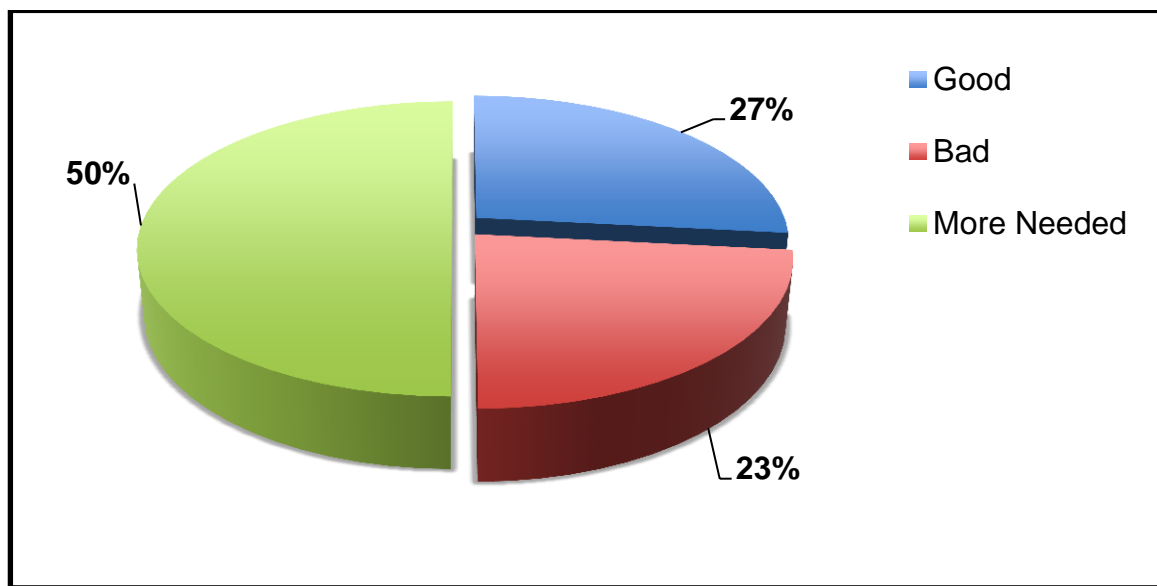
When asked about general education in the market, it was noted that 100 percent of the respondents felt that more education is needed within the freight industry. All the respondents expressed a wish that the SACAA would organise workshops and open days again as it did before the Part 108 implementation. They should explain the need for air cargo security for the immediate environment, as well as to the broader community.

The sentiment of the respondents was that senior managers and directors in the various companies, even at board level, must also be educated. The need for air cargo security must be clear to all levels within the company, starting at the top. At times the security manager's recommendation, even quoting the regulations, were ignored, due to ignorance and lack of understanding at the higher levels of the company.

## Questions relating to state entities co-operation and intelligence sharing

**Question 39: *From your experience working in an international ACSEC environment, is there sufficient co-operation between the various state agencies?***

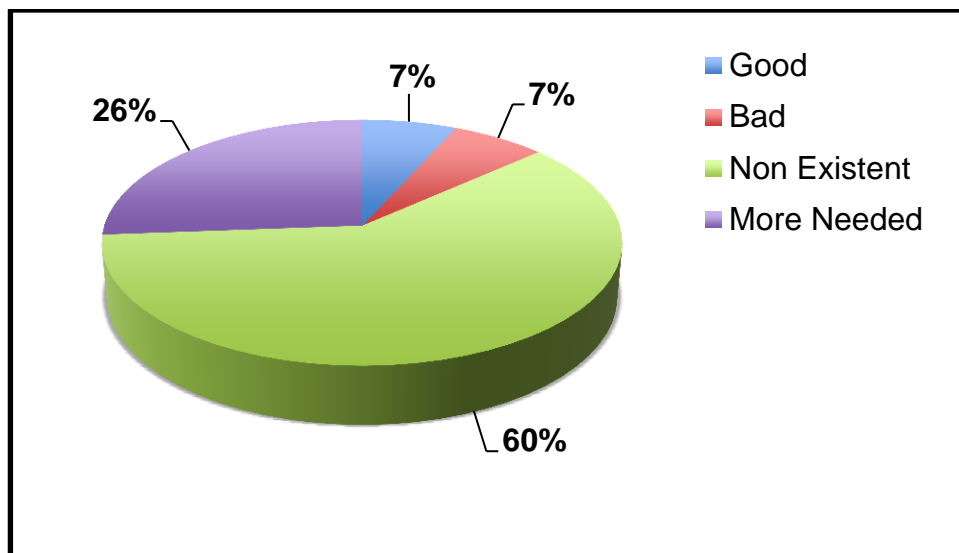
**Chart 38: Is there sufficient co-operation between state entities?**



On the issue of co-operation, the position of the respondents defined their reply. The impression the researcher got, was that people within state apparatus are aware of co-operation levels as they form part of the system. They therefore felt that the level of co-operation is good at 27 percent. Since most of this co-operation is between government departments, and most of the respondents may not be aware of this, therefore another 23 percent felt that the co-operation between state entities is bad. The balance of 50 percent of respondents who are aware to various degrees of state entities' co-operation, felt that there is some co-operation, yet much more could be done. They cited 'turf wars', politics, lack of knowledge and understanding as some of the factors leading to their comments that more is needed. An example was given that the SAPS is not sending its officers to undergo Part 108 training, yet the regulation requires every person working at the cargo environment to undergo at least a basic awareness course.

**Question 40: Please explain from your own experience, what is the level of intelligence sharing in respect of ACSEC?**

**Chart 39: What is the level of intelligence information sharing in the ACSEC environment?**



In respect of intelligence sharing, it was found that a vast majority of the respondents, at 60 percent felt that intelligence sharing actually is non-existent. The prevalent sentiments were that they have never or rarely received any intelligence from the SACAA or any other state entity, yet they are desperately in need and want to have such information, so they can set their measures and systems to curb and counter any potential threat or attack accordingly. A further seven percent stated that it is bad, while 26 percent said more is needed. The respondents all understood the needs of confidentiality and the 'need to know' basis. The intelligence that the companies look for is not the same as intelligence agencies. What they feel they lack are guidelines and threat levels, like the TSA in the USA, which informs the industry about imminent threats, MO's and such.

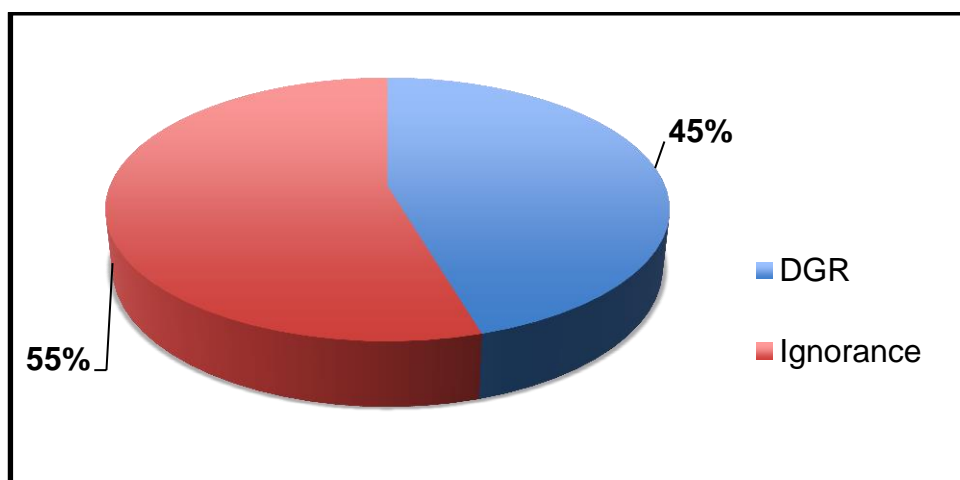
Only seven percent of respondents said that intelligence sharing was good, but these were mostly respondents from within the system, aware of Intelligence sharing at that level. The feeling on the ground, however, was such that no or little intelligence reaches the people working at the end of the chain. Some of the

respondents stated that they created informal and unofficial Information sharing mechanisms, one of which is the cargo crime forum. They mostly share information around criminal networks, modus operandi, vehicles used and such, since they all feel the lack of information flow and face the same challenges and if they can share information they can better protect themselves.

### **Questions' relating to other threats and the possible way forward in respect of a new forum**

***Question 41: Please explain from your own experience, what other threats, besides terrorism and crime, does air cargo security face in South Africa?***

**Chart 40: What other threats may pose a danger to air cargo?**



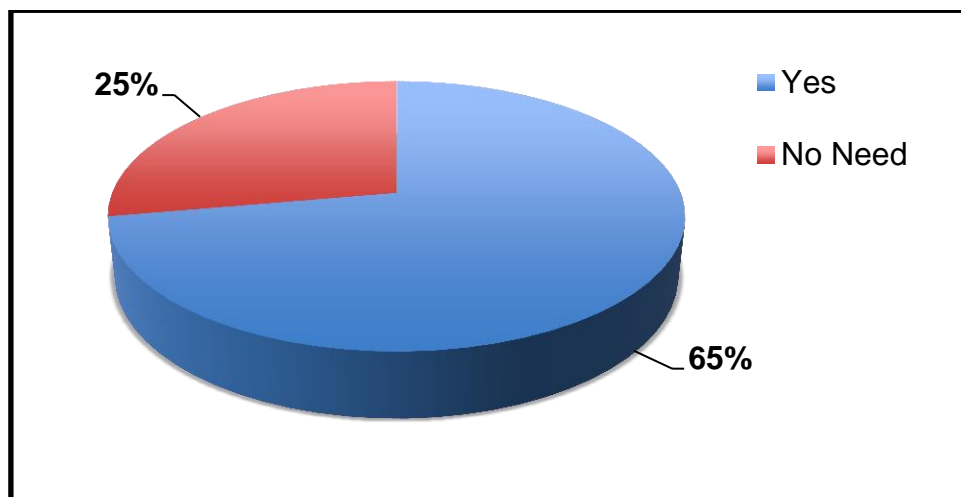
When asked what other threats the industry faces, two main issues came up. Fifty five percent of the respondents mentioned ignorance as the biggest threat. This point is also linked to the awareness and education issue, where 100 percent of the respondents agreed that more is needed by way of education. This is also tied up to the second threats raised, which according to 45 percent of respondents are dangerous goods (DGR).

Several examples were given to highlight these dangers in the form of hypothetical scenarios as below:

An innocent mistake, caused by ignorance and the presence of Dangerous Goods Regulations (DGR), such as a house contents move from Johannesburg to Sidney, can result in an aircraft accident in mid-air. Certain chemicals, such as pool chemicals mixed with certain liquids that can be found in any garage, can result in a fire on board an aircraft. A leaking lithium battery can also lead to fire on board, let alone a deliberate attack using household chemicals that are loaded on a container, where the screeners are not aware of what is allowed and what is not and where DGR are not declared.

**Question 42:** *Is there a need for a new forum for sharing information in respect of air cargo security matters?*

**Chart 41:** Respondents' feedback in respect of the need for a new forum



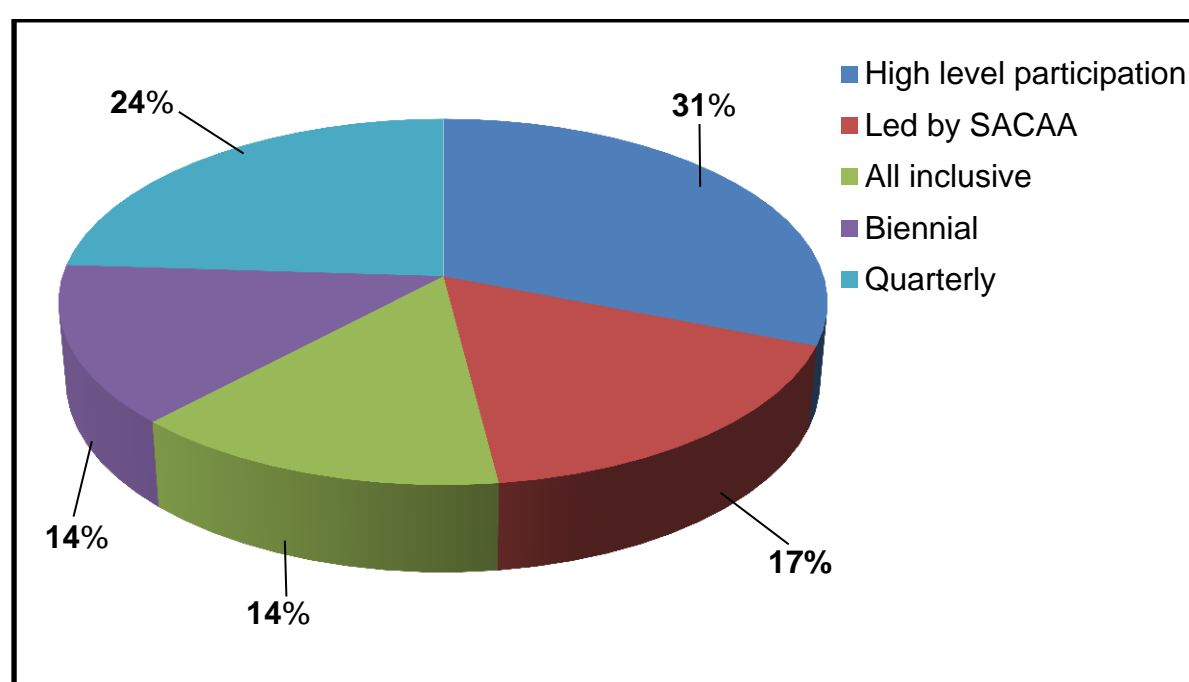
When discussing a new way forward, new thinking or a new approach, an idea came up to create a new forum. Sixty five percent of respondents agreed that they would gladly participate in a global forum. There seemed to be a craving for all roleplayers to get together at a high level forum and share information, difficulties and solutions.



A further 25 percent of respondents thought that there was no need for another forum, as the current forums are sufficient and a further ten percent of respondents actually felt that there are too many forums as it is. However, as the majority thought that a different forum was needed, the question was asked how would that take place and what form should it take?

**Question 43: How would you suggest this forum is constituted?**

**Chart 42: Respondents' feedback in respect of how they view the new forum**



It was found that 17 percent of the respondents replied that this type of forum must be set and run by the SACAA. A further 31 percent of the respondents said high-level individuals, people that can make decisions, must participate. A further 14 percent of the respondents commented that the forum should be all-inclusive, meaning it should have respondents from a wide variety of sectors.

A further 24 percent of respondents suggested it must take place on a quarterly basis and an equal 14 percent of respondents felt that it only needs to take place twice a year and agreed with the above sentiments.

## **7.7 CONCLUSION**

Chapters six and seven dealt with the specific, as well as general findings of this research.

The direct impact of Part 108, according to the respondents was discussed and examined. It was found that Part 108 had a profound impact on the industry by improving security levels and heightening awareness levels.

Part 108 also changed individual duties, as well as the way companies operate, Part 108 contributed to reduction in crime at the cargo sector and acts as a deterrent to potential terrorists.

This chapter also dealt with training matters, which are viewed as crucial in the air cargo security environment. More training and education are needed, which will lead to a better understanding for the industry as a whole and will upgrade screeners to higher levels of operations.

State entities co-operation and intelligence sharing were also discussed in this chapter, the sentiment in these respects was also similar to the training matter, more is needed and more is expected by the industry.

Chapter 8 will detail the recommendations and conclusions derived from the findings.

## CHAPTER 8

### RECOMMENDATIONS AND CONCLUSION

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#### 8.1 INTRODUCTION

The body of this research deliberated and explored various issues, putting into perspective the international legal framework, as well as international AVSEC and air cargo security regulations (Chapter 3). These international regulations direct and influence each member state's local regulations, as discussed in chapters Four (USA and EU regulations) and Five (SA local regulations). Thereafter the current threat was explained and further explored.

Chapters six and seven are the main source of information, on which the findings are based upon, leading to Chapter 8, where recommendations and conclusions are discussed.

These recommendations are linked to the main research questions as well as to the research aims and objectives as described in Chapter 1.

The research has dealt with the main issue or the research problem, what has been the impact of the application of international and local air cargo security regulations? It also dealt with the transformation of the air cargo industry in South Africa, examined the approved screening methods, while comparing South Africa to other leading jurisdictions such as the USA and the EU.

The researcher also feels that this research will greatly contribute to the industry's and public's knowledge and understanding of the different aspects which impact on the security of the South African air cargo industry.

It was found that Part 108 has greatly changed the shape and form of the air cargo industry in South Africa; from changing the daily duties and responsibilities of security managers, to improving and overhauling the operational ways of freight companies and airlines. This research has shown that Part 108 has had a positive impact on the air cargo industry, by greatly improving the level of air cargo security in

South Africa. Yet it was also found that Part 108 is not entirely perfect, as several concerns were raised and discussed under the findings chapters, (six and seven) where recommendations will then be proposed accordingly in this chapter.

This chapter details and explores the various recommendations and conclusions reached, based on the replies and input from the respondents. Each recommendation is explained and where applicable, a conclusion drawn accordingly.

## **8.2 RECOMMENDATIONS**

This segment will detail general recommendations and overview of the researcher's broad view in respect of recommendations.

### **8.2.1 Overview**

It is imperative that South African air cargo security specific regulations, as well as all other AVSEC regulations, are in line with ICAO's international standards. South Africa cannot afford to have low standards and thereby risk losing its global ranking as one of the world's best tourism destinations. The risks any country faces if its aviation standards are brought into question are severe and can seriously and negatively impact on tourism and trade. Therefore, the SACAA and the air cargo industry must continue to make every effort to comply or exceed international standards.

While using the SACAA approved screening methods, most respondents had concerns about the training levels of the operators, regardless of the actual screening method; the concern about the 'human factor' was always mentioned. If and when people make mistakes, the outcome can be disastrous. If one adds to the training levels concerns, the low salaries, long working hours and difficult working conditions, we may face a situation where the industry may be fooling itself into believing that it has a robust screening system.

All it takes is a lapse in concentration, a mistaken interpretation, or a tired screener or dog handler working double shifts and we have a new "Lockerbie incident". (Crowley & Butterworth, 2007: 1)

Hence the SACAA should double its current efforts to set higher training standards, by regulating the type and kind of training offered, as well as the desired outcomes.

It may also appear that the best solution to this quandary is to use a combination of various screening measures or methods. Nearly 75 percent of respondents felt that the best way is to use a combination of several methods. It may be costly, but it is probably the best route, both from the higher detection rates, flexibility and the ability to screen various types of cargo, using different methods, as well as from the deterrence factor, since the 'other side' does not know which screening method the company applies at any given time. They therefore cannot plan sufficiently to counter a specific method. This may lead to lesser reliance on the 'human factor' and increase detection probabilities.

The most popular combination may be the X-ray machine and K9 or ETD, where one plays a lead or a primary role and the other is a verification role. Hand search can always be used for secondary screening.

However, there are several other areas of concern that require some work. Some general concerns can be mentioned such as that more information and intelligence sharing is needed and more consistent audits should be carried out by the SACAA.

The SACAA should function at full strength, with the appropriately qualified personnel. It is imperative that there are sufficient inspectors and auditors to oversee the entire industry. It is suggested that the SACAA strive to employ people from within the industry, with relevant first-hand knowledge, understanding and experience.

The upgrade of screeners' training is another critical area. Training methods and curriculum should include more practical training, as the aim at the end of the training is to test and evaluate the actual effectiveness of screeners, not just to receive a certificate.

The industry is requesting more interaction with the SACAA as positive and negative feedback to and from the relevant companies will assist them in maintaining and improving standards where possible.

The industry is also requesting more enforcement on non-compliant companies. Some companies feel it is unfair that smaller companies, at times, may be, or appear to be, bending some rules to save costs.

Before Part 108 was implemented, customs and border police were mandated to screen cargo and look for dangerous or prohibited items, as well as drugs and counterfeit goods. Since Part 108 was introduced, the requirement to screen every export parcel actually assists customs in their fight. Most if not all cargo shipments these days are thoroughly examined and inspected. This is one of the major differences of the 'pre-Part 108' era and the 'post-Part 108' era. It is imperative that compliance is maintained now and the regulations continue to be consistently applied and audited accordingly.

One of the major impacts is the positive change that Part 108 has mandated, the actual screening of cargo shipments that are loaded on board an aircraft, making the whole supply chain safer and air travel in general much more secure. Criminals and terrorists are aware of the strict screening requirements making air cargo a less attractive target.

Part 108 specifically makes mention of transshipment cargo. Such cargo must be subjected to the same security measures and it must be made sure that it remains a 'known cargo' and therefore safe to fly. All RA must ensure that their transshipment cargo is indeed screened or it has undergone appropriate screening at its original port. They must ensure that it is still 'known cargo' as if they were the original shipper.

Dangerous goods could be a real danger to aircraft and, if not declared, may go unnoticed. X-ray screening can assist in identifying dangerous goods such as gas canisters, batteries etc. All RA and screening companies must remind their

screeners that their role is to actively look for Dangerous goods and not only IEDs or IIDs (Improvised Incendiary Devices). This should be an integral part of their training.

The criminal element has changed its *modus operandi* since the new cargo security measures were introduced. These criminal acts have become more sophisticated and paper based. Information leaks are the source of the criminal's ability to forge shipping documents and draw cargo under false pretences, instead of actually physically stealing cargo, as was common before Part 108 was implemented. It is imperative that these new crime trends are noticed, taken into considerations and counter-measures are implemented accordingly.

There is still no x-ray machine large enough to screen whole containers or trucks. There has been made mention of purchasing a vehicle scanner, but it has not happened yet. The current method of remote air sampling (both RASCO and MEDDS) should therefore be looked at in more detail. Case in point is Air France at Charles de Gaulle (CDG) Airport in Paris, where whole trucks are being screened using the REST method.

#### **8.2.2 Specific Recommendations relating to the South African Civil Aviation Authority (SACAA)**

The air cargo security department must be fully staffed allowing the department to efficiently and effectively monitor and audit the complete supply chain countrywide.

The air cargo security department should strive to employ appropriately qualified and experienced personnel.

The SACAA should consider a two tiered screening method approval. The X-ray, K9 and ETD as the primary methods with hand search as secondary method. The researcher recommends a combination of two screening methods at least, which would lead to better detection and introduce changing conditions and unpredictability for any potential attacker.

There should be better quality audits and more frequent ones. There should be a yearly official and published audit schedule, with scheduled audits to all RA and KC,

as well as continuation and increase of surprise audits and screeners physical screening and interpretation tests.

SACAA should further ensure strict compliance and adherence to Part 108 regulations. There should also be better and stricter enforcement on non-compliant companies, with applicable penalties levied to ensure compliance is maintained.

Better dissemination and sharing of information on international and local regulations and best practices in security measures should be ensured. Applicable intelligence information should be disseminated to designate persons at regulated companies; allowing companies to apply risk based counter measures.

There should also be an official mechanism for intelligence and information sharing within the air cargo security community.

Further development of practical training modules for screeners should be accelerated and OJT (On-the-Job-Training) programmes must be monitored by the SACAA.

Screeners' training should be more practical and more 'hands on'. SACAA may again explore setting a separate designation such as the 'AVSEC or ACSEC screener' together with PSIRA, with better or higher remuneration. This area may require further research, both the higher levels of screeners' training and its practical application as well as the correlation between remuneration and performance levels.

There should be a re-evaluation of the Known Consignor concept, since there is low acceptance, a change may be necessary.

A tiered system should be introduced, where one level is obliged to become regulated and a second level is set up where it is voluntary. This is similar to the RA and KC concepts, except that RA will become compulsory to certain category of companies.

It may be practical to link all regulated agent companies to the SARS's database, allowing further monitoring of export companies which are regulated or not.



State entities' co-operation in respect of Part 108 and AVSEC in general, should be enhanced. For example, all SARS and SAPS personnel dealing with air cargo must undergo Part 108 training. There should also be better sharing of information between all industry roleplayers and relevant government departments.

Wider use of information technology should be considered, conversion of all information, records and risk analysis to electronic systems should be implemented, thus allowing the industry to better monitor trends and evaluate risks. This would create a joint profiling system in respect of air cargo.

A new all-inclusive forum should be set up, led by the SACAA, where all senior roleplayers are invited to from all sectors; governments, private, RA, KC, Airlines, service providers etc. where information is shared openly. This forum should be at a high level, where decision makers can make the appropriate informed decisions and share information. This should be on a bi-annual basis.

### **8.2.3 General recommendations for the air cargo industry**

The industry could explore the possibility of a central screening solution, where all methods are available and based on a profiling system, as well as random rotation. All cargo should be screened using the best available method.

The other possible solution is to set up an independent, central screening facility, where various methods are used randomly at times and specifically at others, based on risk profile.

A national integrated database should be established, networking with all regulated agents and known consignors, sharing information relating to crime trends, modus operandi, companies and individuals identified as having malicious intent and various other threats. A profiling system should be created that allows the industry to define high-risk cargo.

The industry, together with the relevant authorities should evaluate the threats to air cargo security in a South Africa, based on such aspects as capabilities, intentions and past activities.

The industry together with the relevant authorities should then conduct an evaluation of vulnerabilities to those threats, which infers identifying precise weaknesses that may be exploited and proposing measures to address these vulnerabilities. The industry together with the relevant authorities should then evaluate the relative importance of addressing the identified vulnerabilities.

The above process would allow the industry together with the relevant authorities to target their resources and efforts into specific areas with higher priorities. It should also ensure that international standards are adhered to and adapted according to actual threats and national requirements.

The above can take place at a dedicated, SACAA led, 'think tank', specifically looking at AVSEC and ACSEC threats. With the right people putting their collective experience and knowledge, the industry can greatly improve its security levels.

### **8.3 CONCLUSIONS**

Most respondents affirmed that the South African regulations fully complied with ICAO standards and recommended practices, the researcher noticed a definite sense of pride in the fact that South African regulations conform and adhere to international standards.

Two principal positive themes were regularly mentioned: heightened security levels and heightened awareness levels. Both are critical elements in ensuring strict air cargo security controls. Part 108 has undoubtedly made a positive impact on the air cargo industry in South Africa. From its humble and at times troubled roots, to a world class example of regulations. Part 108 is in line with ICAO standards and is at least on par or exceeds many other countries regulations.

The fact that South Africa has passed various international audits, by many airlines, as well as ICAO and the TSA, is an encouraging one. The researcher was involved in several such audits and can unreservedly confirm that South African standards

are well in line with international ones, however, the challenge the air cargo industry face is in maintaining good standards and improve or exceed such, where possible.

Even though the industry concurs that security levels have improved, there is still a concern about some companies that may 'take chances'. This term was often used during the interviews process. The SACAA therefore must continue to enforce the regulations and increase its oversight over all and any company exporting cargo.

The industry is expecting tough enforcement, as it is proud of its achievements in respect of compliance. The SACAA should also further increase its efforts to produce and certify highly qualified screeners, as the 'human factor' concerns raised by the respondents are genuine concerns.

Screeners' training and their remuneration was a concern, related to the 'human factor' issue, this issue was raised consistently in relation to screening methods. The conclusion is simple, the technology is sound, however the quality of the people that use and operate it, is questioned at times. The SACAA must also increase its efforts to allay any concerns about the quality of screeners' training and their accreditation that the SACAA oversees and regulates.

It is clear that Part 108 has had a positive impact on reducing crime at the cargo environment. It is now more important than before to maintain high levels of screening and increase security where possible, as well as factor the new risks from sophisticated fraud and more electronic types of crime.

Askew (2011:4), wrote an article titled: *"Who poses the greatest risk to aviation security: the terrorist or the accountant?"* This is a good question, as the conclusion so far in South Africa is that a good balance exists between operational requirements and financial concerns and hopefully the fact that no incident took place yet, will not lead the accountants to cut security costs in order to save money.

Part 108 was put in place as a first step, the intention from the onset was to implement it and improve henceforth. Part 108 must remain a 'live' regulation, improving and advancing constantly. The SACAA and the industry must take into

consideration international regulations and risks, coupled with local regulations and risks, resulting in a targeted legislation aimed at reducing threats to air cargo security in South Africa.

Part 108 had a major positive impact on the industry, yet the respondents raised some concerns, which were explored in detail under the findings chapters. The industry and the SACAA are awaiting this research report and the researcher has no doubt that some of the concerns have been addressed via various recommendations and suggestions, making this research project valuable to the industry and a huge contribution to safety of the aviation industry in South Africa.

## LIST OF REFERENCES

### Books/Monographs

- Abeyratne, R.I.R. (2010). *Aviation Security Law*. Montreal: Springer.
- Alexander, Y. and Sochor, E. (1990). *Aerial Piracy and Aviation Security*. The Netherlands: Martinus Nijhoff.
- Altrichter, H., Feldman, A., Posch, P. and Somekh, B. (2008). *Teachers investigate their work: An introduction to action research across the professions*. 2<sup>nd</sup> edition. Oxford: Routledge.
- Anderson, D. (2012). *The Terrorism Acts In 2011: Report of the Independent Reviewer on the Operation of the Terrorism Act 2000 and of Part 1 of the Terrorism Act 2006*. London: The Stationery Office.
- Babbie, E. (2001). *The practice of social research*. 9<sup>th</sup> edition. Belmont, CA: Wadsworth.
- Bogan, C.E. and English, M.J. (1994). *Benchmarking for best practices: Winning through innovative adaptation*. New York: McGraw-Hill.
- Bryman, A. (2000). *Qualitative quality in social research*. London: Unwin Routledge.
- Buchanan, D. and Bryman, A. (2009). *The Sage handbook of organizational research methods*. London: Sage.
- Creswell, J.W. (1998). *Research design: qualitative and quantitative. Mixed methods approach*. California: Sage.
- De Vos, A.S., Strydom, H., Fouche, C.B. and Delport, C.S.L. (2002). *Research at grass roots level*. 2<sup>nd</sup> edition. Pretoria: Van Schaik.
- Denzin, N.K. and Lincoln, Y.S. (2000). *Handbook of qualitative research*. 2nd edition. London: Sage.
- Elagab, O. and Elagab, J. (2007). *International law documents relating to terrorism*. 3<sup>rd</sup> edition. Oxford: Routledge.
- Elias, B. (2009). *Airport and aviation security: US policy and strategy in the age of global terrorism*. New York: CRC.
- Emerson, R.M, Rachel I. Fretz, R.I, and Shaw, L.L. (1995). *Writing ethnographic fieldnotes*. Chicago: University Of Chicago.
- Giemulla, E.M. and Weber, L. (2011). *International and EU Aviation Law*. The Netherlands: Kluwer Law International.
- Henning, E., Van Rensburg, W. and Smit, B. (2004). *Finding your way to qualitative research*. Pretoria: Van Schaik.

- Holstein, J.A., Gubrium, J.F. (1995). *The active interview: Qualitative research methods*. London: Sage.
- Kvale, S. (1996). *Interviews: An introduction to qualitative research interviewing*. London: Sage.
- Marshall, C. and Rossman, G.B. (1995). *Designing qualitative research*. 2<sup>nd</sup> edition. Thousand Oaks, CA: Sage.
- McNicholas, M. (2011). *Maritime security: An introduction*. Burlington, MA: Butterworth-Heinemann Homeland Security Series.
- Mento, P. (2004). *C-TPAT and USA: Understanding the effectiveness of trade partnerships for customs enforcement*. North Carolina: Lulu.
- Milde, M. (2008). *International Air Law and ICAO*. The Netherlands: Eleven International.
- Minnaar, A. (2003). *Policing the ports: Reducing illicit trafficking in South Africa*. ISS Monograph Series No. 84. Brooklyn: Institute for Security Studies.
- O'Donoghue, T. and Punch, K. (2003). *Qualitative educational research in action: Doing and reflecting*. Oxford: Routledge.
- Price, J.C. and Forrest, J.S. (2008). *Practical aviation security: Predicting and preventing future threats*. Burlington, MA: Elsevier/Butterworth-Heinemann.
- Sánchez, P.A.F. (2009). *International legal dimension of terrorism*. The Netherlands: Martinus Nijhoff .
- Seidman, I. (1998). *Interviewing as qualitative research*. 2<sup>nd</sup> edition. New York: Teachers College Press.
- Shank, G.D. (2002). *Qualitative research: A personal skills approach*. New York: Merrill Prentice Hall.
- Slabbert, M.S. (2003). Aviation and air transport. In C.S. Margo, A.M. Conradie and R.D. Margo. *The Law of South Africa*, 2(1), 2<sup>nd</sup> edition. Durban: LexisNexis/Butterworths.
- Sweet, K.M (2009). *Aviation and airport security: Terrorism and safety concerns*. 2<sup>nd</sup> edition. New York: CRC.
- Thomas, A.R. (2008). *The context of aviation security management: Aviation Security Management*. Volume 1, 2 and 3. Connecticut: Greenwood.
- Trapp, K.N. (2011). *State responsibility for international terrorism*. New York: Oxford University Press.

Welman, J.C. and Kruger, S.J. (1999). *Research methodology for the business and administrative sciences*. Halfway House: International Thomson Publishing (Southern Africa).

### **Chapter in a publication or book**

Alemán, M.A. (2008). The international civil aviation security program established by ICAO (Pp. 65-76). In A.R. Thomas. (Ed). *The context of aviation security management*. Aviation Security Management. Volume 1, 2 and 3. Connecticut: Greenwood.

Davies, H., Singh, N. and Spies, J. 2013. Aviation Law. (Chapter 24: 577-594). In Webber Wentzel. *Investing in South Africa 2012/2013: Postcards from an Investment Destination*. Johannesburg: Webber Wentzel Inc. Available at: [http://www.webberwentzel.com/wwb/action/media/downloadFile?media\\_fileid=7590](http://www.webberwentzel.com/wwb/action/media/downloadFile?media_fileid=7590) (accessed on: 21 February 2013).

Elphinstone, G. (2008). The early history of aviation security practice (Pp.1-8). In A.R. Thomas. (Ed). *The context of aviation security management*. Aviation Security Management. Volume 1, 2 and 3. Connecticut: Greenwood.

Forest, J.J.F. (2008). Modern terrorist threats to aviation security (Pp.98-121). In A.R. Thomas. (Ed). *The context of aviation security management*. Aviation Security Management. Volume 1, 2 and 3. Connecticut: Greenwood.

Hoffer, E. (2008). Air cargo security (Pp.146-168). In A.R. Thomas. (Ed). *The context of aviation security management*. Aviation Security Management. Volume 1, 2 and 3. Connecticut: Greenwood.

Kvale, S. (1996). Interviews: An introduction to qualitative research interviewing. In: Sewell, M. (2001). *The use of qualitative interviews in evaluation*. Available at: <http://ag.arizona.edu/fcr/fs/cyfar/Intervur.htm> (accessed on: 22 March 2012).

### **Research reports/dissertations/theses**

Buzdugan, M. (2005). *Current and emerging air cargo security and facilitation issues*. LLM dissertation. Institute of Air and Space Law. McGill University, Montreal, Canada. Available at: <http://www.tiaca.org/images/tiaca/PDF/Current%20and%20Emerging%20Air%20Cargo%20Security%20and%20Facilitation%20Iss.pdf> (accessed on: 23 April 2011).

- Rountree, C.D. and Demetsky, M.J. (2004). *Development of counter measures to security risks from air cargo transport*. Research Report No.UVACTS-5-14-63 for the Mid-Atlantic Universities Transportation Centre (MAUTC)/ Centre for Transportation Studies. University of Virginia. Charlottesville, VA, USA. Available at: <http://cts.virginia.edu/docs/UVACTS-5-14-63.pdf> (accessed on: 23 April 2011).
- Schneider, G. (2005). *An examination of the required operational skills and training standards for a Close Protection Operative in South Africa*. MTech Security Management dissertation. University of South Africa, Pretoria. Available at: <http://uir.unisa.ac.za/bitstream/handle/10500/734/dissertation.pdf?sequence=1> (accessed on: 10/10/2014).
- Stewart, M.G. and Mueller, J. (2008). *Assessing the costs and benefits of United States homeland security spending*. Research Report No. 265.04.08, Centre for Infrastructure Performance and Reliability, The University of Newcastle, NSW. Australia. Available at: <http://politicalscience.osu.edu/faculty/jmueller//stewarr2.pdf> (accessed on: 1 January 2013).
- US Customs Services. [Sa.]. Breakdown of screening method characteristics. U.S. Treasury Advisory Committee on Commercial Operations of the United States Customs Service. Washington DC: US Customs Services
- US Customs Services. [Sa.]. Detection capabilities of screening methods researched. U.S. Treasury Advisory Committee on Commercial Operations of the United States Customs Service. Washington DC: US Customs Services

### **Online studies and reports**

- Anon. (2000). *The 9/11 Commission Report*. Available at: <http://www.9-11commission.gov/report/911Report.pdf> (accessed on: 3 June 2013).
- Anon. (2010). *Closing the gaps in air cargo security*. Hearing before the Committee on Homeland Security and Governmental Affairs, United States Senate, one hundred eleventh Congress. Available at: <http://www.hsdl.org/?view&did=13729> (accessed on: 23 June 2013).
- Carey, B. (2012). *USA and EC Align on Cargo Security Rules*. Available at: <http://www.ainonline.com/aviation-news/ain-air-transport-perspective/2012-06-04/us-ec-align-cargo-security-rules> (accessed on: 21 June 2013).



- Creswell, J.W. (2008). *An introduction to qualitative research*. Available at: <http://www.nmmu.ac.za/documents/education/South%20Africa%20%20Nelson%20Mandela%20U%20-%20Qual%20Intro.pdf> (accessed on: 2 May 2011).
- Crowley, P.J. and Butterworth, B.R. (2007). *keeping bombs off planes: Securing air cargo, aviation's soft underbelly*. Centre for American Progress. Available at: [http://www.americanprogress.org/issues/2007/05/pdf/air\\_cargo.pdf](http://www.americanprogress.org/issues/2007/05/pdf/air_cargo.pdf) (accessed on: 12 April 2011).
- Elias, B. (2003). *Air cargo security*. Available at: [www.fas.org/sgp/crs/homesecc/RL32022.pdf](http://www.fas.org/sgp/crs/homesecc/RL32022.pdf) (accessed on: 12 April 2011).
- Elias, B. (2008). *Aviation Security: Background and policy options for screening and securing Air Cargo*. Available at: [www.fas.org/sgp/crs/homesecc/RL34390.pdf](http://www.fas.org/sgp/crs/homesecc/RL34390.pdf) (accessed on: 5 April 2011).
- Elias, B. (2010). *Screening and securing air cargo: Background and Issues for Congress*. Available at: <http://www.fas.org/sgp/crs/homesecc/R41515.pdf> (accessed on: 5 April 2011).
- Emerson, R.M. (1995). *Writing ethnographic field notes*. Chicago: University of Chicago Press. Available at: <http://www.pacificdiscovery.org/credit/SEAre readings/Robert%20et.al.%20-%20Writing%20Ethnographic%20Fieldnotes.pdf> (accessed on: 22 May 2012).
- Juul, P. (2010). *Addressing continuing vulnerabilities in air cargo security*. Center for American Progress. Available at: [http://www.americanprogress.org/issues/2010/11/air\\_cargo\\_security.htm](http://www.americanprogress.org/issues/2010/11/air_cargo_security.htm) (accessed on: 12 March 2012).
- Vaughn, B., Chanlett-Avery, E., Dolven, B., Manyin, M.E., Martin, M.F. and Nicksch, L.A. (2010). *Terrorism in Southeast Asia*. CRS Report for Congress, RL34194. 16 October. Washington D.C.: Congressional Research Service. Available at: <http://www.fas.org/sgp/crs/terror/RL34194.pdf> (accessed on: 23 July 2013).

### Journal/online articles

- Bliss, J. (2005). Air-Cargo screening: 'A disaster waiting to happen,' critics say. *Bloomberg*. Available at: [http://www.bloomberg.com/apps/news?pid=newsarchive&sid=asap.u05WtsE&refer=top\\_world\\_news](http://www.bloomberg.com/apps/news?pid=newsarchive&sid=asap.u05WtsE&refer=top_world_news) (accessed on: 21 September 2012).
- Calabresi, M. (2010a). The weak spot in air security: Cargo screening. *Time Magazine*. Available at: <http://www.time.com/time/nation/article/0,8599,2028872,00.html> (accessed on: 10 April 2011).
- Calabresi, M. (2010b). Bombs on board. *Time Magazine*. Available at: <http://www.time.com/time/magazine/article/0,9171,2029495,00.html> (accessed on: 10 April 2011).
- Clark, N. (2012). U.S. and European Union Agree on Air Cargo Security. *New York Times*. Available at: [http://www.nytimes.com/2012/06/01/business/us-and-europe-agree-on-air-cargo-rules.html?\\_r=0](http://www.nytimes.com/2012/06/01/business/us-and-europe-agree-on-air-cargo-rules.html?_r=0) (accessed on: 21 September 2012).
- Cruickshank, P., Robertson, N. and Shiffman, K. (2012). How safe is the cargo on passenger flights?. *CNN*. Available at: <http://edition.cnn.com/2012/02/16/travel/cargo-terror-concerns/index.html> (accessed on: 23 June 2013).
- Donalek, J.G. (2004). Demystifying nursing research: Phenomenology as a qualitative research method. *Urologic Nursing*, 24. Available at: <http://health.prenhall.com/nieswiadomy/pdf/NIESWIADOMY10.pdf> (accessed on: 12 April 2012).
- Donnelly, S.B. (2004). The new air security threat, *Time Magazine*. Available at: <http://www.time.com/time/nation/article/0,8599,590058,00.html> (accessed on: 10 April 2011).
- Eisenberg, D., (2001). Airline security: how safe can we get? *Time Magazine*, 24 September. Available at: <http://www.time.com/time/magazine/article/0,9171,1000876,00.html> (accessed on: 10 April 2011).
- Keteyian, A. (2010). Report reveals huge air cargo security hole. *CBS News*. Available at: [http://www.cbsnews.com/8301-18563\\_162-7052524.html](http://www.cbsnews.com/8301-18563_162-7052524.html) (accessed on: 23 June 2013).

- Mandel, D.R. (2005). Are risk assessments of a terrorist attack coherent? *Journal of Experimental Psychology*. Available at: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.186.5820&rep=rep1&type=pdf> (accessed on: 1 January 2013)
- Mendenhall, P. (2013). Alert highlights air cargo risks. *NBC News*. Available at: [http://www.msnbc.msn.com/id/3403777/ns/us\\_news-security/t/alert-highlights-air-cargo-risks/](http://www.msnbc.msn.com/id/3403777/ns/us_news-security/t/alert-highlights-air-cargo-risks/) (accessed on: 23 June 2013).
- Nadler, J.L., Markey, E.J. and Thompson, B.G. (2012). Cargo, the terrorists' Trojan Horse. *New York Times*. Available at: [http://www.nytimes.com/2012/06/27/opinion/the-dangerous-delay-on-port-security.html?\\_r=0](http://www.nytimes.com/2012/06/27/opinion/the-dangerous-delay-on-port-security.html?_r=0) (accessed on: 23 July 2013).
- Ospina, S. (2003). Qualitative research. Robert F. Wagner Graduate School of Public Service New York University. Available at: [http://wagner.nyu.edu/leadership/publications/files/Qualitative\\_Research.pdf](http://wagner.nyu.edu/leadership/publications/files/Qualitative_Research.pdf) (accessed on: 2 June 2011).
- Peterson, J. and Treat, A. (2008). The Post-9/11 global framework for cargo security. United States International Trade Commission. *Journal of International Commerce and Economics*. Available at: [http://www.usitc.gov/publications/332/journals/cargo\\_security.pdf](http://www.usitc.gov/publications/332/journals/cargo_security.pdf) (accessed on: 23 July 2013).
- Poole, R.W. (2009). The case for risk-based aviation security policy. *World Customs Journal*, 3(2). Available at: [http://www.worldcustomsjournal.org/media/wcj/2009/2/WCJ\\_V3N2\\_Poole\\_\(web\).pdf](http://www.worldcustomsjournal.org/media/wcj/2009/2/WCJ_V3N2_Poole_(web).pdf) (accessed on: 21 June 2013).
- Sawer, P. Barrett, D. Rayment, S. and Hennessy, P. (2010). Yemen bomb plot: Key questions raised. *The Telegraph*. Available at: <http://www.telegraph.co.uk/news/uknews/terrorism-in-the-uk/8099344/Yemen-bomb-plot-key-questions-raised.html> (accessed on: 10 April 2011).
- Stewart, M.G. (2008). Cost-effectiveness of risk mitigation strategies for protection of buildings against terrorist attack. *Journal of Performance of Constructed Facilities, American Society of Civil Engineers*. Available at: <http://politicalscience.osu.edu/faculty/jmueller/STEWJPCF.PDF> (accessed on: 1 January 2013)

- Stewart, M.G. and Mueller, J. (2013). Terrorism risks and cost-benefit analysis of aviation security. *Journal of Transport Security*. Available at: <http://cryptome.org/avsec-assess.pdf> (accessed on: 23 July 2013).
- The European Union (EU) (The European Parliament and the Council of the European Union). (2002). Commission Regulation (EC) No 2320/2002 of the European Parliament and of the Council of 16 December 2002 Establishing Common Rules in the Field of Civil Aviation Security. *Official Journal of the European Communities*. Available at: <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:355:0001:0021:EN:PDF> (accessed on: 3 December 2012).
- The European Union (EU) (The European Parliament and the Council of the European Union). (2003). Commission Regulation (EC) No 622/2003 of 4 April 2003, laying down measures for the implementation of the common basic standards on aviation security. *Official Journal of the European Communities*. Available at: <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:089:0009:0010:EN:PDF> (accessed on: 3 December 2012).
- The European Union (EU) (The European Parliament and the Council of the European Union). (2003a). Commission Regulation (EC) No 1217/2003 of 4 July 2003. Laying down common specifications for national civil aviation security quality control programmes. *Official Journal of the European Communities*. Available at: <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:169:0044:0048:EN:PDF> (accessed on: 3 December 2012).
- The European Union (EU) (The European Parliament and the Council of the European Union). (2008). Commission Regulation (EC) No 300/2008 of the European Parliament and of the Council of 11 March 2008 on common rules in the field of civil aviation security and repealing Regulation (EC) No 2320/2002. *Official Journal of the European Communities*. Available at: <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:097:0072:0084:EN:PDF> (accessed on: 3 December 2012).
- Vinsik, S. (2011). Air cargo security: Time for the world to take new measures. *Forbes*. Available at: <http://www.forbes.com/sites/ciocentral/2011/08/15/air-cargo-security-time-to-take-new-measures/> (accessed on: 23 July 2013).

## Magazine articles

- Askew, G. (2011). Who poses the greatest risk to aviation security: The terrorist or the accountant? *Aviation Security International (ASI)*, 17(2):4-6. Available at: <http://content.yudu.com/A1rtma/ASlApr11V17I2/resources/index.htm?referrerUrl=http%3A%2F%2Fwww.asi-mag.com%2Fback-copies> (accessed on: 2 March 2012).
- Fernandez, J. (2011). Intelligence and air cargo security. *Air Transport IT Review*, 2, June. Available at: <http://www.sita.aero/content/intelligence-and-air-cargo-security> (accessed on: 23 June 2013).
- Neeman, A. and Banerjee, J. (2011). Cargo screening, technological options. *Aviation Security International (ASI)*, 17(4):34-39. Available at: <http://www.asi-mag.com/news/cargo-screening-technological-options> (accessed on: 12 March 2012).
- Roder, F. (2007). Air Cargo, Screening: assessing the feasibility. *Aviation Security International (ASI)*, 13(6): 8-9. Available at: [http://dwnicholson.com/Air\\_Cargo\\_ASI\\_Article.pdf](http://dwnicholson.com/Air_Cargo_ASI_Article.pdf) (accessed on: 21 September 2012)
- Tompkinson, N. (2011). Aviation security: time for a rethink? *Aviation Security International (ASI)*, 17(1): 4-5. Available at: <http://www.asi-mag.com/news/aviation-security-time-for-a-re-think> (accessed on: 2 March 2012).
- Wolff, S. (2013). Cargo screening: any improvement? *Aviation Security International (ASI)*, 17(2): 12-14. Available at: <http://www.asi-mag.com/cargo-screening-improvement/> (accessed on: 24 April 2012).

## White papers

- Anon. (2009). *White Paper: Air Cargo Screening. Interim Final Rule 2009*. National Air Transportation Association (NATA). Available at: [http://www.nata.aero/data/files/GIA/airline%20services%20council/1009aircargosecnprm\\_wp\\_asc.pdf](http://www.nata.aero/data/files/GIA/airline%20services%20council/1009aircargosecnprm_wp_asc.pdf) (accessed on: 23 June 2012).
- Anon. (2011). Air Cargo Security Policy Newsletter: EU Transport White Paper. Available at: <http://ebookbrowse.com/cargo-security-policy-newsletter-apr-13-eu-transport-white-paper-pdf-d167532053> (accessed on: 23 June 2012).

## Legislative Acts

- Department of Defence, South Africa. (1957). Defence Amendment Act 4 of 1997. *Government Gazette*, 381(17893). Pretoria: Government Printers. 27 March. Available at: [http://www.saflii.org/za/legis/num\\_act/daa1997136/](http://www.saflii.org/za/legis/num_act/daa1997136/) (accessed on: 02 August 2012).
- Department of Home Affairs, South Africa. (2000). Immigration Act 13 of 2002. *Government Gazette*, 23478. Pretoria: Government Printers. 31 May. <http://www.info.gov.za/view/DownloadFileAction?id=68047> (accessed on: 23 October 2012).
- Department of Homeland Security, United States of America. (2002). Homeland Security Act of 2002. Public Law 107–296. USA. Available at: [http://www.dhs.gov/xlibrary/assets/hr\\_5005\\_enr.pdf](http://www.dhs.gov/xlibrary/assets/hr_5005_enr.pdf) (accessed on: 3 December 2012).
- Department of Homeland Security, United States of America. (2004). Intelligence Reform and Terrorism Prevention Act of 2004. Public Law 108–458. USA. Available at: <http://www.gpo.gov/fdsys/pkg/PLAW-108publ458/pdf/PLAW108publ458.pdf> (accessed on: 3 December 2012).
- Department of Justice and Constitutional Development. South Africa. (1962). Extradition act 67 of 1962. Amended Extradition Amendment Act 77 of 1996). *Government Gazette* 17589. Pretoria: Government Printers. 20 November. Available at: [http://www.saflii.org/za/legis/num\\_act/ea1996229/](http://www.saflii.org/za/legis/num_act/ea1996229/) (accessed on: 23 October 2012).
- Department of Police. South Africa. (1995). South African Police Service Act 68 of 1995. *Government Gazette*, 1527. Pretoria: Government Printers. 4 October. Available at: [http://uscdn.creamermedia.co.za/assets/articles/attachments/02722\\_sapsact68.pdf](http://uscdn.creamermedia.co.za/assets/articles/attachments/02722_sapsact68.pdf) (accessed on: 2 August 2012).
- Department of Telecommunications. South Africa.(1958).Post office Act 44 of 1958). As amended, Post Office Amendment Act 1 of 1997. *Government Gazette*, 382(17960). Pretoria: Government Printers. 25 April. Available at: <http://www.info.gov.za/acts/1997/act11.htm> (accessed on: 23 October 2012).
- Department of Transport, South Africa. (2011). Civil Aviation Act 13 of 2009. *Government Gazette*, 34105. Pretoria: Government Printers. 11 March. Available at: [www.gov.za/documents/download.php?f=143697](http://www.gov.za/documents/download.php?f=143697) [This Act has

- been updated in *Government Gazette*, 35183, 27 March 2012). Available at: <http://www.caa.co.za/LexisNexis/Lnb.asp> (accessed on: 3 December 2012).
- Department of Transport, South Africa. (2011). Aviation Act 74 of 1962. *Government Gazette*, 22173. Pretoria: Government Printers. 30 March. Available at: <http://www.caa.co.za/resource%20center/acts%20&%20regs/Amendments/TWENTY-SEVENTH%20AMENDMENT.pdf> (accessed on: 3 December 2012).
- Department of Transport, South Africa. (2011). South African Civil Aviation Authority Act 40 of 1998. *Government Gazette*, 19212. Cape Town: Government Printers. 4 September. Available at: [www.gov.za/documents/download.php?f=70698](http://www.gov.za/documents/download.php?f=70698) (accessed on: 3 December 2012).
- Department of Transport, South Africa. (2004). Civil Aviation Offences Act 10 of 1972. *Government Gazette*, 26671. Pretoria: Government Printers. 13 August. Available at: [www.pmg.org.za/files/gazettes/061117transport-sixthamend.htm](http://www.pmg.org.za/files/gazettes/061117transport-sixthamend.htm) (accessed on: 3 December 2012).
- Department of Transport, South Africa. (2004). Civil Aviation Regulations, 1997 (Repealed by 2011 Regulations). *Government Gazette*, R.518 Pretoria: Government Printers. 3 April. Available at: <http://www.caa.co.za/LexisNexis/Lnb.asp> (accessed on: 3 December 2012).
- Department of Transport, South Africa. (2008). Document SA-CATS-108. Part 108, Air Cargo Security. Part 108 of the Civil Aviation Regulations. South African Civil Aviation Authority: Aviation Security: Air Cargo Security. Available at: [http://www.caa.co.za/resource%20center/safety%20&%20sec/Air%20Cargo%20Security/INDUSTRY%20GETTING%20READY%20FOR%20PART%20108%20\(2\).htm](http://www.caa.co.za/resource%20center/safety%20&%20sec/Air%20Cargo%20Security/INDUSTRY%20GETTING%20READY%20FOR%20PART%20108%20(2).htm) (accessed on: 25 April 2011).
- Department of Transport, South Africa. (2011). Civil Aviation Regulations, 2011. *Government Gazette*, 35398. Pretoria: Government Printers. 1 June. Available at: <http://www.caa.co.za/LexisNexis/Lnb.asp> (accessed on: 3 December 2012).
- International Civil Aviation Organisation, (ICAO).(1974). *International Standards and Recommended Practices - Annex 17 to the Convention on International Civil Aviation*. Available at:

<http://www2.icao.int/en/AVSEC/SFP/Pages/Annex17.aspx>. (accessed on: 16 May 2011).

International Civil Aviation Organisation, (ICAO). (1963). *Convention on Offences and Certain Other Acts Committed on Board Aircraft* (Tokyo Convention). Available at: <http://www.icao.int/Meetings/LC35/References/Tokyo%20Convention.EN.FR.SP.pdf> (accessed on: 10 October 2014).

International Civil Aviation Organisation, (ICAO). (1970). *Convention for the Suppression of Unlawful Seizure of Aircraft*. (The Hague Convention). Available at: [http://www.icao.int/secretariat/legal/Administrative%20Packages/hague70\\_en.pdf](http://www.icao.int/secretariat/legal/Administrative%20Packages/hague70_en.pdf) (accessed on: 10 October 2014).

International Civil Aviation Organisation, (ICAO). (1971). *Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation*. (The Montreal Convention of 1971). Available at: [http://www.icao.int/secretariat/legal/Administrative%20Packages/montreal\\_71\\_en.pdf](http://www.icao.int/secretariat/legal/Administrative%20Packages/montreal_71_en.pdf) (accessed on: 10 October 2014)

International Civil Aviation Organisation, (ICAO). (1991). *Convention on the Marking of Plastic Explosives for the Purpose of Detection*. (The Montreal Convention of 1991). Available at: [http://www.icao.int/secretariat/legal/Administrative%20Packages/mex\\_en.pdf](http://www.icao.int/secretariat/legal/Administrative%20Packages/mex_en.pdf) (accessed on: 10 October 2014)

International Civil Aviation Organisation, (ICAO). (2011). Annex 17 to the Convention on International Civil Aviation. Security. Safeguarding International Civil Aviation Against Acts of Unlawful Interference. International Standards and Recommended Practices. In: *Catalogue of ICAO Publications and Audio-visual Training Aids*. Available at: <http://www.gobookee.org/icao-annex-17/> (accessed on: 23 June 2013).

Ministry of Safety and Security, South Africa. (2001). Private Security Industry Regulation Act 56 of 2001. *Government Gazette*, 23051. Pretoria: Government Printers. 25 January. Available at: <http://www.info.gov.za/view/DownloadFileAction?id=68158> (accessed on: 2 August 2012).



- Ministry of Safety and Security. South Africa. (2003). Explosives Act 15 of 2003. *Government Gazette*, 25893. Pretoria: Government Printers. 8 January. Available at: <http://www.info.gov.za/view/DownloadFileAction?id=67990> (accessed on: 2 August 2012).
- Ministry of Safety and Security. South Africa. (2000). Firearms Control Act 60 of 2000. *Government Gazette*, 22214. Pretoria: Government Printers. 10 April. Available at: <http://www.info.gov.za/view/DownloadFileAction?id=68229> (accessed on: 23 October 2012).
- Ministry of Safety and Security, South Africa. (2004). Protection of Constitutional Democracy Against Terrorist and Related Activities Act 33 of 2004. *Government Gazette*, 27266. Pretoria: Government Printers. 11 February. Available at: <http://www.info.gov.za/view/DownloadFileAction?id=67972> (accessed on: 23 October 2012).
- Ministry of Safety and Security, South Africa. (2007). National Key Points Act 102 of 1980 (as amended by National Key Points and Strategic Installations Bill 2007). *Government Gazette*, 29789. Pretoria: Government Printers. 8 April. Available at: [www.saps.gov.za/docs\\_pubs/legislation/juta/a102of1980.pdf](http://www.saps.gov.za/docs_pubs/legislation/juta/a102of1980.pdf) (accessed on: 23 October 2012).

### **Internet sources/websites**

- Anon. (2013). *Air Cargo Newsletter*, TSA. Available at: [http://www.tsa.gov/sites/default/files/assets/pdf/Intermodal/newsletter\\_january\\_2013.pdf](http://www.tsa.gov/sites/default/files/assets/pdf/Intermodal/newsletter_january_2013.pdf) (accessed on: 23 June 2012).
- Anon. (2000). TSA sets cargo screening deadline for international inbound passenger aircraft. *Newsletter*, 16 May. Available at: <http://www.tsa.gov/press/releases/2012/05/16/tsa-sets-cargo-screening-deadline-international-inbound-passenger-aircraft> (accessed on: 2 May 2012).
- Anon. (2012). *IATA Applauds historic US-EU Cargo Security Agreement*. Press Release 20, 1 June. Available at: <http://www.iata.org/pressroom/pr/pages/2012-06-01-01.aspx> (accessed on: 02 May 2012).
- Anon. (2010). *EU ministers agree more air cargo security needed*. Press Release. Available at: <http://www.euractiv.com/security/eu-ministers-agree-air-cargo-sec-news-499545> (accessed on: 23 June 2013).

- Hoffer, E. and Beadling, W. (2009). *Air cargo screening and security: A collaborative solution for compliance*. Press Release. Available at: [http://www.rigsecure.com/article.php/ins\\_outs.1.html](http://www.rigsecure.com/article.php/ins_outs.1.html) (accessed on: 21 July 2012).
- International Civil Aviation Organisation, (ICAO), (2011). *Aviation Security Branch. Annex 17*. Available at: <http://www2.icao.int/en/AVSEC/SFP/Pages/Annex17.aspx> (accessed on: 23 June 2012)
- International Civil Aviation Organisation, (ICAO), (2011a). *Aviation Security Branch. Security manual. Document 8973*. Available at: <http://www.icao.int/Security/SFP/Pages/SecurityManual.aspx> (accessed on: 23 June 2013)
- International Air Transport Association, (IATA). (2013). *Recommended practice 1630. Cargo security*. Available at: <http://www.iata.org/whatwedo/cargo/security/Documents/csc-recommended-practice1630.pdf> (accessed on: 1 June 2013)
- Raven, J. (2004). *Trade facilitation and the new security environment*. United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). Available at: [http://www.unescap.org/cm3/2006/CMG3-I/English/CMG3-I\\_3E.pdf](http://www.unescap.org/cm3/2006/CMG3-I/English/CMG3-I_3E.pdf) (accessed on: 2 May 2012).
- South African Civil Aviation Authority, (SACAA). 2008. *South Africa introduces new regulations for air cargo security*. Media Release, 13 May. Available at: [http://www.caa.co.za/press\\_files/2008/Press%20Release%20-%20New%20Regulations%20for%20Air%20Cargo%20Security.pdf](http://www.caa.co.za/press_files/2008/Press%20Release%20-%20New%20Regulations%20for%20Air%20Cargo%20Security.pdf) (accessed on: 23 June 2013)
- South African Civil Aviation Authority, (SACAA). (2009). *Air cargo security. Part 108*. Available at: <http://www.caa.co.za/Pages/Aviation%20Security/Air-cargo-security.aspx> (accessed on: 1 June 2013)
- South African Civil Aviation Authority, (SACAA). (2009a). *About us*. Available at: <http://www.caa.co.za/Pages/About%20Us/About-Us.aspx>. (accessed on: 1 June 2013)
- South African Civil Aviation Authority, (SACAA). (2009b). *CAA mandate*. Available at: <http://www.caa.co.za/Pages/About%20Us/CAA-Mandate.aspx> (accessed on: 1 June 2012).

- South African Civil Aviation Authority, (SACAA). (2009c). *CAA management*. Available at: <http://www.caa.co.za/Pages/About%20Us/Management.aspx> (accessed on: 1 June 2013).
- South African Civil Aviation Authority, (SACAA). (2009d). *CAA areas of oversight*. Available at: <http://www.caa.co.za/Pages/About%20Us/Areas-of-Oversight.aspx> (accessed on: 1 June 2013).
- South African Civil Aviation Authority, (SACAA). (2009e). *AVSEC primary objective*. Available at: <http://www.caa.co.za/Pages/Aviation%20Security/AVSEC-primary-objective.aspx> (accessed on: 1 June 2013).
- South African Civil Aviation Authority, (SACAA). (2009f). *Air cargo security*. Available at: <http://www.caa.co.za/Pages/Aviation%20Security/Air-cargo-security.aspx> (accessed on: 1 June 2013).
- South African Civil Aviation Authority, (SACAA). (2009g). *Training and certification*. Available at: <http://www.caa.co.za/SitePages/Aviation%20Security/aviation-security-training-intro.aspx> (accessed on: 1 June 2013).
- South African Civil Aviation Authority, (SACAA). (2009h). *National AVSEC committee*. Available at: <http://www.caa.co.za/Pages/Aviation%20Security/National-AVSEC-committee.aspx> (accessed on: 1 June 2013).
- South African Civil Aviation Authority, (SACAA). (2009i). *National AVSEC programme*. Available at: <http://www.caa.co.za/Pages/Aviation%20Security/National-AVSEC-programme.aspx> (accessed on: 1 June 2013).
- Transportation Security Administration, (TSA). (2012). *About the TSA*. Available at: <http://www.tsa.gov/about-tsa> (accessed on: 3 February 2012).
- Transportation Security Administration, (TSA). (2012a). *Layers of security*. Available at: <http://www.tsa.gov/about-tsa/layers-security> (accessed on: 3 February 2012).
- Transportation Security Administration, (TSA). (2012b). *911 and the TSA*. Available at: <http://www.tsa.gov/about-tsa/911-and-tsa> (accessed on: 3 February 2012).
- Transportation Security Administration, (TSA). (2012c). *Preventing terrorism and enhancing security*. Available at: <http://www.dhs.gov/preventing-terrorism-and-enhancing-security> (accessed on: 12 March 2012).

Transportation Security Administration, (TSA). (2012d). *Innovation and technology*. Available at: <http://www.tsa.gov/about-tsa/innovation-and-technology> (accessed on: 12 March 2012).

Transportation Security Administration, (TSA). (2012e). *Air cargo*. Available at: <http://www.tsa.gov/stakeholders/air-cargo> (accessed on: 12 March 2012).

Transportation Security Administration, (TSA). (2012f). *Programs and initiatives*. Available at: <http://www.tsa.gov/stakeholders/programs-and-initiatives-1> (accessed on: 12 March 2012).

Transportation Security Administration, (TSA). (2012g). *TSA sets cargo screening deadlines*. Press release 16 May 2012. Available at: <http://www.tsa.gov/press/releases/2012/05/16/tsa-sets-cargo-screening-deadline-international-inbound-passenger-aircraft> (accessed on: 16 June 2012).

Transportation Security Administration, (TSA). (2012h). *TSA certified cargo screening program*. Available at: <http://www.tsa.gov/certified-cargo-screening-program> (accessed on: 16 June 2012).

Transportation Security Administration, (TSA). (2013). *TSA's Air cargo Newsletter*. January 2013. Available at: [http://www.tsa.gov/sites/default/files/assets/pdf/Intermodal/newsletter\\_january\\_2013.pdf](http://www.tsa.gov/sites/default/files/assets/pdf/Intermodal/newsletter_january_2013.pdf) (accessed on: 23 October 2013).

## **Interviews**

Interview 1. 2012. Manager. ACSEC and AVSEC Training. PRISK. Kempton Park. 28 March.

Interview 2. 2012. Manager. World Net Logistics. Modderfontein. 25 July.

Interview 3. 2012. Manager. Globe Freight. Jet Park. 25 July.

Interview 4. 2012. Manager: Business Support. Kintetsu World Express SA. Jet Park. 25 July.

Interview 5. 2012. Manager. Courier IT. Kempton Park. 23 July.

Interview 6. 2012. Director. Professional Risk and Asset Management. Lanseria. 22 May.

Interview 7. 2012. Manager. ORTIA and Cargo. South African Airways. Kempton Park. 4 July.

Interview 8. 2012. Manager. CFR Freight. Jet Park. 15 May.

Interview 9. 2012. Manager: Cargo – ORTIA OPS. South African Airways. Kempton Park. 3 July.

Interview 10. 2012. Manager: AVSEC. Menzies Aviation South Africa. Kempton Park. 29 June.

Interview 11. 2012. Manager: Security. Menzies Aviation South Africa. Kempton Park. 15 May.

Interview 12. 2012. Senior officer: Cargo. ORTIA SAPS. Kempton Park. 18 July.

Interview 13. 2012. Director of BIDAir cargo and CEO of SAIPA. Kempton Park. 18 April.

Interview 14. 2012. Compliance/Investigation Officer. Menzies Aviation SA. Kempton Park. 19 July.

Interview 15. 2012. Dep. Director: Aviation Security. Department of Transport. Pretoria. 17 July.

Interview 16. 2012. Manager: Cargo Services SCS. Swissport SA. Kempton Park. 11 April.

Interview 17. 2012. Safety and Security Supervisor. AMI South Africa. Kempton Park. 19 July.

Interview 18. 2012. Executive. Airlink Cargo. Kempton Park. 19 June.

Interview 19. 2012. Security Advisor. (Ex SACAA, ACSEC Inspector). Kempton Park. 20 June.

Interview 20. 2012. Manager: Exports Division. Toll Global Forwarding. Jet Park. 24 July.

Interview 21. 2012. Security and Investigation. UPS. Kempton Park. 31 July.

Interview 22. 2012. Executive: Security Solutions. Transit Group. Bedfordview. 14 May.

Interview 23. 2012. Manager: Cargo Security, Aviation security. SACAA. Midrand. 8 November.

Interview 24. 2012. Manager. Bidvest Panalpina Logistics. Kempton Park. 16 May.

Interview 25. 2012. Executive. ACSA Corporate. ACSA. Bedfordview. 13 June.

Interview 26. 2012. Executive. Aviation Co-ordination Services. Kempton Park. 19 June.

Interview 27. 2012. Executive. AVSCAN Training. Jet Park. 31 July.

Interview 28. 2012. Security Manager: Africa. Lufthansa Cargo. Kempton Park. 24 May.

Interview 29. 2012. Director. ACR – Airline Cargo Resources. Kempton Park. 23 May.

Interview 30. 2012. Executive. Airlines Association of Southern Africa. Modderfontein. 15 June.

## ANNEXURES

### ANNEXURE A: UNISA LETTER TO SACAA RE PERMISSION TO DO RESEARCH



<b>SECURITY MANAGEMENT PROGRAMME</b> (incorporating Security Risk Management) <b>DEPT. OF CRIMINOLOGY &amp; SECURITY SCIENCE</b> <b>SCHOOL OF CRIMINAL JUSTICE, COLLEGE OF LAW</b> <i>Prof. A.deV. Minnaar</i> Tel: (+27) (0)12-429 2160      Cell: 0838949485 Fax: (+27)(0)12-429 6609      Fax2email: 0865190625 e-mail: aminnaar@unisa.ac.za      TrW 9 <sup>th</sup> -130		<u><b>Muckleneuk Campus</b></u> Preller St Muckleneuk Ridge, Pretoria PO Box 392 UNISA 0003 City of Tshwane Gauteng, South Africa
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01 June 2012

**Mrs. P.Gwebu**  
**Senior Manager: Communications and Marketing Department**  
**South African Civil Aviation Authority**  
**Ikhaya Lokundiza, Building 16**  
**Treurek Close, Waterfall Park, Bekker Street**  
**Midrand**

Dear Mrs Gwebu

**REQUEST FOR PERMISSION TO DO RESEARCH FOR THE MTECH DEGREE  
(SECURITY MANAGEMENT) ON THE IMPACT OF THE APPLICATION OF AIR  
CARGO SECURITY REGULATIONS IN SOUTH AFRICA**

Mr **Eytan Nevo** is currently a Masters student in the Programme: Security Management of the Dept. of Criminology & Security Science at the University of South Africa (UNISA). The title for his MTech in Security Management is **"THE IMPACT OF THE APPLICATION OF INTERNATIONAL AIR CARGO SECURITY REGULATIONS IN SOUTH AFRICA"**.

The primary research aims of this study are the following:

The research study seeks to provide insights into the air cargo security industry in light of international and local regulations; the research will investigate the impact these regulations had on the air cargo security sector in South Africa.

The research will also investigate best practices and screening methods to achieve high levels of air cargo security, ensuring that no acts of unlawful interference to civil aviation occurs, as well as seek to determine the potential impact the regulations had on criminal acts relating to the air cargo security chain.

The key objectives of this research project are:

- *To determine and understand the impacts international air cargo security regulations have on the air cargo industry in South Africa;*
- *To ascertain what methodologies and best practices are generally used to ensure high level of air cargo security ; and*
- *To establish what impact, if at all, such regulations had on the criminal aspects in relation to air cargo security.*

The researcher will develop specific interview questions to inform the three key objectives of the research study. The researcher will gain permission and support from the Senior Manager: Communications and Marketing Department at the SACAA, before scheduling any interviews with various stakeholders. The researcher will interview , after permission is granted, several employees of the SACAA that have direct knowledge of the air cargo security environment, as well as various individuals within the industry.



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These interviews will focus on the personal and professional knowledge and understanding of these individuals, specifically seeking to understand the three key objectives.

For example, interviews to be held with the senior managers responsible for air cargo security at the SACAA, including (if granted) with the GM.

Interviews will also be held with heads of security for various airlines, regulated agents, SAPS, SARS as well as with training providers and equipment manufacturers.

Follow-up interviews or telephone interviews will be done if necessary.

The researcher will take into account all relevant ethical considerations, especially in relation to the freedom from physical or psychological harm; disclosure about the nature of the research; and privacy. All the information that is received from the participants will be treated with the utmost confidentiality (e.g. respondents will remain anonymous and no reference will be made of the company for which they work). Company and personal names will not be used in the research report, unless specifically agreed to. Participation in the research interviews will also be on a voluntary basis.

The results of the research study will contribute to the air cargo security's body of knowledge, which is to improve the security level within the air cargo security network. Good air cargo security strategies will help any organisation to implement good security management practices and corporate governance.

The results of the research will also assist in identifying the criteria that air cargo security strategies need to meet before being approved by the board of a company/business/organisation. The various air cargo security models can be used as a guideline to formulate an aligned air cargo security strategy.



(Prof)

A. de V. Minnaar

Programme Head: Security Management  
Department of Criminology & Security Science  
School of Criminal Justice, College of Law



(Mr)

Eytan Nevo

UNISA Student Number: 4343-470-3

Tel: 084 311 0221





## ANNEXURE B: SACAA PERMISSION LETTER

*SOUTH AFRICAN*



Physical Address:  
Ikhaya Lokundiza  
Treur Close  
Waterfall Park  
Bekker Street  
Midrand

Postal Address:  
Private Bag X 73  
Halfway House  
1685

Telephone Number:  
+27 11 545 1000  
Fax Number:  
+27 11 545 1465

E-mail Address:  
mail@caa.co.za  
Website Address:  
www.caa.co.za

19 June 2012

Prof A de V Minnaar

Programme Head: Security Management  
Department of Criminology & Security Science  
School of Criminal Justice, College of Law

Dear Prof Minnaar,

RE: Permission to conduct a research study at the South African Civil Aviation Authority

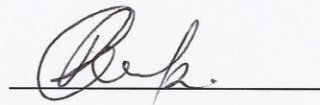
The SACAA was approached by Mr Eytan Nevo with a request to undertake a research project regarding air cargo security and the impact on the industry in the South African context.

The request was considered and an approval was granted by the Director of Civil Aviation on condition that Mr Nevo can share the findings or the outcome of this research with our Aviation Security department.

Board Members: Ms P Riba (Chairperson of the Board), Mr S Motau, Mr P Ndlovu, Dr N Sangweni, Adv R R Dehal, Mr Z Nonwete, Mr Z Thwala (Acting DCA) and Mr V Ndwamato, Company Secretary: Mr A Motake

To this end Mr Nevo will work closely with Mr Tebogo Mphela, manager Aviation Security with the information he requires. We would like to wish Mr Nevo well during his studies.

With kind regards,

A handwritten signature in black ink, appearing to read 'Phindiwe', is written over a horizontal line.

Phindiwe Gwebu

Senior Manager: Corporate Communications and Marketing

CC. Tebogo Mphela

Manager: Aviation Security

Board Members: Ms P Riba (Chairperson of the Board), Mr S Motau, Mr P Ndlovu, Dr N Sangweni, Adv R R Dehal  
Mr Z Nomvete, Mr Z Thwala (Acting DCA) and Mr V Ndwamato, Company Secretary: Mr A Motake

## **ANNEXURE C: INTERVIEW QUESTIONS**

### **Title of research project:**

## **THE IMPACT OF THE APPLICATION OF INTERNATIONAL AIR CARGO SECURITY REGULATIONS IN SOUTH AFRICA**

### **Main research question:**

***What has been the impact of the changing international and South African air cargo security regulations on the South African air cargo transport industry?***

### **INTERVIEW QUESTIONS:**

#### **General background and biographical questions (Questions 1-4)**

1. Please *describe in brief your current position in your company? Including Role, duties and responsibilities.*
2. Please Detail how many years have you been involved in the air cargo industry?
3. *Please Detail how many years you have been in your current position at your company?*
4. Please detail when was your first introduction/interaction with Part 108?

#### **Questions relating to what is Part 108 and how does it impact on the individual's duties and companies' operations? (Questions 5-7)**

5. Please detail your understanding of 'Part 108'.
6. Please explain how does 'Part 108' impact on your individual duties?
7. Please explain how does 'Part 108' impact on your company operations?

**Questions relating to what has been the direct impact of Part 108 on the air cargo industry in South Africa? (Questions 8-12)**

8. From your own experience, has Air Cargo Security (ACSEC) become an increasingly important issue in South Africa?
9. In your position, since the introduction of the Part 108 regulations, what has been the greatest positive impact on the air cargo industry in South Africa,?
10. In your position, since the introduction of Part 108 regulations, what has been the greatest negative impact on the air cargo industry in South Africa?
11. In your current position, has the introduction of air cargo security regulations improved air cargo security?
12. From your own experience, what areas of concern can you raise, in respect to the implementation of Part 108?

**Questions relating to new regulations: The 2012 upgrading of Part 108 (Questions 13-24)**

13. Looking ahead, and preparing for the newly approved amendments to Part 108; do you envisage these to have a positive or negative impact on the industry?
14. From your experience, have local South African companies and organisations consistently and fully adopted the new ACSEC regulations and implemented such accordingly?
15. Please state, from your own experience, whether the concept of “voluntary compliance” works for or against Part 108?
16. Please state, from your own experience, does the industry adopt best practice principles for air cargo security?

17. Please state, from your own experience, do airlines and regulated agents apply a 'risk-based' approach in respect of air cargo security?
18. Please explain, from your own experience, how effective is SACAA in enforcing air cargo security regulations in South Africa?
19. What reasons can you advance that may cause the SACAA's limited effectiveness?
20. Please explain, from your own experience, whether the 'regulated agent' concept under Part 108 works well?
21. Please explain, from your own experience, whether the 'known consignor' concept under Part 108 works well?
22. Please explain, from your own experience, whether the 'designated officer' concept under Part 108 works well?
23. Please explain, from your own experience, should the 'designated official' be an external or internal position?
24. Please explain from your own experience, who should be the responsible party for ACS? The consignor? Regulated Agent? Airline? Other? All together?

**Questions relating to Part 108's impact on potential terrorist and criminal activities (Questions 25-28)**

25. Please explain, from your own experience, will Part 108 regulations change the opportunities or the modus operandi for potential terrorist activity?
26. Please explain, from your own experience, will Part 108 regulations change the opportunities or the modus operandi for potential criminal activity?

27. In your environment, with background checks, access control, perimeter security and such, has there been any reduction in general crime, theft, stock loss, etc.?
28. Please explain, from your own experience, how has the nature of crime changed since the introduction of Part 108?

**Questions relating to financial constraints versus operational requirements (Questions 29-30)**

29. Please explain, from your own experience, in the light of Part 108 implementation, is there a good balance between financial costs and security?
30. Please explain, from your own experience, is Part 108 a benefit or an 'unnecessary burden' on the industry, and why?

**Questions relating to findings in respect of screening methods (Questions 31-32)**

31. Please list the approved screening methods your company uses to screen cargo and highlight the positive attributes of each method?
32. Please list the approved screening methods your company uses to screen cargo and highlight the negative attributes of each method?

**Questions relating to comparing South Africa regulations to United States Of America and European Union regulations (Questions 33-35)**

33. Are you familiar with similar air cargo security regulations in different jurisdictions like the US and in the EU?
34. From your experience working in the international ACSEC environment, how does South Africa's regulations compare with the USA regulations?
35. From your experience working in the international ACSEC environment, how does South Africa's regulations compare with the EU regulations?

**Questions relating to training matters and general findings and notes in respect of Part 108 (Questions 36-43)**

**Questions relating to training matters (Questions 36-38)**

36. Please explain, from your own experience, the level of awareness training as stipulated under Part 108?
37. Please explain from your own experience, the level of screeners' training as stipulated under Part 108?
38. Please explain, from your own experience, the level of general education in the industry in respect of ACSEC

**Questions relating to state entities co-operation and intelligence sharing (Questions 39-40)**

39. From your experience working in an international ACSEC environment, is there sufficient co-operation between the various state agencies?
40. Please explain from your own experience, what is the level of intelligence sharing in respect of ACSEC?

**Questions relating to other threats and the possible way forward in respect of a new forum (Questions 41-43)**

41. Please explain from your own experience, what other threats, besides terrorism and crime does air cargo security face in South Africa?
42. Is there a need for a new forum for sharing information in respect of air cargo security matters?
43. How would you suggest this forum is constituted?

## **ANNEXURE D: PRO FORMA CONSENT FORM**

[The below pro forma consent form was signed by all respondents].

### **CONSENT FORM**

#### **AGREEMENT:**

I, ..... hereby consent to be interviewed for the research project topic: **“THE IMPACT OF THE APPLICATION OF INTERNATIONAL AIR CARGO SECURITY REGULATIONS IN SOUTH AFRICA”**.

If necessary, I also agree to follow-up interviews being held with me;

The use of data derived from these interviews by the interviewer can be utilised in a research report as he deems appropriate.

I also understand that:

- My participation in this study is voluntary and I can refuse to participate, or withdraw at any time without stating a reason;
- Anonymity is guaranteed by the researcher and data will under no circumstances be reported in such a way as to reveal my identity;
- No reimbursement will be made by the researcher for information rendered or for my participation in this project;
- By signing this agreement I undertake to give honest answers to reasonable questions and not to intentionally mislead the researcher; and
- I will in no way derive any personal benefit from taking part in this research project.



I hereby acknowledge that the researcher/interviewer:

- Discussed the objectives, aims and goals of this research project with me;
- Informed me about the contents of this agreement; and
- Explained the implications of my signing this agreement.

In co-signing this agreement the researcher undertakes to:

- Maintain confidentiality, anonymity and privacy regarding the identity of the subject and information rendered by the interviewee.

\_\_\_\_\_  
(Interviewee signature)

\_\_\_\_\_  
(Interviewer signature)

Date: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_  
I, (interviewer signature) certify that I explained the contents of the above document to the interviewee.

Eytan Nevo  
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