



PSIRA

Private Security Industry Regulatory Authority

For the Love of Flying

*Exploring the Regulation of Security
Service Providers in South African Airports*



About the Report

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Acronyms

ISPS Code

ACS
AOSP
ASP
AvSec
CCTV
EDS
ETD
ICAO
NASP
NKP
PSiR Act
PSiRA
SACAA
SANDF
SAPS
SARS
USA

International Ship and Port Facility Security Code

Aviation Coordination Services
Aircraft Operator Security Programme
Airport security programme
Aviation security (training)
Closed circuit television
Explosion detection systems
Explosive trace detection
International Civil Aviation Organisation
National Aviation Security Programme
National key points
Private Security Industry Regulations Act 56 of 2001
Private Security Industry Regulatory Authority
South African Civil Aviation Authority
South African National Defence Force
South African Police Service
South African Revenue Service
United States of America

Executive summary

Hijacking of aircrafts and terrorism as forms of asymmetric warfare pose a serious threat to the safety of air travellers, crewmembers as well as airports. The literature refers to asymmetric warfare as surprise attacks. The implementation of major security measures in most airports across the world resulted from such asymmetric warfare, particularly the 9/11 attacks in the United States of America. Other criminal activities at airports also led to the increase in security measures. Scholars highlighted that law enforcement agencies were fighting a battle against criminal acts in the form of asymmetric warfare. The huge challenge necessitated that the civil aviation industry source the aid of the private security industry.

The involvement of private security in the civil aviation industry is pervasive around the world, South Africa in particular. The Private Security Industry Regulatory Authority (PSiRA) regulates the private security industry in South Africa, thus the involvement of private security in the civil aviation industry is subject to PSiRA regulation. The Authority conducted a study to establish ways to better regulate security services in airports and to ensure that the sector is compliant with the Private Security Industry Regulation Act 56 of 2001 (PSiR Act) and Private Security Industry Regulations, 2002.

This qualitative study is informed by the belief that reality is socially constructed, which means multiple realities exist and multiple interpretations are available from different participants. A qualitative research approach was used to gain insights from the key role-players in airport and aviation security through the expression of their lived experiences in the sector. Face-to-face interviews and observations were used. Participants were selected through purposive sampling. Data validation methods included member checking and a validation workshop. A consent form was developed that addressed participants anonymity and confidentiality.

The study discovered a difference between airport and aviation security. Airport security is an umbrella term referring to security services at the airport, whereas the term aviation security refers to the protection and safeguarding of the airside and/or any criminal act which may pose threat to the airport or aircraft. Some security service providers use the terms airport security and aviation security interchangeably to refer to security services in airports. This is because amongst others airports in their very own nature exist to serve aviation. The study revealed that airport security comprises of various stakeholders, including airport operators, South African Police Service (SAPS), airlines and Aviation Coordination Services (ACS). The airport operator – or owner - is the leading stakeholder in airport security. Generally, airport operators are satisfied with the level of cooperation they enjoy with other security stakeholders.

The research further revealed that different types of training are offered to security officers rendering or intending to render services in airport, namely PSiRA grades, aviation security (AvSec) training and national key point (NKP) training. It was highlighted that the level of training that security officers have is adequate although there is room for improvement. It was established that training centres are aware of PSiRA and its regulations. However, training centres providing special courses such as AvSec and NKP training are not compelled to register with PSiRA, although the majority of their instructors are registered with PSiRA.

The study established that the South African Civil Aviation Authority (SACAA) is a standalone authority mandated to control, promote, regulate, support, develop, enforce and continue to improve levels of safety and security in the civil aviation industry. Therefore, PSiRA has a concurrent mandate with SACAA to regulate the rendering of security services in South African airports. The research found that there are various security measures used in South African airports to prevent criminal acts, including screening (person and luggage), profilers (behaviour identification officers), explosive detection systems, physical or hand searches, working animals (dogs) and closed circuit television (CCTV).

From the research findings, recommendations were made that would improve the regulation of airport security service providers. The study recommended that all security service providers rendering services in airports, including persons responsible for managing or supervising security service providers must be registered and that a training programme should be developed for behaviour identification officers to increase compliance with PSiR Act and the Private Security Industry Regulations, 2002. The research also recommended that PSiRA should conduct regular inspections in airports.

1. Introduction

In the main, drastic changes in airport and aviation security worldwide stemmed from the 9/11 attacks in the United States of America (Blalock, Kadiyali & Simon, 2007, but also from other criminal activities at airports (Clifford, 1977). These attacks left the public, crewmembers, passengers and other staff members feeling unsafe. Law enforcement agencies are battling these criminal acts. However, Clifford (1977) argued that these attacks were not a matter for the police alone but for the world's intervention. The involvement of private security in aviation and airports is pervasive around the world and South Africa in particular. Protection and safeguarding of airports and airlines from criminal behaviour or conduct that may harm an individual, or cause a loss of valuables, are known as aviation and/or airport security.

PSiRA has a mandate to regulate and ensure compliance in the airport and aviation security sector; 'to regulate the private security industry and to exercise effective control over the practice of the occupation of security service provider in the public and national interest and the interest of the private security industry itself'. Airport and/or aviation security form part of the definition provided by the PSiR Act, which defines a security service as 'protecting or safeguarding a person or property in any manner'. The purpose of this study is to gain insight into aviation and airport security to find possible solutions to better regulate the sector and ensure compliance with the PSiR Act. The report presents a research methodology, followed by a literature review, research findings, then recommendations and a conclusion.

2. Research Aims and Objectives, Hypothesis, Questions and Methodology

2.1 Research aim and objectives

The overarching aim of the study is to establish possible solutions to better regulate the airport and aviation security, to ensure that the sector is compliant with the PSiR Act.

The objectives of the study are to:

- Explore dynamics in airport and aviation security;
- Identify airport or aviation security stakeholders and the level of cooperation among them;
- Explore the adequacy of training and the awareness of training centres about PSiRA Regulations;
- Establish the role of SACAA in regulating and ensuring compliance of aviation security companies; and
- Discover security measures used to prevent criminal acts.

2.2 Hypothesis and research questions

The *hypothesis of the study is: The effective regulation of airport or aviation security by PSiRA will deter non-compliance within the subsector.*

The study has two types of research questions:

Main research question: *What initiatives should PSiRA take to ensure effective regulation, adequate training and compliance in the sector?*

Secondary research questions:

1. What are the dynamics of airport and aviation security?
2. Who are the airport or aviation security stakeholders and what is their level of cooperation?
3. How adequate is the training offered to airport or aviation security officers and what is the level of awareness of training centres about PSiRA Regulations?
4. What role does SACAA play in regulating and ensuring compliance of aviation security?
5. What security measures are used to prevent criminal acts in the sector?



Research methodology

2.3 Research methodology

Research methodology refers to ways of attaining, organising and analysing data (Mamabolo, 2009). It describes how research is conducted and its logical sequence. This section assists the study by discussing the techniques and procedures used to identify, select, collect, process and analyse data about airport or aviation security. The aim of the study is to seek ways to better regulate airport and aviation security, to ensure that the sector is compliant with the PSIR Act and Sectoral Determination 6 (SD6). A qualitative research approach is followed.

Bricki and Green (2007) defined qualitative research as aiming to understand some aspects of social life, and its methods, that generate words rather than numbers as data analysis. Furthermore, Newman and Ridenour (1998) argue that qualitative researchers believe that reality is socially constructed. That means multiple realities exist and multiple, equally valid interpretations are available from different individuals. The approach will give the participants an opportunity to express themselves. In this research, a qualitative research approach is used to gain insights from the key role-players in airport and aviation security through the expression of their lived experiences in the sector.

The research used data collection instruments found in the qualitative research approach to gather data from participants, namely face-to-face interviews and observations. The face-to-face interviews were selected on the basis that an interviewee may reveal more information during the interview. Using a quantitative data collection instrument such as a questionnaire would have been time-consuming, as participants may not have responded to the questions on time. Furthermore, face-to-face interviews provides an opportunity for clarity when an interviewee does not understand. With a questionnaire, a participant may respond even if he/she did not understand a question, which may lead to incorrect analysis. Interview questions were semi-structured, with the observations providing researchers with a picture of how things are done and the security measures used in the sector.

Among those researched were security service providers, security management, training providers, SACAA and PSiRA officials, selected using purposive sampling, a non-random sampling that selects participant based on their characteristics (Tangco, 2007). Data validation methods comprised member checking and a validation workshop. Member checking is confirming whether the data analysed matches what participants conveyed, by giving participants with similar characteristics who did not participate in the study at first the opportunity to verify the presented data (Carlson, 2010). Research participants were invited to validate or critique the findings of the study.

Clifford (1977) stated that details of security equipment used at the airports could not be shared with the public as this would alert potential attackers. Therefore, for ethical and security purposes, specifically anonymity and confidentiality, the research concealed the types of the security measures used. The participants signed a consent form addressing anonymity and confidentiality issues. Participants were asked for permission to conduct the interviews.

3. Literature Review

This section focuses on literature on airport and aviation security. Existing publications give researchers insight into the discussions of other scholars and highlight gaps in the literature.

3.1. Existing threats in the aviation environment

There are threats that involve the use of innovative strategies, tactics and technology to bypass the strength of opponents by exploiting their potential vulnerabilities and technological superiority (Miles, 1999). Hugo (2009) asserts that the threats have to include tactics and strategies and, in addition, a weapon. These threats can be referred to as 'asymmetric warfare'. Authors who have pinpointed aviation and airport asymmetric warfare in their studies include Clifford (1977), Simons (1997), Green (1972), who deliberated on the two types of asymmetric warfare, 'hijacking' and 'terrorism'. Green (1972) referred to the name aerial piracy or hijacking, and aerial terrorism interchangeably.

Asymmetric warfare presents a serious threat to the safety of air travellers and to international air transport (Green, 1972). The following quote from the Miles (1999) study sheds light on what asymmetric warfare entails, and unpacks what is meant by these threats so that they can be rectified when encountered 'if the enemy is superior in strength, evade him. If his forces are united, separate them. Attack him where he is unprepared. Appear where you are not expected'. In the Kimple (2006) study, this was referred to as a surprise attack. Furthermore, Green (1972) stated that asymmetric warfare shows an element of surprise because it is committed outside the jurisdiction of any state so it is impossible to get immediate backup.

Terrorism refers to politically motivated attacks that involve force or violence to chase publicity (publicity plays an important role in mission accomplishment) (Weinberg, Pedahzur and Hirsch-Hoefler, 2004). Hugo (2009) defined terrorism as an act that is politically motivated, which engages in unconventional warfare to circumvent the constraints placed on terrorists by the targeted state. Simons (1997) argued that aviation terrorism is limited to 'aerial terrorism', where discussions centre on incidents affecting aircrafts or airports. The research paid more attention to aerial terrorism, as incidents occur in the airport and aviation environment.

Simons (1997) noted that terrorism takes two forms: classic terrorism and amateur terrorism. Classic terrorism is an attack undertaken by a well-defined group of terrorists that operates full-time, underground and covertly, using traditional methods. These groups have definable motives and purposes, for instance Al Qaeda. Amateur terrorism are attacks conducted by individuals who do not have a background in terrorism and do not belong to any group, which makes their modus operandi more unpredictable than in classic terrorism (Simons, 1997).

Hijacking is the use of violence or threat to take control of a vehicle or plane to redirect it to an undesired destination or place (Oxford, 2010). Nguyen and Le (2019) referred to piracy as an act of boarding or attempting to board a ship or plane to commit theft or similar crimes. Simons (1997) asserts that aerial hijacking or piracy refers to 'any seizure or exercise of control by force or violence or threat of force or violence and with wrongful intent of an aircraft in flight in air commerce'. The definition provided by Simons (1997) has all the components mentioned by Oxford (2010) and Nguyen and Le (2019). Therefore, aerial hijacking or piracy in this study is viewed as any seizure that occurs in the aircraft or at the airport with an intent to commit theft or similar crimes. However, it is noted that Weinberg et al (2004) argued that air piracy can be considered a terrorist act in some cases, but not in most.

3.2. Motives for attacks

Scholars mentioned different motives for attacks. Sometimes, attacks were conducted by people who wanted to escape from eastern European countries to the west; in other cases pilots themselves diverted aircraft (Clifford, 1977). The author did not provide more information on this, but it could be argued that, in some cases, pilots have something to do with the attacks. Simons (1997) argued that the motives for asymmetric warfare vary and that sometimes hijacking or terrorist attacks are perpetrated by those seeking a safe place to become political refugees.

Clifford (1977) and Green (1972) argued that granting hijackers or terrorists permission to stay in a country (which they referred to it as a 'political asylum') led to flights being diverted to those countries. An example of an incident was the diversion of a plane flying towards Albania, which was diverted to Sweden where Dr Tironis, his wife and daughters were granted political asylum (Clifford, 1977). Clifford (1977) maintained that political asylum should be withdrawn from individuals or groups that hijacked or attempted to hijack aircrafts and put the lives of the passengers at risk. Conflict among international countries was also a contributing factor for attacks.

Terrorists or hijackers may demand the flight to change its route, and when it is diverted, it may fly on an unauthorised route and at an unauthorised altitude (Simons, 1997). Green (1972) pointed out that the diversion could lead to other criminal offences being committed by the airline, for instance, the diversion could put the lives of crew and passengers at risk and endanger those on other flights. The Director-General of Civil Aviation Organisation said that as long as no harsh sanction is imposed on armed attackers, these attacks will continue (Clifford, 1977). Simons (1997) argued that even though security measures are in place in airports and aboard aircraft, the attacks persist. According to Clifford (1977), the first attack noted was an aerial hijacking in Peru in 1931 a civil war.

Simons (1997) mentioned an attack that occurred on a flight from Sydney to Hong Kong in 1971, a Peter Macari - also known as 'Mr Brown' - threatened to activate a bomb if he was not paid a ransom of \$500 000. Fortunately, the bomb squad discovered the bomb, which it deactivated and Mr Brown was arrested (Simons, 1997). Onuoha (2009) did not deny that the payment of ransom would lead to the release of the crew and passengers, but stated that it would encourage other attackers to use a ransom strategy.

In addition to the assertion made by Onuoha (2009), Thompson (2011) claimed that terrorists have the advantage of being able to use strategies previously used by hijackers or pirates. Indeed, a few years after Mr Brown's arrest, a 17-year-old youth used a similar strategy to demand a cash ransom of \$505 000 from Australia (Simons, 1997). In the study conducted by Thompson (2011), it was argued that terrorists are not influenced by money. However, the previously discussed terrorist attack involved payment of a ransom, which may bring into question whether it was a terrorist attack, or hijacking, in confirmation of the statement by Weinberg et al (2004) that on some occasions aerial hijacking is referred to as a terrorist act.

Although it was argued that aerial attacks put the safety of the crew and passengers in jeopardy and are a violation of the human rights, in some cases passengers are not held hostage and when the plane reaches the attacker's destination are released unharmed (Clifford, 1977). Following the attacks, the International Civil Aviation Organisation (ICAO) developed conventions governing the aviation sector to prevent terrorism or hijacking on board (Simons, 1997). Furthermore, the conventions identified unlawful acts occurring in the aircrafts and made recommendations on appropriate measures and penalties for attackers (Simons, 1997).



3.3. Effects of airport crime in the country

The 1994 democratic elections opened South Africa to the international market, which increased the number of tourists visiting the country (Thobane, 2016). At the same time, aviation and airport threats were impacting tourism. Simons (1997) argued that the implications of terrorism could be seen in the tourism sector in tourists feeling unsafe and deciding not to visit the country. Tourism facilities such as airports and aircrafts could be attacked, deterring tourists (Simons, 1997). Thobane (2016) deliberated on airport follow-home robberies as a crime discouraging tourists from visiting the country.

In South Africa, the gateway international airport is OR Tambo International Airport in Johannesburg, which processes 7 779 000 passengers a year (Du Toit and Frances, 2008). They further stated that the total volume of passenger luggage, cargo and mail entering and leaving South Africa through OR Tambo is enormous. Some international passengers become targets of crime (hijacking and robberies) when they leave the airports for their destinations (Thobane, 2016). Thobane (2016) quoted Anon (2014) arguing that suspects would rent vehicles from the airport or hijack them in the vicinity, to follow and rob targets. Those with valuable items are the most targeted (Thobane, 2016). Cloete was cited arguing that members of gangs that operate at airports alert other members waiting outside of passengers carrying valuable assets. These are called spotters (Thobane, 2016).

Gang members would wait as if for a family member or friend, but with the real intention of identifying passengers with valuable assets (Thobane, 2016). The Author further argued that the outside gang would then follow the targets and rob them (Thobane, 2016). In some cases, the spotters know even the arrival time and a specific plane of the targets; airport follow-home robbery is an organised crime and gangs have people providing them with confidential information (Thobane, 2016). In most cases, victims are tourists. As it was argued that these threats affect the country's tourism sector, they necessitated the establishment of a special SAPS unit, the National Investigating Unit, aimed at resolving airport and gang-related crimes (Thobane, 2016). Nevertheless, private security is also a role-player in the prevention of airport-related crimes.

Smuggling through terminals was another threat identified at airports, particularly OR Tambo. Four white rhino horns were found in the suitcase of a passenger about to board a flight to China. The horns were discovered by private security officers during x-ray screening in the terminals - they were wrapped in newspaper and sealed with tape (Du Toit and Frances, 2008). Poaching has a negative effect on the economy and the tourism sector. Poaching is not limited to rhino, with snakes also being targeted. Du Toit and Frances (2008) stated that six separate parcels entering or leaving South Africa over five months were discovered to contain venomous and non-venomous snakes, which are protected species.



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3.4. Aviation security

The concept 'aviation security' has been used in different contexts. Aviation in the Oxford Dictionary definition refers to the flying of aircrafts. According to the PSiR Act, 'security service' refers to the protection or safeguarding of a person or property in any manner. Thus, Rumerman (2003) defined aviation security as the prevention of criminal activities on aircrafts and in airports. SACAA argues that aviation security is a way of protecting and safeguarding passengers, crewmembers, ground personnel, the public, aircrafts and airport facilities from any unlawful conduct that may occur at the airport or on a flight. In short, aviation security refers to the protection and safeguarding of airports and flights from any criminal behaviour or conduct that may harm an individual or cause loss of valuables.

Before attacks went viral, passengers were allowed to board a flight carrying many personal items and the role of private security at that time was to check luggage (not thoroughly), and confirm identification and bookings of passengers (Roberts, 2016). Widespread coverage of attacks on aircrafts and airports has necessitated that states develop or increase security measures at airports or aboard to prevent attacks on crew, passengers, ground personnel and facilities (Clifford, 1977 and Roberts, 2016). Roberts (2016) asserted that the increase of security measures in most countries came after the 9/11 attacks. Blalock et al (2007) maintained that the involvement of private security screeners looking for suspicious acts at checkpoints minimised the attacks. They further argued that restoring confidence in airline security increased the demand for a particular airline due to its safety measures (Blalock et al, 2007). These authors provided a clear perspective that private security has a role in aviation or airport security and that its presence creates confidence among passengers.

Different security measures are used to prevent aerial asymmetric warfare. Roberts (2016), Stewart and Mueller (2013), Zhang (2015), Blalock et al (2007) and other scholars noted these as air marshals, flight deck officers, installed physical secondary barriers, trained flight crew, hardened cockpit doors, dogs, behaviour identification, screening and crew background check, explosive detection scanners, physical search, explosion detection systems (EDS), and explosion trace detection (ETD). Nevo (2015) stated that approved aviation security measures in South Africa included hand search or physical check, x-ray screening, simulation chamber, technical or bio-sensory screening, using an ETD to detect explosives' vapour or trace of it, and sniffer dogs. In addition, Clifford (1977) argued that airlines should compile a list of blacklisted passengers and share it among themselves so that they can be aware of high-risk passengers. Roberts (2016) noted that those who are visiting the country have to state the reasons for their visit and provide the time of their departure.

In every situation there are pros and cons, and in this instance, Roberts (2016) criticised aviation security as relying more on technology than physical measures. Contrary to this, Nevo (2015) asserted that methods that are not technology-based require intensive labour and may lead to flight delays. In simple terms, the increase of labour increases costs because security officers need to be paid a monthly salary. The following section discusses the regulations and security measures used in global aviation security and South African civil aviation. Stewart and Mueller (2013) pointed out that there are 21 security measures used by airports. The study will discuss a few, particularly the screening methods, and will pay more attention on the ones provided by Nevo (2015).



3.4.1. Aviation security measures and regulations

In relation to the regulation of the rendering of security services in SA airports, consensus has not been reached between the two statutory bodies bestowed with the powers to regulate the sector. The Civil Aviation Act No 13 of 2009 governs aviation security. The Act requires the establishment of a standalone Authority, which is mandated to control, promote, regulate, support, develop, enforce and continue to improve levels of safety and security in the civil aviation industry. Concerning the regulation of security services, PSiRA serves as a statutory authority and was established by the PSiR Act. The Authority is mandated to 'regulate the private security industry and exercise effective control over the practice of the occupation of security service provider in the public and national interest and the interest of the private security industry itself'.

SACAA provides a clear definition of aviation security, stating that it is the protection and safeguarding of passengers, crewmembers, ground personnel, the public, aircrafts and airport facilities from any unlawful conduct. Similarly, the PSiR Act defines security service as the protection or safeguarding of a person or property in any manner. The issue regarding security services at airports and in aviation persists. The following section identifies the security measures used in the aviation sector.

3.4.1.1. Security measures

The following are the security measures used by airports and aviation security.

1. Hardened cockpit doors

Hardened cockpit doors were developed in 2003 by domestic and foreign airlines in the United States after a flight deck intrusion through the cockpit door (Stewart and Mueller, 2003 and Nevo, 2015). The cockpit door was designed to block or deter hijackers or terrorists from illegally entering the flight deck and, thus, reduce the risk of flights being diverted to undesired destinations (Stewart and Mueller, 2003). According to the PSiR Act, security equipment in this instance means 'a specialised device used to open, close or engage locking mechanism'.

The cockpit door has the elements of the security equipment contemplated in the definition provided by the PSiR Act. Stewart and Mueller (2013) confirmed that if the cockpit door prevents access to the flight deck, it serves as a security device that could protect the crew and passengers from attackers. It is said that hardened cockpit doors are 75% effective in reducing intrusions into the flight deck (Stewart and Mueller, 2003). Moreover, Stewart and Mueller (2013) pointed out that the installation of a cockpit door does not prevent other forms of terrorist attacks such as detonation of explosives in a plane, which necessitate other forms of security measures.

2. Installed physical secondary barriers

The hardened cockpit door cannot remain closed for the entire trip, as pilots need to access the toilets and need to be served with food (Stewart & Mueller, 2013). When the door is open, airhostesses place a galley trolley at the door to block intruders - in the aviation security strategy this is referred to as a physical secondary barrier (Stewart and Mueller, 2013). The Airline Pilots Association - Alpa (2007) argued that there is a lightweight device that is used to block unauthorised access onto the flight deck - a device stowed or installed between the passenger cabin and hardened cockpit door whenever it is opened. When the cockpit door is closed and locked, the physical secondary barriers are stowed (Stewart and Mueller, 2013). The device's function falls under the definition of security equipment provided by the PSiR Act, which provides that 'security equipment means a device used for "intrusion detection", access control, bomb detection, fire detection, metal detection, x-ray inspection or for securing telephone communications'.





3. Air marshals and flight officers

Roberts (2016) argued that some airlines deploy trained and armed officers on board who are mandated to protect or ensure safety and security of the crew and passengers from any attacks that may occur during a flight. These officers are known as 'air marshals'. According to Stewart and Mueller (2013), the term air marshal refers to armed guards who safeguard passengers and crew on board against any form of attack. In addition to that, Zhang (2015) asserted that air marshals' main function on board is to safeguard the public through the training they have received, which includes enforcement training, combat training, investigations (including behaviour observation), firearms and screening machines training, and self-defence at short range. Simply, air marshals are people who are appointed to protect or safeguard an aircraft, crewmembers and passengers. According to the PSiR Act, air marshals perform security services. Moreover, the PSiR Act defines a security service provider as 'a person who renders a security service to another for a remuneration, reward, fee or benefit and includes such a person who is not registered as required in terms of this Act'.

Zhang (2015) provided that air marshals are receiving security training. Gichanga (2016:5) cited Section 3 of the PSiR Act, which argues that PSiRA is mandated to 'promote high standards in the training of security service providers and prospective security service providers'. Gichanga (2016) stated clearly that training centres need to be regulated by PSiRA. An officer (including an air marshal training) is required to have a firearm competency certificate issued by SAPS. The PSiR Act states that a person mandated to regulate the issuing, possession and use of firearms and other weapons by security service providers is the minister as provided in PSiR Act Section 35(1) (m). Section 24 of the PSiR Act provides that registration records have to be kept by the Authority, including firearm licences and permits issued to security service providers (Gumedze, 2016:17). PSiRA will have to play a role in ensuring compliance of air marshals and the use of firearms in the sector.

Zhang (2015) stated that the placement of air marshals was informed by increasing attacks on board, and they are there to prevent terrorists from hijacking flights. Stewart and Mueller (2013) added that the presence of air marshals aboard serves as a deterrence to hijackings or terrorist attacks. Moreover, they believe that air marshals are the most flexible security measures that can be deployed when there are threats (Stewart & Mueller, 2013). Stewart and Mueller (2013) argued that airlines should provide deployed (and relieved) guards with free seats, at the front of the business class section, from where they can observe or guard the cockpit door.

According to Zhang (2015), and Stewart and Mueller (2013), screening may be effective in preventing terrorists from entering a flight, but air marshals serve as the 'last line of defence' in an aircraft if the screening machines fail to detect weapons at the airport. It is said that air marshals are usually armed with pistols (Zhang, 2015). Stewart and Mueller (2013) asserted that the effectiveness of screening methods could minimise opportunities for hijackers or terrorists to board a plane with weapons and that this will make it easier for air marshals to protect the crew and passengers by apprehending attackers when they start to pose a threat on board. This is possible because the attackers would not be in possession of serious weapons (Stewart and Mueller, 2013). The disadvantage of air marshals, as stated by Roberts (2016), is that the service cannot be available to every flight due to limited staff numbers.

For cost purposes, some airlines provide their crewmembers and pilots with security training to prevent attacks, rather than appoint air marshals (Stewart and Mueller, 2013). The authors further maintained that the flight deck is vulnerable to attacks due to lack of crew training. So-called flight deck officers or armed pilots are appointed to protect or safeguard the flight deck during attacks (Stewart and Mueller, 2013).

4. Screening and crew background check

This section discusses the screening methods used by aviation security to detect weapons that may pose danger on board. There are various ways to detect weapons. To improve aviation security, a system should be developed to counter unlawful intrusion through technical systems and devices to screen passengers and luggage (Pavlenko, Tavrov, Temnikov, Zavgorodniy and Temnikov, 2018). Roberts (2016) asserted that the installation of such devices led to changes such as compulsory arrival at the airport two hours before the flight's departure.

Before the installation of screening devices, passengers would arrive an hour before the flight's departure and people accompanying them were allowed at the terminals (Roberts, 2016). Blalock, Kadiyali and Simon (2007) argued that the two hours was introduced to allow enough time for body and luggage security screening because screening requires more time and effort from both officers and passengers. Moreover, Roberts (2016) maintained that screening should not last more than ten minutes per passenger because passengers become irritated if they have to stand for lengthy procedures in congested spaces.

Employee employment histories allow employers to analyse and confirm the information provided, even uncover criminal records, so that they make well-informed decisions about prospective employees (Roberts, 2016). Previously, there was little emphasis on airport employee background checks, which prompted airlines to thoroughly screen employees (Roberts, 2016). It is believed that the issue arose from reasons such as that provided by Clifford (1977) that some pilots and crewmembers were behind attacks and diversion of the aircrafts.

In the United States, aviation employees were recertified annually to confirm that no criminal charges were brought against them in that year (Roberts, 2016). Furthermore, the recertification would continue until the termination of the contract, so that an employee would be subjected to a background check annually (Roberts, 2016). This raised the question of whether SACAA recertifies its employees.

In terms of the PSiR Act and Regulations, aviation or airport security officers must be fit-and-proper persons with no criminal record. This means that any aviation security officer seeking registration with PSiRA would have to undergo a background check, including a criminal record check. This would address the issue expressed by Roberts (2016) of employee convictions for theft of jewellery and other valuables during luggage checking. The larger the airport, the more security resources or measures are needed to minimise flight delays (Roberts, 2016).

5. Trained flight crew

The Civil Aviation Act states that 'each flight crew member shall be trained in the operator's security policies and procedures and, in particular, the procedures associated with hijacking, bomb threats and unlawful interference'. In simple terms, the Act's provision notes that security training must be part of the training that crewmembers receive. Crewmembers, according to Stewart and Mueller (2013), are supposed to undergo a self-defence course that equips them with skills to ward off a flight deck attack when the cockpit is open and to fight back during attacks (Stewart and Mueller, 2013). However, data showed that less than 1% of the crew had taken the course (Stewart and Mueller, 2013), which suggests that most crewmembers do not have self-defence skills (however, they are still required to be knowledgeable). It may be asked who will provide them with training, particularly security training, and what standards are needed in that course? That is where PSiRA could intervene.



6. Behaviour detection officer

There are different suspicious behaviours or appearances that attackers exhibit before the attack. Stewart and Mueller (2013) argued that because of this, aviation or airport security decided to appoint security officers involved in behaviour identification. Zhang (2015) pointed out that a duty of an air marshal is to check any suspicious behaviour or appearance that a passenger may exhibit. Roberts (2016) cited examples as excessive laughing, fidgeting, having a tight grip on one's luggage, hesitation when asked for one's papers, excessive yawning, bulges in clothing, pale skin and flushes on the face. Furthermore, Roberts (2016) urged officers not to conduct their investigations based on ethnicity, race, religion or sex, but on the observed behaviour or appearance.



7. Explosion detection systems

An EDS automatically detect explosives inside luggage without it having to be opened (Nevo, 2015). EDS include metal detectors, x-ray machines and full-body scanners used in the screening terminals to deter smuggling, terrorist and hijacking attacks that may occur on board (Stewart and Mueller, 2003). In some airports, passengers first screen their baggage and then proceed to the ticket counter to check in; others check in at the ticket counter before their baggage is sent for screening (Blalock et al, 2007). Stewart and Mueller (2013) noted that screening is conducted out of the passenger's view once he or she has checked in.

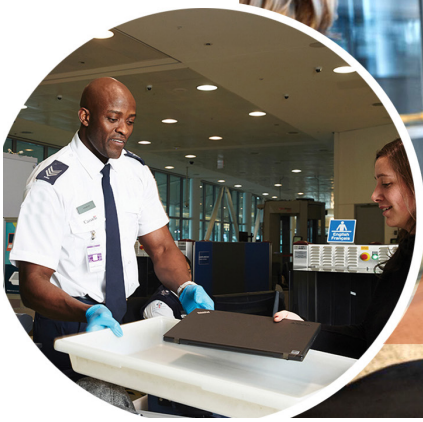
Almost all South African airports use EDS screening methods (Nevo, 2015). Evidence of this is information by Du Toit and Frances (2008) that at OR Tambo International Airport, four white rhino horns and snakes were discovered through x-ray screening at the screening terminals. According to the PSiR Act, bomb detectors, metal detectors and x-ray inspection are security equipment. Additionally, officers are supposed to operate those machines at the entrance and exit terminals and the Authority is mandated to ensure that they are compliant with the PSiR Act. The other aviation security officers must inspect cargos and passengers (Roberts, 2016). Search procedures and techniques are part of PSiRA's regulations (Gichanga, 2016:10). Therefore, PSiRA, as the trusted regulatory authority in South Africa, has a role in ensuring compliance in terms of the screening machines used at the airports and their operators.

An EDS is expensive, but not labour intensive - the machine needs two to three operators per eight-hour shift (Nevo, 2015). Stewart and Mueller (2013) stated that the method sometimes produces 30% false identification. In confirmation of this, Nevo (2015) argued that restrictions hinder the x-ray method from yielding good results, such as material density of the luggage being scanned, which may require another screening method such as physical search or canines. An advantage pinpointed by Nevo (2015) about x-ray machines is that they can scan large numbers of bags and passengers. Roberts (2016) asserted, however, that some passengers believe that full body scanners are an invasion of privacy.

8. Explosion trace detection

ETD refers to a small device that uses vapour to detect explosives by rubbing baggage. For example, an officer may rub a bag with a swab, which will then be chemically analysed in the ETD for any explosive (Nevo, 2015 and Stewart and Mueller, 2013). It is said that this method is cheaper, but it requires more labour (Crowley and Butterworth, 2007). This method is hardly used in South Africa because sniffer dogs are used instead (Nevo, 2015). The regulations that apply to this method are similar to those that have been discussed in the EDS section. The study does not dwell much on this method.





9. Physical or hand search

This is one of methods used in South Africa to carefully inspect passengers' luggage and it is labour intensive (Nevo, 2015). The screening machines in some instances produce false results and when that occurs, the officers operating the machine have to unpack the luggage and search for a detected weapon (Nevo, 2015). Some passengers were physically searched to confirm suspected faulty detection by the screening machine (Blalock et al 2007). An incident occurred where a detector discovered a bomb in the shoe of a passenger in the screening terminals (Blalock et al, 2007). It is clear that officers used the physical search to discover the bomb after the machine has detected it. The advantage of this method, according to Nevo (2015), is that it requires a trained security officer who is mobile, unlike the EDS method that is fixed to a certain point.

Roberts (2016) agreed with Nevo (2015) and Blalock et al (2007) that false feedback from the machine sometimes prompt officers to conduct physical searches. In addition to that, Roberts (2016) and Blalock et al (2007) noted that physical searches put the luggage of passengers at risk because officers could steal valuable items during the process. Remember that Stewart and Mueller (2013) pointed out that luggage screening is done out of passengers' view after they have left their luggage at the check-in counter. Therefore, officers may use that opportunity to steal, knowing that no one will notice. Roberts (2016) further pointed out that any luggage that seems not to have an owner is unloaded at the airport to check for explosives (Roberts, 2016).

As it was previously stated, searching procedures and techniques are covered by the PSIRA's regulations (Gichanga, 2016:10). Therefore, a person who is searching luggage should have received security training to provide the necessary knowledge. Security officer discipline is important because stealing is improper conduct that could lead to a criminal case against an officer. According to provision 24(1)(a) of the Code of Conduct for Security Service Providers, 'a security service provider who contravenes or fails to comply with a provision of the Act is guilty of improper conduct and on conviction liable to any penalty contemplated in regulation 25'.

10. The use of dogs in airport or aviation security

There are different reasons for the use of dogs in the private security industry, with some people using highly trained dogs for personal security, or explosives and narcotics detection (Gichanga, 2015). Nevo (2015) argued that trained dogs can be more efficient than ETD technologies, detecting explosive through scent. Moreover, Roberts (2016) believed that sniffer dogs are used at airports because of their keen sense of smell in the search for explosives. The assertion by Nevo (2015) that ETD machines are not widely used in South Africa can be understood, as airports use trained dogs instead. Furthermore, Roberts (2016) argued that dogs can be used in checking cargo and luggage transported by passenger planes. Dogs can also help when machines provide false information. Dog handlers are mobile, which puts allow them to screen a large volume of luggage (Nevo, 2015).



Gichanga (2015) pointed out that the services provided by dogs and dog handlers forms part of the security service. The author further argued that dogs and dog handlers have to undergo security training by a person with a basic security grade E (Gichanga, 2015). The training differs with levels, namely patrol dogs (levels DH 1-3), which is the entry-level course, special patrol dogs (DH4) and substance detection (DH5). PSiRA is mandated to regulate working animals, including dogs (Gichanga, 2015). Nevo (2015) stated that after 20 to 40 minutes of screening, a dog has to take a break. Research conducted by Gichanga (2015) showed that certain private security companies use one dog for a day and night shift. Dogs and dog handlers have to be registered with PSiRA (Gichanga, 2015) to protect them from previously mentioned labour issues.

Following the observations of different authors, including the assertion made by Clifford (1977), criminological research should be conducted to advance airport and aviation security measures, which will also prevent attacks and frustrate attackers. It has been noted that security measures exist to reduce or prevent crime, but some private security measures in the sector are not regulated properly. Therefore, the study seeks to identify areas that require special attention from PSiRA as the regulatory authority, to ensure sector compliance. Thereafter, it makes recommendations that will influence policy changes or development.



4. Research Findings

This section discusses the findings of the study as informed by the lived experiences of participants in the sector and observations of researchers.

4.1. Aviation and airport security

The study discovered that the use of the term aviation or airport security differs from one airport to another. Areas that require protection at an airport are landside and airside. Landside refers to a public area and airside to restricted areas, access to which requires a permit. Passengers are required to have a boarding pass to gain access to the airside, whereas staff members need a permit. The study revealed that even within the airside, there are restricted areas that require special permits and the permits differ from one person to another, which means not all staff members have access to restricted areas on the airside. This method is used to control the movements of persons within the restricted areas of the airport. Security managers pointed out that landside stretches from the gate to the screening terminals, while airside covers everything beyond screening terminals, e.g. passengers, staff, perimeter fence, fuel-station, aircrafts and aeroplanes etc. The majority of participants believed that aviation security refers to the protection of airside. Others were of the view that aviation security refers to the protection of airports, people, aeroplanes and aircrafts.

Public safety security was described as the protection of landside. Public safety refers to anything that does not fall under restricted areas, including people, check-in points, buildings, parking lots and access control. It was said that public safety security takes responsibility when there are community strikes, ensuring that strikes do not affect daily operations of the airport. In some airports, public safety security was called airport security. The research found that aviation security is an internationally approved name for security at airports, which includes airport screeners, customs and immigration officers. ICAO, realising that customs and immigration officers, while not screening, are part of aviation security, decided to call screeners 'airport screeners'. This is why aviation officers are called airport screeners in certain places. Some participants pointed that airport security is part of aviation security, whereas others were of the view that aviation security deals only with the protection of restricted areas in the airport. Certain security managers pointed out that:

'Aviation security and airport security are the same'.

The majority of managers pointed out that airport security encompasses both aviation and public safety security. In short, airport security is an umbrella term that describes the securing of both landside and airside. The definition provided by Rumerman (2003) and SACAA is that aviation security refers to the protection and safeguarding of passengers, crewmembers, ground personnel, the public, aircrafts and airport facilities from any unlawful conduct that may occur at the airport or on a flight.

For purposes of this study, airport security is the accurate term to use when referring to the rendering of security in the airport precinct. It will not be adequate for PSiRA to name it as aviation security because aviation security is a specialised field which requires a certain training before one can be regarded as an aviation security officer. Taking into consideration that there are security officers who are not obliged to have AvSec training within the airport security arrangement, however, they are playing a pivotal role in ensuring security of property and persons within the airport. It was highlighted that airport security is a broad term that may include not only the private security industry but also other role-players in ensuring security at the airport.

It was noted that aviation security includes the relationship with surrounding communities and law enforcement agencies, which assists to prevent criminal activities perpetrated outside the airport precinct for example, laser threats that are found within a 10km radius of an airport. Aviation security forms part of airport security, its primary aim being to identify criminal conduct that may lead to catastrophic incidents within the airport (airside) or on flights. The participants highlighted that airlines form part of aviation security.



4.2. Recruitment requirements for airport and aviation security

The research found that the majority of security officers rendering security services at an airport were PSiRA-registered and that it is not compulsory for a security officer working on the landside to have aviation security training (AvSec training). However, some airports provide AvSec awareness training to landside security officers, with PSiRA grade training being the basic recruitment requirement for these officers.

Airport operators make it compulsory for aviation security officers to have PSiRA registration before they render any form of security services. It was noted that PSiRA-registration satisfies the need to appoint people with a security background. One participant argued that:

‘The reason they appoint people with a PSiRA background is that they want that security discipline. The security service that a guy has shown that he knows something. If you take a guy from the street and you make him a civil aviation screener, there will be conflict with things such as normal patrolling, because patrolling at the airport is the same as PSiRA patrolling.’

Most managers pointed out that an appointment does not make an ordinary security officer an aviation security officer or airport screener until he completes AvSec training. Therefore, aviation security can be categorised as a specialised field within the private security industry. The security manager at one of the airports stated that:

‘The reason we call them aviation security officers is because of the training they are provided with. They are specialised in aviation security, meaning they have SACAA certificates.’

Consequently, the airport security officer's recruitment requirements vary from one airport to another. Some airports have in-house AvSec training centres, thus they recruit security officers and train them on aviation security. Other airports appoint security officers who have completed both trainings: PSiRA grades and AvSec training. The study discovered that the basic training required from aviation security officers or screeners is the same. However, some airports are categorised as NKPs in terms of the National Key Points Act 102 of 1980, which means aviation security officers who operate in that space are expected to have NKP training. The following table outlines the recruitment requirements for the sector.

PSiRA security officer (compulsory)	Aviation officer (compulsory)	National key point
Identity book	Basic aviation security	Basic national key point
Curriculum vitae	Aviation security refresher	NKP refresher
Matric certificate	X-ray international	NKP annex A
PSiRA Grade C/B/A	Improvised explosive devices	WAG 1
Customer services	Trace detect	Proficiency handgun
Behaviour training	Dangerous goods (CAT 12)	Refresher shoot on handgun
Polygraph test results	On-the-job training	Proficiency rifle or carbine
	SACAA screener certificate	Refresher shoot on rifle
	Work experience (depending on the advertisement)	Copy of the target
	Background check	
		SAPS competency



The research revealed that when appointing service providers to secure both the landside and airside, almost all South African airports require PSiRA registration. A security business registered with PSiRA has to be registered and certified by SACAA before it can render security services within the airside. After it has received SACAA certification, it is referred to as screener organisation by SACAA and the airport operator, although at PSiRA it remains registered and referred to as a security business. Security officers working for a screener organisation are called screeners. It was learnt that a screener needs to belong to an approved screener organisation. Moreover, a screener has to be certified by SACAA after he or she has completed AvSec training at an accredited training centre.

The study found that it is not a requirements for a screener organisation to be PSiRA-registered when registering with SACAA. It was noted that a company has to be registered with the Companies and Intellectual Property Commission for it to be approved as a screener organisation with SACAA. SACAA does not check anything that is PSiRA-related. SACAA officials pointed out that the only people who check PSiRA requirements are airport operators, who ensure that a screener organisation and its personnel comply with PSiRA regulations. Nevertheless, they are not instructed by SACAA.

4.3. Other role-players and their level of cooperation

Without naming the private security service providers, there are different role-players within the airport security, which ensure safety and security at an airport in different ways. It was asserted that these role-players are cooperative and are always available when needed. The following are role-players in airport security but the list is not exhaustive:

Role-players	Explained role
SAPS	<p>The study revealed that it is a SACAA requirements that SAPS should be at the airport. One participant noted that <i>'it is not a favour'</i>. It was noted that the role of SAPS at airports was more reactive than proactive in dealing with crime. One security manager stated that:</p> <p><i>'SAPS is just a backup in case we fail. It does policing.'</i></p> <p>The airport security officer apprehends a suspect, then a police officer makes an arrest, opens a criminal case against a suspect and conducts an investigation where necessary. Therefore, airport security officers are proactive and SAPS's role is to be reactive to any criminal conduct identified at the airport.</p> <p>There are multiple forms of policing at the airport, as some airports are domestic and others international. An international airport serves as a border between countries, hence border policing strategies in some international airports. One security manager stated that:</p> <p><i>'SAPS or the minister of police would then identify the policing services that need to be here and the security cluster would decide who should be here.'</i></p>
South African Revenue Service (SARS) customs	<p>It was noted that customs' responsibility at the airport is to control goods entering and leaving the country.</p>
Immigration officers	<p>The study discovered that there are immigration officers from the Department of Home Affairs whose aim is to ensure that people arriving at or leaving the country comply with all immigration laws. They have a list of people who are declared undesirable in the country and it is one of their responsibilities to prevent unlawful entry.</p>
Ports health officers	<p>In some airports, the Department of Health deploys ports health officers. In most cases, ports health officers are found at international airports. The role of a port health officer is to ensure health and safety at the airport. The officer would attend to aircrafts coming from yellow fever areas. They also check foods that enter the country through airports. An aviation security manager stated that:</p> <p><i>'They look at the aircraft that come in. If the aircraft comes from a yellow fever area the aircraft needs to be treated in a certain way. They look at the food and waste.'</i></p> <p>The research found that passengers coming from another country have to provide yellow fever certificates that show their health status. Failure to produce that certificate leads to denial of entry.</p>
ACS	<p>It was stated that airlines are affiliated with ACS, which would contract a security company to provide security services to its affiliates. The appointed security company would do baggage screening on behalf of affiliated airlines.</p>
State intelligence	<p>Some airport managers highlighted that the intelligence unit deals with high profile cases that occur at the airport, such as human trafficking and smuggling.</p>
Airlines	<p>The study discovered that airlines form part of aviation security. One security manager asserted that:</p> <p><i>'You cannot deal with security if they [airlines] are not involved.'</i></p>
South African National Defence Force (SANDF)	<p>International airports are borders between different countries, which necessitates that SANDF is part of security at some airports. Some security managers noted that if the airport is an international airport, any state president may land there, hence the SANDF should be available at all times to provide protection.</p>

4.4. The role of private security service providers in the sector

The study discovered that there are two forms of private security service providers at an airport, namely in-house and contracted security service providers. Security service providers protect both airside and landside. Moreover, most security service providers operating at airports have AvSec training. The role of private security service providers is common among South African airports, namely to protect and safeguard property and persons as stipulated by the PSiR Act. A SACAA official highlighted that:

'Screeners' aim to ensure that no prohibited items get into the aircraft that may lead to an aircraft being hijacked or cause a catastrophe.'

Most airports have contracted private security companies to assist with the protection of property and people. Their services include guarding (aircrafts, the public and staff), access control, CCTV monitoring and alarm response, patrolling (airside, landside and perimeter fence), behaviour identification (profiling), screening (luggage and passengers) done through x-ray machine or physical search, and aviation security instructors. The majority of international airports have in-house security service providers that protect airside of the airport. Over and above that, they have their own AvSec training centres. However, there are private security companies that render security services within the airside of the airport. The research discovered that these companies use SACAA-approved training centres to train their aviation security officers.

The study revealed that businesses that operate in the landside appoint their own security service providers to transport assets (Cash-In-Transit). Airports require these businesses to provide a list of their security service providers. Airports also appoint security companies to protect the landside, providing access control, guarding (including the use of security equipment) and behaviour identification (in some places).

4.5. The level and adequacy of training offered by training centres

Most South African airports were satisfied with the level of training (both AvSec and PSiRA grades) received by security service providers. It was noted that no South African airport has closed down due to inadequate security, which is a clear indication that security officer training received is adequate. The research discovered that although most AvSec training centres are not PSiRA-registered the majority of their instructors are registered with PSiRA.

Most airport security managers pointed that they are satisfied with the training offered by AvSec training centres. They confirmed that they check whether training centres are accredited by the relevant body. They are aware that AvSec training is accredited by SACAA and that the Authority has the list of registered training centres. They check the list to ascertain whether an officer went to an approved training centre or not. Managers were of the view that if a security officer is registered with PSiRA, he or she went to a PSiRA-accredited training centre and therefore, there is no need to check the training centre's registration. Most airport managers were satisfied with the training of PSiRA-registered officers.

Most airports with in-house training centres were satisfied with the training provided by their in-house AvSec training centres. They believe that their training centres comply with all applicable laws. However, they pointed out that they do not check whether training centres need to comply with other laws. Most managers of airports with in-house training centres were aware that SACAA approved their centres, which indicates compliance.

Some airports recruit aviation security officers who have completed AvSec training at other training centres. Before the appointments, security managers stated that they check whether the training was provided by a SACAA-accredited training centre or not. The managers believed that an officer who attended a SACAA-accredited centre received proper training. Aviation security training requires security officers who are dedicated to their work. One participant stated that:

'You must pass aviation subjects with an "A" or you fail. You must have 80% and above - that is how strict it is.'

In addition to achieving 80%, candidates are expected to do 80 hours of on-the-job training before they become competent aviation security officers. Those were the reasons airports cited as indications of the trust they have in AvSec training centres. In addition, it was stated that if the officer earns a SACAA certificate he has satisfied SACAA requirements for competence. With SACAA certificate, it was noted that officers could work at any airport around the world because AvSec training standards are internationally recognised. SACAA officials stated that they cannot comment on security training provided by PSiRA training centres, only on AvSec training. SACAA is satisfied with the training provided by its training centres and undertakes regular inspections of the centres to check compliance.

Some airport security managers argued that even though security at the airport is up to standard they would like security officers who are able to identify suspicious behaviour that may lead to unlawful conduct in the airport or aircraft. Therefore, they averred that PSiRA should develop a course to train and enable officers to become experts in behaviour identification. The course should enable an officer to identify suspicious acts such as human trafficking. It should be easy for an officer to distinguish between people who know each other and those who do not by just observing the way they communicate.

4.6. The structure of aviation security training

This section discusses the structure of AvSec training. The study found that Part 109 of the Civil Aviation Regulations, 2011 regulates the AvSec training. The Civil Aviation Act provides the process dealing with SACAA in regulating their training, and the interesting part is that, none of their regulations makes reference to the PSiRA requirements.

4.6.1. Accreditation

The study discovered that AvSec training is a specialised course accredited by SACAA. Some participants highlighted that PSiRA does not accredit specialised courses therefore and that it rarely conducts inspections in the sector. The basic requirements for the accreditation of training centres include checking the level of training of instructors to provide specific training. SACAA also checks whether the training centre takes into consideration health and safety of training premises. Furthermore, it is compulsory for a centre to have training manuals that are in line with SACAA regulations and approved by SACAA before students are trained.

4.6.2. Instructors

The research discovered that most AvSec training instructors are registered under the banner of trainers within PSiRA. It was noted that after registration on the PSiRA database, an instructor is linked to a particular training academy. Most AvSec training centres stated that they register their instructors with PSiRA because their training has a security aspect. Some training centres were of the view that every person who operates in a security environment should be registered with PSiRA, thus they want their instructors to be registered. One participant highlighted that:

'They are registered with PSiRA not for grades but for the mere fact that they are in the safety and security environment...'

The research found that instructors are accredited at different levels. SACAA accredits instructors to work in a particular company and cannot provide training to another company to which they are not linked. The study discovered that there is a shortage in South Africa of AvSec instructors. Some training centres develop instructors only for them to be poached by other centres that want to bypass the expense of training their own instructors.

4.6.3. Inspections of training centres

The majority of training centres pointed out that inspections are conducted regularly by SACAA inspectors to ensure that centres provide proper training. The inspectors sit in on classes and listen to the instructors' lectures to evaluate whether the training is in line with SACAA requirements. It was pointed out that SACAA also conducts ad hoc inspections of training centres to ensure that they are compliant with the Civil Aviation Act. Thus, inspections focus on the building, health and safety, instructors, manuals and quality management system. It was noted that PSiRA conducted few or no inspections in AvSec training centres and that PSiRA inspections are for PSiRA grades, not for AvSec training.

4.6.4. Enrolment requirements and PSiRA registration

To be trained as aviation security officers, individuals need to have the basic requirements stipulated by SACAA. It was noted that they should have matric and PSiRA registration with a minimum grade C. The participants pointed that PSiRA registration is not required by SACAA, but is a requirements set by training centres, which want their students to be PSiRA-registered as they are going to work in the security environment. Other than that, security companies are obliged by law to employ registered security officers. Therefore, students who want to work as security officers must register with PSiRA. SACAA also requires that an officer do medical and background checks before they are even trained.

4.6.5. Course content and minimum pass mark

AvSec training usually extends over three to four weeks before an individual is deemed a competent aviation security officer. The training centres provide different levels of training, depending on the status of the officer (ordinary security officer, supervisor or manager). The training centres pointed out that training varies according to the levels at which a particular individual wants to be trained. Level one is basic training provided to every aviation security officer before he or she can even register with SACAA. Supervisors do level two and managers mainly level three. The minimum pass mark for AvSec courses is 80%. A mark of 70% to 79% qualifies a student for reassessment. Individuals who score below 70% have to re-do the course.

AvSec course content may include but not limited to the following:

Theory (five days)	Practical (five days)
Introduction to civil aviation	Computer-based training
Introduction to national and international AvSec regulations	X-ray examination for both passenger and cargo aircrafts
Universal threat to civil aviation	Patrolling the premises
Access control for both people and vehicles	Access control
Recognition of explosive devices and offensive weapons	Physical inspection of baggage
Patrolling and guarding	Airside induction course (optional)
Dangerous goods	Airside vehicle operators (optional: done strictly by security officers who are doing vehicle patrol)
Passenger screening and physical search of passengers	
X-ray examination of baggage	
Physical inspection of baggage	
Searching and securing a sterile holding area	
Escorting people and consignments	
Emergency procedures	
Protection of parked aircrafts	

It was noted that practical training is more important than theory – should a person score 100% for theory but fail to achieve the 80% required for the practical part, he or she will fail and be expected to re-do the course.

4.6.6. On-the-job training (80 hours or 10 days)

The study discovered that students have to complete on-the-job training before qualifying for certification. A student has to be paired with a supervisor who has done level 2 training and be PSIRA-registered. Training should take 80 hours or 10 days. The student would make use of the skills acquired in both theory and practical training. SACAA stipulates that a screener may do x-ray screening for only 20 minutes before he or she is rotated, such is the level of concentration required.

4.6.7. Assessing the course

AvSec training instructors are entrusted with assessing the course for which they provide training. After the assessment of a student by an instructor, the scripts are sent to a moderator, who is a person certified by SACAA to moderate and is linked by SACAA to the particular training centre.

4.6.8. The fees

The research revealed that there are no standardised fees set for AvSec training centres, thus they determine their fees. This leads to high prices, which are prohibitive and prevent access by some security officers. Most representatives of training centres pointed out that they usually train security officers who are sent by their companies and that the fee is paid by the companies. Payment by individuals is rare.

4.7. The structure of national key points training

This section discusses the structure of NKP training. The study found that National Key Points Act 102 of 1980 (NKP Act) governs NKP training. It was indicated that NKP Act has been repealed by the Critical Infrastructure Protection Act 8 of 2019. However, the findings of the study dwelled much on the NKP Act due to that security service providers are still making reference to it.

4.7.1. Accreditation and inspection of training centres

NKP training is a specialised course accredited by SAPS and the Safety and Security Sector Education and Training Authority (SASSETA). It was noted that previously the Authority accredited NKP training but that it no longer does. Before SAPS grants a certificate to an NKP training centre, it must meet the basic requirements for training centre accreditation, namely SASSETA registration, training manuals, shooting range, classrooms and the level of instructor training to provide training that includes:

- PSiRA registration
- SASSETA registration
- NKP training
- Instructor certificate
- Criminal checks
- Firearm certificate
- Basic firefighting
- Basic first-aid
- South African Professional Firearm Trainers Council (PFTC) certificate

Most training centres pointed out that SAPS conducts regular inspections to ensure that centres provide proper training. Furthermore, SAPS conducts *ad hoc* inspections in NKP training centres, which focus on checking the basic requirements mentioned previously in this section to determine whether or not a training centre is still compliant.

4.7.2. Instructors

Most NKP training instructors are registered with PSiRA as general security officers. Reasons put forward for why instructors or facilitators should be registered with PSiRA include that, as they provide security training, they should know the content. Instructors are accredited at different levels, namely for training only, for training and assessment, and for training, assessment and moderation.

A major challenge raised was that some NKP instructors have never been to an NKP site and consequently do not understand the day-to-day challenges faced by the sector. It is possible for NKP instructors not to have information about what is happening in the airport security sector, as airports are closely monitored and a tour of restricted areas requires a great deal of screening. It might be that instructors do not want to be involved in that process, but this is debatable. NKP training can be provided by anyone who is accredited as a facilitator by SASSETA and SAPS. However, to assess or moderate, a person would have to be registered as an instructor and moderator with SASSETA.

4.7.3. Enrolment requirements and PSiRA registration

To be trained as an NKP officer, an individual needs the basic requirements stipulated by SAPS. It was noted that a person who wants to work in the security environment should have PSiRA registration with a minimum grade C. Training centres also require that an officer should do background, credit and medical checks before being trained as an NKP officer. Medical or health fitness is needed because students are trained with guns.

4.7.4. Course content and minimum pass mark

To become a competent NKP officer requires about a week of training. Training centres provide different forms of NKP training and categories differ. The NKP officer or student should be capacitated in line with the sector in which they will be deployed. Most training centres highlighted that they create scenarios for students to gain an idea of what the NKP site looks like. However, some NKP instructors have never been to a NKP site, which makes it difficult to create realistic scenarios. These instructors, it was highlighted, never performed even small talks with airport security managers to understand the day-to-day NKP security challenges that airports face.

Some places are more vulnerable than others and some instructors pointed out that these have to be identified during training so that more emphasis may be placed on them. In airport security, such places would include filling stations. Participants were of the view that NKP training should be divided into sectors because NKP sites differ. Moreover, it was suggested that NKP instructors visit NKP sites maybe twice a year to appreciate the daily experiences of airport security officers and to facilitate the creation of relevant training scenarios.

If a person does not achieve the minimum NKP course pass mark of 60%, he or she does a remediation and is reassessed. For basic firefighting and first aid training the pass mark is 50%, while for firearm training it is 70%, after which a student receives a statement of results from the South African Professional Firearm Trainers Council (PFTC). This statement denotes that a student has completed the five firearm unit standards, namely the Firearms Control Act 60 of 2000, handle and use a handgun, and handle and use a handgun for business purposes. Then the student would have to choose between a shotgun and self-loading (semi-automatic) rifle. After that, a member through the employer must complete a WAG 1 form to register with the NKP Secretariat and to complete an application for a firearm competency certificate through SAPS.

The course has formative and summative assessments, some information from the former rolling over to the summative assessment. NKP course content may include the following:

Theory (five days)	Practical (five days)
Role and function of security	Patrolling
Function of the minister and owner	Search procedures
Recruitment and selection	Access control
Applying powers of a security officer	Firefighting
Prohibited acts	First aid
Patrolling	Handle and use a handgun
Section 29 search procedures	Handle and use a handgun for business purposes
Access control: role and function	Handle and use a shotgun/rifle
Powers of a security officer	Handle and use a shotgun/rifle for business purposes
Access to public premises	
Protection of Information Act	
Limitation of powers	
Arrest	
Firefighting	
Report writing	
Recording and reporting	
Observation skills	
Certificate of competency and termination	
Search by occupier	
Examination of articles	
Search and seizure	
Firearm Control Act 60 of 2000: demonstrate understanding of the Act	
Handle and use a handgun	
Handle and use a handgun for business purposes	
Handle and use a shotgun/rifle	
Handle and use a shotgun/rifle for business purposes	
Use of force in effecting an arrest	
Communication (radio or telephone)	

Theory (five days)	Practical (five days)
Role in an emergency	
OHS Act	
Personal hygiene	
Basic self-defence, DART	
Record keeping (OB, pocket book or registers)	
Housekeeping (OHS Act)	
Public relations	
Searching and seizure	
First Aid	

4.7.5. Assessing the course

NKP training instructors have a duty to assess the course for which they provide training. After the assessment of a student by an instructor, the scripts are sent to a moderator, who is certified by SASSETA to moderate and is linked to that particular training centre.

4.7.6. Fees

The research revealed that there are no standardised fees set for NKP training centres, thus they determine their fees. Prices are informed by resources required for training, such as duration of the course, instructor fees and classroom fees.

4.8. The leading stakeholder in airport security

The leading stakeholder in airport security varies from one airport to another. The airport operator or owner leads the overall security plan, it is considered the leading stakeholder. The study found that municipalities, private companies or state-owned companies are in charge of the security plan and are, therefore, the leading stakeholders in their respective airports. If an airport wants to outsource some security services, the airport operator will provide a permit to the outsourced security company.

4.9. Security in South African airports compared to international airports

Security measures in airports are different the world over and measures are informed mostly by the level of risk identified during the risk analysis. The study found that South African airports have high-level technology equipment and match international standards. One participant stated that:

'The levels of security and compliance of South African airports are very high - compliance standards stand at 60% in Africa and 80% in South Africa.'

SACAA further confirmed the high level of security in South African airports, stating that ICAO inspects local airports regularly and compliance stands at 80%. It was further pointed out that the level of threat plays a huge role in determining the security measures to be used. Some of the participants indicated that it is difficult to compare security levels, but that they are doing their best.

It was indicated that some countries deal with airport security through national law enforcement agencies and that standards are not the same the world over. It was argued that standards in South Africa are better than in most countries. Moreover, SACAA is a member of ICAO, which develops standards, recommend practices and audits compliance standards of South African airports from time to time. The research revealed that compliance with ICAO standards was last recorded at 80%, although local airports are not in competition with other countries' airports.

4.10. Common airport security breaches in South Africa

The aim of any security plan is to prevent security breaches and reduce the number of risks. A great security plan and measures do not necessarily mean no security breaches in airports, only reduced risks. Security measures aim to reduce or eliminate the opportunity for crime to be committed. Crime is, to a large extent, facilitated by an opportunity. It was established that South African airports experience security breaches from time to time, including penetration of extra cigarette lighters, sharp objects and extra matches, cable theft and passengers boarding without a pass.

An AvSec training provider with years of experience in aviation security stated that security officers going awol is a security breach in itself. Furthermore, it was stated that absence of security officers without prior notice can affect the operations of the entire airport, as SACAA has the authority to close the airport for the day for non-compliance with the security plan. From time to time, uninformed travellers bring to the airport a knife or a toy gun, which is confiscated by security. Theft is also common in many airports.

It was further alleged that security officers go awol mostly because security screeners are paid the same or less as security officers working in other sectors requiring fewer skills and less training.

4.11. Security measures used in South African airports

The research found that the National Aviation Security Programme (NASP) informs security measures in South African airports and on airlines. In terms of NASP every airport is compelled to develop an airport security programme or airport security plan (ASP). The ASP deals with the protection of passengers, crewmembers, aircraft, airport staff and airport facility etc. In terms of the NASP, airlines have to develop the aircraft operator security programme (AOSP). The Department of Transport is responsible for the development and maintenance of NASP, and SACAA is responsible for ensuring compliance with security measures in terms of NASP and both the ASP and AOSP.

Generally, South African airports use a combination of security measures to protect and safeguard properties and people. Some airports use a combination of the services of SAPS, in-house security, outsourced security service providers, immigration officers, SARS customs officials, working animals and various security equipment. In some cases, the airport operator determines the standards, informed by SACAA regulations. These standards may be higher than those set by ICAO and SACAA. The list below is not exhaustive because the sensitive nature of airport security prevents some security measures from being disclosed. Clifford (1977) work argued that details of security equipment used could not be shared with the public as airports needed to retain the element of surprise. However, most South African airports use the following security measures.

4.11.1. Air marshals, flight officers and crewmembers

Generally, airlines worldwide use air marshals, but this is not the case with South African-based airlines. The study found that in most cases South African airlines have flight crewmembers, whose role amongst others is to ensure that unauthorised persons do not enter the cockpit and that no one boards without a boarding pass. Some study participants indicated that although South African airlines generally do not use air marshals, this practise is sometimes deviated from.

It was alleged that some South African based airlines would deploy armed and/or unarmed SAPS members (Taskforce) as air marshals in the flight depending on the risk of the flight. Which compliments the work of Stewart and Muller (2013) when arguing that air marshal can be used as a flexible security measure to prevent asymmetric warfare. Furthermore, Zhang (2015) and Stewart and Mueller (2013) pinpointed that screening may be effective in preventing terrorists from entering a flight, but air marshals serve as the 'last line of defence' in an aircraft if the screening machines failed to detect weapons at the airport.

As indicated earlier in this report, aviation security work is risk-based and the degree of risk that South African airports and airlines face determine whether fulltime air marshals are needed or not. Furthermore, the study established that flight crewmembers training has module of safety, which addresses security threats inside the plane. Safety training of crewmembers aims to ensure the safety of all passengers and crewmembers, and the flight itself by equipping the crewmember to perform demonstrations on emergency exit doors, use of air mask and air vest, and use of cell phones and other electronic devices.



4.11.2. Screening of persons and luggage

It was established that all South African airports screen passengers and luggage before a flight. Screening is conducted through x-ray machine, metal detector searches, physical search and sniffer dogs. The x-ray machines used in South African airports are able to detect many illicit items inside luggage and on cargo flights. Furthermore, agents trained on airfreight are trained to process parcels and are SACAA-accredited and-certificated. They receive the parcels from clients, process, and package and send them to the airport for shipment or freight. Airport security will verify the documentation of, but will not search, any parcel packaged and processed by a registered agent.

Screening of persons at airports does not start with passengers, but with all employees of different businesses in the airport precinct. All such staff possess a permit to enter the airside precinct, but this permit will be withdrawn should the holder commit a criminal offence or is found to be an ex-convict.

4.11.3. Behaviour identification officers

South African airports are public spaces and in most cases, are populated daily. Airports are used not only by travellers but by businesses. These activities create a conducive environment and opportunity for criminals to conduct their business unnoticed. Thus, airports need behaviour identification personnel or profilers. The study revealed that in most South African airports, profiling and identifying abnormal behaviour is not a dedicated profession but part of the job description of certain security officers.

At one Western Cape airport, for example, it was found that screeners conduct behaviour identification work as part of their daily activities and that there are no dedicated officers for this work. A recommendation was made that PSiRA incorporate behaviour identification training as part of security training because the industry has moved past guarding in the ordinary sense of the word. It was pointed out that behaviour identification officers are trained differently from ordinary security officers because they need greater analytical skills. Currently there is no dedicated training for behaviour identification in South Africa. The study established that South African based airport operators send their trainers to the United States of America (USA) for training of behaviour identification officers.

4.11.4. Explosive detection systems

As indicated in the literature, a South African airports use x-ray machines, or x-ray machines and sniffer dogs, for explosives detection. Passengers and luggage are screened by the x-ray machines, while hand searches and sniffer dogs are used on persons and luggage respectively should there be suspicion of possession of explosives.

4.11.5. Physical or hand search

Airport security officers conduct physical or hand search on passengers and luggage from time to time. The criteria used to identify who to search are unknown, but from observation, it seems that security officers randomly pick passengers to search, or act when the metal detector or the x-ray machine detects some metal element on the passenger's body. The reason for security officers not to use this method frequently is due to the facts highlighted by Nevo (2015) and Clifford (1977) that it is labour intensive and they have to keep an element of surprise to the attackers. The curriculum for PSiRA training grades includes search procedures in terms of the Criminal Procedure Act 51 of 1977. These searches are always conducted respectfully, with males searching males and females searching females.



4.11.6. The use of working animals in airport security

Use of security dogs is common in South African airports, although not all airports use dogs. Most international airports use sniffer and tracker dogs. The study found that dogs are used as secondary measures to detect illicit goods when x-ray or ETD machines fail to detect or corroborate what the machine has detected during screening before luggage or a parcel can be opened and physically searched. Tracker dogs are used mostly to track trespassers and in perimeter patrols.

SACAA accredits the training of such dogs and dog handlers and also inspects the working conditions of dogs. PSiRA has a similar dog regulation role to that of SACAA. The Minister of Police is empowered in terms of Section 35(1)(o) of the PSiR Act to develop 'regulations relating to the training, registration, use, treatment, transportation or general care of working animals by security service providers and other persons who employ security officers, in or in connection with rendering a security service, as well as the registration of training centres with regard thereto'. Part 110 of the Civil Aviation Regulations, 2011 is interpreted by SACAA to mean that it is empowered to regulate the training and use of dogs as a screening method. The shared mandate to regulate the training and use of dogs may lead to over-regulation of the sector. A security manager at an international airport stated that:

'The dogs are trained to detect money, drugs and explosives and airport security management believes that dogs deployed in its airport are highly trained.'

A security executive from one of the airport operators corroborated the above statement by indicating that in all their international airports they use highly trained vapour dogs, which are trained in the USA as a pair with their handlers. The handler would then register with PSiRA as a dog handler after the completion of the training in the USA. The study discovered that most domestic airports do not use security dogs to detect illicit goods, but x-ray machines and physical searches. By comparison, most international airports use dogs for patrolling, screening, clearing of runways etc. In South Africa, dogs and their handlers have to be certified by SACAA.

4.11.7. Closed circuit television

CCTV was found to be one of the most commonly used security systems in South African airports, as security officers are not omnipresent. CCTV footage may be used as evidence in any tribunal.

4.12. The effectiveness of security measures

In terms of SACAA regulations, each airport in South Africa should have a detailed security plan, which informs security measures and daily operations of the airport. It was found that most airports that participated in the research had security plans and were functioning properly, with very few security incidents resulting from ineffectiveness of security measures. In one local municipality-operated airport, however, there was no security plan and the security staff were found to be employed by the municipality, not PSiRA-registered and with no AvSec training.

South Africa has experienced several private plane crashes in recent years. On 19 May 2019, for example, a plane crashed at Rhino Park Airfield in Bronkhorstspuit injuring two people. A Convair 340 plane crashed on 19 July 2018 in Pretoria, killing two people, and a light aircraft came down in Midrand on 8 October 2018, also killing two. It was noted that none of these accidents was caused by lack of security or attacks but presumably by technical problems. The study also found that most airports have systems to test their security in a real work environment from time to time, including attempts to enter the airside with prohibited items. This model is also used by SACAA officials to test the level of security and compliance within the sector.



4.13. Risks posed by inadequacy of security measures

Inadequate security in any place may pose some threat. Research participants highlighted different threats that posed by inadequate airport security, citing increases in theft and in the number of people boarding without boarding passes, which may affect the general operations of the airport. One security manager offered a different perspective about inadequate security, stating that:

'Inadequate security will lead to more pressure on those on duty with the eventuality being that service standards are compromised.'

It was also pointed out that inadequate security can lead to sabotage and hijackings. One participant stated that in the worst-case scenario, planes may be grounded or an airport even closed down for lack of adequate security.

4.14. The contribution of stakeholders in regulating airport security

The study revealed that most airports are making strides to ensure that they are compliant with PSiRA and SACAA regulations. These measures start with the recruitment criteria highlighted earlier in this report. A manager at one of South Africa's international airports indicated that internal inspections are conducted and there are penalties for non-compliance, particularly with the service level agreement. In contrast to the compliance culture found in most airports, one domestic airport manager stated that all that his airport cares about is compliance with SACAA regulations and not PSiRA regulations.

However, the study found that airport compliance with PSiRA regulations is high, although there will always be room for improvement. Some research participants indicated that PSiRA must establish a good working relationship with SACAA to ensure compliance with both PSiRA and SACAA regulations. One participant highlighted a need for PSiRA to have a computer application (App) to remind security service providers about the expiry of their registration certificates. The study found that most airports were never inspected by PSiRA inspectors, a finding confirmed by some PSiRA regional offices. The participants were eager for PSiRA inspections so that they could confirm their compliance. Participants emphasised the need for salary increments for aviation security officers due to the nature of the work and the skills required.

5. Recommendations

This section presents the research recommendations, which will enable PSiRA to better regulate airport security. These recommendations are wholly informed by the research findings.

5.1. Registration of security service providers

The study found that although most airport operators employ registered security service providers, some had unregistered providers especially those involved in aviation security. Thus it is recommended that every security service provider rendering security services at an airport be registered with PSiRA, including managers of airport security operations.

5.2. The screener organisation

The study revealed that PSiRA and SACAA have a shared mandate to regulate security businesses or screener organisations rendering security services at airports. To ensure greater compliance with the Private Security Industry Regulations, 2002, and the Civil Aviation Regulations, 2011, all security service providers must be registered with the Authority before they can be registered with SACAA as screeners or screener organisations.

5.3. Registration of instructors

Although PSiRA does not regulate special courses such as aviation security training and national key points, but the services rendered by trainers of such courses comply with the definition of a security service in Section 1 of the PSiR Act, 'a security service means providing security training or instruction to a security service provider or prospective security service provider'. Therefore, instructors of AvSec and NKP training must be registered with PSiRA because their function is in line with the definition of a security service in the PSiR Act.

5.4. Registration of air marshals and behaviour identification officers

The definition of a security service found in Section 1 of the PSiR Act includes the protection and safeguarding of a person or property in any manner. This covers the work or job descriptions of air marshals, behaviour identification officers and any other official whose primary function in the airport precinct is to protect and safeguard persons or property. Therefore, the Authority is obliged to register and regulate any person who renders these services other than a security service provider contemplated in Section 199 of the Constitution. This applies when a security business, airport or airline appoints an air marshal or a behaviour officer.

5.5. Behaviour identification training

It is common cause that security has evolved from ordinary guarding to more advanced methods, including behaviour analysis and identification of suspicious behaviour. The study discovered that South African airports use behaviour identification officers or profilers as a security measure. Therefore, it is recommended that the Authority, in consultation with the industry and SACAA, develop a training programme or course for behaviour identification officers. The importance of properly trained behaviour identification officers to address the contemporary airport and aviation security threats cannot be overemphasized, therefore the course should not be limited to security officers, but rather it may be made available to other role players (crew members and other employees) within the airport or aviation space.

5.6. Shortage of aviation security instructors

The study highlighted a shortage of AvSec training instructors, thus the Authority should encourage general security officers and instructors in particular who are interested in the sector, specifically the previously disadvantaged (with more emphasis on youth), to complete the AvSec training instructors course.

5.7. Establishment of working relationship

PSiRA should establish a good working relationship with airport operators to achieve and maintain compliance by all South African airports with Authority regulations.



5.8. Reporting of incidents

The Authority is responsible for determining and enforcing minimum standards of occupational conduct for security service providers. Developing these standards points to a need for the Authority to be informed in detail about every incident at South African airports. Therefore, it is recommended that airport operators and security service providers report to the Authority any allegations or findings of improper conduct by a security service provider.

5.9. Salaries and allowances of airport security officers or screeners

AvSec training is internationally recognised, thus security officers who have passed the course can work in any ICAO member state. In terms of Section 3(m) of the PSiR Act, the Authority must protect and enforce the rights of security officers and other employees in the private security industry. The Authority in consultation with employees' trade unions should advocate salaries commensurate with the training and skills required to work in the sector compared to those for an ordinary security officer working in any other sectors. Moreover, the x-ray machine operator or screener should receive an allowance for operating the machine.

5.10. The relationship with SACAA

The Authority must maintain its good working relationship with SACAA to standardise and regulate issues of common interest. The issues should be detailed in the memorandum of understanding or document regulating the relationship between the two regulators. Among issues of common interest that PSiRA and SACAA should discuss are:

- Training and use of dogs in South African airports.
- Setting of minimum standards of training.
- Development of curriculum for behaviour identification and air marshal training.
- Development of effective mechanisms to regulate the sector.
- Registration requirements for service providers.
- Standardisation of training fees.

5.11. PSiRA inspections

The Authority should conduct routine inspections to ensure compliance with PSiR Act and regulations. The culture of compliance in airport security can be maintained only by effective regulation, which includes regular inspections covering aspects such as registration status of instructors and trainees.

5.12. Upgrading of PSiRA app and establishment of mobile unit services

It was argued that non-compliance in the airport security sector is, to some extent, caused by lack of accessibility to PSiRA by security service providers. It is recommended then that the PSiRA app be upgraded to enable security service providers to sign up and receive reminders when their certificate(s) are due for renewal, and that PSiRA should establish a mobile registration unit to service the large numbers of airport security service providers.

6. Conclusion

The study discussed the involvement of the private security industry in the airport and aviation environment. Among the reasons for the involvement of private security industry in the airport and aviation space is asymmetric warfare such as hijacking and terrorism that raises risks to aircraft and humans. The literature revealed that some flights are diverted to undesired destinations following hijackings and that some individuals use the aviation sector to smuggle goods. These attacks prompted the appointment of private security providers.

The study intended to devise solutions to better regulate airport security to ensure that the sector is compliant with the PSiR Act. The study also deliberated on the Authority's objectives and used a qualitative research approach to uncover the lived experiences of sector participants. The study revealed a difference between airport security and aviation security, the former being an umbrella term for security services in airports, which is comprised of landside and airside. Landside refers to unrestricted or public areas and airside to restricted areas to which access requires a permit or boarding pass. Aviation security is a common term for airside security services and thus falls under airport security.

The research identified different airport security stakeholders, including SAPS, SARS customs unit, SANDF, ports health services, immigration services and airlines. Cooperation between the airport operators and stakeholders is well established and functional in all airports that participated. The study also revealed that training received by airport security service providers is adequate, but that there is room for improvement, particularly in training of behaviour identification officers. Most training centres were aware of PSiRA regulations, but they are not compelled to register with the Authority.

SACAA plays a pivotal role in ensuring safety and security of passengers and airport facilities, and develops regulations for airport security service providers or screeners. However, their emphasis is more on the aviation. The study revealed that security measures used in South African airports are very effective in that there are very few incidents of security breaches that emanates from ineffective security measures. In as much as the research's recommendations are aimed at strengthening PSiRA's regulatory capacity in the airport security sector, most airport security service providers were found to be more compliant with PSiRA regulations than their counterparts in other subsectors of guarding which affirms the hypothesis of the study. Although it is understood that the entire security arrangement in the airport is way more than the aviation, it is worth noting that airports in their very own nature exist to serve aviation and all its dynamics including those that love flying. Hence, the report is named *for the love of flying*.

References

- Alpa, 2007. Secondary Flight Deck Barriers and Flight Deck Access Procedures: A Call for Action, ALPA White Paper. Washington, DC: Airline Pilots Association International.
- Blalock G, Kadiyali V and Simon DH, 2007. The impact of post-9/11 airport security measures on the demand for air travel. *The Journal of Law and Economics*, 50(4), pp 731-755.
- Bricki N and Green J, 2007. A guide to using qualitative research methodology.
- Carlson, JA, 2010. Avoiding traps in member checking. *The qualitative report*, 15(5), pp1102-1113
- Civil Aviation Act No 13 of 2009. [online] available at: <http://www.caa.co.za/Legal%20Documents/SA-CATS%20Full/SA-CATS%204-2016.pdf> [accessed 21 March 2019]
- Clifford W, 1977. Australian Institute of Criminology and Australia, How to Combat Hijacking. Australian Institute of Criminology.
- Cresswell JW (Ed), 2009. *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (third ed). Los Angeles: Sage.
- Dictionary O, 2014. Oxford dictionaries. Language Matters.
- Du Toit J and Craigie F, 2008, April. Enforcement of CITES at OR Tambo International Airport, South Africa. In Eighth International Conference on Environmental Compliance and Enforcement (p 445).
- Gichanga M, 2015. Dogs and Dog Handlers in the South African Private Security Industry. [online] Available at: https://www.psir.co.za/psira/dmdocuments/research/Canine_Protection-Dogs%20and_Dog-Handlers_31March2015.pdf [accessed 20 March 2019].
- Gichanga M, 2016. Training Standards in the South African Private Security Industry. [online] Available at: <https://www.psir.co.za/psira/dmdocuments/research/Research%20Report%20Training%20Standards.pdf> [accessed 15 March 2019].
- Gumedze S, 2016. Improving the Regulation and Control of the use of Firearms within the Private Security Industry in South Africa. [online] Available at: https://www.psir.co.za/psira/dmdocuments/research/ResearchReport-Barrel_of_the_Gun.pdf [accessed 15 March 2019].
- Green LC, 1972. Piracy of Aircraft and the Law. *Alta L. Rev*, 10, p 72.
- Kothari CR, 2004. *Research methodology: Methods and techniques*. New Age International.
- Mamabolo LRC, 2009. The experiences of registered nurses involved in termination of pregnancy at Soshanguve Community Health Centre (Doctoral dissertation).
- Newman I, Benz CR and Ridenour CS, 1998. *Qualitative-quantitative research methodology: Exploring the interactive continuum*. SIU Press.
- Nguyen CM and Le TQ, 2019. Impact of Piracy on Maritime Transport and Technical Solutions for Prevention, vol 10, pp 958-69.
- Onuoha F, 2009. Sea piracy and maritime security in the Horn of Africa: The Somali coast and Gulf of Aden in perspective. *African Security Studies*, 18(3), pp 31-44.
- Pavlenko P, Tavrov D, Temnikov V, Zavgorodniy S and Temnikov A, 2018, May. The method of expert evaluation of airports aviation security using perceptual calculations. In 2018 IEEE Ninth International Conference on Dependable Systems, Services and Technologies (DESSERT) (pp 406-410). IEEE.
- Private Security Industry Regulation Act No 56 of 2001. 2017.
- Roberts D, 2016. Aviation Security and the Challenges the Industry Faces Providing Safe and Secure Transportation.
- Rumerman J, 2003. Aviation security. In *Essays on the History of Flight*.
- Simons MS, 1997. A Review of Issues Concerned with Aerial Hijacking and Terrorism: Implications for Australia's Security and the Sydney 2000 Olympics. *J Air L and Com*, 63, p 731.
- South African Civil Aviation Authority. [online] Available at: <http://www.caa.co.za/Pages/About%20Us/SACAA-Mandate.aspx> [accessed 21 March 2019].
- Stewart MG and Mueller J, 2013. Terrorism risks and cost benefit analysis of aviation security. *Risk Analysis*, 33(5), pp 893-908.
- Thanh NC and Thanh TT, 2015. The interconnection between interpretivist paradigm and qualitative methods in education. *American Journal of Educational Science*, 1(2), pp 24-27.
- Thobane MS, 2016. Airport follow-home robberies. *Servamus Community-based Safety and Security Magazine*, 109(2), pp 34-35.
- Thomason R, 2019. Attacks on the Energy Industry: Important Differences Between Terrorism and Piracy. [online] Available at: <https://maritimemercantile.com/2019/05/24/attacks-on-the-energy-industry-important-differences-between-terrorism-and-piracy/> [accessed 1 March 2019].
- Tongco MDC, 2007. Purposive sampling as a tool for informant selection. *Ethnobotany Research and Applications*, 5, pp 147-158.
- Weinberg L, Pedahzur A and Hirsch-Hoefler S, 2004. The challenges of conceptualising terrorism. *Terrorism and Political Violence*, 16(4), pp 777-794.
- Zhang X, 2015. Air Marshals' Investigation Powers Research in Dealing with Hijacking Criminals. *Open Journal of Social Sciences*, 3(03), p 171.

