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AND SUPPLY CHAIN MANAGEMENT (MLSCM)**

**Investigating the effect of cargo theft on walvis bay port operations in Namibia**

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## **DECLARATION**

I, Elizabeth Elago (Student Number, 200835751) pursuing a Master Degree in Logistics and Supply Chain Management at the Namibia University of Science and Technology, I am hereby declaring that all work done in this paper is my own work. All previously published materials and secondary sources used in this research were properly referenced.

**Signature**.....

**Date**.....

## CERTIFICATION

The undersigned certifies that s/he has read and recommended to the Namibia University of Science and Technology, School of Marketing and Logistics the acceptance of this Mini Thesis submitted by Elizabeth Elago, student number 200835751 in partial fulfilment of the requirements of the Master Degree in Logistics and Supply Chain Management.

**Supervisor.....**

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## **DEDICATION**

The study is dedicated to my very beautiful, brave but late mum (Peneyambeko E.N.N Nghaamwa); the woman who has set a good foundation in my wellbeing and study life, and credence of being career oriented in my entire life. Although she left me at my early age, leaving me in my primary school studies, she has left a memorable print that has pushed me up to this point. It is very unfortunate that she could not see me come this far but she is indeed the legend behind all the effort applied in the study (Mum I Love You). Secondly, I dedicate the study to my beloved loving and caring siblings who supported my journey in my educational career financially and emotionally. I was just a young girl that the world awarded to the 6 of you when we lost our parents. You were not so grown too, but with your personal responsibilities and lives you were building for yourself, you loaded me into your baskets. You bravely and positively continued from where mum ended. You did a great job and a significant contribution to my life; you took good care of me and you developed me into a woman I am today. You have worked hard and built your lives so well that you all became my role models up to date. Thus, all the achievements that follow are rooted on the foundations you all grounded in my journey of life and studies. I am forever grateful and forever deeply thankful. You are equally loved and appreciated. God I am thankful.

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## **ABSTRACT**

The aim of this study was to investigate the effects of cargo theft on the Walvis Bay port operations. The study was grounded in the pragmatic worldview. The study adopted an exploratory sequential mixed method. The sample size of 30 participants was drawn from an estimated population of 1000 officials at the Port of Walvis Bay using non-probability sampling technique. Purposeful sampling method was used to draw a sample of respondents from relevant departments. The study used an open-ended questionnaire containing semi-structured in-depth questions aimed at obtaining qualitative data and survey questionnaires consisting of closed-ended questions to collect quantitative data.

Based on the results, the study found that cargo theft has possible effects on port operations which are: financial loss, customer loss, sustainability of port operation, and unreliability of port services. Furthermore, the study found that cargo theft has subsided after the recruitment of port security officials and the inauguration of a mobile police station within the port in 2013. The two security measures assisted in combating crime at the port and subsequently minimised cargo theft. The study further found that stolen cargo was recovered within a short period. Regarding the payments of the stolen cargo, the findings revealed that Namport pays for stolen cargo on the basis of the investigation outcomes. In addition, insurance payments results show that insurance pay-outs are paid out in different percentages based on the investigations outcomes.

However, the performances at the port are fairly or less affected. Furthermore, cargo theft negatively affects other parties such as port customers, clearing agents and shipping lines. Cargo

theft has negative threats on the supply chain of cargo which can have a negative effect on port operations.

Most noteworthy threats are loss of customer's trust, the unreliability of services, negative influence on port customers' shipping lines including cargo owners, resulting into dissatisfaction, loss of finance, and lastly threats to the economy at large.

The installation of CCTV cameras all over the port, the implementation of port security, the ISPS code compliance, security baselines, the complement of National Youth Service officials as well as the GIS system and Namibia police force officials are some of the strategies employed by the port to reduce and fight cargo theft at the port.

The researcher recommends that Namport adds modern technology to the security measures already in place in tracing and proving whether the loose items are lost in the port premises or in transit. Finally, Namport is recommended to adopt strategies that can eliminate threats that cargo theft imposes in the supply chain. The study concluded that theft at the Walvis Bay port has reduced for the past 5 years and the theft that is taking place currently at the port has minimal effect on port operations but on other parties, clearing agencies, port customers as well as shipping lines to mention a few. The adoption of new technology will assist in combating the theft of cargo at the port. However, port customers are advised to do a background check on the shipping companies before using their service to avoid occurrences of loose commodities getting lost.

***Key words: Cargo Theft, Port Operation, Port Effects, modern security technology, container, shipping companies***



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## **LIST OF ABBREVIATIONS / ACRONYMS**

**FBI** - Federal Bureau of Investigation

**GRN** - Government Republic of Namibia

**GRT** - Gross Register Tonnage

**KPIs** - Key Performance Indicators

**NRT** - Net Register Tonnage

**PA** - Port Authority

**PSQ** - Port Service Quality

**RFID** - Radio Frequency Identification

**TAPA IIS** - Transported Asset Protection Association, Incident Information Service

**TAPA** - Transported Asset Protection Association

**UNCTAD** - United Nations Conference on Trade and Development

**NCSC** - National Cargo Security Council

## CHAPTER ONE

### INTRODUCTION AND BACKGROUND

#### 1.0 Introduction

This section of the study presents a brief outline of the research as well as the problem and objectives of the research. It goes further to presenting the research questions, delimitations and limitations of the study. Cargo theft is a global concern which is affecting both consumers and businesses (Palmer, 2010). Palmer (2010) states that today in the global economy, materials manufacturing, and sourcing mostly happen on one part of the world, whereas, finished products are warehoused and consumed in the other part of the globe. With all business practices taking place across the world, cargo theft practices have been observed at different points (Palmer, 2010). Global supply chains are growing in complexity, although they remain vulnerable to countless dangers that are damaging to both people and businesses, thus supply chain disruptions, delays and loss of goods are global costly problems (Colin, Mathieu, & Nakechbandi, 2016). Juttner (2005) defines supply chain vulnerability as an exposure to a serious disturbance which arises from supply chain risks that affect the supply chain's ability to effectively serve the end customer market. Therefore, a vulnerable supply chain is a huge reflection of the sensitivity of a supply chain (Waters, 2011). However, cargo theft is a clear type of disruption on a flow of goods that affects the ability of supply chains to serve the end consumers (Juttner, 2005). According to the findings of a research that was carried by different authors in different years, cargo crimes evolved over the years as both the focus and theoretical background keeps changing (Ekwall & Lantz, 2013).



## **1.1 Background of the study**

Cargo theft has been recorded as a problem in the supply chain industry for centuries and it poses a very significant problem around the globe (Conlon, 2016). In 2015, the Transported Asset Protection Association (TAPA) and Incident Information Services (IIS) recorded an average loss for cargo crimes in South Africa at a value of around €201,423 based on the 34.5% of cargo theft incidents that were reported. Furthermore, the theft of cargo is rated or rather estimated at the value of 50 billion dollars or more per year globally (Conlon, 2016).

However, the global risk report indicated a gap in reporting cases of cargo theft (Kusi, 2015). Crimes against logistics supply chains have totaled around 5% of global trade in 2007 although there is a large portion of losses from cargo theft which does not get reported (Sala, Ramírez, & Carreño, 2011). However, the National Cargo Security Council (NCSC) has estimated that losses from unreported theft as well as related indirect costs are estimated between US\$ 20 billion and US\$ 60 billion per year in the United States alone (Perez, Gonzalez, & Ascencio, 2011). According to Perez et al. (2011), the NCSC together with the Federal Bureau of Investigation (FBI) gave a report that the areas that are more exposed to theft are cargo terminals, transfer facilities and lastly cargo consolidation areas.

Malaysia is one of the countries in Asia that has recorded the most frequent incidents of in-transit cargo theft with violence and threat being used in cargo hijackings (Zailani, Seva Subaramaniam, Iranmanesh, & Shaharudin, 2015). According to Edgerton (2013), Ghana's supply chain at the country's seaports is wrought with cargo theft which local freight forwarders titled it as a silent crime. Theft of cargo is said to have incurred costs on the Ghanaian economy estimated at million cedis every year (Edgerton, 2013). According to Bernard (2015), a global risk report of 2009 has

pointed out that there is no reliable crime statistics on cargo theft in Ghana. However, West African countries are recorded to have the highest risk of cargo theft in Africa (Kusi, 2015). Global risk report revealed that globally theft of cargo is rated or estimated at 50 billion dollars a year or more, although most cargo thefts are not reported especially cargo hijacking (Kusi, 2015).

According to the conservative estimation compiled by the European Union (EU) in 2007, the value of stolen goods annually stands at 8.2 billion pounds (Ekwall & Lantz, 2013). The figure is an estimate as it is very difficult and sometimes impossible to collect accurate data for cargo theft losses due to limited reporting by the transport industry because of lack of an international law enforcement system that forces and ensures that there is a consistency of cargo theft reporting (Profillidis, 2004).

According to Hartman (2013), Namibia reported a theft of copper cargo and refrigerated containers from the Walvis Bay harbour. In the financial year of 2013/2014, Namport reported that the port of Walvis Bay experienced security challenges of criminal activities against a secure environment for the ports clients and its operations (Namport Annual Report, 2014).

During a briefing held with the Parliamentary Standing Committee on Foreigner Affairs, Safety and Security in 2018, Namport requested the government to assist in increasing the number of customs and excise personnel and to increase the number of port security in order to fight against crimes within the port and to train officers in terms of cargo handling as well as immigration control (De Klerk, 2018). Although crime takes place in Namibia, the chairperson of Access to Information (Action) Namibia Coalition emphasised on crime secrecy in Namibia resulting in Namibia not publishing crime statistics (Links, 2017).

## 1.2 Statement of the problem

Ideally cargo is supposed to be transported and handled via the port and it is expected to reach its destination with no interruption. According to FreightWatch (2013), cargo theft is a common occurrence in the international trade environment. The persistent cargo theft is a threat to global supply chains. The Freight Watch International study revealed that Mexico, Brazil, South Africa, the United States, and Russia are the countries that are most at risk for cargo theft globally. Furthermore, in 2015, worldwide cargo had lost US\$22.6 billion due to theft. In 2013 South Africa cargo theft increased by 30 per cent due to cargo truck hijackings; whereas in China, vehicle shipment thefts increasingly became common, with a recent series of in-transit vehicle theft. Cargo theft continues thereby causing supply chain disruptions and delays, and the loss of goods is globally costly (Nieuwenhuis, 2016)). According to Hartman (2013), Namibia reported a theft of copper cargo and refrigerated containers from the Walvis Bay harbour. The total value of the lost cargo combined for the past five years is estimated at N\$11.8 million from a total of 20909539 of cargo handled (Hartman, 2013). The annual report of Namport indicated that there are notable challenges of two sophisticated syndicates that stole container units from Walvis Bay port and they have tempered with export and transshipment containers (Namport Annual Report, 2014). In 2016, the Walvis Bay Corridor Group project manager, Clive Smith, made remarks in his statement on the logistics hub project that the theft of valuable goods committed via any of the corridor routes feeding Walvis Bay holds a negative impact on Namibia as a logistics hub for Southern Africa Region (Terblanche, 2016). With so many disruptions in the supply chain of cargo at the port, what effect does cargo theft have on the port operation at the Walvis Bay port?

### **1.3 Objectives of the study**

The primary objective of the study was to investigate the effects of cargo theft on ports operations at Walvis Bay port. The specific objectives of the study were:

- To examine the extent of cargo theft in the Walvis Bay port;
- To analyse the effects of cargo theft on Walvis Bay port operations;
- To explore the types of threats that cargo theft imposes on the supply chain; and
- To design strategies that can be used by the management to curb cargo theft at Walvis Bay port.

### **1.4 Research questions**

What is the effect of cargo theft on ports operation at the Walvis Bay port?

- What is the extent of cargo theft at Walvis Bay port authority?
- What effect does cargo theft at the port has on Walvis Bay port operations?
- What types of threats does cargo theft impose on the supply chain of cargo?
- What strategies can the management apply to curb cargo theft at Walvis Bay port?

### **1.5 Delimitation of the study**

The study was limited to the following population which is basically, Namport employees based at the Walvis Bay Port, Customs officials at the Port of Walvis Bay, Clearing Agents based at the Port of Walvis Bay, Walvis Bay Police officers, and Walvis Bay Port Clients. Namport has two ports, namely Walvis Bay Port and Luderitz Port. However, the study only covered one port, the Walvis Bay Port.

## **1.6 Limitations of the study**

The study is limited to the following:

- Due to the sensitivity of the topic under study, data on the theft of cargo at Walvis Bay Port was not obtained from Namport.
- Lack of published literature on theft in Namibia.

## **1.7. Thesis Outline**

The thesis comprises of 5 chapters which are structured as follows:

Chapter 1 consists of the introduction which gives brief insights of the research focus and matters regarding the effects of cargo theft on Walvis Bay port operations in Namibia. The chapter also consists of the background concerning the topic under review. Chapter 1 further outlines the problem statement, research objectives, research questions as well as limitations and delimitations of the study.

Chapter 2 consists of the theoretical framework which is designed to guide the researcher on achieving the objectives of the study. The chapter reviews the literature that is related to the effects of cargo theft on Walvis Bay port operations in Namibia.

Chapter 3 covers the research methodology and research design used in the study. The study used a mixed method, where the qualitative and quantitative were both used to obtain data pertaining to the effects of cargo theft on Walvis Bay port operations in Namibia. The data was aimed to achieve the objectives of the study.

Chapter 4 outlines the data analysis, interpretation and discussion of findings of the study. The chapter analyses the data collected for the study and further interprets the data and discusses the findings of the study.

Chapter 5 is the closure of the study's chapters and it consists of a summary of findings, recommendations of the study and the conclusion. The chapter discusses the findings on the effect of cargo theft on Walvis Bay port operations in Namibia. Recommendations are also formed in

correspondence to the findings, and conclusions are also developed based on the recommendations.

### **1.8. The definition of terms**

**Cargo** – these are goods or merchandise carried in a ship, truck, train, or vessel (Cambridge Dictionary, 2008).

**Theft** - is the act of taking property that does not belong to you, with the intention of depriving it from the owner (Bichou, 2013).

**Port** - is defined as a geographic and economic body which has a specific name, located on the seaside or a river serving ships; it is also where the transfer of goods and passengers takes place from water to the land transport; its where facilities are found on land and water to render complementary services that are required by ships, goods as well as development of international trade and the economy of the countries under the zone of the influence of the port (Ankoma, 2014). According to Bichou (2013), a port functions as sea land interfaces for the movement of cargo and passengers.

**Port Operation** - these are the tools that enable maritime trade between trading partners; in addition, these are policies, reforms and regulations that influence the infrastructure and operations of the port facilities comprising of shipping services (Ndikom, 2013).

**Investigation** - the study of ascertaining facts and details using close examination and systematic inquiry to obtain all the necessary information from the relevant source (Palmer, 2010).

## **CHAPTER TWO**

### **LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK**

#### **2.0 Introduction**

This chapter consists of the conceptual framework of the study. It further outlines the literature review from different sources aligned to the objectives of the study. The literature review gives an overview of the previous studies reviewed on the effects of cargo theft on operations.

#### **2.1 Cargo Theft**

Cargo is defined as the goods carried by ship, aircraft, or another large vehicle (Cambridge Dictionary, 2008). Ekwall and Lantz (2018) describe cargo theft as a crime that is generally characterised by seasonal effects and the effects might be related to calendar elements such as time of the year, time of the week and time of day. However, the effects imply a non-constant theft which is endangerment throughout the year, month, or a day (Ekwall & Lantz, 2018). Furthermore, it was revealed that there is no prior research on seasonal patterns in violent thefts (Ekwall & Lantz, 2018). Therefore, more research is needed to verify the volume and constitution of cargo crimes in seaports (Ekwall & Lantz, 2018).



Cargo theft is considered a real concern, even though it doesn't get much attention (Heikkinen, 2017). The victims of cargo theft are wide-ranging, which include manufacturers who lose their supplies, employees and drivers might get hurt when the crime is taking place, the reputation of a company can get damaged, and lastly, there is an expense to deploy public safety teams (Heikkinen, 2017). However, every stakeholder operating in the international logistics sector expects incidents of cargo theft as these continue to be one of the primary disruptors through the supply chain (Wagner & Bode, 2006).

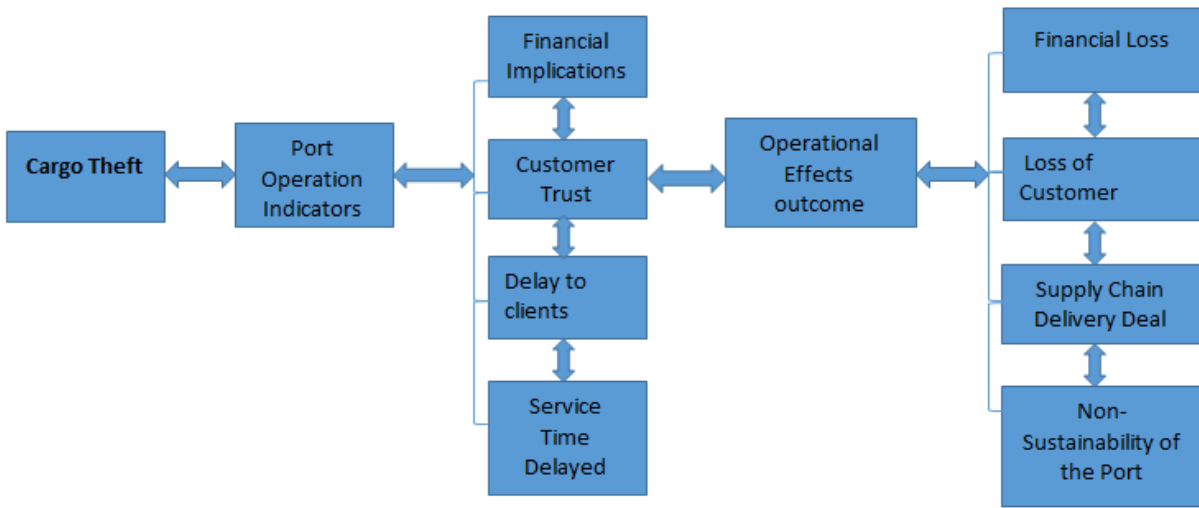
## **2.2 Port Operations**

A port is defined as a geographic and economic entity that has a specific name, located on the seaside, a river or lakeside, serving ships, and it is where the transfer of goods and passengers takes place from water to land transport which is where facilities can be found on land and water to render complementary services required by ships, goods and or developing international trade, industry and more generally the economy of the countries under the zone of influence of the port (Ankoma, 2014). According to UNCTAD (2012), ports have been identified as the backbone of all international trade as over 90% of worldwide trade is transported by sea, driven by the globalisation of the world economy.

Port operations are defined as all policies, reforms, as well as regulations that are designed to influence the infrastructure and the entire operations of port facilities (Onwu, Egbuchunam, Aponjolosu, & Ajayi, 2016). According to Ndikom (2011), port operations consist of all activities that ensure the movements of cargo, including cargo document processes from the vessel's arrival at the port, discharging of cargoes and internal mobility until the movement of cargo out of the port to the destination.

### 2.3. Conceptual Framework

The conceptual framework below contains variables of possible effect that the theft of cargo can cause on the Walvis Bay port operations. According to Miles and Huberman (1994), a conceptual framework is a written or visual presentation that outlines, either graphically, or in narrative form the main things to be studied which are key factors, variables or concepts and there is a presumed relationship between them.



Source: Researcher, 2018

**Figure 1: The effects of cargo theft on port operations (Source Researcher, 2018)**

According to Ibrahim (2017) the port functions as sea land interfaces for the movement of cargo and passengers. The main constructs of this study are cargo theft and port operation. The crux of the investigation is grounded on the effects and consequences of cargo theft on the port operations. These constructs are linked by two-way directional arrows implying that they affect each other in return. The port operation is identified as set into four variables to which theft at the port could

implicate. These indicators are finances, customer trust, delay of service and service time delays caused by search or tracing missing cargo. There are various indicators regarding port services and operations which can be assessed from financial and operational points of view, to serve for the whole port management, more specifically the middle management's day to day strategy execution (Bichou, 2013). For Ibrahimi (2017) port performance indicators range from financial and operational to environmental, safety, security as well as facilitating issues, and as port operations generate costs and revenues, thus the individual indicators are all financial and operational in nature.

The model further indicates the operational effects that are outcomes of cargo theft at the port that are connected to the port's operational indicators. The operational effects outcomes are a financial loss, loss of customers, supply chain delivery deals and non-sustainability of the port. Bad customer service results into customer dissatisfaction and it affects business performance and discourages customer loyalty (Meidute-Kavaliauskiene, Aranskisa, & Litvinenko, 2014). Van Dongen, Buck, and Van Marle (2015) state that the theft of cargo against Logistics Service Providers has a negative effect that leads to all scheduled deliveries within a certain geographical area being temporarily stopped as well as being delayed. Therefore, any failure or unreliability in the ports' services may result in unhappy customers as a result of the disruption in the movement of cargo in the supply chain (Van Dongen et al., 2015). Financial performance is said to be determined from the usual financial statements such as income statements, profit and loss account, and balance sheet (Chung & Beamish, 2005). Arrows connecting the port operation indicators and operational effects imply a dialectical relation of these key constructs of the study.

According to Ibrahimi (2017) performance measures and improvement are vital activities that Port Authorities (PA) make use of to improve their productivity as well as their competitive position. According to Liu and Xie (2013), quality is the foundation of the functioning of the service sector, therefore one of the main tasks of the rapidly growing service sector is to ensure quality of service to the customers. It is safe to say that one of the most important current logistics business success is the quality of the provided services relating to the satisfaction of the customer's needs (Liu & Xie, 2013). Customer satisfaction is a key factor in assessing the quality of a service provided. However, global supply chains are growing in complexity, although they remain vulnerable to countless dangers that are damaging to both people and businesses thus supply chain disruptions, delays and loss of goods are global costly problems (Nieuwenhuis, 2016).

According to Matthey (2016), FreightWatch International conducted a study on the full cost of cargo theft, and the study indicated that cargo theft is a threat to the broader economy. The study further highlighted that companies mostly choose not to report cargo theft loss in order to avoid damaging the company's reputation or brand, as it was observed that it has indirect costs such as adding more securities, and lost sales or customer relationships (Matthey, 2016).

The statistics from TAPA for December 2017 indicated that the financial impact on the industry per year contrasts to 11 billion Euros through Europe which includes costs of replacement goods and charges, repairing costs, damage replacement, or stolen vehicles, loss of business, cost of hiring vehicles, insurance short falls and its premium increases, regulatory fines, investigation and administration costs and lastly, potential job loss (Harvey, 2018). According to Harvey (2018), the mentioned costs are high price to pay.

## **2.4. The extent of cargo theft at the port**

There are notable impacts of cargo theft that are believed to affect the transportation industry. When cargo theft takes place, loss of goods might threaten feasibility, especially when insurance coverage is not sufficient to pay or when payments are challenged (Leong, 2014). However, tracing of stolen goods can also be out of date due to bad storage which exposes the company to unhappy customers (Leong, 2014).

Furthermore, there are indirect costs that are caused by cargo theft: investigation and insurance payments which can cost between two and five times the direct losses (Mayhew, 2001). Scrofani (2018) outlines that cargo theft has remarkable downstream costs that are said to exceed the value of goods stolen and it is difficult to quantify the costs. In addition, companies take a hit on their reputation of delivery and companies also have to deal with lengthy police investigations as well as the filling out of insurance-related questionnaires (Mayhew, 2001).

McCague (2012) postulates that the consequences of cargo theft affect direct stakeholders, consumers and suppliers, governments and the economy as a whole since cargo theft losses cause high prices for consumer products, plus it depletes tax revenues. Apart from the financial impacts of cargo theft, there is also a record of violence against truckers (McCague, 2012).

In Canada, cargo theft goes unreported as they intend to protect the reputation of the company and for the country, and to protect business and consumer confidence for customers and trucking companies, and finally the cost of paying deductibles during insurance claim (McCague, 2012).

According to CargoNet's study on cargo theft costs, in most cases one has to reimport the lost products or either rush the shipment or alternatively use air freight which is more costly compared

to marine transport (Shayovitch, 2018). Cargo theft threatens the country's image and reputation and as an industrial country, threats among potential investors are imposed too (Zailan, Seva, Subaramaniam, Iranmanesh, & Shaharudin, 2015). According to research covering pharmaceutical manufacturers, cargo theft caused a number of indirect costs (Matthey, 2016). One of the indirect costs of cargo theft is the investigation of the crime and adding more security at the facility. This is a cost of identifying the gaps in the organisation's security regime that requires to be identified and solved (Matthey, 2016).

## **2.5. Effects of cargo theft on port operations**

Ports are well known as playing an important role in multimodal transport systems and international supply chains, apart from their traditional role as clusters of economic activities (Edgerton, 2013). However, what constitutes Port Service Quality (PSQ) and its influence on the satisfaction of port customers has not been well investigated in the literature (Edgerton, 2013).

The ports play a crucial role in many countries and regions' economy and the unreliability of port services can really influence port customers' shipping lines including cargo owners, resulting into dissatisfaction (Yeo, Thai & Roh, 2015). Despite the value of stolen freight, unquantified issues still exist such as hours wasted due to the disruption of deliveries as well as being answerable to the shipper (Mayhew, 2001).

With regards to cargo theft prevention and recovery network, CargoNet conducted a self-insured impact study in 2010 and the study found out that cargo theft costs 10 times the goods stolen (Shayovitch, 2018). According to Matthey (2016), FreightWatch International conducted a study on the full cost of cargo theft and the study indicated that cargo theft is a threat to the broader

economy. The study further highlighted that companies mostly choose not to report cargo theft loss in order to avoid damaging the company's reputation or brand as it was observed that it has indirect costs such as adding more security personnel, and lost sales or customer relationships (Matthey, 2016). However, the continuity of supply chain disruption is said to cause damage to the business brand as a consequence of falling victims to crime (Harvey, 2018). There are estimates that theft cost tens of billions of dollars (Hit The Road Jack, 2014) although calculating the precise number is not easy since cargo theft crimes often go unreported because companies are avoiding the risk of tarnishing their reputation in the eyes of the public (Hit The Road Jack, 2014), since there is likely to be a perception that the organisation lacks proper security standards, as well as protocols (Hit The Road Jack, 2014).

There are studies that explored port risks such as cargo theft at the port and they generally concluded that they might result in vessels to be rerouted to another port that is deemed to be nearby (Paul & Maloni, 2010). Failure or unreliability of port services can significantly influence port customers' shipping lines and cargo owners and result in their dissatisfaction (Edgerton, 2013). According to PodkowskI (2016), cargo theft has a direct and indirect economic effect as losses are more than the stolen goods. PodkowskI (2016) proffers that after cargo theft events, insurance premiums increase which later force companies to spend more on security or choose to pay high insurance.

Due to cargo theft, a threat of noteworthy financial loss to businesses was reflected in the statistics compiled by TAPA (Harvey, 2018). The statistics from TAPA for December 2017 indicate that the financial impact on the industry per year contrasts to 11 billion Euros through Europe which includes costs of replacement goods and charges, repairing costs, damage replacement, or stolen vehicles, loss of business, cost of hiring vehicles, insurance shortfalls and its premium increases,

regulatory fines, investigation and administration costs, and lastly, potential job loss (Harvey, 2018). Harvey (2018) has commented with a conclusion that the mentioned costs caused by cargo theft are a high price to pay.

In regard to cargo insurance, the insurer usually compensates the shipper with the insured value of the affected goods when the claim is proven (Edgerton, 2013). But consequential losses due to, for instance business interruptions or out-of-stock situations (OOS) are not insured, which constitutes the main motivation to implement prevention ensuring product quality in transportation from the shipper side too (Edgerton, 2013).

## **2.6. Threats that cargo theft imposes on the supply chain**

Supply chain security is defined as the application of policies, procedures, as well as the technology set to protect the supply chain assets such as products, the facility, information, equipment, and personnel from theft and damage (Closs & McGarrell, 2004). It may well be the case that cargo thefts are a great challenge for multinational companies as their products are flowing globally (Closs & McGarrell, 2004).

However, companies face many drawbacks due to fragile supply chain security (Dusitin, 2017). Therefore, supply chain security is deemed essential for organisations to ensure the continuity of business (Sarathy, 2006). Wagner and Bode (2006) emphasise that cargo theft causes extensive economic losses. Furthermore, cargo theft contributes to high logistics costs including various socio-economic effects on the region's inhabitants who in the long run suffer the costs of the service inefficiencies (Dustin, 2017).



Loh and Thai (2014) noted the consequences of disruptive events such as cargo theft at the port which vary in different dimensions in which some of the disruptions are restricted only within the port like port users are said to hardly feel any effect whereas some events are simple enough to result in a breakdown of the supply chain resilience. The consequences of cargo theft also come in different variations that are related to cargo quality, differences in timing, loss of finances, and a decline in market share (Loh & Thai, 2014). The above mentioned are considered as undesirable effects that bring attention to the importance of ports in the supply chain (Loh & Thai, 2014).

According to Scrofani (2018), when there is a disruption in the supply chain of cargo, the disruption influences both the business area and the economy at large. In addition, the affected supply chain also risks business loss (PodkowskI, 2016). According to Thai and Tran (2011), peripheral causes might happen when the port is seen as a serious node of a global supply chain.

Moreover, with regards to the cost of theft of cargo, the image of the organisation/company is damaged as well as the country itself (Sala et al., 2011). According to Sala et al. (2011), when the country's image is damaged due to crime, it discourages new domestic investments which affect the broader economy. According to Sala, Ramírez, and Carreño (2011), logistics security is directly related to the competitiveness of the economy because besides the direct losses from crimes, there is still costs that are deemed as related to dealing with incidents and these costs are: attorney fees and delays in collecting insurance. In addition to the indirect costs of theft, there is noteworthy national productivity losses which influence the price of exports to become high resulting into disadvantaging the competitiveness of the economy (Sala et al., 2011). Cargo theft causes loss of customer relationships and loss of sales because when there is a missed scheduled delivery, customers are likely to take the business to their competitors (Matthey, 2016).

## **2.7. Critiques of current maritime security measures and cargo theft**

According to Edgerton (2013), the risk-based approach to security is important during the development of maritime security policies to regulate international commerce. In the year 2004, the United States came up with International ships and Port Facility Security Code aimed for security measures at ports around the globe (Edgerton, 2013). However, the policy was criticised internationally (Edgerton, 2013).

According to Wade (2005), one of the critics of maritime measure that was discovered is that after the introduction of International ships and Port Facility Security Code (ISPS), there was a possible economic impact that the new security measures can bring to the business operations. According to Wade (2005), the cost of purchasing the code added to the critics. A challenge noted relates to controlling many people and vehicles in and out of the port, the inspection of cargo, and then adding them to the constant costly issues within waterside security (Wade, 2005). Furthermore, the ISPS was found as not addressing the wide security concerns of the maritime commerce by missing the emphasis on safeguarding against vulnerabilities of the information systems and technology (Shah, 2004). Another added critic from the International chamber of Shipment found that the packages of the US legislation contain a potential of trade disruptives (Stasinopoulos, 2003). Critics further argued that there is a challenge of technology in developing countries and at small ports, which led certain countries not to implement the use of ISPS (Stasinopoulos, 2003).

## **2.8. Strategies used by port authority to curb cargo theft**

There are security measures that can be used to mitigate supply chain security risks (Haelterman, 2012). Due to the diversity of the terminology implies, academic literature have discussed the broad range of supply chain security (SCS) solutions. Majority of the solutions includes technological component which are, burglar alarms, CCTV camera systems, as well as electronic key cards (Haelterman, 2012). According to Sauvage (2003) technology is a significant tool for differentiation of logistics services.

RFID tags, GPS trackers, as well as electronic container seals, and many other tracking technologies assist in monitoring in transit freight (Sternberg, 2012). According Urciuoli, Mannisto, Hintsa, and Khan (2013) a globally customs officials use automatic computer systems to assess the risk of incoming and outbound traffic using security technology. Operational procedures which guide what the managers and employees must perform in order to fulfil security duties is also one of the key elements in SCS solutions.

## **2.9. The Literature Gap**

As per the reviewed literature, the literature has covered threats that cargo theft at ports imposes on the supply chain of cargo as this topic was studied by quite a number of researchers. The literature on the topic about the effects of cargo theft on port operations covered the aspects of the extent that cargo theft has on port operations as well as the effect of cargo theft of cargo theft to be specific. However, the researcher identified various missing traits that are not reflected or covered by the researchers in the literature related to the effects of cargo theft on port operations. Firstly, the literature did not reveal any study done on the effects of cargo theft on operations as a topic narrowed to any organisations or port as most of the ports and organisation choose not to

publish or reveal the happenings of cargo theft in order to protect the image of their ports/organisation especially in Namibia. Therefore, this research aimed to cover the gap of literature on the study of the effects of cargo theft on the port operations.

## **2.10. Chapter Summary**

The chapter covered literature on the basis needed to compose the study. The literature was gathered following the objectives of the study in a chronological order in order to explore what other researchers explored on the effects of cargo theft on port operations. The chapter further identified the gap in the literature on the same topic under study.

## **CHAPTER THREE:**

### **RESEARCH METHODOLOGY**

#### **3.0 Introduction**

The methodology is described as a research strategy that translates ontological and epistemological principles in guidelines that indicate how the research will be conducted and its principles, procedures, as well as the practices that govern research (Nayak & Singh, 2015). Nayak and Singh (2015), proffer that the research design is a logical and systematic planning that directs the research, whereby design results from translating the general scientific model into various research problems. This chapter outlines how the research was conducted and how the data was obtained by the researcher on the investigation of the effects of cargo theft on Walvis Bay port operations in Namibia.

#### **3.1. Restatement of research questions**

What is the effect of cargo theft on ports operations at the Walvis Bay Port?

- What is the extent of cargo theft at Walvis Bay Port Authority?
- What effect does cargo theft at the port have on Walvis Bay port operations?
- What types of threats can cargo theft impose on the supply chain of cargo?
- What strategies best suit the management to curb cargo theft at Walvis Bay port?

#### **3.2. Philosophical Worldviews**

The term worldview was used since it means the basic set of beliefs that guide the actions (Guba, 1990, p.17). Whereas Creswell (2014) views worldviews as the general philosophical orientation

on the world nature of research which a researcher brings to a study. Other authors call them philosophical paradigms (Lincoln, Lynham, & Guba, 2011) and epistemologies. According to Creswell (2014), philosophical ideas influence the practice of research and its need to be identified. Creswell (2014) suggests that researchers need to exploit the larger philosophical ideas which they adopt as it explains why they chose quantitative, qualitative or mixed methods approaches for their research. In addition, worldviews arise based on the discipline orientations, student's advisors/mentors preferences as well as the past research knowledge. The study used a philosophical worldview which guided the researcher on the selection or identification of the research approach for the research under study.

### **3.3. The pragmatic worldview**

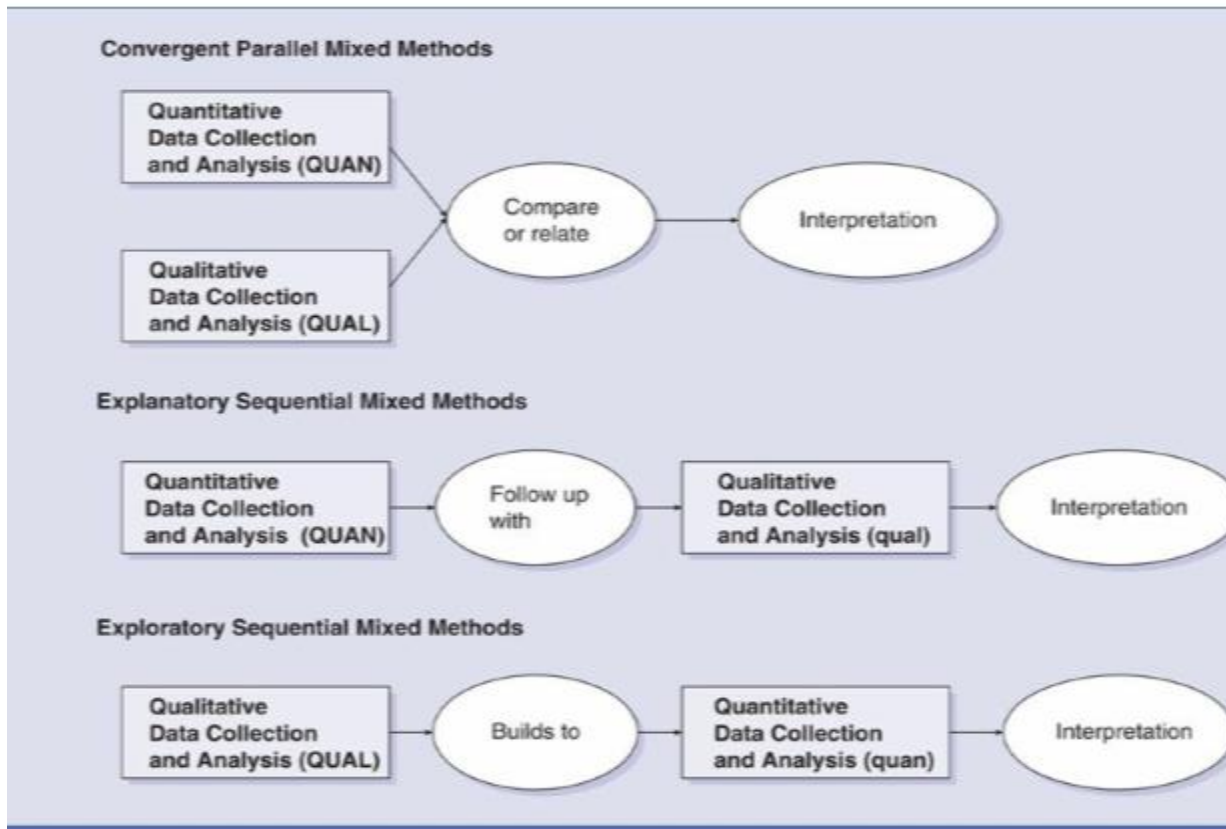
The study employed the pragmatic worldview. According to Creswell (2014), the pragmatism worldview is said to arise out of actions, situations as well as consequences instead of antecedents (Guba, 1990) conditions which is post positivism. For philosophical underpinnings for the mixed methods studies, it is important to focus the attention on the research problem in social sciences research and the use of pluralistic approaches in order to develop knowledge about the problem (Tashakori & Teddlie, 2010). According to Creswell (2014), in the mixed methods research, investigators use both qualitative and quantitative data as they work to give the best understanding of the research problem. Therefore, for mixed methods study, pragmatism gives the opportunity for multiple methods, different worldviews, different assumptions and different forms of data collection and data analysis (Creswell, 2014). Saunders, Lewis, and Thornhill (2009) argue that the most important determinant of epistemology, ontology and axiology adoption is the research question where one should be more appropriate than the other for answering research questions.

### **3.4. Research design**

According to Creswell (2014), the researcher does not only choose a qualitative, quantitative, or mixed methods study to conduct, the inquirer also decides on the type of study within the three choices. Creswell (2014) further adds that research designs are the types of inquiry within qualitative, quantitative as well as mixed methods approaches which provide particular direction for procedures in the research design. Denzin and Lincoln (2011) calls the research design, strategies of inquiry. The availability of designs to researchers have grown over the years because computer technology has advanced in terms of data analysis and the ability to analyse complex models and as individuals have expressed new procedures for conducting social science research (Creswell, 2014). Furthermore, mixed methods involve a combination or the integration of qualitative and quantitative research and data in a research study (Creswell, 2014), in which qualitative data tends to be open-ended without predetermined responses, whereas quantitative data usually includes closed-ended responses such as questionnaires or psychological instruments.

This study employed a mixed method approach which is both a qualitative and quantitative approach through a pragmatist worldview for investigating the effects of cargo theft on Walvis Bay port's operations in Namibia. The rationale of employing a mixed method for this study is that obtaining both qualitative and quantitative methods offers efficient information on the research problem. Therefore, the mixed method answers all the research questions of the study. The research strategy used for the study is exploratory sequential mixed strategy as the researcher first collected qualitative data and later built it to the quantitative data collection and analysis which was followed up with interpretation. According to Creswell (2014), in the exploratory sequential approach, the researcher first begins with a qualitative research phase and explores the views of participants. Data is then analysed and the information is used to build into the quantitative phase.

According to Saunders et al. (2009), the exploratory study is useful when one wishes to clarify the understanding of a problem. When the investigator is a single researcher, the sequential strategies of an exploratory sequential or explanatory sequential approach are the chosen since the investigation can be divided into two manageable tasks instead of multiple data collection and analysis procedures (Creswell, 2009).



*Adopted from Creswell, 2014*

### **3.5. Characteristics of the study population**

According to Saunders et al. (2009), it is very important to make sure that the way you are collecting data will yield valid data; however, your research design may need to consider the extent



to which data should be collected from a research population that is unaware of the fact that they are subject of research and have given consent. Therefore, the population of this study was Namibia Port of Walvis Bay. The population of Namport Walvis Bay is estimated around 1000 officials consisting of employees and day to day clients. The targeted population of the study consisted of: officials (staff) with managerial positions from Namibia Port Authority and a number of officials who are directly involved in cargo handling at the port: Customs Officials, Clearing Agents, Police Officers as well as various clients of the Walvis Bay Port.

### **3.6. Sample design and procedure**

According to Saunders et al. (2009), sampling techniques offer a series of methods that enable the researcher to reduce the amount of data needed to be collected through considering only data from a sub-group instead of all possible cases or elements. The sample is drawn from the population and the organisation for data collection to be more manageable since fewer people are involved. To add on, collecting data from fewer cases assists the researcher to collect information that is well detailed (Saunders et al., 2009).

Non-probability sampling is considered for providing a range of alternative techniques in the selection of samples based on subjective judgement (Saunders et al., 2009). Thus the study employed non-probability sampling to select the sample that is suitable for data collection on the effects of cargo theft on port operations at Walvis Bay port. The study used a purposeful sampling method through applying expert sampling. Purposive or judgmental sampling allows you to use your judgement for the selection of cases that answer your research question(s) and to meet your objectives (Saunders et al., 2009). The study selected representatives from relevant departments that relate to the objectives of the study based on experts. To obtain accurate results, the

participants in the study were selected based on their roles and positions in regard to the port operations and cargo handling at the Walvis Bay Port as well as clients at Namibia Port of Walvis Bay. Furthermore, the study used a sample size of 30 respondents drawn from the estimated population. The table below indicates the population group and the number of respondents from each group who participated in the study.

**Table 3.6.1 Respondents group and size**

<b>Population Group</b>	<b>Sample Size</b>
Manager	1
Supervisors	3
Police Officers	4
Customs Official s	9
Clearing Agents	10
Port Customers	3
<b>Total</b>	<b>30</b>

### **3.7. Data collection instrument**

According to Creswell (2014), in the exploratory sequential mixed method strategy, data collection can occur in two phases with the initial qualitative data collection followed by the second quantitative data collection. Furthermore, the qualitative data analysis can be used in order to develop an instrument with good psychometric properties such as validity and reliability (Creswell,

2014). However, the development can then proceed by using the quotes to write items for an instrument, including the codes to develop variables which group the items, as well as the themes that group the codes into scales, which is deemed a useful procedure moving from qualitative data analysis to scale development (Creswell, 2014). Creswell (2014) further expresses that a researcher can analyse the qualitative data in order to develop new variables that will assist to identify the types of scales that might exist in current instruments or to form categories of information that can then be explored further in a quantitative phase.

The study employed a survey strategy to obtain data since it fits the exploratory study. The survey strategy is usually associated with the deductive approach and it is a popular and common strategy for business and management research (Saunders et al., 2009). Therefore, the survey strategy tends to be used for exploratory and descriptive research.

To obtain both quantitative and qualitative data, the study employed open ended survey questionnaires containing semi-structured in-depth questions aimed at obtaining qualitative data collection and survey questionnaires consisting of closed-ended questions as an instrument for quantitative data in order to answer research questions on the investigation of the effects of cargo theft on Walvis Bay port operations in Namibia. The study used nominals as the scale of measurement whereby data was categorised and given numbers that represent a nominal scale of measurement. The study used the nominal scale for the demographic data and ordinal scale of measurement for questions aimed to answer the research objectives. The questionnaire consisted of 4 sections; section A had the demographic and background of the respondents, section B covered questions on the effects of cargo theft on Walvis Bay port operations, section C consisted of questions on the extent of cargo theft at the Walvis Bay port, and section D aimed to answer questions on the types of threats that cargo theft impose on the supply chain. According to

Saunders et al. (2009), semi-structured and in-depth interviews provide the researcher with the opportunity to probe for answers on what you want the interviewees to explain and elaborate further on.

Relevant literatures were reviewed to explore, understand and gain knowledge on the effects of cargo theft across the globe as well as reviewing studies done on the effects of cargo theft by different researchers. To develop the literature of the study, accredited journals, books and published articles were reviewed, both electronic and hardcopies. The obtained literature from different accredited sources served as the secondary data for the study.

### **3.8. Data collection procedure**

The research employed a survey strategy since it fits the exploratory study (Saunders et al., 2009). A survey strategy is usually associated with the deductive approach and it is a popular and common strategy for business and management research. Therefore, the survey strategy tends to be used for exploratory and descriptive research. Surveys allow the collection of a large amount of data from a sizeable population in a highly economical way (Saunders et al., 2009). Often data is obtained by using a questionnaire that is administered to a sample and these data are standardised, allowing easy comparison. In addition, the survey strategy is perceived as authoritative by people in general and it is both comparatively easy to explain and to understand. Furthermore, the sample for the quantitative phase is not the same as the qualitative simply because the qualitative sample is typically much smaller than the quantitative sample which is needed to generalise from a sample to a population. It is therefore a good procedure to draw both samples from the same population but individuals for both samples are not the same as they present confounding factors into the study (Creswell, 2014).

The interviews were conducted using the approach of individual interviews; this was done due to the availability of the respondents. However, survey questionnaires were physically distributed by the researcher as well via email whereby respondents were given time to attend to them on their convenient time as the Walvis Bay port is a busy port with a lot of movement and paperwork to be specific. The survey questionnaires were collected on different days from the respondents depending on the completions. All survey questionnaires were completed as hardcopies. The data collection process took three days to complete and it was done by the researcher.

The researcher of the study obtained a letter from the Namibia University of Science and Technology - Center for Logistics, seeking for authorisation of data collection at Namport. After that, the researcher submitted the letter via email at Namibia Port Authority Training department with copies of data collection instruments attached to the letter. Namibia Port Authority responded granting permission to collect data at the port of Walvis Bay. The researcher further visited the port of Walvis Bay where she interviewed and handed over questionnaires to the participants who approved by giving consent to take part in the study. However, some participants preferred soft copies due to their busy schedules and these were emailed to them.

### **3.9. Validation and reliability**

Researchers using the mixed method strategy need to check the validity of the qualitative data and the validity of the quantitative scores (Creswell, 2009). However, the sample in the qualitative phase should not be included in the quantitative phase to avoid the duplication of responses (Creswell, 2009). Saunders et al. (2009) describe reliability as the extent to which the data collection techniques or analysis procedures will yield consistent findings.

### **3.9.1. Accountability**

Accountability is regarded as a central issue when it comes to ethics and politics, which are closely related to other concepts like responsibility, integrity as well as authenticity. In research, accountability refers to a range of concerns and practices that relate to the philosophies, policies, systems, procedures as well standards used for analysing and promoting ethical conduct in research (Twycross & Shields, 2005).

### **3.9.2. Trustworthiness**

Trustworthiness refers to the degree of confidence in data, interpretation, and methods that are used to make sure the quality of the study (Connelly, 2016). However, researchers must institute the protocols as well as procedures that are deemed necessary in order for the study to be regarded worthy of consideration by readers (Amankwaa, 2016). There are certain criteria that Guba and Lincoln (1994) have outlined which are recognised by many qualitative researchers. The criteria include credibility, dependability, confirmability, and transferability as well as authenticity. Therefore, this study respected the perspective of trustworthiness by employing data collection instruments that can obtain reliable data in order to address the purpose of the study.

### **3.9.3. Credibility**

Credibility of the study which is well known as the confidence in the truth of the study as well as the findings is the most vital criterion (Connelly, 2016). The concept of credibility is related to internal validity in quantitative research. The question a reader might ask is, “Was the study conducted using standard procedures typically used in the indicated qualitative approach, or was an adequate justification provided for variations?” Thus, the study used a conceptual framework

that was developed to guide the researcher to compile concrete literature that is responding to the research objectives. The study also used techniques such as prolonged engagement with participants during the open-ended survey questionnaire, peer-debriefing, and member-checking.

#### **3.9.4. Dependability**

Dependability refers to the stability of the collected data over time as well as over the conditions set for the study (Connelly, 2016). Dependability is however like reliability in qualitative research, although it entails the understanding of stability on conditions which depend on the nature of the study (Connelly, 2016). Thus the study selected its participants based on experts on the involvement of cargo at the port in order to obtain data that the researcher can depend on.

#### **3.9.5. Face Validity**

According to Connelly (2016), face validity is a technique or a procedure that seeks to measure the variable intended to be measured which determine the value of questionnaires by looking at the questions. Since this study was guided and supervised by a lecturer, the data instruments were submitted to the supervisor to proofread and determine whether the instruments suit the study.

#### **3.9.6. Pilot study**

The study employed a pilot study to test the validity and reliability of the designed instruments for data collection. The instruments were piloted to 6 participants from the logistic and security industry which were distributed; 2 participants were tested with regards to the interview guide and 4 participants were tested on survey questionnaires. The results of the pilot test showed positive correspondence and the designed instruments were further used to collect data of the study.

### 3.9.7. Reliability test for the study

The purpose of reliability is to analyse the goodness of the conceptual and operational definitions (Wimmer & Dominick, 2006). According to De Vaus (2001), reliability concerns the consistency of the measurement. Therefore, this study analysed the reliability test for the quantitative research instrument which were tested in the pilot study and final study in order to ensure that results are reliable.

**Table 3.9.1 Cronbach's Alpha reliability test results**

<b>Cronbach's Alpha</b>	<b>Reliability</b>
0.8 to 0.95	Very Good
0.70 to 0.80	Good
0.50 to 0.70	Fair
< 0.50	Poor

According to Wrisley, Marchetti, Kuharsky and Whitney (2019), Cronbach's alpha is a very convenient test that is used in order to estimate the reliability or internal consistency of a composite score. In addition, Cronbach's alpha offers a simple way to measure whether a score is reliable or is not reliable. After the pilot study test, the obtained data were codified using the nominal measurement and later they were captured and analysed in a Microsoft excel. The obtained data from the pilot study showed 80% positivity that instruments are valid to collect data for the study which indicated that data collection instruments are reliable as they are suitable to answer the



research objectives and they did not reflect bias. These results were measured using Cronbach's alpha coefficient which gave a score of 0.80 from the 4 participants on the pilot study. The results provided the researcher with evidence that the designed data collection instruments are reliable to obtain the data on the effect of cargo theft on Walvis Bay port operations.

### **3.10. Data analysis**

According to Saunders et al. (2009), quantitative analysis techniques such as charts, graphs and statistics allow the researcher to explore, present, describe and examine relationships and trends within the data. Quantitative analysis has been incorporated into relatively inexpensive personal computer-based analysis software ranging from spreadsheets such as Excel and statistical analysis software packages (Saunders et al., 2009). For qualitative data, categorical data were given codes to design the coding scheme that makes subsequent analysis simpler. For qualitative data, there were codes and themes that were applied on the collected data. The power pivot information was further developed into graphs, tables and charts. Data presented in graphs, tables and charts were further interpreted and analysed. Qualitative data that was obtained was quoted directly in the data analysis and presentation.

### **3.11. Significance/contribution**

Based on the literature available, there is less academic literature conducted on cargo theft in Namibia on the effect of cargo theft although newspaper reports indicate that there is high occurrence of cargo theft in the country. Therefore, the study contributes to the body of public and academic knowledge as well as to the literature. The study provides the solutions that the port experiences on theft and operations of the harbour. Furthermore, the study assists Namport to develop measures that can mitigate the cargo theft at Walvis Bay port.

### **3.12. Ethical considerations**

Creswell (2009) defines ethics as the appropriateness of the behaviour in relation to the rights of those who become the subject of your work and who are affected by your work. Ethics are norms or standards of behaviour that guide moral choices about our behaviour and relationships with others (Cooper, 2010). Therefore, research ethics relates to questions on how we formulate and clarify the research topic, the design of the research and how you gain access, collect data, process and store our data, the analyses of data and how we write up our findings in a moral and responsible way (Cooper, 2010). This implies that the research must ensure that the way the research is designed is methodologically sound and morally defensible to all those who are involved. According to Creswell (2009), the conduct of your research is guided by the University's code of ethics or ethical guidelines.

The research topic of the study is a social, economic and academic beneficiary, therefore due to the sensitivity surrounding the study, the researcher rephrased and formulated the topic in a manner that it does not harm the economic aspects, social aspects as well as the academic codes as the Namibia University of Science and Technology as well as the image of the port in question. By ensuring that ethics are fully considered and covered in the study from the point of the port used, the research was designed in an academic manner and data was collected with consent granted by the port of Walvis Bay as the University had addressed a letter requesting for data collection on the study to the port. Data was also analysed and interpreted in an academic content as well its finding and recommendations. The study also considered values relating to honesty, and personal integrity to conduct a study with a good level of trust and credibility. Since the university has its code of ethics, the researcher acknowledged the work covered in the papers adopted from other sources through the institution's writing style.

### **3.13. Limitations of the methodology**

Port securities could not be interviewed because they are too busy at the port; however, supervisors at the security department were reached. In addition, there was no secondary data on cargo theft statistics at the port of Walvis Bay to compare the trends and happenings of theft at the port. This was limited to the security and confidentiality of the information reflected on the document as well as the damage it can cause the port in terms of economic challenges and profitability and market competition with other ports.

### **3.14. Chapter summary**

The study used the pragmatic worldview as the philosophical worldview which guided the researcher on the selection or identification of the research approach for the research under study. The study employed the pragmatic worldview as it links with the objectives and research questions of the study, research problem as well as the methods of the study. The chapter explored the methodology and research design used through the research strategy which was used which is exploratory sequential mixed methods. The study used a mixed method which is a mixture of both quantitative and qualitative method adopted to obtain data. The sample size of 30 participants was drawn from an estimated population of 1000 at the Port of Walvis Bay using non-probability sampling to select the sample that is suitable for data collection on the study about the effects of cargo theft on port operations at Walvis Bay port. The purposeful sampling method was used applying expert sampling whereby representatives from relevant departments that relate to the objectives of the study were selected. The study used an interview guide containing semi-structured in-depth interviews aimed at obtaining qualitative data collection and survey questionnaires consisting of closed-ended questions as an instrument for quantitative data to

answer the research questions on the investigation of the effects of cargo theft on Walvis Bay port. The study reviewed relevant literature as secondary data. A pilot study was employed to test the validity and reliability of the designed instruments for data collection before the actual data collection. Data was analysed using Microsoft Excel in which data was grouped as per questions in the instruments and analysed with the power pivot to give clear results of variables and total in numbers and percentages and further represents the results in graphs, tables and charts. There were limitations in that port securities were not interviewed because they were too busy at the port. Moreover, there was no secondary data on cargo theft statistics at the port of Walvis Bay to compare the trends and happenings of theft at the port due to sensitivity and confidentiality of the data. The significance of the study was also covered in the chapter. Moreover, the study considered all areas of ethics.

## CHAPTER FOUR

### DATA ANALYSIS, INTERPRETATION AND DISCUSSION OF THE FINDINGS

#### 4.0 Introduction

The chapter presents the data that was obtained at the Walvis Bay port on the investigation of the effects of cargo theft on the port's operations in Namibia using a survey questionnaire and interview guide. The results are presented based on the study objectives which are as follows:

- What is the extent of cargo theft at Walvis Bay Port Authority?
- What effect does cargo theft at the port have on Walvis Bay port operations?
- What are the types of threats that cargo theft impose on the supply chain of cargo?
- What strategies best suit the management to curb cargo theft at Walvis Bay Port?

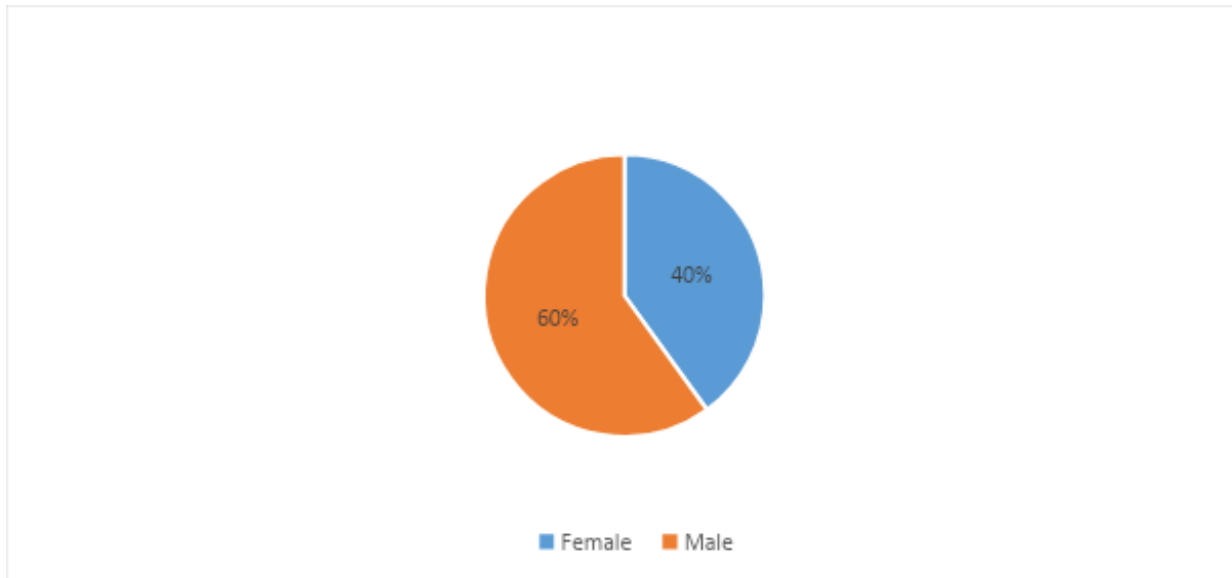
#### 4.1 Respondents' demographic information

##### 4.1.1. The respondents' gender

The table and chart below reflect several respondents who participated in the study as grouped per gender.

*Table 4.1 Respondents' Gender*

<b>Gender</b>	<b>Number of Participants</b>
Female	12
Male	18
<b>Total</b>	<b>30</b>



**Figure 4.1: Respondents' gender**

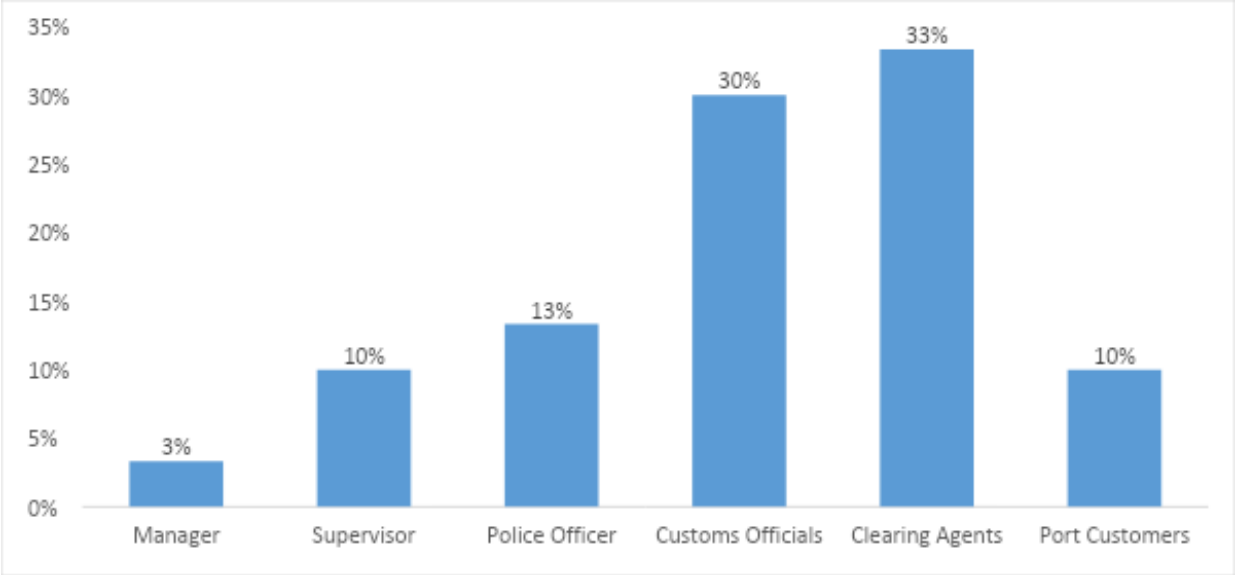
Table 4.1 and figure 4.1 presents the findings on the respondents' gender. Out of 30 respondents, 12(40%) were females and 18(60%) were males.

#### **4.2. The respondents' profession**

These are the categories of the participant's profession as per their roles at the port.

**Table 4.2 Respondents' Profession**

<b>Respondents' Profession</b>	<b>Number of Respondents</b>
Manager	1
Supervisor	3
Police Officer	4
Customs Official	9
Clearing Agent	10
Port Customers	3
<b>Total</b>	<b>30</b>



**Figure 4.2: Respondents’ profession**

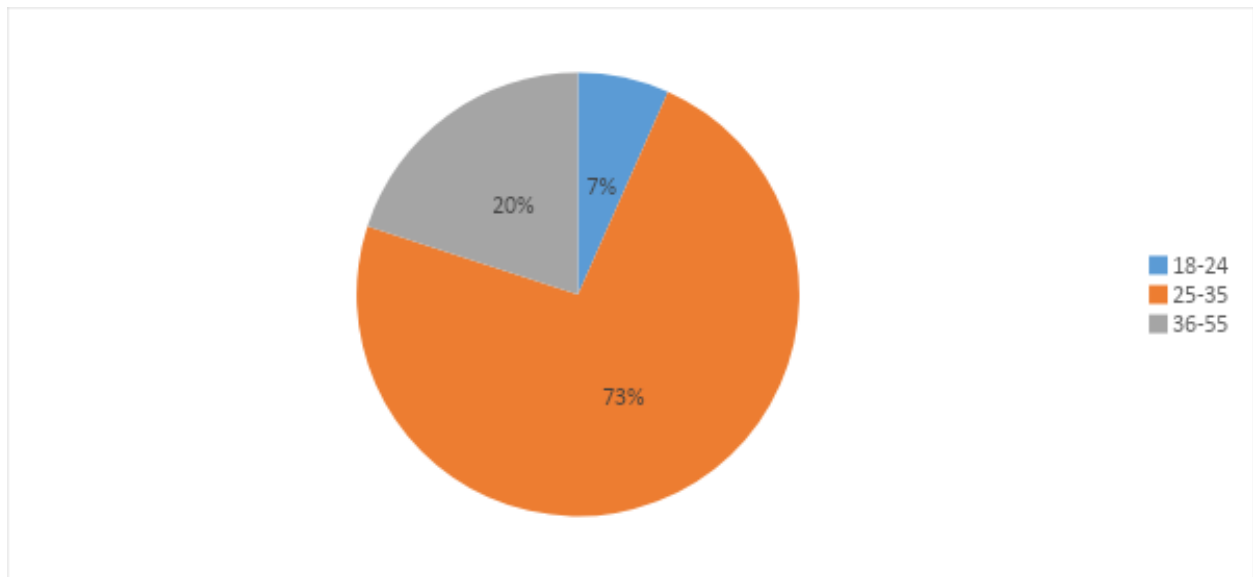
Table 4.2 and figure 4.2 portray the distribution of the number of respondents who participated in the study’s data collection as per their professional roles at the port. However, the findings reflect that amongst the respondents, clearing agents were more with a total number of 10 (33%) respondents followed by Customs Officials with 9 (30%) respondents, 4 (13%) respondents were police officers, port customers had 3 (10%) respondents, Supervisors with 3 respondents (10%) and lastly 1 (3%) manager.

**4.3. The respondents’ age group**

These are the respondents’ age group categorised in age brackets.

**Table 4.3 Respondents' Age Group**

<b>Age Group</b>	<b>Number of Respondents</b>
18-24	2
25-35	22
36-55	6
<b>Total</b>	<b>30</b>



**Figure 4.3: Respondents' age group**

Table 4 and figure 4.3 displays the number of respondents who were covered in the study as per their age group. The age group of 25-35 had more respondents with the highest number of 22 (73%), followed by the age group of 36-55 with 6 (20%) respondents; the age group of 18-24 had 2 (7%) respondents.

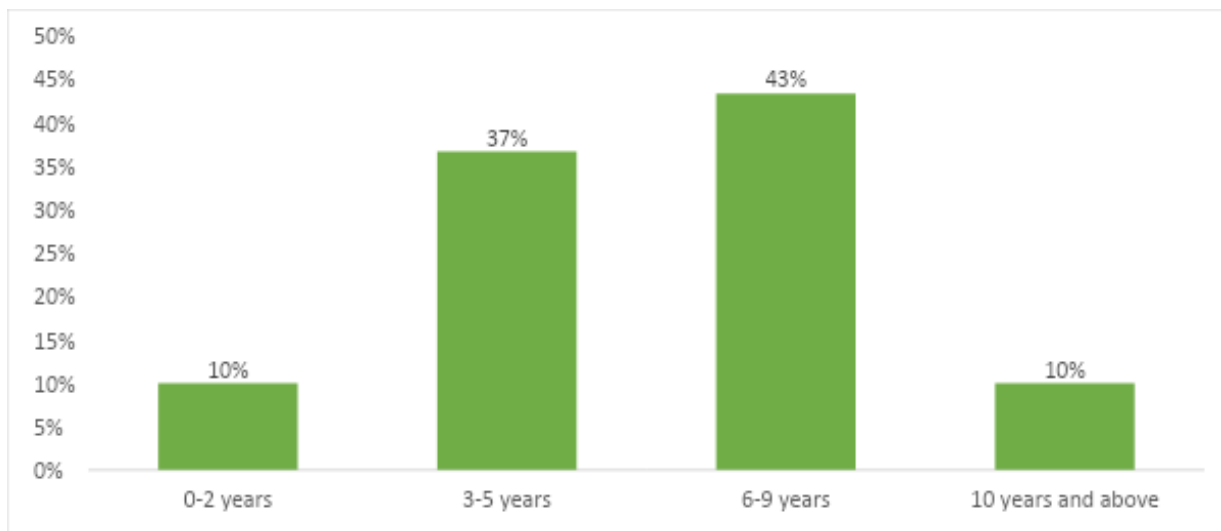


#### 4.4. The respondents' working experience at the Walvis Bay port

The table and the graph reflect the working experience that respondents have with the port.

*Table 4.4 Working Experience at the Port*

Working Experience at the Port of Walvis Bay	Number of Respondents
0 to 2 years	3
3 to 5 years	11
6 to 9 years	13
10 years and above	3
<b>Total</b>	<b>30</b>



*Figure 4.4: Working experience with the port*

Table 4.4 and figure 4.4 above indicate the number of working experiences of the studied respondents at the port of Walvis Bay. However, findings show that a topping number of 13 (43%) respondents have working experience between 6 and 9 years at the port, while 11(37%)

respondents have been at the port for 3-5 years, followed by 3 (10%) respondents for the period of 10 years and above and lastly 3 (10%) respondents who have 0-2 years' experience with the port.

The study found that the highest percentage of the respondents have been at the Walvis Bay port for a period of 6 to 9 years. However, the respondents who worked at the port for 3 to 5 years are also high as opposed to the respondents who have been at the port for 0 to 2 years as well as 10 years and above.

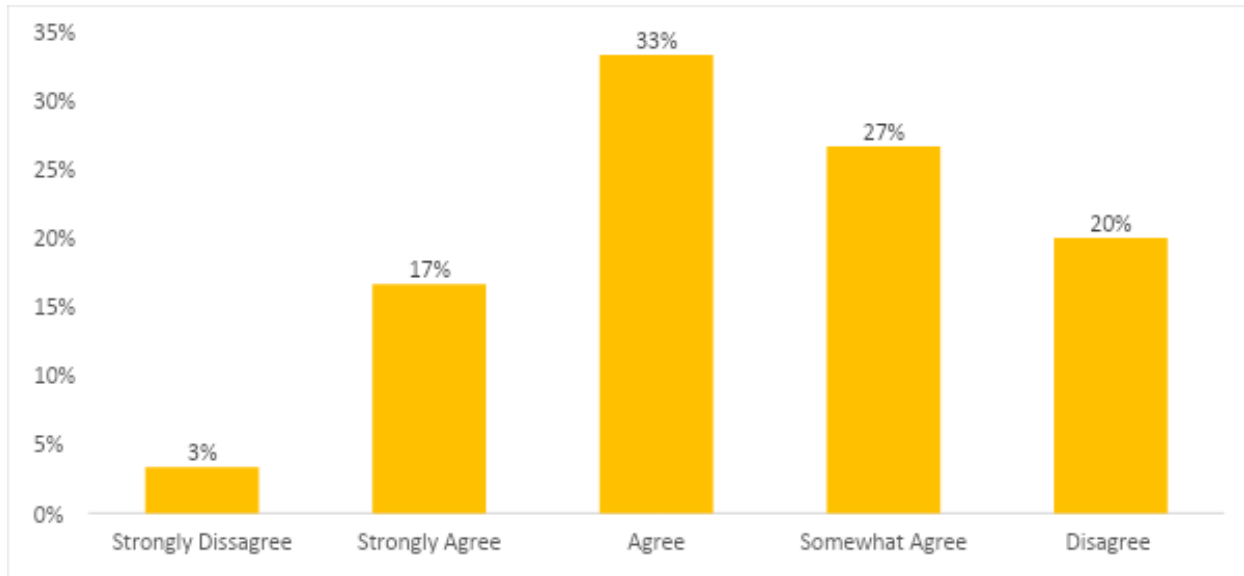
#### **4.5. The effect of cargo theft on Walvis Bay port operations**

The effect of cargo theft on Walvis Bay port operations were measured qualitatively and quantitatively. Results are presented under each heading and they are later discussed.

##### **4.5.1 Cargo theft and Walvis Bay operations**

*Table 4.5: The Effects of Cargo theft on Port Operation*

<b>The effect of cargo theft on port operation</b>	<b>Percentage scored (%)</b>
<b>Strongly Agree</b>	<b>17%</b>
<b>Agree</b>	<b>33%</b>
<b>Somehow Agree</b>	<b>27%</b>
<b>Disagree</b>	<b>20%</b>
<b>Strongly Disagree</b>	<b>3%</b>



***Figure 4.5: The effects of cargo theft on port operation***

Respondents were asked to indicate the effects of cargo theft at Walvis Bay on port operations. The findings are illustrated in figure 4.5 and table 4.5. The results indicate that 33% of the respondents agreed that cargo theft has effects on the port operations compared to 17% who strongly agreed that cargo theft affects the operation, whereas 27% somehow agreed, 20% disagreed, and 3% strongly agreed that cargo theft affects the port’s operation. The open-ended responses regarding the effects of cargo on port operations indicated that theft does not at all affect some of the port operations.

*Loose commodities do not affect the operations at the port as some get lost in transit.*

*Clearing agents and customs officials are the officers who open containers and do the verification on the contents. Thus Namport does not get affected by this kind of losses (Superintendent).*

*Only containers that are stored by Namport with the port affect the port directly and we do not experience such theft any more at Walvis Bay port (Namport staff).*

*There are minor effects of cargo theft on port operations. Though minor theft happens at the port, they do not affect the major operations of the port (Marketing Manager).*

Regarding the effects of cargo theft on port operations at the port of Walvis Bay and considering the scores from the respondents, it was found that cargo theft has an effect at the port but less effect on port operations. Respondents indicated that most of the stolen cargo are loose commodities and do not directly affect the port. However, cargo theft of loose commodities in the shipping lines and clearing agents are common. These findings correspond to FreightWatch International (2013) which expressed that cargo theft is a great challenge as it recorded the most frequent incidents of in-transit cargo theft in Asia. According to Hit The Road Jack (2014), the most affected port operations that are affected by cargo theft are financial loss, customer loss and customer retention whereby an organisation loses an existing customer since the products that they desired are stolen in transit.

#### **4.5.2 Effects of cargo theft**

***Table 4.6: The types of cargo theft effects***

<b>The types of cargo theft effects</b>	<b>Scores in percentage</b>
Financial Loss	25%
Customer Loss	33%
Supply Chain delivery loss	18%
Sustainability of the port operations	24%



**Figure 4.6: The types of cargo theft effects**

Regarding the type of cargo theft as portrayed in table 4.6 and figure 4.6, 33% of the respondents indicated customer loss compared to 25% who indicated financial loss, 24% sustainability of the port operations, 25% financial loss and 18% supply chain delivery loss.

The respondents of the open-ended questions indicated that theft does not affect the following: finance, customer loss, the supply chain delivery and the sustainability of the port operation.

*Some commodities that get stolen, are the loads that clients load inside vehicles that are shipped to Namibia and these cargoes are not recorded in the documents/invoices, thus this does not affect any of the operations at the port, such as financial performance (Namport staff).*

*Namport does not deal directly with cargoes at the port as customs and clearing agents do the opening and inspections of cargoes (Namport staff).*

*Currently at the port, the less theft incidences that are taking place at the port does not have a negative influence on any kind of operation (Marketing manager).*

*No serious theft that took place to have an impact on the above types of effect (Superintendent Security).*

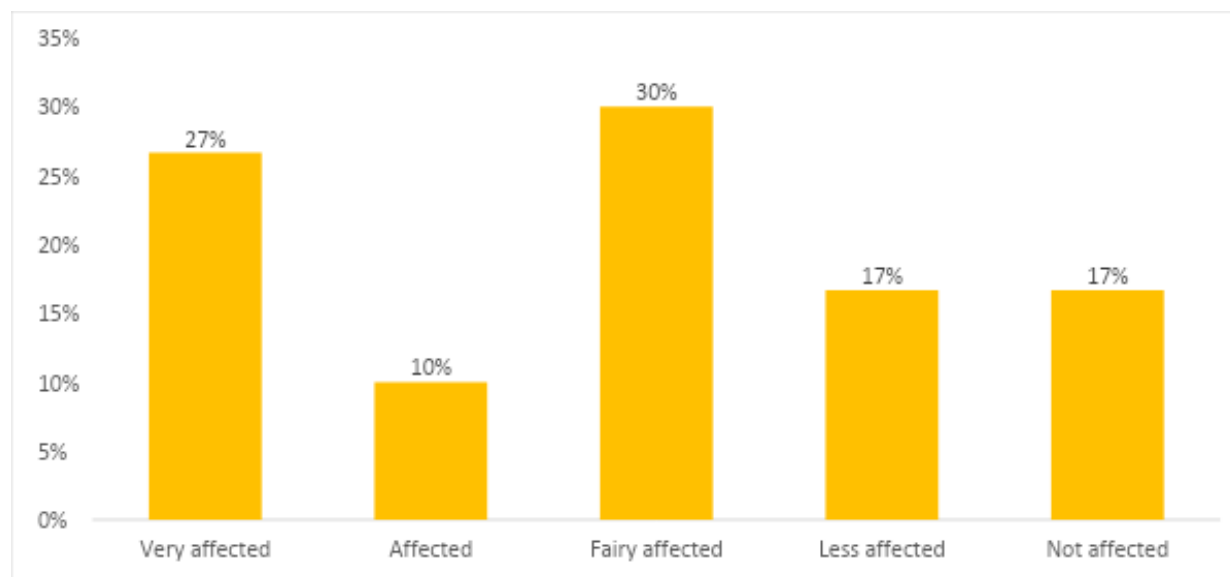
The finding indicates that the less theft that is happening at the port has no effects on any of the possible effects that cargo theft can have on the port operations such as financial loss, customer loss, supply chain delivery as well as the sustainability of the port operations. For the past 5 years Namport added a department of port security and the police station within the port and this has curbed theft of cargo as opposed to the disappearance of containers that used to happen at the port before the added security measures. These findings correspond to Matthey's (2016) conception that cargo theft has indirect costs such as adding more securities, and lost sales or customer relationships. There are estimates that theft cost tens of billions of dollars (Hit The Road Jack, 2014). In addition to the indirect costs of theft, there is noteworthy national productivity losses which influence the price of exports to become high resulting into a disadvantaging of the competitiveness of the economy (Sala et al., 2011).

#### **4.5.3. The effect of cargo theft on the performance of the port**

*Table 4.7: Cargo theft on port operation performance*

<b>Cargo theft on port operation performance</b>	<b>Score in percentage (%)</b>
Very Affected	27%
Affected	10%
Fairly Affected	30%
Less Affected	17%

Not Affected	17%
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**Figure 4.7: Cargo theft on port operation performance**

Figure 4.7 and table 4.7 illustrate how cargo theft affects the performance of the port operations, where 33% of the respondents indicated that the port’s performance is fairly affected by cargo theft at the port as opposed to 27% of respondents who indicated that port performance is affected by cargo theft and 10% who indicated that port performance is affected. On the other hand, 17% of respondents indicated that it is less affected as well as the 17% that indicated that performance is not affected by cargo theft.

Through the open-ended questions on the types of effects of cargo theft, the following are the responses:

*There are no serious theft that took place to have an impact on financial performance, customer retention, supply chain deal delivery deal as well as the sustainability of the operations at the port (superintendent security).*

*Be written off as a loss since theft is minimal at the port (Marketing Manager).*

*Theft is not happen very often it has no effects on any of the performances at the port (Engineering Supervisor).*

The performances of the port are not affected by the theft of cargo that is taking place at the port as the theft does not interfere with the daily operations at the port. The security at the port is tight, thus theft is on a low level of occurrence and it has no serious effect on the port performances either. The findings revealed that the performance at the Walvis Bay port is fairly affected by cargo theft. Since there is no serious cargo theft taking place at the port, the few happenings do not affect the performance at the port; however, it affects the duties of clearing agents and the shipping lines in particular. According to Ibrahim (2017) performance measures and improvements are vital activities that Port Authorities (PA) make use of to improve their productivity as well as their competitive position.

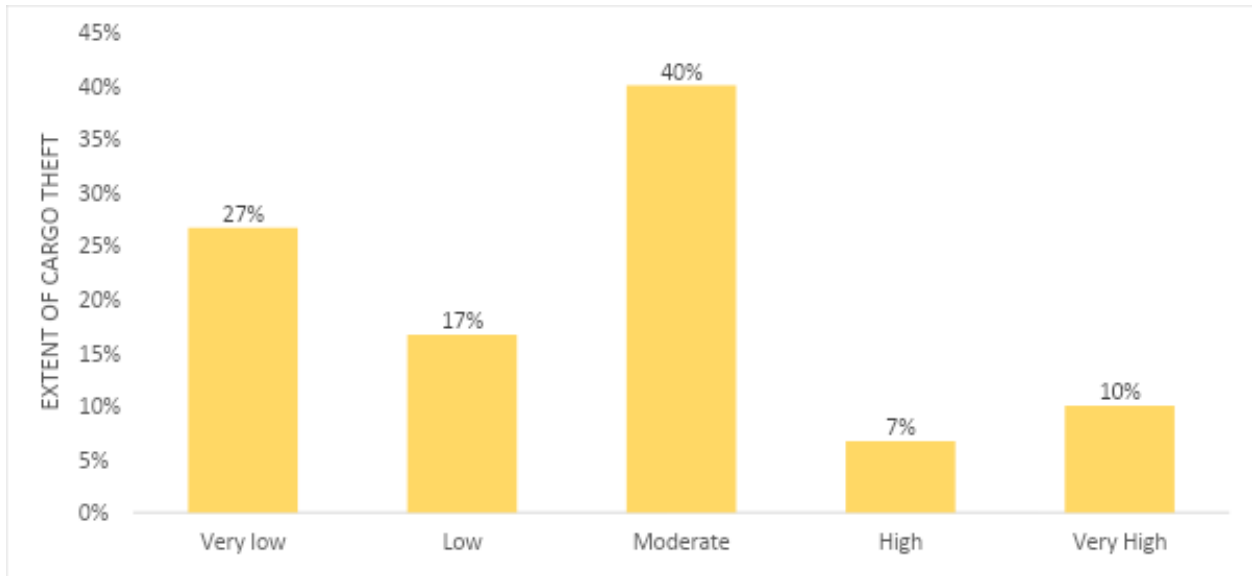
#### **4.6. The extent of cargo theft at Walvis Bay port authority**

##### **4.6.1. The extent of cargo theft at the port**

*Table 4.8: The extent of Cargo theft at Walvis Bay port*

<b>The extent of Cargo theft at Walvis Bay port</b>	<b>Percentage Scored (%)</b>
Very High	10%
High	7%
Moderate	40%
Low	17%
Very Low	27%





**Figure 4.8: The Extent of Cargo theft at Walvis Bay port**

Figure 4.8 and table 4.8 portray the extent of the recorded cargo theft at Walvis Bay port in the span of five years on port operations. The results show that 40% of the respondents indicated that the cargo theft moderately affects the operations at the port compared to 27% of the respondents who rated it very low and 17% who rated the cargo theft effects on the port operation as low, 10% indicated that cargo theft highly affects the port operations.

The open ended questions asked how serious theft of cargo at the port is and the responses were as follows:

*Previously the port had a challenge of container missing and it use to affect the port on a high extend as Namport use to make newspapers headline which was not a good reputation for the port, however theft decreased now and thus it have no serious extend on operation (Marketing Manager).*

*Very low at the moment. The technology in place at the port contained theft too and thus currently it does not have deeper bad influence on the operations at the port (Engineering Supervisor).*

The upgrading of the port securities and security points have minimised theft prevalence. Thus, as the findings reveal that there are least theft incidents at the port. Theft of cargo is regarded as not serious implying that there are incidences of theft at the port. In supporting this finding, during the tour at the port the superintendent mentioned the following:

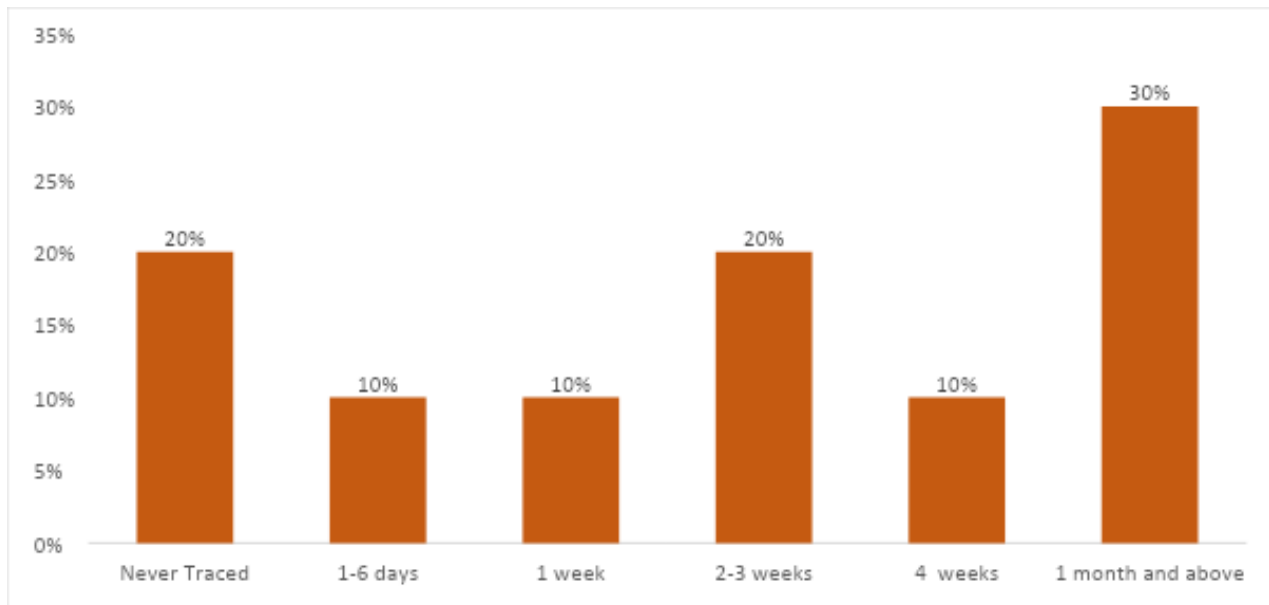
*Not serious, at very low degree of frequency. Theft at the port is regarded not serious compared to long before when containers use to disappear from the port as there is a strict control of security at the port that has cubed the container theft. Currently only loose commodities that get stolen on rare cases. There is a challenge on controlling of the loose commodities since they can get lost while in transit' (superintendent security).*

This is logical considering that theft at the port is not a matter of concern to the port authority as it is minimal and has no significant impact on its operations. These findings imply that employees don't associate the cargo theft to port operations. The Namport Annual Report (2014) indicates a significant drop of cargo theft at Walvis Port for the past 5 years which is a result of the implementation of port security officers and a police station.

#### 4.6.2. The duration of recovering the stolen cargo at the port

*Table 4.9: Duration of cargo recovery*

Duration of cargo recovery	Percentage Scored (%)
1 to 6 days	10%
1 Week	10%
2 to 3 weeks	10%
4 weeks	10%
1 month and above	30%
Never Traced	20%



*Figure 4.9: Duration of cargo recovery*

This question was aimed at finding out on how long it takes to recover the stolen cargo at the port and Figure 4.9 and table 4.9 show that stolen cargo is recovered in 1 month and above; this indication is represented by 30% of the respondents. On the contrary, 20% of the findings show

that the lost cargo is never traced, while 20% of the respondents indicated that it's recovered in 2 to 3 weeks. Three different categories of recovery period scored the same figure, 10% of lost cargo is recovered after 4 weeks and 10% after 1 week, 10% within 1 to 6 days.

On the responses of the open-ended questions, respondents indicated that:

*Recovery period of the stolen cargo from the port depend on how the cargo disappeared and when was it detected that it's stolen that it's actually stolen. But some items don't get recovered (Superintendent Security).*

*It depends on whether the stolen cargo was detected on time and if it was real stolen from the port of Walvis Bay (Engineering Supervisor).*

*Depend on how fast the investigations are (Marketing Manager).*

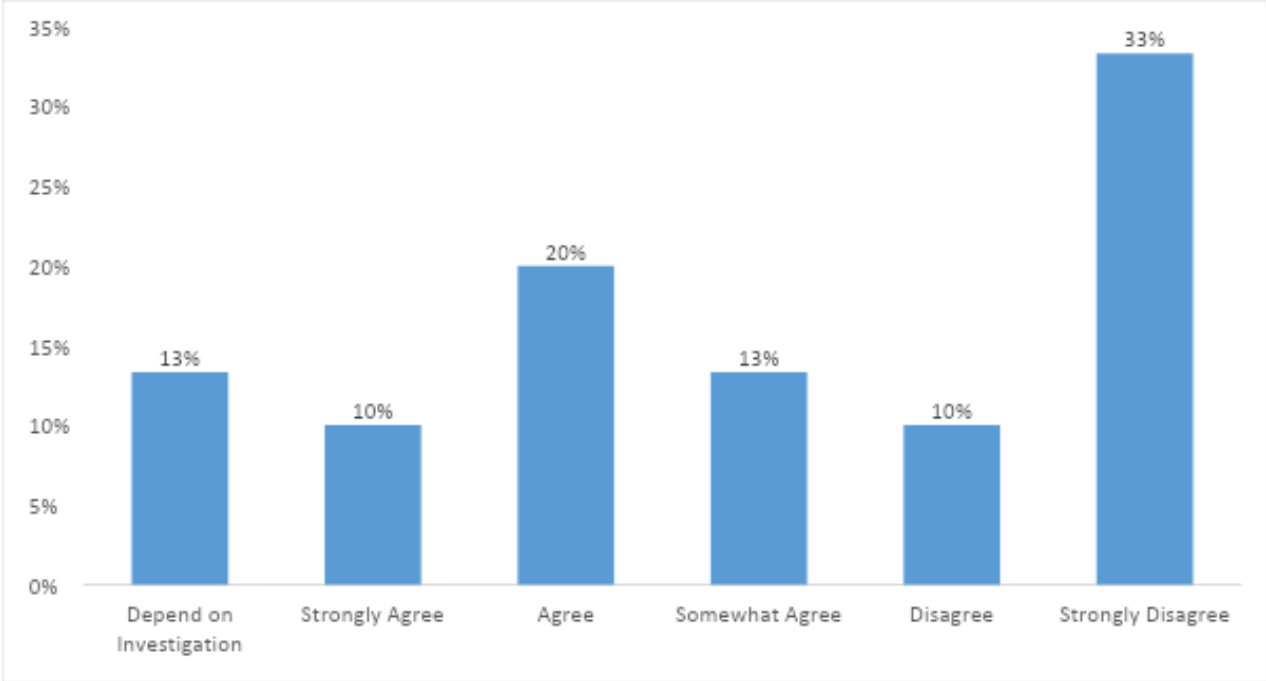
This implies that some cargo gets stolen and only gets detected after a period which might take the recovery period longer as in many cases it might have been transported outside Walvis Bay. However, some of the lost cargo sometimes takes about two to three weeks, one month or more than one month to recover/trace. Also, depending on the search of the stolen cargo, there are items that are recovered within 1 to 6 days, or 1 week. This is because some lost cargo is transported out of Walvis Bay, and some take time to invest as to who are linked to the theft (Namport Official, 2019). Despite the recovery period, findings indicated that some missing cargo is never traced / recovered. Some expressed that stolen cargo from the port is never recovered since there is no real evidence that indicates that it was stolen at the port. On the other hand, some missing cargo goes missing forever because it gets transported out of Namibian borders (Namport Official, 2019).

These findings are supported by Leong (2014) who argues that tracing of stolen goods can also be out of date due to bad storage which exposes the company to unhappy customers.

**4.6.3 Payment of the stolen cargo at the port**

*Table 4.10: Port pay for stolen cargo*

Port pay for stolen cargo	Scores in Percentage (%)
Depend on Investigation	13%
Strongly Agree	10%
Agree	20%
Somewhat Agree	13%
Disagree	10%
Strongly Disagree	33%



*Figure 4.10: Port pay for stolen cargo*

This question was aimed at finding out as to whether Namibia Port Authority (Namport) pays for stolen cargo at the port, and figure 4.8 shows that 33% of the respondents strongly disagreed that Namport pays for stolen cargo, 10% disagreed, while 20% agreed that Namport pays and 13% somewhat agreed. However, 10% strongly agreed, while 13% said that payments depend on the investigation.

*Depends on the quantity and how it disappeared (Marketing Manager).*

*Through investigation outcomes which includes the CCTV coverage footages (superintendent security).*

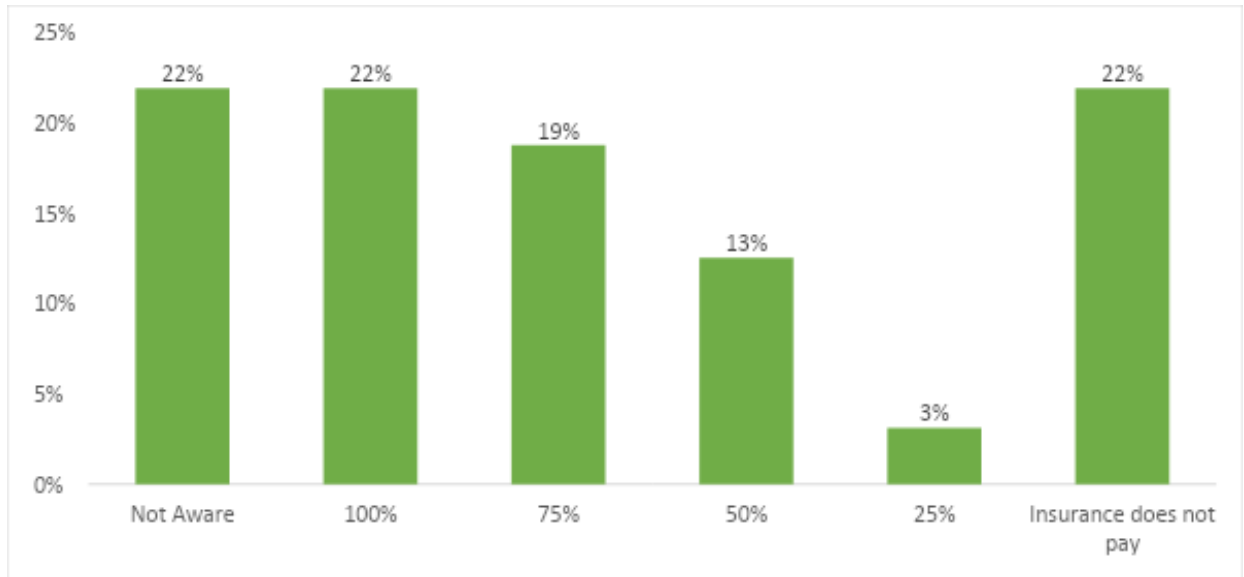
*I am sure there are compensations for clients whose cargo got lost (Engineering supervisor).*

Based on the responses, there are indications that the port authority does not pay for stolen cargo from their facility until the investigations on the theft are concluded. In addition, the security measures at the port assist on the investigation of the stolen cargo from the port. Thus, security measures are part of the strategies that are meant for reducing or combating theft from the port. Furthermore, it's safe to conclude that payments of the stolen cargoes are only done based on the outcomes/results of the investigation and depending on the quantity of the stolen cargo. Namibia Port Authority pays for stolen cargo at the port, depending on the results of the investigation after theft occurrences. Furthermore, Namport does not deal directly with cargoes at the port as customs and clearing agents do the opening and inspections of cargoes (Namport Officials, 2019). Furthermore, the US General Accounting Office (1980) indicates that there are indirect costs that are caused by cargo theft, namely, investigation and insurance payments which can cost between two and five times the direct losses.

#### 4.6.4. Paying of stolen cargo at the port by insurance

*Table 4.11: Insurance payment for stolen cargo*

<b>Insurance pay for stolen cargo</b>	<b>Scores in Percentage (%)</b>
Not Aware	22%
Pay 100%	22%
Pay 75%	19%
Pay 50%	13%
Pay 25%	3%
Insurance does not pay	22%



*Figure 4.11: Insurance Payment for stolen cargo*

According to the respondent, results in figure 4.11 and table 4.11 exhibit the percentage that insurance pays for stolen cargo at the port. The findings revealed that 22% of respondents

indicated that insurance pays 100% of the claims of the stolen items; this is compared to the 22% of the respondents who indicated that insurance does not pay for stolen cargo. Although 22% of the respondents indicated that they are not aware if insurance pays, 19% of respondents indicated that insurance pays for 75% of the stolen cargo. In addition, 13 of the respondents showed that insurance pays 50% of cargo loss claims and 3% reflected that insurance pays 25 percent of the stolen cargo.

*Insurance does pay for the stolen cargo depending on who is at fault between the client and the port authority (Superintendent Security).*

*Have no knowledge on payments of insurance (Engineering Supervisor).*

*There should be payments by shipping lines since they have insurance on the shipped cargo (Marketing Manager).*

In some instances, there are conditions on the payments of the stolen cargo and these conditions are the ones that determine whether the insurance will pay the full amount, or they will pay a certain percentage of the lost cargo.

Regarding the payments of insured cargo, the insurance pays for the stolen insured cargo which is paid on different percentages ranging from 100% to 25%, subject on the results of the investigation. On the other hand, a reasonable number of respondents are not aware of the insurance payments. This means that many people at the port do not have knowledge on cargo insurance, whereas, one of the staff indicated that shipping lines insurance is the one that pays for stolen cargo. The findings on the payment of the lost cargo by the insurance company is corresponding with Fleisch and Skorna (2012), who found that insurance mostly compensates the

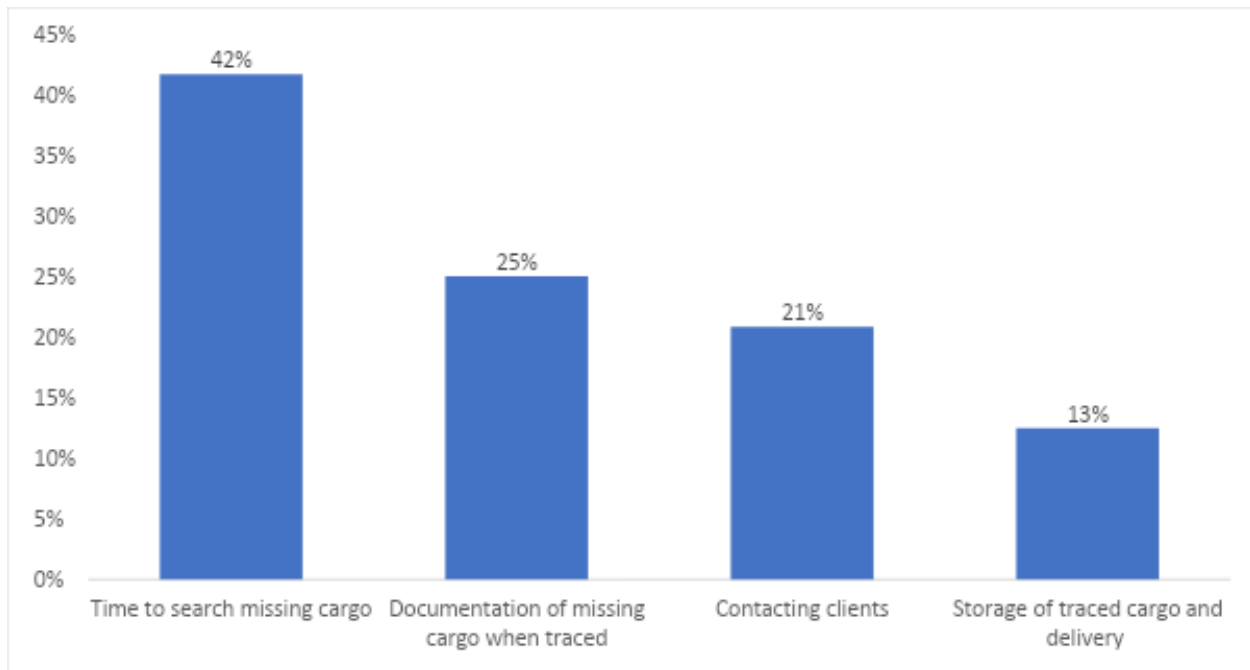


shipper with the insured value of affected goods after the claim has been approved. The Hit The Road Jack (2014) revealed that cargo theft increases insurance premiums whereby in-transit insured goods price increases will affect customers' as the increase of premiums will be passed on to customers. This is one of the disadvantages because if cargo theft is of high occurrences as it will influence the insurance charges. There are notable impacts of cargo theft that are believed to affect the industry of transportation. The impacts are: for business operating via just in time basis, as loss of goods might threaten the feasibility, especially when insurance cover is not enough to pay then payments are challenged (Leong, 2014). Therefore, although cargo theft does not affect the port operations at the Walvis Bay port, it affects port customers on issues like increases of insurance charges and when the insurance doesn't cover for the full value of the lost cargo.

#### **4.6.4. What cargo theft at the port leads to**

***Table 4.12: What do cargo theft at the port leads to on port operation***

<b>What cargo theft at the port leads to on port operation</b>	<b>Scores in percentage (%)</b>
Time to search missing cargo	42%
Documentation of missing cargo when traced	25%
Contacting Clients	21%
Storage of traced cargo and delivery	13%



**Figure 4.12: What do cargo theft at the port leads to on port operation**

Figure 4.12 and table 4.12 reflects results on what cargo theft leads to at the port, and certain factors were provided whereby respondents had options to choose from a list of options that cargo theft may lead to at the port. However, respondents were ticking more than one answer, thus results scored more than 100%. Results shows 42% of respondents indicated that cargo theft leads to the time of searching the stolen cargo. However, 25% indicated that cargo theft leads to documentation of the missing cargo when traced. In addition, 21% of respondents indicated that cargo theft at the port leads to contacting the clients. The least is 13% of respondents which showed that cargo theft leads to storage of traced cargo and delivery.

Two of the respondents on the open-ended questions indicated that cargo theft at the port lead to none. Whereas the other respondent indicated that:

*Customer care, security departments are affected. (Marketing Manager).*

*Security cost may increase (Superintendent Security).*

*Well, time to search for the missing cargo which includes the investigation of the disappearances of the cargo (Engineering Supervisor).*

The findings revealed that theft at the port leads to time wastage in searching for the missing cargo which is inflicted on port operations. Results also show that theft of cargo leads to documentation of the missing cargo after being recovered which might take up more time to do so. This happens as the lost cargo has to be documented and cases of theft have to be registered and after the recovery, the recovered cargo is also documented for record keeping. On the other hand, cargo theft at the port may lead to frequent communication with the clients who suffered the loss, as well as storage of traced cargo and its delivery thereafter, as the recovered cargo is first stored at the port before handing over to the owner. Literature from the US General Accounting Office (1980) expressed that despite the value of stolen freight, unquantified issues still exist such as hours wasted due to disruptions of deliveries as well as being answerable to the shipper.

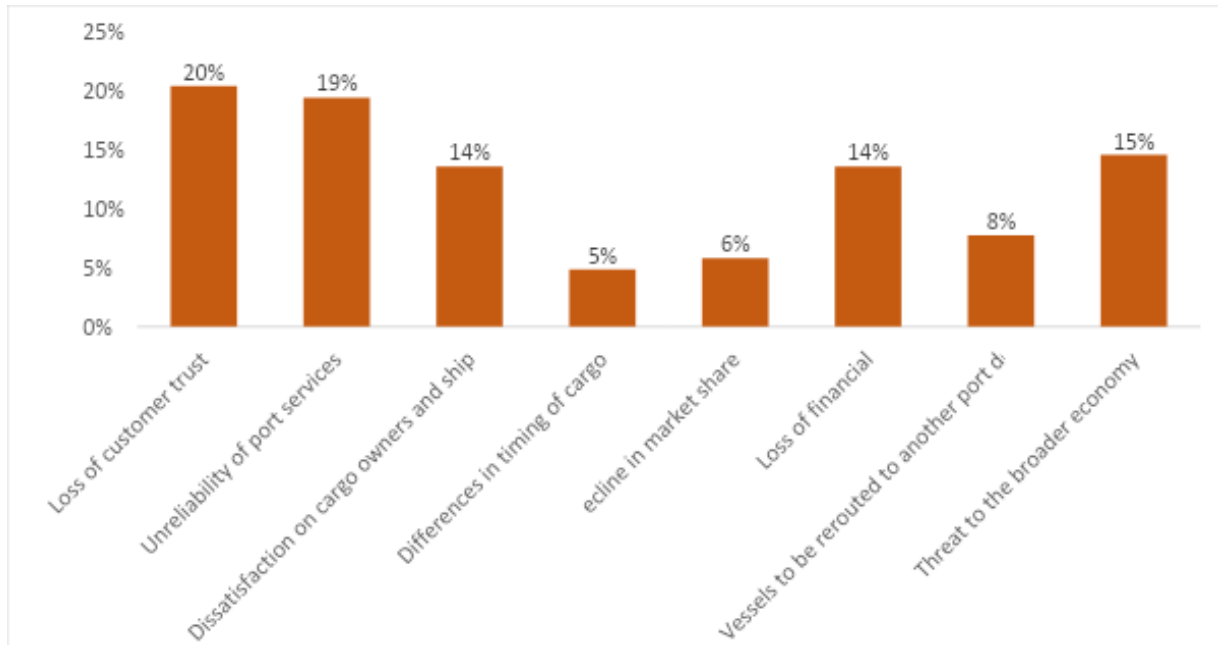
#### 4.7. Threats that cargo theft imposes on the supply chain of cargo

##### 4.7.1. The types of threats that cargo theft imposes in the supply chain of cargo via Walvis

###### Bay port

*Table 4.13: Types of threats cargo theft impose on port operations*

<b>Types of threats cargo theft impose on port operations</b>	<b>Scores in percentage (%)</b>
Loss of customers trust	20%
Unreliability of port services	19%
Influence of customers shipping lines (resulting into dissatisfaction)	14%
Differences in timing	5%
Decline in market share	6%
Loss of finance	14%
Vessels to be rerouted to another port deemed nearby	8%
Threat to the broader economy	15%



**Figure 4.13: Types of threats cargo theft impose on port operations**

Respondents were asked to indicate the types of threats caused by cargo theft at the harbour. This question had 8 options to choose from in which respondents were asked to tick more than one choice and due to the multiple ticking of answers, the total percentage of this results scored more than 100%. The results are represented in Figure 4.13 and table 4.13, and according to the findings, 20% which is the highest score of the respondents indicated that cargo theft imposes threats of losing customer trust, followed by 19% who indicated that cargo theft imposes threat of unreliability of port service. The threat of dissatisfaction on cargo owners and shipping lines and financial loss both scored 14%, whereas threats of vessels to be rerouted to another port scored 8%, decline in market share scored 6% and differences in timing of cargo 5%. There are threats imposed by cargo theft on the supply chain of cargo shipped via the port of Walvis Bay.

As per the open ended questions responses, the imposed threats on supply chain by cargo theft at the port is:

*Loss if any (Superintendent Security).*

*Financial loss and customer trust when theft take place (Marketing manager).*

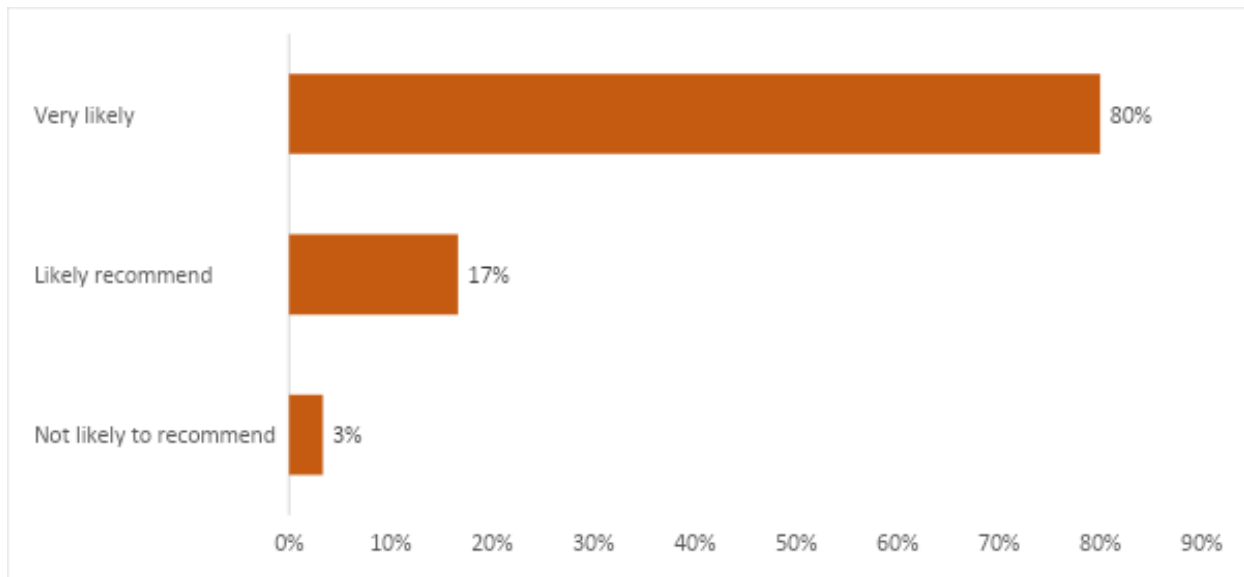
*Loss of customer trust to the shipping companies (Engineering Supervisor).*

This means that in case theft of cargo becomes more at the port, it will impose threats of losses, such as customer trust at the port and financial losses. Cargo theft imposes threats of financial loss as stolen cargoes are mostly replaced by compensating the clients. The affected customers might stop utilising the port in the future which in the end affects the economy at large. Most noteworthy threats are loss of customer trust, the unreliability of services, negative influence on port customers' shipping lines including cargo owners, resulting into dissatisfaction, loss of finance, and lastly threats to the economy at large. This is in support of Wagner and Bode (2006) who explained that cargo theft causes extensive economic losses. Loh and Thai (2014) on the other hand expressed that there are consequences of disruptive events such as cargo theft at the port that vary in different dimensions in which some of the disruptions are restricted only within the port like port users that are said to hardly feel any effect, whereas some events are simple enough to result in a breakdown of the supply chain resilience. However, the consequences of cargo theft also come in different variations that are related to cargo quality, differences in timing, loss of financial income, and a decline in market share (Loh & Thai, 2014). The above mentioned are considered as undesirable effects that bring attention to the importance of ports in the supply chain (Loh & Thai, 2014). Ports play a critical role in the economy of many countries and regions. Another supporting porting source, Edgerton (2013) argues that the failure or unreliability of port services can significantly influence port customers' shipping lines and cargo owners and result in their dissatisfaction.

#### 4.7.2. Port recommendation to importers and exporters

*Table 4.14: Port recommendation to importers and exporters*

Port Recommendation to importers and exporters	Scores in percentage
Very likely to recommend	80%
Likely to recommend	17%
Not likely to recommend	3%



*Figure 4.14: Port Recommendation to importers and exporters*

Respondents were asked if they can recommend the Walvis Bay port to importers and exporters, and figure 4.14 and table 4.14 show the results of respondents on the recommendation of the port, 80% indicated that respondents will very likely recommend the Walvis Port, compared to 3% who indicated that they are not likely to recommend and 17% of respondents who indicated that they are likely to recommend. However, respondents from the open ended questionnaires all indicated

that they would recommend the port to exporters and respondents. This was a 'Yes or No' question, therefore there is no discussion on the quantitative data.

Although cargo theft has certain effects on port operations at the Walvis Bay port, officials and port customers will highly recommend the utilisation of the port to importers as well as exporters. This could be the case since Walvis Bay is the only biggest port in Namibia, thus this portrays that customers are left with no options.

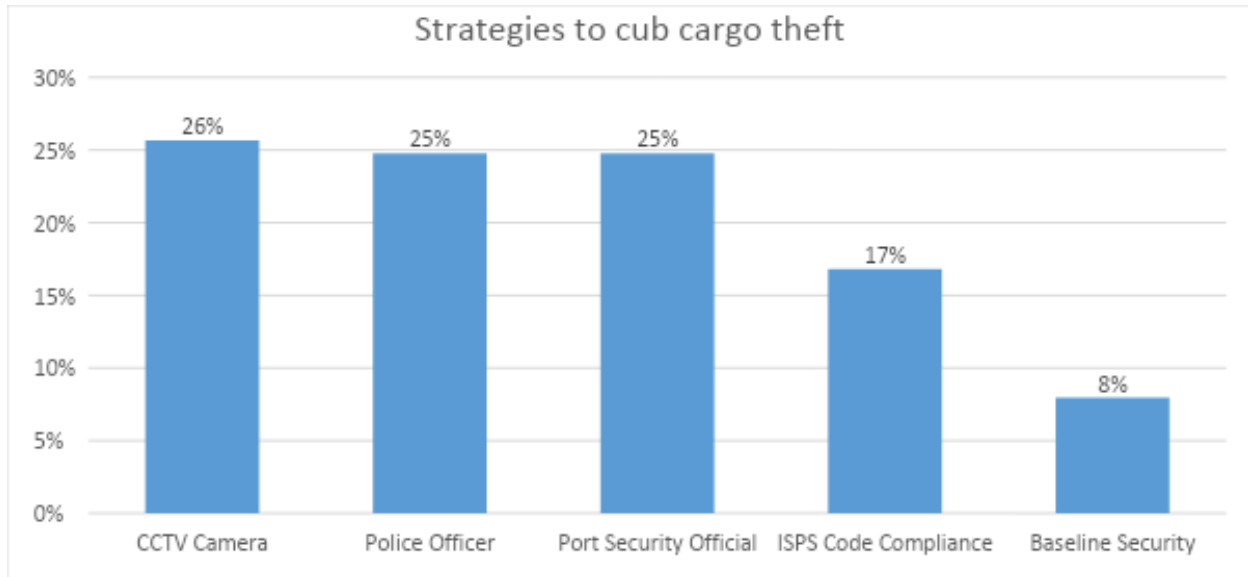
Clearing agents and customs officials are the most dominant amongst the respondents. This is because they are the ones who deal directly with cargo at the port. Customs officials ensure that the content mentioned in the clearing documents is the actual content in the container by inspection of the cargo. In doing so, agents also accompany the customs official to verify the cargo. While police officers are the responsible officials to whom the stolen cargo charges are laid, and they then do further investigation, thus they have less involvement with cargo. Supervisors and managers are only involved with cargo when there is a problem with cargo or security at the port, but they do not directly deal with cargo every day, although they ensure tight security and good flow of cargo processes. Port users (customers) do not get in contact with cargo inside the port, until the clearing of their goods is through then they receive their goods, unless there are issues with documentation and cargo content or when there is missing cargo.



#### 4.8. Strategies used by the management to cub cargo theft

*Table 4.15 Strategies used at the port to cub cargo theft*

Strategies Used to cub cargo theft at the Port	Scores in Percentage
CCTV Camera	26%
Police Officer	25%
Port Security Official	25%
ISPS Code Compliance	17%
Baseline Security	8%



*Figure 4.15 Strategies used at the port to cub cargo theft*

Respondents were provided with a list of security measures that are used as strategies to combat crime at the Walvis Bay port. The question had 5 variables to select from, whereby respondents were allowed to select more than one option. Figure 4.15 and Table 4.15 presents the results scored from the closed ended questionnaire. According to the findings, 26% indicated that CCTV cameras

is a strategy in place at Namport scoring the highest, where as 25% of the findings indicate that it is the police officers at the port, another 25% is port security within the port facility, followed by 17% on ISPS code compliance and lastly 8% of baseline security in place at the port.

On the strategies that are used to mitigate the effects of cargo theft at the Walvis Bay port, the open-ended questionnaire responses were as follows;

*The port did a security turnaround strategy which is the application of security regime at the port such as CCTV cameras around the port, Namibian police officials, security officers at every entrance, turnstile gate, ISPS code compliance, GIS and the baseline security system. In addition to security measures the port have National Young Services (NYS) staff as part of security complement in order to secure the port users as well as the seaborne trade. (Superintendent Security).*

*The port has a police station, CCTV cameras, the ISPS code compliance, port security, and National youth service officials around the port (Supervisor Engineering).*

*CCTV cameras are on the best strategy across the port, the recent ISPS code compliance, port securities, Namibia police force and the NYS.*

These findings show an indication that the port made efforts to have various security measures aimed at assisting them to curb theft. There are security measures that can be used to mitigate supply chain security risks (Haelterman, 2012). The measures in place could be the reason that theft is not as serious as it used to be 5 to 6 years back. Previously, containers used to be smuggled from

the port and theft was high at the Walvis Bay port. The visibility of port security officials and the National Youth Security officials around every corner of the port has helped to eliminate theft activities in the port. This clearly indicates that cargo at Namport is protected. The installation of CCTV cameras in every area of the port has made a huge impact in fighting theft at the port. The findings are supported by Haelterman (2012) who expressed that the majority of the solutions include technological components which are burglar alarms, CCTV camera systems, as well as electronic key cards. According to (Sternberg, 2012), technology is a significant tool for the differentiation of logistics services. RFID tags, GPS trackers, as well as electronic container seals, and many other tracking technologies assist monitoring in transit freight (Sternberg, 2012).

#### **4.9. Summary of the chapter**

Chapter 4 explored the data analysis of the study on the investigation of the effects of cargo theft on Walvis Bay port operations. Through data analysis, the interpretation of the analysed data was covered under each section following the sequence of questions as per research objectives. Furthermore, the findings on the study's results after the data analysis and interpretation were provided under each section.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS**

#### **5.0 Introduction**

The chapter provides a summary of the findings obtained by the researcher on effects of cargo theft on Walvis Bay port's operations in Namibia. The chapter further discusses the findings of the research. Recommendations for action are covered in this chapter, as well as recommendations for further studies. The summary, conclusions and recommendations are based on the study questions which were namely:

- What is the extent of cargo theft at Walvis Bay Port Authority?
- What effect does cargo theft at the port have on Walvis Bay port operations?
- What types of threats can cargo theft impose on the supply chain of cargo?
- What strategies best suit the management to curb cargo theft at Walvis Bay Port?

#### **5.1 Summary of findings**

The study was aimed at finding out whether cargo theft at the port does affect the port operations and if it does, to what extent does it affect the operations and finally to explore the types of threats that cargo theft imposes in the supply chain of cargo through the port of Walvis Bay. Therefore, the study found out that cargo theft at the Walvis Bay port is happening on a low record and that it is not that serious and thus cargo theft has no effect on port operations since most of the stolen cargoes are loose commodities and Namport does not deal directly with cargo, therefore the port's operations are not affected. Theft of cargo has no negative extent on the operations at the port since the port continues with its normal operations even after theft has taken place. Payments of lost

cargo are done depending on the results of the investigations. Furthermore, currently there are less threat that are imposed on the supply chain by cargo theft such as loss of customers, unreliability of port services and loss of finances. As per the open ended questions findings, the security measures that Namport put in place 5 years back have made an impact on combating crime which has driven the results of low effects of cargo theft on port operations. Thus, most of the respondents indicated that they would highly recommend the port to importers and exporters.

#### **5.1.1. The extent of cargo theft at Walvis Bay port authority**

It was found that the recorded cargo theft at the port that took place for the past 5 years had fewer effects on Walvis Bay port operations. Cargo theft is moderate as Namport has recruited port security officials and after they inaugurated a mobile police station within the port in 2013. The two security measures assisted in combating crime at the port and thus cargo theft is now moderate. Furthermore, the findings indicated that most of the stolen cargo was recovered within a short period. Some cargo was however never recovered. Regarding the payments of the stolen cargo, it was revealed that Namport pays for stolen cargo after getting the investigation outcomes, and that insurance pays off the loss of cargo after receiving the investigations outcome.

#### **5.1.2. Effects of cargo theft on Walvis Bay port operations**

Based on the results, cargo theft has possible effects on port operations which are: financial loss, customer loss, and sustainability of port operations, and unreliability of port services. However, the performances at the port are fairly or less affected. This is due to the fact that in most cases customers only change a certain shipping company to another but still utilise the Walvis Bay port beside the loss suffered. The time to search for missing cargo, documenting of the missing cargo when traced, as well as contacting clients are the factors that cargo theft at the port can lead to.

### **5.1.3. Threats that cargo theft impose on the supply chain of cargo**

Cargo theft has threats imposed on the supply chain of cargo which can have a negative effect on port operations which are: loss of customers' trust, the unreliability of port services, and financial loss. Cargo theft imposes threats of financial loss as stolen cargoes which are mostly replaced by compensating the clients. However, the affected customers are likely to stop using the port in the future. Most noteworthy threats are loss of customers' trust, the unreliability of services, negative influence on port customers' shipping lines including cargo owners, resulting into dissatisfaction, loss of finance, and lastly threats to the economy at large. At the moment, the treats do not affect port operations but some parties such as clients and shipping lines as well as clearing agents are the ones who are affected by cargo theft which is taking place currently at the port.

### **5.1.4. Strategies used by the management to curb cargo theft at the Walvis Bay port**

The findings indicate that the Walvis Bay port indeed has a variety of strategies that are assisting it to curb cargo theft at the port. The installation of CCTV cameras all over the port, the implementation of port security, the ISPS code compliance, security baselines, the complement of National Youth Service officials as well as the GIS system and Namibia police force officials are the strategies that the port is using for reducing and fighting theft at the port. The strategies have contributed positive results as theft of cargo at the port has reduced compared to the past years when containers used to be smuggled from the port.

## **5.2. Recommendations for action**

The researcher further recommends Namport to add modern technology to the measures in place in order to trace and have proof when the loose commodities are lost in transit. Although Namport

does not suffer from any effects on its operations from the current cargo theft that is taking place at the port, it is recommended that Namport finds strategies to assist the affected parties since they are part of the port. Finding strategies that can assist in tracing whether the loose commodities are stolen at the port or in transit will fully satisfy its customers and avoid financial losses as well as the supply chain delivery disruptions. Customers at the port are recommended and advised to do a background check on the shipping line before using it to avoid losing their commodities. Namport is also recommended to add more police officers for faster investigations of lost cargoes. The port is further recommended to adopt strategies that can fully eliminate threats that cargo theft imposes in the supply chain.

### **5.3. Recommendations for further studies**

The researcher recommends that researchers at different institutions, students and Research Institutions (Agencies) have to conduct further research on cargo theft in Namibia because the area of theft of cargo is not well covered in Namibia. Furthermore, recommendations on further studies are also recommended to publishers to compile proper data on cargo theft in Namibia and make it available to the public to do further analysis and studies in order to compare results with those of the current study.

### **5.4. Conclusion**

To conclude, cargo theft at the port of Walvis Bay is rated as low since for the past 5 years, notably this was influenced by the security measures that Namport implemented at the port in 2013, which is port security and a police station within the port. However, the occurrence of cargo theft at the port is regarded as having no effect on the port's operations but it does affect other parties at the port such as port customers, shipping lines and clearing agents. The adoption of new technology

will assist in combating theft of cargo at the port. Cargo theft can impose certain threats to the supply chain at the port. Port customers are advised to do a background check on the shipping companies before using their service to avoid occurrences of loose commodities getting lost. The current strategies used to combat crime at the port have made a positive impact on reducing theft of cargo; however, the port is still recommended to adapt modern technology to completely eliminate cases of theft at the port. Lastly, the port is highly recommendable to shippers (importers and exporters).



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## **APPENDICES:**

**DATA COLLECTION INSTRUMENT: CLOSED ENDED SURVEY QUESTIONNAIRE**

**TOPIC: INVESTIGATING THE EFFECT OF CARGO THEFT ON WALVIS BAY PORT OPERATIONS IN NAMIBIA**

**Interview duration:** 15 to 25 minutes

**Dear Respondents:**

I am Elizabeth Elago, enrolled student at Namibia University of Science and Technology pursuing a master degree in logistics and supply chain management. As to the requirements of the completion of the study, I am required to carry out a methodology study on "investigating the effect of cargo theft on Walvis Bay Port operations in Namibia". Therefore, I kindly request your assistance by availing time from your busy schedule to respond to this questionnaire aimed at obtaining data to achieve the objective of the study. Since the study's interest is vital, a copy of the final report will be made available to you at your request. For the ethical purpose, the respondent's information given will be treated with utmost confidentiality. Your assistance will be highly appreciated.

## **INTRODUCTION:**

Theft of cargo has been studied and investigated topic around the globe, however, in Namibia, we have little literature on the theft of cargo studies. Therefore, this study aims to investigate the effect of cargo theft on Walvis Bay port operations in Namibia.

## **SECTION A: DEMOGRAPHIC BACKGROUND (TICK AS APPROPRIATE)**

1. Gender

Female  Male

2. What is your Profession?

Manager  Supervisor  Port Security Officer

Police Officer  Customs Clearing Agent  Clearings Agent

Port Customer

3. What is your age bracket?

18 to 24       25 to 35       36 to 55       56 and Above

4. Officials and Customers work experience with the Walvis Bay Port

0 to 2 years       3 to 5 years       6 to 9 years       10 years and above

**SECTION B: THE EXTENT OF CARGO THEFT AT WALVIS BAY PORT AUTHORITY**

1. Looking into the recorded of cargo theft at the port of Walvis Bay of an estimation of N\$11.8 billion for the past 5 years, to what extent has it affected the operations at the port?

Very low

Low

Moderate

High

Very high

2. How long does it take to trace the stolen cargo from the port?

1 to 6 days

1 week

2 to 3 weeks

4 weeks

1 month and above

Never Traced

3. Namibia Port Authority pay for the stolen cargo at the Walvis Bay port.

Strongly Agree

Agree

Somewhat Agree

Disagree

Strongly Disagree

Depend on Investigation results

4. How does the insurance pay for stolen insured cargo?

Insurance pays 100% of the stolen cargo value

- Insurance pays 75% of stolen cargo value
- Insurance pays 50% of stolen cargo value
- Insurance pays 25% of stolen cargo value
- Insurance does not pay for stolen cargo
- Not Aware

**SECTION C: EFFECT OF CARGO THEFT ON WALVIS BAY PORT OPERATIONS**

1. How does cargo theft have an effect on ports operation at the Walvis Bay Port Such as Financial, Customers and supply chain delivery?

Strongly Agree	Agree	Somewhat Agree	Disagree	Strongly Disagree
1	2	3	3	0

- Strongly Agree
- Agree
-

Somewhat Agree

Disagree

Strongly disagree

2. What effects does cargo theft at the port have on Walvis Bay port operations?

Financial loss

Customer loss

Loss of supply chain delivery deal

Sustainability of the port operations

3. How does Cargo theft affect the performance of the port?

Very affected

Affected

Fairly affected

Less affected

Not affected

4. According to the literature, Cargo theft at the port lead to : **(Please tick as many)**

Time to search for missing cargo

Documentations of the missing cargo when traced

- Contacting the client
- Storage of the traced cargo and delivery thereof

**SECTION D: THREATS THAT CARGO THEFT IMPOSES ON THE SUPPLY CHAIN OF CARGO?**

1. What types of threats cargo theft impose on the supply chain of cargo via the Walvis Bay Port? **(Tick as many)**

- Loss of customer trust
- The unreliability of port services
- Negative influence on port customers shipping lines including cargo owners, resulting in a dissatisfaction
- Differences in timing of cargo
- The decline in market share
- Loss of financial
- Vessels to be rerouted to another port deemed nearby
- The threat to the broader economy

2. How likely would you recommend Walvis Bay Port to importers and exporters?

- Not likely to recommend



Likely recommend

Very likely

**SECTION E: STRATEGIES USED BY THE MANAGEMENT TO CUB CARGO THEFT  
AT WALVIS BAY PORT**

1. What strategies Walvis Bay port has in dealing with cargo theft at the port? Tick as many as you can.

CCTV Camera

Police Officer

Port Security Official

ISPS Code Compliance

Baseline Security

**THANK YOU FOR YOUR PARTICIPATION.**

DATA COLLECTION INSTRUMENT: OPEN ENDED SURVEY QUESTIONNAIRE

**TOPIC: INVESTIGATING THE EFFECT OF CARGO THEFT ON WALVIS BAY PORT OPERATIONS IN NAMIBIA**

**Interview duration:** 15 to 25 minutes

**Dear Respondents:**

I am Elizabeth Elago, enrolled student at Namibia University of Science and Technology pursuing a Master Degree in Logistics and Supply Chain Management. As to the requirements of the completion of the study, I am required to carry out a methodology study on “Investigating the effect of cargo theft on Walvis Bay port operations in Namibia”. Therefore, I kindly request your assistance by availing time from your busy schedule to respond to this questionnaire aimed at obtaining data to achieve the objective of the study. Since the study’s interest is vital, a copy of

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**INTRODUCTION:**

Theft of cargo has been studied and investigated topic around the globe, however, in Namibia we have little literature on theft of cargo studies. Therefore, this study aims to investigate the effect of cargo theft on Walvis Bay port operations in Namibia.

**SECTION A: DEMOGRAPHIC BACKGROUND (TICK AS APPROPRIATE)**

5. Gender

Female  Male

6. What is your Profession?

Manager  Supervisor  Port Security Officer

Police Officer  Customs Clearing Agent  Clearings Agent

Port Customer

7. What is your age bracket?

18 to 24  25 to 35  36 to 55  56 and Above

8. Relationship with the Walvis Bay Port

0 to 2 years  3 to 5 years  6 to 9 years  10 years and above

**SECTION B: WHAT IS THE EXTENT OF CARGO THEFT AT WALVIS BAY PORT AUTHORITY?**

1. To what extent is cargo theft at Walvis Bay Port Authority? Considering the recorded of cargo theft at the port of Walvis Bay of an estimation of N\$11.8 billion for the past 5 years.

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2. How long does it take to trace the stolen cargo from the port?

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3. Are cargoes of the port insured? How does the insurance pay for stolen insured cargo based on the percentage of payment?

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4. In case of unrecovered stolen cargoes, how does the Walvis Bay Port Authority pay for the damage or the customer suffer the loss?

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**SECTION C: EFFECT OF CARGO THEFT ON WALVIS BAY PORT OPERATIONS  
(MAIN OBJECTIVE)**

1. Does cargo theft have effect on ports operation at the Walvis Bay Port? If "Yes" please continue.

Yes

No

2. How does cargo theft have an effect on ports operation at the Walvis Bay Port Such as Financial, Customers and supply chain delivery?

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3. What possible effects cargo theft at the port have on Walvis Bay port operations? Tick and explain

Financial loss

Customer loss

Loss of supply chain delivery deal

Non sustainability of the port

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4. How does Cargo theft affect the performance of the port? Please elaborate.

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5. According to the literature, Cargo theft at the port lead to the delay of loading and unloading of cargo, what causes the delay? **Mention as many as you can.**

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**SECTION D: WHAT TYPES OF THREATS THAT CARGO THEFT IMPOSE ON THE SUPPLY CHAIN OF CARGO?**

1. What types of threats cargo theft impose on the supply chain of cargo via the Walvis Bay Port?

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2. How likely would you recommend Walvis Bay Port to importers and exporters?

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**SECTION E: STRATEGIES USED BY THE MANAGEMENT TO CUB CARGO THEFT  
AT WALVIS BAY PORT**

1. What strategies Walvis Bay port has in dealing with cargo theft at the port?

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**THANK YOU FOR YOUR PARTICIPATION**