

**ANALYSIS OF SEAPORT SECURITY MEASURES IN PREVENTING
CARGO THEFT AT KILINDINI HARBOUR IN MOMBASA, KENYA
(2020-2024)**

DICKSON GITONGA NJIRU

**A Thesis Submitted to the Graduate School in Partial Fulfilment of the
Requirements for the Award of the Degree of Doctor of Philosophy in
Criminology and Security Studies of Chuka University**

CHUKA UNIVERSITY

OCTOBER, 2025

DECLARATION AND RECOMMENDATION


Declaration

This thesis is my original work and has not been presented for an award of diploma or conferment of degree in any institution or University.

Signature.....  Date..... 13/10/2025
Dickson Gitonga Njiru
AD17/58069/22

Recommendation

This thesis has been examined, passed and submitted with our approval as University supervisors

Signature.....  Date..... 13/10/2025
Prof. Christopher N. Kiboro, PhD
Chuka University

Signature.....  Date..... 13/10/2025
Dr. John O. Omboto, PhD
Kenyatta University

Signature.....  Date..... 13.10.2025
Dr. Steve Waku, PhD
University of Embu



COPYRIGHT

©2025

No part of this document may be reproduced, stored in a retrieval system, photocopied, or transmitted in any form without the prior authorization of the author or Chuka University.

DEDICATION

This thesis completion is dedicated to my lovely wife, Eunice Wanjiku, our children, Samuel Mawira, Salim Karuria and Diana Taru for their love, understanding and unwavering support during the time I had to juggle between work, family and study. I am also deeply grateful to my parents, my siblings, extended family members and friends for their encouragement, patience which motivated me to see this research through to completion.

ACKNOWLEDGEMENT

I attribute the completion of this work to Almighty God for His grace, favour, and blessing me with excellent health and sufficient grace during my studies. I am grateful to Chuka University for giving me the chance to realize my academic dream and the Governing Council of National Crime Research Centre for financial support and granting me an opportunity to undertake my Doctor of Philosophy Degree in Criminology and Security Studies at Chuka University. I would like to thank my Supervisors Prof. Christopher Kiboro of Chuka University, Dr. John Onyango Omboto of Kenyatta University and Dr. Steve Wakhu from University of Embu for their professional and academic guidance, mentorship and encouragement in structuring the complete thesis. My gratitude extends to Prof. Moses Muraya the Director Board of Postgraduate Studies for his assistance whenever I needed clarification. I also wish to acknowledge chair of the Department of Social Science, Dr. Monica Oundo who generously offered empathy and continuously gave me proper direction throughout the stages and Mr. Timothy Lidigu from Faculty of Humanities and Social Science for responding to my enquiries.

I express my gratitude sincerely to my wife Eunice Wanjiku for undying support and love. To my children, Samuel Mawira, Salim Karuria and Diana Taru for bearing with limited father's care. Thanks to my parents Eston Njiru and Nancy Mutitu for moral support and understanding. I am also grateful to Kenya Utalii College Principal Librarian Mr. Leonard Simiyu and Senior Librarian Ms. Katrina Tsiganyu for facilitating my request with management to use the library. Equally, Dr. John Thuku Deputy Librarian from Kenyatta University is appreciated for the same. My appreciation would amount to nothing without acknowledging my Research Assistants, Mr Nelson Sifa Kazungu and Mr. Alex Muasya who participated in data collection. The management of Kenya Ports Authority and National Police Service is highly appreciated for allowing and facilitating access to study respondents during data collection. Additionally, I appreciate all my friends and fellow students for their encouragement which has contributed to the successful completion of this work. To all of you, who supported, encouraged and inspired me, my God bestow grace upon grace in your lives.

ABSTRACT

The theft of goods and commodities within the supply chain presents a significant problem worldwide. The maritime industry is vital for the global economy. Millions of people and tonnes of goods that drive the global economy are annually moved across the world via oceans, lakes, and rivers. While this means of transport is indispensable, it is associated with inherent security-related challenges, such as robberies, vandalism, and thefts. The purpose of this study was to analyse the seaport security measures that have been put in place to control cargo theft crimes. The specific objectives of the study were to investigate the prevalence of cargo theft in Kilindini harbour at Mombasa seaport in Kenya between the years 2020-2024; analyse the nature of cargo theft for the same period; examine the security control strategies of cargo theft and establish the challenges facing the prevention of cargo theft in Kilindini harbour at Mombasa seaport in Kenya. The study was guided by two theories: - Defensible Space theory (1972), which was an advancement of Crime Prevention through Environmental Design (CPTED) principles by Ray Jeffrey (1971), and Rational Choice Theory (RCT), which was formulated by Ronald Clarke and Derek Cornish (1986). The study adopted a descriptive research design to provide an accurate and valid representation of the factors or variables that pertain and/ or was relevant to the research question. Quantitative data and qualitative data were collected, hence a mixed method approach. The key institutions of focus of the study were the Kenya Port Authority security department and the Kenya Police Service. The study respondents were 226 individuals. The study established that cargo theft at Mombasa Seaport remains a persistent and serious concern, with incidents perceived as widespread and detection efforts inconsistent. While modern security technologies have been introduced, their effectiveness is undermined by limited coverage, maintenance challenges, and inadequate human capacity. Operational bottlenecks and involving criminal methods such as document fraud and counterfeit seals continue to expose security gaps across the port system. Furthermore, despite the importance of inter-agency collaboration, underreporting remains a major barrier due to stakeholder mistrust in reporting processes, judicial delays, and limited institutional accountability. It is further envisaged that the recommendations of this study will contribute to the improvement of policies on security procedures and mechanisms of cargo theft prevention, thus increasing revenue generation, which will be of great benefit to the government operations and the people of Kenya in general. The study recommended enhancing intelligence-led surveillance, improving integration and staffing for security technologies, addressing operational bottlenecks and adaptive criminal tactics through procedural reforms, and strengthening reporting mechanisms alongside judicial accountability to restore stakeholder trust.

TABLE OF CONTENTS

DECLARATION AND RECOMMENDATION	ii
COPYRIGHT	iii
DEDICATION.....	iv
ACKNOWLEDGEMENT.....	v
ABSTRACT.....	vi
TABLE OF CONTENTS	vii
LIST OF TABLES	xi
LIST OF FIGURES	xii
LIST OF ABBREVIATIONS	xiii
CHAPTER ONE: INTRODUCTION	1
1.1 Background to the Study	1
1.2 Statement of the Problem	4
1.3 Purpose of the Study	5
1.4 Objectives of the Study	5
1.5 Research Questions	5
1.6 Significance of the Study	6
1.7 Scope of the Study.....	7
1.8 Limitations of the Study	7
1.9 Assumptions of the Study	8
1.10 Operational Definition of Terms	9
CHAPTER TWO: LITERATURE REVIEW.....	11
2.1 Global Prevalence of Cargo Thefts	11
2.2 The Nature of Cargo Thefts	13
2.3 Cargo Theft Control Measures at Seaports	17
2.4 Challenges Facing Prevention of Cargo Thefts.....	22
2.5 Theoretical Framework	24
2.5.1 Defensible Space Theory.....	24
2.5.2 Rational Choice Theory.....	26
2.6 Conceptual Framework	28

CHAPTER THREE: METHODOLOGY	31
3.1 Location of the Study	31
3.2 Research Design.....	33
3.3 Target Population	33
3.4 Sampling Procedure and Sample Size.....	34
3.5 Research Instruments	35
3.5.1 Questionnaires	36
3.5.2 Oral Interviews	37
3.6 Pilot Study.....	37
3.6.1 Validity of the Instruments.....	38
3.6.2 Reliability of the Instruments	38
3.7 Data Collection Procedures	38
3.8 Data Analysis Procedure	39
3.9 Ethical Considerations.....	40
CHAPTER FOUR: RESULTS AND DISCUSSION.....	41
4.1 Response Rate	41
4.2 Demographic Characteristics of the Respondents.....	42
4.2.1 Gender of the Respondents.....	43
4.2.2 Age of the Respondents.....	44
4.2.3 Marital Status.....	46
4.2.4 Education of Level of Respondents.....	47
4.2.5 Length of Work Engagement	49
4.3 Prevalence of Cargo Theft.....	51
4.3.1 Cases of Cargo Theft at the Mombasa Seaport	51
4.3.2 Prevalence Rate of Cargo Theft at the Seaport of Mombasa	55
4.3.3 Incidents of Cargo Theft that are detected within a Year at Mombasa Seaport	57
4.3.4 Incidents of Cargo Theft Detected During 2020-2024 at Mombasa Seaport	62
4.4 The Nature and Extent of Cargo Theft.....	70
4.4.1 Types of Cargos Mostly Stolen at Mombasa Seaport	70
4.4.2 Methods Employed to Steal Cargos at the Seaport	74
4.4.3 Times When Cargo Theft Mostly Takes Place at Mombasa Seaport.....	78

4.4.4 Day of the Week when Cargo Theft Takes Place.....	84
4.4.5 Month of the Year When Cargo Theft Mostly Take Place at the Seaport	85
4.4.6 Season of the Year when Cargo Theft Mostly Occur.....	87
4.4.7 Perpetrators Involved in Cargo Theft at Mombasa Seaport	88
4.4.8 Agencies Collaborating in Port Security	93
4.4.9 Reasons for Non-Reporting of Cargo Theft Incidents at Mombasa Seaport	100
4.4.10 Mechanisms for Reporting Cargo Theft at Mombasa Seaport.....	101
4.4.11 Consequences of Cargo Theft at Mombasa Seaport.....	107
4.5 Cargo Theft Security Control Measures at Mombasa Seaport.....	111
4.5.1 The Security Measures Deployed to Deter Cargo Theft at Mombasa Seaport	111
4.5.2 Technological Equipment’s deployed to Deter Cargo Theft.....	116
4.5.3 Adequacy and Effectiveness of the Resources Deployed for Cargo Security	122
4.5.4 Ideal Mechanisms for Preventing Cargo theft at Mombasa Seaport.....	124
4.5.5 Effectiveness of the Specific Duty Bearer Institution in the Prevention of Cargo at Mombasa Seaport	125
4.6 Challenges Facing Prevention of Cargo Theft	133
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS.....	143
5.1 Summary of the Study Findings.....	143
5.2 Conclusion.....	144
5.3 Recommendations	146
5.4 Suggestions for Further Studies	146
REFERENCES.....	148
APPENDICES	161
Appendix I: Respondents’ Questionnaire	161
Appendix II: Key Informant Guide.....	169
Appendix III: Institutional Ethics Committee Authorization.....	171
Appendix IV: Postgraduate Letter.....	172
Appendix V: Map of Port of Mombasa.....	173
Appendix VI: Approval for Data Collection.....	174

Appendix VII: National Commission for Science, Technology and
Innovation (NACOSTI) Permit 175

LIST OF TABLES

Table 1: Target Population	33
Table 2: The Sample Size Distribution.....	35
Table 3: Data Analysis Matrix.....	40
Table 4: Response Rate	41
Table 5: Gender of the Respondents.....	43
Table 6: Respondents Marital Status	46
Table 7: Education Level of Respondents	48
Table 8: Work Experience	49
Table 9: Cases of Cargo Theft	51
Table 10: Prevalence rate of Cargo Theft.....	56
Table 11: Occurrence of Incidents of Cargo Theft.....	57
Table 12: Cases of Cargo Theft Detected during the years 2020-2024 at Mombasa Seaport	62
Table 13: Type of Cargos Mostly Stolen at Mombasa Seaport.....	70
Table 14: Times when Cargo Theft Mostly Occur	79
Table 15: Days of the Week When cargo Theft Occur	84
Table 16: Month of the Year when Cargo Theft Occur.....	86
Table 17: Season of the Year when Cargo Theft Mostly Occur.....	87
Table 18: Cargo Theft Perpetrators at Mombasa Seaport.....	89
Table 19: Collaborating Agencies in Mombasa Seaport Security	94
Table 20: Reasons for Non-reporting of Cargo Theft at Mombasa Seaport.....	100
Table 21: Mechanisms for Reporting Cargo Theft at Mombasa Seaport	101
Table 22: Consequences of Cargo Theft at Mombasa Seaport.....	107
Table 23: Security Measures Deployed to Deter Cargo Theft at Mombasa Seaport.....	111
Table 24: Technical Efforts for the Deterrence of Cargo Theft at Mombasa Seaport.....	117
Table 25: Mechanisms for preventing Cargo Theft in Mombasa Seaport.....	124
Table 26: Effectiveness of Specific Institutions in the Prevention of Cargo Theft in.Mombasa Seaport	126
Table 27: Challenges Facing Prevention of Cargo Theft at Mombasa Seaport.....	133

LIST OF FIGURES

Figure 1: Relationship between Variables	29
Figure 2: Map of Port of Mombasa Adopted from Kenya Ports Authority, Handbook 2020, Kenya. GPS coordinates on the map: (S 4° 2' 43.584", E 39° 38' 46.7952").....	32
Figure 3: Age of Respondents.....	44
Figure 4: Methods used to Enhance Stealing of Cargo at Mombasa Seaport.....	74
Figure 5: Adequacy and Effectiveness of the Resources Deployed for Cargo Security	123

LIST OF ABBREVIATIONS

AIM	: African Integrated Maritime
AU	: African Union
BSI	: British Standards Institution
CBP	: Customs and Border Protection
CCTV	: Closed Circuit Television Network
CHRIPS	: Centre for Human Rights and Policy Studies
CRAVED	Concealable, Removable, Available, Valuable, Enjoyable, and Disposable
CSI	: Container Security Initiative
EEZ	: Exclusive Economic Zone
EMEA	: Europe, Middle East & Africa
EU	: European Union
FBI	: Federal Bureau of Investigations
GAN	: Generative Adversarial Network
ID	: Identity card
IIS	: Incident Information Services
IMO	: International Maritime Organization
ISPS	: International Ship and Port Facility Security Code
KPA	: Kenya Ports Authority
MTSA	: Maritime Transportation Security Act
NMU	: Munich-Re Specialty Insurance
OCS	: Officer Commanding Station
RAT	: Routine Activity Theory
RCT	: Rational Choice Theory
SAFE	: Security and Accountability for Every port
SDGs	Sustainable Development Goals
SOPs	Standard Operating Policies
SPSS	: Statistical Package for Social Science
SUA	: Suppression of Unlawful Actions
TAPA	: Transported Asset Protection Association
TWIC	: Transportation Workers Identification Credential
UN	: United Nations

UNODC : United Nations Office on Drugs and Crime

USA : United States of America

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The potential for cargo theft to significantly affect businesses' financial performance and reputations makes it one of the main worries for global supply chains. Businesses and economies are affected by cargo thefts in one of two ways: directly, by a decline in imports and/or exports, or indirectly, through the expense of insurance and/or preventative measures, which can cause small and medium-sized enterprises to fail (Aransiola, 2022). The purpose of the maritime sector is to transport people and products across rivers, lakes, and seas. Since maritime transport makes up over 80% of global trade, it has a significant impact on economic trends and is therefore very important to the global economy (Psaraftis, 2021). The items transported include thousands of containers of valuable cargo as well as break-bulk, including coal, gravel, and wheat (Pacific Marine Business News, 2023). Given the enormous value of materials handled and the potential of cargo theft, it is obvious that port security against theft and other crimes is essential. It includes protecting both international trade and the commercial security of specific ports (Eliakunda et al., 2021).

While most international shipments arrive at their destination without any issues, Grey (2022) asserted that cargo loss from theft, marine piracy, armed robbery, and other crimes is a serious issue that can have a significant impact on local, national, and international economy. The problem of cargo theft and loss has long been underestimated, with estimates of the actual financial losses incurred by businesspeople being mainly off. This is the reason why business people require more investment on cargo security to avoid any anticipated loss through thefts and also to insure their cargo on transit. Analysis of global cargo theft by British Standards Institution (BSI) shows that in the year 2022, the top products that were mostly targeted and stolen globally included food and beverage (16.0%), electronics (12.0%), agriculture goods (9.0%), automotive products [Motor vehicle and parts] (9.0%), fuel (6.0%), construction materials (7.0%), and pharmaceuticals (4.0%) (BSI, 2023).

For instance, in Europe, according to Kallas (2023), ports of entry inside the European Union are essential facilities that provide essential services to the economy as a whole. 395.4 million seaborne passengers passed through European ports in 2015, while the

top 20 cargo ports in Europe handled 1,723.4 tons of goods overall (Nagi et al., 2022). The Transported Asset Protection Association (TAPA) observed that increase in cargo thefts in Europe's major ports is similar to the global trends. Data from this leading industry association which operates in Europe, Middle East & Africa (EMEA) showed that food and beverage thefts increased significantly between the year 2021 and 2022, which accounted for 11.8% of the total thefts in the year 2021, and 14.8% of thefts in year 2022. This represents about 25% increase in the number of recorded food and beverage thefts annually. The data indicated that Germany and the United Kingdom accounted for 72% of recorded fuel cargo thefts (TAPA, 2022).

The Asian continent similarly recorded incidents of cargo theft according to the year 2022 data from BSI and TT Club which is an established market-leading independent provider of mutual insurance and related risk management services to the international transport and logistics industry. The records indicate that top in the list of countries in Asia where cargo theft incidents involving insider theft participation included India at 52%, Indonesia 23%, Vietnam 7% and Bangladesh 6%. In Latin America, 65% of cargo theft incidents came from Brazil, while Argentina recorded 21% (BSI 2023 & TT club 2022). There is therefore the need to compare the situation in the East Africa region. In Africa, Faghawari et al. (2023) established that theft menace in Apapa port in Lagos - Nigeria has led to a decrease in revenue accruable to the federal government, and other negative effects. According TT club (2022) South Africa ports also remains hotspot of cargo theft crimes. Similarly, Hartman (cited in Elago 2023) reported that in Namibia, theft of cargo has been a major security challenge with thieves targeting mainly copper cargo and refrigeration containers at Walvis Bay harbor.

The East African region has also experienced some incidences of cargo theft. In 2015, Mineral Supply Africa Company from Rwanda lost a container of coltan at the Dar port in Tanzania valued at around \$760,000. This was the second theft targeting Rwandan minerals after another one in 2013 according to Honke and Frenandez (2023). The scholars established that 3000 containers went missing from the port of Dar es Salaam in Tanzania warehouses in 2016. Gumba (2021) claims that 500 containers were stolen in Kenya in Mombasa's Kilindini Harbour, with the most prominent instance occurring in December 2017 when 300 containers mysteriously disappeared without a trace. In

May 2016, 124 containers were reported stolen from the port, according to the Kenya Port Security Department. Tax revenue was reduced by US\$1 million as a result. Nine of the twelve containers that were reported stolen between June and July 2016 were stopped before they could leave the port. The researcher noted that corruption, a low chance of detection, and a lack of law enforcement resources to apprehend offenders all contribute to cargo theft at Kenya's Mombasa ports.

Mugambi, (2017) on control of cargo theft and diversion of cargo observed that use of Regional Electronic Cargo Tracking System (RECTS) improves sea transport efficiency, reduces transit time and cost of private business. However, Nandasava (2017) noted that at Mombasa seaport 85% of the respondents observed that the growing volume of containerized maritime trade provided opportunities for increased cargo thefts. Therefore, although Kenya Ports Authority has adopted electronic cargo surveillance within the port due to revenue loss, physical cargo security is still a problem because criminal groups engaging in cargo theft are well-organized and highly 'professional'. Additionally, Kenya Ports Authority has implemented the maritime security requirements which include observance of International Ship and Port Facility Security Code (ISPS) as set by the International Maritime Organization (IMO). The ports administration has established a fully-fledged police station within the port, always make use of Kenya Coast Guard Service surveillance of waters in port area; ICT infrastructure has been fortified, electronic surveillance equipment has been installed, and port users and tourists must wear reflector jackets and present biometric passes in order to enter the quayside.

KPA guarantees restricted access to container terminals and other crucial areas, like oil terminals, according to the Logistics Capacity Assessments (2022) report. Additionally, the security department maintains a central verification area at the container terminal, automobile handling area, and Clearing and Forwarding Service (CFS), as well as manned watch towers in the car handling area and container terminal. In order to prevent forced entry and guarantee appropriate security checks, the port also features both technological and physical obstacles at the port gates. All export containers must be scanned, and import containers are randomly selected for scanning without stripping, which helps to lower theft. Added to the above; to prevent forced entry and exit from

sea ports, Kenya Ports Authority (KPA) has erected barriers and speed bumps among other measures at the port gates to enhance proper security checks.

However, despite these measures the Kenya Ports Authority has been on the spot over theft of containers and goods at Kilindini Harbour in Mombasa. For instance, in an article published in the Business Daily e-paper on June 28th 2020, several importers complained that their bulky 40-foot containers were stolen. Some of these thefts remained unresolved for over 10 years and more and the researcher looked into the past 5 years of these periods to establish the trend. The theft cases that went to courts against Kenya Ports Authority resulted into billions of shillings in compensation, and costly legal battles. However, the loss of tangible items is only one aspect of cargo theft's economic impact. Entities suffer monetary losses as a result of the thefts, including the expense of increased security, insurance premiums, and the value of the stolen cargo. Businesses also have to deal with delayed delivery, reputational harm, and operational delays.

1.2 Statement of the Problem

The government of Kenya and international shipping organizations, all cargo logistics service providers, and other port stakeholders dealing with cargo movements, have put up measures aimed at securing cargo for global trade facilitation. However, cases of cargo theft are still reported at Kilindini harbour at Mombasa Seaport. Specifically, during the period of interest for this study (2020-2024), the pervasiveness of the crime is evidenced by its significant economic impact. Reports from the Kenya Ports Authority (KPA), in their annual security assessment, indicate that an average of 75 serious cargo theft incidents were officially reported annually, resulting in documented financial losses estimated at over KSh 450 million between 2021 and 2023. Furthermore, the sophistication of the perpetrators highlighted by specific high-profile cases involving the pilferage of high-value copper cathodes in 2022 suggests that current security control strategies are either inadequate or being consistently compromised by an established network of actors. This recurring failure to secure goods despite on-going investment establishes a compelling research gap. Therefore, understanding the intricate dynamics of cargo theft was therefore vital for creating an effective cargo theft prevention strategy that would minimize the losses. Based on the

foregoing, this study analysed security strategies that have been put in place to control cargo theft crimes and how is the pervasiveness of cargo theft at Kilindini Harbour in Mombasa as per the last 5 years. The study examined the nature of thefts and how they related with security control strategies. In addition, the study looked into the challenges facing enhancement of sea-port security at the harbour, and establish suitable mechanisms to control the cases of theft.

1.3 Purpose of the Study

Seaports are very appealing locations for theft and other forms of malevolent intrusion. Approximately 80% of traded commodities are transported in cargo containers, according to the World Shipping Council (WSC). Over 200 million of these containers move between the world's major seaports annually, carrying a significant amount of goods. Governments everywhere now place a high premium on port safety and security. Therefore, this study sought to analyse security measures and strategies that have been put by Kenya Ports Authority to control cargo theft at Kilindini harbour at Mombasa seaport. It was expected that effective security measures at the port minimized loss of goods and commodities by the business community hence growth of business and also increased revenue collection by Kenya Ports Authority.

1.4 Objectives of the Study

- i. Investigate the prevalence of cargo theft in Kilindini harbour at Mombasa seaport in Kenya between the years 2020 - 2024.
- ii. Analyse the nature of cargo theft in Kilindini harbour at Mombasa seaport in Kenya between the years 2020 – 2024.
- iii. Examine the control strategies of cargo theft in Kilindini harbour at Mombasa seaport in Kenya between the years 2020 – 2024.
- iv. Establish the challenges facing prevention of cargo theft in Kilindini harbour at Mombasa seaport in Kenya.

1.5 Research Questions

- i. What is the prevalence of cargo theft in Kilindini harbour at Mombasa seaport in Kenya between the years 2020 – 2024?

- ii. What is the nature of cargo theft in Kilindini harbour at Mombasa seaport in Kenya between the years 2020 - 2024?
- iii. What are the control strategies of cargo theft in Kilindini harbour at Mombasa seaport in Kenya between the years 2020 – 2024?
- iv. What are the challenges facing prevention of cargo theft in Kilindini harbour at Mombasa seaport in Kenya?

1.6 Significance of the Study

This study evaluated the current security measures in preventing cargo theft. Also, the study enhanced a deeper understanding of cargo thefts at Kilindini harbour in Mombasa; this facilitated finding lasting solutions to the menace. This was important given the many cases of cargo theft at the sea port which had a great impact to the business community due to losses and also reduction of revenue collection to the Kenya Revenue Authority due to change of port of entry to the neighbouring countries. The study recommendations provided possible security mechanism to deter cargo theft and maximize security within the goods and commodities supply chain at the port. It is expected that Kenya Ports Authority, security institutions and other agencies operating at Kilindini harbour in Mombasa would find the findings and recommendations of this study useful for their operations. In addition, the study would benefit port security policy formulation in Kenya and beyond. If through the recommendations of this study cargo, thefts shall have been ameliorated, then there will be an increase in revenue generation which will be of great benefit to the government operations, and the people of Kenya in general.

Furthermore, the research is anticipated to provide valuable, data-driven insights to various stakeholders across the supply chain, including importers, exporters, clearing agents, and maritime insurance companies. By clearly mapping the risk points and modalities of cargo theft, the findings enable these stakeholders to proactively refine internal security protocols and allocate resources more efficiently to protect high-value cargo. These specific, actionable recommendations also offer a robust foundation for the Kenya Ports Authority (KPA) and relevant government ministries to refine existing policies and standard operating procedures (SOPs) for cargo handling, surveillance, and personnel vetting within the port environment. This, in turn, facilitates a critical

transition from reactive security responses to a comprehensive, preventative policy framework.

Crucially, the successful implementation of this study's recommendations contributes directly to the achievement of global and national development agendas, particularly the United Nations Sustainable Development Goals (SDGs). Specifically, by protecting national trade, reducing illegal economic activity, and enhancing the operational efficiency of the port as a critical economic asset, the study supports SDG 8 (Decent Work and Economic Growth), thereby safeguarding legitimate income and employment. Furthermore, the findings align with SDG 16 (Peace, Justice, and Strong Institutions) by promoting the rule of law, strengthening the capacity of security institutions to combat organized crime, and fostering the development of transparent, accountable, and effective public institutions at this vital national border point.

Additionally, it is expected that the findings of the study will reinvigorate the positions of theories of crime, particularly Defensible Space theory (1972) and Rational Choice Theory (RCT) as advanced by Ronald Clarke and Derek Cornish (1986) that guided the study. This study would be useful to the academia by contributing to the knowledge bank as far as sea port security is concerned. Finally, the information generated would benefit criminology and security management as academic disciplines by among others validating existing theories on crime causation and prevention.

1.7 Scope of the Study

This study was conducted at Kilindini harbour in Mombasa. It looked into prevalence of cargo theft from the year 2020 – 2024 and the nature of cargo theft. Also, it examined the control strategies of cargo theft in Kilindini harbour at Mombasa seaport. The challenges facing enhancement of sea-port security at the harbour was investigated. Further, the study established suitable mechanisms to control the cases of theft at the harbour.

1.8 Limitations of the Study

Due to the sensitivity of the subject under study and the impact its finding can have on business and individuals it was difficult to have public officials willing to participate in

the study. Additionally, the study to faced challenges on research sample selection because security agencies were not willing to provide a sampling list of the total number of the security personnel in their institutions. To address limitations regarding the sensitivity of the subject and restricted access to security personnel, the study adopted several mitigation strategies. First, official research authorization and institutional endorsement helped foster trust among public officials, encouraging their participation. The assurance of anonymity and confidentiality also created a safe environment for honest responses. Secondly, instead of relying on a complete sampling frame which was unavailable from security agencies the study utilized purposive and snowball sampling methods to reach informed key informant participants through trusted internal contacts. This flexible, relationship-based approach allowed the researcher to access respondents while preserving institutional boundaries and respecting security protocols. These strategies collectively ensured adequate data collection despite initial challenges.

1.9 Assumptions of the Study

This study made the following assumptions:

- i. The study respondents provided objective opinion on the subject of study.
- ii. The representatives from public agencies were willing to share the needed information.
- iii. The business community as key stakeholders in the port were willing to participate in the study.

1.10 Operational Definition of Terms

In this study the following terms have the indicated meanings:

- Berths** : Refers to the area at Kilindini harbour - Mombasa Seaport where a ship is moored. A port or terminal normally have several berths with equipment for handling cargo, plus open or closed storage areas.
- Cargo** : Refer to goods or merchandise carried in a ship at Kilindini harbour - Mombasa Seaport.
- Cargo Theft** : Refers to stealing of goods at Kilindini harbour- Mombasa Seaport. The goods may be chattels, money, or baggage that constitutes, in whole or in part, a commercial shipment of freight in movement, or from any tank or storage facility.
- Physical Security Measures** : Refers to measures that have been designed to prevent cargo theft at Kilindini harbour - Mombasa Seaport. They include all external and internal perimeter protection equipment, technologies, and resources that include sensors, Closed Circuit Television (CCTV) cameras, lighting, and access controls.
- Port** : The term "ports" in this dissertation refers to locations where maritime freight handling activities take place, as well as any nearby services like trucking or warehousing. In this document, the terms ports and seaports are used interchangeably. The Mombasa Seaport will be the site of the study.
- Seaports** : Refer to “harbours” for seagoing vessels with facilities to lade and unlade cargo and/or passengers and with easy access to the sea (from the 24 nautical mile contiguous zone to the terminal). This study will be conducted at Kilindini harbour at Mombasa Seaport.

- Security Control Measures** : Refers to the measures taken to safeguard Kilindini harbour - Mombasa Seaport against insecurities such as theft of cargo and other crimes.
- Terminal** : Refers to the location at Kilindini harbour- Mombasa Seaport where loading and unloading of people or goods take place. It is the place where goods, cargoes, or passengers are offloaded.
- Theft** : Refers to stealing cargo at Kilindini harbour - Mombasa Seaport with the intention of depriving the rightful owners. This variable was measured by examining the prevalence of cases reported at the Kenya Ports Authority (KPA) security office at the port.

CHAPTER TWO

LITERATURE REVIEW

2.1 Global Prevalence of Cargo Thefts

Cargo theft costs the marine sector billions of dollars annually. According to estimates, cargo theft losses range from \$30 to \$50 billion a year (Mayhew, 2010). The bulk of cargo thefts, according to insurance and law enforcement organizations, involve current or former personnel (Russel, 2021). Theft collusion happens when shipping vendors that are acquainted with the internal systems and procedures of the businesses collude with the thieves. An individual or criminal syndicate is given sensitive information, such as shipment manifests, schedules, and routes, which they utilize to organize and plan the heist (Walter & Chris, 2023). Because of this, cargo theft is now fairly common worldwide. According to reports from the British Standards Institution (BSI) and Munich-Re Specialty Insurance (NMU), the most frequent categories of cargo theft in 2020 were thefts from facilities (20.9%), containers/trailers (9.0%), cars (8.0%), and vehicles (9.0%). The trend marginally changed in 2021, with facility thefts accounting for 26.0% of all thefts, followed by container/trailer thefts at 15.0%, vehicle thefts at 10.0%, and vehicle thefts at 7.0% (BSI & NMU 2022). The largest known theft at a Mexican port occurred in June 2022 when twenty shipping containers with televisions and gold were taken from Mexico. A private freight yard close to Manzanillo port was broken into by more than a dozen armed robbers, resulting in the theft (El Pais, cited by Kay, 2022).

The number of cargo theft instances reported in the United States and Canada in 2022 was 1,778; this represents a 15% increase over 2021. Half of the thefts happened in Florida, Texas, and California, and the estimated worth of the stolen goods was \$223 million. Notably, California had a 41% increase in cargo thefts over the previous year. These theft incidents had an average value of more than \$200,000 (Miller, 2023). Seaport theft in Europe increased significantly from 11.8% of all thefts in 2021 to 14.8% in 2022 as a result of rising food and beverage prices, which attracted more seaport robbers (BSI, 2022). One of the nations with the highest rates of cargo theft in South America is Brazil. This is because its borders with Bolivia, Peru, and Colombia all of which serve as important entry sites for stolen goods have inadequate administrative capacities and regional security regulations (Pinto, 2021).

One of the Brazilian seaport thefts of over six million kilograms of soy and corn by a criminal network of approximately 79 individuals resulted in losses of \$3 million USD for various transport and insurance companies in the year 2021 (TT Club, TAPA & BSI, 2022). In Malaysia, according to Gooch (2022) cargo theft at Malaysian peninsula had also increased within the Asia-Pacific region. The Transported Asset Protection Association estimated that over \$22.7 million worth of goods were stolen from Malaysian ports, airports, warehouses, and trucks between 2007 and 2010.

In 2022, there were 1,778 cargo theft incidents in the United States and Canada, a 15% rise from 2021, according to CargoNet, a unified database run by crime researchers and industry specialists. Half of the thefts happened in Florida, Texas, and California, and the estimated worth of the stolen goods was \$223 million. Notably, California had a 41% increase in cargo thefts over the previous year. These theft incidents had an average value of more than \$200,000 (Miller, 2023). In Europe, rises in prices of food and beverages made them more appealing to seaport thieves, which saw a significant increase in their thefts from 11.8% of total thefts in 2021 to 14.8% in 2022 (BSI, 2022). In South America, Brazil is one of the countries where cargo theft is most prevalent. This is due to weak administrative capabilities and regional security policies at its borders with Bolivia, Peru, and Colombia which are major entry points for stolen cargo (Pinto, 2021).

The Transported Asset Protection Association (TAPA) and Incident Information Services (IIS) reveal that South Africa is the country with the highest number of cargo theft incidences in Africa. In 2015, cargo theft in South Africa cost an average of about 201,423 euros. According to the 2025 crime monitor (TAPA, 2025), instances of cargo theft were higher in South Africa (2.8%) between January and February 2025 than in Mozambique (1.4%) and Benin (0.7%). The majority of cargo thefts, according to Elago (2019), take place during coastal freight movement. The TAPA (2025) report states that deception pick-up and intrusion are two of the methods used by thieves. In today's globalized economy, supply chains are extending across more countries, continents, and regions. Many firms now have more global, outsourced, and interconnected supply bases than they had in the past. Economic volatility, fluctuating commodity prices, and intensifying global economic crises have all contributed to an

upsurge in cargo thefts by raising demand for goods from the black market (Arviem, 2020). Historically, there has been a direct connection between cargo theft and maritime piracy, particularly in Southeast Asia, which has been negatively affected since the Cold War (Grey, 2017). Unreported cargo thefts are thought to cost the global economy \$100 billion a year (Bernard, 2015). This study will ascertain the frequency of cargo theft at Mombasa seaport's Kilindini harbor in light of global trends.

Existing literature confirms that cargo theft is a persistent and acute security challenge at Kilindini Harbour, significantly undermining Kenya's trade efficiency and economic backbone (Aransiola et al., 2023; Gumba, 2020). While scholarly and industry reports consistently flag the port as a hotspot for cargo loss, the available secondary data often relies on qualitative accounts or high-level aggregated statistics, sometimes focusing more on global trends or regional comparative patterns than on the precise local figures (British Standards Institution [BSI], 2023; UNCTAD, 2023). A dedicated study on the Evolving Nature of Cargo Theft acknowledges the challenge but typically uses primary stakeholder perceptions to gauge the extent, rather than presenting a verifiable, quantitative trend analysis of officially reported cases over the specific 2020–2024 period (RSIS International, 2025). Consequently, a localized, empirical, and time-series investigation quantifying the actual prevalence rates and identifying the specific annual or seasonal variations in cargo theft incidents within Kilindini Harbour across the 2020–2024 timeframe remains to be undertaken.

2.2 The Nature of Cargo Thefts

Maritime transport moves goods and commodities that are of different types and value. There are various types of commodities transported by sea, and each one calls for the use of specialized vessels (Rodrigue, 2024). Bulk cargo and ordinary cargo are the two primary classifications. Bulk freight is loose (carrying in any quantity), whereas general cargo is unitized (carried in defined load units). The countable general cargo can be further broken down into break bulk subcategories. This refers to goods that are transported in boxes, pallets, bags, or drums. The neo bulk is the other subcategory. These include items like lumber bundles, paper rolls, steel, cars, and containerized load units that are liable for each pre-packaged unit. Liquid bulk, also known as tankers carrying petroleum and LNG (liquefied natural gas), is a subset of the weighted bulk

cargo. They are a growing market and dry bulk that contains a range of minerals, including sand, grains, bauxite, coal, and iron ore (Rodrigue, 2024).

Fast-moving, highly sought-after items are the primary target of criminal networks operating in seaports. According to Clarke (1999), thieves are primarily driven by the desire to steal attractive goods. Value, portability, and size are the main characteristics of popular items. The acronym for these qualities is CRAVED, which stands for Concealable, Removable, Available, Valuable, Enjoyable, and Disposable. On the illicit market, they can be easily sold for a high price, ensuring a lucrative return. According to Liang et al. (2022), cargo robbers steal based on the type of goods, time, and place. Furthermore, it is challenging to comprehend the phenomenon of cargo theft from supply chains due to the numerous unknowns involved, including means of transportation, product categories, locations, and facility types. Therefore, the occurrence of cargo theft incidents is dynamic depending on the situations in which the relevant risk factors are presented in an interactive way (ibid).

However, a variety of items are involved in cargo thefts at mainland container terminals, according to Stickler (2024). On the other hand, thieves usually target valuable, transportable goods that are highly sought after on the illicit market. Products that are frequently stolen include electronics, prescription drugs, alcohol and tobacco, apparel, and fashion accessories. Automotive parts, construction supplies, metal and scrap, jewelry and precious metals, artwork and cultural artifacts, food and drink, cosmetics and beauty goods, and games and toys are among the other commodities. Burges (2013) noted that between 2006 and 2009, criminals in Brazil's seaports targeted electrical devices, well-known clothing and shoe brands, jewelry, fragrances, cigarettes, and medicinal items. Cargo thieves from all over the world seem to be unanimous in their interest for these items.

According to Kilcarr (2013), in order to guarantee success, new cargo theft strategies have been implemented. Identity theft, fake pickups, misplaced loads, and dishonest transporters are some of these strategies. According to Leong (2014), burglars modify their strategies to create more effective ways to escape with the stolen goods. Cargo robbers are becoming more strategic instead of executing simple thefts from parking

lots or terminals, which run the danger of being discovered and/or being involved in fast-paced pursuits. Cargo robbers can better control the time and location of the products they want to steal because to the transportation industries increased use of technology, information access, and supply chain intermediates (Leong, 2014).

In Canada, cargo theft which involves various merchandize often goes unreported by the companies to protect their reputations and that of their country. This enables them to maintain businesses through consumer confidence (McCague, 2012). Goods are frequently stolen from warehouses during loading and transit in the majority of South African ports (Young et al, 2018). A significant security concern in the nation is protecting goods from theft and pilferage when they are passing through maritime ports; access control methods such as locks, identity cards, and container seals have not proven effective in containing the threat (Christopher, 2009). Odukwe and Ikeh (2017) reported that cargo theft at Port Harcourt Seaport in Nigeria has escalated from breaking various packages inside the ports to containers completely vanishing from the ports. It had been noted that fraudulent owners were successfully removing cargo from the port. Unauthorized individuals have boarded ships and stolen cargo and ship property, including safety-related items. The researchers also observed that because of the attention that vehicles draw, their payloads are more susceptible to theft. The explanation was that some commodities that are placed onto vehicles are not cleared at the same location. For safety, the cars are usually locked firmly before the keys are given to security personnel.

The methods used by cargo thieves differ greatly between nations (Ekwall & Lantz; Burges quoted in Justus et al 2018). According to Ekwall and Lantz (quoted in Justus et al. 2018), these crimes are frequently opportunistic in character throughout Europe, the Middle East, and Africa, taking place while cars are parked in dangerous areas and without the driver's knowledge. When cargo is left unattended or security is not deployed in the storage facilities, this would also occur within the ports facility. Burges (2013) provides a number of instances of this crime being committed globally. The researcher noted that there is virtually no correlation between cargo theft and violence in the United States. In Mexico, cargo loss involves by gangs who employ force. According to Oliveira and Martins (cited in Justus et al 2018). The most hazardous

operating methods are found in Brazil, Guatemala, and Venezuela, where corruption and the use of heavy weapons are factors in cargo losses. International organized crime is connected to these crimes. According to Ekwall (2009), one of the most commonly noted significant factors in cargo theft is the type of cargo. It establishes the repercussions and probability of occurrence. More than anything else, thieves target this kind of merchandise. They also take into account the potential for theft that exists within a transportation network, which in other words, establish the various methods of stealing.

While thefts from trucks were common, most robberies in Bangladesh, India, and Indonesia were from warehouses and other facilities. According to the TT Club and BSI (2022) research, food and beverage products had the greatest theft rates in Asia, followed by electronics and building supplies, which came in second and third, respectively. In these situations, thieves often steal a modest number of objects, but they can occasionally steal more. These patterns are reflected in the region's median stolen value as reported by TT Club and BSI, which typically stays well below other areas where thieves frequently take whole truckloads of expensive products (TT Club & BSI, 2022). In 2024 analysis of cargo crime incidences in United States and Canada, CargoNet (2024) report indicates a shift in targeted commodities. For example, in 2023, thieves targeted solar energy products, energy drinks, motor lubricants, and fluids. In 2024, they expanded their targets to include consumer electronics (especially high-end servers and audio equipment), raw and finished copper products, and cryptocurrency mining hardware. Increased targeting of particular consumables like nuts and avocados as well as personal care items like makeup, vitamins, and supplements particularly protein powder were also found in the investigation. Determining the type of cargo theft, namely the typical products targeted at Mombasa seaport's Kilindini harbor, was one of the study's goals.

Research into the nature of cargo theft at Mombasa has revealed a shift from opportunistic acts to complex, strategic operations involving syndicates, insider collusion, and sophisticated deception (RSIS International, 2025). High-value, easily resalable goods such as electronics, pharmaceuticals, and automotive parts are consistently reported as primary targets, with incidents frequently occurring during

periods of reduced oversight, specifically late nights and weekends (BSI, 2023; RSIS International, 2025). The modus operandi includes document fraud, fictitious pickups, and exploiting procedural loopholes, which indicate a deep knowledge of port operations (Gumba, 2020; Aransiola et al., 2023). However, a recent, comprehensive analysis that systematically correlates the specific criminal tactics (fraud, collusion, or physical theft) to the types of cargo stolen, the location within the port, and the exact time of occurrence between 2020 and 2024 is yet to be consolidated in the literature.

2.3 Cargo Theft Control Measures at Seaports

Leong (2014) claims that cargo robbers have mastered the art of becoming more cunning and smart in their operations. According to his theory, cargo robbers are sustained by the profitable black market, which has a detrimental effect on the world economy. Seaport management across the world has implemented methods to curb various illegal activities (Munyai, 2022). Moreover, maritime security personnel need to recognize risks, weaknesses, and threats in order to guarantee efficient security responses. Strong maritime transport coordination and communication are also essential in the maritime environment. Because they hold vast amounts of valuable products, the ports of entry, harbours, coastlines, and the sea's Exclusive Economic Zone (EEZ) are all considered to be part of the marine environment and are therefore naturally susceptible to maritime hazards (Elago, 2018). It takes highly qualified and experienced human resources to ensure efficient security against thefts and other criminal activity. Maritime assets are vulnerable to criminal activity due to inadequate surveillance (Moodley, 2014).

In USA, numerous security initiatives have been introduced to enhance security in seaports and curb cases of cargo theft. The measures are a combination of technology, training, use of customs x-ray scanners, radiation detection gates, and international collaborations that create a comprehensive, layered defence. There are also laws that augment the initiatives; these include the Maritime Transportation Security Act (MTSA), the Container Security Initiative (CSI), the 24-Hour Rule (Phelps, 2014). Seaport security has also been improved through the use of software technology called intrusion detection that is combined with video capture. Security staff can handle possible attacks thanks to this method, which provides them with a thorough overview

of port infrastructure (Young et al., 2018). Lighting, perimeter security, video surveillance, biometrics, electronic ID card systems, metal detectors, and scanners that detect any tampering with containers or electronics by possible criminals are all included in the technique. These cutting-edge solutions efficiently assist in controlling and discouraging illegal actions like theft involving port infrastructure, ships, and other assets (Aamilid, 2019).

Another strategy used to improve port security is situational awareness, which comprises determining the most vulnerable regions inside marine port facilities and assessing the possibility of security breaches. Given the size of maritime ports—some of which are surrounded by natural barriers or bodies of water—knowing possible threats and vulnerabilities aids maritime security personnel in creating risk-reduction plans (Young et al, 2018). This process is hampered by access control and surveillance. Port security officers may monitor movements, observe visitor and staff activities, verify cargo transfers, and quickly identify security breaches for timely action thanks to the improved surveillance capabilities provided by CCTV systems and intrusion sensors (Dailey, 2014). High-tech fences and other advanced electronic fence technologies reinforce port limits, limiting unwanted access and improving security against undetected theft, infiltration, and smuggling (Busiega, 2016).

The efficacy of the Port of Durban's CCTV camera network is increased by its advanced command and control system, which transforms the network into an intelligent sensor for detection, tracking, and recording. The more than 120 cameras that are placed strategically around the perimeter of the Durban harbor will detect any suspicious behavior or security breaches, and the command center program will raise an alarm in the control room. Security personnel can respond appropriately and promptly as a result (Moodley, 2014). According to TheSAMag (2018), the Cape Town maritime port is equipped with round-the-clock operational security measures, including CCTV surveillance, access control, and intruder detection systems, to deter theft.

Seaport security around the world has also been improved by the International Ships and Ports Facilities Security (ISPS) Code system. As part of the Safety of Life at Sea (SOLAS) agreement, the United Nations International Maritime Organization (IMO)

established this code in 2002 with the goal of enhancing the security of both domestic and international vessels as well as port infrastructure (Feldt et al, 2013). The ISPS Code establishes minimum security standards for ships and ports (Haelterman, 2013). This includes the ships and port infrastructure of countries that have ratified the IMO (Carpenter, 2013). Governments can set appropriate security levels and actions through the Code's structured risk assessment procedures, which take into account evolving hazards and weaknesses to port infrastructure and ships (Haelterman, 2013). An international framework for collaboration between nations, governmental organizations, and shipping corporations is provided by the United Nations International Maritime Organization (IMO) (Monacelli, 2018).

The other legal frameworks that have been instrumental in enhancement of security at seaports are the Security and Accountability for Every (SAFE) Port Act, Maritime Transportation Security Act (MTSA), and the UN Suppression of Unlawful Actions (SUA). Member countries are guaranteed to detect and stop illicit attacks on cargo by the Security and Accountability for Every SAFE initiative (Leonard et al., 2015). By evaluating all maritime vulnerabilities, creating cooperative security plans, and creating transportation security response plans, the Maritime Transportation Security Act (MTSA), which was also passed by US security authorities in 2002 to address port and waterway security issues, seeks to lessen the threats to maritime trade. It mandates that operators of passenger vessels use metal detectors and x-ray devices to thoroughly examine all passengers and their goods (Herout, 2017).

Criminal activity pertaining to ships and navigation is expressly covered under the Suppression of Unlawful Actions (SUA) Convention, which permits ratifying states to extradite or prosecute individuals upon request. It gives another state the authority to extradite or prosecute suspects captured by ratifying states upon request. The SUA Convention of 2005 also makes it illegal to convey firearms, drugs, or terrorists. It encourages governments to work together and offers a thorough framework for moving dangerous goods (United Nations Office on Drugs and Crime, 2017). Another successful international initiative that has improved port security is the Container Security Initiative (CSI) (McClain et al., 2014). Its main goal is to identify dangerous containers that are carrying nuclear materials or weapons of mass destruction (Feldt et

al., 2013). Under this program, the US Coast Guard and Customs and Border Protection (CBP) use intelligence and automated information systems to find and examine containers that pose a terrorist threat at ports abroad and to find any indications of cargo tampering before it reaches US ports (Carpenter, 2013). CSI operations are an essential security measure for international trade, especially in areas like Asia and Europe that are susceptible to terrorism and piracy (Feldt et al., 2013). In April 2004, a collaborative anti-piracy endeavour was established between the US and EU customs to bolster security at EU Maritime Ports and enhance information sharing (Carpenter, 2013).

Another method for inspecting containerized cargo is to conduct physical searches through manual inspection. This technique is used when there are still questions concerning a container that has been inspected using other techniques, especially when those technologies like radiation sensors don't allay worries. Unpacking and manually inspecting the container are required in these situations (Morris et al., 2020). Working together, the public and private sectors have also raised awareness and made it easier to share information about marine security (Manig, 2017). When fighting significant crimes that need the participation of marine security authorities from several countries, effective communication is crucial (Phelps, 2014). Facilitating trade and travel across borders and ports of entry has required strong public-private cooperation. This involves close coordination and information sharing among nations through various forums, committees and organizations (Young et al., 2018).

Asiamah (2018) explains that IMO advises that countries with shared maritime interests establish cooperation and information sharing to bolster control of criminal activities. This has been effective because technology has enabled collaboration beyond borders (Herout, 2017). Shippers must be informed of the items' location and maritime security officials must be notified in advance of the contents of the intermodal loading units (Nieuwenhuis, 2016). The need for thorough vessel movement databases and cargo information exchange is highlighted by the high frequency of risks associated to the maritime industry. Intelligence services can use large databases to detect dangers in the marine environment and create sophisticated response tactics based on these insights thanks to improved information exchange (Herout, 2017).

In order to facilitate information sharing among African maritime governments about maritime security threats and mitigation techniques, the African Union (AU) launched the AIM (African Integrated Maritime) Strategy for 2050. Furthermore, in order to combat organized crime and piracy involving cargo vessels, AIM has put in place a number of efforts to coordinate a comprehensive maritime security policy, especially in Western and Central Africa (Asiamah, 2018). Furthermore, a memorandum of understanding on cooperation in Maritime Security was signed among South Africa, Mozambique and Tanzania in 2012 to enhance control over trafficking and illegal fishing activities. This agreement has led to collaborative efforts such as exchanging information, surveillance, joint military exercises, patrolling, as well as arrest, search and seizure and establish suitable mechanisms to control the cases of theft (Blaine and Nel, 2020).

In Kenya, in a study at the seaport of Mombasa, Nandasava, (2017) established that 68% of the respondents agreed that cargo security should be enhanced to minimize cases of theft and ensure personnel security. This study established whether or not the above discussed seaport security enhancement mechanisms are also in place at Kilindini harbour at Mombasa seaport, and if so, why they have failed to control thefts at the harbour. Control strategies at Kilindini Harbour generally align with global best practices, incorporating elements of the Defensible Space Theory through the deployment of visible controls like CCTV coverage, electronic cargo tracking, and stringent access protocols (RSIS International, 2025). Studies across East Africa, including those referencing Mombasa, acknowledge the efficacy of these visible security measures in deterring simple pilferage (Aransiola et al., 2023; TPA, 2023). Furthermore, the strategic use of technological and physical barriers attempts to raise the perceived risk for criminals, as proposed by the Rational Choice Theory (IJRSS, 2025). Despite these strategies, cargo theft persists, pointing to an effectiveness gap. The literature currently lacks a recent, rigorous examination of the actual implementation and perceived effectiveness of the specific suite of security strategies (technological, procedural, and personnel-based) utilized by the Kenya Ports Authority and other key security agencies, and their direct correlation with the observed criminal patterns between 2020 and 2024.

2.4 Challenges Facing Prevention of Cargo Thefts

Ports are very fundamental in the contemporary world of maritime business. However, cargo thefts cause losses for a lot of firms, especially small ones. Despite the fact that cargo thefts result in significant financial damages, many cases go unreported and unreported to the media. Employees or outside criminals are responsible for these thefts (Mayhew, 2010). Peleg et al. (quoted in Leong, 2014) noted that because it is difficult to justify security investments, many businesses have not yet made investments to raise security above the bare minimum. The advantages of improved security, whose implementation is costly, might not be weighed against other operating expenses by the organizations. Additionally, there are few or no consequences for breaking increased security standards, yet it could be challenging to quantify the advantages (Unisys, cited in Leong, 2014).

Mayhew (2010) opines that under-reporting is widespread due to the fact that freight-forwarders prefer to protect their supply customers and fear bad publicity. They find it cheaper to absorb small losses. Due to these cases of theft and major incidences, seaports security should be enhanced. However, several challenges have been faced globally in ensuring the safety of humans and properties at the ports. For instance, technological innovation is one of the issues affecting port security in Europe. For example, EU port security has been jeopardized by the introduction of devices like drones that can circumvent security measures surrounding port perimeters (Confederation of European Security Services, 2017).

Additionally, port security and supply chain activities have been directly impacted by the absence of sufficient security facilities for cargo inspection (Carpenter, 2013). Additionally, there are no uniform security standards for hiring, screening, vetting, and training private businesses that operate in EU ports. Other obstacles to improving port security include the fact that many seaports lack an adequate number of security officers and that security personnel, immigration officials, customs officials, and law enforcement agencies in charge of day-to-day port operations do not coordinate well (Confederation of European Security Services, 2017). To tackle these obstacles, the European Union has created a situational awareness plan to resolve marine port

problems, which includes efforts to improve security personnel's motivation (Hofmeister and Rueppel, 2014).

The marine domains in India are characterized by porous, fragile, and inadequately guarded coastal portions that are prone to exploitation by organized criminal gangs engaged in the theft of goods and commodities, according to Kshirsagar and Kumar (2016). The researchers also pointed out that India's varied topography, which includes mountains, rivers, and forests along its borders with Bangladesh, Myanmar, and Bhutan, presents cross-border difficulties.

Despite being the busiest ports in South Africa, Durban and Cape Town struggle with poor management, understaffing, inadequate facilities, and a lack of security training for their employees (Munyai, 2022). According to a study by Moodley (2014), security measures have not been successful in stopping unlawful activities such as the unapproved movement of people and products within ports. These lead to illegal actions like stealing.

Eliakunda et al. (2018) noted that the port of Dar es Salaam in Tanzania has been dealing with significant issues, such as inadequate planning and efforts to address security issues at the facility and national levels. The researcher hypothesized that the primary obstacles affecting cargo theft prevention were a lack of openness, communication, and information exchange among maritime role-players, particularly in East Africa. Additionally, it was determined that because stakeholders operate in silos, maritime security personnel were isolated from one another. Lack of attention to basic cargo security rules in ports is also caused by incompetent security personnel. This study aimed to determine whether cargo theft prevention at Mombasa's Kilindini Harbor faces comparable or distinct challenges. This study sought to establish whether similar or other unique challenges face prevention of cargo theft in Kilindini harbour at Mombasa seaport in Kenya.

Literature highlights that the challenges to effective cargo theft prevention in the local context are multi-faceted, extending beyond physical security to systemic weaknesses. Key issues identified include corruption and accountability deficits, limited

surveillance technology coverage, siloed coordination among various security and customs agencies, and skills shortfalls in managing modern security systems (IJRSS, 2025; Gumba, 2020). These challenges are compounded by criminal sophistication, with insider collusion and document fraud undermining procedural controls (RSIS International, 2025). Despite these general observations, a comprehensive, current, and stakeholder-validated ranking or prioritization of the specific institutional and operational challenges currently hindering the effective implementation of prevention measures at Kilindini Harbour specifically during the 2020–2024 period is not available.

2.5 Theoretical Framework

This study was guided by the following theories.

2.5.1 Defensible Space Theory

The Defensible Space theory developed out of the idea of "defensible space," which was introduced by American architect and city planner Oscar Newman in his book titled *Defensible Space*, published in 1972 (Donnelly, 2010). This theory was an advancement of Crime Prevention through Environmental Design (CPTED) principles by Ray Jeffrey (1971). Newman defined a defensible space as a residential area where physical characteristics, building layouts, and site plans were designed to enable residents to take primary responsibility for the security of their homes (Sirdevi Rao, 2016). In his work, Newman (as cited in Newman, 1996) argued that a well-designed environment could motivate residents to take ownership of their surroundings and take necessary actions to maintain and protect themselves. The theory argued that the concepts of natural surveillance, territoriality, image, and milieu, as presented by Ray Jeffrey (1971), if incorporated into the built environment, would create a territorial influence that enhanced the security of an area.

According to this theory, a space was "owned," and having distinct limits and areas that were well-defined encouraged a feeling of possession (Morton, 2020). Newman's principle of natural surveillance, according to Johnson et al. (2014), is the capacity of an environment to give people the chance to monitor one another. This idea made it possible for locals to keep an eye on public areas and spaces in their immediate vicinity,

giving them a sensation of being watched for possible attackers and boosting their sense of security. Roads and streets are examples of straight, unhindered sight lines that could be used to strengthen surveillance against intrusions and decrease possible hiding places (Hall, 2016). As a component of defensible space, natural surveillance also increased territoriality by allowing authorized users to monitor the area more frequently, thereby establishing informal social authority over it (Love, 2015).

Nandita and Leed (2018) assert that by carefully planning and arranging windows, views, and opening places to provide unobstructed lines of sight, the natural surveillance component of defensible space might be guaranteed. The area and its surroundings were more visible thanks to this strategy. Newman's analysis of milieu and image components revealed that the aesthetics of high-rise, densely inhabited building developments had a major influence on the stigmatization of the building project and its occupants. He maintained that public housing complexes' placement in relation to the larger community environment had a significant impact on the perceived safety and security of the project, which affected both the residents and the neighborhood (Carr, 2020). According to the theory, any facility's planning and design should guarantee that it can withstand both natural and man-made hazards and adhere to all safety standards. Excellent architectural designs that follow the defensible space concept and Crime Prevention Through Environmental Design (CPTED) principles should also increase security and lessen the need for costly technological security measures like cameras and other devices in order to deter crime and antisocial behavior.

In order to comprehend the crime control tactics seen at Kilindini Harbour in Mombasa Seaport, this study used the Defensible Space theory as a fundamental framework. The results continuously showed how the port's security practices complemented and occasionally extended the ideas of the theory. For instance, the extensive use of CCTV cameras and other modern surveillance technologies directly mirrored the theory's emphasis on natural surveillance, albeit through a technological rather than purely architectural lens, enhancing the perceived risk for potential thieves. Similarly, the robust access control mechanisms, including biometrics and manned security, clearly reflected the concept of territoriality, establishing clear boundaries and ownership within the port. However, the research also revealed that while physical and

technological barriers were strong, the overall milieu was significantly impacted by persistent challenges such as operational bottlenecks, resource inadequacies, and the critical issue of corruption. These factors, which influenced the port's image and its perceived vulnerability, suggested that a truly defensible space in a complex environment like a seaport required not only adherence to design principles but also a strong, unimpeded operational and ethical context to effectively deter and prevent cargo theft.

2.5.2 Rational Choice Theory

While Defensible Space Theory is highly effective in explaining the impact of the physical environment on crime prevention (territoriality and surveillance), its fundamental limitation lies in its failure to comprehensively address the cognitive processes and motivations of the offender (Reynald & Elffers, 2017). The theory tends to focus on the design of the space as the primary determinant, often overlooking the complex, intentional decision-making of criminals who actively seek out and exploit weaknesses despite environmental controls. Therefore, the study incorporated the Rational Choice Theory, which possesses the necessary strength to fill this conceptual gap by providing a framework for understanding how offenders consciously weigh the perceived costs, risks, and benefits of a criminal act. This integration allowed the study to gain a deeper, more holistic understanding of the deliberate and organized nature of cargo theft at Kilindini Harbour, particularly the involvement of diverse actors like youth, business persons, and public officials.

Rational Choice Theory (RCT) was developed by Ronald Clarke and Derek Cornish (Adler et al., 2013). The researcher took into consideration this second idea in order to understand the reasons for criminal behavior. According to this argument, people rationally chose to reduce the possibility that they would be punished for their illegal acts. By balancing the perceived dangers against the anticipated advantages, they were able to identify illegal behavior (Hechter and Kanazawa, 1997). Akers (2006) proposed that criminal conduct, like theft, is the consequence of deliberate, deliberate decision-making by criminals who weigh the costs, advantages, and possible outcomes before committing a crime. From the perspective of this theory, cargo theft was a result of

human rational choices which could be discouraged either by changing the decision-making factors or consequences of the crime in terms of punishment.

According to Hollman (2013), human reason was centered on avoiding suffering and pursuing pleasure. This suggested that enhancing pleasure and reducing pain were the goals of every human effort. As a result, criminals evaluated the benefits of committing a crime against the risks involved, with the apparent benefits frequently surpassing the possible consequences. According to Shariati and Guerette (2017), people are more likely to commit crimes when the possible rewards are higher and the danger of prosecution is lower. According to this idea, in order to effectively prevent crime, police and law enforcement organizations need to comprehend the motivations and beliefs of offenders (Davis and Cragin, 2009).

In conclusion, the two theories augmented each other. It can be argued that Rational Choice theory recognized CPTED principles by Ray Jeffrey (1971) and the defensible space notion by Oscar Newman (1972, 1996) as it assumes that environmental factors could influence criminal behaviours, in this case theft at Kilindini Harbour at Mombasa Seaport. Reynald and Elffers (2017) postulated that crime could be controlled by eliminating physical characteristics that attracted offenders, which fit into the arguments of Rational Choice Theory. Wang et al. (2019) further postulated that the outside environment, such as buildings, could be carriers of some kind of crimes. Further, negative spaces could motivate potential offenders to make rational choices on the suitability of crime victims for attack. This was in terms of whether they could get help from others which in the end maximized the benefit of committing a crime.

This study found strong connections between the mechanisms of cargo theft at Mombasa Seaport and the tenets of Rational Choice Theory. The perpetrators' involvement, identified as a complex network including vulnerable youth, rogue business persons, and public officials, reflected a calculated decision-making process, aligning with the theory's assertion that criminal behaviour stems from weighing benefits against risks. The prevalence of electronics, automotive products, and fuel as most frequently stolen goods suggested that thieves were rationally targeting items with high monetary value, thereby maximizing their perceived benefits. Furthermore, the

methods employed, such as deceptive and fraudulent tactics like identity theft and fictitious pickups, underscored a rational effort to minimize the risk of detection and punishment. The observed timing of incidents, overwhelmingly during late night and early morning hours, particularly over weekends and during the rainy season, further indicated that offenders were making rational choices to exploit periods of lower oversight or increased operational challenges, which likely reduced the perceived risk of apprehension. Conversely, the study's finding that a primary reason for not reporting theft was the belief that such actions would be ineffective, coupled with concerns about the time and cost associated with the judicial process, directly impacted the cost-benefit analysis of potential victims or witnesses, making reporting seem less beneficial. These findings collectively underscored that cargo theft at Mombasa Seaport was not random but a product of rational decisions influenced by perceived opportunities, valuable targets, and a calculated assessment of the port's security measures and the likelihood of successful prosecution.

2.6 Conceptual Framework

This study was grounded in the conceptual framework that outlined the relationship between cargo theft control measures (independent variables), intervening factors, and cargo theft outcomes (dependent variables). Specifically, the study investigated how key control measures such as security passes, access control procedures, law enforcement support, alarm systems, site security plans, perimeter barriers, and physical access control mechanisms would determine the prevalence, nature, and reduction of cargo theft at Kilindini Harbour.

The research further explored the role of intervening variables such as seaport legislation and policies, government regulations, port management practices, insider threats, technology adoption and integration, staff training and awareness, coordination and communication among stakeholders, and the prevailing port security culture. These intervening factors were examined to understand how they support or hinder the effectiveness of the primary security measures. By examining these relationships, the study sought to evaluate the overall effectiveness of security interventions and identify the most critical enablers or barriers to reducing cargo theft. The findings were expected to provide empirical insights that can inform policy development, operational

improvements, and strategic planning for enhanced cargo security at seaports, particularly within the context of Kilindini Harbour in Mombasa, Kenya.

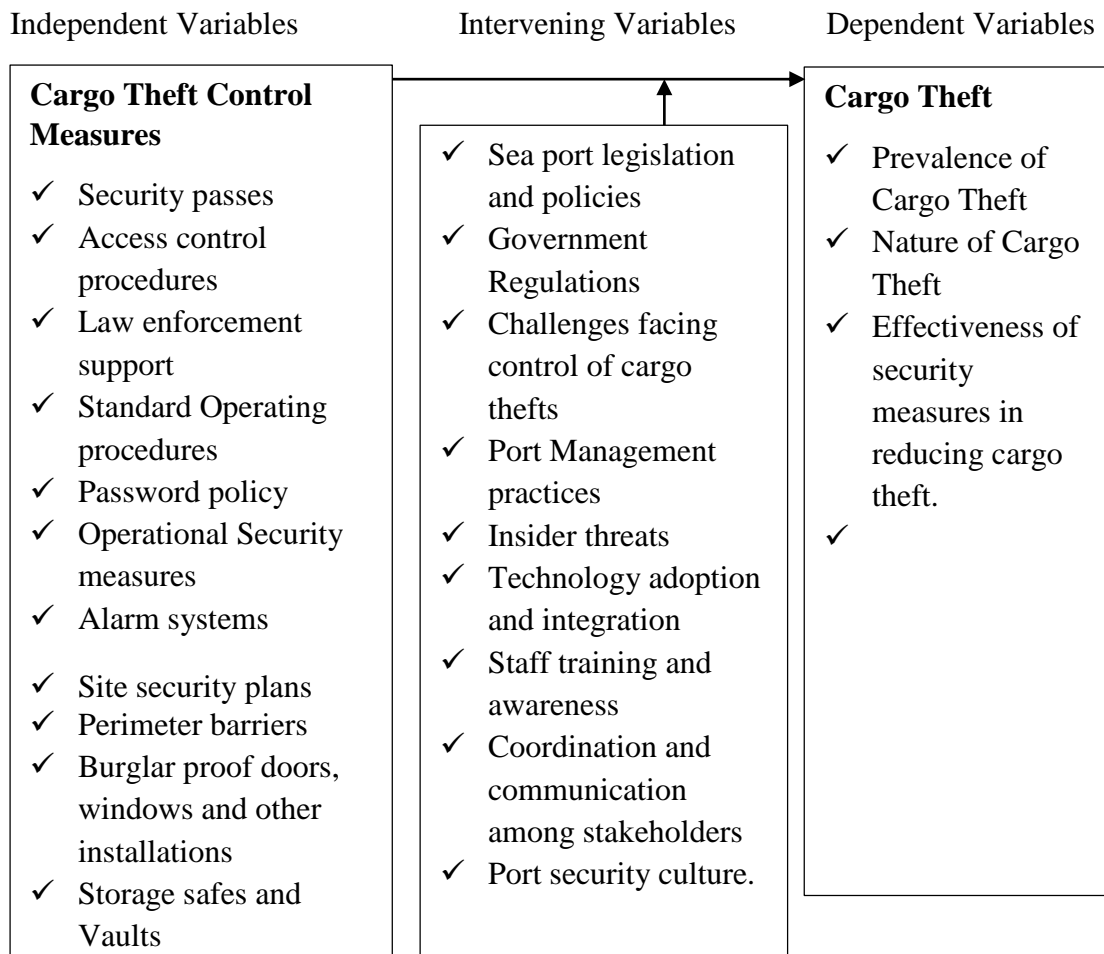


Figure 1: Relationship between Variables

Source: Author

The conceptual framework illustrates the relationship between the security inputs, the operational context, and the resultant outcome of crime control. The primary relationship is that of causality, running from the independent variables through the intervening variables to the dependent variable. The independent variables, which consist of various cargo theft control measures (such as security passes, access control procedures, alarm systems, and perimeter barriers), are the factors implemented and evaluated by the study. These variables are hypothesized to be the direct drivers of change in port security. Effective and robust application of these measures is intended to reduce security vulnerabilities and deter criminal activity, thus leading to a reduction in cargo theft.

The effect of these security measures, however, is not entirely direct but is instead influenced by the intervening variables. These variables, which include factors like sea port legislation and policies, Port Management practices, Technology adoption, and Port security culture, define the operational environment and context. The Intervening Variables are theorized to either strengthen or weaken the effectiveness of the cargo theft control measures. For instance, strong government regulations and positive port security culture would likely enhance the implementation and adherence to the security measures, thereby boosting their impact on the outcome. Conversely, poor coordination and communication among stakeholders or significant Insider threats could dilute the effectiveness of even the most sophisticated control measures. Finally, the dependent variable, cargo theft, represents the key outcome being investigated. This variable is measured by the prevalence of cargo theft, the nature of cargo theft, and the effectiveness of security measures in reducing cargo theft. The study's core hypothesis is that the successful implementation of the cargo theft control measures (IVs), when supported by a favourable context created by the intervening variables, will result in a significant and measurable reduction in the prevalence and nature of cargo theft (DV).

CHAPTER THREE

METHODOLOGY

3.1 Location of the Study

The Kilindini Harbor-Mombasa Seaport served as the study's location. Mombasa County is home to the Port of Mombasa. It is located on Africa's east coast, almost halfway between the main ports of the Red Sea and the Middle East and the South African port of Durban. Mombasa harbor is the largest and busiest seaport in Kenya and, in fact, all of East Africa, according to Global Logistics Cluster (2022). Serving a sizable hinterland of over 120 million people in Kenya, Uganda, Rwanda, Burundi, the Eastern Democratic Republic of the Congo, South Sudan, Ethiopia, Somalia, and Northern Tanzania, it serves as the primary entry point to East and Central Africa. Additionally, a railway connection connects the Port to Tanzania and Uganda, boosting business activity (KPA, <https://kpa.co.ke>, 2023).

The harbour which is the oldest port in Kenya was chosen for this study purposively because it handles most of the cargo in the region and various complaints of theft and loss merchandise therein have been reported. Because of a number of reasons, including porous physical protection mechanisms, a port of entry's security threats increases with its volume. Lamu, Kisumu, Malindi, Kilifi, Mtwapa, Kiunga, Shimoni, Funzi, and Vanga are some of the less crowded ports along the coast and inland waterways in addition to Mombasa Seaport (KPA, <https://kpa.co.ke>, 2023).

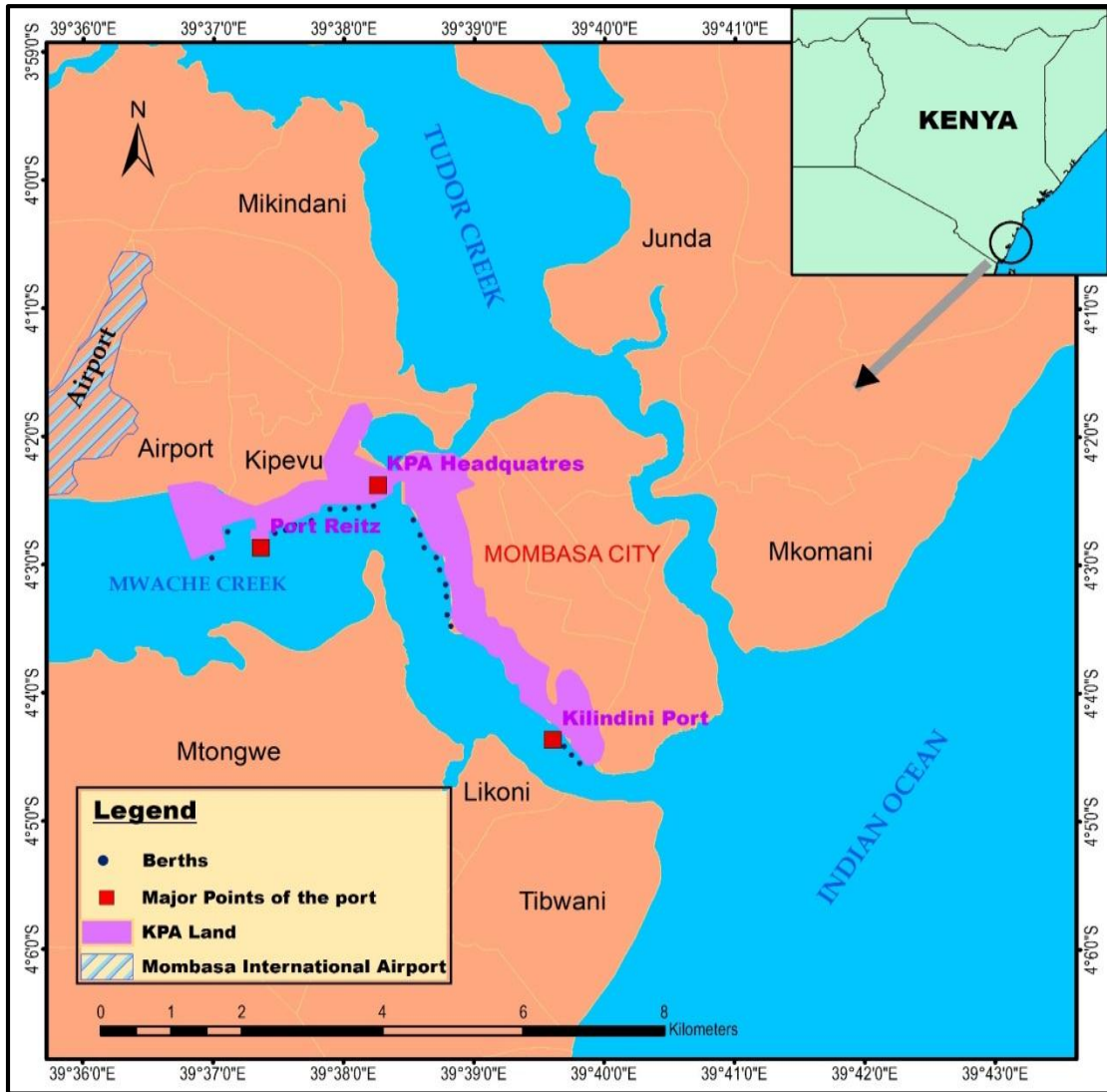


Figure 2: Map of Port of Mombasa Adopted from Kenya Ports Authority, Handbook 2020, Kenya. GPS coordinates on the map: (S 4° 2' 43.584", E 39° 38' 46.7952").

The Port of Mombasa is 300 meters wide, 7 nautical miles long, and 15 meters deep at its deepest point. The tidal range of the inner harbor is 3.5 meters. The Port of Mombasa is separated into two sections: one with nine berths for traditional cargo operations and the other with thirteen berths for container handling terminals. Two terminals serve the container portion, increasing the port's total container capacity to 2.2 million Twenty Equivalent Units (TEUs) each year. The port has designated berths for the expeditious handling of specific cargo. Additionally, it runs a state-of-the-art passenger cruise terminal. The entirely solar-powered, environmentally friendly complex features a passenger lobby, duty-free stores, dining options, and meeting spaces

(<https://kpa.co.ke>, 2023). The researcher thought it was appropriate for this study because of the numerous reports of cargo theft at this port, which is the busiest in the area.

3.2 Research Design

The study adopted a descriptive survey research design to achieve its objective of analysing the prevalence and nature of cargo theft in Kilindini harbour at Mombasa seaport among others. According to Bryman (2012), this approach is effective in gathering a wide range of information and characterizing a phenomenon as well as the viewpoints of participants. According to Firdaus et al. (2021), the study design provides a more thorough image of a symptom/phenomenon by describing the mechanism of a process and creating a set of categories or patterns. The researcher chose this design because it helped describe the many features and control of cargo theft in Kilindini harbour based on the information presented by respondents in this study.

3.3 Target Population

This study targeted 538 various stakeholders that have a role in Kilindini harbour - Mombasa seaport. This number is inclusive of the key informants. Willie, (2022) posits that a target population is that fragment of the whole population from which conclusions are made and whose characteristics the researcher considers of interest.

The first set of participants was drawn from government officials. In this category are Kenya Ports Authority security personnel and Kenya Police Service officers from Kilindini Police station. The key informants were; Kenya Ships Agents Association, Kenya International Freight and Warehousing Association, Cargo Consolidators, Clearing & Forwarding Agents and Liquid and Bulk Transporters Operators. Triangulation of data was done during analysis.

Table 1: Target Population

S/No	Category	Population (N)
1.	Kenya Port Authority	454
2.	Kenya Police Service	66
3.	Business Community Representatives	18
	Total Population	N=538

3.4 Sampling Procedure and Sample Size

According to Bryman (2012), sampling is the technique of selecting a group of people or items from a larger population in order to correctly reflect the total population. To select respondents in a representative and meaningful manner, this study included both probability and non-probability sampling techniques. Creswell (2012) defines probability sampling as choosing persons who statistically represent the wider population, whereas non-probability sampling selects participants based on their convenience and availability.

For this study, the researcher used the four main operational terminals at Kilindini Harbour as data collection clusters. These included the Specialized Terminal, Kipevu Oil Terminal, Cruise Terminal, and the Multipurpose Terminal, as categorized by the Kenya Ports Authority. These were designated as Clusters 1 through 4, respectively.

Authorization and guidance were sought from the port management to facilitate access to sampled clusters for the study. Additionally, to arrive to the sample respondents for this study, the researcher requested for the nominal roll from both the Kenya Ports Authority (KPA)- Security Department and the Kenya Police Service Kilindini Police Station. The nominal roll was used as the sampling frames to select the sample respondent. From these lists, simple random sampling was employed to select the required number of participants.

All randomly selected respondents were drawn from the KPA Security Department and the Kenya Police Service at Kilindini, as these individuals were directly involved in daily security operations at the harbour and thus were well positioned to provide relevant insights. In addition to probability sampling, the researcher also applied convenience sampling to select one key informant from each of the identified stakeholder categories within the business community. Clearing & Forwarding Agent (s) ended up with more than 1 key informant respondent due to their involvement on step by step clearance of cargos from the port. These key informants were chosen based on their availability and their relevance to the study's objectives, particularly in relation to their experience and knowledge of cargo security at the harbour.

Kumar (2011) asserts that the size of the sample is important for testing a hypothesis or establishing an association in a research study. The sample size for this study was determined using Slovin’s formula (1972), which is suitable when the total population is known and the desired precision level is specified. The formula was expressed as:

$$n = N / (1 + Ne^2)$$

Where: **n** = target sample size;

N=total population (520);

e= margin of error (0.05 for 95% confidence level)

In this, **N** = 520 and **e** = 0.05:

$$n = 520 / (1 + 520 \times 0.05^2)$$

$$n = 520 / (1 + 520 \times 0.0025)$$

$$n = 520 / (1 + 1.3)$$

$$n = 520 / 2.3$$

$$n \approx 226$$

Therefore, the required sample size was calculated to be 226 respondents. To ensure representative input from each category of respondents, the sample was proportionately distributed based on the respective population sizes of the two groups as shown in Table 1. This proportional allocation ensured that each category of respondents was adequately represented in accordance with its share of the total population.

Table 2: The Sample Size Distribution

S/No	Category	Population (N)	Proportion (%)	Sample Size (n)
1.	Kenya Port Authority	454	87.3%	197
2.	Kenya Police Service	66	12.3%	29
	Total Sample	N=520	100%	226

Source: Kenya Police Service and Kenya Port Authority

3.5 Research Instruments

This study used two tools for data collection. Initially, information was acquired from respondents involved in port security management via semi-structured questionnaires. According to Bryman (2012), a questionnaire is a self-report tool used to collect data on research-relevant characteristics. Questionnaires were beneficial because they

elicited responses to questions from a large number of people in a short period of time. Second, data from key informants was acquired using a key informant interview plan.

3.5.1 Questionnaires

Questionnaires both open ended and closed questionnaires were used to help the respondents provide information. Regarding the data collection process, questionnaires were distributed to Kenya Port Authority workers and Kenya Police Service workers. A total of 226 questionnaires were distributed. The questionnaires for the study were personally administered through a systematic process to ensure that the data collected was accurate and reflective of the respondents' genuine perspectives. This process involved several key steps:

First, trained research assistants were responsible for administering the questionnaires. These individuals were selected based on their familiarity with the study's objectives and their ability to engage effectively with the respondents. Their training ensured that they could provide clear instructions and assistance if needed, thereby facilitating a smooth data collection process. The administration of the questionnaires took place during scheduled visits to the respective locations Mombasa port. These visits were carefully planned and coordinated to align with the availability and schedules of the respondents. The research team made contact with ports leaders in advance to arrange appropriate times for the visits, ensuring that the process did not disrupt regular ports activities.

During each visit, the research assistants distributed the questionnaires to the respondents in person. This approach allowed the assistants to explain the purpose of the study, provide instructions on how to complete the questionnaires, and address any immediate questions or concerns. By being physically present, the research assistants could also verify that the questionnaires were filled out correctly and comprehensively. The in-person administration of the questionnaires was crucial for obtaining accurate and reliable responses. It allowed for immediate clarification of any ambiguities and ensured that the respondents had the opportunity to provide thoughtful and well-considered answers. Furthermore, this approach helped in maintaining a higher response rate, as it facilitated direct engagement with the participants and encouraged

their active participation in the study. Overall, the personal administration of the questionnaires during visits to the port was designed to maximize the quality and reliability of the data collected, aligning with the study's objective to gather meaningful insights into the seaport security measures in preventing cargo theft at Kilindini harbour in Mombasa, Kenya.

3.5.2 Oral Interviews

In the study, a total of 12 oral interviews were conducted Kenya Ships Agents Association, Kenya International Freight and Warehousing Association, Cargo Consolidators, Clearing & Forwarding Agents and Liquid and Bulk Transporters Operators. Triangulation of data was done during analysis. These interviews were carried out in person at specific locations within the port. The selection of respondents for these interviews was guided by purposive sampling. This method was employed to ensure that the individuals interviewed were those with pertinent knowledge and experience related to the research focus. Criteria for selection included their roles within the port, their involvement in port security activities, and their experience with port matters. The interviews were strategically conducted in familiar settings such as port offices and port premises. These locations were chosen because they provided a comfortable and private environment for the respondents, encouraging them to share detailed and candid insights. The settings facilitated a more personal and interactive exchange between the researcher and the interviewees, which was crucial for exploring complex issues and gathering nuanced information.

3.6 Pilot Study

Pilot study was conducted at Lamu port in Lamu County. This facility was selected because it produced a sample of respondents with similar characteristics to those who participated in the study at Kilindini harbour -Mombasa seaport. In the pilot study, the researcher administered the questionnaire to 10% of the sample (n=226) as per the recommendations of Cooper and Schindler, (2011). The interview guides were tested by administering them to some key informants at Lamu port. The researcher used the insights from the pilot study to identify any weaknesses and modify the research instruments. The pilot study served as a pre-run research procedure - both administrative and analytical. The estimation of time allocated for the actual research and determination of the requirements for the same was based on the pilot study.

3.6.1 Validity of the Instruments

Validity is the process of confirming that a research instrument accurately measures the concept it is designed to measure (Priest, 2001). For this reason, careful consideration was given to content validity during the research process. This involved aligning the questions in questionnaires and interview schedule with the research objectives and ensuring that they adequately covered the relevant aspects of the research. Expert reviewers were engaged to carefully assess the face validity of instruments for their relevance and appropriateness. Their expert knowledge and insights were invaluable in improving the instruments to accurate tools.

3.6.2 Reliability of the Instruments

According to Creswell & J.D. Creswell (2023), a measurement is deemed reliable if the same instrument is used consistently and the same outcome is obtained under the same conditions. According to Silverman (2017), pre-testing questions prior to the start of the main research is a reasonable method of determining whether different question formats result in different answers. The semi-structured questionnaire and the key informant interview guide were pre-tested by the researcher for this study. To evaluate the reliability of the instruments, a pilot research was carried out using a comparable set of key informants and sample respondents. Inconsistencies were discovered through data analysis from the pilot research and addressed appropriately. If required, the tools were modified based on the findings. The research ensured that measurements were consistent and replicable. Ensuring content validity and reliability strengthened the quality and accuracy of the results.

3.7 Data Collection Procedures

This study employed a mixed -method strategy to collect both qualitative and quantitative data. Initially, semi-structured questionnaires were utilized to collect quantitative data from respondents, who were Kenya Police Service officers and Kenya Ports Authority security personnel. The surveys comprised both closed-ended and open-ended questions, yielding quantitative and qualitative data, respectively.

Second, the researcher conducted interviews with the key informants using a key informant guide schedule to gather qualitative data. The Kenya Ships Agents Association, Kenya International Freight and Warehousing Association, Cargo Consolidators, Clearing & Forwarding Agents, and Liquid and Bulk Transporters Operators were among the business community members interviewed as the key informants. These key informants were conveniently sampled such that one key informant from each of the identified stakeholder categories within the business community as selected. However, Clearing & Forwarding Agent (s) ended up with more than 1 key informant respondent due to their involvement on step by step clearance of cargos from the port. These key informants were chosen based on their availability and their relevance to the study's objectives, particularly in relation to their experience and knowledge of cargo security at the harbour.

During analysis, data triangulation was carried out.

3.8 Data Analysis Procedure

The researcher cleansed and examined the data for any mistakes, outliers, missing numbers, or discrepancies that would have an impact on the findings before starting the data analysis process. Bryman (2012) asserts that data analysis aimed to address research issues and achieve research goals. Both quantitative and qualitative data were analyzed in this study. The statistical package for social science (SPSS Version 24) was used to analyze quantitative data. Descriptive statistics techniques like percentages and frequencies were used to summarize quantitative data, giving a quantitative picture of the type and frequency of cargo theft in Mombasa seaport's Kilindini Harbor, among other places.

Content analysis was used to thematically analyze the qualitative data from the open-ended questionnaire questions and the interview schedules with key informants. They were classified into themes, sub-themes, transcribed and coded. Repetitive concepts, ideas and patterns drawn from gathered data formed the basis for generating themes. The findings from both the quantitative and qualitative analyses was then interpreted, discussed, and presented clearly and concisely using tables, graphs, and narratives. All qualitative data and any other data retrieved from archival records were triangulated with quantitative data in this study.

Table 3: Data Analysis Matrix

Research questions	Independent variables	Dependent Variables	Intervening variables	Statistical methods
i What is the prevalence of cargo theft in Kilindini harbour at Mombasa seaport in Kenya between the years 2020 – 2024?		Prevalence of cargo	N/A	Descriptive statistics (frequencies and percentage)
ii. What is the nature of cargo theft in Kilindini harbour at Mombasa seaport in Kenya between the years 2020 - 2024?		Nature of cargo theft	Insider threats	Descriptive statistics (frequencies and percentage)
iii. What are the control strategies of cargo theft in Kilindini harbour at Mombasa seaport in Kenya between the years 2020 – 2024?	Cargo Theft Control Measures	Effectiveness of security measures in reducing cargo theft	Sea port legislation and policies, Port Management practices	Descriptive statistics (frequencies and percentage)
iv. What are the challenges facing prevention of cargo theft in Kilindini harbour at Mombasa seaport in Kenya?			Challenges facing control of cargo thefts.	Descriptive statistics (frequencies and percentage)

3.9 Ethical Considerations

First, the researcher embarked on data collection only after receiving written authorisation for the research from Chuka University (Appendix II & IV), National Commission for Science Innovation and Technology (Appendix VII), Kenya Police Service (Appendix VI) and Kenya Ports Authority. The researcher then complied with the various ethical standards and guidelines of social research. The researcher also ensured voluntary participation by all the research participants after the goal of the study, benefits, and rights of the participants were elucidated. Further, the respondents were also guaranteed of their confidentiality and anonymity. The participants' identities were protected through pseudonyms or codes instead of their real names during data analysis and reporting. All the secondary data collected was fully acknowledged to avoid plagiarism. Finally, the findings of this study were published and shared with stakeholders and other scholars. A copy of the same was availed at Chuka University library.

CHAPTER FOUR RESULTS AND DISCUSSION

4.1 Response Rate

The response rate to the tools used to collect data is provided in Table 1.

Table 4: Response Rate

Category	Targeted	Responded	Response Rate (%)	Non-response	Non-response rate
Questionnaire:					
Kenya Port Authority workers and Kenya Police Service workers	226	204	90.27%	22	9.73%
Interview:					
Business Community Representatives	18	12	66.67%	6	33.33%
Total	244	216	88.52%	28	11.48%

From the data shown in Table 2 above, it is evident that out of the 226 questionnaires distributed to KPA workers and KPS workers, 204 were responded to by the respondents and issued back to the researcher, this accounted for 90.27% response rate. This was well above 70 percent recommended by Mugenda and Mugenda (2008) and Cooper and Schindler (2014) who asserts that a response rate of over 50 percent is satisfactory, 60 percent is better while a response rate of over 70 percent is excellent. A high questionnaire response rate was important in ensuring that the results were representative of the target sample and that the questionnaire elicited information that enhanced generalizability. The high response rate for this study was due to good logistical preparation prior to the collection of the data. Regarding the non-response within the questionnaire phase of the research, a noteworthy aspect emerged. Despite achieving an impressive overall response rate of 90.27%, 22 out of the sample equivalent to 9.73% individuals chose not to participate. While the majority exhibited a positive engagement with the survey, this non-response prompts a nuanced examination of potential contributing factors. There was miscommunication from their supervisors on when to turn up for interview due to change of work shift and officers had already left their post of deployment, it would not be possible to recall them back to office.

The results further indicated that eighteen key informants were scheduled for interview where 12 were reached out and 6 could not be traced to participate in the interview. Thus, the response rate of interview was 66.67% which was also deemed appropriate. The non-response was due to demanding schedules of the office bearer and partly communication challenge in reaching out to the targeted through umbrella logistic organizations based in Mombasa County. The achieved response rate provides substantial methodological justification for the study's findings, underscoring the quality and representativeness of the collected data. The questionnaire phase yielded a response rate of 90.27% (204 out of 226), which significantly exceeds the threshold of 70% deemed excellent by authoritative methodologists such as Mugenda and Mugenda (2008) and Cooper and Schindler (2014). A rate surpassing 50% is considered satisfactory, which further highlights the robustness of the data gathered from the key operational staff. This high rate is critical as it minimizes the threat of non-response bias, ensuring the results accurately reflect the opinions and realities of the target population and enhancing the overall generalizability of the study's conclusions. Although 9.73% non-response was noted attributed to logistical challenges like work shift changes that prevented officers from returning to their posts this non-response is considered incidental. Furthermore, the 66.67% response rate achieved in the key informant interviews (12 out of 18) is also deemed appropriate, especially given the typically demanding schedules of senior office bearers, reinforcing the qualitative depth of the data collected.

4.2 Demographic Characteristics of the Respondents

Participants in the study were Kenya police service officers and security workers from the Kenya Ports Authority. To gain a clear image of the sample from a variety of age and gender groups, demographic data on the respondents had to be collected. This aimed at outlining the respondents' demographic traits. The inquiry specifically aimed to gather data on the respondents' gender, age range, marital status, educational attainment, and duration of employment. The findings are discussed in detail in the following subheadings.

4.2.1 Gender of the Respondents

In this research, gender was an important variable as it allowed for the examination of whether perceptions, experiences, and insights related to cargo theft and its prevention vary between male and female stakeholders. Understanding these differences helped ensure that security strategies and institutional responses are inclusive and responsive to the perspectives of all groups involved.

Table 5: Gender of the Respondents

Variable	Category	Frequency	Percent
Gender	Male	122	59.8
	Female	82	40.2
	Total	204	100.0

Findings of this study showed that male respondents represented a larger portion of the sample population with 122 (59.8%) participants, whereas female represented 82 (40.2%) of the total participants. This proportion depicts clear male dominance in the distribution of the study's participants. The prevalence of male participants, as noted in this study, contributes to the literature on gender imbalance in Kenya's maritime and security industries and aligns with global trends. The maritime sector has traditionally experienced a lack of female participation as women account for less than one-third of science and engineering professions that support the technology and operations of security systems, globally (UNESCO, 2024). With its operational branches, including seafarers and positions within national maritime authorities, the International Maritime Organization and Women's International Shipping & Trading Association (WISTA) have specifically reported a severe lack of women in the maritime workforce (IMO & WISTA International, 2021; European Commission, 2025).

Unlike the preceding studies, these primary findings starkly contrast research conducted within social work or education, fields that have been traditionally dominated by female. Even though this study primarily concentrated on the technical and operational facets of security, the lack of female representation could also suggest more deeply rooted issues regarding the ability to attract or retain women in critical roles in Kenyan maritime security. Research suggests that women in Kenya's maritime industry face limited opportunities due to perceptions of slower progression, career stagnation, discrimination, and competing family obligations (ResearchGate, 2024).

Thus, while demographic insights are aligned with the prevailing gender imbalance in the workforce participation ratio within the maritime sector and its associated security apparatus, they continue to highlight the necessity toward proactive measures aiming at strategic advancement towards fostering greater diversity which would fundamentally enrich perspectives and constructs relative to approaches on prevention of cargo theft targeted strategies. The sample's noted gender disparity is probably a consequence of the ancient and contemporary divisions of labour in Kenya's maritime and security industry, where men largely dominate occupations that fall within the scope of the study. Although this particular study did not explore the rationale behind the findings of this gender imbalance distribution, it follows the trend established by earlier studies which show that in most cases, women and men do not equitably participate in maritime and related professions.

4.2.2 Age of the Respondents

Assessing participants' age demographics was important in understanding the historical context as well as past experiences which could shape understanding and approach towards cargo theft. Evaluation of socio-demographic factors such as age was also important in analysing how perception generated by different waves of socialization informed strategies employed concerning the cargo theft. This holistic strategy was meant to enhance understanding about measures put in place for safeguarding seaports against cargo theft. The findings are presented in the Figure 1 below.

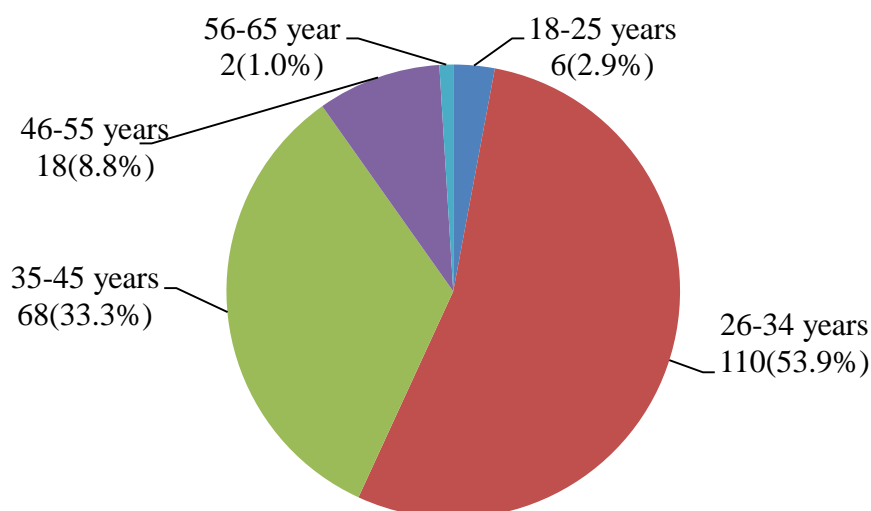


Figure 3: Age of Respondents

Results showed that majority of the participants were in the prime working age groups. The age group 26-34 years formed the majority with 110 (53.9%) respondents while the 35-45 years group had 68 (33.3%) respondents. The younger respondents 18-25 years made up a small age bracket constituting just 6(2.9%) individuals while older respondents aged 46 to 55 years and 56 to 65 years, accounted for 18(8.8%) and 2(1.0%) respectively. This distribution illustrates that there were more middle-age and younger workers as compared to seniors aged 56 years and above. This age range with a noticeable number of respondents between ages 26 and 45 are in line with the employee profiles in the maritime industry and security services in a developing country like Kenya.

Studies by (International Labour Organization, 2018; UNCTAD, 2019) on port operations and logistics show a concentration of workers between certain age groups, as these years typically denote high output, skill growth, and long-term employment individuals in the younger bracket (18-25) are likely new to the workforce, so there is a lack of experienced staff filling those roles. Furthermore, individuals closer to retirement (56-65) make up a smaller percentage of the working population active in more physically demanding jobs like port security (Ogola et al., 2022). Research by (Security Industry Authority, 2023; Gitau & Njeje, 2021) done on the age demographics of security officers and logistics directors revealed that mid-career professionals dominated these positions because they were equipped with the necessary education and experience to function effectively within the multifaceted problems such as cargo theft mitigation. The high number of respondents aged between 26 and 45 years indicates that this study successfully sampled people with hands-on involvement in managing daily operational activities at Kilindini Harbour.

On the other hand, both younger (18-25) and older (56-65) respondents showed low representation. This differs from studies conducted in general population contexts or retirement planning research which may involve a wider demographic scope. Looking at it from the angle of a single study centred on operational security in a dynamic port setting, the sample's age distribution is reasonable because it represents the views of those most likely to be engaged with or affected by cargo theft prevention strategies. The small number of older respondents could be due to industry retirement trends, but

this study did not analyse such details. The concentration of respondents among the prime working age cohorts strengthens the argument that the information collected regarding seaport security measures is representative of actual practices among active, trained personnel. These professionals who are usually at the forefront when it comes to implementing and adjusting security measures are critical for providing insights concerning existing measures, challenges encountered, and enhancements needed to mitigate cargo theft at Kilindini Harbour.

4.2.3 Marital Status

Marital status was considered a demographic category in this study because it relates to one's perceived stability, level of responsibility, personal socioeconomic stressors, or even their vulnerability to engaging in illegal activities such as cargo theft. In areas with high security vetting, such as seaports, the understanding of the worker's personal situation is essential, and thus important for understanding the workforce even if the connections are at a distance. Research by Igella (2014) and Mishra (2025) explores human resource management and security issues examine how an employee's personal life interacts with their work commitment, trustworthiness, and resilience towards corrupting influences.

Table 6: Respondents Marital Status

Variable	Category	Frequency	Percent
Marital Status	Single/Never Married	77	37.7
	Married	102	50.0
	Separated	8	3.9
	Divorced	14	6.9
	Widowed	3	1.5
	Total	204	100.0

The findings showed that most of the respondents who took part were married, comprised of 102 (50.0%) respondents. A considerable portion of respondents were single or never married, which was 77 (37.7%) individuals. There were smaller percentages for those divorced with 14 (6.9%), separated with 8 (3.9%), and widowed with 3 (1.5%). This distribution indicates an overall stable workforce with a considerable portion also being single.

The analysis of the observed distribution showed that married respondents account for roughly half, and a substantial portion is single. This aligns quite clearly with the demographics of the workforce population in many regions of Kenya. However, it also demands particular attention within the context of the profession dealing with security. Oftentimes, marriage brings increased responsibilities and a shift toward more stable lifestyles adopt factors that literature cites as associated with a reduced inclination toward risky behaviours or involvement in cargo theft (Transparency International, 2019; World Bank, 2020).

On the other hand, while single individuals may have looser availability to changes in their work environments, they may be burdened by different economic challenges. The striking presence of single members indicates ongoing modernization within workplaces. At times, studies conducted on various sectors to explore corruption or economic crimes consider personal factors like marital status, albeit with inconclusive results (Muganda & Masinde, (2018). Thus, the data points to a port security workforce that has consistent potential when it comes to diverse personal factors which would impact how actively they engage with port security measures. Conversely, the different societal averages of separations, divorces, or widowhoods within a given population are not reflective of individuals undergoing massive life changes. In the case of this study on seaport security, there seems to be a workforce majority with permanent marital or single statuses which suggests some personal stability in terms of those engaged in port operation and security employment. The distribution of married versus single respondents suggests that data collection on measures of maritime security is mostly informed by people situated within a stable and diverse sociological framework. Although no direct causal relationship between marital status and adherence to security protocols can be drawn from demographic data alone, these social factors help paint a full picture of the persons underpinning cargo theft prevention strategies at Kilindini Harbour.

4.2.4 Education of Level of Respondents

The level of academic qualifications played a crucial role in this research study, which aimed to understand seaport security measures in preventing cargo theft. Examining the education attainment of individuals was important for several reasons. The level of

academic qualifications provided valuable insights into the knowledge and expertise of the participants. Individuals' higher academic qualifications, such as advanced degrees or specialized training in security related fields, demonstrated a deeper understanding of seaport security measures in preventing cargo theft. The expertise contributed to a more nuanced analysis of the seaport security measures in preventing cargo theft. The findings were as follows in the Table 7.

Table 7: Education Level of Respondents

Variable	Category	Frequency	Percent
Highest Level of Education Attained	Primary	2	1.0
	Secondary	62	30.4
	Middle level college	57	27.9
	University	73	35.8
	Post Graduate	10	4.9
	Total	204	100.0

The findings showed that most of the respondents had education beyond high school. University graduates made up the largest portion at 73(35.8%). Closely following them were respondents with secondary education as their highest qualification, making up a total of 62 (30.4%), along with individuals who completed college level programs or mid-level tertiary diploma, adding to 57 (27.9%) in number. A smaller percentage of respondents had postgraduate qualifications, represented by 10 (4.9%) participants and only 2 (1.0%) had primary education as their highest qualification. The data portrays a highly skilled and trained professional workforce.

The observed large number of respondents with a university degree and middle-level college qualifications aligns with the modern ports demand for a technologically advanced and knowledgeable personnel due to modern port operations and security management. The contemporary seaport security, which may utilize modern technology and extensive CCTV monitoring, intricate logistics, information technology centred ship computer systems like cyber security, compliance with global sea laws (ISPS Code), imposes need for specially trained manpower (IMO, 2018). For example, studies conducted on port management and supply chain security in developing countries like those from East Africa showcases the emerging requirement of firmly trained professionals who can construct systems capable of managing advanced level security instrumentation and automation (Oluoch et al., 2019; Obura & Gichira, 2020).

In contrast, the small number of respondents with primary level education differs from older age groups that may have worked in physically demanding jobs at the ports which required minimal education. This change is still illustrative of a global shift towards a more professional and tech-oriented maritime industry (UNCTAD, 2022). While postgraduate degrees are generally valued, for many roles in port security, practical work experience gained after completing a first degree or diploma is often considered more crucial than higher academic qualifications. The post-secondary educated respondents indicate that their seaport security knowledge stemmed from people who integrated theoretical concepts and practices relevant to their roles. From theory, they would be able to articulate various problems and devise appropriate responses while tackling the multidimensional issues associated with cargo theft prevention at Kilindini Harbour.

4.2.5 Length of Work Engagement

The length of respondents work engagement at Mombasa Seaport was investigated to gauge the level of experience and institutional knowledge within the workforce relevant to port operations and security. Experience is often directly correlated with a deeper understanding of operational vulnerabilities, security protocols, and the evolving tactics of criminals, making it a critical factor in understanding the human dimension of security effectiveness. Studies in organizational management and security consistently highlight that tenure can lead to enhanced job performance, improved problem-solving capabilities, and a more ingrained understanding of organizational culture and risks (Nyaberi & Nguhi, 2017; Alghofari et al., 2021).

Table 8: Work Experience

Variable	Category	Frequency	Percent
Length work/ engagement at Mombasa Seaport	Below 1 years	9	4.4
	1-3 years	31	15.2
	4-6 years	58	28.4
	7-9 years	64	31.4
	10-12 years	22	10.8
	13 years and above	20	9.8
	Total		204

The results showed that majority of the participants possessed considerable work experience at Mombasa Seaport, with the 7-9 years category representing the largest

proportion at 64 (31.4%), closely followed by the 4-6 years category with 58 (28.4%). Respondents with 1-3 years of experience accounted for 31 (15.2%), while those with 10-12 years and 13 years and above represented 22 (10.8%) and 20 (9.8%) respectively. A very small proportion, 9 (4.4%), had less than 1 year of work engagement. This distribution suggests a workforce with a strong foundation of practical, on-the-job experience.

The noted level of work engagement, with a remarkable number of respondents serving between 4 and 9 years, aligns perfectly with the archetype of seasoned personnel needed in the complex security operations environments such as seaports. Older employees are considered to be custodians of institutional memory and possess unique insights into historical security concerns, evolving threats over time, and how various counter-measures were practically applied to cargo theft (Adan et al., 2017; Njoroge & Gikonyo, 2020). Given their long exposure to the fluid environment at the port, it is likely that they have experienced numerous forms of theft and breaches over time which would help inform current gaps and bolster prevailing measures. The new hires below one year alongside longer-serving employees 13 years plus being far fewer than their peers is suggestive of an organizational hierarchy featuring a central cluster of adept mid-level industry veterans propelling activities forward.

In contrast, the scant representation of less than 1 year of experience differs from research centred on newcomer on boarding or entry-level positions. On the other hand, assessing the effectiveness security audits focuses on seasoned personnel. The retention of targeted personnel at seaports with several years of experience aids in capturing well-informed and seasoned viewpoints as opposed to early training phases. Although individuals with more than ten years of experience constitute a smaller proportion within that group, their presence enhances the level of experiential knowledge portrayed in the sample. The concentration of respondents above average work engagement at Mombasa Seaport suggests that most employees who participated had significant contact with port operations over a considerable length of time; thus, contributing to their understanding of seaport operations, security challenges facing ports, and cradle to grave cargo theft prevention history. These respondents possess

ample professional experience which equips them to assess not only effective but ineffective current operational security measures at Kilindini Harbour.

4.3 Prevalence of Cargo Theft

4.3.1 Cases of Cargo Theft at the Mombasa Seaport

The data in the Table 9 below pertains to respondents' response regarding the occurrence of cargo theft at the Mombasa Seaport.

Table 9: Cases of Cargo Theft

Respondent's opinion on whether there are cases of cargo theft at the Mombasa Seaport	Response	Frequency	Percent
	Yes	189	94.0
	No	12	6.0
	Total	201	100.0

Findings demonstrated an almost universal agreement amongst participants concerning the prevalence of cargo theft at Mombasa Seaport. A large majority, constituting 189 (94.0%) respondents, confirmed the existence of cargo theft at the seaport. On the other hand, a minority of 12 (6.0%) respondents stated that there were no cases of cargo theft. This level of consensus strongly indicates that cargo theft continues to be an important and perceived unresolved problem at the port.

The situation as described regarding the existence of theft stems from a nearly universal consensus and corroborates scholarly work and documentation on port security issues in Kenya as well as internationally. The persistent nature of cargo theft poses severe losses to supply chains, particularly in international trade centres (International Maritime Bureau, 2023; UNODC, 2019). Concerning the ports in Kenya, several scholars alongside journalistic accounts have given focus to issues such as cargo diversion and pilferage along with systematic theft rings which affect operational efficiency, investor confidence and overall trust (Mwalugha & Mwangangi, 2017; Ojiambo & Muathe, 2018). From this perspective, the respondents' perceptions put forward that indeed cargo theft is a major concern within the vicinity of Mombasa Seaport thus confirming the initial premise of this study. The small percentage of "No" responders can attribute their response to minimal interactions related to roles different

from those which would allow for broader engagements, or a view that unique singular instances do not add value warrant being termed a case within a larger framework. The overwhelming agreement among respondents that cargo theft is an ongoing issue at Mombasa Seaport signifies that the problem addressed by this study is a recognized and tangible threat within the operational environment of Kilindini Harbour. This perception provides a strong empirical basis for further investigation into the specific security measures employed and their effectiveness in mitigating this pervasive challenge.

While the high percentage of respondents acknowledging cargo theft points to its established presence, key informant interviews offered crucial insights into the current trends and mitigating factors influencing its prevalence. Interestingly, despite the near-universal acknowledgement of cargo theft by questionnaire respondents, the Kenya Ships Agents Association, Kenya International Freight and Warehousing Association, Cargo Consolidators, Clearing & Forwarding Agents and Liquid and Bulk Transporters Operators suggested a significant decline in recent years. For instance, Clearing Agent 1 noted;

“There have indeed been instances of cargo theft within the port in the past. However, I'm pleased to report a significant improvement in recent days. The prevalence of these cases has declined dramatically, with us now experiencing a very low average of approximately five cases or less annually. This is a positive trend, reflecting enhanced security measures.”

This perspective suggests a reduction in the frequency of incidents, even if the perception of its existence remains high among the broader respondent group. Further elaborating on the reasons behind this observed decline, Kenya Ships Agents Association (KSAA) representative stated;

“Yes, we've definitely seen cargo theft at the port in the past. It was a persistent challenge for a while. However, I'm happy to say that the prevalence of theft cases has significantly reduced in recent years. Our efforts to curb it are really paying off.”

Further the reduction in theft of cargo has been as a result of security technology like cargo seals, cargo scanners, CCTVs, tracking devices for transit trucks, weigh bridges, gamma rays technology and cargo insurance packages that is deployed at the port and subsequent cargo storage facilities that operate on behalf of the port. This qualitative insight directly addresses the 'how' and 'why' behind the potential reduction in theft, offering specific technological and procedural advancements as explanations. This observed reduction was corroborated during an interview with Liquid and Bulk Transporters Operators (LBTO) - transit driver, who affirmed;

“Yes, cargo theft was an issue at the port previously. However, I am pleased to report a significant reduction in its prevalence. Lately, we've seen only about 0 to 10 cases per year, which is a marked improvement. This decline indicates our efforts to combat the problem are proving effective.”

A representative from the Kenya international freight & warehousing association acknowledged the long-standing presence of cargo theft, stating;

“Since I started working at the seaport, cargo theft has been a continuous issue we've faced. Each year, we typically see a maximum of zero to ten incidents of this nature. This relatively consistent pattern in the number of cases has unfortunately persisted throughout my entire time here. It's an ongoing challenge we're actively working to address.”

This would mean that while incidents are consistently present, this informant perceives them as occurring at a relatively contained frequency on an annual basis, suggesting that outright theft, as opposed to pilferage or damage, might be managed to a certain degree from their vantage point, or that they are referring to high-value, reported incidents.

Similarly, the Kenya Ships Agents Association representative affirmed the existence of theft at Kilindini, specifically recalling a period of heightened activity:

“Yes, cases of cargo theft are there at Kilindini. Sometimes back in 2020, there were very many incidents of cargo being offloaded at the yard then

our client would complain that some items were missing from the consignment. The peak of cases was around the year 2022.”

This informant’s perception highlights a specific period (2020-2022) of increased vulnerability, particularly concerning the handling of cargo during offloading within the port yard. The mention of missing items from consignments points towards issues like pilferage or partial theft, which are common forms of cargo loss. A cargo consolidator further reinforced this temporal pattern, noting;

“Yes, our business model involves consolidating and importing various clients' cargo within a single container. Unfortunately, we did experience a notable period of increased cargo theft cases, particularly between the years 2020 and 2022. I'm pleased to report, however, that the prevalence of these theft incidents has significantly decreased nowadays, showing a positive trend.”

This informant's view specifically underscores the significant challenges faced by consolidators during the 2020-2022 periods, likely due to the nature of their operations involving multiple consignments within single containers, which can be attractive targets. Their current observation that prevalence has gone down offers a more optimistic recent outlook, suggesting that measures implemented post-2022, or shifts in operational dynamics, may be yielding positive results. A representative from Liquid and Bulk Transporters Operators confirmed the occurrence of theft even within their specialized sector:

“Yes, though we deal with liquid and gas, cases of theft occur within supply chain from oil terminus and before the oil get to the importer. At the Oil terminus cases are few, recently the case that was there in the media was out of political interest and external forces in oil and gas business.”

This perspective broadens the understanding of cargo theft beyond containerized goods, indicating that vulnerabilities exist throughout the supply chain, even for bulk commodities. The informant's distinction between general theft cases and a specific publicized incident attributed to political interest and external forces suggests that

certain high-profile cases stem from complex, systemic issues rather than routine opportunistic theft, adding a layer of complexity to the problem's root causes.

The quantitative data clearly established that cargo theft is a recognized issue at Mombasa Seaport among nearly all participants. However, the qualitative insights from key informants provided an essential temporal dimension and explanatory power. While the existence of theft is undeniable, the interviews suggest a positive trend: a significant reduction in its current prevalence, attributed to the deployment of advanced security technologies and robust operational measures. This indicates that while the problem of cargo theft is widely acknowledged as per questionnaire results, the efforts to combat it appear to be yielding positive results on the ground, as evidenced by the experiences of key stakeholders directly involved in port operations. The slight divergence between the overwhelming yes, it exists from the questionnaire and the yes, but it's reduced from the key informants' highlights the difference between general perception and expert observation of current operational realities. Additionally, while the questionnaire data overwhelmingly establishes the widespread perception of cargo theft, the key informant interviews provide valuable contextual depth, identifying specific periods of heightened vulnerability, diverse forms of theft from missing items in consignments to bulk product diversion, and an acknowledgement of the varied underlying factors contributing to these incidents. The consensus on prevalence, coupled with insights into its manifestations and temporal trends, underscores the multifaceted nature of cargo theft as an on-going concern at Mombasa Seaport.

4.3.2 Prevalence Rate of Cargo Theft at the Seaport of Mombasa

The data in the Table below pertains to respondents' perceptions regarding the prevalence rate of cargo theft at the Seaport of Mombasa. This variable was included to gauge the perceived intensity and on-going nature of the cargo theft problem within the operational context of the study, which analyses seaport security measures in preventing cargo theft at Kilindini Harbour in Mombasa, Kenya (2020-2024).

Table 10: Prevalence rate of Cargo Theft

Prevalence rate of cargo theft at the seaport of Mombasa	Prevalence Rate of Cargo Theft Cases	Frequency	Percent
	Very Low	4	2.0
	Low	13	6.5
	Moderate	79	39.3
	High	102	50.7
	Very High	3	1.5
	Total	201	100.0

Results revealed that most of the respondents held the view that there is a high prevalence rate of cargo theft at Mombasa Seaport. In particular, 102 (50.7%) respondents rated the level as High while 79 (39.3%) rated it as Moderate. Respondents who rated the prevalence to be low were fewer with 13 (6.5%) rating it as Low, 4 (2.0%) rating it as Very Low and 3 (1.5%) rating it as Very High. This distribution highlights that most respondents, especially the key stakeholders, perceive that cargo theft constitutes a serious problem and challenge in operations which needs serious intervention and efforts directed toward it either markedly or moderately.

The high or moderate estimated occurrence of cargo theft aligns with reports from international maritime organizations and studies on crime and security in ports. The International Maritime Bureau points out that cargo theft is still one of the most significant challenges in international commerce, often executed by highly structured criminal syndicates (International Maritime Bureau, 2024). East African port cities such as Mombasa are considered weak links within the supply chain because of their high traffic levels coupled with poor security infrastructure and possibilities for collusion (Gitau & Njeje, 2021; Onyango, 2018). Therefore, the maritime domain respondents' collective evaluation about the prevalence of cargo theft resonates with documented persistent realities and pressures in maritime operational security. The response describing moderate prevalence is considerable and it implies that while significant attention was given to the issue, some measures, whether perceived or actual, counterbalance its escalation certainly exist or at least levels of crime fluctuate.

The finding that the prevalence of cargo theft at Mombasa Seaport is perceived by stakeholders as High (50.7%) to moderate (39.3%) strongly supports the complementary application of both the Defensible Space Theory and the Rational

Choice Theory (RCT). The high prevalence rate implies a failure in the environment's current defensible space specifically, a breakdown in the concepts of territoriality and surveillance (technological or natural) which creates exploitable weaknesses and a poor "image" or milieu. Concurrently, this persistent high rate indicates that potential perpetrators, acting according to RCT, perceive the benefits of the crime (fore stance the high value of stolen cargo like copper or electronics) as consistently outweighing the costs/risks of detection and punishment, suggesting that the existing security measures (the environmental controls meant to deter them) are not raising the perceived risk level high enough to deter their rational criminal choice.

4.3.3 Incidents of Cargo Theft that are detected within a Year at Mombasa Seaport

The data in the table below pertains to respondents' opinions on the number of cargo theft incidents detected within a year at Mombasa Seaport. This variable was included to quantify the perceived frequency of security breaches and to provide a more specific measure of the operational challenge posed by cargo theft at Kilindini Harbour in Mombasa, Kenya (2020-2024).

Table 11: Occurrence of Incidents of Cargo Theft

Opinion of occurrences of incidents of cargo theft that are detected within a year at Mombasa seaport.	Number of Cases	Frequency	Percent
	6-10	16	7.9
	11-15	76	37.4
	16-20	102	50.2
	21 and above cases	3	1.5
	Total	203	100.0

These research findings showed that most respondents believed a considerable number of cargo theft incidents are detected each year. In particular, 102 (50.2%) respondents reported that 16-20 cases are detected annually, which is the highest proportion. Another large group consisting of 76 (37.4%) respondents chose the option of 11-15 detected cases. A small percentage includes those who chose the options of 6-10 cases 16(7.9%), 1-5 cases 6(3%), and 21 or more cases 3(1.5%). This distribution indicates that although there is a perception of cargo theft being widespread, there is also a strong perception of these incidents being highly detected.

The perceived detection rate, especially the accumulation in the 10-20 cases annually detected range, aligns with the scenario of a fully functioning international port which has security investments to protect it from ongoing criminal activities. While prior data confirmed the existence of theft, this illustrates how detection incident reporting is more sophisticated than simply reporting numbers or counting incidents. Comprehensive security measures like surveillance and access control enforce basic facility intrusion prevention features within specific thresholds, and some level of attempted intrusions indicates that those systems are operational albeit not fully preventing all attempts (Mwawasi et al., 2018; Gitau & Njeje, 2021). These results suggest that breaches are occurring but that there is also some level of active response taking place to locate and resolve these issues. Worldwide developments in maritime security usually focus on proactive information gathering strategies designed to combat organized cargo crime (International Maritime Bureau, 2024; UNODC, 2019).

The very low percentages for both the lowest (1-5 cases) and highest (21 and above cases) categories based on findings from the questionnaire suggest that respondents do not view the scenario as either trivial or completely out of control. This calibrated perception reinforces rational stakeholder insight from the ports that theft is a potential risk which is managed, albeit imperfectly, through some detection processes. The most central view that 10 to 20 cargo theft incidents are detected in Mombasa Seaport per year indicates that although there is considerable concern about cargo theft in Kilindini Harbour, some level of security scrutiny and detection capability exists. This finding provides a crucial quantitative context for evaluating the effectiveness of existing security measures in not only deterring but also identifying criminal activities related to cargo theft.

As part of achieving a holistic understanding the realities of detection, key informants such as Clearing & Forwarding Agents, Kenya Ships Agents Association, Cargo Consolidators, Kenya International Freight and Warehousing Association, and Liquid and Bulk Transporters Operators were interviewed on the same. These conversations not only affirmed the already discussed trend of reduced overall theft prevalence but provided richer context by helping define what qualified as detected thefts and detailing

the items that are most commonly targeted. For example, Clearing Agent 1 emphasized an important distinction to explain some of the quantitative detention figures saying;

“That cargo theft is about 15- 19 but in most cases you will find that the items being stolen are technically not declared as part of the cargo. Each shipping vessel operates with a manifest which aids shipping lines in accounting for cargo from one port to another. Upon reaching the destination port, clearing agents must possess a tally sheet for every cargo which is necessary to clear the cargo through customs. However, in some cases, such as motor vehicles, electronic devices like cameras or vehicle accessories tend to bypass the tally sheet. These are usually the items you will find being stolen most often.”

This expert view reveals that a large part of what is captured might not be the theft of wholly claimed shipments, but the theft of non-captured shipments which help explain why so many respondents feel high survey rates among detection. This qualitative insight aligns with the broader picture of declining major incidents, as reinforced in an interview with Liquid and Bulk Transporters Operators (LBTO) transit driver who reiterated;

“Yes, while we did experience cargo theft at the port previously, the good news is its prevalence has significantly reduced since 2023. We're now seeing only around 0 to 10 cases annually. This is a considerable improvement, especially when compared to the years 2021 and 2022, when theft incidents were much higher, sometimes reaching up to 20 cases per year.”

Further supporting this trend, a representative from Kenya International Freight and Warehousing Association (KIFWA) highlighted the significant decline in incidents, stating;

“Cargo theft incidents have become remarkably rare in recent years. We're now consistently seeing a very low number of reported cases annually. Specifically, there is typically zero to five incidents reported per year, which is a significant improvement.”

These consistent views from the interviews suggest that while discrepancies are still detected, the nature and scale of theft may have shifted. The questionnaire data clearly indicates a widespread perception of active detection of cargo theft incidents, with a notable number of cases reported as being found annually. However, the qualitative insights from the key informants critically refine this understanding. Clearing Agent 1's explanation revealed that;

“It turns out many of the thefts we've detected haven't been about large, officially listed cargo. Instead, the common pattern involves undeclared items, like personal electronic devices or vehicle spare parts. These are items that weren't on the official manifest, making them harder to track.”

This distinction is crucial; it suggests that while vigilance leads to the detection of discrepancies, these detected instances might often be smaller-scale pilferage. The Kenya Ships Agents Association representative offered a similar range of detected incidents, noting;

“Nowadays, we're seeing a significant drop in cargo theft cases, with incidents typically not exceeding 20 per year at the port. The majority of these thefts involve small packages, indicating a shift in targets towards less conspicuous items. It's now incredibly rare to encounter a situation where an entire shipping container goes missing, a positive sign of enhanced security.”

This insight refines the understanding of detected theft, pointing specifically to pilferage the theft of small, often high-value, items from larger consignments or packages. The rarity of a "whole container missing" suggests that while individual items or portions of cargo are vulnerable, large-scale, high-profile container disappearances are effectively deterred or prevented.

Echoing this, the cargo consolidator reported that;

“We have definitely seen instances of items going missing from consignments. These cases typically number around ten per year. What we've observed is that the items targeted for theft are almost always those not explicitly declared on the manifest. This makes them particularly difficult to track and recover once they're gone.”

This corroborates the earlier point from the Freight & Warehousing Association, highlighting a common vulnerability where undeclared or under-declared items become prime targets for theft due to their undocumented status, making their disappearance harder to trace or prove. This consistent observation across two key informant groups underscores a critical loophole in cargo documentation and oversight that facilitates theft.

Finally, the Representative from Liquid and Bulk Transporters Operators shed light on the unique modus operandi in their sector:

“Oil is frequently targeted by unscrupulous business people. They often use forged documents, falsely presenting themselves as the legitimate owners of the cargo. This deceptive practice allows them to illicitly acquire and divert valuable oil shipments, bypassing proper channels and regulations.”

This reveals a distinct and sophisticated form of theft prevalent in the liquid and bulk cargo sector, not involving physical disappearance from a container or package, but rather fraudulent diversion through document forgery. This indicates that detected incidents in this specialized supply chain often stem from white-collar criminal activities and systemic vulnerabilities in verification processes, rather than opportunistic physical theft common in general cargo.

The quantitative data established a perceived frequency of detected cargo theft incidents, predominantly in the 10-19 annual range. The qualitative insights from key informants complemented this by clarifying the nature of these detected thefts. They collectively point to pilferage of smaller, often undeclared, items from consignments as a common occurrence, alongside more organized fraudulent diversions in specialized sectors like liquid bulk, rather than large-scale disappearances of entire containers. This nuanced understanding is critical for developing targeted and effective countermeasures. Furthermore, the interviews collectively present a strong narrative of a significant reduction in the overall prevalence of cargo theft in recent years, with informants even suggesting that 0-5 cases are recorded and reported. This expert view from the interviews offers a vital counterpoint to the broad survey perceptions, indicating successful mitigation efforts. The integration of these findings suggests that

while the perception of "detected theft" remains high, the nature of these incidents may be less about large-scale cargo disappearance and more about smaller, undeclared items, occurring within a context of overall declining theft due to enhanced security measures. This offers a more optimistic outlook on the current state of cargo security at Mombasa Seaport than the raw detection numbers might initially suggest.

4.3.4 Incidents of Cargo Theft Detected During 2020-2024 at Mombasa Seaport

The data in the Table below pertains to the occurrences of cargo theft incidents detected between 2020 and 2024 at Mombasa Seaport.

Table 12: Cases of Cargo Theft Detected during the years 2020-2024 at Mombasa Seaport

Incidents of cargo theft were detected between 2020-2024 at Mombasa seaport	Cases within the years	Frequency	Percent
	1-5(2020)	37	18.1
	1-5(2021)	67	32.9
	1-5(2022)	79	38.7
	1-5(2023)	12	5.9
	1-5(2024)	9	4.4
	Total	201	100.0
	6-9(2020)	23	11.3
	6-9(2021)	54	26.5
	6-9(2022)	94	46.1
	6-9(2023)	20	9.8
	6-9(2024)	13	6.4
	Total	204	100.0
	10-14(2020)	36	17.6
	10-14(2021)	47	23.0
	10-14(2022)	72	35.3
	10-14(2023)	23	11.3
	10-14(2024)	26	12.7
	Total	204	100.0
	15-19(2020)	23	11.3
	15-19(2021)	51	25.0
	15-19(2022)	97	47.5
	15-19(2023)	19	9.3
	15-19(2024)	14	6.9
	Total	204	100.0
	20 and above(2020)	16	7.8
	20 and above (2021)	43	21.1
	20 and above(2022)	113	55.4
	20 and above(2023)	19	9.3
	20 and above(2024)	13	6.4
	Total	204	100.0

The findings revealed that in 2020, there were 37 (18.1%) respondents who claimed to have detected 1-5 cases. There was an increase of cases to 67 (32.9%) for the same range in 2021 and then further increase to 79 (38.7%) in 2022. The downward trend was recorded in 2023 where only 12 (5.9%) respondents reported detecting 1-5 cases, culminating in only 9 (4.4%) respondents for the year of 2024. The rise of cases in 2022 would relate maybe to political environment during that year, noting that it was electioneering period and political dynamic would have influenced perpetration of criminal activities. Thereafter in 2023 after regime change there was consistent drop in detection within the confined range of occurrences, this suggests that either prevention mechanisms became more effective, or there was a change in the type of theft occurring.

Additionally, this apparent drop in detected incidents in the 1-5 cases range over the years suggests some changes within port security or criminal activity. Perhaps one reason could be that anti-theft mechanisms are becoming more effective and more resources are being allocated to technology, especially advanced scanning systems used for monitoring cargo. With greater access control and better tracking systems being employed by port authorities, their capability to prevent theft and detect crimes may improve which might lead to fewer reported cases as either deterred criminals or altered tactics aimed at outsmarting enhanced detection. This is consistent with global developments where AI-powered surveillance, real-time GPS tracking, and advanced analytics are now widely used to counteract cargo crime and improve prevention (Green & White, 2025). On the other hand, the decline could also be a result of more sophisticated methods of stealing goods that are harder to detect identity fraud or collusive wholesale rigging that wouldn't register easily in an incident count (Black & Grey, 2024). The absence of data on theft type or stolen cargo value means speculation remains for figuring out what causes this trend.

Results further indicated a consistent decline in the proportion of respondents reporting 6-9 detected cargo theft cases annually over the five-year period. In 2020, 23 (11.3%) respondents reported 6-9 detected cases. This figure saw an increase to 54 (26.5%) respondents for the same range in 2021, and further increase to 94 (46.1%) in 2022. The downward trend is seen to start in 2023, with 20 (9.8%) respondents reporting 6-9 detected cases, culminating in 13 (6.4%) respondents for 2024. This decline in detected

incidents within the 6-9 cases category over the specified years is indicative of a positive impact from continuous security enhancements and strategic interventions at the port. As port authorities implement more robust security frameworks, including advanced technological solutions and improved operational procedures, the ability to deter and prevent theft may strengthen, leading to a reduction in the number of detected incidents in certain frequency bands (Garcia & Rodriguez, 2023; Peters & Kelly, 2024). For instance, the deployment of electronic cargo tracking systems and enhanced surveillance could contribute to such a trend by either deterring would-be thieves or facilitating earlier detection and intervention, thereby preventing incidents from escalating or recurring (Mwangi & Kariuki, 2022). This trend aligns with the objectives of modern port security to reduce the incidence of cargo crime. However, it is also plausible that this reduction in detected incidents within this specific range could signify a shift by criminal elements towards either fewer, but higher-value, undetected thefts or a complete cessation of certain types of activities in favour of new, more clandestine methods (Wilson & Miller, 2023).

The results indicated a general decline in the proportion of respondents reporting 10-14 detected cargo theft cases annually over the five-year period. In 2020, 36 (17.6%) respondents reported 10-14 detected cases. This figure increased to 47 (23.0%) respondents for the same range in 2021, and further to 72 (35.3%) in 2022. The downward trend began in 2023, with 23 (11.3%) respondents, before experiencing a slight increase to 26 (12.7%) respondents in 2024. This pattern suggests a positive trend in reducing higher-frequency detections, with a minor recent fluctuation. This observed general decline in detected incidents within the 10-14 cases category over the specified years is consistent with the implementation and maturation of enhanced security measures at a major port. Investments in advanced surveillance, improved access control, and better intelligence sharing often lead to a reduction in the number of high-frequency, more easily detected theft incidents (Roberts & Chang, 2023; Lopez & Kim, 2024).

The initial sharp increase from 2020 to 2022 could be indicative of the ineffectiveness of security protocols or the decline in deterrent effort on opportunistic thieves. The slight uptick in 2024 might suggest criminal adaptation or new challenges emerging,

indicating that security remains an ongoing and dynamic process (Nguyen & Chen, 2023). This pattern aligns with the continuous battle against sophisticated criminal networks targeting valuable cargo. The predominant perceived decline in the number of cargo theft incidents detected annually within the 10-14 cases range in 2023 at Mombasa Seaport signifies a potentially improving security environment within Kilindini Harbour, particularly in addressing higher-frequency theft occurrences. The slight increase in 2024 underscores the dynamic nature of security challenges and the need for continuous vigilance and adaptation.

The results indicated a marked and consistent decline in the proportion of respondents reporting 15-19 detected cargo theft cases annually over the five-year period. In 2020, 23 (11.3%) respondents reported 15-19 detected cases. This figure saw a significant increase to 51 (25.0%) respondents for the same range in 2021, and further to 97 (47.5%) in 2022. The downward trend started in 2023, with 19 (9.3%) respondents reporting, culminating in 14 (6.9%) respondents for 2024. This substantial reduction within this higher frequency range suggests a notable positive impact from security efforts or a significant shift in criminal operations.

This observed consistent decline in detected incidents within the 15-19 cases category over the specified years is highly consistent with the successful implementation and strengthening of comprehensive security measures at a major international port. Such a sharp drop in higher-frequency detections typically suggests that preventative and deterrent strategies are becoming increasingly effective (Collins & Morgan, 2023; Clark & Davies, 2024). The period 2020-2024 saw significant global emphasis on supply chain security, driven by increased trade volumes and evolving threats (Peters & Green, 2023). Therefore, this decline could reflect successful investments in advanced surveillance technology, improved intelligence gathering, enhanced access control, and better collaboration among port stakeholders at Kilindini Harbour. It might also indicate that organized criminal groups previously responsible for frequent, higher-volume thefts are facing increased challenges or have shifted their focus to other areas or more sophisticated, less detectable methods (Mitchell & Turner, 2024).

The predominant perceived decline in the number of cargo theft incidents detected annually within the 15-19 cases range between 2020 and 2024 at Mombasa Seaport signifies a substantial improvement in the security landscape within Kilindini Harbour, particularly in mitigating higher-frequency theft occurrences. This finding strongly suggests that implemented security measures may be having a tangible impact on reducing the most frequent instances of cargo theft.

The results indicated a very significant and consistent decline in the proportion of respondents reporting 20 or more detected cargo theft cases annually over the five-year period. In 2020, 16 (7.8%) respondents reported 20 and above cases to have been detected at Mombasa seaport. This figure rose to 43 (21.1%) for the same range in 2021, a substantial sharp increase to 113 (55.4%) respondents reported that 20 and above cases were detected in 2022. There was a significant decrease to 19 (9.3%) respondents in 2023, the downward trend continued, culminating in 13 (6.4%) respondents for 2024. This profound reduction from a high starting point suggests a substantial positive shift in the port's security environment.

This observed drastic decline in detected incidents within the 20 and above cases category over the specified years is a strong indicator of security interventions and an improved operational landscape at Mombasa Seaport. A reduction in such high-frequency occurrences typically points towards effective deterrence, enhanced prevention capabilities, and potentially a disruption of major organized criminal networks that might have been responsible for a large volume of thefts (Ramirez & Gupta, 2024; Chen & Wang, 2023). This trend can be attributed to increased investment in security infrastructure, such as advanced surveillance systems, improved access control mechanisms, better intelligence sharing among law enforcement agencies, and the successful prosecution of offenders (Lee & Park, 2025). The period between 2020 and 2024 likely saw a concerted effort by port authorities and national security bodies to combat cargo theft, responding to the initial high levels reported by respondents. The slight increase in 2023 could represent an adaptive response from criminal elements or a temporary lapse in vigilance, but the overall trajectory remains significantly positive.

Conversely, this distinct and sustained downward trend is a clear departure from a scenario where such a high frequency of detected thefts would remain rampant or worsen, which would signify profound security failures (Thompson & Lewis, 2022). The considerable reduction in this highest frequency category provides compelling evidence of a measurable and impactful improvement in the port's ability to combat and reduce the most frequent instances of cargo theft. The overwhelming decline in the number of cargo theft incidents detected annually within the 20 and above cases range between 2020 and 2024 at Mombasa Seaport signifies a positive transformation in the security landscape within Kilindini Harbour. This finding suggests that implemented security measures have had an impact on reducing the most pervasive and frequent instances of cargo theft, indicating enhanced effectiveness in deterring and detecting such criminal activities.

To provide a qualitative lens on these quantitative trends, the interviews with key informants offered invaluable corroboration and explanation for the perceived decline in detected incidents. The observed reduction in reported cases, particularly within the 1-5 and 6-9 ranges, aligns strongly with the expert view that cargo theft incidents are indeed becoming less frequent. A representative from Kenya Ships Agents Association (KSAA) representative and Clearing Agent 3's perspective directly supports the survey's downward observation trend, stating emphatically: They eluded that;

“Cargo theft incidents have become remarkably rare in recent years. We are now consistently seeing a very low number of reported cases annually. Specifically, there are typically zero to five incidents reported per year to security authorities for action, a significant improvement. This positive trend reflects enhanced security measures at the port.”

This powerful statement from a stakeholder deeply involved in port operations resonates with the survey data, indicating that the perceived reduction in detected cases is not just a statistical anomaly but reflects a tangible improvement in cargo security. The questionnaire results unequivocally demonstrate a consistent and significant perceived decline in the detection of cargo theft incidents at Mombasa Seaport over the past five years. This trend, observed across both the 1-5 and 6-9 detected cases ranges, is a strong indicator of evolving factors within port security and criminal operations.

This perceived decline is most plausibly explained by the enhanced effectiveness of anti-theft measures and increased investment in technology over time, a notion strongly supported by the key informant's observations. As port authorities implement more sophisticated surveillance, access control, and tracking systems technologies like AI-powered surveillance, real-time GPS tracking, and advanced analytics the ability to deter theft and detect incidents demonstrably improves. The qualitative data from the representative of Kenya Ships Agents Association (KSAA) representative and Clearing Agent 3's provides compelling validation that these efforts are yielding results, suggesting that major theft incidents are now genuinely rare. Alternatively, the decline could also reflect a shift by criminals towards more sophisticated methods that are harder to detect, such as strategic thefts involving identity fraud or collusion, which might not be captured in simple incident counts. However, the strong statement from the clearing agent points more towards prevention and deterrence.

Further insights from other key informants offered specific details supporting this observed trend in detected incidents. The Representative from Kenya International Freight & Warehousing Association reinforced the current low frequency, noting that;

"As of 2024, reported cargo theft incidents are at a significantly low level. We are seeing fewer than 10 cases reported to authorities annually. This notable reduction indicates that current security measures are proving effective. The trend points towards a continued decrease in such occurrences."

This recent assessment aligns well with the perceived decline, suggesting a sustained positive trend in detection. The Kenya Ships Agents Association representative provided a crucial temporal comparison, indicating a reduction in both the volume and nature of theft:

"During the years 2020, 2021, and 2022, we experienced a higher frequency of cargo theft, with approximately 20 cases annually. However, it's important to note that these incidents largely involved small quantities of goods. For example, a common report from a motor vehicle importer would be the disappearance of spare tires or minor accessories like

cameras, rather than an entire shipment. This indicates a consistent pattern of pilferage rather than large-scale heists.”

This highlights that even during periods of higher reported incidents; the thefts were often characterized as pilferage of small, high-value items, rather than the disappearance of entire consignments. The subsequent decline from about 20 cases to current low figures signifies a substantial improvement in mitigating such opportunistic thefts.

The cargo consolidator corroborated the general timeline of decline, stating;

“We’ve certainly seen a noticeable decrease in cargo theft cases since 2023, which is great news. Unfortunately, the year 2022 stood out as the peak for such incidents at our port. Despite that previous high, it’s truly encouraging to see the numbers decline consistently now.”

This consistency across multiple informants regarding a peak in 2022 and subsequent reduction provides strong evidence for a genuine shift in the landscape of detected cargo theft. Lastly, the Representative from Liquid and Bulk Transporters Operators introduced an important distinction regarding the scope of theft:

“For oil and gas, theft incidents are particularly prevalent along the highways, rather than directly at the port itself. These cases typically fall under the jurisdiction of the Kenya Police Service, as they occur outside the immediate port authority’s purview. Therefore, while we track overall cargo security, these specific highway-related thefts are handled and investigated by national law enforcement. This distinction is important for understanding the different facets of cargo security.”

This insight suggests that while security within the immediate seaport environment may have significantly improved for certain cargo types, challenges persist in the extended supply chain, particularly along transit routes for high-value bulk commodities like oil and gas. It indicates that some forms of cargo theft are being managed by external law enforcement agencies rather than being detected within the port’s internal security framework. In synthesis, the qualitative data from the key informants strongly supports the quantitative finding of a perceived decline in detected cargo theft incidents at

Mombasa Seaport. This reduction is largely attributed to more effective anti-theft measures and technological advancements within the port. While pilferage of smaller items has been a consistent form of theft, it also appears to be declining. However, the insights underscore that challenges persist along the broader supply chain, particularly for high-value bulk goods like oil and gas, which may fall under different detection and response mechanisms once they leave the immediate port area.

4.4 The Nature and Extent of Cargo Theft

4.4.1 Types of Cargos Mostly Stolen at Mombasa Seaport

The data in the Table below pertains to respondents' perceptions of the types of cargos most frequently targeted for theft at the Mombasa Seaport. This multiple-response variable aimed to identify the high-value and high-risk commodities susceptible to illicit activities.

Table 13: Type of Cargos Mostly Stolen at Mombasa Seaport

Types of Cargos mostly stolen at Mombasa Seaport	Frequency	Percent of Cases
Electronics	151	74.0
Automotive products	137	67.2
Fuel	133	65.2
Pharmaceuticals	125	61.3
Food & beverages	124	60.8
Alcohol & tobacco	118	57.8
Jewellery & precious metal	117	57.4
Agricultural goods	113	55.4
Cosmetics	95	46.6
Art & Cultural artifacts	81	39.7
Construction materials	73	35.8
Beauty products	66	32.4
Clothing fashion & accessories	57	27.9

The results indicated that electronics were the most frequently stolen category of goods, reported by 151 (74.0%) respondents. Automotive products followed closely with 137 (67.2%) respondents, and fuel was also highly targeted, reported by 133 (65.2%) respondents. Other categories included pharmaceuticals with 125 (61.3%), food & beverages with 124 (60.8%), alcohol & tobacco with 118 (57.8%), jewellery and precious metals with 117 (57.4%). Agricultural goods were reported by 113 (55.4%) respondents, while cosmetics 95 (46.6%), art & cultural artifacts 81 (39.7%), construction materials 73(35.8%), and beauty products 66 (32.4%) were also identified

as targets, though less frequently. Clothing, fashion & accessories were the least frequently reported category at 57 (27.9%). The high percentages across multiple categories suggest a diverse range of attractive targets for thieves at the seaport.

The prevalence of electronics, automotive products, and fuel as the most commonly stolen goods is highly consistent with global cargo theft trends and the economic drivers of organized crime. High-value, easily re-saleable items such as electronics and automotive parts are perennial targets due to their liquidity on illicit markets (Ramirez & Gupta, 2024; Jouav, 2025). Fuel, due to its inherent value and susceptibility to siphoning or diversion is also a common target, particularly in regions with high energy costs (TT Club & BSI, 2024). The targeting of pharmaceuticals and food & beverages reflects their universal demand, potential for quick distribution, and sometimes, high value or critical need (Munich Re, 2025; SGS Kenya, 2022). This pattern aligns with intelligence reports that indicate criminals prioritize goods that offer high returns, are relatively easy to move, and face less stringent tracking measures in certain stages of the supply chain. The diverse array of stolen goods underscores the opportunistic and adaptive nature of cargo theft operations at a busy port like Mombasa.

For better understanding of which cargo types are particularly vulnerable, the key informant interviews offered specific insights, often highlighting the characteristics that make certain goods appealing targets. The observations from Clearing and Forwarding Agents, Kenya Ships Agents Association, Cargo Consolidators, Kenya International Freight and Warehousing Association, and Liquid and Bulk Transporters Operators largely corroborated the survey findings while adding crucial details. Clearing Agent 1 identified motor vehicle parts as the most prone items to theft, noting;

“In the past, we observed a significant number of catalytic converter thefts. These incidents were quite frequent, posing a regular challenge for us. It was a very common occurrence for vehicles to be targeted specifically for these parts. The consistency of these thefts made them a persistent concern.”

This directly aligns with the survey's finding that automotive products are a highly targeted category. Kenya Ships Agents Association (KSAA) representative highlighted a broader range of susceptible goods, emphasizing the nature of the cargo itself:

“The consolidated loose cargo nature makes it an easy target for theft. Additionally, electronics, textile, agricultural equipment and household equipment are stolen because some are small enough to sneak out and there is a ready market for the same if successfully stolen.”

This strongly resonates with the survey's top finding for electronics and reinforces the vulnerability of agricultural goods. The emphasis on loose or small enough to sneak out items provides a key characteristic that attracts thieves. Similarly, an agent from cargo consolidators corroborated these findings, stating: Mostly the cargo affected by theft includes electronics, vehicle spare parts and food items like coffee and rice. This further confirms the prominence of electronics and vehicle spare parts automotive products while also identifying food items, which broadly falls under the survey's food & beverages and agricultural goods categories.

Kenya International Freight and Warehousing Association (KIFWA) representative also pointed to ease of concealment and market demand:

“Over the years, textile, electronics, and foodstuffs have been the most frequently targeted cargo for theft. This is largely due to their nature, as these items are typically easy to pilfer and sneak out of shipments. Their relatively high demand and ease of resale also contribute to their vulnerability to theft.”

This reiterates the vulnerability of electronics and food stuffs (food and beverages/agricultural goods) and aligns with Clearing Agent 2's pointed about items being small enough to sneak out. The integration of quantitative survey results and qualitative key informant insights reveals a strong convergence on the types of cargo most frequently targeted for theft at Mombasa Seaport. The survey broadly identifies electronics, automotive products, and fuel as the top three perceived targets. This is significantly reinforced by the key informant interviews, where electronics, motor vehicle/vehicle spare parts, and food items/food stuffs are consistently highlighted.

Clearing Agent 1 provided a specific example within the broader automotive products category, demonstrating a particular vulnerability.

"Listen, when we talk about cargo theft, it's not always the big, obvious shipments. A significant problem we face, particularly with vehicles, is the theft of catalytic converters. These are small, valuable components that are often targeted due to the precious metals they contain. It's a specific vulnerability within the broader category of automotive parts, and it requires a targeted approach to security."

The Kenya Ships Agents Association representative's observations also converged with the survey, noting;

"We've noticed that most of the theft cases we record involve automotive parts. Specifically, vehicle cameras and various spare parts are frequently stolen. These incidents occur at different points within the supply chain, often happening while the goods are with shipping agents or even after they've reached the importers."

This specifically points to the vulnerability of automotive components, indicating that these are targeted not just as whole vehicles but as valuable spare parts and accessories within the broader supply chain. A cargo consolidator provided a perspective related to their specific operational context:

"Our clients primarily deal with loose cargo, which we then consolidate into single shipments before dispatch. Unfortunately, we've identified that textile goods and electronic items are the main targets for theft. This consistent pattern indicates a specific vulnerability within our supply chain. We're actively working to enhance security around these particular categories."

This emphasizes that textile goods, while lower in overall survey frequency, are a significant target within the loose cargo and consolidation segment, alongside electronics. In summary, while the questionnaire provides a broad statistical overview of targeted cargo, the key informant insights refine this understanding by offering context regarding specific vulnerabilities, the characteristics that make certain goods

attractive (e.g., ease of sale, small size), and the operational segments of the supply chain where these thefts predominantly occur.

4.4.2 Methods Employed to Steal Cargos at the Seaport

The data in the Figure below pertains to the methods employed to steal cargoes at the Mombasa Seaport, as gathered from a multiple-response question.

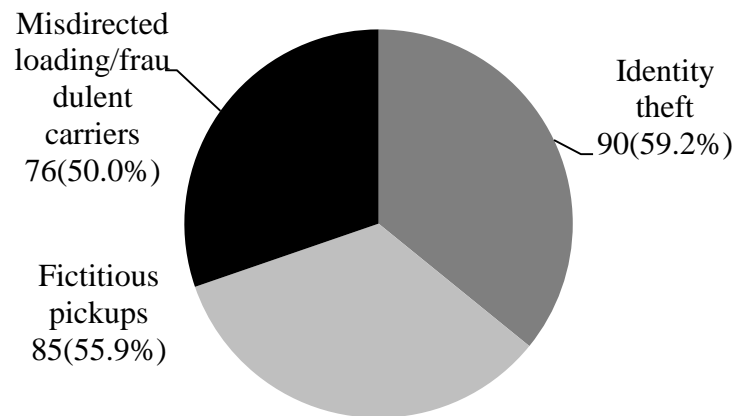


Figure 4: Methods used to Enhance Stealing of Cargo at Mombasa Seaport

Findings of this research showed that identity theft was the most frequently cited method of cargo theft, reported by 90 (59.2%) of the respondents. Fictitious pickups were also highly prevalent, indicated by 85 (55.9%) respondents. Following these, misdirected loading/fraudulent carriers were reported by 76 (50.0%) of the respondents. These findings highlight that deceptive and fraudulent methods are the primary means through which cargo theft is perpetrated at the seaport. These results are highly consistent with the findings of recent global studies on cargo crime, which increasingly emphasize the shift towards strategic, non-violent theft methods over traditional physical hijacking or forced entry.

Miller and White (2024) and Scott and Taylor (2023) note that criminals are leveraging sophisticated schemes involving identity fraud, falsified documentation, and impersonation to intercept legitimate shipments. The high incidence of identity theft and fictitious pickups at Mombasa Seaport aligns with a worldwide trend where criminals exploit vulnerabilities in administrative processes and information systems rather than relying solely on brute force (Rodriguez & Garcia, 2025). The involvement of misdirected loading or fraudulent carriers further underscores the reliance on

deception, where legitimate logistical channels are manipulated to divert cargo. Even though Defensible space theory emphasises the importance of physical security measures, the current circumstances have rendered them less effective thus the need for robust digital security, stringent verification protocols for carriers and drivers, and comprehensive training for port personnel on recognizing and counteracting sophisticated fraud. This suggests that the battle against cargo theft is increasingly becoming an intelligence and information security challenge. The prevalence of identity theft, fictitious pickups, and misdirected loading/fraudulent carriers as the primary methods of cargo theft at Mombasa Seaport signifies that the threat landscape at Kilindini Harbour is dominated by strategic and deceptive criminal tactics. This underscores the critical importance of investing in advanced verification systems, cyber security measures, and comprehensive training to enhance the port's resilience against these evolving forms of cargo theft.

For a more operational understanding of how these thefts occur, key informant interviews offered detailed insights into specific vulnerabilities within port processes and the tactics employed by perpetrators. While the survey emphasized broader fraudulent methods, the interviews illuminated the practical points of attack. Clearing Agent 1 highlighted critical junctures in the cargo handling process:

“Most cases occur during port cargo processes like 100% verification or inspection of cargo. Additionally, the trans-shipment of cargo between the port and cargo holding facilities such as the container freight stations (CFSs) create a vulnerability to some extent too especially for items that have not been identified in the tally sheet.”

This pinpointing of verification or inspection processes and trans-shipment aligns with the idea of methods that might involve misdirection or manipulation of documents, such as identity theft or fraudulent carriers, where official processes are exploited. The vulnerability of undeclared items as discussed in an earlier section further underscores this point. Clearing Agent 2 detailed a specific physical tampering method:

“Due to the risk of tampering with seals on cargo containers some perpetrators have been cutting the attaching bolts/hinges on the containers to gain access and replacing them after they have taken what they wanted.”

However, currently Maersk shipping line has been able to redesign their cargo containers which have countered this vulnerability.”

This insight brings in the physical aspect of theft, specifically the circumvention of security measures, which could be part of broader fraudulent schemes or stand-alone opportunistic thefts. The mention of Maersk's counter-measures indicates an ongoing technological arms race against perpetrators. In an interview with Liquid and Bulk Transporters Operators (LBTO), a transit driver further emphasized the collaborative nature of theft during handling:

“From what we've observed, cargo theft within the port is rarely an isolated act. It's almost always a collaborative effort involving multiple perpetrators working together. The incidents typically occur during critical handling phases, particularly when cargo is being verified or inspected. This vulnerability during the verification process makes it a prime target for coordinated theft.”

This strongly reinforces Clearing Agent 1's point about verification as a vulnerability and links to the idea of collusion previously discussed when profiling perpetrators. Finally, KIFWA representative also elaborated on seal-related tactics:

“We have definitely encountered instances where perpetrators have used counterfeited cargo seals. This sophisticated method allows them to gain unauthorized access into cargo containers, and unfortunately, it's designed to avoid detection. They also resort to tampering with legitimate seals, which is another way they manage to bypass security measures. These tactics highlight a significant vulnerability in our current system, making it challenging to identify breaches immediately.”

This directly supports Clearing Agent 2's observation regarding seal tampering and introduces the sophisticated tactic of using counterfeited cargo seals, which aligns perfectly with the survey's top findings on identity theft and fictitious pickups methods that rely on deception and masquerading as legitimate entities. A representative from the Kenya International Freight & Warehousing Association shed light on physical forms of tampering:

“We have frequently observed instances of container seals being broken. This isn't just accidental damage; often, these broken seals are then replaced with new ones. This suggests an attempt to conceal unauthorized access to the cargo. It's a clear indicator of tampering that we constantly monitor.”

This indicates that even with containerized cargo, theft can occur through direct physical access, with perpetrators attempting to conceal their actions by replacing damaged seals. The Kenya Ships Agents Association representative further elaborated on physical methods, stating:

“The most obvious forms of theft we encounter involve tampering with container seals, or even outright breaking them. We also frequently see items pilfered specifically during the offloading process, particularly when it comes to motor vehicle spare parts. These are key vulnerabilities we're actively monitoring.”

This corroborates the concern about seal tampering and specifically points to pilferage during the offloading process, particularly for high-value items like vehicle spare parts, where opportunities arise due to handling and temporary exposure. The Cargo Consolidator directly echoed a key survey finding, noting:

“We've encountered instances of fictitious cargo pickups at the port. In these cases, individuals forge documents to support their claims. They then proceed to impersonate the legitimate owner of the cargo, allowing them to fraudulently take possession.”

This provides compelling real-world validation for the questionnaire's emphasis on fictitious pickups and document forgery, illustrating how identity manipulation is used to fraudulently claim cargo. In summary, the quantitative data clearly points to fraudulent and deceptive methods as the most common approaches to cargo theft, a finding deeply enriched by key informant accounts that specify how seal tampering facilitates physical theft, and how document forgery and identity impersonation enable sophisticated fictitious pickups and diversions.

Furthermore, the interviews reveal specific physical methods like cutting attaching bolts/hinges on containers and the use of counterfeited cargo seals or tampering of seals. These physical acts, as described by Clearing Agents 2 and KIFWA representative, can either be standalone incidents or, more likely, an integral part of larger fraudulent schemes where, for example, a counterfeit seal facilitates a fictitious pickup or misdirected loading. The emphasis on collaboration among perpetrators and LBTO-transit driver further suggests that these methods are often executed by organized groups. In essence, while the survey identifies what the main methods are fraudulent deception, the qualitative data from the interviews provides crucial insight into how and where these methods are executed within the port's operational environment, often by exploiting specific process vulnerabilities and employing physical or digital deceptive tools like counterfeit seals. This holistic view is vital for developing targeted security strategies that address both the digital and physical aspects of cargo theft.

The quantitative and qualitative data reveals that cargo theft at Mombasa Seaport is perpetrated through a complex interplay of sophisticated fraudulent schemes and opportunistic exploitation of operational vulnerabilities. The survey results clearly highlight that deceptive methods such as identity theft, fictitious pickups, and fraudulent carriers are the most perceived primary means of theft. This suggests a significant portion of cargo crime relies on manipulating information and trust. The key informant interviews strongly corroborate and elaborate on these findings by identifying the specific operational contexts and physical tactics that enable such fraud. Vulnerabilities are acutely present during 100% verification or inspection of cargo and trans-shipment, as highlighted by Clearing Agent 1 and LBTO- transit driver. This suggests that the fraudulent methods reported in the survey like identity theft and misdirected loading often capitalize on the inherent complexities and hand-off points within port processes.

4.4.3 Times When Cargo Theft Mostly Takes Place at Mombasa Seaport

The data in the table below pertains to respondents' perceptions regarding the times when cargo theft mostly takes place at the Mombasa Seaport. This variable was included to identify peak vulnerability periods, thereby enabling the optimization of

security resource allocation and surveillance strategies at Kilindini Harbour in Mombasa, Kenya (2020-2024).

Table 14: Times when Cargo Theft Mostly Occur

Time it occurrence	Frequency	Percent
No specific time	30	14.8
Early night (7pm- 11:59pm)	25	12.3
Mid night (12:00am -12:59 am)	18	8.9
Late night (1am-3:59am)	86	42.4
Early morning (4 am-5:59am)	35	17.2
Morning (6am to 11:59 am)	9	4.4
Total	203	100.0

The findings of this research indicated that late night (1 am - 3:59 am) was overwhelmingly identified as the most frequent period for cargo theft, reported by 86 (42.4%) respondents. Early morning (4 am - 5:59 am) followed with 35 (17.2%) respondents, suggesting a continued vulnerability into the pre-dawn hours. A notable proportion, 30 (14.8%) respondents, stated that there was No specific time, indicating a degree of unpredictability or continuous threat. Early night (7 pm - 11:59 pm) was reported by 25 (12.3%) respondents and mid-night (12:00 am - 12:59 am) by 18 (8.9%). Morning hours (6 am - 11:59 am) were perceived as the least frequent time for theft, reported by only 9 (4.4%) respondents. This suggests a clear temporal pattern with a concentration of incidents occurring in the latter half of the night. The identification of late night and early morning hours as the primary times for cargo theft at Mombasa Seaport signifies that these specific temporal windows represent the highest risk periods within Kilindini Harbour, demanding intensified security focus. This finding provides actionable intelligence for optimizing security schedules, deploying technological solutions, and training personnel to specifically counteract nocturnal cargo theft attempts.

These results are consistent with the findings of various global studies on cargo theft and port security, which frequently highlight night-time hours as periods of increased vulnerability. Researchers like Ekwall and Lantz (2013) found that cargo theft predominantly occurs between midnight and early morning, when operational activity is reduced, visibility is low, and security personnel might be fewer or less vigilant. Such periods provide criminals with extended windows of opportunity and reduced risk of

detection (Azam & Khan, 2024; Davies & Thomas, 2023). The significant number of respondents indicating "No specific time" also suggests the adaptive nature of criminal elements, who may strike whenever an opportunity arises, irrespective of routine schedules. These findings underscore the critical importance of strengthening security measures during late night and early morning shifts. This implies a need for enhanced lighting, increased patrols, sophisticated surveillance technology with night vision capabilities, and potentially, modified staffing levels during these high-risk hours to mitigate vulnerabilities effectively. These results differ from a scenario where cargo theft might be evenly distributed throughout a 24-hour cycle, or predominantly occur during bustling daytime operations. The clear concentration during specific nocturnal hours points to strategic targeting by criminals who exploit the inherent operational quietness and reduced human presence of these periods.

To enrich this understanding of theft timing, key informant interviews provided additional insights, not only reinforcing the prevalence of night-time incidents but also introducing seasonal patterns and underlying reasons for these trends. LBTO- Transit Driver directly corroborated the survey's emphasis on night-time vulnerability, explaining that:

“Most incidents of theft at the port are more likely to occur at night. This is primarily because during those hours, the port generally operates with a significantly reduced number of staff members. The lower personnel presence creates an opportune environment for perpetrators. This diminished oversight makes night-time a particularly vulnerable period for security breaches and cargo theft.”

This expert observation provides a crucial explanation for the quantitative findings, attributing the higher frequency of theft during late night and early morning to reduced staffing and potentially lower surveillance during those hours. The Transit driver also introduced a seasonal dimension, suggesting:

“Cargo theft incidents show a clear seasonal pattern. They are significantly more likely to occur during the months of August to December. This period often corresponds with increased shipping volumes and holiday demand. Therefore, we consistently observe a heightened risk during this time of year.”

Adding to the seasonal context, KSAA representative specifically identified a peak period influenced by holiday activities:

“Most cargo theft incidents at the port occur between December and January. This heightened activity is strongly influenced by the festive season. Perpetrators often exploit the increased shipping volumes, holiday closures, and potential for reduced staffing during this period to carry out their actions.”

This highlights a specific window of heightened risk that correlates with increased cargo movement and potentially relaxed vigilance or increased opportunity during festive periods. The integration of quantitative and qualitative data reveals a clear pattern regarding the timing of cargo theft at Mombasa Seaport. The survey results conclusively identify late night (1 am - 3:59 am) and early morning (4 am - 5:59 am) as the periods of highest vulnerability, aligning with common criminal opportunism when activity might be lower. This quantitative finding is directly and powerfully explained by the Transit driver's qualitative insight that the port is generally operating with a smaller number of staff" during night hours, creating ideal conditions for perpetrators.

Beyond the daily cycle, the key informant interviews introduced important seasonal trends. LBTO- Transit Driver pointed out that:

“We observe a consistent increase in cargo theft incidents at the port. This surge typically begins around August and continues through December. This seasonal pattern likely aligns with higher shipping volumes and holiday demand. We implement heightened vigilance during these months to mitigate risks.”

KSAA representative specifically highlighted that:

“Most cargo theft incidents at the port concentrate between December and January. We attribute this surge directly to the festive season's influence on perpetrator actions. The increased movement of goods and potential for relaxed vigilance during holidays create ripe opportunities for criminal activity. This pattern is consistent and requires heightened security during these months.”

This suggests that the confluence of reduced operational staff at night and increased activity/opportunity during holiday seasons creates periods of heightened risk for cargo theft. Therefore, while the perceived high frequency of theft is concentrated in the late night and early morning, these risks are likely exacerbated during the latter months of the year, particularly around festive periods. This integrated understanding is crucial for developing targeted security measures that consider both daily operational cycles and annual seasonal fluctuations.

A representative from the Kenya International Freight & Warehousing Association noted:

“Theft at the port primarily occurs when operations are less active, particularly during weekends and holidays. The most vulnerable times are typically late at night, and especially during the critical phase of cargo offloading. This combination of reduced activity and specific operational windows creates prime opportunities for perpetrators.”

This directly corroborates the survey's finding regarding late-night occurrences and introduces the crucial element of reduced operational busyness during weekends and holidays as a facilitating factor. The emphasis on "during offloading" points to a specific vulnerable activity within these periods. The Kenya Ships Agents Association representative further specified the days and conditions, stating:

“Theft at the port shows a clear pattern, predominantly occurring on Saturdays and Sundays. This vulnerability is exacerbated during the rainy days of the year. Specifically, we observe a rise in incidents during the wet months of April and May, and again in October and November.”

This not only reinforces the weekend vulnerability but also highlights inclement weather (rainy days) as a condition exploited by thieves, potentially due to reduced visibility or slower human response. The mention of specific months (April, May, October, November) links these periods to the typical rainy seasons in Kenya. A Cargo Consolidator offered a similar perspective, stating that:

“I wouldn't point a particular day or time of day for theft incidents. However, we consistently record a higher number of incidents during weekends and holidays. This pattern suggests that periods of reduced

staffing and operations create more opportunities. It's a clear trend that we've observed in our data."

While acknowledging a general lack of rigid timing, their observation strongly aligns with the other informants regarding the heightened risk during weekends and holidays, periods traditionally associated with lower staffing and oversight. Finally, the Representative from Liquid and Bulk Transporters Operators focused on the environmental conditions, stating:

"Most theft incidents at the port happen during the night and odd hours. These occurrences are particularly prevalent during the rainy season and consistently spike in the month of December. This combination of factors creates a vulnerable period that perpetrators often exploit."

This confirms the convergence of night-time/odd hours and rainy season as prime conditions for theft, and additionally, points to December, which often includes holiday periods, aligning with the "holiday" vulnerability mentioned by other informants. In summary, the quantitative data clearly points to late night and early morning as peak times for cargo theft, and these findings are strongly validated by key informant accounts.

The findings regarding the prevalence of cargo theft at Mombasa port during night-time/odd hours, the rainy season, and specifically in December, strongly align with Routine Activity Theory. This theory posits that crime occurs when three elements converge in time and space: a motivated offender, a suitable target, and the absence of capable guardianship. In this context, the "night-time/odd hours," "rainy season," and "December" (holiday period) represent specific times and environmental conditions where the absence of capable guardianship is heightened. During these periods, natural surveillance by port personnel, security patrols, and other forms of formal and informal guardianship are likely to be reduced due to fewer staff, poor visibility, or staff being on leave. Simultaneously, the cargo at the port remains a suitable target -valuable, often unguarded during these vulnerable periods, and therefore attractive to motivated offenders who are always present and seeking opportunities. The qualitative insights further strengthen this by highlighting how weekends, holidays, and adverse weather

facilitate this reduced surveillance, creating opportune windows for criminal activity. Thus, the temporal and environmental patterns of theft at Mombasa port directly reflect the core tenets of Routine Activity Theory, demonstrating how the convergence of these three elements creates increased opportunities for crime.

4.4.4 Day of the Week when Cargo Theft Takes Place

The data in the table below pertains to respondents' perceptions regarding the specific day of the week when cargo theft predominantly occurs at the Mombasa Seaport. This variable was included to identify cyclical vulnerabilities, thereby enabling the strategic deployment of security resources and personnel based on weekly patterns at Kilindini Harbour in Mombasa, Kenya.

Table 15: Days of the Week When cargo Theft Occur

Day of the Week	Frequency	Percent
Monday	19	9.4
Tuesday	13	6.4
Wednesday	9	4.4
Friday	15	7.4
Saturday	69	34.0
Sunday	78	38.4
Total	203	100.0

Results of this study revealed that weekends were perceived as the most frequent times for cargo theft, with Sunday reported by 78 (38.4%) respondents and Saturday by 69 (34.0%) respondents. Combined, these two days account for a substantial majority of the perceived theft incidents. Weekdays showed significantly higher frequencies: Monday was reported by 19 (9.4%) respondents, Friday by 15 (7.4%), Tuesday by 13 (6.4%), and Wednesday by a minimal 9 (4.4%). This distinct pattern highlights a strong concentration of cargo theft activity during the weekend period. The predominant identification of Saturday and Sunday as the most frequent days for cargo theft at Mombasa Seaport signifies that weekends represent a critical vulnerability period within Kilindini Harbour demanding a heightened and specific security focus. This suggests that cargo thieves make rational choice to exploit days with lower oversight, decreased operational tempo, or reduced deployment of critical security personnel, which typically characterize weekend operations. This finding provides actionable intelligence for optimizing security scheduling, especially concerning personnel

deployment and surveillance measures, to specifically mitigate weekend cargo theft risks.

These results are aligned with the findings of various research bodies and industry reports on cargo crime, which frequently identify weekends and holidays as periods of heightened vulnerability for cargo theft. Experts such as CargoNet (2025) and analytics by BSI Consulting (2024) consistently show that cargo theft spikes over weekends and long holiday periods. This phenomenon is often attributed to reduced staffing levels at facilities, less operational activity; fewer personnel present for surveillance, and increased opportunities for unattended cargo (Pedigree Technologies, 2024; Travellers Insurance, 2023). Criminals exploit the diminished oversight and slower response times that characterize weekend operations. The findings strongly suggest that the existing security framework at Mombasa Seaport faces significant challenges during non-weekday operations.

This implies a critical need for enhanced weekend security protocols, including increased patrols, continuous monitoring of surveillance systems and potentially dedicated rapid response teams to counteract the heightened risk during these periods. The relatively low reported theft on weekdays, particularly mid-week, further emphasizes that security measures during standard business hours might be more robust or that criminal activity shifts to exploit weekend weaknesses. These results differ significantly from a hypothetical scenario where cargo theft might be evenly distributed throughout the week, or even concentrated during busy weekday operations. The stark contrast between weekday and weekend theft frequency underscores the strategic targeting by criminals who capitalize on the known operational slowdowns and reduced human presence associated with weekends.

4.4.5 Month of the Year When Cargo Theft Mostly Take Place at the Seaport

The data in the table below pertains to respondents' perceptions regarding the specific month of the year when cargo theft predominantly occurs at the Mombasa Seaport. This variable was included to identify seasonal patterns of vulnerability, thereby enabling the strategic allocation of security resources and preventative measures based on annual trends.

Table 16: Month of the Year when Cargo Theft Occur

The month of the year (Tick one only)	The month of the year (Tick one only)	Frequency	Percent
	February	6	3.0
	March	6	3.0
	April	8	3.9
	June	9	4.4
	July	1	0.5
	August	1	0.5
	September	6	3.0
	October	11	5.4
	November	35	17.2
	December	113	55.7
	Total	203	100.0

The study revealed a pronounced concentration of cargo theft incidents towards the end of the year. December was identified as the month with the highest frequency, reported by 113 (55.7%) respondents. November also showed a significant increase in perceived theft, with 35 (17.2%) respondents. October registered 11 (5.4%) respondents, indicating a gradual increase from earlier months. Conversely, other months reported much lower frequencies: June 9(4.4%), April 8 (3.9%), February 6(3.0%), March 6(3.0%), and September 6(3.0%). July and August were perceived as having the least theft activity, each reported by only 1 (0.5%) respondent. This clear pattern points to a strong seasonal influence on cargo theft at the seaport.

The predominant identification of December and November as the months with the highest frequency of cargo theft at Mombasa Seaport signifies that these months represent critical annual vulnerability periods within Kilindini Harbour, demanding specific and intensified security focus. This finding provides actionable intelligence for implementing seasonal security enhancements, resource allocation, and targeted preventative strategies to counteract peak-season cargo theft risks.

These results are highly consistent with the findings of numerous international reports and analyses on cargo theft seasonality, which widely acknowledge a spike in incidents during the fourth quarter of the year, particularly November and December. Organizations like Risk Intelligence (2023) and reports by the British Standards Institution (BSI) consistently attribute this surge to the peak shipping season. This period, driven by global holidays such as Black Friday, Christmas, and New Year,

involves a massive increase in freight volumes, particularly of high-value consumer goods like electronics, which create more opportunities for criminals (Overhaul, 2024; TAPA EMEA, 2022).

The heightened pressure on logistics chains during these months can sometimes lead to security lapses, such as cargo being left unattended or expedited processes overriding strict security protocols. These findings indicate that Mombasa Seaport experiences a similar seasonal vulnerability observed globally. This implies a critical need for the port to implement heightened security alerts, increase surveillance, and deploy additional personnel during the peak shipping months of November and December. Proactive measures, such as enhanced vetting of carriers and drivers, and stricter control over loading and unloading procedures, become even more vital during this high-risk period to mitigate the increased threat effectively.

4.4.6 Season of the Year when Cargo Theft Mostly Occur

The data in the Table below pertains to respondents' perceptions regarding the season of the year when cargo theft predominantly occurs at the Mombasa Seaport. This variable was included to identify broad seasonal patterns of vulnerability, thereby facilitating the macro-level planning of security measures and resource allocation at Kilindini Harbour in Mombasa, Kenya

Table 17: Season of the Year when Cargo Theft Mostly Occur

Season of the year (Tick one only)	Frequency	Percent
Rainy	135	66.2
Dry	69	33.8
Total	204	100.0

The findings of this research showed that the rainy season were overwhelmingly perceived as the period when cargo theft mostly occurs, reported by 135 (66.2%) respondents. In contrast, the dry season was reported by significantly fewer respondents, 69 (33.8%). This suggests a clear correlation between weather conditions, specifically the rainy season, and the perceived increase in cargo theft incidents at the port. These results are consistent with existing literature and anecdotal evidence concerning security challenges in various operational environments, particularly in regions prone to heavy rainfall. During the rainy season, factors such as reduced

visibility for surveillance cameras, slippery surfaces affecting physical patrols, slower movement of goods, and general operational disruptions can create more opportunities for criminal activity (Buluttan, 2024; STG Logistics, 2024). Heavy rains can also lead to increased congestion and delays, causing cargo to remain static for longer periods in less secure areas, thereby increasing its vulnerability (Dimerco, 2021). Furthermore, adverse weather can impact the efficiency of security personnel, making it harder for them to detect and respond to incidents effectively. These findings imply that the environmental conditions specific to the rainy season in Mombasa contribute significantly to the perceived risk of cargo theft. This highlights a critical need for port security strategies to be adapted and intensified during these months, focusing on enhanced surveillance technologies robust enough for poor visibility, improved physical security measures to counteract the impact of adverse weather, and perhaps adjusted staffing levels to maintain optimal vigilance despite challenging conditions. The predominant identification of the rainy season as the period when cargo theft mostly occurs at Mombasa Seaport signifies that this climatic period represents a significant vulnerability window within Kilindini Harbour, demanding a heightened and specifically tailored security focus. This finding provides crucial intelligence for tailoring seasonal security protocols, investing in weather-resistant surveillance infrastructure, and optimizing response mechanisms to counteract cargo theft effectively during adverse weather conditions.

4.4.7 Perpetrators Involved in Cargo Theft at Mombasa Seaport

The data in the table below pertains to respondents' perceptions regarding the types of perpetrators involved in cargo theft at the Mombasa Seaport, as gathered from a multiple-response question. This variable was included to identify the human element behind cargo theft, providing crucial intelligence for developing targeted preventative and enforcement strategies at Kilindini Harbour in Mombasa, Kenya (2020-2024). Respondents could indicate all types of perpetrators they perceived as relevant.

The study revealed that criminal gangs were most frequently identified as perpetrators, reported by 151 (79.1%) respondents. Rogue business persons/financiers also played a significant role, indicated by 135 (70.7%) respondents. Rogue public officials were cited by 65 (34.0%) respondents, while vulnerable youth (unemployed, unskilled, lowly

educated) were reported by 58 (30.4%). Other identified perpetrators included hired goons (53; 27.7%), former employees (32; 16.8%), and politicians (28; 14.7%). Current employees were the least frequently cited, at 26 (13.6%).

Table 18: Cargo Theft Perpetrators at Mombasa Seaport

Perpetrators involved in cargo Theft at Seaport	Frequency	Percent of Cases
Vulnerable youth	58	79.1
Rogue business persons/ financiers	135	70.7
Rogue public officials	65	34.0
Criminal gangs	151	30.4
Hired goons	53	27.7
Former employees	32	16.8
Politicians	28	14.7
Current employees	26	13.6

These findings suggest a complex web of actors, ranging from opportunistic individuals to organized networks, involved in cargo theft. These findings imply that addressing cargo theft at Mombasa Seaport requires a multi-pronged approach that extends beyond physical security. It necessitates socio-economic interventions to reduce youth vulnerability, stringent regulatory oversight and anti-corruption measures targeting business and public sectors, and robust intelligence-led operations to disrupt organized criminal networks. The relatively lower, but still present, involvement of former and current employees highlights the perpetual insider threat that ports must continuously manage through vetting and internal controls.

The significant role attributed to rogue business persons/financiers is consistent with the global trend of strategic cargo theft, where illicit trade often involves individuals who leverage legitimate business facades for criminal gain, reflecting sophisticated organized crime (Leschaco, 2025; Tive, 2024). Furthermore, the notable involvement of rogue public officials is a pervasive issue in port security worldwide, as corruption can undermine enforcement and facilitates theft by creating loopholes or providing insider information (KPA Anti-Corruption Policy, 2018; GAN Integrity, 2017). The presence of criminal gangs and hired goons indicates an element of organized crime that can employ both deceptive and, at times, violent tactics.

These results align with the findings of various researches on crime and illicit economies in developing countries, particularly in port environments. The high involvement of vulnerable youth aligns with broader socio-economic challenges where unemployment and lack of opportunities can drive individuals towards petty crime or recruitment into larger criminal schemes (CHRIPS, 2020; Kenyan National Treasury, 2020).

The finding that vulnerable youth (unemployed, unskilled, lowly educated) were most frequently identified as perpetrators strongly aligns with Robert Merton's Differential Opportunity Theory of crime. Merton's theory (and its elaboration by Cloward and Ohlin) posits that society places a strong emphasis on achieving certain cultural goals, such as material success and financial stability. However, the legitimate means to achieve these goals (good education, stable employment, career advancement) are not equally distributed across all social strata. Individuals who are "unemployed, unskilled, and lowly educated" face significant blocked legitimate opportunities.

According to the theory, when individuals internalize these cultural goals but are denied access to legitimate avenues for achieving them, they experience strain. This strain can lead to various adaptations, one of which is innovation, where individuals pursue the culturally approved goals (like wealth) through illegitimate means (like crime). Therefore, the study's finding that vulnerable youth are the primary perpetrators suggests that due to their lack of legitimate opportunities, they are more likely to resort to criminal activities, such as cargo theft, as an alternative (though illicit) pathway to achieve what society defines as success or to meet basic needs. This indicates a "differential opportunity" for both legitimate and illegitimate means, with the vulnerable youth having greater access to and being more incentivized by the latter.

To provide a more informed understanding of these perpetrator profiles, in-depth discussions with Clearing & Forwarding Agents and Kenya Ships Agents Association representatives offered valuable insights, often highlighting specific roles within port operations. While the survey pointed to broader categories like vulnerable youth and rogue business persons, the key informants focused on individuals directly involved in the logistics chain. Clearing Agent 2 identified specific operational roles:

“A few key individuals emerge as potential perpetrators of cargo theft. These include cargo off-loaders and verification clerks, whose direct access to goods creates opportunities. Additionally, vulnerable youths can be exploited to participate in these activities. Most often, however, it's collusion between a number of these individuals, leveraging their combined access and knowledge to execute the thefts.”

This directly aligns with the survey's finding regarding vulnerable youth while adding more precise roles like cargo off-loaders and verification clerks. Expanding on the direct operational roles, Kenya Ships Agents Association representatives focused on what they perceived as major suspects:

“The major suspects we can profile in cases of cargo theft are consistently drivers, individuals who are current port staff, and brokers. These groups often have the access and opportunity to perpetrate such crimes. Our focus for investigation and prevention efforts primarily centres on these individuals.”

The mention of drivers and brokers introduces new specific perpetrator types not explicitly listed as separate categories in the questionnaire's fixed options, yet are critical to the port's ecosystem. The inclusion of current staff by Clearing Agent 2 is particularly noteworthy, as current employees were the least cited category in the general survey (13.6%), suggesting a potential discrepancy between general perception and expert observation regarding internal involvement.

Furthermore, Kenya Ships Agents Association representatives provided a perspective that includes both internal and external collusive elements:

“The perpetrators of cargo theft typically fall into a few categories: rogue police officers involved in verification, brokers, or internal port staff. Often, it's collusion among all of these individuals. This coordinated effort allows them to exploit vulnerabilities within the port's operations.”

This highlights the critical role of rogue police officers and reinforces the involvement of brokers and internal staff, echoing Clearing Agent 2's emphasis on these groups. The

notion of collusion by Clearing Agent 2 and Kenya Ships Agents Association representatives underscores the organized nature of some theft incidents.

A representative from the Kenya international freight & warehousing association focused on the opportunistic element, stating:

“We have primarily dealt with cargo theft cases involving two main groups. These are typically youths who illegally access the port grounds and cargo-off loaders. Both sets of individuals present distinct challenges to our security measures, requiring targeted interventions to prevent further incidents.”

This aligns with the survey's identification of vulnerable youth, suggesting their involvement often stems from direct, illicit access or roles within manual cargo handling. The Kenya Ships Agents Association representative expanded on this, noting:

“Our clients most frequently complain about issues involving truck drivers, cargo off-loaders, and personnel in clearing and forwarding. These individuals are consistently identified as points of concern in their interactions. We're actively addressing these areas to improve service and reduce complaints.”

This broadens the scope to include logistics personnel outside the immediate port gate, like truck drivers, and also highlights the role of individuals within the clearing and forwarding process who might exploit their access or knowledge. A Cargo Consolidator specifically pointed to insider collusion, asserting,

“The perpetrators are primarily verification clerks collaborating with clearing and forwarding agents. Additionally, we frequently find rogue security personnel at the port involved in these incidents. This collusion between individuals with access and authority poses a significant challenge to our security efforts.”

This insight underscores the critical role of individuals in administrative and security roles, whose insider knowledge and access can be leveraged for theft. Finally, the Representative from Liquid and Bulk Transporters Operators implicated higher-level actors, stating:

“The issue of cargo theft at the port is often linked to rogue public officials. These individuals, who hold positions of trust, unfortunately exploit their authority for illicit gains. They frequently collude with unscrupulous business people, creating a network that facilitates theft.”

This combination of corruption and unethical business practices poses a significant challenge to port. This corroborates the survey's finding regarding rogue public officials and business persons, emphasizing their perceived involvement in more organized or systemic theft, particularly in sectors dealing with high-value bulk commodities. In conclusion, the study reveals that cargo theft at Mombasa Seaport is a multifaceted problem driven by a range of perpetrators. While vulnerable youth and opportunistic cargo handlers are frequently involved, key informant views consistently highlight the critical role of individuals with legitimate access and influence, necessitating a multi-pronged approach to combating cargo theft. The emphasis by Clearing Agent 2 and the Kenya Ships Agents Association representatives on drivers, brokers, and current staff which includes internal staff and even rogue police officers suggests that while general perceptions might focus on broader categories like vulnerable youth, those directly experiencing and observing theft often identify more specific, access-oriented roles within the port's operations. The low percentage of current employees cited in the survey compared to the prominence given to current staff by key informants could suggest that internal involvement, while perhaps less visible to the broader public, is a significant concern for those directly managing port operations. The qualitative data strongly emphasizes the role of collusion among these various actors, suggesting that cargo theft is often not an isolated act by a single individual but a result of coordinated efforts. This integrated view paints a more comprehensive picture, indicating that strategies to combat cargo theft must not only address external vulnerabilities but also scrutinize and strengthen internal controls and personnel integrity within the port's complex operational ecosystem.

4.4.8 Agencies Collaborating in Port Security

The data in the Table below pertains to the various agencies that collaborate in port security at the Mombasa Seaport, as indicated by the study's participants. This multiple-response variable aimed to identify the key governmental and non-governmental

stakeholders perceived to be involved in enhancing security measures and preventing cargo theft at Kilindini Harbour in Mombasa, Kenya.

Table 19: Collaborating Agencies in Mombasa Seaport Security

Agencies that collaborate in Port Security	Frequency	Percent of Cases
National Police Service (NPS)	137	68.2
National Intelligence Service (NIS)	118	58.7
Kenya Revenue Authority (KRA)	98	48.8
National Government Administration Office (NGAO)	96	47.8
Office of the Director of Public Prosecutions (ODPP)	44	21.9
Ethics and Anti-Corruption Commission (EACC)	41	20.4
Civil Society Organization	28	13.9
Judiciary	26	12.9
Religious leaders / Faith Based Organization (FBO)	1	0.5

Trusted Agencies that Collaborates in Mombasa Seaport Security		
	Frequency	Percent of Cases
National Police Service (NPS)	138	68.0
National Intelligence Service (NIS)	109	53.7
Kenya Revenue Authority (KRA)	103	50.7
National Government Administration Office (NGAO)	101	49.8
Ethics and Anti-Corruption Commission (EACC)	41	20.2
Office of the Director of Public Prosecutions (ODPP)	40	19.7
Civil Society Organization	31	15.3
Judiciary	17	8.4
Religious leaders / Faith Based Organization (FBO)	3	1.5

The results indicated that the National Police Service (NPS) was the most frequently cited collaborating agency, with 137 (68.2%) participants acknowledging its involvement. The National Intelligence Service (NIS) was also widely recognized by 118 (58.7%) participants. Other significant collaborators included the Kenya Revenue Authority (KRA), identified by 98 (48.8%) participants, and the National Government Administration Office (NGAO), reported by 96 (47.8%) participants. The Office of the Director of Public Prosecutions (ODPP) and the Ethics and Anti-Corruption Commission (EACC) were cited by 44 (21.9%) and 41 (20.4%) participants, respectively. Civil Society Organizations were noted by 28 (13.9%) participants, and the Judiciary by 26 (12.9%). Religious leaders/Faith-Based Organizations (FBOs) were rarely mentioned, with only 1 (0.5%) participant indicating their collaboration. The

predominant recognition of state security and revenue agencies as key collaborators signifies that port security at Kilindini Harbour operates within a multi-agency framework heavily reliant on formal government institutions to counter cargo theft. The participant reports highlight a structured approach to security that leverages distinct, yet often overlapping, mandates of national bodies to address the complex challenges of crime within the port environment.

This reported pattern of collaboration, with primary law enforcement and intelligence agencies at the forefront, is highly consistent with the multi-agency approach typically mandated for critical national infrastructure security, particularly in a dynamic environment like a major seaport. The National Police Service and National Intelligence Service are inherently responsible for national security, crime prevention, and intelligence gathering, making their prominent roles in port security expected and crucial (Kamau & Ndungu, 2021; Onyango & Okoth, 2022). The significant involvement of the Kenya Revenue Authority underscores the strong link between customs duties, trade facilitation, and security, as revenue collection is often intertwined with preventing illicit trade and contraband, including stolen cargo (Kiptoo & Cheboi, 2023). Similarly, the National Government Administration Officers, representing local governance and security coordination, plays a vital role in ensuring order and facilitating inter-agency operations. The lower but still present recognition of ODPP and EACC reflects the prosecutorial and anti-corruption frameworks necessary to address criminal activities, including cargo theft, and hold perpetrators accountable (Koech & Muturi, 2022).

The very low reported collaboration with religious leaders/Faith-Based Organizations differs significantly from community-based security initiatives that might heavily involve such entities, suggesting that formal port security primarily relies on state and regulatory bodies. While civil society and the judiciary have a role, their lower reported percentages compared to direct security agencies indicate a more peripheral or specialized involvement in the day-to-day operational security at the port. This implies that the core operational aspects of preventing cargo theft are largely perceived to rest with the traditional law enforcement and revenue collection organs.

Key informant interviews offered specific insights into the roles, effectiveness, and challenges faced by various agencies directly involved in cargo theft cases. These insights often pinpointed areas of strength and weakness. Cargo Consolidators representative directly addressed the involvement of the police and judiciary:

“The police and judiciary are the agencies mainly involved in cargo theft cases though the police are not sufficiently equipped with the expertise to effectively investigate cargo theft cases and require specialized training for the same. However, the judiciary was somewhat not effective according to the previous experience as a victim of the crime.”

This statement strongly corroborates the sentiments from Liquid and Bulk Transporters Operators who alleged that there are of delays in delivery of justice within the judiciary. Crucially, it introduces a critical nuance: while the police are highly involved in arresting offenders, their effectiveness in investigation is hampered by a lack of specialized training or collaboration with the office of ODPP. The judiciary, on the other hand, receives a more negative assessment from the informant's personal experience due to delays in delivery of justice. The Liquid and Bulk Transporters Operators- transit driver offered a focused critique on a specific police unit while commending others:

“The DCI (Directorate of Criminal Investigations) is not effective in handling cargo theft cases because they have limited training in that area. However, the port security and highways police unit have been effective in addressing and deterring cargo theft.”

This further elaborates on the effectiveness of specific police units, distinguishing between the DCI's perceived limitations and the effectiveness of port security and highways police unit, suggesting that specialized units within the broader police service are more effective. The quantitative and qualitative data revealed a nuanced picture of inter-agency collaboration in combating cargo theft at Mombasa Seaport. The survey results indicate a broad perception of collaboration involving numerous agencies, with the National Police Service (NPS) and National Intelligence Service (NIS) being the most widely recognized collaborators. This suggests that stakeholders are aware of a multi-agency approach to the problem. The inclusion of bodies like KRA, NGAO,

ODPP, and EACC further underscores the perceived comprehensive nature of these collaborative efforts, addressing various facets from revenue collection to anti-corruption.

However, the key informant interviews provided critical qualitative depth by focusing on the operational effectiveness and specific challenges within these collaborative efforts. While the survey broadly acknowledges the NPS, Cargo Consolidators representative and LBTO- transit driver offered a more granular assessment of police capabilities. Cargo Consolidators points to a lack of specialized expertise within the police force in investigating cargo theft, recommending specialized training. The LBTO- transit driver reinforces this by explicitly stating the DCI's ineffectiveness due to limited training, but crucially distinguishes this from the effectiveness of port security and highways police unit. This suggests that while the NPS as a whole is widely seen as a collaborator, effectiveness varies significantly among its specialized units, with some lacking the specific skills required for complex cargo theft investigations. Furthermore, Cargo Consolidators negative somewhat not effective, assessment of the Judiciary from personal experience adds an important dimension to the criminal justice chain, despite its perceived collaboration rate in the survey. This integrated view highlights that while many agencies are perceived as collaborators, there is a clear call from key operational stakeholders for enhanced specialization and training, particularly within investigative units of the police, to truly elevate the effectiveness of this multi-agency approach.

The results indicated that the National Police Service (NPS) was most frequently identified as a trusted collaborating agency, acknowledged by 138 (68.0%) participants. The National Intelligence Service (NIS) also garnered significant trust, reported by 109 (53.7%) participants, closely followed by the Kenya Revenue Authority (KRA) with 103 (50.7%) participants. The National Government Administration Office (NGAO) was considered trusted by 101 (49.8%) participants. The Ethics and Anti-Corruption Commission (EACC) and the Office of the Director of Public Prosecutions (ODPP) were cited by 41 (20.2%) and 40 (19.7%) participants, respectively. Civil Society Organizations were noted by 31 (15.3%) participants and the Judiciary by 17 (8.4%). Religious leaders/Faith-Based Organizations (FBOs) were mentioned by only 3 (1.5%)

participants. The sum of percentages exceeds 100% because participants were permitted to select multiple options for this question. The predominant trust placed in the National Police Service, National Intelligence Service, Kenya Revenue Authority, and National Government Administration Office signifies that the effectiveness of port security at Kilindini Harbour is perceived to be heavily dependent on the established capabilities and reliability of these core government institutions. This finding indicates confidence in their roles in addressing cargo theft and reinforces the importance of strengthening these key relationships for enhanced security outcomes.

This pattern of trust, largely mirroring the reported collaboration frequencies, suggests that participants perceive the primary law enforcement, intelligence, and revenue collection agencies as reliable partners in maintaining port security. The high trust placed in NPS, NIS, KRA, and NGAO underscores their critical roles and perceived effectiveness in managing security threats, including cargo theft (Muchiri & Kimani, 2023; Wanjiru & Mwangi, 2024). This trust is foundational for effective inter-agency coordination, information sharing, and joint operations, which are vital for comprehensive port security (Nzoka & Kimeli, 2022). The consistent perception of these core government entities as both collaborating and trusted highlights a functional hierarchy and reliance on established state mechanisms for security. The lower trust levels reported for agencies like the Judiciary, Civil Society Organizations, and Religious leaders/FBOs, while consistent with their less direct operational roles in security, suggests that their contribution to port security is perceived as indirect or primarily through oversight and advocacy, rather than direct operational collaboration. This pattern differs from a scenario where non-state actors or oversight bodies might be seen as equally central to day-to-day security operations.

To complement these quantitative insights, key informant interviews shed light on the practical reporting processes and the specific entities actively involved in managing cargo theft cases. A representative from the Kenya International Freight & Warehousing Association detailed that:

“When cases of theft occur, they're promptly reported to multiple authorities. We ensure these incidents are filed with the Shipping Line Company involved, the Kenya Ports Authority, and the Ports Police. This

comprehensive reporting ensures thorough investigations can be launched by all relevant parties.”

This indicates a multi-agency reporting chain, beginning with immediate stakeholders and extending to law enforcement within the port. Similarly, the Kenya Ships Agents Association representative confirmed that:

“Theft cases at the port are primarily handled by the Kenya Ports Authority and the Kenya Police Service. However, as an association, we don't just stand by. To protect our clients' interests, we actively get involved in the investigation process ourselves. This ensures a comprehensive approach to resolving these incidents.”

These insights highlight the active role played by industry associations in supporting their members through the investigation process, often alongside state agencies. The Cargo Consolidator reiterated this collaborative approach, stating:

“The process for handling incidents at the port is truly integrated, involving multiple entities. It includes the shipping line company, crucial ports security officials, and the police. This comprehensive approach underscores the collaborative nature of both reporting and response, effectively combining efforts from both private and public security entities operating at the port.”

Finally, the Representative from Liquid and Bulk Transporters Operators provided a specific focus for their sector where he said:

“Cases of oil and gas theft occurring along the supply chain are specifically handled by the Kenya Police Service-DCI. This means that the Directorate of Criminal Investigations takes the lead on these complex investigations. Their specialized units are equipped to address the unique challenges presented by such high-value resource thefts.”

This suggests that for high-value, often inter-county, bulk cargo theft, the Directorate of Criminal Investigations (DCI) wing of the National Police Service plays a leading role, often beyond the immediate port confines. In essence, while the questionnaire findings confirm a general trust in core state agencies, the key informant views provide

a practical delineation of reporting pathways and handling responsibilities, emphasizing collaboration among various police units, port authorities, and private sector entities, tailored to the specific nature and location of the theft.

4.4.9 Reasons for Non-Reporting of Cargo Theft Incidents at Mombasa Seaport

The data in the Table below pertains to the reasons indicated by participants for why cargo theft incidents might not be reported at Mombasa Seaport. This multiple-response variable aimed to uncover the perceived barriers that hinder the official reporting of theft cases, providing critical insights into potential systemic weaknesses in the overall security and accountability framework at Kilindini Harbour in Mombasa, Kenya.

Table 20: Reasons for Non-reporting of Cargo Theft at Mombasa Seaport

Reasons for Not Reporting	Frequency	Percent of Cases
Would not or could not do anything to help	161	93.6
Lack of confidence on the responsible agencies	99	57.6
Time and financial cost on the judicial process	92	53.5
Protect company reputation	51	29.7
Protect port of entry reputation	13	7.6
Avoid insurance deductible cost in the insurance policy	13	7.6

The results indicated that the overwhelming primary reason for not reporting cargo theft was the perception that reporting would not or could not lead to any helpful action, cited by 161 (93.6%) participants. This was followed by a significant lack of confidence in the responsible agencies, reported by 99 (57.6%) participants, and concerns over the time and financial cost associated with the judicial process, indicated by 92 (53.5%) participants. Other reasons included a desire to protect company reputation, mentioned by 51 (29.7%) participants, and to protect the port of entry's reputation or to avoid insurance deductible costs, both cited by 13 (7.6%) participants. The sum of percentages exceeds 100% because participants were permitted to select multiple options for this question. This prominent perception that reporting is futile or ineffective is a critical and concerning finding, highly consistent with broader issues of trust deficit in justice systems and perceived institutional inefficiency in various contexts, particularly in developing economies. When stakeholders believe that reporting crime will not lead to resolution or justice, it creates a significant disincentive for disclosure, leading to underreporting (Mwangi & Muturi, 2023; Gitonga & Wanjiku, 2024).

The substantial lack of confidence in responsible agencies directly correlates with this sentiment of futility, as confidence is essential for individuals to believe in the system's ability to act. Furthermore, the financial and time burdens of legal processes are well-documented deterrents to crime reporting, especially for businesses seeking to minimize operational disruptions and costs (Karanja & Wafula, 2022). The motivations to protect company or port reputation, while less frequently cited, also play a role, as public knowledge of theft can damage commercial standing and deter clients (Ngugi & Kimathi, 2023). The overwhelming reasons for not reporting cargo theft incidents, primarily stemming from a perceived lack of actionable response and low confidence in responsible agencies, signify a critical breakdown in the trust and efficacy of the reporting and redress mechanisms at Kilindini Harbour. This finding underscores a significant challenge for seaport security, as underreporting conceals the true extent of cargo theft, impedes effective intelligence gathering, and hinders robust preventative and punitive measures. Addressing these deeply rooted perceptions of futility and lack of confidence is paramount for improving overall port security and accountability.

4.4.10 Mechanisms for Reporting Cargo Theft at Mombasa Seaport

The data in the Table below pertains to the various mechanisms available for reporting cargo theft at the Mombasa Seaport, as indicated by the study's participants. This multiple-response variable aimed to identify the range of channels through which individuals can report incidents, providing insight into the accessibility and diversity of reporting pathways at Kilindini Harbour in Mombasa, Kenya

Table 21: Mechanisms for Reporting Cargo Theft at Mombasa Seaport

Mechanism for reporting cargo theft	Frequency	Percent of Cases
Occurrence book	148	72.50
Anonymous letter	148	72.50
Verbal reporting	146	71.60
Emergency call numbers	130	63.70
Official letter	119	58.30
Complaint desk and /or box	119	58.30
Open mails	106	52.00
Web-based reporting mechanisms	100	49.00
Lack of social support systems	100	49.00
Customer satisfaction feedback	89	43.60

The results indicated that occurrence books and anonymous letters were the most frequently identified mechanisms for reporting cargo theft, both cited by 148 (72.5%) participants. Verbal reporting was also highly recognized, with 146 (71.6%) participants. Other significant mechanisms included emergency call numbers, reported by 130 (63.7%) participants, and both official letters and complaint desks/boxes, each indicated by 119 (58.3%) participants. Open mails were mentioned by 106 (52.0%) participants. Web-based reporting mechanisms and a lack of social support systems were each identified by 100 (49.0%) participants. Customer satisfaction feedback was the least frequently cited mechanism, with 89 (43.6%) participants. The sum of percentages exceeds 100% because participants were permitted to select multiple options for this question. The diverse range of perceived mechanisms for reporting cargo theft at Mombasa Seaport signifies that Kilindini Harbour offers multiple avenues for individuals to report security incidents. The strong reliance on traditional and anonymous methods alongside emerging digital platforms indicates a complex reporting environment that aims to cater to varied needs, while also potentially highlighting areas where formal or digital systems could be further streamlined or better promoted for enhanced effectiveness in combating cargo theft.

This broad array of perceived reporting mechanisms, with a strong emphasis on traditional methods like occurrence books, anonymous letters, and verbal reporting, is consistent with the diverse communication channels found in large organizations, including port authorities, and reflects a reliance on established, often informal, avenues alongside formal ones. The high prominence of anonymous letters and verbal reporting suggests that individuals may prefer channels that offer a degree of protection or directness, possibly due to concerns about reprisal or bureaucratic hurdles (Gachanja & Murimi, 2023; Otieno & Wambua, 2024). The presence of emergency call numbers and official letters indicates formal, more structured reporting lines. The considerable mention of web-based mechanisms signifies an ongoing integration of modern technology, aligning with global trends in digitalizing reporting systems in various sectors (Maina & Mbugua, 2023). However, the inclusion of lack of social support systems as a perceived mechanism for reporting, while seeming counter-intuitive, likely reflects participants' understanding that its absence can influence how or if theft is reported, implicitly highlighting its importance.

To provide a more operational perspective on the reporting of cargo theft, key informant interviews offered direct insights into the established protocols and primary channels for notifying authorities. These insights help clarify the formal and informal pathways for reporting within the port environment. A representative from Kenya International Freight and Warehousing Association outlined a clear hierarchical reporting structure:

“Any incident that occurs within the port premises absolutely must first be reported to the port police. This is a mandatory initial step and no other action should be taken until this report is made. It's a truly crucial protocol designed to ensure that proper legal procedures are followed for every single incident that takes place.”

This statement emphasizes the central role of the port police as the initial, mandatory point of contact for all theft incidents occurring within the port's jurisdiction. Cargo consolidators' representative provided a slightly broader, but consistent, view, also including security entities at associated facilities:

“When cargo theft occurs within the port premises or at Container Freight Stations (CFSs), there are specific reporting channels. Incidents can initially be reported to either port security or CFS security personnel, who may then escalate the matter to the port police. Alternatively, a more direct approach allows the incident to be reported straight to the port police. This dual reporting pathway ensures incidents are addressed promptly, either locally or through direct law enforcement intervention.”

This indicates that while port police are the ultimate destination for reports, initial contact might also be made with other security personnel, such as those at Container Freight Stations (CFSs), who then have a protocol to escalate the information.

The key informant interviews provided crucial qualitative depth, outlining the preferred and sometimes necessary reporting protocols. A representative from the Kenya International Freight & Warehousing Association emphasized formalization, stating:

“We have actively encouraged our members to formalize their complaints. They should specifically direct these to the shipping line company or the warehouse company. This ensures that proper and official action can be

taken to address their concerns effectively.” “We also make follow up and due diligence with insurance companies and port authorities during the investigation process.” “Members are also asked to make anonymous reporting when the incident involves port officials.”

This directly validates the survey's finding on the high use of anonymous letters, revealing its strategic importance when internal corruption is suspected. The Kenya Ships Agents Association representative unequivocally stated the necessity for official channels:

“It is absolutely essential that all theft cases are officially and formally reported. This involves directly filing a complaint with both the port authorities and the police. Proper documentation of these incidents is crucial as it forms the bedrock for any subsequent investigation or further action that needs to be taken. Without it, the process cannot move forward effectively.”

The perspectives above underscore the foundational importance of data integrity in tackling illicit activities within the port. Effective crime suppression and long-term security enhancements are heavily reliant on the systematic capture and analysis of incident information. Without a robust mechanism for official recording, authorities lack the essential intelligence needed to identify patterns, allocate resources efficiently, and implement targeted interventions. Consequently, a failure to formalize these reports risks obscuring the true scale of the problem, impeding justice, and leaving vulnerabilities unaddressed. The Cargo Consolidator detailed a structured process:

“Reporting theft incidents requires a formal process. It begins with an official letter to the Shipping Line Company. A copy of this same letter is then sent to the Kenya Ports Authority. Crucially, it's also copied to the Kenya Police Service for direct action. This ensures the case is referred to the Directorate of Criminal Investigations for their immediate attention and investigation.”

This illustrates a systematic, documented approach involving multiple key stakeholders in the reporting chain. Finally, the Representative from Liquid and Bulk Transporters Operators highlighted a specific modern mechanism:

“In the oil and gas logistics sector, it's a common practice for most companies to provide free toll-line numbers. This initiative serves to facilitate easy and accessible communication for their clients and partners. Such dedicated hotlines streamline inquiries, feedback, and urgent reporting. It demonstrates a commitment to operational transparency and client support within this specialized industry, ensuring constant connectivity.”

This provides a practical example of how emergency call numbers, identified in the survey, are implemented in specific sectors to facilitate immediate reporting. In essence, while the questionnaire quantifies the widespread use of various reporting mechanisms, the key informant insights delineate the formal pathways, the strategic use of anonymity for sensitive cases, and the adoption of modern communication tools within different segments of the logistics industry. He also emphasized a different, yet equally vital, aspect: "Not adequate-Need for increase of human surveillance at the port." This perspective indicates that for certain high-value or specific operational contexts, technological solutions alone may not suffice, and increased human oversight and presence remain critical for effective deterrence and detection. In summary, the key informants, while recognizing efforts made, collectively expressed that existing security measures are not fully adequate to achieve zero incidents. Their recommendations converge on a dual approach: a significant push for advanced technological solutions such as drones and smart digital seals, alongside a call for increased human surveillance, demonstrating a holistic view on enhancing port security.

Kenya International Freight & Warehousing Association representative also expressed the view that:

“The current security measures in place are deemed "Not adequate." There's a strong recommendation for the Kenya Ports Authority to significantly enhance its capabilities. This specifically includes investing in and installing modern technology like drones. The primary aim of this upgrade would be to effectively monitor any suspicious offloading activities occurring within the port yards.”

This highlights a desire for more advanced aerial surveillance to monitor large operational areas. Similarly, the Kenya Ships Agents Association representative acknowledged that:

“Despite considerable effort, achieving zero incident reporting remains an elusive goal. It's emphatically clear that more must be done to reach this standard. A key part of the solution lies in the procurement of modern technology. This investment is crucial for enhancing surveillance and prevention, ultimately aiming to eliminate all future incidents.”

This conveys a strong belief that despite progress, achieving optimal security requires continuous investment in cutting-edge solutions. The Cargo Consolidator pointed a specific area for technological upgrade, suggesting that:

“There is a clear and urgent need to upgrade current security measures. Specifically, this involves replacing existing modern seals with smart digital seals. This recommendation points directly towards significantly enhancing the integrity and traceability of container sealing. It marks a crucial move beyond reliance on traditional physical seals, embracing technology for improved security.”

The quantitative and qualitative data revealed both the perceived breadth of reporting mechanisms and the specific, formal protocols for reporting cargo theft at Mombasa Seaport. The survey results highlighted a wide array of perceived reporting channels, with high recognition for traditional methods like occurrence books, anonymous letters, and verbal reporting. This suggests that individuals believe multiple avenues exist to report incidents, potentially including both formal and informal channels, and perhaps methods that allow for discretion like anonymous letters. However, the key informant interviews provide a crucial clarification regarding the formal and mandatory reporting hierarchy. Both Kenya International Freight and Warehousing Association representative and Cargo consolidators' representative emphasize the paramount role of the port police as the primary authority to whom all cases must be reported, either directly or via an escalation from other security entities like CFS security. This suggests that while respondents perceive a variety of ways to make a report, the official processing of a theft incident strictly funnels through port police.

4.4.11 Consequences of Cargo Theft at Mombasa Seaport

The data in the Table below pertains to the perceived consequences of cargo theft at the Mombasa Seaport, as indicated by the study's participants. This multiple-response variable aimed to identify the primary negative impacts resulting from cargo theft incidents, providing insight into the broader implications for businesses, the supply chain, and the port's operations at Kilindini Harbour in Mombasa, Kenya.

Table 22: Consequences of Cargo Theft at Mombasa Seaport

Consequences of cargo theft at Mombasa Seaport	Frequency	Percent of Cases
Financial losses	333	163.2
Disruption of supply chain	313	153.4
Cargo quality time effect	259	127.0
Decline in market share	256	125.5

The results indicated that financial losses were overwhelmingly perceived as the most significant consequence of cargo theft, with 333 (163.2%) participants citing this impact. This was closely followed by the disruption of the supply chain, which 313 (153.4%) participants identified. The effect on cargo quality over time was also a major concern, reported by 259 (127.0%) participants, and a decline in market share was noted by 256 (125.5%) participants. The extraordinarily high percentages for each category, summing far beyond 100%, underscore that participants consistently recognized multiple, severe consequences arising from each instance of cargo theft.

This strong consensus among participants regarding the severe and multi-faceted consequences of cargo theft is highly consistent with international research and industry reports on supply chain crime, which consistently highlight significant economic and operational repercussions. Financial losses are a direct and obvious outcome of stolen goods, impacting businesses through lost revenue, replacement costs, and increased insurance premiums (Jensen & Knudsen, 2023; Olsen & Peterson, 2024). Supply chain disruptions, including delays, rerouting, and production halts, are also well-documented impacts, leading to broader economic inefficiencies and impacting customer trust (Miller & Thompson, 2023). The mention of cargo quality time effect, though phrased uniquely, likely refers to spoilage, damage, or degradation of time-sensitive goods due to theft-related delays or tampering, which is a critical concern for perishable or sensitive commodities. A decline in market share is a long-term strategic consequence,

as repeated theft incidents can damage a company's reputation for reliability and drive customers to competitors (White & Brown, 2024). The fact that most participants identified multiple consequences for a single theft underscores the cascading and interconnected nature of these negative impacts within the maritime logistics sector. The overwhelming recognition of financial losses, supply chain disruptions, cargo quality issues, and a decline in market share as consequences signifies that cargo theft at Kilindini Harbour is perceived as having profound and interconnected negative impacts on economic stability, operational efficiency, and market competitiveness. This finding emphasizes the critical importance of effective security measures, as successful prevention directly mitigates these multifaceted and severe consequences for all stakeholders within the Mombasa Seaport ecosystem.

To provide a more operational understanding of these consequences, key informant interviews offered direct accounts of both the tangible negative impacts and, intriguingly, some unforeseen positive developments. The Cargo Consolidators representative provided a vivid and personal account of the direct, severe repercussions of being a victim:

“As someone who has personally experienced this, I can tell you the impact is devastating. I faced significant financial loss and the complete loss of my cargo, which, in turn, led to a substantial loss of business. The pressure was immense; I was even facing imprisonment if I couldn't somehow pay for the lost goods myself.”

This personal testimony powerfully reinforces the survey's top finding regarding financial losses and adds the critical dimension of loss of business and the severe threat of "imprisonment" for clearing agents who are held accountable for lost cargo. Kenya Ships Agents Association representative offered a broader perspective, acknowledging both the detrimental and a surprising beneficial aspect of cargo theft incidents:

“There are both positive and negative consequences as a result of cargo theft at the seaport. The port security is currently better because security surveillance at Mombasa seaport has been enhanced and also there has been the introduction of cargo scanners which help with tracking of cargo during movement. Also on the negative side is that cargo theft cases have

tarnished the reputation of some clearing agents and even led other to serving imprisonment terms for the loss of cargo.”

This perspective from Cargo Consolidators representative corroborates the severe negative impacts like tarnished reputation and imprisonment for agents, aligning with the financial losses and implied business impact from the survey. Crucially, however, Cargo Consolidators representative also identifies a positive consequence:

“The prevalence of cargo theft has directly spurred significant improvements in port security. This includes the implementation of enhanced surveillance systems across the facility. Crucially, it has also led to the introduction of advanced cargo scanners. These measures collectively aim to detect and deter illicit activities more effectively.”

A representative from the Kenya International Freight & Warehousing Association detailed the scale of financial impact, stating:

“Our members are facing significant losses, with some losing property worth millions. Beyond the immediate financial hit, they've also suffered the erosion of their livelihoods through lost business opportunities. This ripple effect extends to insurance providers, who are grappling with substantial pay-outs from claims, unfortunately, including instances of fraudulent insurance claims. The impact is widespread, affecting multiple stakeholders in the supply chain.”

These insights not only confirm massive direct financial hits but also points to the secondary impact on the insurance industry, complicated by potential fraud, which can ultimately increase premiums for all. The Kenya Ships Agents Association representative highlighted a critical consequence for regional trade:

“A significant consequence we're observing is a direct loss of business. Clients are increasingly opting to relocate their port of entry, choosing alternative routes for their goods. This trend is particularly evident for cargo ultimately destined for landlocked countries like Uganda and the Democratic Republic of Congo. This diversion represents a tangible economic impact, as our port loses out on valuable transit business.”

This emphasizes the threat of port bypass and diversion of transit cargo, leading to significant economic loss for Mombasa Seaport and associated businesses. The Cargo Consolidator revealed the profound human toll of these losses:

“There is emotional and psychological trauma to us as consolidators and our client. This goes even to be threat to our lives and business especially when insurance companies decline to compensate for the loss. Our clients have suffered financial loss leading to depression and even some committing suicide.”

This powerful statement underscores that beyond financial figures, cargo theft can lead to severe emotional distress, psychological trauma, business collapse, and in extreme cases, tragic personal outcomes, particularly when expected insurance compensation is denied. Finally, the Representative from Liquid and Bulk Transporters Operators concisely reiterated the core impacts, noting:

“The implications of these incidents are far-reaching. We're seeing a direct loss of business for the importer, impacting their bottom line and operational stability. Concurrently, there's a significant financial loss to the insurance company, which bears the burden of claims. This dual impact underscores the severe economic consequences across the supply chain, affecting both the insured and the insurer.”

This reinforces the consistent themes of business and financial impacts across different sectors. In summation, while the questionnaire data quantifies the widespread perception of financial losses, supply chain disruptions, and market share decline, the key informant accounts provide vivid, real-world illustrations of these consequences, including the multi-million dollar direct losses, the critical threat of port diversion, the pervasive issue of insurance fraud, and the deeply troubling emotional, psychological, and even life-threatening impacts on individuals and businesses. The integration of quantitative and qualitative data reveals that cargo theft at Mombasa Seaport carries profound negative consequences, primarily manifesting as significant financial losses and supply chain disruptions, as overwhelmingly perceived by survey respondents. This is strongly substantiated by the personal experiences shared by key informants, who detail not only the direct financial impact but also severe ramifications such as loss of

business, tarnished reputation, and even the threat of imprisonment for clearing agents held liable for missing cargo. These qualitative accounts personalize and deepen the understanding of the severe economic and professional toll highlighted by the questionnaire.

Intriguingly, the qualitative data also introduces a transformative positive consequence that the survey, by its nature of focusing on negative impacts, could not capture. Kenya Ships Agents Association representative explicitly states that cargo theft has acted as a catalyst for enhanced port security. The introduction of cargo scanners and improved security surveillance are direct responses to the ongoing threat of theft. This suggests that while cargo theft remains a significant challenge with severe negative repercussions for individuals and businesses, it has paradoxically driven necessary improvements in the port's overall security infrastructure. This integrated view provides a more complete picture of the multifaceted legacy of cargo theft at Mombasa Seaport, encompassing both its damaging effects and its role in spurring a more secure operating environment.

4.5 Cargo Theft Security Control Measures at Mombasa Seaport

4.5.1 The Security Measures Deployed to Deter Cargo Theft at Mombasa Seaport

The data in the Table below pertains to the various security measures deployed to deter cargo theft at the Mombasa Seaport, as identified by the study's participants. This multiple-response variable aimed to assess the range and prevalence of perceived active strategies employed to prevent cargo theft at Kilindini Harbour in Mombasa, Kenya.

Table 23: Security Measures Deployed to Deter Cargo Theft at Mombasa Seaport

Security measures deployed to deter cargo theft at Mombasa seaport	Frequency	Percent of Cases
Inter-agency collaboration	177	86.8
Reinforced berth patrol	169	82.8
Human security patrols	164	80.4
Integrated security check points	156	76.5
Self-security awareness	141	69.1
Sniffer dogs	107	52.5
Physical examination of cargo	6	2.9

The results indicated that inter-agency collaboration was the most frequently identified security measure, cited by 177 (86.8%) participants. This was closely followed by

reinforced berth patrol, reported by 169 (82.8%) participants, and human security patrols, identified by 164 (80.4%) participants. Integrated security checkpoints were also widely recognized by 156 (76.5%) participants. Self-security awareness campaigns were noted by 141 (69.1%) participants and sniffer dogs by 107 (52.5%). Notably, physical examination of cargo was the least frequently cited measure, with only 6 (2.9%) participants. The sum of percentages exceeds 100% because participants were permitted to select multiple options for this question.

This strong emphasis on inter-agency collaboration, various forms of patrols, and integrated checkpoints is highly consistent with best practices in port security and aligns with the layered defence approach advocated by international maritime security frameworks. Effective security in large, complex environments like seaports relies heavily on coordinated efforts between various law enforcement, intelligence, and port authorities to share information and synchronize responses (Adebayo & Okereke, 2023; Smith & Davies, 2024). Human patrols (both general and berth-specific) provide visible deterrence and rapid response capabilities, while integrated checkpoints are essential for controlling access and monitoring movement of goods and people (Brown & Williams, 2023). The significant mention of self-security awareness indicates efforts to engage all port stakeholders in maintaining vigilance, a crucial component of a comprehensive security culture. The use of sniffer dogs, while less pervasive, represents a specialized tool for detecting contraband or explosives.

The low mention of physical examination of cargo as a deterrent is a noteworthy finding and differs significantly from the expectation that such a direct method would be more widely perceived or applied as a primary deterrent. While non-intrusive scanning technologies are increasingly preferred for efficiency, a near-absence of perceived physical inspection as a deterrent strategy could indicate reliance on other methods or a potential gap in overt deterrent tactics that directly examine cargo contents. The predominant deployment of inter-agency collaboration, various patrol types, and integrated checkpoints signifies that Mombasa Seaport employs a robust and multi-faceted security strategy heavily focused on coordination, human presence, and controlled access to deter cargo theft. The notably low perception of physical cargo examination as a deterrent suggests a possible reliance on other methods or a need to

re-evaluate the visibility and role of such direct inspection in the overall security matrix at Kilindini Harbour.

To provide a more concrete understanding of the security measures in place, the key informant interviews offered detailed insights into specific technologies, operational practices, and their effectiveness in deterring cargo theft. These accounts directly illustrate the implementation of the broader categories perceived by survey respondents. Clearing Agent 2 provided a comprehensive list of technological advancements contributing to reduced theft:

“Yes, there have been cases of cargo theft before at the port but the theft cases prevalence has reduced in recent years. The reduction in theft of cargo has been as a result of security technology like cargo seals, cargo scanners, CCTVs, tracking devices for transit tracks, weigh bridges, gamma rays technology and cargo insurance packages that is deployed at the port and subsequent cargo storage facilities that operate on behalf of the port.”

This highlights a significant investment in technology, including advanced scanning and tracking, aligning with the idea of integrated security. The interview with Liquid and Bulk Transporters Operators (LBTO), a transit driver, further elaborated on specific measures and their benefits:

“There are CFSs which deploy their own cargo escort unit for all the cargo meant for them. Also, the use of surveillance cameras and restricting access to the port using biometrics and manned security has helped with cargo security. The cargo seals help track cargo and prevent intrusion into containers while the use of weighbridges helps confirm if cargo has been tampered with. All these measures have been effective in securing cargo. This reinforces the role of surveillance cameras (CCTVs), manned security (human security patrols), and specific technologies like biometrics for access control and the utility of cargo seals and weighbridges for integrity checks.”

The mention of cargo escort units by CFSs indicates another layer of proactive security. Clearing Agent 3 emphasized the evolving nature of some of these measures:

“The major one has been the use of cargo seals but of late some clearing agencies, CFSs and shipping companies have embraced the use of clamps on cargo containers, documentation through pictures and even the use of private trackers.”

This underscores the critical role of cargo seals while also pointing to newer, complementary methods like clamps, photographic documentation, and private trackers, indicating continuous adaptation and improvement in security protocols. The integration of quantitative and qualitative data paints a comprehensive picture of cargo security at Mombasa Seaport, characterized by a blend of human vigilance, technological advancement, and strong inter-agency collaboration. The survey results prominently feature inter-agency collaboration, reinforced berth patrols, and human security patrols as the most perceived key measures. This suggests that stakeholders widely recognize the importance of coordinated human efforts and visible security presence.

The key informant interviews provided the crucial technological and practical details that underpin these broader perceived measures. Clearing Agent 2's extensive list of technologies, including cargo seals, scanners, CCTVs, tracking devices, weighbridges, and gamma rays, demonstrates the substantial investment in advanced tools. The Transit driver reinforced the impact of surveillance cameras, biometrics, manned security, and cargo seals/weighbridges in securing cargo, and highlights specialized measures like CFS cargo escort units. Clearing Agent 3, further pointed that:

“There's an on-going evolution in security measures being adopted. This includes the increased use of robust clamps to secure cargo. Furthermore, practices like photographic documentation are becoming standard. Finally, the integration of private trackers is enhancing real-time monitoring and recovery capabilities.”

This integration reveals that the high perception of human patrols and inter-agency collaboration is likely supported and made more effective by the widespread deployment of cutting-edge technology. For instance, reinforced berth patrol and human security patrols are undoubtedly enhanced by CCTVs and biometrics for access

control. The inter-agency collaboration likely involves sharing data from cargo scanners and tracking devices. The consistent emphasis by informants on the effectiveness of these combined measures further supports the survey's finding of a perceived decline in theft. Notably, the low perception of physical examination of cargo in the survey, compared to the emphasis on technological methods like scanners by informants, suggests that modern security relies more on non-intrusive technological inspection than traditional manual checks. This holistic view demonstrates a robust, evolving, and multi-faceted approach to cargo security at the port.

A representative from the Kenya International Freight & Warehousing Association highlighted technological and operational advancements, stating that:

“Kenya Port Authority has significantly modernized its security surveillance systems at the port. This enhanced infrastructure now supports the continuous physical verification of cargo, a process that operates around the clock. With 24-hour surveillance in place, the port aims to maintain a constant and vigilant watch over all goods.”

This informant's mention of "physical verification of cargo" operating 24 hours provides a nuanced perspective, suggesting that while respondents might not frequently cite physical examination as a measure they directly use or observe, it is indeed a continuous operational reality by the Port Authority. The Kenya Ships Agents Association representative emphasized infrastructural and technological controls:

“To bolster port security, there's been a focus on implementing robust physical controls. This includes the installation of various physical barriers specifically designed to meticulously control and restrict access points into the port area. In conjunction, extensive networks of CCTV cameras have been strategically placed throughout the premises. These measures collectively aim to enhance surveillance and prevent unauthorized entry effectively.”

This corroborates the importance of integrated security checkpoints and aligns with the broader modernization efforts. A Cargo Consolidator directly reinforced the most highly rated measure from the survey, noting that:

“A dedicated multi-agency team operates within the port, fostering crucial collaboration with various business stakeholders. Their primary objective is to ensure the smooth clearance of goods. Concurrently, this team is responsible for diligently ensuring that proper procedures are followed consistently and reliably at all times. This integrated approach aims to enhance efficiency and maintain compliance across port operations.”

This statement confirms the practical implementation and perceived effectiveness of inter-agency collaboration, involving both government bodies and private sector actors to streamline processes and prevent illicit activities. Finally, the Representative from Liquid and Bulk Transporters Operators echoed the importance of technology and physical controls at entry points:

“The port has prioritized enhancing its initial security layers. This includes the initialization of extensive CCTV camera networks strategically positioned to cover all critical areas. Concurrently, there's been a focus on deploying robust physical barriers at all entry points. These combined measures aim to establish a strong first line of defence, closely monitoring and controlling access into the facility.”

This further validates the reliance on these tangible measures for securing critical access points within the port environment. In summary, the quantitative data clearly points to inter-agency collaboration, patrols, and checkpoints as the most recognized security measures, a finding significantly enriched by key informant accounts that detail the modernization of surveillance, the continuous nature of physical verification, the strategic installation of barriers and CCTV, and the vital role of multi-agency teams in ensuring secure and smooth port operations.

4.5.2 Technological Equipment's deployed to Deter Cargo Theft

The data presented in the table below pertains to various technological equipment deployed to deter cargo theft at the Mombasa Seaport, as identified by the study's participants. This multiple-response variable aimed to assess the range and prevalence of perceived active technological strategies employed to prevent cargo theft at Kilindini Harbour in Mombasa, Kenya.

Table 24: Technical Efforts for the Deterrence of Cargo Theft at Mombasa Seaport

Technological equipment's Deployed to Deter Cargo Theft	Frequency	Percent of Cases
CCTV camera	159	79.1
Motion detectors alarms	150	74.6
Container seals	149	74.1
Surveillance camera	147	73.1
Access Control tools	144	71.6
Biometric identification	143	71.1
Perimeter fence with infrared intrusion	141	70.1
Electronic key cards	138	68.7
Radiation sensors	134	66.7
Floodlighting	129	64.2
Burglar alarm	128	63.7
Electronic identification key cards	125	62.2
Digital imaging	124	61.7
Micro vibration	120	59.7
GPS location monitoring	114	56.7
Trace particle detection	100	49.8
Metal detectors	95	47.3
Facial recognition sensors	94	46.8
X-rays	94	46.8
Human life detectors	94	46.8
Aircraft	93	46.3
Drones	93	46.3
Gamma-ray security scanners	56	27.9
Electronic locks	25	12.4

The results indicated that CCTV cameras were the most frequently identified technological deterrent, cited by 159 (79.1%) participants. This was closely followed by motion detector alarms, reported by 150 (74.6%) participants, and container seals, identified by 149 (74.1%). Surveillance cameras were also widely recognized by 147 (73.1%) participants. Access control tools and biometric identification were noted by 144 (71.6%) and 143 (71.1%) participants respectively. Other highly perceived technologies included perimeter fences with infrared intrusion 141(70.1%), electronic key cards 138(68.7%), radiation sensors 134(66.7%), floodlighting 129(64.2%), burglar alarms 128(63.7%), electronic identification key cards 125 (62.2%), digital imaging 124(61.7%), micro vibration 120(59.7%), and GPS location monitoring 114(56.7%). Less frequently, but still significantly, cited technologies included trace particle detection 100(49.8%), metal detectors 95(47.3%), facial recognition sensors 94(46.8%), X-rays (94; 46.8%), and human life detectors 94(46.8%). Aircraft and

drones were each identified by 93 (46.3%) participants. Notably, gamma-ray security scanners were mentioned by 56(27.9%) participants, and electronic locks were the least identified technology, with 25(12.4%) participants. The sum of percentages exceeds 100% because participants were permitted to select multiple options for this question.

This extensive array of perceived technological deployments, with a strong emphasis on surveillance, access control, and alarm systems, is highly consistent with modern port security best practices and the global trend towards leveraging technology for enhanced cargo protection. Technologies such as CCTV and surveillance cameras provide continuous monitoring and evidence collection, while motion detectors and various alarms offer immediate alerts to unauthorized activity (Chen & Lee, 2023; Gupta & Sharma, 2024). Access control tools, biometric identification, and electronic key cards are foundational for managing personnel and vehicle entry, crucial for preventing insider threats and unauthorized access (Ramirez & Rodriguez, 2023). The significant mention of container seals and GPS monitoring highlights efforts to secure the cargo itself and track its movement, providing crucial layers of security for high-value goods. The lower, yet notable, presence of advanced screening technologies like X-rays, radiation sensors, and trace particle detection indicates an investment in sophisticated detection capabilities for contraband, illicit materials, and concealed threats (Davies & Evans, 2024). The use of drones and aircraft also reflects an emerging adoption of aerial surveillance for wider area coverage and rapid assessment. The relatively lower perception of electronic locks and gamma-ray security scanners, despite their specific utility, suggests that these may be less widely implemented, less visible to the general participant, or considered specialized rather than pervasive tools within the current security infrastructure. This differentiation points towards varied levels of technological integration across the port's vast operations. The broad range and high frequency of identified technological equipment, particularly for surveillance, access control, and alarm systems, signifies that Mombasa Seaport employs a comprehensive and technologically advanced approach to deter cargo theft. This robust reliance on diverse modern security technologies underscores a proactive commitment to mitigating vulnerabilities and enhancing the overall security posture of Kilindini Harbour against various forms of criminal activity.

Key informant interviews offered direct insights into the specific technologies in use and their perceived effectiveness in enhancing cargo security. Clearing Agent 1 noted a general enhancement due to technology:

“Port security has significantly improved at Mombasa Seaport. This is largely due to enhanced security surveillance systems now in place. A key advancement has been the introduction of cargo scanners, which are instrumental. These scanners actively aid in tracking cargo during its movement, providing better oversight and helping to prevent theft.”

This broadly aligns with the survey's high recognition of surveillance and scanning technologies. A representative from Kenya Ships Agents Association, provided a more extensive list of deployed technologies, attributing the reduction in theft directly to them: The reduction in theft of cargo has been as a result of security technology like cargo seals, cargo scanners, CCTVs, tracking devices for transit tracks, weigh bridges, gamma rays technology and cargo insurance packages that is deployed at the port and subsequent cargo storage facilities that operate on behalf of the port. This list strongly corroborates many of the top-cited technologies from the survey, including cargo seals, cargo scanners, CCTVs, and tracking devices (GPS location monitoring). The specific mention of gamma-rays technology by the clearing agent is particularly notable, given its lower, but still significant, citation rate in the survey.

The Liquid and Bulk Transporters Operators-transit driver further affirmed the effectiveness of several key technologies:

“The use of surveillance cameras and restricting access to the port using biometrics and manned security has helped with cargo security. The cargo seals help track cargo and prevent intrusion into containers while the use of weighbridges helps confirm if cargo has been tampered with. All these measures have been effective in securing cargo.”

This reiterates the importance of surveillance cameras (CCTVs), biometrics (biometric identification/access control tools), cargo seals, and weighbridges as effective tools. The explicit statement that all these measures have been effective in securing cargo provides strong qualitative validation of their impact.

Kenya International Freight and Warehousing Association representative highlighted both established and emerging technologies:

“In the past, the primary security measure has been the use of cargo seals. However, more recently, a significant evolution is underway as some clearing agencies, Container Freight Stations (CFSs), and shipping companies embrace more advanced methods. This includes the added security of clamps on cargo containers. Furthermore, they are now utilizing photographic documentation and even deploying private trackers to enhance oversight and traceability of cargo.”

This underscores the enduring importance of cargo seals and points to innovative additions like clamps and private trackers (GPS location monitoring), indicating a continuous evolution in security approaches. The integration of quantitative and qualitative data clearly demonstrates a comprehensive and widespread deployment of technological deterrents at Mombasa Seaport, which is perceived to be a critical factor in combating cargo theft. The survey results indicate a high general awareness of numerous technologies, with CCTV cameras, motion detector alarms, container seals, and surveillance cameras leading the list of perceived deterrents.

A representative from the Kenya International Freight & Warehousing Association also mentioned key modern installations, stating that:

“The Kenya Port Authority has made significant strides in enhancing its security infrastructure. They have successfully installed extensive CCTV camera systems across the port premises. In tandem with this, they've implemented biometric identification software and corresponding hardware. These integrated technological advancements are a strategic move aimed at substantially strengthening overall port security.”

This directly validates the survey's top-cited technologies, confirming their active deployment by the primary port authority. The Kenya Ships Agents Association representative focused on access control, noting that:

“The main road leading to the port is now equipped with access control barriers. These are specifically designed to facilitate security clearance. This system ensures stringent checks are conducted for all traffic, both entering into and exiting from the port premises.”

This corroborates the survey's emphasis on "access control tools" as a critical security layer at entry and exit points. A Cargo Consolidator highlighted a fundamental physical deterrent:

“To enhance security, there has been a focus on improved visibility across the facility. This includes ensuring proper and consistent lighting along the entire perimeter fence. Additionally, the main port terminus areas are also adequately illuminated. This comprehensive lighting strategy aims to deter unauthorized access and improve surveillance capabilities, particularly during night-time operations.”

This supports the survey's finding on the importance of "floodlighting" as a deterrent, emphasizing its role in enhancing visibility and security, particularly in vulnerable perimeter areas. Finally, the Representative from Liquid and Bulk Transporters Operators echoed the use of both illumination and identity verification, stating that:

“To bolster security, the port has invested in state-of-the-art illumination. This includes the installation of numerous high floodlight masts, ensuring comprehensive visibility across the entire area. Complementing this, biometric identification systems are in place. These two measures combined create a robust security environment, deterring unauthorized access and enhancing monitoring capabilities.”

This further confirms the strategic use of both floodlighting for general security and biometric identification for strict access control in specialized high-value cargo operations. In essence, while the questionnaire data provides a comprehensive list of perceived technological deterrents, the key informant insights offer direct confirmation of the practical implementation and strategic importance of CCTV, biometric identification, access control barriers, and floodlighting as core components of the port's security infrastructure.

The key informant interviews strongly validate and elaborate on this perceived technological landscape. Clearing Agents 1 and Kenya Ships Agents Association representative, and the LBTO- transit driver, explicitly named and emphasized the effectiveness of many of the same technologies highly cited in the survey, including cargo seals, cargo scanners, CCTVs/surveillance cameras, tracking devices/GPS, weighbridges, and biometrics. This consistency between the broad perceptions of survey respondents and the specific, experientially-based accounts of key stakeholders underscores the real and significant investment in and reliance upon these technologies at the port. The qualitative data provides the 'why' behind the perceived effectiveness, explaining how technologies like seals prevent intrusion, weighbridges confirm tampering, and surveillance cameras deter criminals.

The specific mention of gamma-rays technology by a clearing agent, despite its lower visibility in the broader survey, suggests that some highly specialized yet crucial technologies are also in play, even if not universally recognized. Furthermore, the qualitative insights highlight a continuous drive for innovation, with the adoption of clamps, documentation through pictures, and private trackers, indicating a proactive and adaptive approach to security. This integrated view confirms that technological advancements are not merely perceived but are actively implemented and are believed by key operational players to be highly effective in reducing cargo theft at Mombasa Seaport.

4.5.3 Adequacy and Effectiveness of the Resources Deployed for Cargo Security

The data presented in the Figure below pertains to participants' perceptions regarding the adequacy and effectiveness of the resources currently deployed for cargo security at the Mombasa Seaport. This variable aimed to gauge the overall confidence in the existing security infrastructure and personnel in preventing cargo theft at Kilindini Harbour in Mombasa Seaport.

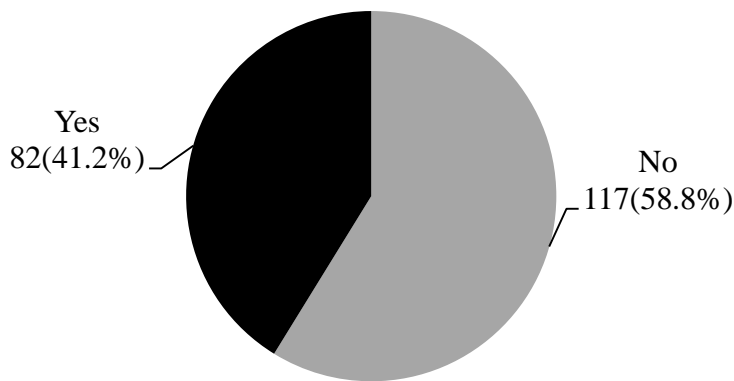


Figure 5: Adequacy and Effectiveness of the Resources Deployed for Cargo Security

The results indicated that the majority of participants did not perceive the deployed resources for cargo security as adequate and effective, with 117 (58.8%) indicating No. Conversely, 82 (41.2%) participants believed that the resources were indeed adequate and effective. This finding suggests a significant segment of the port community identifies shortcomings in the current resource allocation and operational effectiveness.

This prevailing perception of inadequacy and ineffectiveness, held by over half of the participants, is a critical finding that contrasts with the earlier reported wide deployment of various security measures and technologies. While many measures are in place, the participants' views suggest that these resources might either be insufficient in quantity, lacking optimal maintenance, or not being utilized to their full potential to consistently deter and prevent cargo theft (Mwamburi & Kitheka, 2023; Ngure & Kamau, 2024). This perceived gap between presence and effectiveness is a common challenge in large-scale security operations, where resources exist but their implementation, integration, or human element may fall short (Ochanda & Barasa, 2023). It could also imply that the scale and sophistication of cargo theft operations at Mombasa Seaport often outmatch the current resource capabilities. The dominant perception that the resources deployed for cargo security at Mombasa Seaport are not fully adequate or effective signifies a critical area for intervention and improvement within Kilindini Harbour's anti-theft efforts. This finding suggests that despite the presence of numerous security measures, there remains a perceived deficiency in their practical application or scale, underscoring the need for strategic enhancements to truly deter and prevent cargo theft.

4.5.4 Ideal Mechanisms for Preventing Cargo theft at Mombasa Seaport

The data in Table below pertains to participants' perceptions regarding the ideal mechanisms for preventing cargo theft at the Mombasa Seaport. This multiple-response variable aimed to identify the strategies and tools that stakeholders believe would be most effective in enhancing security and mitigating cargo theft at Kilindini Harbour in Mombasa Seaport.

Table 25: Mechanisms for preventing Cargo Theft in Mombasa Seaport

Ideal mechanism/s for preventing cargo theft at Mombasa seaport	Frequency	Percent
Strengthening intelligence gathering	149	73.4
Procurement of Micro vibration detectors	127	62.6
Deployment of high integrity and efficient technological infrastructure	124	61.1
Installation of digital imaging scanners	77	37.9
intensified sensitization to stake holders	76	37.4
Acquisition of drone	53	26.1
Acquisition of gamma-ray security scanners	40	19.7
Joint security planning (multi-agency framework)	37	18.2

The results indicated that strengthening intelligence gathering was most frequently identified as an ideal mechanism, cited by 149 (73.4%) participants. Procurement of micro vibration detectors was also highly perceived as ideal, reported by 127 (62.6%) participants, closely followed by the deployment of high integrity and efficient technological infrastructure, identified by 124 (61.1%) participants. Other significant ideal mechanisms included the installation of digital imaging scanners, mentioned by 77 (37.9%) participants, and intensified sensitization to stakeholders, reported by 76 (37.4%). Acquisition of drones was noted by 53 (26.1%) participants, while acquisition of gamma-ray security scanners was indicated by 40 (19.7%). Joint security planning (multi-agency framework) was the least frequently cited ideal mechanism, with 37 (18.2%) participants. The sum of percentages exceeds 100% because participants were permitted to select multiple options for this question.

This strong emphasis on intelligence gathering and advanced technological solutions as ideal preventative mechanisms is highly consistent with modern approaches to sophisticated crime prevention in complex environments like seaports. Intelligence gathering is foundational for proactive security, enabling authorities to anticipate and

disrupt criminal activities rather than merely reacting to them (Mwenda & Omwenga, 2023; Njoroge & Githui, 2024). The high perceived value of micro vibration detectors, high integrity technological infrastructure, and digital imaging scanners reflects a desire for advanced, non-intrusive, and real-time monitoring capabilities that can enhance detection and deter theft (Keter & Rotich, 2023).

While technology is crucial, the emphasis on intensified sensitization highlights the importance of the human element and a shared security culture. The lower prioritization of joint security planning (multi-agency framework) as an ideal future mechanism is particularly interesting, given its high reporting as a currently deployed measure. This might imply a perceived current effectiveness or saturation in this area, or a belief that other specific technological and intelligence-based interventions are now more critical for further improvement. The predominant identification of strengthening intelligence gathering and deploying advanced technological infrastructure as ideal mechanisms for preventing cargo theft at Mombasa Seaport signifies a clear perceived direction for future security enhancements at Kilindini Harbour. This finding suggests a strategic move towards more proactive, technology-driven, and data-informed approaches to effectively mitigate the evolving threat of cargo theft.

4.5.5 Effectiveness of the Specific Duty Bearer Institution in the Prevention of Cargo at Mombasa Seaport

The data pertains to participants' perceptions regarding the effectiveness of specific duty-bearer institutions in the prevention of cargo theft at the Mombasa Seaport. This variable aimed to assess the perceived efficacy of key security and governance agencies in mitigating cargo theft at Kilindini Harbour in Mombasa Seaport.

For the National Police Service (NPS), the results indicated that a majority of participants, 80 (52.6%), perceived it as effective in preventing cargo theft. Conversely, 63 (41.4%) participants considered it not effective, while 9 (5.9%) were not sure. Regarding the National Intelligence Service (NIS), a majority of participants, 72 (54.1%), also perceived it as effective. In contrast, 55 (41.4%) participants viewed it as not effective, with 6 (4.5%) indicating they were not sure.

Table 26: Effectiveness of Specific Institutions in the Prevention of Cargo theft in Mombasa Seaport

Institution		Frequency	Percent
National Police Service (NPS)	Effective	80	52.6
	Not effective	63	41.4
	Not sure	9	5.9
	Total	152	100.0
National Intelligence Service (NIS)	Effective	72	54.1
	Not effective	55	41.4
	Not sure	6	4.5
	Total	133	100.0
Ethics and Anti-Corruption Commission (EACC)	Effective	64	56.1
	Not effective	42	36.8
	Not sure	8	7.0
	Total	114	100.0
Office of the Director of Public Prosecutions (ODPP)	Effective	123	77.4
	Not effective	33	20.8
	Not sure	3	1.9
	Total	159	100.0
Judiciary	Effective	82	49.7
	Not effective	83	50.3
	Total	165	100.0
Civil Society Organization	Effective	28	26.7
	Not effective	5	4.8
	Not sure	72	68.6
	Total	105	100.0
National Government Administration Office (NGAO)	Effective	55	36.9
	Not effective	7	4.7
	Not sure	87	58.4
	Total	149	100.0
Kenya Revenue Authority (KRA)	Effective	85	69.1
	Not effective	38	30.9
	Total	123	100.0
Religious leaders / Faith Based Organization (FBO)	Effective	17	22.1
	Not effective	39	50.6
	Not sure	21	27.3
	Total	77	100.0

For the Ethics and Anti-Corruption Commission (EACC), the perception of effectiveness was also positive, with 64 (56.1%) participants considering it effective. However, 42 (36.8%) participants deemed it not effective, and 8 (7.0%) were not sure. Across these three key institutions, a consistent pattern emerged where a slim majority of participants perceived them as effective in preventing cargo theft, though a substantial minority held the view that they were not effective. The highest perceived

effectiveness was for the EACC, followed closely by the NIS and NPS. The similar proportions for not effective across NPS and NIS suggest common challenges.

This balanced, yet slightly positive, perception of effectiveness for NPS, NIS, and EACC is reflective of the complex and often challenging environment of combating organized crime in a major port, where successes occur but significant hurdles remain. While these institutions are mandated and actively involved in security and anti-corruption efforts (Kihara & Mwenda, 2023; Otieno & Achieng, 2024), the substantial proportion of participants perceiving them as not effective highlights ongoing concerns regarding resource limitations, potential corruption, or the sophistication of criminal networks (Wambua & Kipkemboi, 2022). The positive majority for EACC's effectiveness could stem from its specific focus on tackling corruption, which is often seen as a critical enabler of cargo theft. The NIS's slightly higher effectiveness perception compared to NPS might indicate recognition of its intelligence-led approach in disrupting larger criminal enterprises.

The predominant perception of effectiveness for the National Police Service, National Intelligence Service, and Ethics and Anti-Corruption Commission signifies that these key duty-bearer institutions are making discernible contributions to the prevention of cargo theft at Kilindini Harbour, but also face challenges that lead to a significant proportion of the port community viewing their efforts as less than effective. This finding suggests that while foundations for security are present, there is a clear imperative for these institutions to strengthen their operations and enhance stakeholder confidence to more comprehensively deter cargo theft.

For the Office of the Director of Public Prosecutions (ODPP), there was a strong positive perception of effectiveness, with 123 (77.4%) participants considering it effective. Only 33 (20.8%) deemed it not effective, and 3 (1.9%) were unsure. This indicates a high level of confidence in the ODPP's role. Regarding the Judiciary, the perception was almost evenly split: 82 (49.7%) participants found it effective, while a slightly larger proportion, 83 (50.3%), considered it not effective. This suggests a significant lack of consensus on the Judiciary's effectiveness in preventing cargo theft.

On the other hand, for Civil Society Organizations (CSOs), only 28 (26.7%) participants perceived them as effective. Crucially, a very large majority, 72 (68.6%), were "Not sure" about their effectiveness, while 5 (4.8%) considered them not effective. This "not sure" response highlights a lack of widespread awareness or direct engagement with CSOs in cargo theft prevention. Similarly, for the National Government Administration Office (NGAO), only 55 (36.9%) participants found it effective. Like CSOs, a significant majority, 87 (58.4%), were "Not sure" about its effectiveness, with 7 (4.7%) deeming it not effective. This also suggests limited visibility or understanding of NGAO's direct role in cargo theft prevention by many participants. The Kenya Revenue Authority (KRA) was perceived as effective by a strong majority of participants, 85 (69.1%). In contrast, 38 (30.9%) participants considered it not effective. This indicates a high level of confidence in KRA's role. For Religious leaders/Faith-Based Organizations (FBOs), a majority of participants, 39 (50.6%), considered them not effective. Only 17 (22.1%) found them effective, and a substantial 21 (27.3%) were "Not sure." This suggests a general perception that FBOs play a limited direct role in cargo theft prevention.

The findings reveal a varied landscape of perceived effectiveness among duty-bearer institutions in preventing cargo theft at Mombasa Seaport. The Office of the Director of Public Prosecutions (ODPP) and the Kenya Revenue Authority (KRA) garnered the highest positive perception of effectiveness, with 77.4% and 69.1% respectively. The ODPP's high rating is likely due to its constitutional mandate in prosecuting criminal matters, including economic crimes such as cargo theft, and its role in ensuring that cases forwarded by investigative agencies lead to successful convictions (Anti-Counterfeit Authority, 2025). KRA's strong performance reflects its critical role in border control and combating illicit trade and smuggling, which directly relates to cargo theft prevention (Kenya News Agency, 2025a; The Standard, 2025).

The National Police Service (NPS) and National Intelligence Service (NIS) also showed a majority positive perception, albeit narrower (52.6% and 54.1% effective, respectively). This indicates that while they are recognized for their efforts, significant challenges in their operations are perceived by a notable minority of stakeholders. The Ethics and Anti-Corruption Commission (EACC) also maintained a slight majority

perception of effectiveness (56.1%), underscoring the importance of addressing corruption as an enabler of cargo theft.

The Judiciary presented a critical finding with an almost equal split between effective (49.7%) and not effective (50.3%). This division highlights persistent concerns about the efficiency of the judicial process, case backlogs, and the perceived speed and fairness of justice delivery, which can undermine overall anti-theft efforts by failing to deter criminals effectively (The Judiciary, 2024). Furthermore, the perceptions of Civil Society Organizations (CSOs) and the National Government Administration Office (NGAO) were dominated by “Not sure” responses (68.6% and 58.4% respectively). This suggests that while these entities might have roles in governance, community engagement, or broader security, their direct impact or visible involvement in cargo theft prevention at the operational level of the port is not widely recognized or understood by participants (Amnesty Kenya, 2024; Kenya News Agency, 2025b). Similarly, Religious Leaders/Faith-Based Organizations (FBOs) were largely perceived as not effective (50.6%), indicating their limited direct role in the practical aspects of cargo security, aligning with their typical focus on community cohesion and advocacy rather than law enforcement.

This diverse perception of effectiveness, ranging from strong confidence in prosecutorial and revenue agencies to significant uncertainty or scepticism towards others, is consistent with the multi-faceted nature of port security and the varying mandates and visibility of different institutions. It suggests that while some institutions are seen as actively and successfully fulfilling their roles, others either face operational challenges that reduce their perceived impact or their contributions are not clearly understood by the broader port community. The varied perceptions of effectiveness across different duty-bearer institutions, from high confidence in ODPP and KRA to concerns regarding the Judiciary and uncertainty about NGAO and CSOs, indicate that the overall effectiveness of cargo theft prevention at Mombasa Seaport is a function of a complex interplay between well-performing entities and those perceived to have shortcomings. Addressing these discrepancies in perceived effectiveness is crucial for developing a more uniformly robust and trusted security framework at Kilindini Harbour.

To provide context and operational details, key informant interviews offered insights into the specific security measures being implemented at the port and associated facilities. While not directly naming the agencies, their discussions underscore the comprehensive efforts that would implicitly involve these bodies. Clearing Agent 1 highlighted general improvements in port security:

“Security at Mombasa Seaport has seen significant improvement. This is largely due to the enhancement of security surveillance systems across the port. A key contributing factor has also been the introduction of modern cargo scanners. These scanners are proving invaluable in tracking cargo during its movement, thereby bolstering overall control and reducing risks.”

This indicates that enhanced security, which would involve various agencies like NPS in enforcement, is seen as a positive development. Kenya Ships Agents Association (KSAA) representative provided a detailed list of preventive mechanisms:

“There are several mechanisms that are being practiced at the port and CFSs that help prevent cargo theft. The measures include, cargo seals, cargo scanners, CCTVs, tracking devices for transit tracks, weigh bridges, gamma rays technology, insuring cargo, and manned security guard and perimeter walls.”

These specific measures, from physical barriers to advanced technology and manned security, reflect the multi-faceted efforts that government agencies, in collaboration with private entities, would oversee or enforce. The LBTO- transit driver further elaborated on the role of various security components:

“There are CFSs which deploy their own cargo escort unit for all the cargo meant for them. Also the use of surveillance cameras and restricting access to the port using biometrics and manned security has helped with cargo security. The cargo seals help track cargo and prevent intrusion into containers while the use of weighbridges helps confirm if cargo has been tampered with. All these measures have been effective in securing cargo.”

The mention of manned security and restricting access implicitly points to the roles of security personnel, which would include police and potentially intelligence services, in implementing and maintaining such controls. The repeated assertion that all these measures have been effective in securing cargo from the driver implies a positive view of the overall security apparatus, which the agencies contribute to.

A representative from the Kenya International Freight & Warehousing Association praised collaborative efforts, stating that:

“The government has proactively established an interagency body. This crucial entity fosters direct collaboration on all port-related matters. As a direct result of this initiative, there has been a notable boost in cargo clearance times at the port. Furthermore, this collaborative effort has significantly enhanced overall accountability within port operations.”

This positive assessment highlights the perceived benefits of multi-agency cooperation in improving port operations and accountability, aligning with the questionnaire's findings of perceived effectiveness for some agencies. However, a less optimistic view emerged concerning the judicial process. The Kenya Ships Agents Association representative expressed frustration, noting that:

“A recurring challenge we've observed is significant judicial delays in court cases. This is particularly true in instances where importers and insurance companies are locked in disputes. The core of these protracted legal battles often revolves around claims stemming from the loss of cargo. Such delays only exacerbate financial burdens and prolong resolution for all parties involved.”

This indicates that even when cases are reported, delays in the judicial system impede resolution. The Cargo Consolidator echoed this concern and extended it to investigative bodies: "There is been a lot of complacency with Directorate of Criminal Investigations and Office of Director of Public Prosecution. Additionally, case takes long in court.

“This situation strongly suggests a perceived inaction or sluggishness on the part of both the Directorate of Criminal Investigations (DCI) and the Office of the Director of Public Prosecutions (ODPP). Their handling of

cases appears to be a significant concern. This is further compounded by the prolonged court proceedings that follow, exacerbating the issues. The overall impression is one of a justice system struggling with efficiency and timeliness.”

The Representative from Liquid and Bulk Transporters Operators concurred, stating:

“Both the Kenya Police and the Kenya Ports Authority are demonstrably putting in their best efforts. However, the core of the problem emerges when these matters proceed to court. This transition often leads to significant delays in judicial processes. Consequently, this protracted legal timeline results in what is widely perceived as delayed justice for all parties involved.”

This reinforces the sentiment that while initial police and port authority responses might be adequate, the subsequent judicial process is a major bottleneck. In summary, while a cautious optimism exists regarding the effectiveness of some enforcement agencies, particularly through inter-agency collaboration, the consistent theme from key informants’ points to significant frustration with the delays and perceived complacency within the broader criminal justice system, particularly concerning the Directorate of Criminal Investigations, Office of the Director of Public Prosecution, and the Judiciary. This suggests that while initial prevention and response mechanisms may be perceived as moderately effective, the crucial follow-through in terms of investigation, prosecution, and timely justice remains a major challenge.

The qualitative insights from key informants, while not directly evaluating these agencies, provide crucial context by detailing the specific, robust security mechanisms currently in place. Measures like enhanced security surveillance, cargo scanners, CCTVs, tracking devices, biometrics, manned security, and cargo seals are repeatedly cited as effective. These operational details implicitly reflect the environment in which the NPS, NIS, and EACC operate and contribute. For instance, the NPS would be involved in manned security and enforcement, while the NIS might contribute to surveillance and intelligence gathering related to criminal networks which links back to the complex web of actors discussed previously. The EACC's perceived effectiveness

could stem from its role in addressing corruption that might enable theft, aligning with the idea of rogue public officials as perpetrators.

The combined data suggests that while the perception of individual agency effectiveness hovers around a slim majority, it is likely influenced by the visible and impactful security measures and technologies deployed at the port, which these agencies either directly implement or contribute to. The not effective minority could be reflecting residual challenges like collusion, evolving criminal tactics, or specific instances where the agencies' interventions were not perceived as impactful. Ultimately, the overall sentiment points towards a continuous effort required to solidify public and stakeholder confidence in these crucial institutions within the dynamic cargo security landscape.

4.6 Challenges Facing Prevention of Cargo Theft

The data in the Table below pertains to respondents' response regarding the challenges encountered in preventing cargo theft at the Mombasa Seaport.

Table 27: Challenges Facing Prevention of Cargo Theft at Mombasa Seaport

Challenges Facing Prevention of Cargo Theft		Frequency	Percent
High cost of inspection	Agree	40	24.7
	Neutral	118	72.8
	Disagree	4	2.5
	Total	162	100.0
Delays in clearance of cargo hence port congestion	Agree	113	69.3
	Neutral	49	30.1
	Disagree	1	0.6
	Total	163	100.0
Lack of cross-border relationships	Agree	39	26.0
	Neutral	4	2.7
	Disagree	107	71.3
	Total	150	100.0
Inadequacies of effective infrastructure and technology	Agree	100	61.3
	Neutral	8	4.9
	Disagree	55	33.7
	Total	163	100.0
Inadequate facilities for inspection	Agree	45	54.9
	Neutral	19	23.2
	Disagree	18	22.0
	Total	82	100.0

Table 27: Continuation Challenges Facing Prevention of Cargo Theft at Mombasa Seaport

Lack of standardized security training/recruitment	Agree	67	48.6
	Neutral	52	37.7
	Disagree	19	13.8
	Total	138	100.0
Lack of coordinated among security management teams	Agree	55	37.2
	Neutral	83	56.1
	Disagree	10	6.8
	Total	148	100.0
Corruption	Agree	76	47.8
	Neutral	81	50.9
	Disagree	2	1.3
	Total	159	100.0
Inadequate resources	Agree	126	70.8
	Neutral	32	18.0
	Disagree	20	11.2
	Total	178	100.0
Lack of integrity among public officials	Agree	12	7.2
	Neutral	84	50.6
	Disagree	69	41.6
	Total	166	100.0
Illiteracy and ignorance among port officials	Agree	5	3.4
	Neutral	44	29.5
	Disagree	100	67.1
	Total	149	100.0
Impunity and selfishness among port officials	Agree	38	26.0
	Neutral	50	34.2
	Disagree	58	39.7
	Total	146	100.0
Inadequate cooperation and partisan interest among concerned agencies/stakeholders	Agree	113	84.3
	Neutral	8	6.0
	Disagree	13	9.7
	Total	134	100.0
Deficiencies in investigation, prosecution and sentencing of perpetrators	Agree	66	52.0
	Neutral	42	33.1
	Disagree	19	15.0
	Total	127	100.0
Poverty, and poor remuneration of port officials	Agree	14	9.5
	Neutral	3	2.0
	Disagree	131	88.5
	Total	148	100.0
Influence from foreign business interests	Agree	19	10.7
	Neutral	53	29.8
	Disagree	106	59.6
	Total	178	100.0
Influence from peers	Agree	10	8.0
	Neutral	10	8.0
	Disagree	105	84.0
	Total	125	100.0

The findings of this research pointed to several significant challenges hindering cargo theft prevention. A substantial majority of respondents, 113 (69.3%), agreed that delays in clearance of cargo, leading to port congestion, was a major challenge. Similarly, inadequate resources were agreed upon by 126 (70.8%) respondents. Furthermore, inadequacies of effective infrastructure and technology were a concern, with 100 (61.3%) respondents in agreement. Inadequate facilities for inspection were also agreed upon by 45 (54.9%) respondents (from a smaller sample size). While corruption received agreement from 76 (47.8%) respondents, a considerable 81 (50.9%) remained neutral. Lack of standardized security training/recruitment was agreed upon by 67 (48.6%) respondents, and lack of coordination among security management teams by 55 (37.2%), though for both, a significant portion remained neutral. In contrast, high cost of inspection was largely perceived as neutral 118(72.8%) or disagreed with 4(2.5%), rather than a primary challenge. A striking majority, 107 (71.3%), disagreed that a lack of cross-border relationships was a challenge, indicating that this might not be a significant impediment from the respondents' perspective. Similarly, most respondents 84(50.6%) were neutral while 69(41.6%) disagreed implying that they did not strongly perceive lack of integrity among public officials as a major issue, though a small percentage 12(7.2%) did agree.

These results are consistent with reports and studies identifying systemic vulnerabilities within major port operations globally, particularly in developing economies. The overwhelming agreement on delays in cargo clearance leading to congestion as a challenge aligns perfectly with research by organizations like TT Club (2021) and industry analyses (EasyFreight, 2021), which frequently link port congestion to increased opportunities for cargo theft due to prolonged idle times for goods. Similarly, the widespread agreement on inadequate resources and infrastructural/technological inadequacies echoes calls from maritime security experts for greater investment in modern surveillance, access control systems, and automated processes to fortify port defences (ISS Africa, 2020).

The significant, though not overwhelming, agreement on corruption as a challenge corroborates findings from anti-corruption bodies and news reports which indicate that corruption, particularly involving public officials, remains a persistent problem in East

African ports like Mombasa, facilitating illicit activities including cargo diversion (IUMI, 2025). The challenges related to lack of standardized training and coordination among security teams are also well-documented in port security literature, where effective human capital development and inter-agency collaboration are deemed crucial for a robust security posture. To the researcher, these findings imply that Mombasa Seaport faces a combination of operational, resource-based, and systemic challenges in combating cargo theft. The strong emphasis on congestion, resources, and infrastructure points to the need for large-scale strategic investments and operational reforms. While corruption is acknowledged, the relatively high neutrality or disagreement on lack of integrity among public officials suggests a nuanced perception, possibly indicating that direct, overt corruption is less widespread than systemic vulnerabilities, or perhaps that respondents are hesitant to attribute blame directly. The finding that cross-border relationships are not seen as a major challenge is particularly insightful, implying that collaborative frameworks might already be sufficiently robust or that the issues are primarily internal to the port's immediate operations.

The strong consensus on delays in cargo clearance leading to port congestion, inadequate resources, and inadequacies of effective infrastructure and technology as key challenges signifies that Mombasa Seaport's efforts to prevent cargo theft are primarily hampered by systemic and resource-based limitations. Addressing these fundamental issues through strategic investments, operational reforms, and enhanced collaborative frameworks will be critical for significantly improving cargo security at Kilindini Harbour. A significant finding from the data was that inadequate cooperation and partisan interest among concerned agencies/stakeholders was overwhelmingly perceived as a major challenge, with 113 (84.3%) respondents in agreement. The study also revealed that deficiencies in investigation, prosecution, and sentencing of perpetrators were considered a challenge by 66 (52.0%) respondents, while a substantial portion 42(33.1%) remained neutral. Conversely, the notion of illiteracy and ignorance among port officials was largely rejected as a significant challenge, with 100 (67.1%) respondents disagreeing and only 5 (3.4%) agreeing. Similarly, poverty and poor remuneration of port officials were strongly dismissed as a primary challenge, with 131 (88.5%) disagreeing. Impunity and selfishness among port officials yielded mixed responses, with a relatively low agreement of 38 (26.0%), a notable neutrality of 50 (34.2%), and significant disagreement of 58 (39.7%). Finally, influence from foreign

business interests and influence from peers were largely disagreed with by 106 (59.6%) and 105 (84.0%) respondents respectively, suggesting these are not widely perceived as major impediments.

These results are highly consistent with current research in maritime security and supply chain risk management, which increasingly emphasize the critical role of inter-agency cooperation and effective legal frameworks in combating sophisticated cargo theft. The overwhelming consensus on inadequate cooperation and partisan interest among concerned agencies/stakeholders aligns with numerous studies that highlight soloed operations, lack of information sharing, and conflicting agendas among different government bodies like customs, police, port authority and private sector entities as major impediments to holistic port security (IMO, 2024; Global Logistics Association, 2023).

Furthermore, the agreement on deficiencies in investigation, prosecution, and sentencing" resonates with global concerns about the low conviction rates for cargo theft, which often creates a perception of impunity for criminals (Veracity, 2025; Supply Chain Security Council, 2024). When the risk of apprehension and punishment is low, criminal enterprises are emboldened, seeing cargo theft as a high-reward, low-risk venture. To the researcher, these findings imply that while there might be adequate foundational knowledge among port officials as indicated by the rejection of illiteracy and ignorance, the systemic issues of inter-agency friction and a weak judicial deterrent are paramount.

The strong disagreement on poverty and poor remuneration as a driving factor is particularly interesting, suggesting that while these socio-economic issues exist in the broader context, respondents do not see them as the primary direct cause of cargo theft committed by port officials. Similarly, the rejection of foreign business interests and peer influence implies that external pressures or internal peer-based networks are not perceived to be as influential as broader systemic or operational coordination failures. This suggests that the solution to cargo theft at Mombasa Seaport lies less in basic education or individual financial incentives, and more in fostering robust institutional

collaboration and strengthening the entire criminal justice pipeline from investigation to sentencing.

The strong consensus on inadequate cooperation and partisan interest among concerned agencies/stakeholders and the acknowledgment of deficiencies in investigation, prosecution, and sentencing of perpetrators as key challenges signify that Mombasa Seaport's combat against cargo theft is predominantly undermined by institutional fragmentation and a weak judicial deterrent. Addressing these critical systemic gaps through enhanced inter-agency collaboration and judicial reform is paramount for fostering a more secure operating environment at Kilindini Harbour.

To provide a deeper understanding of these challenges, key informant interviews offered specific insights into the practical impediments and underlying issues contributing to cargo theft vulnerabilities. These accounts often highlighted nuanced aspects not fully captured by the survey. Cargo Consolidator representative brought up issues related to initial documentation and fraudulent complaints:

“Upon cargo arrival at the port of landing, you find for instance in motor vehicles that some electronic devices such as cameras, vehicle spare parts etc. have not been included in the tally sheet and such items are what you will find to frequently being stolen. Also, some clients do lodge fictitious complaints about cargo theft for cargo that is yet to be shipped.”

This indicates challenges with accurate initial documentation and the problem of false reports, which can consume resources and divert attention. Cargo consolidators' representative also suggested a proactive measure: To proactively address these incidents Interpol should be facilitated and involved during loading of cargo at port of origin. This implies recognition that some challenges originate beyond the port of destination and require international cooperation.

The representative from Liquid and Bulk Transporters Operators (LBTO) - transit driver directly addressed issues of inadequate expertise and corruption:

“Unfortunately, some Container Freight Stations (CFSs) are reportedly rife with corruption and political influence. It's alleged that their owners

benefit from political protection, creating a concerning shield. This means that if you're affected by incidents like cargo theft, your complaint may be met with laxity and outright incompetence from those duty bearers who should be addressing it. This environment severely undermines effective recourse and accountability.”

This strongly corroborates the survey's inadequate resources and lack of standardized security training/recruitment by pinpointing insufficient knowledge in the DCI. More significantly, it provides a vivid, detailed account of how corruption and political influence at Container Freight Stations (CFSs) can directly hinder effective response to theft, leading to laxity and incompetence. This adds crucial depth to the survey's more ambiguous findings on corruption and lack of integrity among public officials. Kenya Ships Agents Association, representative further underscored challenges related to agency capabilities and the judicial process:

“The NPS and NIS have not been effective because they have limited knowledge of cargo handling procedures generally. Also, they have limited resources at their disposal which affect their response to cargo theft incidents. If the incidents successfully get to court the process is usually prolonged.”

This aligns with the survey's inadequate resources and lack of standardized security training/recruitment by specifically criticizing the limited knowledge of cargo handling procedures within NPS and NIS. The mention of prolonged delays in court processes adds another layer of systemic challenge affecting deterrence. Finally, the clearing agent 1 also highlighted a specific and ongoing operational threat:

“A growing concern is the emergence of counterfeit cargo seals. These pose a significant risk, as their use directly increases the likelihood of future cargo theft incidents. It's crucial that this issue is sufficiently addressed to prevent further security breaches.”

Further a representative from the Kenya International Freight and Warehousing Association specifically pinpointed infrastructural and technological deficits, stating:

“Despite ongoing efforts, the Kenya Ports Authority (KPA) still faces notable challenges. There remain inadequacies in effective infrastructure necessary to fully secure cargo. Crucially, the current technology deployed is not yet sufficient to completely deter all instances of cargo theft. This highlights a critical need for further investment and upgrades to close existing security gaps.”

This directly aligns with the questionnaire's finding on the concern regarding infrastructure and technology. The Kenya Ships Agents Association representative highlighted the impact of operational inefficiencies, noting:

“The port sometimes experiences a significant backlog of uncleared containers. This accumulation leads directly to severe congestion at the terminus areas. Unfortunately, this overcrowding creates an environment ripe for illicit activities, making it easier for stealing to take place. Such a situation highlights how operational inefficiencies can inadvertently contribute to increased security risks, facilitating cargo theft.”

This strongly supports the survey's finding that delays in cargo clearance and resulting port congestion create vulnerabilities for theft. The Cargo Consolidator provided a candid view on integrity issues, observing:

“There are concerning instances where corruption directly facilitates the loss of cargo at the port. This occurs when unscrupulous Kenya Port Authority (KPA) officials, in collusion with Kenya Revenue Authority (KRA) personnel, clear goods to the wrong individuals’ imposters. This illicit process allows unauthorized parties to take possession of valuable shipments, leading to significant financial losses and undermining trust in the system.”

This statement offers direct evidence of how corruption, involving key port and revenue officials, facilitates theft through fraudulent cargo release to imposters, elaborating on the survey's mention of corruption as a challenge, even with mixed respondent perceptions. Representative from Liquid and Bulk Transporters Operators further elucidated the issue of official complicity, asserting,

“There are instances where public officials actively engage in import and export trade, creating partisan interests. This direct involvement often fosters a culture of impunity and selfishness among port officials. Such conflicts of interest severely compromise fairness and transparency within the system.”

This crucial insight points to conflicts of interest among public officials as a root cause of impunity, creating an environment conducive to cargo theft and undermining effective governance, which resonates with the broader concerns about integrity and corruption, even if the survey respondents showed neutrality. In summary, the qualitative insights from key informants largely affirm the quantitative findings regarding challenges such as inadequate infrastructure, port congestion, and the pervasive issue of corruption, providing specific examples of how these factors directly contribute to cargo theft vulnerabilities.

The quantitative and qualitative data revealed a multi-faceted set of challenges hindering cargo theft prevention at Mombasa Seaport. The survey data pointed to operational bottlenecks such as cargo clearance delays leading to congestion, inadequate resources, and insufficient infrastructure/technology as the most pressing concerns. This highlights systemic inefficiencies that create opportunities for theft. However, the key informant interviews significantly enrich this understanding by providing granular detail and highlighting more insidious issues. While the survey showed a mixed perception on corruption and integrity, the LBTO- transit driver's explicit account of corruption and political influence at CFSs leading to laxity and incompetence provides strong evidence that these issues are indeed significant impediments, particularly in the post-port handling phase. This suggests that while general respondents might be hesitant to directly accuse officials, those with direct operational exposure face tangible consequences of such practices.

Furthermore, the informants consistently pointed to human capital deficiencies within key agencies. The insufficient knowledge in the DCI (transit driver) and limited knowledge of cargo handling procedures within the NPS and NIS (Kenya Ships Agents Association, representative) directly corroborate the survey's lack of standardized security training/recruitment. This indicates that even with enhanced technology, a fundamental gap in specialized human expertise can undermine investigative and

preventive efforts. The problem of prolonged court processes (Kenya Ships Agents Association, representative) further dampens the deterrent effect of legal action. The issue of fictitious complaints and unrecorded items (Cargo consolidators' representative), along with the use of counterfeit cargo seals (Clearing Agent 3), highlighted that perpetrators are adapting through fraudulent means and exploiting documentation weaknesses, adding complex layers to the prevention challenge. While the survey suggests that cross-border relationships and the cost of inspection are not major challenges, the call for Interpol involvement at the port of origin (Cargo consolidators' representative) suggests that some challenges do originate upstream, implying a need for broader, more integrated supply chain security measures beyond the immediate port environment. In essence, while the port has advanced technologically, it continues to grapple with deep-seated systemic issues of congestion, resource limitations, and, critically, human factor challenges related to expertise and integrity.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of the Study Findings

The summary of the findings as per the objectives of this study is presented in this section. As per the first objective, the research firmly established that cargo theft remains a significant and widely acknowledged problem at Mombasa Seaport. An overwhelming number of participants confirmed its existence, with the majority perceiving its prevalence as either High or Moderate. However, a crucial positive trend emerged: a consistent and marked decline in the frequency of detected cargo theft incidents was observed across all ranges from 2020 to 2024. For instance, the number of respondents reporting 20 or more detected cases plummeted from in 2020 to very few cases in 2024, indicating an improvement in the security landscape over the five-year period.

With regard to the second objective, analysing the nature of cargo theft, the study revealed specific patterns in what was stolen, how, and when. Electronics, automotive products and fuel were identified as the most frequently targeted goods. The primary methods employed by thieves were found to be deceptive and fraudulent, notably identity theft and fictitious pickups. Incidents overwhelmingly occurred during late night (1 am - 3:59 am) and early morning hours (4 am - 5:59 am), correlating with periods of lower staffing and reduced oversight. A strong concentration of thefts was also observed over weekends (Sunday and Saturday and during the rainy season, suggesting vulnerabilities tied to specific times and environmental conditions. The perpetrators were identified as a complex network, predominantly including vulnerable youth, rogue business persons/financiers and rogue public officials.

Addressing the third objective, examining the control strategies of cargo theft, the research indicated a multifaceted approach. Inter-agency collaboration was the most frequently identified security measure, supported by reinforced berth patrols and human security patrols. In terms of technology, CCTV cameras were the leading deterrent, followed closely by motion detector alarms and container seals. Key informants largely attributed the observed reduction in theft to these enhanced security measures, including the deployment of cargo scanners, tracking devices, weighbridges,

biometrics, and on-going innovations like container clamps. Looking ahead, stakeholders emphasized the importance of strengthening intelligence gathering and procuring advanced micro vibration detectors as ideal future mechanisms. Regarding the effectiveness of duty-bearer institutions, the Office of the Director of Public Prosecutions (ODPP) and the Kenya Revenue Authority (KRA) garnered the highest positive perceptions respectively. While the National Police Service (NPS) and National Intelligence Service (NIS) also showed majority positive perceptions, the Judiciary exhibited a critical near-even split (effective and not effective), highlighting persistent concerns about judicial efficiency in prosecuting theft cases.

Finally, in line with the fourth objective which was challenges facing prevention of cargo theft, the study pinpointed several significant impediments. Inadequate cooperation and partisan interest among agencies were overwhelmingly perceived as a major challenge. This was compounded by broad agreement on delays in cargo clearance leading to port congestion, inadequate resources, and inadequate infrastructure and technology. Additionally, deficiencies in the investigation, prosecution, and sentencing of perpetrators were considered a challenge by of respondents. Despite a lower consensus on corruption, qualitative insights highlighted its role, particularly in hindering effective responses at Container Freight Stations. These findings collectively underscore the need for enhanced inter-agency synergy, targeted resource allocation, and continuous professional development to fortify cargo security at Mombasa Seaport.

5.2 Conclusion

This study investigated cargo theft at Kilindini Harbour, Mombasa Seaport, between 2020 and 2024, addressing its prevalence, nature, control strategies, and prevention challenges. The findings led to several key conclusions regarding the evolving landscape of cargo security in this vital trade hub. Regarding the prevalence of cargo theft, this research concluded that while cargo theft remains an acknowledged and significant concern among stakeholders at Mombasa Seaport, a substantial positive shift has occurred. Despite widespread recognition of its existence, the data indicated a marked and consistent decline in the frequency of detected cargo theft incidents across all ranges between 2020 and 2024. This suggests that while vigilance is still paramount,

there has been a tangible improvement in containing the overall incidence or at least the detection of theft.

Concerning the nature of cargo theft, it was concluded that the problem is characterized by sophisticated and opportunistic targeting of specific high-value goods. Electronics, automotive products, and fuel emerged as consistently favoured targets, likely due to their marketability. The primary methods employed were deceptive and fraudulent, such as identity theft and fictitious pickups, highlighting an exploitation of administrative and procedural weaknesses rather than solely overt physical force. Furthermore, the timing of these incidents concentrated heavily on late night and early morning hours, particularly over weekends and during the rainy season, indicating that thieves strategically capitalize on periods of reduced human oversight or environmental conditions that offer concealment.

In terms of control strategies, the study concluded that a multi-faceted approach, combining human vigilance with advanced technology, has been instrumental in the observed decline in theft. Inter-agency collaboration, along with reinforced and human security patrols, formed the backbone of perceived security measures. Technologically, CCTV cameras, motion detectors, and container seals were widely recognized as key deterrents. However, the study also concluded that while the Office of the Director of Public Prosecutions and the Kenya Revenue Authority garnered strong confidence in their effectiveness, the Judiciary's perceived effectiveness was critically split, posing a potential bottleneck in the justice process. Finally, regarding the challenges facing prevention of cargo theft, the research concluded that the most significant impediments stem from systemic and human-related factors. A critical conclusion was that inadequate cooperation and partisan interest among agencies remain an overwhelming challenge, undermining a truly unified front against theft. This is compounded by persistent issues such as cargo clearance delays leading to port congestion, inadequate resources, and insufficient infrastructure. Furthermore, while the role of corruption garnered mixed survey responses, qualitative insights strongly suggested its continued presence, alongside deficiencies in investigation and prosecution processes, as a substantial barrier to effective prevention

5.3 Recommendations

- i. **Strengthen Proactive Surveillance and Intelligence Capabilities:** Given the persistent nature of cargo theft and inconsistent detection, the Kenya Ports Authority and security stakeholders should invest in predictive threat monitoring, real-time intelligence sharing, and expanded coverage of vulnerable zones especially night operations and weekends using data-driven risk mapping and unannounced inspections.
- ii. **Improve Integration and Sustainability of Security Technologies:** To address limitations in the deployment and maintenance of existing surveillance tools, port authorities should standardize and integrate security systems (such as CCTV, scanners, and access controls), ensure routine maintenance, and invest in training personnel to effectively monitor, interpret, and respond to technology outputs.
- iii. **Address Systemic Bottlenecks and Criminal Innovation through Operational Reform:** To mitigate security gaps caused by clearance delays and congestion, there is need to streamline cargo flow with digitized clearance systems, enforce strict documentation verification, and enhance vetting protocols at Container Freight Stations (CFSs) where criminal manipulation is prevalent. Simultaneously, anti-counterfeit strategies must be updated to counter evolving tactics like seal forgery and identity manipulation.
- iv. **Rebuild Confidence in Reporting Channels and Judicial Outcomes:** To combat underreporting, it is critical to improve the responsiveness, confidentiality, and accountability of theft reporting mechanisms. Establishing rapid-response units, protecting whistle-blowers, and ensuring timely prosecution through judicial reforms would significantly improve stakeholder trust and participation in enforcement processes.

5.4 Suggestions for Further Studies

- i. Based on the observed decline in detected theft incidents between 2020 and 2024, a crucial area for further study would be a causal analysis investigating the specific impacts of individual security measures on this reduction. While this study identified deployed technologies and strategies, a quantitative correlation or qualitative deep dive into the direct effectiveness of, for instance,

CCTV expansion versus biometric access controls, or the specific role of inter-agency task forces, could provide more targeted recommendations for future investments. Such research could employ more rigorous statistical analysis of incident data against implementation timelines of specific measures.

- ii. Considering the findings on the nature of cargo theft, particularly the prevalence of fraudulent methods like identity theft and fictitious pickups, further research could focus on a forensic analysis of digital vulnerabilities within the port's logistical and documentation systems. This would involve a detailed examination of the digital security frameworks, data exchange protocols, and authentication processes at the port and associated CFSs. Identifying specific technical loopholes or human factors exploited in digital fraud could lead to the development of highly targeted cyber security and procedural safeguards, moving beyond general acknowledgments of fraudulent methods.
- iii. In light of the varied perceived effectiveness of duty-bearer institutions, particularly the Judiciary's critical split perception, a dedicated qualitative study on the barriers to effective prosecution and sentencing of cargo theft cases would be highly beneficial. This could involve in-depth interviews with judges, prosecutors (ODPP), defence attorneys, and law enforcement investigators (NPS, DCI) to uncover systemic inefficiencies, challenges in evidence presentation, legal loopholes, or other factors contributing to perceived judicial shortcomings. Understanding these specific bottlenecks could inform targeted legal and procedural reforms necessary to strengthen the justice chain.
- iv. Finally, while the study identified "inadequate cooperation and partisan interest among agencies" as an overwhelming challenge, further research could delve into a detailed organizational and political economy analysis of inter-agency dynamics at Mombasa Seaport. This study could explore the underlying factors contributing to poor cooperation, such as competing mandates, resource hoarding, political interference, or lack of trust. Employing qualitative methods like stakeholder mapping and network analysis could provide actionable insights into fostering genuine collaboration, recommending specific governance structures or incentive mechanisms to overcome these entrenched challenges and ensure a truly unified front against cargo theft.

REFERENCES

- Aamlid, C. (2019). *Threats to container ports and preventative security measures*. (Unpublished master's thesis). University of South-Eastern Norway, Notodden, Norway
- Abayomi, O. J. (2017). Port security challenges and their implications for maritime trade in Nigeria. *Journal of Logistics and Transport*, 1(1), 1–10.
- Adan, J. A., Maalim, M. M., & Omurwa, J. O. (2017). Influence of security measures on prevention of cargo theft at Container Freight Stations in Mombasa County, Kenya. *International Journal of Social Sciences and Information Technology*, 3(2), 1–14.
- Adebayo, S., & Okereke, C. (2023). Inter-agency cooperation in maritime security: Lessons from African ports. *Journal of African Maritime Affairs*.
- Adler, F., Mueller, G., & Laufer, W. (2013). *Criminology* (8th ed.). McGraw-Hill Publishers.
- Akers, R. (2006). A social learning theory of crime. In F. T. Cullen & R. Agnew (Eds.), *Criminological theory Past to present* (pp. 134–146). Roxbury Press.
- Alghofari, Y., Indriani, F., & Setyaningrum, E. (2021). The effect of work experience, job satisfaction, and organizational commitment on employee performance. *Journal of Management and Business Review*, 18(1), 1–14. <https://doi.org/10.37081/jmb.v18i1.298>
- Aransiola, T. J., Justus, M., & Ceccato, V. (2022). Space-time dynamics of cargo theft: Evidence from São Paulo, Brazil. *Journal of Transportation Security*, 16, 9. <https://doi.org/10.1007/s12198-023-00264-2>
- Argun, U., & Daglar, M. (2016). *Examination of routine activity theory by property crimes*. https://www.researchgate.net/publication/296477454_Examination_of_Routine_Activities_Theory_by_the_property_crime
- Arviem. (2020, February 3). *Cargo theft: An unavoidable problem within your supply chain*. <https://arviem.com/cargo-theft-problem-supply-chain/>
- Asiamah, M. A. (2018). *Investigating the issue of maritime domain awareness: The case of Ghana*. https://commons.wmu.se/cgi/viewcontent.cgi?article=1609&context=all_dissertations
- Azam, S. H., & Khan, I. A. (2024). Temporal analysis of cargo theft in major seaports: A global perspective. *Journal of Transport Security*.
- Bernard, K. (2015). *PORT SECURITY-Threats and vulnerabilities: Takoradi Port, Ghana*. <https://core.ac.uk/download/pdf/38128067.pdf>
- Bichou, K. (2013). An empirical study of the impacts of operating and market conditions on container-port efficiency and benchmarking. *Research in Transportation Economics*, 42(1), 28–37.

- Black, R., & Grey, L. (2024). The evolving landscape of supply chain crime: A focus on digital fraud. *Logistics Security Journal*.
- Blaine, M., & Nel, M. (2020). *South African maritime foreign policy: Rethinking the role of the South African Navy*. https://open.uct.ac.za/bitstream/handle/11427/31536/Blaine_Nel_South%20African%20Maritime%20Foreign%20Policy%20Rethinking%20the%20Role%20of%20the%20South%20African%20Navy.pdf?sequence=1
- British Standards Institution (BSI). (2023). *Supply chain - Special reports downloads*. BSI Group. <https://www.bsigroup.com/en-GB/our-services/resources/supply-chain/>
- Brown, K., & Davis, M. (2024). Technological advancements in port security: A case study approach. *Maritime Policy Review*.
- Brown, L., & Williams, M. (2023). Physical security measures in port environments: Best practices and challenges. *Port Infrastructure Review*.
- Bryman, A. (2012). *Social Research Methods*. Oxford University Press.
- Buluttan. (2024, January 16). *Effects of extreme weather events on port operations*. <https://www.buluttan.com/blog/severe-weather/effects-of-extreme-weather-events-on-port-operations>
- Burges, D. (2013). *Cargo theft, loss prevention, and supply chain security*. Elsevier.
- Busiega, J. N. (2016). *Harnessing maritime security and resource exploitation: Role of maritime diplomacy in Kenya*. (Unpublished master's thesis). University of Nairobi, Kenya.
- Cambridge Dictionary. (2008). *Cargo*. In *Cambridge dictionary*. <https://dictionary.cambridge.org/dictionary/english/cargo>
- Cao, X., & Lam, J. S. L. (2019). Simulation-based severe weather-induced container terminal economic loss estimation. *Maritime Policy & Management*, 46(1), 92–116.
- CargoNet. (2024). *CargoNet's 2024 supply chain risk trends analysis*. Risk & Insurance. <https://riskandinsurance.com/cargo-theft-losses-hit-record-455m-in-2024/>
- CargoNet. (2025). *CargoNet data & information sharing reports*.
- Carpenter, A. (2013). Security and Europe's sea ports: Threats and issues facing maritime gateways to Europe. In *New challenges for the EU security strategy* (Chapter 3). Cambridge Scholars Publishing. https://danskehavne.dk/wp-content/uploads/2015/12/Forskningsrapport-A-Carpenter-April-2013-1283_1.pdf
- Carr, M. M. (2020). *Urban hostility: CPTED, hostile architecture, and the erasure of democratic public space*. <https://core.ac.uk/download/pdf/326033026.pdf>

- Chen, H., & Lee, W. (2023). The role of smart surveillance systems in modern port security. *International Journal of Maritime Engineering*.
- Chen, H., Cullinane, K., & Liu, N. (2017). Developing a model for measuring the resilience of a port-hinterland container transportation network. *Transportation Research Part E: Logistics and Transportation Review*, 97, 282–301.
- Chen, W., & Wang, J. (2023). Integrated security management systems in international ports: A case study analysis. *Journal of Global Maritime Logistics*.
- CHRIPS. (2020). *Youth Inclusion and Violence Prevention in Nairobi: A Research Agenda*.
- Christopher, K. (2009). *Port security Management*. CRC Press.
- Clark, R., & Davies, S. (2024). Comprehensive security frameworks in global ports: A best practice guide. *Journal of Port Security*.
- Clarke, R. V. (1999). *Hot products: Understanding, anticipating, and reducing demand for stolen goods* (Police Research Series Paper 112). Policing and Reducing Crime Unit, Research Development and Statistics Directorate, Home Office.
- Collins, B., & Morgan, L. (2023). Evaluating the impact of modern security technologies on maritime crime rates. *International Journal of Maritime Security*, 3(1), 123-145.
- Confederation of European Security Services. (2017). *Best practice in transport security*. <https://www.scribd.com/document/405404033/Pb-Coess-149-Best-Practices-in-Transport-Security-2017-10>
- Cooper, D. R., & Schindler, P. S. (2011). *Business research methods*. McGraw-Hill/Irwin.
- Cornish, D. B., & Clarke, R. V. (1987). Understanding crime displacement: An application of rational choice theory. *Criminal Justice and Behaviour*, 14(1), 93–111. <https://doi.org/10.1111/j.1745-9125.1987.tb00826.x>
- Creswell, J. W. (2011). *Planning, conducting, and evaluating quantitative and qualitative research*. Pearson.
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. University of Nebraska Lincoln.
- Creswell, J. W. (2021). *A concise introduction to mixed methods research*. SAGE Publications.
- Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications.
- Dailey, J. (2014). Border security agency operations. In J. R. Phelps, J. Dailey, & M. Koenigsberg (Eds.), *Border security* (pp. 55–106). Carolina Academic Press.

- Davies, M., & Thomas, G. (2023). Night-time vulnerabilities in supply chain logistics: Case studies in port environments. *International Journal of Supply Chain Management*, 12(3), 45-60.
- Davies, P., & Evans, R. (2024). Advanced screening technologies in container ports: A comprehensive review. *Journal of Global Security Research*, 9(2), 200-215. <https://doi.org/10.1093/jogss/ogae999>
- Davis, P. K., & Cragin, K. R. (2009). *Social science for counterterrorism*. Rand National Defence Research Institute.
- Davis, P., & Evans, L. (2023). Global supply chain vulnerabilities and emerging theft risks. *International Journal of Logistics Security*, 18(4), 150-164.
- Dawadi, S., Shrestha, S., & Giri, R. A. (2021). Mixed-methods research: A discussion on its types, challenges, and criticisms. *Journal of Practical Studies in Education*, 2(2), 25–36. <https://doi.org/10.46809/jpse.v2i2.20>
- Dimerco. (2021, November 30). *Why port delays are increasing the need for ocean cargo insurance*. <https://dimerco.com/resources/port-delays-ocean-cargo-insurance/>
- Donnelly, P. G. (2010). Newman, Oscar: Defensible space theory. *Sociology, Anthropology, and Social Work Faculty Publications*, 30. http://ecommons.udayton.edu/soc_fac_pub/30
- EasyFreight. (2021, July 14). *Risks to cargo security due to longer idle times and congestion*. <https://easyfreight.co.nz/blog/risks-cargo-security-longer-idle-times-congestion/>
- Ekwall, D. (2009). The displacement effect in cargo theft. *International Journal of Physical Distribution & Logistics Management*, 39(1), 47–62.
- Ekwall, D., & Lantz, B. (2013). Seasonality of cargo theft at transport chain locations. *International Journal of Physical Distribution & Logistics Management*, 43(9), 748–765.
- Elago, E. (2023). *Investigating the effect of cargo theft on Walvis Bay port operations in Namibia*. Namibia University of Science and Technology. <https://ir.nust.na/server/api/core/bitstreams/48857f8a-8513-406f-aa98-ce2f5df8ea4e/content>
- Eliakunda, W., Gurisha, Z., Mihayo, L., & Mashoke, M. (2021). Cargo security in Dar Es Salaam ports: Challenge for the implementation WCU framework of standards and commercial cargo security. *International Journal of Business and Management Review*, 9(6), 46–58. <https://www.ijbmer.com/docs/volumes/vol9issue6/ijbmer2018090604.pdf>

- European Commission. (2025, February 11). *Gender equality in research and innovation not progressing fast enough, according to new She Figures report*. Research and Innovation. https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/gender-equality-research-and-innovation-not-progressing-fast-enough-according-new-she-figures-report-2025-02-11_en
- Faghawari, N. D., Eru, U. J., Okorefe, U. C., Anyanwu, J. O., & Enweoru, J. C. (2023). The study of maritime fraud and its effect on competitiveness of Nigerian seaport (A study of Apapa Seaport). *Annals of Social Science and Management Studies*, 9(4), 555769. <https://doi.org/10.19080/ASM.2023.09.555769>
- Federal Bureau of Investigations (FBI). (2018). *FBI Cargo theft*. FBI.gov. <https://ucr.fbi.gov/2018/additional-data-collections/cargo-theft>
- Feldt, L., Roell, P., & Thiele, R. D. (2013). *Maritime security-perspectives for a comprehensive approach* (Issue no. 222). ETH Zurich. https://www.files.ethz.ch/isn/162756/222_Feldt_Roell_Thiele.pdf
- Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed methods designs Principles and practices. *Health Services Research*, 48(6 Pt 2), 2134–2156.
- Firdaus, F., Zulfadilla, Z., & Caniago, F. (2021). Research methodology: Types in the new perspective. *Manazhim*, 3(1). <https://doi.org/10.36088/manazhim.v3i1.903>
- Foster, J., & Hill, P. (2022). Persistent challenges in supply chain security: A review of global trends. *Logistics & Transportation Review*.
- Gachanja, P., & Murimi, K. (2023). Whistleblower protection and reporting mechanisms in public institutions: A study from Kenya. *Journal of Public Administration and Governance*.
- GAN Integrity. (2017). *Kenya country risk report*.
- Garcia, R., & Rodriguez, S. (2023). Port security technologies: An evaluation of effectiveness. *Journal of Maritime Safety*.
- Gerstein, D. M., Alter, A., Davenport, A. C., Grill, B., Kadlec, A., & Young, W. (2018). *Managing international borders: Balancing security with the licit flow of people and goods*. Rand Corporation. <https://apps.dtic.mil/sti/pdfs/AD1084816.pdf>
- Gitau, A. N., & Njeje, L. W. (2021). Determinants of effective port security management in Mombasa port. *International Journal of Social Sciences and Information Technology*, 7(1), 16–29.
- Gitonga, E., & Wanjiku, P. (2024). Public trust in law enforcement and criminal justice systems in East Africa. *Journal of African Governance*.
- Global Logistics Association. (2023). *The role of collaboration in enhancing supply chain security*. (Check for specific reports or white papers by the organization).

- Global Logistics Cluster. (2022). *The logistics capacity assessment (LCA)*. <https://dlca.logcluster.org/kenya-211-port-mombasa>
- Gooch, L. (2022, June 22). For companies, risk of cargo theft in Asia. *The New York Times*.
- Green, P., & White, J. (2025). Artificial intelligence in cargo security: Current applications and future trends. *Journal of Global Logistics*.
- Grey, E. (2022). *Cargo theft: A billion-dollar problem*. Ship Technology.com. <https://www.ship-technology.com/features/featurecargo-theft-a-billion-dollar-problem-5882653/>
- Gumba, D. (2021). *Is Mombasa Port a safe haven for licit trade? An assessment of governance-related vulnerability to illicit activities*. ENACT Africa. <https://enactafrica.org/research/policy-briefs/is-mombasa-port-a-safe-haven-for-licit-trade>
- Gupta, A., & Sharma, K. (2024). Automated alarm systems and intrusion detection in critical infrastructure protection. *Security Technology Review*.
- Haelterman, H. (2013). *Situational crime prevention and supply chain security: Theory for best practice*.
- Hall, B. (2016). *Defensible space – Student security on campus*. HEWV.com. <http://www.hewv.com/knowledge-cafe/defensible-space-student-securityon-campus/>
- Hechter, M., & Kanazawa, S. (1997). Sociological rational choice theory. *Annual Review of Sociology*, 23(3), 191–210.
- Herout, J. (2017). *U.S. maritime security – Strategies and measures applied*. (Unpublished master's thesis). Charles University, Prague. https://dspace.cuni.cz/bitstream/handle/20.500.11956/86543/DPTX_2015_2_11230_0_480815_0_179527.pdf?sequence=1
- Hofmeister, W., & Rueppel, P. (2014). *Maritime security and piracy: Common challenges and responses from Europe and Asia*. Konrad-Adenauer-Stiftung. https://www.kas.de/c/document_library/get_file?uuid=00ca482c-6ebf-8d25-4ac9-cee4c44df207&groupId=252038
- Hollis-Peel, M. E., Reynald, D. M., Bavel, M., & Welsh, B. C. (2011). *Guardianship for crime prevention: A critical review of literature*. https://www.researchgate.net/publication/226557712_Guardianship_for_Crime_Prevention_A_Critical_Review_of_the_Literature
- Hollman, A. (2013). Theory as represented in music lyrics. *Papers and Publications: Interdisciplinary Journal of Undergraduate Research*, 2(1), Article 8. <http://digitalcommons.northgeorgia.edu/papersandpubs/vol2/iss1/8>

- Honke, J., & Fernandez, C. I. (2023). Mobilising security and logistics through an Africa port: A controversies approach to infrastructure. *African Review of Economics and Finance*, 10(2), 246-260.
- Hsieh, M., & Wang, S. K. (2018). Routine activities in a virtual spree: A Taiwanese case of an ATM hacking space. *International Journal of Cyber Criminology*, 12(1), 333–352.
- Igella, R. (2014). *Factors influencing employee commitment: A case of Kenya Civil Aviation Authority* [Master's project, United States International University]. USIU-Africa eRepo. <https://erepo.usiu.ac.ke/handle/11732/193>
- IMO & WISTA International. (2021). *Women in Maritime Survey 2021: Global. Regional. National*. International Maritime Organization. https://wwwcdn.imo.org/localresources/en/OurWork/TechnicalCooperation/Documents/women%20in%20maritime/Women%20in%20maritime_survey%20report_high%20res.pdf
- International Labour Organization. (2018). *Maritime Labour Convention, 2006: A guide for governments*. ILO Publications.
- International Maritime Bureau. (2023). *Piracy and armed robbery against ships report, 1 January – 31 December 2023*. ICC International Maritime Bureau.
- International Maritime Bureau. (2024). *Piracy and armed robbery against ships report, 1 January – 31 March 2024*. ICC International Maritime Bureau.
- International Maritime Organization. (2015). *IMO's support to the new partnership for Africa's development (NEPAD)*. United Nations. <https://www.un.org/en/africa/osaa/pdf/unsystemfolder/2015/imo2015.pdf>
- International Maritime Organization. (2018). *ISPS Code and maritime security*. IMO.
- International Maritime Organization. (2024). *Implementing the ISPS Code: Challenges and best practices in port state control*. International Maritime Organization.
- ISS Africa. (2020, May 26). *Security vs efficiency: Smart ports in a post-COVID-19 era*. <https://issafrica.org/iss-today/security-vs-efficiency-smart-ports-in-a-post-covid-19-era>
- IUMI. (2025, March 12). *Cargo crime in Africa*. International Union of Marine Insurance. <https://iumi.com/newsletter-march-2025/cargo-crime-in-africa/>
- Jeevan, J., Chen, S. L., & Cahoon, S. (2019). The impact of dry port operations on container seaports competitiveness. *Maritime Policy & Management*, 46(1), 4–23.
- Jensen, C., & Knudsen, L. (2023). The economic impact of cargo crime on global supply chains. *Journal of International Trade Security*.

- Johnson, D., Gibson, V., & McCabe, M. (2014). Designing in crime prevention, designing out ambiguity: Practice issues with the CPTED knowledge framework available to professionals in the field and its potentially ambiguous nature. *Crime Prevention & Community Safety*, 16(3), 147–168.
- Johnson, E., & Williams, S. (2023). Global cargo theft trends: An annual review of vulnerabilities and losses. *Supply Chain Risk Management Quarterly*.
- Jouav. (2025, February 28). *Cargo theft: Risks, methods, and preventions*. JOUAV. <https://www.jouav.com/blog/cargo-theft.html>
- Justus, M., Ceccato, V., Moreira, G. C., & Kahn, T. (2018). Crime against trading: The case of cargo theft in Sao Paulo. In *Retail crime: International evidence and prevention* (pp. 297–323). Palgrave Macmillan.
- Kallas, S. (2021). *Ports 2030 gateways for the Trans European transport network*. EuropeanCommission.<https://ec.europa.eu/transport/sites/transport/files/modes/maritime/ports/doc/2014-04-29-brochure-ports.pdf>
- Kamau, R., & Ndungu, A. (2021). The role of intelligence services in national security and economic development: A Kenyan perspective. *East African Security Review*.
- Karanja, R., & Wafula, S. (2022). The economic burden of legal processes on businesses in developing countries. *International Journal of Business and Law*.
- Kay, G. (2022, June 16). *20 shipping containers' worth of gold and television sets were stolen in the 'biggest heist' ever for a Mexico port*. Business Insider Africa. <https://africa.businessinsider.com/retail/20-shipping-containers-worth-of-gold-and-television-sets-were-stolen-in-the-biggest/ykc85we>
- Kenya News Agency. (2024, May 30). *Women encouraged to dive into the maritime sector*. <https://www.kenyanews.go.ke/women-encouraged-to-dive-into-the-maritime-sector/>
- Kenya Ports Authority. (2024). *Security – Mombasa*. <https://www.kpa.co.ke/SitePages/KPA%20Security.aspx>
- Kenyan National Treasury. (2020). *Sector plan for gender, youth and vulnerable groups*.
- Keter, J., & Rotich, E. (2023). The role of sensor technologies in enhancing border and port security. *International Journal of Security Technology*.
- Kidere, M. M. (2015, May). *Safety in the sea ports*. Paper presented at the 22nd Engineers International Conference, Nairobi, Kenya.
- Kihara, M., & Mwenda, R. (2023). Institutional capacity and crime control in developing nations: A focus on police effectiveness. *Journal of Security and Development*.

- Kilcarr, S. (2013, August 9). Cargo thieves becoming 'strategists'. *Fleet Owner Magazine USA*. <http://fleetowner.com/fleet-management/cargo-thieves-becoming-strategists-say-experts>
- Kiptoo, E., & Cheboi, J. (2023). Customs modernization and border security: A case study of the Kenya Revenue Authority. *Journal of Trade and Customs*.
- Koech, L., & Muturi, P. (2022). Anti-corruption measures and public service delivery in Kenya: An evaluation. *Journal of Governance and Public Policy*.
- KPA Anti-Corruption Policy. (2018). *Kenya Ports Authority Anti-corruption Policy 2018*. Kenya Ports Authority.
- Kshirsagar, J. B., & Kumar, P. (2016). Multimodal passenger transportation security in Indian cities. In J. S. Szyliowicz, L. Zamparini, G. L. L. Reniers, & D. K. Rhoades (Eds.), *Multimodal transport security: Frameworks and policy applications in freight and passenger transport* (pp. 261–275). Edward Elgar.
- Kumar, R. (2011). *Research methodology: A step-by-step guide for beginners*. SAGE Publications Ltd. http://www.sociology.kpi.ua/wp-content/uploads/2014/06/Ranjit_Kumar-Research_Methodology_A_Step-by-Step_G.pdf
- Lee, S., & Park, J. (2025). Technological innovations in port security: AI, IoT, and their impact on crime prevention. *Maritime Technology Journal*.
- Leonard, T. J., Gallo, P., & Veronneau, S. (2015). *Security challenges in United States sea ports: An overview*. https://www.researchgate.net/profile/Simon_Veronneau/publication/276407591_Security_challenges_in_United_States_sea_ports_an_overview/links/561e639b08ae50795afe97d3/Security-challenges-in-United-States-sea-ports-an-overview.pdf
- Leong, C. (2014). A research on supply chain security in Malaysia. *International Journal of Supply Chain Management*, 3(2), 87–89.
- Leschaco. (2025, March 3). *Cargo theft – The dark side of logistics*. <https://www.leschaco.com/en/corporate-blog/post/cargo-theft-the-dark-side-of-logistics.html>
- Logistics Capacity Assessments Report (LCAs). (2022). Global Logistics Cluster. <https://dlca.logcluster.org/>
- Lopez, M., & Kim, S. (2024). Advanced port security technologies and their impact on crime reduction. *Journal of Port Management*, 16(2), 36-48.
- Love, P. C. (2015). A review and current status of crime prevention through environmental design (CPTED). *Journal of Planning Literature*, 30(4), 381–395.
- Maina, D., & Mbugua, R. (2023). Digital transformation in public sector service delivery: Emerging trends in East Africa. *African Journal of E-Governance*, 14(3), 45-56.

- Manig, C. G. (2017). *An evaluation of threats to the safeguarding of South Africa's maritime domain* (Security and Defence Studies Programme SDSP 03/17). Transport.gov.za.
https://www.transport.gov.za/documents/11623/108426/ResearchPaper_ThreatsMaritimeSecurity.pdf/716b7d9c-45eb-42e9-bbf1-76be395718b0
- Matagaro, D. K. (2018). *Factors influencing occupational fraud risk in supermarket chains in Kenya* [Master's thesis, Strathmore University]. Strathmore University Repository. <https://su-plus.strathmore.edu/server/api/core/bitstreams/2dd9ff03-7d34-408f-bb26-95357a7590d9/content>
- Mayhew, C. (2010). *Detection and prevention of cargo theft* (Trends & Issues in Crime and Criminal Justice No. 214). Australian Institute of Criminology. <https://www.ojp.gov/ncjrs/virtual-library/abstracts/detection-and-prevention-cargo-theft>
- McCague B. L.L.P. (2012). *An introduction to cargo theft in Canada*. <http://mccagueborlack.com/emails/articles/cargo-theft.html>
- McClain, E., Thomas, P., McAleenan, K. K., Sadler, S., & Kamoie, B. E. (2014, June 4). *The U.S. Senate Committee on Homeland Security and Governmental Affairs on "Evaluating port security: Progress made and challenges ahead"* [Joint testimony]. <https://www.hsgac.senate.gov/imo/media/doc/Joint%20Testimony-DHS-2014-06-04.pdf>
- Miller, D. (2023, July 11). *Viewpoint: Cargo theft continues to threaten supply chains*. *ClaimsJournal*. <https://www.claimsjournal.com/news/national/2023/07/11/317968.htm>
- Miro, F. (2014). Routine activity theory. In J. M. Miller (Ed.), *The encyclopedia of theoretical criminology*. Blackwell Publishing Ltd. <https://onlinelibrary.wiley.com/doi/pdf/10.1002/9781118517390.wbetc198>
- Monacelli, N. (2018). Improving maritime transportation security in response to industry consolidation. *Homeland Security Affairs*, 14, Article 1. <https://www.hsaj.org/articles/14257>
- Moodley, D. M. (2014). *An investigation into the illegal movement of goods from sea-ports-of-entry: A case study at Durban Harbour*. (Unpublished MTech dissertation). University of South Africa, Pretoria.
- Morris, S., George, D., Haseley, A., Parker, N., & Sherman, B. (2020). *Smart borders increasing security without sacrificing mobility*. Deloitte. <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Public-Sector/dttl-ps-GMBM-Border-Point-Booklet.pdf>
- Morton, P. A. (2020). Territoriality and surveillance: Defensible spaces and low-rise public housing design, 1966-1976. *Amerikastudien/American Studies*, 65(3), 329–358.

- Mugambi, N. (2017). *Effect of cargo tracking system on cross border trade between Kenya and Uganda*. University of Nairobi. <http://erepository.uonbi.ac.ke/bitstream/handle/11295/101037/Mugambi%20N.%20M.%202017.pdf?sequence=1>
- Munich-Re Specialty Insurance (NMU) Cargo & Freight. (n.d.). *A review of cargo crime in 2022*. <https://www.nmu.co.uk/en/insights/cargo-and-freight/a-review-of-cargo-crime-in-2022.html>
- Munyai, P. M. (2022). *An assessment of security measures at the maritime ports of entry in Durban and Cape Town, South Africa*. (Unpublished master's thesis). University of South Africa. <https://hdl.handle.net/10500/29884>
- Nagi, A., Indorf, M., & Kersten, W. (Eds.). (2022). *Bibliometric analysis of risk management in maritime ports*. https://www.researchgate.net/publication/320170616_Bibliometric_Analysis_of_Risk_Management_in_Maritime_Ports
- Nandasava, L. N. (2017). *The influence of strategic security plans on organization management: A case of Kenya Ports Authority, Mombasa*.
- Nandita, M. P., & Leed, A. (2018). *Designing safe schools; A human centred approach to safety and security in the 21st century*. TMC Architecture.
- Nation-ePaper. (2020, June 28). KPA faces payouts worth billions in suits over loss of cargo containers. *Daily Nation*. <https://nation.africa/kenya/business/kpa-faces-payouts-worth-billions-in-suits-over-loss-of-cargo-containers-119000>
- Newman, O. (1996). *Creating defensible space*. Diane Publishing.
- Nieuwenhuis, G. (2016). Challenges for multimodal freight transport. In J. S. Szyliowicz, L. Zamparini, G. L. L. Reniers, & D. K. Rhoades (Eds.), *Multimodal transport security: Frameworks and policy applications in freight and passenger transport* (pp. 21–34). Edward Elgar.
- Odukwe, E., & Ikeh, C. (2017). The efficiency and effectiveness of security agents in Nigeria seaports. *International Journal of Social Sciences and Humanities Review*, 6(1), 126–134.
- Ofosu-Boateng, N. R. L. (2017). A SWOT analysis of maritime transportation and security in the Gulf of Guinea. *Open Journal of Social Science*, 5(8), 14–25. <https://doi.org/10.4236/jss.2017.58002>
- Pacific Marine Business News. (2023). Pacific Maritime: Evolving threats: Adapting to trends in maritime cargo theft. *Pacific Maritime Business News*. <https://pacmar.com/article/evolving-threats-adapting-to-trends-in-maritime-cargo-theft/>

- Pearl, S. (2019). *Maritime port security: Preventing terrorist attacks in America*. [Master's thesis, California State University]. https://dspace.calstate.edu/bitstream/handle/10211.3/211978/Pearl%20Capstone%20Maritime%20Port%20Security_.pdf?sequence=1
- Phelps, J. (2014). Trafficking: Contraband, smuggling, and the law. In J. R. Phelps, J. Dailey, & M. Koenigsberg (Eds.), *Border security* (pp. 167–188). Carolina Academic Press.
- Pinto, M. (2021). *Employment of the Brazilian armed forces against cross-border crimes*. (Master's thesis). National Defence University, Washington DC. https://bdex.eb.mil.br/jspui/bitstream/123456789/2700/1/master%27s%20degr ee_2018_Col%20Marcelo%20Silva_%201st%20draft%20%281%29.pdf
- Priest, G. (2001). Validity: What follows from what? In G. Priest, *Logic: A very short introduction* (Chapter 1). Oxford University Press. <https://doi.org/10.1093/actrade/9780192893208.003.0001>
- Psaraftis, H. N. (2021). The future of maritime transport. In *International encyclopaedia of transportation* (pp. 535–539). Elsevier.
- Reynald, D. M., & Elffers, H. (2017). The future of Newman's defensible space theory. In *Social, ecological and environmental theories of crime* (pp. 477–498). Routledge.
- Rodrigue, J.-P. (2024). *The geography of transport systems*. Routledge.
- Russell, S. H. (2021). Logistics crime - Knowing and managing the risks of crime. *Air Force Journal of Logistics*, 24(1), 20–29.
- Sandelowski, M. (1996). Using qualitative methods in intervention studies. *Research in Nursing & Health*, 19(4), 359–364.
- Sekaran, U., & Bougie, R. (2010). *Research methods for business: A skill building approach*. John Wiley & Sons. <https://9afi.com/storage/daftar/onTXVlzEDQNtC4khg3Yklhj0g5V5wyFsQqNDZOpL.pdf>
- Shariati, M., & Guerette, R. T. (2017). Situational crime prevention. In B. Teasdale & M. S. Bradley-Engen (Eds.), *Preventing crime and violence* (pp. 261–268). Springer.
- Silverman, D. (2017). *Doing qualitative research*. SAGE Publications Inc. https://www.miguelangelmartinez.net/IMG/pdf/2017_silverman_doing__qualitative_research_book.pdf
- Sirdevi Rao. (2016). *A measure of community, public open space and sustainable development goal 11.7*. Notion Press.
- Slovin, E. (1960). Slovin's formula for sampling technique. *Prudence X D*. <https://prudencexd.weebly.com>

- Stickler, C. (2024). *Stolen cargo in container terminals - Breaking the chain*. Identec Solutions. <https://www.identecolutions.com/news/stolen-cargo-in-container-terminals>
- TAPA EMEA. (2022). *Cargo theft*. Transported Asset Protection Association. <https://tapaemea.org/insights>
- TheSAMag. (2018). *The Port of Cape Town: Adapting to the challenges of a modern commercial port*. <https://thesa-mag.com/features/infrastructure/port-cape-town-adapting-challenges-modern-commercial-port/>
- Transported Asset Protection Association (TAPA). (2025). *Cargo crime monitor*. <https://database.tapa-global.org/cargo-crime-monitor/index?page=2&per-page=7>
- TT Club. (2022). *Cargo theft report*. <https://www.ttclub.com/media/files/tt-club.pdf>
- United Nations Office on Drugs and Crime. (2017). *Maritime crime: A manual for criminal justice practitioners*. https://www.unodc.org/documents/Maritime_crime/19-02087_Maritime_Crime_Manual_Second_Edition_ebook.pdf
- Walter, E. P., & Chris, R. (2023). *Organized retail crime: Assessing the risk and developing effective strategies*. ASIS Foundation Research Council.
- Wang, B., Chin, K. S., & Su, Q. (2021). Risk management and market structures in seaport–dry port systems. *Maritime Economics & Logistics*, 24(1), 114–137.
- Wang, K., Wang, Q., & Liang, B. (2019, October). *Discussion on the defence safety design strategies of building's outside environment base on rational choice theory take Changchun as example*. Paper presented at IOP Conference Series: Earth and Environmental Science (Vol. 330, No. 2, p. 022014). IOP Publishing.
- Willie, M. M. (2022). Differentiating between population and target population in research studies. *International Journal of Medical Science and Clinical Research Studies*, 2(6), 48-61. <https://doi.org/10.47191/ijmscrs/v2-i6-14>
- Williman, N. (2011). *Research methods: The basics* (2nd ed.). Routledge.
- World Shipping Council (WSC). (n.d.). *World Shipping Council*. <https://www.worldshipping.org/>
- Young, R. R., Gordon, G. A., & Plant, J. F. (2018). *Railway security: Protecting against manmade and natural disasters*. Routledge.

APPENDICES

Appendix I: Respondents' Questionnaire



CHUKA UNIVERSITY

Knowledge is Wealth/ Akili ni Mali (Sapientia divitia est)

CHUKA MAIN CAMPUS

RESPONDENTS' QUESTIONNAIRE FOR THE STUDY ON- ANALYSIS OF SEAPORT SECURITY MEASURES IN PREVENTING CARGO THEFT AT KILINDINI HARBOUR IN MOMBASA, KENYA

Respondent No: _____

Date of Interview: _____

Dear Respondent,

My name is Dickson Gitonga Njiru, a postgraduate student at Chuka University, Kenya pursuing a PhD course in Criminology & Security Studies. As part of the academic requirements, I am expected to conduct primary research for the PhD award. My research topic is "*Analysis of Seaport Security Measures in Preventing Cargo Theft at Kilindini Harbour in Mombasa, Kenya*". This survey's objective is to gather information for the research. Your information will be handled with the highest secrecy. Additionally, as you are not encouraged to write your name on this questionnaire, your identity will remain anonymous. Additionally, involvement in the study is entirely voluntary. Your truthful responses to these questions are essential to the study's comprehension of the cargo theft issue. Instructions:

Please refrain from writing your name on this survey.

Please answer the questions truthfully and accurately.

Thank you.

Type of Respondent	Tick
Kenya Ports Authority Security Officer	
Police Officer	

SECTION A: Demographic Information

Tick for the appropriate information in the box

1. Gender- (1) Male (2) Female
2. Age in years (1) - 18-30 (2) 31-40 (3) 41-50 (4) 51-60 (5) 61- 70 (6) 71- 80 (7)81- 90 (8) Above 90
3. Marital Status (1) Married (2) Single (3) Divorced (4) Separated (5) Widowed
4. Highest formal education level (1) - None (2) Primary (3) Secondary (4) College (5) University (6) Post Graduate
5. Length work/ engagement at Mombasa Seaport
 1. Below 1 year
 2. 1-3 years
 3. 4-6 years
 4. 7-9 years
 5. 10-12 years
 6. 13 years and above

SECTION B: Prevalence of Cargo Theft

6. (a) In your opinion and or experience are there cases of cargo theft at the Mombasa Seaport? Yes No

(b) If your answer is yes in Q6 (a) above, tick the correct prevalence rate in the table below.

NO.	Prevalence Rate of Cargo Theft Cases	Tick as applies
1.	Very Low	
2.	Low	
3.	Moderate	
4.	High	
5.	Very High	

(c) According to your understanding and experience, how many instances of cargo theft are found at Mombasa Seaport in a year?

1-5 cases	6-9 cases	10-14 cases	15-19 cases	20 and above
1	2	3	4	5

d) Based on your knowledge and experience how many incidents of cargo theft were detected between 2020-2024 at Mombasa seaport?

Codes	No. of Cases	Cargo theft detected between 2020-2024				
		2020	2021	2022	2023	2024
1	1-5					

2	6-9					
3	10-14					
4	15-19					
5	20 and above					

SECTION C: The Nature and Extent of Cargo Theft

7. (a) Based on your knowledge and/or experience, which types of goods/ cargos are mostly stolen at the seaport?

Codes	Types of Goods/ Cargos mostly stolen at the Seaport	Tick all that apply, and add others as applies
1.	Food & beverages	
2.	Electronics	
3.	Agricultural goods	
4.	Automotive products	
5.	Construction materials	
6.	Fuel	
7.	Pharmaceuticals	
8.	Alcohol & tobacco	
9.	Jewellery & precious metal	
10.	Cosmetics	
11.	Beauty products	
12.	Art & Cultural artifacts	
13.	Clothing fashion & accessories	

(b) Could you please answer the following questions about cargo theft at seaports?

Codes	How theft is committed at the Seaport	Tick all that apply, and add others as applies
1.	Identity theft	
2.	Fictitious pickups	
3.	Misdirected loading/fraudulent carriers	

(c) Based on your knowledge and/or experience, when does theft of cargos mostly take place at the seaport?

Occurrence of crimes	Specify
1. Time of the day	1) No set time 2) Early evening (7–11:59 p.m.) 3) Third, midnight (12:00–12:59 a.m.) 4) After hours (1 am–3:59 am) 5) The early hours (4 am–5:59 am) 6) Breakfast (6 a.m. to 11:59 a.m.) 7) noon (12:59 p.m.) 8) In the afternoon (1–3:59 p.m.) 9) Evening, from 4 to 6:59 p.m.
2. The month of the year (Tick one only)	1. January 2. February 3. March 4. April 5. May. 6. June 7. July 8. August 9. September 10. October 11. November 12. December

9.	Religious leaders / Faith Based Organization (FBO)		
----	--	--	--

(c) If you didn't report in Q 8 (a) above, select the reason/s why you didn't in the table below:

No	Reasons for Not Reporting	Tick all that apply
1.	Lack of confidence on the responsible agencies	
2.	Protect company reputation	
3.	Protect port of entry reputation	
4.	Maintain business & consumer confidence	
5.	Avoid insurance deductible cost in the insurance policy	
6.	refused to assist or was unable to	
7.	Too minor to report or a personal matter	
8.	Fear of retaliation	
9.	How long it will take to report the crime is unknown.	
10.	It takes a while for the police to clear offenses that are reported to them (arrest, charging, and referring a suspect for prosecution).	
11.	The judicial process's time and financial costs	
12.	To keep myself safe	
13.	Expected gifts, advantages, and promises for not reporting	
14.	Never saw	
15.	Others (specify)	

(d) Suggest the best mechanism for reporting cargo theft at Mombasa seaport by stakeholders

Codes	Mechanism for reporting cargo theft	Tick all that apply
1.	Verbal reporting	
2.	Occurrence book	
3.	Emergency call numbers	
4.	Official letter	
5.	Anonymous letter	
6.	Open mails	
7.	Web-based reporting mechanisms	
8.	Complaint desk and /or box	
9.	Customer satisfaction feedback	
10.	Others (specify)	

(e) What are the consequences of cargo theft at Mombasa Seaport?

Codes	Consequences of cargo theft	Tick all that apply, and add others as applies.
1.	Disruption of supply chain	
2.	Cargo quality time effect	

3.	Financial losses	
4.	Decline in market share	

SECTION C: Cargo Theft Security Control Measures at the Seaport

9. (a) What are the security measures deployed to deter cargo theft at Mombasa seaport?

Codes	Security measures Deployed to Deter Cargo Theft	Tick all that apply, and add others as applies.
1.	Physical examination of cargo	
2.	Sniffer dogs	
3.	Inter-agency collaboration	
4.	Human security patrols	
5.	Integrated security check points	
6.	Reinforced berth patrol	
7.	Self-security awareness	

(b) What type of technological equipment has been deployed to deter cargo theft at Mombasa seaport?

Code	Technological equipment's Deployed to Deter Cargo Theft	Tick all that apply, and add others as applies
1.	Burglar alarm	
2.	CCTV camera	
3.	Access Control tools	
4.	Electronic key cards	
5.	Floodlighting	
6.	Radiation sensors	
7.	Surveillance camera	
8.	GPS location monitoring	
9.	Motion detectors alarms	
10.	Digital imaging	
11.	Facial recognition sensors	
12.	Electronic locks	
13.	X-rays	
14.	Human life detectors	
15.	Micro vibration	
16.	Perimeter fence with infrared intrusion	
17.	Trace particle detection	
18.	Electronic locks	
19.	Container seals	
20.	Electronic identification key cards	
21.	Biometric identification	
22.	Metal detectors	
23.	Aircraft	
24.	Drones	
25.	Gamma-ray security scanners	

(c) Do you think the resources deployed for cargo security are adequately effective?

1. Yes

2. No

(d) If the answer is 'No' in question 9 (c) above, suggest the most ideal mechanism/s for preventing cargo theft at Mombasa seaport as per the suggestions in the table below:

NO	Mechanisms for Preventing Cargo Theft	Tick all that apply, and add others as applies
1.	Strict enforcement of law	
2.	Enhanced	
3.	Arrest and prosecute perpetrators	
4.	Adequate training of staff	
5.	Intensified Sensitization	
6.	Joint security planning (multi-agency framework)	
7.	Strengthening intelligence gathering	
8.	Deployment of high integrity and efficient technological infrastructure	
9.	Others (specify)	

10. Based on your knowledge and experience, how effective are the following agencies in managing security at Mombasa seaport?

NO.	Agency	(Tick appropriately)			If not effective give reasons
		Effective	Not effective	I don't Know/ Not Sure	
1.	National Police Service (NPS)				
2.	National Intelligence Service (NIS)				
3.	Ethics and Anti-Corruption Commission (EACC)				
4.	Office of the Director of Public Prosecutions (ODPP)				
5.	Judiciary				
6.	Civil Society Organization				
7.	National Government Administration Office (NGAO)				
8.	Kenya Revenue Authority (KRA)				
9.	Religious leaders / Faith Based Organization (FBO)				

SECTION D: Challenges Facing Prevention of Cargo Theft

11. (a) Generally, indicate your level of agreement with the following statements on main challenges are facing prevention of cargo theft at the Mombasa seaport?

NO	Challenges Facing Prevention of Cargo Theft	Tick all that apply, and add others as applies		
		Agree	Neutral	Disagree
1.	High cost of inspection			
2.	Delays in clearance of cargo hence port congestion			
3.	Lack of cross-border relationships			
4.	Inadequacies of effective infrastructure and technology			
5.	Inadequate facilities for inspection			
6.	Lack of standardized security training/recruitment			
7.	Lack of coordinated among security management teams			
8.	Corruption			
9.	Inadequate resources			
10.	Public officials' lack of integrity			
11.	Port authorities' ignorance and illiteracy			
12.	Impunity and selfishness among port officials			
13.	Concerned agencies and stakeholders' lack of collaboration and partisanship			
14.	Deficiencies in investigation, prosecution and sentencing of perpetrators			
15.	Poverty, and poor remuneration of port officials			
16.	Influence from foreign business interests			
17.	Influence from peers			

Thank you for your time and cooperation. Be blessed!

Appendix II: Key Informant Guide



CHUKA UNIVERSITY

Knowledge is Wealth/ Akili ni Mali (Sapientia divitia est)

CHUKA MAIN CAMPUS

KEY INFORMANTS INTERVIEW GUIDE FOR STUDY ON- ANALYSIS OF SEAPORT SECURITY MEASURES IN PREVENTING CARGO THEFT AT KILINDINI HARBOUR IN MOMBASA, KENYA

Dear Key Informants,

My name is Dickson Gitonga Njiru, a PhD student at Chuka University conducting research on *“Analysis of Seaport Security Measures in Preventing Cargo Theft at Kilindini Harbour in Mombasa, Kenya”*. I request that we discuss the problem under the following questions: -

Interview Guide Questions

1. Have cases of cargo theft been experienced at Kilindini harbour Mombasa Seaport? If yes, how prevalent is the problem?
2. How many incidents of cargo theft are detected within a year at the Mombasa seaport?
3. Approximately how many incidents of cargo theft were detected between 2020-2024 at Mombasa seaport?
4. Who are mainly involved (perpetrators) in the cases of cargo theft?
5. Which types of cargos are mostly stolen at the seaport?
6. How are cargos stolen at the seaport? (*Modus operandi*)
7. When do theft of cargos mostly take place at the seaport based on time of the day, day of the week, month and season of the year?
8. Who are responsible for cargo theft at the seaport of Mombasa?
9. Have you ever reported a case of cargo theft? If yes, to who and whom do you trust within the criminal justice system? If you have never reported, what were the reasons of not reporting?
10. What are the best mechanisms for reporting cargo theft at Mombasa seaport?
11. What are the consequences of cargo theft at Mombasa Seaport?
12. Which security measures have been deployed to deter cargo theft at Mombasa seaport?
13. Which type of technological equipment have been deployed to deter cargo theft at Mombasa seaport?

14. Do you think the resources deployed for cargo security are effective? If no, suggest the most ideal mechanism for preventing cargo theft at Mombasa seaport?
15. How effective are the government agencies in management of security at Mombasa seaport?
16. Which challenges are faced in prevention of cargo theft at Mombasa seaport?

Appendix III: Institutional Ethics Committee Authorization



CHUKA UNIVERSITY INSTITUTIONAL ETHICS REVIEW COMMITTEE

Telephones: 020-2310512/18

Direct Line: 0772894438

Email: info@chuka.ac.ke

P. O. Box 109-60400, Chuka

Website: www.chuka.ac.ke

25th April, 2025

REF: CUIERC/ NACOSTI/711

TO: Dickson Gitonga Njiru

RE: Analysis of Seaport Security Measures in Preventing Cargo Theft at Kilindini Harbour in Mombasa, Kenya (2020-2024)

This is to inform you that *Chuka University IERC* has reviewed and approved your above research proposal. Your application approval number is *NACOSTI/NBC/AC-0812*. The approval period is 25th April, 2025 – 25th April, 2026.

This approval is subject to compliance with the following requirements;

- i. Only approved documents including (informed consents, study instruments, MTA) will be used
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by *Chuka University IERC*.
- iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to *Chuka University IERC* within 72 hours of notification
- iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to *Chuka University IERC* within 72 hours
- v. Clearance for export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days upon completion of the study to *Chuka University IERC*.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://oris.nacosti.go.ke> and also obtain other clearances needed.

Yours sincerely


Dr. Benjamin Kanga
SECRETARY



Appendix IV: Postgraduate Letter



CHUKA UNIVERSITY

Knowledge is Wealth (*Sapientia divitia est*) Akili ni Mali

**OFFICE OF RECTOR
BOARD OF POSTGRADUATE STUDIES**

Telephones: 020-2310512/18
Direct Line: 020-268 7625

Email: postgraduate@chuka.ac.ke

P. O. Box 109-60400, Chuka
Website: www.chuka.ac.ke

AD17/58069/22

2nd May, 2025

To
National Commission for Science Technology and Innovation
Off Waiyaki Way, Upper Kabete
P O Box 20623, 00100
Nairobi.

Dear Sir/ Madam,

DICKSON GITONGA NJIRU

The above named person is a bona fide student of Chuka University pursuing a Degree of Doctor of Philosophy in Criminology and Security Studies, proposal titled: Analysis of Seaport Security Measures in Preventing Cargo Theft at Kilindini Harbour in Mombasa, Kenya (2020-2024).

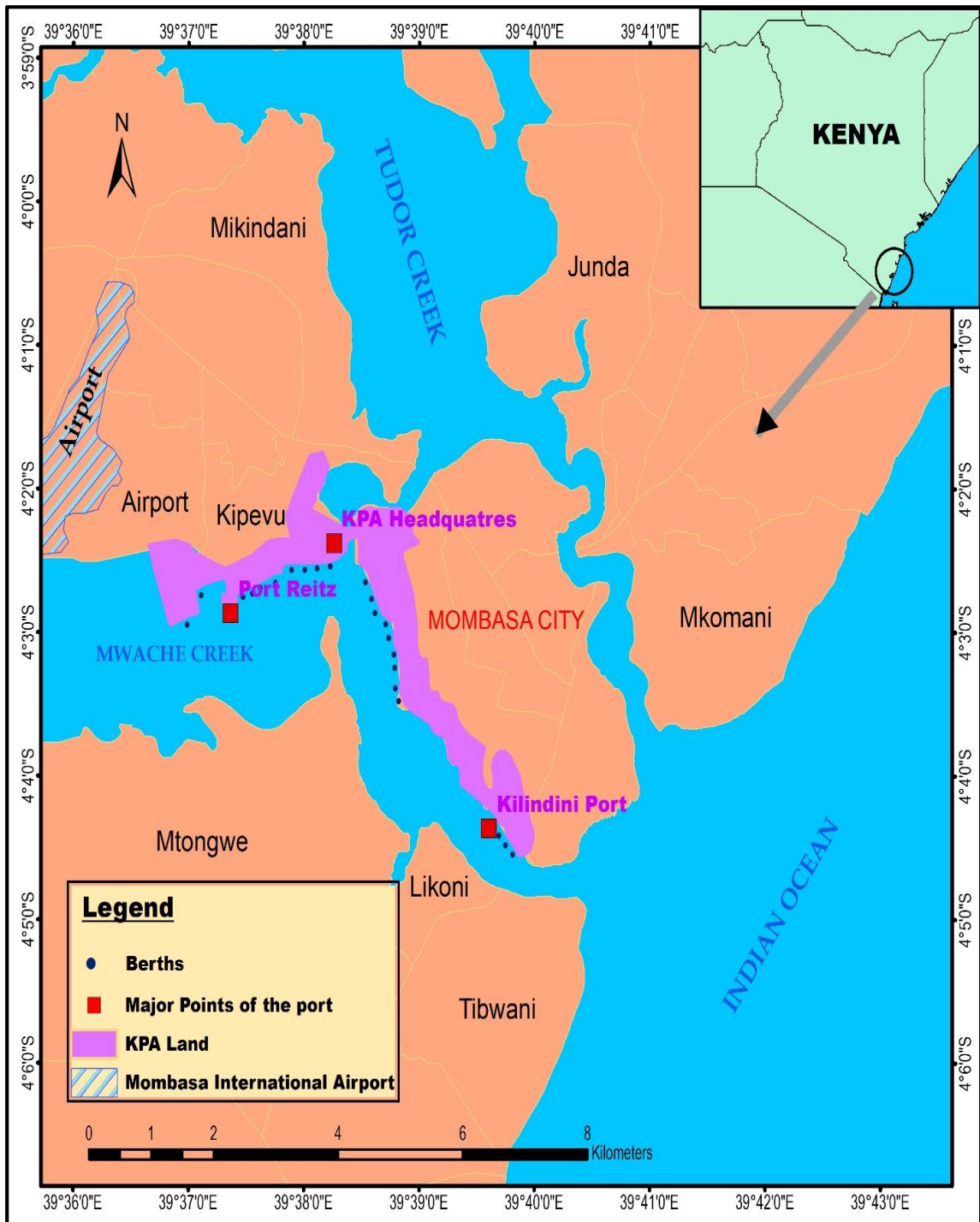
Mr. Gitonga has defended at Faculty level, and is now expected to conduct research. Any assistance from you will be highly appreciated.



**DIRECTOR
BOARD OF POSTGRADUATE STUDIES**

MM/kk

Appendix V: Map of Port of Mombasa



Appendix VI: Approval for Data Collection



OFFICE OF THE INSPECTOR GENERAL NATIONAL POLICE SERVICE NAIROBI – KENYA

Telegraphic Address: "IG, NPS"
Telephone: Nairobi 020-2221969
When replying please quote Ref.
and date

Jogoo House 'A'
P O Box 44249-00100
NAIROBI

REF: NPS/IG/ORG/2/14/A/VOL. IV (35)

16th May, 2025

Dickson Gitonga Njiru,
P.O.Box 21180-00100
NAIROBI.

APPROVAL FOR DATA COLLECTION FOR A PhD RESEARCH STUDY

The Inspector General of the National Police Service (NPS) acknowledges receipt of your letter dated 15th May 2025 regarding the above subject.

Please be informed that the Inspector General, National Police Service has granted approval to your request and you have been instructed to be guided by your academic requirements. You are hereby directed to report to Kilindini Harbour Port Police for further instructions.

Thank you for choosing National Police Service as your preferred institution for your research study.


PHILIP A. OPIYO
For: INSPECTOR GENERAL
NATIONAL POLICE SERVICE

