

ASSESSING SOCIO-ECONOMIC FACTORS CONTRIBUTING TO MARITIME  
INSECURITY IN KENYA: THE CASE OF LAKE VICTORIA, HOMA BAY  
COUNTY

by

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## APPROVAL

ASSESSING SOCIO-ECONOMIC FACTORS CONTRIBUTING TO MARITIME  
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In accordance with Daystar University Policies, this thesis is accepted in partial  
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DECLARATION

ASSESSING SOCIO-ECONOMIC FACTORS CONTRIBUTING TO MARITIME  
INSECURITY IN KENYA: THE CASE OF LAKE VICTORIA HOMA BAY COUNTY

I declare that this thesis is my original work and has not been submitted to any other  
college or university for academic credit.

Signed: \_\_\_\_\_  
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\_\_\_\_\_ Date

## ACKNOWLEDGEMENTS

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## LIST OF ACRONYMS AND ABBREVIATIONS

BMUs	Beach Management Units
CIDP	County Integrated Development Plan
CFCLR	Convention on Fishing and Conservation of the Living Resources
ISPS	International Ship and Port Facility Security
IUU	Illegal, Unregulated and Unreported
KCGS	Kenya Coast Guard Service
NGAOs	National Government Administration Officers
SDGs	Sustainable Development Goals
SOLAS	Safety of Life at Sea
SPSS	Statistic Package for Social Science
UNCCC	UN Convention on Climate Change
UNCLOS	United Nations Convention of the Law of the Sea

## ABSTRACT

Maritime security is one of the latest axioms of international relations and diplomacy. It is a term that has drawn attention to new challenges and rallies support for tackling them. The study assessed socio- economic factors contributing to maritime insecurity along the Homa Bay shores of Lake Victoria. This study objectives were: to assess the current status of maritime insecurity at Lake Victoria in Homa Bay County; to find out whether illegal, unregulated, and unreported fishing is a form of maritime insecurity at Lake Victoria in Homa Bay County; and to examine the socio-economic factors contributing to maritime insecurity at Lake Victoria in Homa Bay County. The researcher adopted institutional and routine activity theories as theoretical framework. An exploratory research design that incorporated a qualitative research approach were used in this study. The target population were individual and organisations / institutions from Homa Bay Lake Region site. The study used purposive sampling technique and the principle of saturation to obtain a sample size of 36 participants -12 participants for in-depth interviews and 4 Focus Group Discussions (FGDs) of 6 members each. The study adopted qualitative interviews, FGDs, and observation as data generation tools. The study revealed that the main IUU fishing issues in Lake Victoria, Homa Bay County are unauthorized fishing, criminal gangs and pirates, encroachment by foreign fishers, employment of minors/children as fishers, use of prohibited gears and fishing methods, and fishing young, endangered and protected fish species. Moreover, fish stocks in Lake Victoria, Homa Bay county are under threat from IUU fishing. The study recommends that there is a need to have more patrol officers patrolling the waters because this will keep illegal fishers and criminal gangs from roaming freely.

## DEDICATION

I dedicate this work to God because through Him, all things are possible. Secondly, I dedicate this work to my irreplaceable Father and brothers, Mr. Caesar Handa, Ms. Lucy Shazima, Mr. Patrick Handa, and Mr. Raphael Ngesa. The love and support was impeccable.

Thank You!

## CHAPTER ONE

### INTRODUCTION AND BACKGROUND TO THE STUDY

#### Introduction

This chapter gives the background to the study, the statement of the problem; purpose of the study, objectives of the study, research questions, justification and significance of the study, assumptions of the study, scope of the study, limitations and delimitations of the study, definition of terms and the chapter summary.

#### Background of the Study

According to Bueger (2014), one of the latest hypotheses is maritime security in international relations and diplomacy. Maritime security is a term that has drawn attention to new experiments and gathers provisions to deal with them. Bueger further notes that foremost performers in maritime strategy, ocean supremacy, and worldwide protection have in the earlier era begun to embrace maritime protection in their obligation or reframed their effort in such terms. For instance, in 2014, the European Union (EU), the United Kingdom (UK), and the African Union (AU) released formidable maritime security policies. In addition, the 2011 Alliance Maritime Strategy goals, the North Atlantic Treaty Organization (NATO), covered maritime security. In 2004, the United States led the way for improvement by launching a country-wide Maritime Security Policy.

Further, the Maritime Safety Committee (MSC) of the International Maritime Organization covered maritime security in their list of tasks (Bueger, 2014). Having this in mind, the researcher argues that maritime security is vital for global developments and

economic growth. Furthermore, it is an area where states have developed a naval force to protect the interests of their maritime territories. Then, what is Maritime security?

Rodrigue (2010) argued that maritime security is not always smooth to outline but generally implies issues of a vast range. Nevertheless, currently, there is no worldwide definition of maritime security that has been developed. Currently, maritime security is apprehensive primarily about limiting deliberate damage via disruption, destabilization, or extremism. Goldie (2006) similarly argued that African geographical regions have main risks significantly in the maritime security sector. The researcher posits that for deliberations on the socio-economic factors contributing to maritime insecurity, it is worthwhile to understand the link between maritime security and the blue economy.

The perception of “Oceans Economy” or “Blue Economy” is current and is instigated from the 2012 United Nations Conference on Sustainable Development (UNCSD) held in Rio de Janeiro (UNCSD, 2012) that aligned with the idea of economic and trade activities. The need to amalgamate conservation and sustainability in the management of the maritime domain rose from the UNCSD. Mbugua and Mwachinalo (2017) define "blue economy" as the "well-adjusted exploitation of resources at sea or lakes for job and income development in a way that protects the ocean environment, including ocean, green coastal, and marine economies. Therefore, this being the case, it means if maritime security is maintained, there is the growth of economy and developments (poverty is eradicated) and human security (food security, shelter, sustainable livelihoods, and safe employment opportunities). Maritime insecurity such as piracy, higher threat levels of terrorism, human trafficking and illegal immigration, illicit trade, proliferation of light weapons and small arms, the introduction of alien species, unregulated and unreported

fishing, dumping of toxic waste, smuggling of nuclear and radioactive materials, and maritime degradation, on the other hand, will impact negatively on the benefits of maritime security and blue economy.

According to Feldt, Peter and Thiele (2013), maritime security is a governmental responsibility, but it has no universal legal or agreed definition owing to its breadth spanning several policy sectors. However, the concept is described as a military multi-agency operation to reduce prohibited actions in the water, ensure harmless route, and promote state and global benefits (Vrey, 2010). Maritime security attracts new challenges and rallies support for tracking maritime security. They discuss different maritime security threats, including piracy, terrorism, human and drugs trafficking, smuggling of illicit goods, the proliferation of small arms, illegal fishing, environmental crimes, and maritime accidents and disasters. The absence of these vices should be the argument of maritime security (Vrey, 2010).

Life, as we know it in the 21<sup>st</sup> century, is significantly sustained by the marine environment. Sea transport accounts for more than 90 percent of the world's trade goods, while submarine cables transmit 95 percent of telecommunications data per day. Many factors affect maritime security, including territorial disputes, conflict, environmental degradation, and severe crime. Despite years of national and international counter-proliferation efforts, up-to-date maritime piracy, terrorism, and illegal fishing remain significant issues affecting global maritime trade and the oil and gas industry and are present in most continents. Piracy, Illegal fishing, and theft at sea play a key part in stimulating instability and violence on the water and land. The primary triggers for 21<sup>st</sup>-

century maritime security worldwide include poverty, lawlessness, conflict, resources, and the complexity and fragmented territorial composition (Mbugua & Mwachinalo, 2017) .

Mwangura (2003) argued that, in Africa, like the rest of the world, the maritime domain is the life force of the economy that controls food security and food sovereignty. Some tremendous imports and exports happen in the African ports to the rest of the world. Those historical primary raw materials include gold, diamonds, minerals, fish, cocoa, timber, and other agricultural goods; thus, access to safe, secure maritime transit routes becomes vital to integrating those products into the global marketplace. In Africa, fish is consumed as a significant source of food beyond the economic importance of the maritime domain as the physical survival of their population; thus, any interruption in access to fish is a significant threat to food security and economic stability in these countries. Environmental degradation due to dumping of wastes or overfishing also leads to massive fish kills (Mwangura, 2003).

Africa continues to face both criminal and legitimate efforts that take advantage of its marine resources. Even though many counties have a vast wealth of maritime wealth, they are blind to the value of these resources. In the Indian Ocean, illegal fishing and the movement of illegal drugs and substance abuse like heroin have increased over the years, thereby threatening to strengthen criminal networks. In the North of Africa, smuggling of migrants and fuel across the Mediterranean Sea has also increased. It is causing a serious security challenge as it is a significant funding source for terrorist networks. In West and Central Africa, face crimes such as piracy, robbery at sea, fight over illicit oil and fuel, trafficking of illegal drugs and narcotics, human trafficking and illicit goods, and also arms

proliferation, which threaten the safety and security of the maritime space in the Gulf of Guinea (Rahman, 2009).

In Kenya, Lake Victoria and the Indian Ocean provide a significant economic opportunity for thousands of people. However, these prospects are undermined by maritime security challenges such as Illegal, Unregulated, and Unreported (IUU) fishing, piracy, marine pollution, and over-exploitation of maritime resources. The nature of these insecurities resulted in maritime security becoming Kenya's government's emergent priority. This was translated in the 2014 Security Laws that established a Border Control and Operations Co-ordination Committee (BCOCC), which develops a national maritime security strategy and implements the 2017 Blue Economy Conference resolutions. Kenya has been facing environmental and marine safety security, including an oil tanker that discharged five million liters of crude oil into Port Reitz creek at the Kilindini Harbour that caused damage to the marine ecosystem. Kenya had also experienced a maritime disaster in 1994 when Kenya's *MV Likoni* Ferry sank at Mtongwe, Mombasa, killing over 272 passengers (Mwangura, 2003).

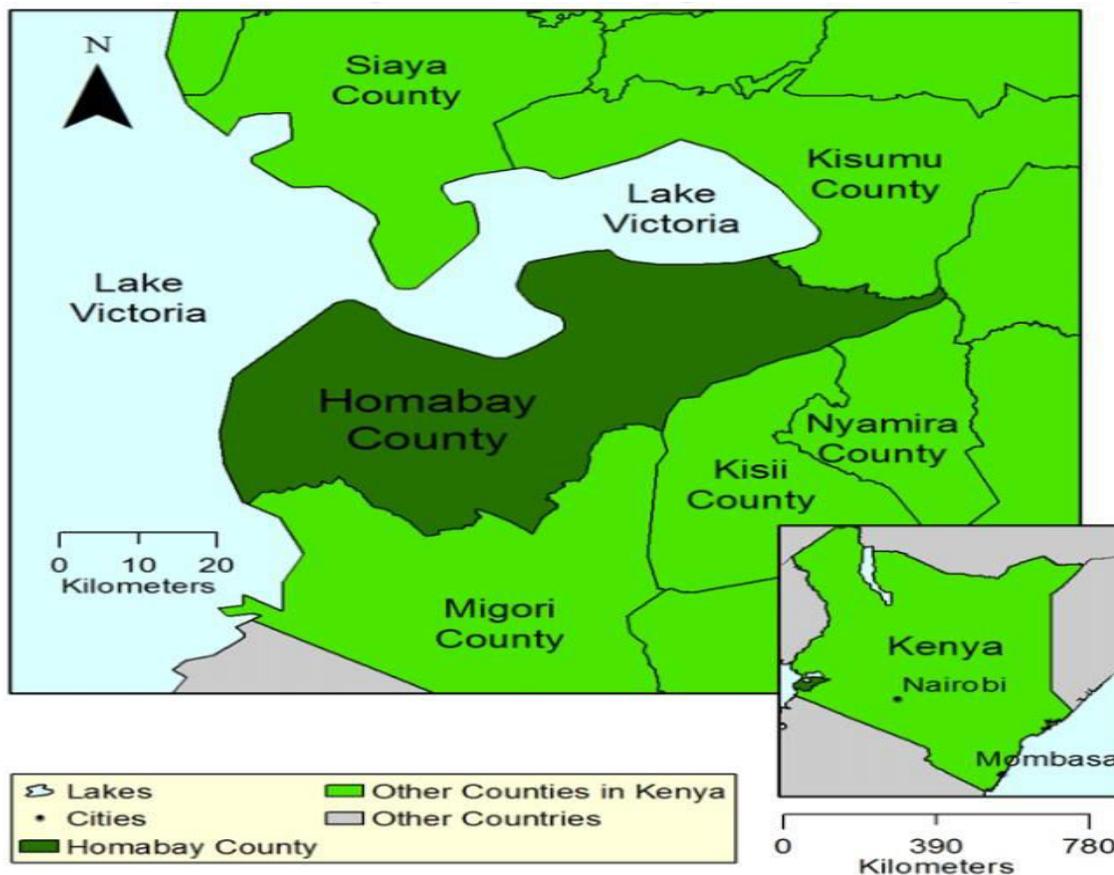
Kenyan policymakers have recognized inland waters' as important sources of economic insecurity and opportunities due to the upsurge of IUU fishing and over-exploitation of maritime resources. Lake Victoria is a critical element in Kenya's blue economy. The study covered the nature of maritime security, focusing on Homa Bay County and the measures set up by the National and County government and other actors to address the challenges (NCRC, 2018).

## Profile of Homa Bay County

In Kenya, Homa Bay is one of the 47 counties located in the southern part of the Nyanza region, along the southern shores of Lake Victoria, which is Africa's largest freshwater lake. It covers an area of 3,183.3 sq km with a population of about 1.3m million people. As indicated in Figure 1.1 below, Homa Bay County borders five other Counties;- Migori to the South, Kisii and Nyamira to the East, and Kericho and Kisumu to the North East (Homa Bay, 2013). The County's economy is anchored on fisheries and agriculture. A projecting activity in the county remains fishing, which has employed more than 18,300 people from around 3,600 families. Currently, the county has 151 landing beaches managed by 133 Beach Management Units (BMUs) (Homa Bay, 2013).

The main types of fish harvested include; Nile perch, tilapia, and sardines, locally known as *omena*. According to a survey conducted by the County Government of Homa Bay, the county recorded a fish catch of 12,000 tonnes worth around Kshs. 9 billion. In 2012. 76,710 tonnes of fish valued at approximately Kshs. 7 billion was captured in Lake Victoria. It is worth noting that Homa Bay County produces approximately 50 percent of the fish produced in Kenya's Lake Victoria (Homa Bay, 2013). This study is important since it bridges some of the existing knowledge gaps regarding the management of the maritime security and economic contribution of fishing in Homa Bay County and across the country and the East African region.

The Map of Homa Bay County is shown in Figure 1.1.



*Figure 1.1: A Map of Homa Bay County*  
 Source: adapted from Githuku et al. (2017)

### Statement of the Problem

The blue economy has become a significant element in Kenya's economic growth. Maritime security is important because it protects the essential element of the global economy. IUU fishing impacts can be challenging to discern, but they are assumed to be severe (Pitcher, Watson, Forrest, Valtysson & Guenette 2002). The impact caused by illegal fishing can increase the vulnerability of affected individuals to engage in piracy and other unlawful activities in a community lacking economic resilience (Markus, 2015). Crimes associated with IUU fishing are diverse and include: tax evasion, drug trafficking, fraud, corruption, smuggling of illegal substances, and human trafficking (Chapsos &

Hamilton, 2019). IUU fishing has a negative impact on individuals, households and communities through various criminal activities, violation of human rights, and consequent loss of revenue (Shaver & Yozell, 2018). It also proposes establishing facts connecting maritime security and socio-economic factors that contribute to the destruction of maritime ecosystems. Maritime security is imperative for productive and sustainable utilization of maritime resources, and the effectiveness in dealing with issues such as the socio-economic will protect it (Shaver & Yozell, 2018).

Adverse human activities coupled with global warming continue to pose risks and aggravate socio-economic challenges facing the people in Homa Bay County. According to a 2018 report by the National Crime Research Centre (NCRC), the most prevalent crimes in Homa Bay County are stealing, illegal fishing, possession, sale or consumption of illicit brew, illegal drugs, smuggling of counterfeit goods robbery and organized criminal gangs. These criminal activities are contributed by the high rise of poverty, unemployment, alcohol, drugs and substance abuse, illiteracy, ignorance, peer pressure, corruption, and radicalization in Homa Bay County. Between 2016 and 2018, criminal gangs in Homa Bay County have increased tenfold, thereby making it among the leading crime areas in Kenya (NCRC, 2018).

The County also leads in borderland-related crimes, with 6 out of 29 confirmed cases reported due to terrorism and drug trafficking. Unauthorized fishing techniques and unauthorized fishing equipment lead to 63.56% of border-related crimes between the Kenya-Uganda borders because Homa Bay is the most accessible county in Kenya. The primary victims of border-related crimes include fishermen, unemployed youths, local community leaders, government officers and civil servants (NCRC, 2018).

Meanwhile, illegal fishing equipment has significantly led to a decline of fish in Lake Victoria, on the Kenyan side, forcing the fishermen to trespass to neighboring countries like Uganda hence causing boundary conflict (Abich, 2019). There is a need for the sector to strengthen its capacity for surveillance and control of illegal fishing, overexploitation of maritime resources and maritime pollution.

However, with the growing population in the area, it has become an obvious threat to the socio-economic factors such as poverty and high illiteracy levels. This has led to a high demand for the earth's natural resources such as land, renewable resources, and fishing. Therefore, maritime insecurity is on the rise because the people of Homa Bay County are striving to survive and increase their productivity. Therefore, this being the case, this study assessed the socio- economic factors contributing to maritime insecurity along the shores of Homa Bay in Lake Victoria.

#### Purpose of the Study

The purpose of this study was to assess the socio-economic factors contributing to maritime insecurity in Lake Victoria.

#### Objectives of the Study

The study's general objective was to assess how the socio-economic factors bring about maritime insecurity in Lake Victoria, focusing on Homa Bay County.

The specific research objectives were:

1. To assess the current status of maritime insecurity at Lake Victoria in Homa Bay County.

2. To establish whether illegal, unregulated, and unreported fishing is a form of maritime insecurity at Lake Victoria in Homa Bay County.
3. To examine the socio-economic factors contributing to maritime insecurity at Lake Victoria in Homa Bay County.

#### Research Questions

1. What is the current status of maritime insecurity at Lake Victoria in Homa Bay County?
2. Is illegal, unregulated, and unreported fishing a form of maritime insecurity at Lake Victoria in Homa Bay County?
3. What are the major socio-economic factors contributing to maritime insecurity at Lake Victoria in Homa Bay County?

#### Justification of the Study

If not managed well, maritime security is a significant threat in Homa Bay County and across the East African region. The county accounts for close to 50 percent of Kenya's fish harvests, thus growing the economy (Homa Bay, 2013). With this in mind, with more socio-economic factors in place, they are causing fishmongers to indulge in maritime crimes such as IUU to sustain themselves and their livelihood.

Homa Bay has the longest shoreline in Lake Victoria, with 1,227 km<sup>2</sup> compared to Migori, 475 km<sup>2</sup> and Kisumu, which covers 64 km<sup>2</sup>. Nevertheless, Homa Bay County produces tonnes of fish and, in return, boosts Kenya's economy. This is because maritime security is linked to economic development. The researcher hoped that this will inform

further actions and policy-level interventions towards addressing maritime security in Homa Bay County and across Kenya's territorial waters.

#### Significance of the Study

The study would be necessary to maritime security stakeholders in developing and informing policies and regulations in controlling IUU fishing at Lake Victoria at Homa Bay County. Diverse policy proposals would call for better coordination, enhanced information sharing, stringent regulation, and capacity building between maritime security stakeholders. Therefore, it would draw attention to how law enforcement at sea should be improved. This study would also define Kenya's blue economy and its beneficiaries and positively link other countries in the region and across the globe.

#### Assumptions of the Study

The study was conducted under the following assumptions:

1. The population, marine law enforcers and other maritime security stakeholders in Homa Bay were aware of the challenges and importance of maritime security and that fishing, as their core economic activity, significantly contributes to Kenya's economic growth.
2. Majority of the population who committed the crimes in this sector were the unemployed population who had to engage in such to support everyday living.

#### Scope of the Study

The study sought to assess socio-economic factors contribution to maritime insecurity in lake victoria, homa bay county. The conceptual scope was urged by the fact that Homa Bay has the longest shoreline of Lake Victoria in Kenya, giving a similar

understanding of what is happening along the rest of the shorelines of Lake Victoria. This informed the need for the study because Lake Victoria is part of the blue economy in Kenya. It has a significant impact on the country's capacity building and development. The study was specifically conducted on the IUU fishing in Lake Victoria, causing negative maritime security issues due to the socio-economic factors to be assessed.

The geographical scope of the study focused on Homa Bay County due to its proximity to Lake Victoria, availability of fishing activities around the area, and ability to collect both secondary and primary data for the study.

#### Limitations and Delimitations of the Study

The study was conducted at Homa Bay County in general and areas around Lake Victoria in particular. The study population was limited to Kenyans as respondents and people living around Homa Bay County. The researcher got through this by stating that the findings and recommendations of this study would provide new knowledge in regards to socio-economic factors contribution to maritime insecurity in Kenya, Africa and the global scene.

The respondents in Homa Bay were reluctant to participate in the study because the information was seeking their views on IUU fishing as the central area of criminal activity to be assessed in Lake Victoria, Homa Bay County. The researcher got through this by obtaining authorization from the County government, the Lake Victoria management coupled by a permit from National Council for Science and Technology to ascertain the research was being used for academic purposes only. The respondents were also free to participate in this study.

## Definition of Terms

**Maritime Security:** In this study maritime security is described as an operation by military multi-agency to stem illegal activities at large water bodies or lakes, to assure safe passage, by the promoting of national and worldwide concerns.

**Piracy:** In this study piracy refers to any act of violence or detention or of depredation committed for private ends by the crew or the passengers of a private ship or a private aircraft.

**Maritime Terrorism:** In this study maritime terrorism is described as the illegal act committed against ships, their passengers, cargo, or crew to directly or indirectly influence a political ambition or objective.

**Illegal, Unreported, Unregulated fishing:** This study describes this as a concept that refers to a broad range of damaging activities directly or indirectly related to maritime capture fisheries.

## Summary

This chapter has highlighted the introduction and background to the study, the profile of Homa Bay County, the problem statement, the objectives, the questions and the justification. Moreover, this chapter presented the significance, key assumptions of the study and the possible limitations and the delimitations of the study. Lastly this chapter defined the key terms used in the study.

## CHAPTER TWO

### LITERATURE REVIEW

#### Introduction

In this chapter the study assessed socio-economic factors contributing to maritime insecurity in Kenya: the case of Lake Victoria, Homa Bay County globally, regionally and locally. However, the literature that was reviewed was not limited to maritime insecurity in Kenya but endeavored to expose any other literature that was of thematic importance to the study and socio-economic factors in general.

#### Theoretical Framework

This study was guided by the institutional theory and routine activity theory. The institutional theory goes deeper into the resilient aspects of social structures and how those structures, including schemes, rules, norms, and routines, become recognized as authoritative guidelines for social behaviour. Routine Activity Theory offers a frame of reference for concrete and individualized crime analysis and facilitates applying fundamental policies and practices to alter the necessary elements that make the existence of a crime possible and prevent it.

#### Institutional Theory

In the late 1970s, John Meyer and Brian Rowan instigated the institutional theory to scrutinize how organizations integrate and relate to their public, state, national, and global environments (Meyer & Rowan, 1977). The institutional theory goes deeper into the resilient aspects of social structures and how those structures, including schemes, rules, norms, and routines, become recognized as authoritative guidelines for social behavior

(Scott, 2004). He further posits that it investigates how these social structures were infused, diffused, and adopted over time and how they fall into society. In addition, institutional theory seeks to illuminate the elaboration of rules and requirements to which organizations must conform if they are to receive support and legitimacy (Meyer & Scott, 1983). Then, what is an institution?

Lammers and Barbour (2006) define institutions as “constellations of established practices guided by enduring, formalized, rational beliefs that transcend particular organizations and situations” (Lammers & Barbour, 2006, pg. 357). They further posit that this definition points to several key attributes that scholars refer to when developing institutional theories that are later considered as areas of study. To begin with, institutions are enduring social phenomena - their survival surpasses the conventions and organizations observable in any given period. In addition, the distinct forms of lives that describe institutions have social meanings beyond strict functional requirements (Selznick, 1949). It is also worth noting that they not only organize social life across organizations but also through them (Lammers & Garcia, 2009).

Furthermore, they are manifest in a variety of social phenomena, including “cultural-cognitive, normative, and regulative elements” (Scott, 2004b, p. 48). Fifth, institutions take on a subtlety because they are “more-or-less taken-for-granted repetitive social behaviors. These social behaviors underpinned by normative systems and cognitive understandings that give meaning to social exchange and thus enable self-reproducing social order” (Greenwood et al., 2008, p. 5). Sixth, drawing on Commons’ (1934) “working rules” (p. 79), institutions reflect a rational purpose that guides behaviors toward certain ends.

Institutional theory has four classifiable features that provide a concise portrayal of institutionalism. These are functionalism and limited rationality, external environments, attenuated consciousness, and the symbolic life of organizations (Meyer & Rowan, 1977). Tolber and Zucker (1996) observed that functional analysis assumed that “components of a system must integrate for the system to survive” (p.176), that change in one component must affect change in another component that occurs when the dysfunctions of structural arrangements outweighed their functionality. What this means is that institutionalism is fashioned/influenced and disillusioned by their institutional environments. The external environment is already institutionalized within a system of beliefs. Thus, for an institution to be integrated within such an environment, it has to be inculturated within such a system. If the external environment system changes, then the institution has to change too.

On the other hand, attenuated consciousness focuses on how actors are conscious of institutional conditions. Therefore, this means that the institutions defined by permanent routines reduce consciousness such that they operate less as visible objects and more as unacknowledged frameworks upon which organizing occurs and organizations grow (Zucker, 1988). It is also worth noting that in their distinct structures, organizations communicate symbolically with their respective environments. They do so while absorbing information from the environment and demonstrating their conformity to the established norms and values.

#### A Critique of the Institutional theory.

The institutional theory allows stakeholders in the maritime sector, internationally, regionally, and locally have peaceful and productive utilization in that domain. The institutional theory embraces that mutual benefitting institutional order maintains global,

regional, and national peace and stability. Maritime security falls within different social structures, including families (locals within which maritime abodes), government agencies (both national, regional, and international), and other stakeholders. These social structures will shape and thwart the maritime security of the given environment (Homa Bay shores of Lake Victoria).

Therefore, the institutional theory was applicable in this study to explain and examine institutions worldwide, regionally, and nationally and how they play a critical role in determining Kenya's marine security, especially in Lake Victoria, Homa Bay county. This theory described how maritime insecurity is a transnational organized crime involving actors in more than one state.

#### Routine Activity Theory

Routine activity theory is one of the most widely cited and influential theoretical constructs in crime science that Lawrence E. Cohen and Marus Felson first formulated (Miller, 2014). Miller further observed that routine activity theory in crime science emphasizes highlighting its relation to space and time, its ecological nature, and its implication and attempt to identify criminal activities and their patterns by the change in the crime rate trends (Cohen & Felson, 1979, as cited in Miller, 2014). According to Tilley (2009, as cited in Miller, 2014), rather than looking for criminals' reasons, routine activity theory focuses on criminal episodes, their distribution, and grouping in location and time of the minimal elements that make them up (Miller, 2014). Thus, it offers a frame of reference for concrete and individualized crime analysis and facilitates applying fundamental policies and practices to alter the necessary elements that make the existence of a crime possible and prevent it (Miller, 2014).

Routine activity theory describes the criminal event through three essential elements that converge in space and time in daily activities. One is a potential offender with the capacity to commit a crime. Two, a suitable target or victim for the criminal event to occur and three, the absence of guardians capable of protecting targets and victims (Felson & Cohen, 1980). They argued that a potential offender must have a motive to commit a crime and capacity to do so. The potential offender must also have a suitable target: a person or property that an offender may threaten. They must also have a guardian (an individual or a group of individuals) capable of preventing crime whose presence the crime is not committed and whose absence makes it more probable for the crime to be committed (Cohen & Felson, 1980).

Felson and Cohen (1980) argued that crimes occur in the absence of capable guardians, motivating offenders to find suitable targets. Felson later developed the idea of “handlers” to link Travis Hirschi’s control theory to explain how they can influence offender behavior. Such handlers can be parents, friends, spouses, teachers, or probation officers. While handlers control potential offenders, guardians protect potential targets (Cullen & Wilcox, 2010).

Eck (2003, cited in Cullen & Wilcox, 2010) further stretches out routine activity theory by introducing a third type of crime controller known as the place manager. These managers regulate specific places, such as landlords, bar bouncers, homeowners, and classroom teachers. Routine activity theory illuminates that in the places where guardians, handlers, and managers are absent or ineffective, crime will occur.

### A Critique of the Routine Activity theory.

The theory depicts the crime triangle, also known as the problem analysis triangle, as demonstrated in Figure 2 below. Cullen and Wilcox (2010) noted that the inner layer of the triangle that has offender, place, and victim must be present for a crime to occur. The outer layer represents the controllers that may mediate on behalf of each element to stop crime from occurring. They further observed that crime triangles guide investigations of crime problems and identify potential solutions (Cullen & Wilcox, 2010).

Based on the crime triangle, researchers are encouraged to characteristics related to the three elements and three controllers related to a specific crime problem. Cullen and Wilcox viewed that to reduce the crime, one can consider altering one or more of the three elements or making one or more of the controllers more effective. Therefore, the crime triangle guides the exploration stage of problem-oriented policing projects (Cullen & Wilcox, 2010).



*Figure 2.1: Crime Triangle*

Source: Adapted from Eck and Clarke (2003)

Cullen and Wilcox (2010) have noted that both the routine activity theory and the problem analysis triangle simultaneously have encouraged police to work with assets and business owners to reduce crime problems in the community. Thus, they argue that reductions in crime could be through partnerships with project/business supervisors. When the project or business managers fail to tackle crime-related issues in their spaces, police have successfully brought legal action against property owners who aid crime (Cullen & Wilcox, 2010).

This study sought to assess the socio-economic factors contributing to maritime insecurity along the Homa Bay shores of Lake Victoria. Insecurity connotes a state-owned place of not free from danger or threat. Concerning state or institution, or organization, thus can be said that they do not have safety from criminal activity, maybe, terrorism. Then, it can be argued that insecurity bores crimes. Therefore this being the case, the routine activity theory was used to explain how criminal events along the Homa Bay shores of Lake Victoria through three essential elements (offender, target, and absence of guardians) converge in space and time.

## General Literature Review

### Maritime Security

Maritime security lacks a worldwide definition (Mbugua & Mwachinalo, 2017). Vrey (2010, as cited in Mbugua & Mwachinalo, 2017) tries to explain maritime security as an operation by military multi-agency to stem illegal activities at large water bodies or lakes, to assure non-toxic route, by the promoting of state and worldwide anxieties. The United States of America views its maritime strategy security goals by deterring and

responding to transnational maritime crimes in a manner that contributes to global stability and safe water transportation (Rahman, 2009, as cited in Mbugua & Mwachinalo, 2017).

Mbugua and Mwachinalo (2017), in their operationalization of the concept, believe that good conditions at sea and lakes indicate maritime security that enables free and fair sea-based exchange and markets that are legitimate and optimal. Good conditions also include sustainable use of sea and/or maritime resources by relevant stakeholders, prevention of environmental degradation, and mitigation of climate change that aggravates maritime insecurity (Mbugua & Mwachinalo, 2017). Therefore, maritime security is concerned with protecting and safety of waters (sea, ocean, and lakes) across the globe. The essence of this would be to offer sustainable conditions for sea-based trade/commerce, protection of inhabitants living near these waters, and for peace and stability amongst states, regions, and international entities of shared interest.

#### Global Maritime Security Governance

The United Nations (UN) has given a principal authorized structure for regulating marine safekeeping through a variety of agreements, according to Ukeje and Mvomo Ela (2013). The United Nations Convention on the Law of the Sea (UNCLOS) of 1982 and the UN Montego Bay Convention on the Law of the Sea of 1982 are the two most important conventions controlling maritime security. In a changing world, however, the framework gave options that were too limited, weak, and inadequate.

Other UN related instruments were: International Convention for the Prevention of Pollution of the Sea by Oil 1954, United Nations Framework Convention on Climate Change (UNCCC), 1992, Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA Convention), 1988 and its 2005 Protocol, Convention

on Fishing and Conservation of the Living Resources of the High Sea (CFCLR), 1958, the International Convention on Safety of Life at Sea (SOLAS), 1974 and the International Ship and Port Security (ISPS) Code.

The mandate of the International Maritime Organization (IMO) is to enable intercontinental collaboration in addition to standard-setting in marine safekeeping, protection, trade, standard-setting, vessel transit, and lawful management (IMO, 2017). Kenya has received support from the International Maritime Organization (IMO) in order to adhere to international standards. The United Nations Security Council (UNSC) has passed a number of resolutions aimed at advancing marine security in Africa and addressing thematic and regional needs. To combat the threat of piracy, the UNSC modified Resolution 1816. Despite the implementation of these measures, maritime insecurity remains a problem in the region.

The key concerns of the international community are global energy security, free marine trade, a global war on terror, and the prevention of illegal human trafficking, narcotics, and small guns. Because of their overwhelming influence on African maritime policy, there is a propensity to focus on military hardware rather than tackling human security and development challenges as long-term security solutions). This practice has also been followed in international marine law (Ukeje & Mvomo Ela, 2013).

#### African Union and Maritime Security Sector

Several initiatives have been implemented by the African Union (AU) to strengthen security management. The Africa Integrated Maritime Strategy, published in 2009, outlined the AU's maritime security strategy within the APSA framework (AIMS). The draft 2050 Africa Integrated Maritime Strategy (2050 - AIM Strategy) was published in

2011 with the goal of defining a long-term African-driven common vision for maritime possibilities and challenges. It also established regional and global coordinating mechanisms to achieve that goal (Ukeje & Mvomo Ela, 2013).

The African Maritime Transport Charter and Action Plan of 2009 was implemented as well as resolution on maritime safety, security and protection of maritime domain. As the worth and wealth of the maritime domain become more widely recognized, there is a risk of an increase in maritime boundary disputes fueled by marine resources such as oil and gas (Vrey, 2013). Africa's maritime borders are weakly defined, which poses a concern as offshore riches are discovered with technological aid (Ukeje & Mvomo Ela, 2013).

Economic marginalization is also linked to political exclusion of coastal areas, which are on average poorer than upcountry communities, and the state has frequently sided with multinational corporations in community issues. Property rights have become more important than social justice and human rights as a result of this (Ukeje & Mvomo Ela, 2013). The region's laws have not been updated or integrated in order to effectively respond to the growing difficulties. Even when laws are in place, they are rarely applied efficiently due to the judiciary's lack of independence, as well as other governance issues.. This national weakness is mirrored at the regional level, with Africa's reliance on donor-funded marine security programs leading to uncertainty and the sector's incapacity to maintain itself (Ukeje & Mvomo Ela, 2013).

#### East African Maritime Security Scene

From South Africa to the Gulf of Aden and the Red Sea, the East African maritime domain reaches all the way to the Red Sea (Vrey, 2013). Kenya, Somalia, Tanzania, and Mozambique had all experienced attacks in their marine domains by 2011 (Vrey, 2013).

Al Shabaab and other international terrorists have wreaked havoc on communities and disrupted transportation routes from sea to land. The African Union, the Inter Governmental Authority on Development (IGAD), and the Kenyan government have all taken steps to combat Somali piracy. The IMO backed the Djibouti Code of Conduct, which established a framework for international collaboration among the 20 signatories with naval forces in the region to combat piracy (Malaquias, 2017). Despite this code and the Djibouti protocol, cooperation between Kenyan and Tanzanian maritime authorities is limited, and information sharing between the two countries' marine actors is nonexistent (Hamad, 2016).

#### Kenya Maritime Security Threats and Vulnerability

Kenya has ratified 315 marine conventions and 12 treaties, all of which are now part of Kenyan law (Kenya Law, n.d.). Some of the maritime security conventions that Kenya has ratified and thus have become part of Kenya Law include: International Convention for the Prevention of Pollution of the Sea by Oil 1954, UNCLOS, 1982, UN Convention on Climate Change (UNCCC), 1992, Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA Convention), 1988, Convention on Fishing and Conservation of the Living Resources of the High Seas (CFCLR), 1958, International Convention for the Safety of Life at Sea (SOLAS, 1974/88), International Ship and Port Facility Security (ISPS) Code 2002 (Mutoka, 2014).

According to Karigithu (as referenced in Marete, 2016), Kenyan marine law has domesticated roughly 26 international conventions. The Kenyan government has enacted the following laws to support sustainable resource use and the achievement of Vision 2030: the Climatic Change Act of 2016, the Forest Conservation and Management Act of 2016,

the Water Act of 2016, and the Mining Act of 2016 (KNBS, 2017). Kenya enacted the Anti-corruption and Economic Crimes Act of 2003 and the Prevention of Organized Crime Act (POTA) of 2010 to combat maritime crimes (Wambua, 2012).

Kenya accords strategic importance to the Indian Ocean in its Defence White Paper (2017), while also acknowledging that the zone faces threats and vulnerabilities to security emerging from the sea (GK, 2017). Legal and jurisdictional weaknesses, closeness to a conflict zone in Somalia, insufficient security, insecure base locations, a lack of marine expertise, inefficient leadership, and insufficient state backing are some of the factors contributing to Kenya's EEZ vulnerability (Hamad, 2016). Given evidence of Al Shabaab and Islamic State of Iraq and the Levant (ISIS) recruiting and radicalization in Mombasa County, maritime terrorism is a possibility that cannot be dismissed (Botha, 2014). Not only are ports like Mombasa vulnerable to maritime attacks, but they also lack the equipment and training necessary to detect divers utilizing port sensors and optic nets (Hamad, 2016).

#### Illegal, Unregulated and Unreported Fishing

The IUU fishing concept was adopted in the official narrative with matters of national maritime security policies that have always been with resistance (Otto, 2020). Recent development in security strategies suggests a broadening understanding of IUU because it undermines fishing management, weakens upstanding fishing operations, and compromises development investments. While the terms might be grouped, each is distinct (Shaver & Yozell, 2018). When national and foreign vessels enter into another country's water and partake in fishing activities is infringing its conservation and management measures is illegal fishing. Contrary to that, unreported fishing is an activity that has not

been reported to the authority, and it undermines management in the fishing sector by tilting the accuracy of fish stock assessments upon which regulations are based (Shaver & Yozell, 2018). Finally, unregulated fishing refers to fishing activities in areas without management or conservation measures (Shaver & Yozell, 2018). IUU fishing poses six main threats to stability and security (Shaver & Yozell, 2018). They include the environmental threat, the economy, food security, the stability of geopolitics, and transnational organized crimes.

In countries where IUU fishing crime is predominant, gross domestic products deteriorate in value of those operations and rob countries of an essential source of taxable revenue and job security which contributes to the loss of economic revenue. In developing countries, losses in monies can be damaging, exposing the government's inability to deliver to its people. IUU fishing on a small scale contributes to the decline of the stock, which endangers the jobs of honest fishers (Shaver & Yozell, 2018).

Fantaye (2014) study regarding IUU fishing in the Horn of Africa to unravel maritime security noted severe problems with immense implications for the human security of coastal states in Africa. Depletion of fishing stocks and the endangered ecological balance that eventually leads to the extinction of certain species is caused by IUU fishing. IUU fishing can also threaten coastal communities' livelihoods that depend on fishing. Yes, the study connotes an aspect of maritime insecurity. However, this study did not indicate IUU as a widespread factor of maritime insecurity along with the Kenyan sea/lake domains.

According to the International Union for Conservation of Nature reported (Daghar, 2019), livelihoods and species were endangered by illegal fishing in 2018. It identifies critical factors driving the decline of these species in their natural resources. Other factors

the report noted were pollution, agriculture, and invasive species. Further, the report observed that illegal fishing gear and unconventional fishing methods such as poisoning contributed to the diminution of the species. The report noted that corruption was one of the critical reasons IUU fishing thrives in Lake Victoria because once illegal fishing occurs, the customs officials accept bribes to have the consignments cleared without being inspected. This study did not identify IUU fishing as a common maritime threat along the Lake region hence the investigation.

Although the formation of an international crimes division at the High Court in 2012 improved the determination of piracy offences committed both within and outside Kenya's jurisdiction, judicial employees lack proper training in international maritime law and other related laws and treaties (Mutoka, 2014). Kenya's anti-piracy judicial actions aren't backed up by a comprehensive anti-piracy policy. Pirates have become more sophisticated over time as they have acquired technologically superior vessels and weapons to aid in their criminal activities (Worall, 2000). This has broadened the breadth and geographic reach of their unlawful activities.

According to the International Chamber of Commerce (ICC) and the International Maritime Bureau (IMB), 52 pirate occurrences were reported in Somalia, Kenya, and Tanzania in 2012, with 49 of them occurring off the coast of Somalia. The hijacking of the MT Aris-13 tanker and the Asayr 2 off the coast of Somalia in mid-March and April, respectively, were two major pirate occurrences in 2017 (OBP, 2017). Kenya is fighting an epidemic of illegal small arms trafficked across its broad, mostly unguarded borders (Schbley & Rosenau, 2013).

Al Qaeda controls 15 ships that traverse the Indian Ocean and utilize them to smuggle armaments, according to Mitz (as described in Hamad, 2016). The Indian Ocean Tuna Commission (IOTC) has proved ineffectual in preventing illegal fishing in the Indian Ocean (Bateman & Bergin, 2011). The IUU fishing catch accounts for half of the overall yearly harvest in the Indian Ocean, with tuna being the most targeted fish due to its high value (Schbley & Rosenau, 2013).

### Socio-Economic Factors and Maritime Security

Socio-economic is concerned with how economic activities are affected and shaped by social processes. Socio-economic factors emerge from the junction of economic activity and social processes, and they have a direct impact on social privilege and financial freedom. The new socio-economic approach that has evolved across the maritime domain is worth mentioning in discussing the empirical literature under this study object. Thus, the blue economy (Swanepoel, 2017) .

The blue economy has enormous untapped potential in terms of social and economic growth for countries all over the world. The blue economy is a classification where human beings can get their source of livelihood by preserving the marine environment, overcoming criminal activities in water bodies, and ensuring sustainable development in the region (Swanepoel, 2017). Africa's maritime resources are underutilized and threatened by pervasive maritime insecurity, slowing down its contribution to sustainable development. Keen, Shwartz and Wini-Simeon (2018) described the blue economy through a framework that can be used to assess sustainable marine management. This showed the imbalance in attention paid to critical components of the Blue Economy and missed opportunities for integration in the Africa region. Further,

while studying socio-economic factors and maritime security, one cannot negate discussing IUU activities as a threat to the blue economy.

A study by Waithaka, Keyombe and Lewo (2017) in Lake Naivasha found that illegal fishing strategies lingers and is increasing in that Lake. These illegal fishing practices significantly impact the Lake's ecology by destroying the fringe macrophytes, critical refugia for fish. The study notes that several co-related social and economic factors drive IUU fishing in Lake Naivasha. Moreover, Waithaka et al. observed that the geographic shape of Lake Naivasha causes intense competition for resources, resulting in resource usage conflicts. Additionally, the issue of IUU is exacerbated by the high levels of poverty among locals living near Lake Naivasha.

The rise in human population, which is mostly driven by the desire to take advantage of expanded employment opportunities in the labor-intensive agricultural, floriculture, and geothermal industries, has also aided IUU fishing in Lake Naivasha (Waithaka et al., 2017). The increased need to explore economic opportunities by fishers who depend on the lake has led to diminishing economic times threatening their livelihoods and bringing the fishery's sustainability into question. In Lake Naivasha, fisheries management and other stakeholders should make reducing the high fishing proportion of juveniles, immature fish, and non-target species a priority. What does this mean? Socio-economic factors cannot be discussed outside the pinnacles of maritime insecurity. Thus, the above study depicts that maritime insecurities – rather crimes in the waters domain directly or indirectly- affect the socio-economic and economic activities, hence the inhabitants' livelihoods.

It is against this benchmark that this study sought to assess the socio-economic factors that contribute to maritime insecurity along the Homa Bay shores of Lake Victoria. From the above scholars, some of the socio-economic factors include income, education and employment. This study sought to find out whether the negation of these factors has contributed to maritime insecurity. Has illiteracy, poverty, or unemployment contributed to the crimes or insecurities along the Homa Bay shores of Lake Victoria?

### Empirical Literature Review

A study by Brombacher and Maihold (2011) on maritime security in Latin America found that robberies (especially hijacking of vessels and forcing the owners to pay ransoms are predominant), yacht piracy (mostly along the eastern Caribbean Coast of Venezuela), organized crimes, and river piracy along the Amazon Basin are common maritime insecurities experienced in Latin America.

Lindley (2020) did a study on Criminal Threats Undermining Indo-Pacific Maritime Security: Can International Law Build Resilience? The study found that maritime security in the Indo-Pacific region is strategically important to not only the surrounding states (Australia, Indonesia, Japan, New Zealand, United States, etc), but also those with an interest in its effective governance, to encourage safe passage and the extraction of natural resources. Criminal risks like maritime piracy and illicit fishing, which are aided by corruption and the danger of terrorism, jeopardize regional maritime security, therefore states have an incentive to work together to secure the region.

Another study by United States Coast Guard (2020) on IUU Fishing Strategic Outlook found that IUU fishing methods not only jeopardize the economic well-being of

lawful fishermen now, but they also jeopardize the livelihood of future generations of fishermen by putting fish stocks at higher risk of collapse. IUU fishing undermines the validity of laws and agreements reached through Regional Fisheries Management Organizations (RFMOs) and other international forums that aim to regulate fish harvests in a sustainable and equitable manner among member countries. Undocumented catches from IUU fishing jeopardize these legal arrangements and put undue strain on vital fish supplies.

Illegal fishing tactics and gear employed by IUU fishers can devastate habitats and result in excessive and wasteful bycatch. These methods endanger not only the resource today, but also its potential to be harvested sustainably in the future. Without other options, these circumstances tempt more and more fishermen to seek new forms of revenue, including as piracy, drug trafficking, and human trafficking, resulting in a deadly downward cycle that exacerbates regional instability. This being the case therefore, it can be noted that if IUU fishing is not controlled, it can lead to degraded socio – economic livelihoods of communities living near seas, oceans, and lakes (United States Coast Guard, 2020).

On the other hand, Fantaye (2014), did a study on the national attitudes on maritime security in the Horn of Africa. The aim of the study was to find out the sources and manifestations of maritime insecurity in the Horn of Africa. The study found that several factors catalyzed the maritime insecurity in the region. Fantaye noted them to be: state failure of Somalia, weak maritime authority and maritime security in the region, piracy, IUU fishing, chemical and toxic waste dumping, trafficking in small arms and light weapons, illegal migration and human trafficking, and maritime delimitation and

competition over maritime resources (Fantaye, 2014). Still, this study did not pronounce these sources and manifestations as emanating from social and economic influence.

Thadeus (2013) investigated the effects of Somali piracy in Kenya's maritime domain between 2007 to 2011. They found that the cost of import and export increased due to Somali piracy increasing international trade and doing business in Kenya. The study further found that the tourism industry in Kenya, especially on the coast, reduced due to insecurity in the Kenyan maritime territory due to pirating. Further, Schbley and Rosenau (2013), in their study in Somalia, Kenya, and Tanzania on issues of piracy, illegal fishing, and maritime insecurity, found that while illegal fishing prompted some Somali fishers to take up arms against foreign commercial fishing vessels (Schbley & Rosenau, 2013).

The most critical drivers of piracy have been weak government institutions, extreme underdevelopment, a lack of maritime law enforcement and presence, and onshore political instability. Jones (2014) investigated maritime piracy and global trade cost, indicating insufficient and unreliable data to extrapolate valid and robust judgments. However, the researcher reported that piracy problems might be estimated regarding ships and crew affected, ransoms paid, specific commodities' impact in cargoes carried, and cost implications of pirate-avoiding rerouting.

Busiega (2016) revealed that the marine opportunity offered to the area and Kenya is projected to be worth billions of dollars in a study that connects together maritime security, resource misuse, and the role of maritime diplomacy in Kenya (Busiega, 2016). However, the vast majority of it is still completely untapped. Maritime security, according to Busiega, is critical for the effective utilization of maritime resources (Busiega, 2016). To maintain and effectively secure the region's maritime wealth, as well as the state's

exclusive economic zones, territorial and internal seas, inland rivers, ports, and waterways, a multi-agency strategy is required. He also stated that in the region, trans-oceanic security and international maritime relations cooperation are dominant. Thus, insecurities impact much on the resource management along the waters.

Lastly, Mutungi and Ochieng (2020), in their study that focused on assessing security challenges in the Indian Ocean waters and the responses from the government of Kenya to promote sustainable utilization of maritime resources. It emerged that pollution and piracy were among the significant challenges that have negatively impacted sustainable and productive utilization of maritime resources. In contrast, efforts to implement legal and policy frameworks were in progress in the development, adoption, and enforcement stages.

### Conceptual Framework

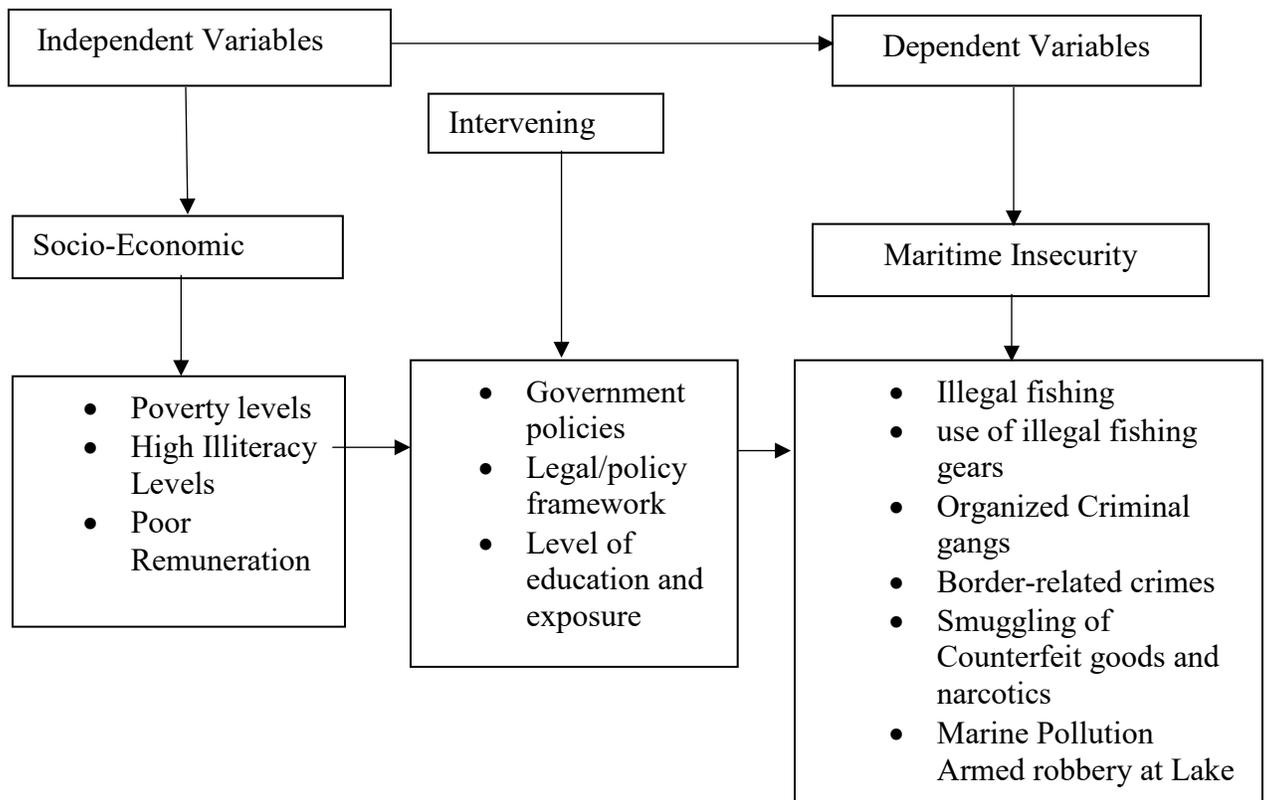
#### Discussion of the Conceptual Framework

Du ploy (2013) defines a variable as a characteristic that differs or varies. Hatch and Farhady (1982, as cited in Sariyati, 2013) define variables as attributes of a person or an object, which vary from person to person or object to object. Du ploy (2013) and Sariyati (2013) observed that independent variables are varied or manipulated by the researcher, which causes a change in the dependent variable(s) and predict outcomes posited in hypotheses. It is a significant variable to be investigated, selected, manipulated, and measured by the research.

On the other hand, dependent variables are tested, measured, analyzed, or observed, whose values, activities, or responses are presumed to be influenced or changed by the independent variable(s) in hypotheses (Du ploy, 2013). Intervening variables are

hypothetical variables used to explain causal links between independent and dependent variables (Du ploy, 2013), and they cannot be observed in experiments, thus their hypothetical status.

A diagrammatic representation of the relationship among variables to show the association is known as a conceptual framework. It is demonstrated in Figure 2.2 below



*Figure 2.2: Conceptual Framework*

Source: Author (2021)

The independent variable(s) in this study is socio-economic factors (Poverty levels, High Illiteracy Levels, and Poor Remuneration); dependent variable(s) is maritime insecurity (Illegal fishing use of illegal fishing gears, Organized Criminal gangs, Border-related crimes, Smuggling of Counterfeit goods and narcotics, Marine Pollution, and

Armed robbery at Lake); and the intervening variables are Government policies, Legal/policy framework, and Level of education and exposure.

The socio-economic factors include income and occupation, health and lifestyle, education, employment, and the environment from the literature. Suppose the socio-economic factors remain constant or sustainable to the livelihoods of the locals, regional, and international. In that case, there will be a decrease in maritime insecurity, which means that there will be reduced IUU fishing and border-related crimes, to mention will decrease. Further, the intervening variables – government policies, legal policy frameworks, etc. are well put in place. This acting as a pontifex between the independent and dependent variable will decrease the maritime insecurities along the Homa Bay shores of Lake Victoria.

However, if the independent variables – socio-economic factors – depreciate with weak government policies and legal frameworks, this will lead to increased maritime insecurity. How? It can be understood that poverty, unemployment, illiteracy levels, etc., will lead to poor livelihoods, and individuals may be forced to look for other means to sustain their livelihoods. Thus, individuals may commit IUU fishing, pirating, and other forms of crimes to sustain their needs. Hence, maritime insecurity.

### Summary

In this chapter, the general and empirical literature has reviewed the study objectives. Two theories with a relationship with the study have also been addressed, and their limitations presented. A presentation of the conceptual framework which shows the relationship between the dependent and independent variables, has been captured.

In this chapter the study assessed socio-economic factors contributing to maritime insecurity globally, regionally and locally. The routine activity theory and institutional

theory were used as significant theories for the study. The general literature reviewed captured extensively literature on maritime security, East Africa maritime security, Kenya maritime security threats and vulnerability, IUU fishing and Socio-Economic factors and maritime security respectively. The empirical literature captured studies that have been conducted on the assessing socio-economic factors contributing to maritime insecurity in kenya: the case of Lake Victoria, Homa Bay County.

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### Introduction

An outline of the procedures that the researcher followed to collect data was presented in this chapter. It entails research design, study population, sample size, and sampling techniques. Further, the chapter discusses data collection instruments, types of data, data collection procedures, pre-testing of the research instruments, and data analysis plan. In addition, the researcher presents the ethical issues that pertain to the study investigation.

#### Research Design

According to Kothari (2004), the research design is the conceptual structure of research and consists of blueprints for collection, measurement, and data analysis. A research design is a detailed strategy that the research will conduct, indicating who or what is involved and where and when the study will occur (Du Plooy, 2013).

This study adopted an exploratory research design to gain new insights, discover new ideas, and increase knowledge of a given phenomenon (Burns & Grove, 2001). Thus, this study explored and assessed the socio-economic factors contributing to maritime insecurity at Lake Victoria - Homa Bay County in Kisumu city. This design aided the researcher in having a better comprehension of the existing research problem (socio-economic factors contributing to maritime insecurity), gaining familiarity with the existing phenomenon, and acquiring new insights into the existing phenomenon.

Further, the researcher adopted a qualitative approach to assess the socio-economic factors contributing to maritime insecurity at Lake Victoria in Homa Bay County. In researching a phenomenon or the aspect(s) that a researcher chooses to focus on at a given time, qualitative research emphasizes a naturalistic quest for relativity in meaning, variety of interpretations, particularity, specificity, and flexibility (Jwan & Ong'ondo, 2011). They further argue that it is an approach that tries to grasp the multiple alternative interpretations of a subject (the study's emphasis) in its natural environment, without undue manipulation of the conditions of existence (Jwan & Ong'ondo, 2011).

Therefore, by adopting this approach, the researcher aimed at establishing alternative interpretations of the existing phenomenon by pursuing particular, detailed explanations and exploring all possible, trustworthy, and ethical ways of generating a deeper understanding of the subject under investigation.

### Population

The population for a study is that group from whom we want to conclude an investigation (Babbie, 2016). The population of a given study is an entire set of people or substances that the researcher focuses on and seeks to study specific characteristics (Bless et al., 2007). Du Plooy (2013) defines it as any group or cumulative individuals, organizations, social artifacts/objects (mass media messages), social interactions, and events. It is all possible units of analysis.

For this study, the entire population comprised of all locals living along the shores of Homa Bay in Lake Victoria (this may also be referred to as the fishmongers) and all organizations/institutions that deal with maritime security along the shores of Homa Bay

in Lake Victoria. This formed the entire population from which a target population for the study was drawn.

### Target Population

A group of individuals from which the researcher generalizes their results is known as a target population (Creswell & Creswell, 2017). It is the definite population to which the researcher wants to simplify results. It is also a complete set of individuals that have common characteristics to which the researcher will be able to generalize the results of the study (Du Plooy, 2013). For this study, the sample size was drawn from target population.

The target population for this study was individuals and organizations/institutions from the Homa Bay Lake that deal with maritime security and those directly or indirectly affected by the maritime insecurity along the Homa Bay shores Lake Victoria. This comprised of the locals (the fishmongers) and administrative personnel from different organizations/institutions from the study site. These (insitutions) included: the Kenya Coast Guard Service (KCGS); the County Government of Homa Bay; the Lake Basin Development Authority (LBDA); the Kenya Marine and Fisheries Research Institute (KMFRI); the Kenya Maritime Authority (KMA); and the National Government Administration Officers.

### Sample Size

Orodho and Kombo (2002) argue that a limited representation of the population of interest in a study is called a sample size (Orodho & Kombo, 2002). The sample size for this study was thirty-six (36) participants. This comprised of twenty-four (24) participants who were drawn from the locals (fishmongers) and twelve (12) participants (administrative

personnel) who were drawn from the different organizations/institutions from the study site.

The administrative personnel comprised of: two participants from the Kenya Coast Guard Service (Director of Fisheries enforcement and Marine Resource Protection Department and Squadron Commander at Homa Bay from the Kenya Coast Guard service); two participants from the County Government of Homa Bay (County Executive Committee (CEC) Member for Agriculture, Livestock, Fisheries and Cooperatives, Homa Bay County Government and the Director of Fisheries in the County Public Service); two participants from the Lake Basin Development Authority (the Manager Fisheries Department and the Manager Agriculture and Natural Resources); two participants from the Kenya Marine and Fisheries Research Institute (the Assistant Director of Mariculture and the Assistant Director Marine Fisheries); two participants from the Kenya Maritime Authority (the Director of the Marine Security Department and the Director of the Marine Environment Protection Department); and two participants from the National Government Administration Officers (the County Commissioner of Homa Bay County and the Local Chief).

The sample size for this study was achieved through the principle of saturation. A data saturation point in the qualitative research approach occurs when the researcher is not getting new information or is negligible while collecting data, and at this stage, the sample size is determined (Kumar, 2011). Kumar further notes that in situations where data collection is one on one basis, the concept of saturation point is more applicable. Therefore, this could either be through in-depth interviews or focus group discussions, community

forums, or panel discussions where information is collected collectively. The researcher strives to gather as much information as possible, which is also diverse.

Other scholars on this principle of saturation – for instance – Fusch and Ness claim that failure to reach saturation impacts the quality of the research conducted ( Fusch & Ness, 2015). Morse (2015) posits that saturation is the most frequently exciting guarantee of qualitative rigor offered by authors. Some authors refer to saturation as a ‘rule’ (Denny, 2009; Sparkes et al., 2011), or an ‘edict’ (Morse, 1995), of qualitative research, and it features in several generic quality criteria for qualitative methods (Leininger, 1994; Morse et al., 2002).

Thus, the 36 participants in this study were purposively selected and interviewed to a saturation point. From the 36 participants, 24 participants formed FGDs of six (6) members each, while the 12 participants were interviewed. It means therefore, the researcher conducted four (4) FGDs and twelve (12) key informant interviews.

### Sampling Technique

The method of selecting a sample from the population is a sampling technique which is a rigorous procedure for selecting units of analysis from a target population or accessible population (Du Plooy, 2013). Kumar (2011) notes that sampling is a process of selectively picking samples from a more broad group or population to become the basis for predicting the prevalence of an unknown piece of information, situation, or outcome regarding the bigger group.

This study adopted a purposive sampling technique in selecting research participants for this study. According to Babbie (2016), purposive or judgmental sampling

is a non-probability sampling technique. The purposive sampling technique was based on the researcher's judgment; thus, the 36 participants were selected based on the researcher's judgemental knowledge of who can provide the best information to achieve the study's objectives. The researcher went only to those individuals who, in his/her opinion, are likely to have the required information and were willing to share it with the researcher (Babbie, 2016).

### Data Collection Instruments

In a qualitative study, data creation or collection refers to the theories and procedures used by researchers to create data from a sampled data source. (Given, 2008). The author notes that it is to generate or collect data from a sampled data source – researchers interact with the data source using qualitative research methods within an overall inquiry tactic. The researcher employed qualitative interviews, Focus Group Discussions (FGDs), and observation as data collection instruments/techniques in this study.

### In-depth Interviews

An interview generates or brings together data collected through direct verbal interaction between individuals (Cohen et al., 2007; Cannel & Khan, 1968, as cited in Jwan & Ong'ondo, 2011). Jwan and Ong'ondo further argue that interviews explore the participants' thoughts, attitudes, and reasoning in a certain way. The essence of this data generation technique in this study was to investigate the research problem in line with the research objectives.

An interview guide or schedule aided in the data generation. An interview schedule or guide is described as questions that the interviewer asks when interviewing research participants (interviewees) (Orodho, 2009, as cited in Wambua, 2016). Orodho affirms that interview schedules make it possible to obtain data required to meet the study's specific objectives and standardize the interview situation so that interviewers can ask the same questions in the same manner and further do probing.

Further, Yin (2016) argues that an interview guide contains a small subset of keywords written on a compact piece of paper tailored to the topics or research objectives considered to be directly relevant to a given interview. Yin, in addition, argues that brief probes and words reflecting follow-up queries might be a follow-up of each keyword, but the interview guide should in no sense be considered a questionnaire (Yin, 2016). Hence, Yin posits that the guide represents a set of reminders and is not a list of the actual questions participants need to verbalize. In this study, therefore, the researcher adopted open-ended interviews or semi-structured interviews.

In semi-structured interviews, the interviewer knows where they want the interview to go and what should come out of it but does not interview with a list of predetermined questions. Topics and issues determine the course of the interview rather than questions which means that semi-structured or open-ended interviews allow deeper exploration of the responses by participants through further probing of emerging topics and issues within the research's objectives (Jwan & Ong'ondo, 2011). Moreover, semi-structured interviews are preferable in a qualitative research approach because they allow for flexibility and the pursuance of interesting leads (Yin, 2016; Gillham, 2000; Nunan, 1992, as cited in Jwan & Ong'ondo, 2011).

The researcher, therefore, conducted twelve interviews. Participants were purposively selected from the targeted population.

#### Focus Group Discussions

A group interview where a researcher or a moderator facilitates a discussion with a small group of people on a specific topic is known as a Focus Group Discussions (Morgan, 1988, as cited in Jwan & Ong'ondo, 2011). In this circumstance, the specific topic was guided by the research objectives. The groups are “focused” because, as a qualitative researcher, you have gathered individuals who previously have had some common experience or presumably share some standard views (Yin, 2016). It combines individual interviews and participant observation (Casey & Krueger, 2000, as cited in Jwan & Ong'ondo, 2011). It involves greater than six but less than ten people who have something in common. Nielen (1997, as cited in Jwan & Ong'ondo, 2011) noted that the essence of FGDs in qualitative research is that they open up space for participants to react spontaneously and allow the researcher to observe some group dynamics.

Ferreira and Puth (1988, as cited in Jwan & Ong'ondo, 2011) further argued that FGDs acts as an open conversation where each participant may comment on other participants' answers or respond to the comments of others. Thus, the essence of FGDs is to comprehend how research participants feel or think about a service, an issue, or an idea on a given phenomenon. This study conducted four FGDs. They comprised of six participants each. The participants in the FGDs were purposively selected.

## Observation

According to Jwan and Ong'ondo (2011), observation is one of the key data generation techniques in qualitative research approach. It means getting data through critically watching a person or a group of persons as they participate in particular activities with a view to obtaining deeper understanding about the activities the persons under study are engaged in (Cohen et al., 2007, as cited in Jwan & Ong'ondo, 2011). It involves watching what research participants do (the non-verbal cues – that is, “body movements, body orientation, nuances of the voice, facial expressions, details of dress and choice and movement of objects that communicate), listening to what they say, and sometimes asking them to clarify their presentations (probing further).

In this study, observation data generation technique was interwoven within the qualitative interviews and the FGDs data generation techniques. The researcher achieved this by keenly observing the participants as they participated in the interviews and FGDs (non-verbal cues) and listening attentively to the participants. The essence of this was to note body language and other gestural cues that lend meaning to the words of the participants being interviewed. It further aided in probing the study participants and as an additional evidence regarding the study problem; led to a deeper understanding of the study phenomenon.

## Types of Data

Collection of information refers to data and has different data types that combine to be the collected information such as numbers, words, pictures, video, audio, and concepts (Given, 2008). This study adopted a qualitative approach; thus data in qualitative

research was collected. Jwan and Ong'ondo (2011) noted that data in qualitative research is in the form of words. These words may exist in oral form, that is, as participants speak them during interviews or FGDs, or in written form – for instance, documents, books, journals, articles, newspapers, or printed speeches. Such data is referred to as qualitative data. Qualitative data can either be primary or secondary data. The scholars observed that primary data emanates from interaction with participants while secondary data already exists in text form (e.g., documents). They further argue that data in qualitative research can include observational data. This is usually data made up of notes taken by the researcher when interacting with participants or composed from video recordings or pictures (Jwan & Ong'ondo, 2011).

Therefore, this study has qualitative data as primary data, secondary data, and observational data. The primary data was collected during fieldwork by the researcher. The raw data that was collected through interviews and FGDs within the targeted population of this study. This is the data that the researcher coded and analyzed to answer the research objectives and questions for this study. On the other hand, secondary data is more articulated in chapter two through the general literature review and empirical literature review. Moreover, observational data for this was achieved by the researcher through his/her interactions with the study participants. These data types are vital for this study as they aided in synthesizing and inferring conclusions in chapter five of this study.

#### Data Collection Procedures

First, once the research proposal was approved, the researcher pursued authorization to collect data from Daystar University and the National Commission for

Science, Technology, and Innovation (NACOSTI). The NACOSTI permit allowed the researcher to go and collect data in the field.

Second, the researcher trained two research assistants or enumerators who helped in data collection. They were recruited from first-year students in Maseno University – Homa Bay Campus. First, the researcher sought permission from the university authorities by way of explaining to them the essence of the study. The criterion for choosing them was based on their understanding and familiarity with the Homa Bay Lake region. Thus, it means that those who originate from the region had a high chance of selection. This also aided in language interpretation where necessary. Then, the recruiting process was done through a poster that had a detailed synopsis of the study. Further, the research assistants were informed on the nature of the study and taken through the data generation tools for familiarisation and understanding.

Third, the researcher informed the study participants on the research problem, the objectives of the study/research questions, the purpose of the study, the rationale of the study, and the significance of the study. The essence of this was to create awareness and help the participants understand the investigation's general nature, its limits, and their role in the study. To achieve the targeted population, the researcher organised a meeting with the with the leaders of fishmongers who in turn gathered the other fishmongers for the FGDS. Moreover, the researcher made telephone calls to the mentioned organisations / institutions to schedule for the indepth interviews.

Further, the researcher sought consent from the targeted population to participate in the study and have their inputs/insights used in writing the research report. The researcher informed the study participants that participation was voluntary, and no one was

coerced or influenced to participate in this study. Moreover, the researcher informed the participants that they had the right to review the research report if they choose to.

After the researcher has been cleared by the relevant Ethics and Review Boards (ERB), The researcher and her assistants prepared to go to the field and collect data for the study. With the help of assistants, the researcher administered the data collection instruments physically. The interviews and FGDs were face-to-face/one-on-one discussions, which aided in the oral data through the interactions with participants and the non – verbal cues expressed by the participants.

Fourth, note-taking and recording during the interviews and FGDs was used as a strategy for recording data. Consent was sought before recording the research participants. Recording of the data facilitated data analysis since the information was readily available and accessible. The importance of recording was that it can be played and re-played for better comprehension. After data collection, the researcher prepared for the data analysis, presentation, and interpretation.

Lastly, since the procedure of collecting data was face-to-face/one-on-one, the researcher and the research assistant observed the COVID – 19 protocols. Every participant in the study was encouraged to put on masks, keep social distance, wash hands, and sanitize.

### Pretesting

According to Hurst et al. (2015), pretesting or pilot testing of research instruments mimics the collection of data process on a small scale to detect practical problems that may arise with the data collection instruments, the data collection sessions, and methodology.

Hurst et al. noted that pretesting could identify miscalculations in multicultural language relevance and vagueness in words and discover possible flaws in survey measurement variables (Hurst et al., 2015). They further argue that pretesting warns about how the project can fail by pointing out that their research protocols were not observed.

In qualitative research, pretesting involves administering interviewing groups of people similar to the target population in the study, and by imitating the data collection session and administering the study materials such as the consent forms, demographic questionnaires, interviews, among others as part of the process (Hurst et al., 2015). Hurst et al. posit that the process of pretesting creates an environment for the researcher to go back to the drawing board and revise the study materials and procedures of collecting data in order to avoid asking inappropriate questions and not make respondents uncomfortable or confused either because of two or more critical issues in a single question.

Besides, Mugenda and Mugenda argue that a range of 1 – 10% of the sample size frame is appropriate to engage a pretesting (Mugenda & Mugenda, 2003). Therefore, four participants were sufficient for pretesting the research instruments from a sample size of 36 participants, and the selected participants were not again used in the main study.

### Reliability and Validity

Reliability means the consistency to which research instruments measure gives a variable consistency every time used under the same conditions with the same subject (Yilmaz, 2013). Reliability is identical to repeatability (Kothari, 2004). The researcher tested the reliability of the instruments by administering the questionnaire twice within one week, to check whether they produced the same results every time and establish the instrument's stability.

The researcher also used methodological triangulation to establish the validity of the findings by analyzing them against the research questions. In this context, triangulation describes the use of more than one approach to researching a question to increase confidence in the findings by confirming a proposition using two or more independent measures (Heale & Forbes, 2013). It is worth noting that the results may converge at the same conclusions and help verify the results or turn out to be complementary to each other and support each of the findings. Furthermore, using triangulation may lead to divergent or contradictory results. This approach also came in handy in minimizing measurement and procedural bias during data collection by reducing the pressure on the participants when asked to provide information.

#### Data Analysis Plan

The data collected in the field was unprocessed, and it was useless unless it was analyzed. A systematic procedure of transcribing, compiling, editing, coding, and reporting the data, according to Jwan and Ong'ondo (2011), makes it intelligible and accessible for the reader and researcher to comprehend and debate data in qualitative research. To answer research questions, it entails looking at the data, assigning categories, and incorporating emergent issues into themes (Jwan & Ong'ondo, 2011).

The researcher adopted thematic analysis as a strategy for qualitative data analysis. Clarke and Braun (2006, as cited in Jwan & Ong'ondo, 2011) explained that:

Thematic analysis is a method for identifying, analyzing, and reporting patterns (themes) within data. It mainly organizes and describes your data set in (rich) detail. However, frequently, it goes further than this and interprets various aspects of the research topic (p. 78).

This strategy is done by first listing the categories after reading the transcribed data and field notes. Then, all the data illustrating the themes are merged in the correct category (Aronson, 1994, as cited in Jwan & Ong'ondo, 2011). He further argues that the interviewees' themes should be collected together to form a comprehensive picture of their collective experiences and responses. The researcher should build a valid argument for choosing the themes by making inferences from literature. Thus, this data was transcribed, coded, and assigned categories/patterns to form the study themes. After applying the above data analysis strategy, the data was presented in the form of themes.

### Ethical Consideration

Before conducting the study, the researcher sought necessary permission from Daystar University Ethical Review Committee and an introductory letter to study participants. Further, the researcher applied for a research permit license from the National Commission for Science, Technology, and Innovation (NACOSTI).

The researcher sought verbal consent from participants before conducting the interviews and FGDs. The researcher also informed the participants of their right to choose not to participate in the study. Hence, total confidentiality of the responses was maintained, and the individuality of the research participants was kept anonymous. Personal information was not used for the study, and procedures were put in place to protect the confidentiality of information and anonymity of the participants in all research materials.

Lastly, the researcher observed the COVID – 19 protocols. Consent was sought for every participant in the study to put on masks, keep social distance, wash hands, and sanitize.

## Summary

In this chapter, the research has described the methodology of the study, which include the population, target population, sampling size and the procedures, methods of data collection and the tools that were used in the study and how the data was analyzed as well as the ethical consideration.

## CHAPTER FOUR

### DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

#### Introduction

This chapter presents the study's results and findings. Data was collected through in-depth interviews, focus group discussions (FGDs), and observation. The chapter centers on the presentation, analysis, and interpretation of the collected data. The interviews, FGDs, and observation were conducted among fishers and maritime specialists, and workers who have a vast knowledge of the region and subject under study. The interviews and FGDs were manually transcribed and used in the analysis as a descriptive narrative in response to the study's research objective.

#### Presentation, Analysis and Interpretation

After gathering raw data through in-depth one-on-one interviews, the researcher transcribed the data and then analyzed the content through a thematic summary analysis, thus establishing major and emergent themes from the responses. The researcher analyzed the raw data by observing the repeated phrases, recurring words, and sentences for recurring patterns. The thematic analysis helped the researcher arrive at themes that are presented in a narrative format.

#### Response Rate and Demographic Results

The researcher targeted a sample size of 36 participants from maritime specialists who have a vast knowledge of the region under study in Kenya. These were: fishers (fishmongers), Homabay county fishery department officials, marine agencies, and marine coast guards. This meant that the researcher was to do 12 in-depth interviews and 4 FGDs

of 6 members each. However, the researcher interviewed 7 participants and held 3 FGDs with 2 groups of 6 members each, and one group that had 8 members. This gave a total of 27 participants. Thus, the response rate for this study was 75%. This was used for data analysis. Further, the demographics of the study were 10 males and 17 females.

## Findings

### Maritime Insecurity in Lake Victoria

Research objective one sought to assess the current status of maritime insecurity at Lake Victoria in Homa Bay County. Responses from the in-depth interviews and FGDs indicated that fish contributes to food security both directly and indirectly to the residents of the wider Homa Bay County because it is a vital protein source and high in healthy fats. Fish also employs many of the region's residents because it is sold in local markets and some transported to other regions, including outside the country's borders.

However, the study found that insecurity in the waters is a big problem, especially for the fishers who often encounter pirates and criminal gangs who steal their catch, fishing boats, fishing nets, beat them up, and even kill or disappear with them never to be seen again. The fishers are also sometimes harassed by maritime police from neighboring countries, especially those from Uganda. Local and international boundary wars are a common thing among fishers in Lake Victoria. An interviewee participant noted that: "More often, you will witness cases of people from, let's say, Mfangano Island not allowing people from Asego beach or Rusinga to fish in their territory and vis visa."

Piracy and robbery are common in Lake Victoria in Homa Bay and hugely threaten the people's interests dependent on the lake for fisheries and even transport.

A participant in one of the FGDs noted that:

*Pirates and thugs operate at will in Lake Victoria especially around the areas bordering Uganda and Tanzania, wreaking havoc on fishermen. There have been many acts of piracy on fishers as different pirate gangs fight to control specific regions and islands within Lake Victoria. More often, fishermen are caught in between, with their catch, boats, and fishing nets stolen or forcefully taken away.*

Some FGDs participants also revealed that there are territorial wars among fishermen from different regions or islands. There are always conflicts in the waters due to beach boundaries.

One participant indicated that:

*Like a month ago, we were involved in a conflict because some fishers from our side--Homa Bay-- went fishing on the other side of the beach boundary, and a severe war ensued between us and fishers from that region. They didn't want us to fish on their territory, yet we were still within Kenyan waters. Such conflicts are common and often get out of hand, resulting in even deaths or bad body injuries. This is a significant challenge here that needs to be addressed since fishers should not fight among themselves.*

According to some in-depth interview participants, cases of fishermen missing in Lake Victoria in Homa Bay have become common, with some found dead after a few days while others go missing, never to be found. One participant mentioned that: "As we speak, one fisherman, a young man who recently joined us has been missing for several weeks now, we have reported the matter to the authorities, mounted searches, but we are yet to find him."

The study also found that fishers are also forced to regularly pay fees in the form of bribes to the pirates, criminal gangs' failure to which they are punished or are not allowed to fish.

A participant from the FGD reported that:

*We pay business and other operations taxes to the authorities like every other law-abiding citizen. Still, inside the waters, we also pay vigilantes 'protection fee' regularly, failure to which we are denied the rights to fish in certain territories, beaten up, and sometimes our tools of the trade are forcefully confiscated. We pay because fishing is our livelihood, and we can do nothing because some of these criminals are so powerful and work closely with some authorities who are supposed to provide security to fishers.*

It also emerged that the fishing community in Homa Bay county often loses fishing boats and equipment to pirates and common thieves due to high insecurity in the region. Study participants were in agreement that boats and fishing nets are usually stolen by pirates and fishermen from other regions.

One of the in-depth interviewee participant noted that:

*There are the people here whose main job is stealing from others. They steal your catch, net, and your boats. Boats and fish are stolen regularly, thus forcing us to hire extra security personnel to protect our equipment and catch, especially when we are not around. Standard fishing boats and nets are expensive to purchase, and if you lose them, it is not easy to get new ones, especially from the money we make here.*

Another participant added that:

*Fishermen report many insecurity-related incidences in the lake, especially along with the territorial border points with neighboring countries of Uganda and Tanzania. Sometimes they are arrested, and their fish catch forcefully confiscated, while they are sometimes forced to bribe authorities and vigilante groups operating in the areas.*

The participants corroborated that the insecurities faced by fishermen gravely affect the livelihoods of the fishermen and many residents of Homa Bay County. They directly depend on fishing and the lake as a source of livelihood.

#### Illegal, Unregulated, and Unreported Fishing in Lake Victoria

Research objective two sought to establish whether IUU fishing is a form of maritime insecurity at Lake Victoria in Homa Bay County. The study found that IUU

fishing is one of the greatest threats to the marine ecosystem in the region due to its potent ability to undermine the county and national government efforts to conserve and manage fish stocks. According to the participants, the practice crops mainly from corruption and a lack of resources by county authorities to conduct effective surveillance and monitoring in the lake among fishers. IUU threatens livelihoods, marine biodiversity, depletes fish stocks, exacerbates poverty, and augments food insecurity in the more comprehensive Homa Bay County.

One FGDs participant noted that:

*This section of Lake Victoria in Homa Bay County supports the livelihoods of more than a million people who rely on fishing and fishing-related activities and millions of others who depend on fish from the lake as an essential part of their diet. However, illegal fishing is threatening the food supply of the communities in Homa Bay town, Rusinga Island and Mbita, to mention a few...as fish populations decline due to overfishing and illegal fishing in areas fishers are not permitted to access. Addressing illegal fishing will positively contribute to the equitable growth and empowerment of the people who rely on the lake for food and income.*

An in-depth interviewee participant added that:

*Illegal fishing, which refers to fishing activities in the lake conducted in contravention of applicable county, national and international laws and regulations, is widespread in the region. There is a percentage of illegal fishing in Lake Victoria, especially here in Homa Bay County. It is common to come across fishers fishing in the lake without a license from the authorities. Others defy laws and fish in the closed areas, others will fish using prohibited gear such as nets and hooks that catch small-sized and young fish, and others will catch prohibited fish species and fail to return them in the waters.*

On the same script, another FGDs participant said that:

*Most fishers are aware of the laws regulating fishing in some areas, banning overfishing in certain areas. However, they still engage in illegal and unregulated fishing due to poverty. Many fishers engage in illegal and unregulated fishing because they want quick money, and there is a ready 'black market' for prohibited fish species. The young fish that still needs to be let to grow are affected and lack understanding of the rules and regulations and why it is important not to overfish. Fishing communities need regular training and*

*teachings on the dangers of illegal fishing so that they can be able to make informed decisions.*

Further, another participant revealed that fishers from Kenya and neighboring countries practice IUU fishing on Kenyan soil in Lake Victoria. The participant posits that “we see fishing boats, especially from Uganda on our side, and they fish here without licenses and sometimes even catch fish in the spaces where fishing is prohibited.”

It also emerged that illegal fishing adversely impacts legitimate commercial fishers in Lake Victoria in Homa Bay and fish populations.

An in-depth interviewee participant who was a fishery and a marine expert said that:

*Illegal fishers avoid overhead costs, such as those of licenses and other levies. They fish freely without constraints accepted by legal fishers, often falsifying documents and laundering their ill-gotten catch. Their actions constitute a clear case of unfair competition since they operate without the costs of doing business legally or the strictures of following established policies and laws.*

The participant added that:

*Because illegal fishers do not report their catch, their fishing activities affect the accuracy of the region's official fish catch and stock estimates. This adversely impacts how fisheries are managed because regulatory bodies from national and county authorities use reported catches and stock estimates to set catch limits and manage fish populations. So, because the natural volume of fish caught is unknown, it becomes difficult to manage the region's fisheries effectively.*

Moreover, the participant concluded that:

*Illegal fishing often causes severe environmental damage, primarily when fishing vessels use prohibited gear, such as driftnets, that catch non-target species like dolphins or young fish or physically destroy underwater reefs, seamounts, and other marine ecosystems.*

It also emerged that some fishers participate in IUU fishing unwillingly out of desperation to fend for themselves and their families. An in-depth interviewee participant argued that:

*I have seen fishers who do not have the recommended fishing equipment, but they still go into the waters to catch fish. The right fishing equipment is expensive to buy or hire, and many people who live along the lake shores are poor and cannot afford.*

The study also revealed that some illegal fishers use poisonous chemicals to kill fish in the lake in the name of fishing. An FGDs participant replied that:

*I have seen people buying dangerous chemicals and spraying them in the waters in the name of fishing. The chemicals make the fish 'high', thus making it easy for them to catch more fish. However, I am afraid that is not right. Utmost of the chemicals used are poisonous and contaminate the water, thus endangering fish, people who use lake water for domestic purposes, and fish consumers. These chemicals are sold by unscrupulous business people who operate along the lake.*

The findings on IUU fishing indicated that there is much crimes committed in the fishing industry. Further, dangerous substances are used in the IUU fishing. There is need for the relevant authoriries to put in place measures to curb such practices.

#### Social – Economic Factors and Maritime Insecurity in Lake Victoria

Research objective three sought to examine the socio-economic factors contributing to maritime insecurity at Lake Victoria in Homa Bay County. The participants cited poverty, unemployment, corruption, greed, lousy fish prices, lack of proper fish storage facilities in the region, inadequate support from the government to the fishers and the fishing industry, and conflict in neighboring countries as some of the social-economic factors that contribute to increased cases of maritime insecurity in the shores region.

Data from the Kenya National Bureau of Statistics (KNBS, 2019) indicate that many people in Homabay County are poor, with most of its youth unemployed. This partly

explains the increase of criminal groups that operate inside Lake Victoria's waters, increased robberies, and insecurity along the shores of the lake.

An in-depth interviewee participant noted that:

*While some of the young people in Homa Bay and surrounding communities see vigilante piracy and stealing fishing boats and fish as a potential career track because it yields fast money that sustains their livelihoods and families, desperation and inadequate opportunities play a significant role in fuelling maritime crime in the region.*

It also emerged that poverty had pushed many young children of school-going age into fishing. These are children whom authorities cannot issue with fishing permits because they are still minors. Both the in-depth interviewee and FGDs were in agreement with this.

An in-depth interviewee participant mentioned that:

*Poverty is one of the fundamental driving forces that drive acts of illegal fishing high. More often, when family breadwinners die in the region, and there is a boy child in the family, in some cases, these children drop out of school and go to the lake to look for fishing jobs to take care of their families. While on it, authorities are usually after them, making them vulnerable, so it is easy for them to commit crimes and be recruited into piracy groups to make fast money while being protected by the many illegal cartels that operate on the lake. Such children become hardened as they grow up, and some end up being notorious criminals along the shores and in the waters. This is a matter of great distress because we are seeing more and more children in the waters fishing and stealing.*

Poor fish prices were also mentioned as one of the major causes of maritime insecurity in Homa Bay County.

According to a FGDs participant:

*People who catch fish are always short-changed by the many middlemen who wait for them at the shores of the lake. The middlemen control the fish prices, and more often, the fishers are forced to take whatever money they are offered because fish also gets spoilt faster, and they are usually in a rush to get back into the waters and catch more fish.*

It also emerged that fishers catch a lot of fish most of the time, making the product abundant in the marketplace, which affects prices because they automatically decline. The effect is harmful from the point of view of the fishers but positive from the point of view of consumers. This causes a problem because it has pushed some fishers to look for alternative means to make money, including joining criminal and piracy groups to earn extra cash.

The lake has attracted people from all over the country and beyond, making it appealing to criminal groupings. Even though coast guards and police patrol the waters, powerful criminal groupings from Kenya, Uganda, and Tanzania still roam freely in the waters.

An in-depth participant pointed out that:

*These groups are run by influential, wealthy individuals who more often bribe the authorities to get whatever they want, and some of them even own fishing boats, vessels, and other equipment. These are the same people who employ children, deal with burnt substances and drugs and even operate brothels.*

#### Summary of Key Findings

The study found that piracy, robbery, and insecurity in Lake Victoria Homa Bay County hugely threaten the people's interests dependent on the lake for fisheries, livelihood, and even transport. Insecurity in the waters and along the shores of Lake Victoria in Homa Bay county is a big problem. Fishers often encounter pirates who steal their catch, fishing boats, fishing nets, beat them up, and even kill them or disappear, never to be seen again.

Local and international boundary conflicts are a common thing among fishers in Lake Victoria. The disputes are always characterized by wars between fishing communities

from different Islands and beaches within the same communities or even from bordering countries like Uganda.

The study also found that IUU fishing is one of the greatest threats to the marine ecosystem in the lake due to its potent ability to undermine the fishing community, county, and national government efforts to conserve and manage fish stocks. The practice mainly crops from corruption and a lack of resources by county authorities and other stakeholders to conduct effective surveillance and monitoring in the lake among fishers. IUU threatens livelihoods, marine biodiversity, depletes fish stocks, exacerbates poverty, and augments food insecurity within the more comprehensive Homa Bay County.

According to the study, some of the socio-economic factors that contribute to increased cases of maritime insecurity on the shores of Lake Victoria in Homa Bay county include unemployment, poverty, corruption, poor fish prices, lack of proper fish preservation and storage facilities in the region, inadequate support from the government to the fishers and the fishing industry, and conflict in neighboring countries.

Most households in Homabay County are poor, with most of the region's youthful population unemployed. This partly explains the increase of criminal groups which operate inside the waters and along the shores of Lake Victoria, increased robberies, and insecurity along the shores of the lake.

### Summary

The chapter presented and discussed the research data, its analysis, as well its interpretation. In this chapter, the study findings evidenced that piracy, robbery, and insecurity in the lake hugely threaten the communities dependent on the lake for fisheries, livelihood, and even transport. Local and international boundary conflicts are a common

thing among fishers in Lake Victoria while unemployment, poverty, corruption, poor fish prices, lack of proper fish preservation and storage facilities in the region, inadequate support from the government to the fishers and the fishing industry, and conflict in neighboring countries are some of the social-economic factors that contribute to maritime insecurity in the region. The next chapter delves into the discussion of the study findings, the study recommendations, conclusions, and finalizes with suggestions for further research.

## CHAPTER FIVE

### DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS

#### Introduction

This chapter discusses the study's key findings and makes conclusions and recommendations. The chapter also weaves the relevance of the institutional and routine activity theories and ties them to the thesis's objectives.

#### Discussions of Key Findings

The findings of this study suggest that piracy and robbery are significant forms of insecurity in the section of Lake Victoria in Homabay county. They hugely threaten the people's interests dependent on the lake for fisheries, livelihood, and even transport. Fishers often encounter pirates and criminals who steal their catch, fishing boats, fishing nets, beat them up, and even kill them or “disappear them,” never to be seen again.

Local and international water boundary conflicts are also common thing among fishers in Lake Victoria. The disputes are characterized by wars between fishers from the different Islands and beaches within the same communities or even from bordering countries such as Uganda.

IUU fishing is one of the threats to the marine ecosystem in Lake Victoria Homa Bay County due to its potent ability to undermine the fishing community, county, and national government efforts to conserve and manage fish stocks. IUU threatens marine biodiversity's livelihood, depletes fish stocks in the lake, exacerbates poverty, and augments food insecurity within the wider Homa Bay county.

Social-economic factors that contribute to maritime insecurity in Lake Victoria in Homa Bay County include unemployment, poverty, corruption, poor fish prices, lack of adequate and proper fish storage facilities in the region, inadequate support from the government to the fishers and the fishing industry, and conflict in neighboring countries.

#### Maritime Insecurity in Lake Victoria

The study's first objective was to assess the status of maritime insecurity in Lake Victoria in Homa Bay County. The participants revealed that insecurity is a significant issue of concern in the region, with criminal gangs and pirates operating in the region in the open. The participants gave examples of robbers stealing fishers' catches, boats, and other valuables. In contrast, pirates and other criminal groupings harass fishers, forcefully take their catch and fishing boats, and even coerces them to pay a 'protection fee.'

It also emerged that local and international water boundary disputes are common among fishers in the region's waters. These conflicts are characterized by wars between fishers from the different Islands and beaches within Homa Bay County or even bordering countries such as Uganda and Tanzania. This is a unique finding and might need further investigations in the future.

A Study by Mutoka (2014, as cited in Mbugua & Mwachinalo, 2017) referenced in this document corroborate the above findings by saying that maritime insecurity is an issue of concern in Homa Bay also in other regions in the country with fishing waters. The studies also single out piracy and robbery as some of the issues that affect fishers.

Insecurity connotes a state of not being free from danger or threat. This study explains a spate of crimes and piracy attacks by using a routine-activities approach in Lake Victoria. According to the participants, fishers in Lake Victoria are negatively affected by

criminal gangs and pirates who regularly steal from them and even attack them. The regular attacks and robberies are often well-coordinated, making the routine activities theory relevant to this study.

### Illegal, Unregulated and Unreported Fishing

The study's second objective was to establish out whether IUU fishing is a form of maritime insecurity at Lake Victoria in Homa Bay County. Participants of the study revealed that IUU fishing is one of the greatest threats to the marine ecology in Lake Victoria in Homa Bay County due to its persuasive capacity to destabilize the county and national government efforts to conserve and manage fish stocks. They said that the practice crops from corruption and a lack of resources by county authorities to conduct effective surveillance and monitoring in the region among fishers. IUU threatens livelihoods, marine biodiversity, depletes fish stocks, exacerbates poverty, and augments food insecurity in the region.

The participants blamed illegal fishing for the severe environmental damage on the lake. They singled out prohibited fishing gear, such as driftnets, that catch non-target species like dolphins or young/small size fish or physically destroys underwater reefs, seamounts, and other marine ecosystems.

A study by Shaver and Yozell (2018) referenced in this research corroborates that fisheries management is weakened because IUU fishing activities skew the accuracy of fish stock assessments upon which regulations are based. The study also mentions that IUU poses threats that include the threat to ecological security, economic security, food security, geopolitical stability, and threat to transnational organized crimes, which the participants of this study have also mentioned.

Routine activity theory usually explains the assumptions of criminal activities (Cohen & Felson, 1979). The theory commonly explains offenses committed by individuals. Still, it is also used to explain the motivation of illegal fishing at the syndicate or gang level, a similar scenario to what is happening in Lake Victoria in Homa Bay County, as documented in the findings of this study.

The relevance of the routine activity theory to this study on piracy and lake robbery is essential because it assists in explaining the existence of crime in the region. First, the unemployed youths in the area are a pool of ready and capable of committing the nature of lake robbery. Vulnerable targets are in the form of fishing boats, speedboats, and fishing crafts and fishers, and their customers' personal belongings. More often, most of these targets are not always well guarded.

#### Socio-economic Factors

The third and final objective of the study examined the socio-economic factors that contribute to maritime insecurity in Lake Victoria in Homa Bay County. The study cites poverty, unemployment, corruption, greed, poor fish prices, lack of proper fish storage facilities, inadequate support from the government to the fishers and the fishing industry, and conflict in neighboring countries as the social, economic factors that contribute to cases of maritime insecurity in Lake Victoria in Homa Bay County.

The study also found many people in Homabay County are poor, with much of its youth unemployed. This revelation is partly linked to the increase of criminal groups that operate inside Lake Victoria's waters, increased robberies, and insecurity along the shores of the lake.

A study by Mbugua and Mwachinalo (2017) on the assessment of maritime insecurity in the Kenya maritime domain referenced in the literature review section found that poverty and unemployment are a foundational threat to maritime security. The findings echo those of this study.

### Conclusion

The study revealed that the main IUU fishing issues in Lake Victoria, Homa Bay County are unauthorized fishing, criminal gangs and pirates, encroachment by foreign fishers, employment of minors/children as fishers, use of prohibited gears and fishing methods, and fishing young, endangered and protected fish species.

According to participants, corruption, poverty, and a lack of comparable alternative employment opportunities as the major factors that drive IUU fishing in the region.

Moreover, fish stocks in Lake Victoria, Homa Bay county are under threat from IUU fishing. The study also revealed that it is difficult to estimate the total fish catch in Lake Victoria, Homa Bay County, due to illegal and pirate fishing.

According to the study, IUU fishing is highly attractive because those involved do not pay taxes or revenues on catches to the authorities hence more money in their pockets. Weak governance, corruption, and a lack of will or capacity to enforce existing national and international legislation have also enabled IUU to thrive in Lake Victoria, Homa Bay county.

IUU's persistence is due to economic incentives (fuelled by increasing demand for fish, continued overcapacity in many fishing fleets, readily available cheap labour, and weak governance) and a lack of resolve from stakeholders to tackle its underlying issues causes.

The researcher also established that despite the severe threat that IUU fishing poses to the Lake Victoria region, there are limited studies on the nature of this fishing in the region.

IUU fishing is carried out in Lake Victoria, Homa Bay, by locals and fishers from neighboring countries. IUU fishing commonly observed in the region involves catches of illegal and undersized fish species, illegal fishing gear, fishing in enclosed areas and during banned seasons, and notable fishers without the required authorization.

The destructive impact of fishing on habitats such as the coral reefs, depletion of marine resources, and unsustainable fishing on the functioning ecologies are consequences of IUU fishing.

### Recommendations

Based on the findings of this study, the researcher makes the following recommendations:

1. The national and county governments need to hire and train more personnel to help fight against IUU in the region. The study reveals insufficient and inadequately trained personnel in the relevant authorities to combat IUU in Lake Victoria Homa Bay County.
2. Stakeholders should ensure that coast guards and fisheries administrators are well paid to do their job effectively. This study revealed that the salaries of coast guards and fisheries administrators enlisted to combat IUU are poor. Some illegal fishers or vessel owners take advantage of this situation to make irregular payments to these people to cover up their activities.
3. There is a need to have more patrol officers patrolling the waters because this will keep illegal fishers and criminal gangs from roaming freely.

4. Controls and sanctions must be coordinated and consistently enforced at the local, national, and international levels to curb IUU. Food and Agriculture Organisation (FAO) of the United Nations in 1995 adopted the Code of Conduct for Responsible Fisheries (CCRF), endorsed by around 170 member states (Zacharias, 2014). Although the CCRF is voluntary, several countries, including Australia, Malaysia, Namibia, Norway, and South Africa, have incorporated some of its provisions into national law. Zacharias (2014) redictably, IUU fishing has decreased in these regions.
5. Fisheries working groups in the country ought to develop programs to assess the impacts of IUU fishing.

#### Areas for Further Research

Although this study confined itself to social-economic factors contributing to maritime insecurity in Lake Victoria, Homa Bay County, there is much scope for further research on maritime insecurity in Kenya. The participants of this study gave a unique finding, revealing that children of school-going age have abandoned schooling in the region and work as fishers or have joined pirates and criminal gangs. There is a need for further investigation into this issue because using child labor is illegal.

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## APPENDICES

## Appendix A: Participants Introductory Letter

Dear, Sir/Madam,

Thank you for accepting to participate in my Master of Arts (Diplomacy, Development and International Security) research study at the School of Arts and Humanities, Daystar University. The purpose of the research is to assess and analyse the socio-economic factors that are contributing to Maritime security in Lake Victoria, Kenya, specifically at Homa Bay County.

I would appreciate if you would take a few minutes to answer this questionnaire. The data collected from this survey is for educational purposes only and your participation is VOLUNTARY. You will remain ANONYMOUS and any data you share will not have your name and it will be STRICTLY CONFIDENTIAL.

Sincerely,

Diana Akama Handa

Adm No.11-1458

## Appendix B: Consent Form

ASSESSING SOCIO-ECONOMIC FACTORS CONTRIBUTING TO MARITIME  
INSECURITY IN KENYA: THE CASE OF LAKE VICTORIA, HOMA BAY  
COUNTY

## Consent to take part in research

- I..... voluntarily agree to participate in this research study.
- I understand that even if I agree to participate now, I can withdraw at any time or refuse to answer any question without any consequences of any kind.
- I understand that I can withdraw permission to use data from my interview within two weeks after the interview, in which case the material will be deleted.
- I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.
- I understand that I will not benefit directly from participating in this research.
- I agree to my interview being audio-recorded.
- I understand that all information I provide for this study will be treated confidentially.
- I understand that in any report on the results of this research my identity will remain anonymous.
- This will be done by changing my name and disguising any details of my interview which may reveal my identity or the identity of people I speak about.
- I understand that disguised extracts from my interview may be quoted in the researcher's thesis paper.
- I understand that if I inform the researcher that myself or someone else is at risk of harm they may have to report this to the relevant authorities - they will discuss this with me first but may be required to report with or without my permission.
- I understand that signed consent forms and original audio recordings will be retained in Nairobi until the days I graduate on the 12<sup>th</sup> of November.
- I understand that a transcript of my interview in which all identifying information has been removed will be retained for two years from the date of the exam board.

- I understand that under freedom of information legalisation I am entitled to access the information I have provided at any time while it is in storage as specified above.
- I understand that I am free to contact any of the people involved in the research to seek further clarification and information.

Diana Handa  
MASTER OF ARTS  
In Diplomacy, Development, and International Security  
Signature of research participant

-----  
Signature of participant Date

Signature of researcher  
I believe the participant is giving informed consent to participate in this study

-----  
Signature of researcher Date

## Appendix C: Focus Group Discussions Guide

### Guiding Questions for FGDs

1. In your opinion, do you feel there is need to enhance maritime security in the present day at Homa Bay shores of Lake Victoria?
2. In your opinion, which crime poses the greatest threat in enhancing maritime security along Homa Bay shores of Lake victoria?
3. In your opinion, what are the main socio-economic factors contributing to Maritime insecurity at Homa Bay shores of Lake Victoria?
4. In your opinion, do we have a high rate of Illegal, Unregulated and Unreported fishing at Lake Victoria in Homa Bay County? If yes, what are some of the causes of IUU?
5. Are there any other crimes committed in relation to Illegal, Unregulated and Unreported fishing at Homa Bay shores of Lake Victoria?
6. Would you like to add any comments regarding your experience in the maritime security sector that has not been covered in this questionnaire? Comment?

## Appendix D: Interview Guide

### Questions for interviewing the locals/fishermen

1. What are the socio-economic challenges that you are facing as a resident in Homa Bay County?
2. What is the current situation in the maritime sector in terms of security?
3. What are the major maritime crime observed at Lake Victoria in Homa Bay County?
4. Is Illegal, Unregulated and Unreported fishing a major crime in Lake Victoria, Homa Bay County?
5. What other crimes are committed in regards to Illegal, Unregulated and Unreported fishing?
6. Are there any security measures implemented or put in place for control the maritime crimes at Lake Victoria in Homa Bay County especially the Illegal, Unregulated and Unreported fishing?
7. How can these socio-economic challenges be settled to avoid Illegal, Unregulated and Unreported fishing and other maritime crimes at Lake Victoria?
8. Suggest ways/options of managing/improving maritime security at Lake Victoria in Homa Bay County.
9. What measures are put in place to control maritime security at Lake Victoria in Homa Bay County?
10. What type of incentives are put in place to ease the socio-economic factors eg poverty that trigger people to get involved in maritime security especially Illegal, Unregulated and Unreported fishing?
11. Is poor remuneration of law enforcers and security agencies contributing to corruption and bribery hence compromising fair and strict enforcement of maritime rules and laws?
12. Do locals and fishermen report any illegal activities witnessed at Lake Victoria in Homa Bay County?
13. Are there enough law enforcers and security agencies in Homa Bay County that manage and control maritime crimes?
14. Suggest ways/options of managing/improving maritime security at Lake Victoria in Homa Bay County.

## Appendix E: Letter of Introduction

Thursday, July 15, 2021

**The Director General**  
National Commission for Science,  
**Technology and Innovation**  
P.O. Box 30623 – 00100  
**NAIROBI – KENYA**



Dear Sir/ Madam

**RE: DIANA AKAMA HANDA (11-1458)**

The above named is a MA student in the Department of Peace and International Studies at Daystar University. She has successfully defended her thesis proposal entitled, **“ASSESSING SOCIO-ECONOMIC FACTORS CONTRIBUTING TO MARITIME SECURITY IN KENYA: THE CASE OF LAKE VICTORIA, HOMA BAY COUNTY.”** I would be grateful if you could grant her a research license to enable her undertake her field research.

Yours Sincerely,

Mrs. Sylvia Wakene Muriuki  
HoD, Department of Peace and International Studies



“...until the day dawn and the daystar  
arise in your hearts”  
**2 Peter 1.19 KJV**

## Appendix F: Ethical Clearance Report

**VERDICT: APPROVAL WITH COMMENTS**

Daystar University Ethics Review Board



Our Ref: DU-ERB/11/08/2021/000557

Date: 11<sup>th</sup> August 2021

To: Diana Akama Handa

Dear Diana,

**RE: ASSESSING SOCIO-ECONOMIC FACTORS CONTRIBUTING TO MARITIME INSECURITY  
IN KENYA: THE CASE OF LAKE VICTORIA, HOMA BAY COUNTY**

Reference is made to your ERB application reference no. 280721-01 dated 28<sup>th</sup> July 2021 in which you requested for ethical approval of your proposal by Daystar University Ethics Review Board.

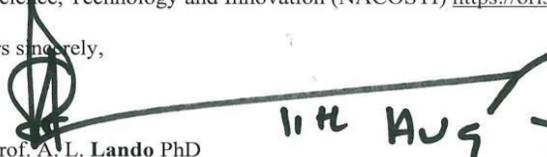
We are pleased to inform you that ethical review has been done and the **verdict is to revise as per the attached comments and then proceed to the next stage**. As guidance, ensure that the attached comments are addressed. Please be advised that it is an offence to proceed to collect data without addressing the concerns of Ethics Review board. Your application approval number is **DU-ERB-000557**. The approval period for the research is between **11<sup>th</sup> August 2021 to 10<sup>th</sup> August 2022** after which the ethical approval lapses. Should you wish to continue with the research after the lapse you will be required to apply for an extension from DU-ERB at half the review charges.

This approval is subject to compliance with the following requirements.

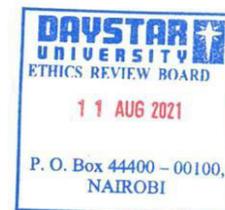
- i. Only approved documents including (informed consents, study instruments, MTA) will be used.
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by Daystar University Ethics Review Board.
- iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to Daystar University Ethics Review Board 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 Daystar University Ethics Review Board 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 a signed one page executive summary report and a closure report within 90 days upon completion of the study to Daystar University Ethics Review Board via email [duerb@daystar.ac.ke].

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 other clearances needed.

Yours sincerely,

  
Sr. Prof. A. L. Lando PhD  
Chair, Daystar University Ethics Review Board

Encl. Review Report



Appendix G: Research Permit



**REPUBLIC OF KENYA**



**NATIONAL COMMISSION FOR  
SCIENCE, TECHNOLOGY & INNOVATION**

RefNo: 930439

Date of Issue: 23/August/2021

**RESEARCH LICENSE**



**This is to Certify that Ms.. Diana Handa of Daystar University, has been licensed to conduct research in Homabay on the topic: ASSESSING SOCIO-ECONOMIC FACTORS CONTRIBUTING TO MARITIME INSECURITY IN KENYA: THE CASE OF LAKE VICTORIA, HOMA BAY COUNTY for the period ending : 23/August/2022.**

License No: NACOSTI/P/21/12580

930439

Applicant Identification Number



Director General  
NATIONAL COMMISSION FOR  
SCIENCE, TECHNOLOGY &  
INNOVATION

Verification QR Code



NOTE: This is a computer generated License. To verify the authenticity of this document,  
Scan the QR Code using QR scanner application.

## Appendix H: Anti-Plagiarism Report

## Diana Handa Thesis

## ORIGINALITY REPORT

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