



LUNDS UNIVERSITET

SEA PIRACY ON THE GULF OF GUINEA: IMPACTS ON
THE ARTISANAL FISHERIES SECTOR OF TEMA
FISHING AREA (SUB-CITY IN ACCRA)

By

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Dedication

This work is dedicated to the Almighty God for all the obstacles he has helped me overcome in reaching this far in life. Secondly, this work is dedicated to all those who have contributed immensely to the success of my studies in diverse ways especially to my parents (Sophia Manu & Derek Danso- Afriyie) and Lund University (Graduate School).

"Aim for success, not perfection. Never give up your right to be wrong, because then you will lose the ability to learn new things and move forward with your life. Remember that fear always lurks behind perfectionism" - David M. Burns.

Abstract

The Gulf of Guinea piracy is mostly associated with socio- economic issues such as poverty, low institutional development, unemployment, political unrest and decline in the fishing sector among coastal communities. The Somali coast and the Horn of Africa achieved increasing attention for years. Somewhat, on the other side, sea piracy in the Gulf of Guinea has become the third major recognized hotspot for pirates attacks (Abdel-Fattah, 2017). In most cases, international shipping agencies and routes have been concerned about maritime security threats hovering the Gulf of Guinea which negatively affect both maritime authorities and the fishing sector.

In order to understand the implication of sea piracy on the Fisheries sector, this paper used the qualitative research technique to demonstrate how artisanal fisher folks perceive sea piracy, how it affects their livelihoods and institutional capacity available in combating the situation of sea piracy in the region. Also, this paper touched on the activities of illegal, unreported and unregulated fishing in addition to the number of foreign trawlers fishing within and beyond the territory of artisanal fishermen. Given the intense nature of piracy incidents in the region, maritime security should be raised from operational to governmental level with full political willingness in order to protect the region's territorial waters. Until then, the Gulf of Guinea will remain the hotspot of piracy attacks.

Keywords: Gulf of Guinea, artisanal fishermen, Sea piracy, livelihoods.

List of Abbreviations and acronyms

ADR	Alternative Dispute Resolution
AU	African Union
ACFTA	African Free Trade Area
ATFALCO	Atlantic Ocean Fishery and aquaculture industry
BIMCO	Baltic and International Maritime Council
CBFMC	Community Based Fishing Management Committee
DfID	Department for International Development
FAO	Food and Agricultural Organization
GPHA	Ghana Ports and Harbour Authority
GIPC	Ghana Investment Promotion Centre
GMA	Ghana Maritime Authority
IMB	International Maritime Bureau
IUCN	International Union for Conservation of Nature
MoFAD	Ministry of Fisheries and Aquaculture Development
NATO	North Atlantic Treaty Organization
OECD	Organization for Economic Co-operation and Development
SLF	Sustainable Livelihoods Framework
TMA	Tema Metropolitan Assembly
UNDP	United Nations Development Programme
WRI	World Resources Institute
WB	World Bank

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

Ghana is one of the countries that sit off the Gulf of Guinea and it is in close proximity to Togo and Benin. The territorial waters of Ghana abound in vast natural resources, including beautiful beaches, fisheries, minerals, and hydrocarbon deposits. Moreover, Ghana has become a major maritime trading pivot for West Africa in recent times (Boermann& Urban, 2015). In 2010, the country joined other states in West Africa that produce and export oil in commercial quantities. The need for conservation of oil installations, and vessels engaged in the vibrant fishing industry has encouraged constant monitoring of the maritime area (GMA, 2014). Additionally, Ghana was elected by the African Union (AU) in 2019 to host the secretariat of the African Continental Free Trade Area. The goal of the African free trade area is to boost trade across the continent by 52% by 2022 (Koima, 2018). Once all have ratified the deal, it will produce the world's largest free trade area since the formation of the World Trade Organization in 1995 (Area,2019). Given this mandate by the African Union and the prospective increase in intra-African trade, the country needs to protect its territorial waters from prospective pirates who intend to attack ships as well as fishermen in order to steal valuable items and assault members on board.

The issue of sea-piracy has decreased around the globe in recent years (Gladstone, 2010) however, it is still a threat to global security. There has been a series of attacks off the West African coast which has drawn the attention of governments and shipping companies attention. According to the Maritime Executive (2014), pirate attacks in the Gulf of Guinea increased by 33% in 2013. Their observation is that a key difference between piracy off the coast of Somalia and piracy in West Africa is that Somali pirates target ships as part of kidnap-for-ransom schemes, whereas in West Africa pirates primarily hijack ships to siphon off crude petroleum to sell on the local black market (Johnson,2014). This poses major problems to governments and other maritime agencies. Since pirates in West Africa operate in national, rather than international waters, the responsibility of security shifts to the national navy and security forces.

In Ghana, 2.6 million people derive their livelihoods from the fisheries sector out of which 124,200 are artisanal fishers (FAO, 2016). The World Bank (2016), notes a significant reduction in fish catch in the last decade amongst artisanal fishers leading to 40 percent decrease in income. Meanwhile, the issue of maritime piracy is becoming more complicated along the territorial waters of the Gulf of Guinea of which Ghana is not an exception (Jacobsen & Nordby,2015). Thorough research on maritime piracy in the Gulf of Guinea by scholars including, Murphy 2013, Bizouras (2013), Hasan and Hassan (2016), focus on some causes, legal procedures, economic effect, state capacity issues as well as international measures available in combating maritime piracy in the Gulf of Guinea. Though the link between maritime piracy and the fishery sector has been long established and piracy is increasing on the coast of West Africa, limited research exists on the relationship between artisanal fishing and piracy in Ghana. The thesis aims to contribute to this gap using the Tema fishing area in Ghana as the case study especially because Ghana shares significantly close borders with Nigeria, Benin, and Togo which are the hotspots of piracy in the Gulf of Guinea.

1.1 Statement of Problem

The origins of piracy have been investigated severally by many researchers. One common explanation for the incidence of piracy that has gained prominence in literature is the loss of livelihood amongst fishermen (Ginger & Harris, 2018). According to Ginger & Harris (2018), a decrease in artisanal fish catch leads to an increase in sea piracy whereas an increase in unreported, illegal, and unregulated fishing increases sea piracy.

In Ghana, marine fisheries play a significant role in the economy. The Fisheries sector comprises four different divisions namely, artisanal, semi-industrial fisheries, trans-shipment, and industrial fisheries. Among these four divisions, artisanal fisheries' employs the highest and serve as a source of livelihood for a significant number of the coastal population. Nonetheless, maritime resources are under threat and the potential for growth, employment, and budget revenues in the country is far from being realized (Mills., et al, 2012). The sector employs about 60% of women most of whom are engaged in fish mongering and other forms of fish trade while the primary act of fishing is dominated by men. The artisanal fishers are increasingly facing competition from industrial trawlers and illegal fishing vessels who are blamed for depleting fish stock. These vessels engage in overfishing, unregulated and unreported fishing, leading to significant reduction in fish catch by artisanal fishermen. The present-day issues affecting the sector have contributed to many fishermen being

unemployed. The industrial fishing vessels are allowed to fish in the in-shore exclusive zone, that is, from the coastline to 6Nm seaward or below 30m depth, while artisanal fishing canoes are also permitted to fish within those areas. Often, illegal fishing fleets illegally scoop-up hundreds of millions of dollars' worth of fish from Ghanaian waters, a basic reason why restrictions (import) were imposed on Ghana's fisheries products in 2013 by the European Union (MOFAD, 2014). Hence, a decline in the sector means food security and its availability to Ghanaians is at stake. In countries such as Somalia, threats to the livelihoods of local fishermen arising from the depletion of fish stock are known to be a major contributing factor to the rise in piracy in the Gulf of Aden (Ginger & Harris, 2018).

A high incidence of sea piracy negatively affected trade and the global economy at large. In the territorial waters of West Africa, its effect is mainly evident in the oil and gas industry. Nevertheless, these criminal activities committed at sea have a devastating effect on the fisheries sector (Toakodi, 2018). In Ghana, most artisanal fishermen complain about the increase in foreign fishing trawlers on the country's territorial waters leading to small amounts of fish catch. Despite this alarm, inadequate statistics exist on the actual number of attacks on local fishermen. Yet, local radio and newspapers protest the government to secure fishermen and their livelihoods (Toakodi, 2018). Illegal, unreported, and unregulated fishing relatively allow fishermen to suffer high economic losses which might lead to finding alternative means to support their households. According to Orji (2013), pirates can disguise themselves as local fishermen with the aim of targeting prominent vessels to cause crimes and also attack actual fishermen to steal their fish catch, fuels, and their personal items. Therefore, the fisheries industry may be affected by piracy through a drop in fish catch by both artisanal and industrial and artisanal fishermen.

Already, artisanal fishermen suffer from the misuse of illegal fishing practices and the loss of fish stock, forcing them to give up their fishing occupations (World Bank, 2016). Due to the low educational background of artisanal fishermen, these groups find it difficult to engage in skilled work when they end their fishing jobs therefore, they constitute a group with high of engaging in piracy and related crimes as their new source of livelihoods (FAO,2018).The increase in sea pirate crimes on the West African coast might lead to the high price of seafood if measures are not taken as soon as possible (Ochai,2013).

1.2 Purpose & Research Objective

According to the UN Convention on the Law of the Sea, piracy is "any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship(Hanson,2010).Piracy is driven by several factors such as continual poverty, corruption, environmentally damaged area, cultural acceptability, ineffective governance, and access to weapons (Hasan and Hassan,2016). These factors have the potential to undermine regional integration, trade, international security and stability. Taking into account the significant dependence of African countries on regional, national and international trade, the increase in maritime piracy acts is clearly a serious threat to the economies of the region as well as affecting the fishing industry since foreign actors pose a threat on the country's territorial waters. Given these various factors contributing to the increase of pirates attacks in the Gulf of Guinea, the aim of this study is twofold. Firstly, the study seeks to understand the impact of sea piracy on the livelihood of local fishermen and the fisheries sector of Ghana. Secondly, it seeks to understand the fisheries institutions' security measures and cooperation with government agencies to reduce the negative impacts of sea piracy along Ghana's Coast. examine fisheries institution security measures, counter initiatives, and cooperation with government agencies to reduce the negative impacts of sea piracy along Ghana's coast.

1.2 Research Questions

1. How do local fishermen in Ghana perceive sea-piracy and what impacts, if any, does sea-piracy have on their livelihoods?
2. How does the problem of sea-piracy affect Ghana fisheries sector and what adaptive measures are available and adopted to deal with the challenge?

1.3 Scope and Limitation

Due to the complexity of the research, it is difficult to tackle all issues related to maritime piracy and fisheries in Ghana. Maritime piracy is a worldwide problem that affects countries directly or indirectly of which Ghana is not an exception. Ghana is chosen as the frame in this research because there have been some severe piracy crimes around the Gulf of Guinea which accounted for more than a quarter of the total global piracy crime in 2018 (Ibrahim, 2019). Though piracy affects several sectors, this study is limited to investigating the impacts of sea-piracy on the fisheries sector in Ghana.

1.4 Outline of the Thesis

The research work is presented in five (5) main chapters.

The first chapter of the thesis provides a general introduction to the study. Secondly, In chapter two of this study, the literature review is discussed. This part of the study is the review of vital literature existing on piracy in the Gulf of Guinea and links its impacts on the fisheries in Ghana. Chapter three, on the other hand, analyses fisheries livelihoods by using the Sustainable Livelihood Approach as the framework to understand the realities of fisheries and the changes involved in their livelihood process.

Chapter four & five -

This chapter discusses the type of research methods been used in the study and the reason why it is used. While the final chapter analyses the findings gathered from the field and summarizes the key findings. This chapter also has the conclusion of the study and discussions. Chapter six analyzes the findings gathered from the field on the second research objective of the study whereas chapter seven has both the conclusion and discussion for prospective further research within the area of the topic.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This section of the literature review discusses the general overview of piracy, its root causes, threats, and concepts in relation to the livelihoods of fishermen, as well as the institutional capacity for combating sea-piracy the challenge in the Gulf of Guinea. Also, the section highlights the Sustainable Livelihood Framework in connection to fishermen's assets and available strategies that can be adopted.

2.1 Overview of Sea- Piracy

Piracy is an old occurrence that has recently regained prominence. Bendall (2010), argues that, piracy has been a major worry for ships passing through the Gulf of Aden, the Arabian Sea, and the western Indian Ocean for over two decades. The emergence of piracy off these critical passageways threatened world trade in 2015, specifically the shipping of petroleum and gas products (Huang, et al, 2015). A greater amount of the world's shipments of about 20 percent and 80 percent of Europe's maritime trade transit through the Gulf of Aden (Kraska, 2011). The BRICS¹ countries also rely heavily on this route. The continuous extension in the geographical area of piracy activity threatens the economies of African and Middle Eastern countries, particularly the oil and gas exporters. The increase in piracy off the coast of Somalia captured the world's attention in 2010 (Pham,2010). A key characteristic of Somalia is that It has encountered a significant technological evolution (Bueger,2015). At first, pirates operated *dhows* or fishing boats to assault vessels that come too close to the Somali coast. As commercial vessels improved their security defenses, pirates invested in better arms, faster and more powerful boats, which allowed them to seek targets further afield (Tsevetkova, 2009).

The International Chamber of Commerce (2019) argues that, the seas encircling Sub-Saharan Africa remain the world's most dangerous for piracy activities. Also, the International Maritime Bureau (IMB, 2019) report reveals, out of the seventy-five (75) seafarers taken hostage onboard or kidnapped for ransom worldwide, sixty-two (62) were captured in the Gulf of Guinea off the coasts of Nigeria, Guinea, Togo, Benin, and Cameroon. Worldwide, the IMB piracy reporting centre recorded seventy-eighty (78) incidents of armed robbery and

¹ BRICS - Represents five emerging economies including Brazil, Russia, India, China and South Africa.

piracy against ships in the first half of 2019, compared to 107 incidents for the same period of 2018. Generally, fifty- seven (57) vessels were boarded successfully, representing 73% of all attacks. However, the Gulf of Guinea, a coastal zone stretching thousands of kilometers off West Africa, has now surpassed the Gulf of Aden off the Horn of Africa as the continent's piracy hotspot. For example, more than 60 seafarers were allegedly kidnapped off the coasts of Benin, Cameroun, Togo, Nigeria, and Guinea this year (Schuler, 2019). This is an indication that issues of piracy are persistent in the Gulf of Guinea. Nonetheless, strict governmental actions by the affected countries have helped reduce the number of successful hijackings. Despite the recent reduction, the potential of pirates to threaten relevant shipping lanes still exists.

The global maritime community has been notified about the serious safety and security concerns of the shipping industry and the seafaring community as a result of the attacks against ships sailing in the Gulf of Guinea (IMO, 2014). The threats within the Gulf of Guinea in general, and Ghana's territorial waters, in particular include hijacking, drug smuggling, human trafficking, pirate incident, and illegal, unregulated, and unreported fishing. According to the Gulf of Guinea anti-piracy guidance developed by Inter-cargo, Inter-tanker and BIMCO (Baltic and International Maritime Council) supported by NATO (North Atlantic Treaty Organization) shipping centre in 2012, " Piracy and armed robbery in the Gulf of Guinea region is an established criminal activity and is of increasing concern to the maritime sector. The most prone areas to piracy attack include the territorial waters of Nigeria, Togo and Benin. Attacks and kidnapping for ransom within those places are widespread and violent (NATO,2012). However, several causes contributing to the incidence of piracy in the Gulf of Guinea.

2.2 Piracy in the Gulf of Guinea

According to Allafrica (2013), the Gulf of Guinea is made up of a maritime area situated in the western part of the African Continent. This region constitutes eight countries including Nigeria, Benin, Ghana, Togo, Cameroun, Gabon, Equatorial Guinea, and Sao Tome and Principe. It is one of the world's richest and under-exploited natural resource reserves. The Gulf of Guinea is estimated to hold 50 billion barrels of global total petroleum reserve (Weszkalnys,2009) as well as natural resources such as copper, granite, gold, marble, lead, zinc and so on. Piracy in the Gulf of Guinea has existed for many years but it did not constitute a major threat until recently with significant increases in piracy attacks (IMB,2010).

The International Maritime Bureau (2016), recorded 55 attacks in West Africa with 36 incidents occurring in Nigeria. In 2019, 121 crew members were kidnapped on ships (ICC, 2020). This constitutes more than 50 percent regional increase in spite of global shifts that recorded a decline in piracy incidents. The cost of maritime piracy is higher in the Gulf of Guinea than anywhere in the world (Forster, 2014). Crimes associated with the maritime industry are trans-boundary in nature. Besides, "*the maritime boundary is complex and huge, and with the enormous amount of legal maritime traffic, uncovering a security, resource or environmental threat is very difficult*" (Hoyle,2015).

The International Maritime Bureau (2018), states that statistics on piracy attacks confirm the significant increase in information exchange and coordination between vessels at sea and maritime authorities of countries along the Gulf of Guinea. The Gulf of Guinea States seek to increase their measure of state capacity in dealing with the growth of maritime piracy in their territorial waters by joining security training missions offered by the African Partnership Station (APS) and maritime training exercises (Biziouras,2013). The region sought to enlarge its monitoring, compliance and surveillance in order to combat the pirates and stop unaccepted activities on sea (Biziouras,2013).

2.3 Ghana's Anti- Piracy Strategy

The Ghana Maritime Authority is calling on the government of Ghana and other maritime stakeholders for a review of Ghana's maritime law to deal with complications associated with piracy and other associated crimes. According to the Neptune P2P Group (2015), Ghana's laws on piracy is outmoded, saying it does not depicts or outline the pace of modern piracy. In general, most of the countries situated along the Gulf of Guinea do have outdated legislation to help protect their territories. Due to this, Ghana's navy is determined to implement new and strong maritime policies to protect its territorial waters and promote safe trade between its trading partners and also dealing with the complex issues of piracy and violence.

The Ghanaian government having perceived the impacts of sea piracy and its out-turns on social, economic, political and human cost have decided to initiate guidelines to serve for the armed robbery and piracy within its territorial waters along the Gulf of Guinea (GMA, 2015). Due to this, Ghana's navy is determined to implement new and strong maritime policies to protect its territorial waters and promote safe trade between its trading partners and also

dealing with the complex issues of piracy and violence. The Ghanaian government having perceived the impacts of sea piracy and its out-turns on social, economic, political and human cost have decided to initiate guidelines to serve for the armed robbery and piracy within its territorial waters along the Gulf of Guinea (GMA, 2015). Due to this, the Ghana Navy has received remarkable upgrades since the uncovering of offshore oil deposits. It has received numerous newer patrol vessels to protect its ports and constantly secure its offshore industries from pirates. However, Nigeria being the largest in the region, has initiated domestic laws to protect its territorial waters from pirates attack (Karande, 2014). It offers Ghana Navy assistance in safeguarding the borders of its territory by allowing its naval crew to work with Ghana's naval crew to monitor pirate activities throughout the Niger Delta as well as larger ships for offshore operations until Ghana finally implements its anti-piracy laws.

2.4 Ghana's Piracy and The Context of Fisheries Livelihoods

Ghana and its surrounding countries along the Gulf of Guinea have been reported by the IMB as one of the country's highest recorded maritime piracy and hijack incidents in the year 2018 and the first quarter of 2019. Since the territorial waters off the West African coastline threaten plans to boost regional trade, Ghana's defense agency with collaboration with the navy is doing their best to align strategies in order to secure the troubled waters from being affected by pirates. Report from global maritime forces for the second time (2018) placed the Gulf of Guinea on the red hotspot. The outcome of this report concluded that the Gulf of Guinea recorded the highest number of vessel attacks during this period. A breakdown of the reports further revealed that Nigeria recorded 31(thirty-one) pirate incidents, the Republic of Benin with 5(five) attacks, and the Republic of Ghana with five(5) as well. The graphic business report for instance showed that pirates freed three Koreans that were kept in captivity but have still kept the Ghanaian and the Greek partners until now. In the heat of this, 14 fishing companies that operate in the country halted their operation because of the fear of piracy attacks (GBR, 2018). The livelihoods of fishermen in the country lie on the sea hence the gradual shortage of fish catch off the coast of West Africa is putting this group into a vulnerable state causing insecurity as well as reducing the diversity of fish in the local markets. In recent years, fishermen in West Africa have been struggling with catching enough fish stocks for both profits and family well-being. Due to this, local fishing communities are finding possible chances to earn a living. The sustainable livelihoods of these fishermen are at stake as their financial (access to credits and cash stocks), natural(the sea, land), human (level of education and health status), physical (assets brought into existence) and social, (assistance

from social networks to derive support) capitals is been jeopardize (Ellis,2000). The persistent continuation of pirate attacks in the region will pressurize fishing activities and also endanger future investment possibilities in the fisheries sector (Toakodi, 2018).

The Fishing sector is one of the most growing sectors globally as it produces the most consumed protein diet. The sector has a coastline of 550 kilometers and a continental shelf of about 24,300 square kilometers that supports the marine industry and situated on resources from inland and marine coastal lagoons (Gyesi,2012). In 2013, the total fisheries production was about 298,000 tons (FAO, 2016). About 24 percent of this production was derived from inland fisheries mainly based on the largest man-made lake (Volta lake) in Africa. It is estimated that the industry contributes 5% of the gross domestic product in agriculture and 3% of the overall gross domestic product in the country. 10% of the country's population engage in several fishing methods (GIPC,2020). According to the Food and Agriculture Organization (2014), fish consumption is estimated at 26kg per capita which is higher than the world's average of 20kg and Africa's average of 10kg. The economy of Ghana is vastly dependent on climate-sensitive areas such as agriculture, fishery, tourism and forestry. Overall, the sector's contribution to livelihoods and food security increased from 2.2 million to 2.4 million people between 2011 and 2015 (MoFAD, 2015). The fishery sector generates about US\$ 1 billion in revenue annually (MoFAD, 2011). In 2015, the fisheries sector increased its foreign exchange from US\$ 165.7 million in 2010 to US\$ 309.7 million in 2015, which equates a rise in overall fish production by 9.3% between 2010 and 2015 (MoFAD,2011). The aim of this study is on artisanal fishermen and marine fisheries. Small scale fisheries dependent normally live along the shores of the sea in a community² that is substantially engaged in, the harvest and the processing of fishery resources to improve economic and social needs (OECD,2001). Fishing is these communities' sole source of their livelihood, for both full time or part-time fisheries activities.

2.4.1 Livelihoods

Chambers and Conway (1992:7) defines 'livelihood' as the capabilities, assets (resources, claims, and access) and the activities required to earn a living'. Livelihood is sustainable when it can manage and recuperate from stress and shocks, strengthen or support its assets and capabilities, whilst not promoting the natural resource site. This definition has been employed by many researchers adopting a livelihoods approach (Scoones, 1998). The vital feature of

² Fishing Community - A community of people who engage in fishing activities as well as own fishing vessels and operates the vessels (OECD, 2001: glossary of statistical terms).

this definition is the link between assets and the choices people possess in order to pursue other activities that can generate the income level required for survival (Ellis,2000). Coastal fishing is the most dominant type of fishing in Ghana. Most local communities and families along the coast depend on fishing as their source of employment for their livelihoods. Local fishermen in the region normally organized fishing on small scale from full- time to part-time, commercial to subsistence, and sedentary to wandering fishers. Nonetheless, Franken berger& McCaston (1998), notes security in household livelihood as a sustainable and sufficient means to resources and income in order to survive within a household such as access to water and food, infrastructure and health centers. This indicates that, when livelihoods in the household are more secure, people feel at ease and work efficiently to support their families. On the other hand, livelihood failure imposes a risk of vulnerability in terms of income, nutritional insecurity, and health. The marine fishing sector is divided into four sub-sectors namely artisanal, semi-industries, trans-shipment, and industrial fisheries. Nonetheless, this study only focuses on the artisanal fisheries sector.

Artisanal Fisheries

This sector produces the biggest output in the marine industry and contributes about 80% of the annual catch by volume (ATFALCO,2012). The sector is made up of 123,000 fishers operating from 304 landing centers in 189 fishing villages situated along the coast with 10,000 artisanal canoes. Most fishermen in this sector normally use larger canoes with 40hp outboard engines whereas a smaller amount uses sail power. In the larger canoes, ice is used to preserve pricey fish in an insulated box with some having electronic fish discovering devices such as echo-sounders. Also, the inland sector has a total number of 17,500 canoes that operate different fishing gears such as hook-and-line (*lagas*), traps, and cast and gill nets (MoFAD, 2011).

The Food and Agriculture Organization (2015) defines this practice as traditional fisheries involving fishing households (as opposed to commercial companies) using a relatively small amount of energy and capital, small fishing vessels (if any), and mainly for local consumption. In practice, this definition differs from countries, for instance, from one man canoe in low-income countries to more than 20m seiners or longliners in advanced countries. Artisanal fishing can be commercial fisheries, supplying for local use or export. Most fishermen engage in this practice with the goal of catching enough fish to feed their families

and sell some to make a profit. It is ecologically friendly, involves less risk of fish endangering, although it is not to say this sector is better than the industrial sector. On the other hand, artisanal fisheries pose little risk to marine species and ecosystems as compared to others.

2.5 Fishermen's Poverty

The linkage between vulnerability and poverty among artisanal fishermen have been progressively acknowledged in recent study. According to Bailey, (1982) & Smith, (1979), the relationship between vulnerability and poverty lies on a thin line when defining it. These scholars have two views on the definition. Firstly, the interpretation of fisheries and poverty argues that "*fishing is the activity of the last resort*". Secondly, "*fishermen are the poorest among the poor*" (Panayotou, 1982; Bailey, 1982). An in-depth discussion will be presented to understand the relationship between poverty and fisheries. Onyango (2011), argues fishing is an occupation of last resort meaning fishing is an opportunity that a fisher would end up taking out of better alternatives. This notion signifies that people have limited access to pursue other alternative livelihood due to insufficient resources such as having no access to land, low educational background and lack of skills. It has been indicated that a "*vicious cycle of illiteracy*" prevails in fishing communities, which is both the cause and result of continued poverty (Maddox, 2007).

According to Bailey & Pomeroy (1996), the seas in Southeast Asia are open-access resources with few if any restrictions led to an increase in fisheries. Due to this, people easily engaged in fishing when there were limited access to income opportunities. The fishing practice is favorable in creating employment activities for coastal communities but as the same time it pose a threat for the fisheries resources. Acknowledging Hardin (1968) and Gordon's (1954) combination between common property and open-access, both argues the open-access nature of the fisheries engages more and more people to join the fishing sector, which leads to the economical and possibly biological overexploitation of the resources, dilapidation of the rent as well as impoverishment of the fishing community. Consequently, the open-access nature of the fisheries is the actual reason for poverty within the fishing sector. This notion is what Copes (1989) referred to as the "*conventional wisdom*". According to the conventional wisdom, poverty in fisheries is linked to the fact that overexploitation - low catch- low income all sum up to poverty.

In literature, there are two contrasting expositions about the relationship that exists between fisheries and poverty. Firstly, it relates to the perception that "*poverty sticks to fishermen like mud to shoes*" that is whatever the case is, they will always remain poor. Secondly, the notion that "*they are poor because they are fishermen*" (Neiland, 2004). This notion can be referred as the 'endemic poverty'³ in fisheries poverty perception (Béné, & Neiland, 2004). On the other hand, scholars such as Bailey (1988), Lawson (1977) & Cycon 1986 notes that fishing communities are normally perceived as 'the poorest of the poor' and suggests that issues relating to fisheries development cannot be tackled by reference to the fisheries sector alone rather the only way out of this difficulty is to enhance more economic opportunities aside the fisheries. This evident link between poverty and fisheries, spotlighted by many observers has led to a direct presumption of causality between the two.

Within the last four decades several number of development and poverty eradication programmes have been carried out based on this assumption (Bailey, 1988). The coastal communities mostly depend on nature resources for their livelihood (Narayan et al., 2000). Mainly, valuable resources in the world are either marine fishery or inland. The nature of inland fisheries as an open-access resource motivates the communities along the coast to indulge in fishing as a means of living in order to generate income, hence leading to unsustainability and overexploitation of fisheries (Swan, 2004). Nonetheless, Dunn (1989) argues that, Numerous fishing communities are poor not because their livelihood is fishing but rather they are already poor and landless people who are able to survive by fishing. Also, Chambers (1983) notes the poor normally suffer from a low level of socio-political unions which limit their capacity to make their voice heard, resulting in exclusion from decision-making processes. In other words, vulnerability is another attribute characterizing the poor. Fishermen are perceived to be vulnerable when they are exposed to shocks, stress and their ability to cope with them (both short-term and long-term). The prominence on vulnerability originates from the works by Swift (1989) and Chambers (1989) and emphasized the relevance of assets as buffers (social capital, moral economy) and safety nets⁴. Safety nets are concerned with vulnerability rather than chronic poverty. Also, artisanal fishermen's tendency

³ Endemic Poverty - The continual long-term poverty among a specific group of people or region that may last over a period of year or to extend to generation.

⁴ As perceive by Devereux (2001), while poor individuals persistently are unable to maintain their minimum living standard with the resource available, vulnerable people are likely to be above the 'poverty line' but might still face risks to their livelihoods which could put them below the line without an interceding safety net to shield their fair.

to reach the poverty line faster is somewhat motivated by the invasion of oil exploration companies. Most of the time, artisanal fishers express their grievances concerning the oil exploration sites by accusing these sites of driving away fish stocks due to the instruments used by these oil companies on the sea leading to conflict of interest between fishers and the oil industry. Vatn (2005) notes that any undefined property rights may produce losses and conflicts as seen in the case of industrial vessels and artisanal fishermen. Nonetheless, fishermen perceive that they hold unlimited right to use the sea and expect other stakeholders to treat them as such.

2.6. Fisheries Income Diversification

Many scholars have rigorously analyzed why income-poverty is insufficient to apprehend the extent of deprivation (see Chambers 1997 & Baulch 1996 amongst others). It is undeniable that households try other economic alternatives to earn more income in order to support their current income to improve their livelihoods. Nonetheless, it is vital to note that the connection between poverty and fisheries made in literature states, poverty has always been seen as a single, 'global', concept (Neiland,2004). Mostly, fishermen are considered as poor due to their low incomes level. In other words, 'income' is a monetary flow derived from assets, therefore, a low income would imply a lack of assets. In this case, which assets should one consider? The physical assets, natural assets, social assets or financial assets? A fisherman's household might be endowed with natural capital (close to open-access to fishing area) but not financially equipped (having enough credit access to purchase fishing tools). Based on this, the household would definitely rely on very low income to subsist, and this can be seen as a symptom not the cause of poverty (Neiland,2004). It is therefore significant to broaden the concept of poverty beyond low income and to use analytical tools to promote asset decomposition of poverty by engaging the Sustainable Livelihood Approach to analyze the livelihood of fishers and how poverty affects the fisheries.

Livelihood diversification allows rural households to cope with changes in a way that helps them to subsist and improve their livelihoods (Ellis, 2000). According to Reardon et al., 2000, insuring oneself is used to describe livelihoods diversification whereby people deal with variability in income and select other activities which would increase their chances. Increasing income generating chances for fishing households attracts more labor and involves persistent security against uncertainty of the market and fluctuation of resources (Panayotou,1982). In Malawi, fishers react to fish catch fluctuation in different ways

depending on the type of fishers. For instance, advanced fishers were highly mobile whereas other fishers (deprived villagers) were sustaining themselves both in farming and non-farming ventures (Allison et al.,2002). In Ghana, artisanal fishery has been identified by using destructive fishing gears that target juvenile stock which contributes to over-fishing (Atta-Mills et al., 2004). Other uncertainties that challenge artisanal fishers are unequal power relations between middlemen and owners of fishing vessels, risks at sea and under-representation in national policies (Hoorweg et al., 2009). Due to the expansion of the fisheries sector, artisanal fishers can possibly go into deeper areas for fishing just like other industrial fishers.

Pollnac (2001) indicates various reasons fishers in Southeast Asian countries continue to subsist amidst declining resources. Fishers engage in fishing for various reasons other than being a tradition. In the Philippines, fishers fish with the idea to make profit and support their households while in Indonesia, fishing is perceived as an enjoyable occupation as well as a means to make income for their households. For instance, through diversification into farming, fishing communities in Lake Chad were able to manage with fluctuation in fish catch. Nonetheless, alternative livelihoods available could not substitute the capacity of fishing activities (including fish processing) for household income where fishing constitutes the largest revenue (Allison, 2001). Also, Neiland et al.,2003 argues, inland fishing communities living in Lake Chad rely on three main subsistence activities as a source of income, namely livestock rearing, farming and migration. In Ghana, most fishing communities are mainly dedicated to fishing. Fishers in every community belong to a fishers union, which addresses members' collective needs and for relating with agencies and other stakeholders. Most poor and vulnerable fishing communities are dependent on the fisheries sector either directly or indirectly for their livelihoods (FAO, 2016). For this, new people taking up activities related to fishery, the sector provide a fall-back strategy for their livelihood.

CHAPTER THREE

CONCEPTUAL FRAMEWORK

3.0 Introduction

This chapter sets out a framework that can be used to set for principles that can evaluate the level of livelihoods of specific groups as well as a guide to micro policies⁵. In doing so, the study employs the Livelihood Adaptation Approach and the Sustainable Livelihood Framework(Figure 3.1) to help analyze the actualities of local fishermen and to show the dynamics required in changing their livelihood structure mainly in terms of their livelihood adaptation and their vulnerability to adverse trends, alternatives open to them and the strategies they can adopt to enable them to increase their asset status (Ellis, 2000).

The "Sustainable livelihood" Approach (SLA)⁶has been successfully used by different agencies of development to better understand the management of the natural resources systems and poverty (Scoones &Carney, 1998). Livelihoods are perceived as capabilities, assets (both social and material) and the approaches communities and individuals can embrace in order to survive. The livelihood components show that communities can resist and control moments of crisis and stress. The framework aims to eradicate poverty and improve the livelihoods of the poor through increasing access to information, education, infrastructure and financial resources. Within the framework, there are five analyses of capital assets and the outcomes, where the outcome is a vital indicator to realize the impacts of development activities on people's livelihood. There are several merits in using the sustainable livelihood framework to determine the challenges facing livelihoods. Some of these merits are potentials in reducing vulnerabilities, improving food security, increase income, and so on. However, the Bourdieusian critique the framework that it lacks the expansion of power relations as this can unveil the possibility of changing existing pathways (Wong, 2015).

⁵ Micro policies - Intercessions that influence livelihood strategies at the local and national level.

⁶ The concept "Sustainable Livelihoods" was developed by Conway and Chambers in 1991 and the United Kingdom's Development for International Development (DfID). It acknowledges that efforts made to reduce fishing pressure entails people to be understood widely than just fishing performance.

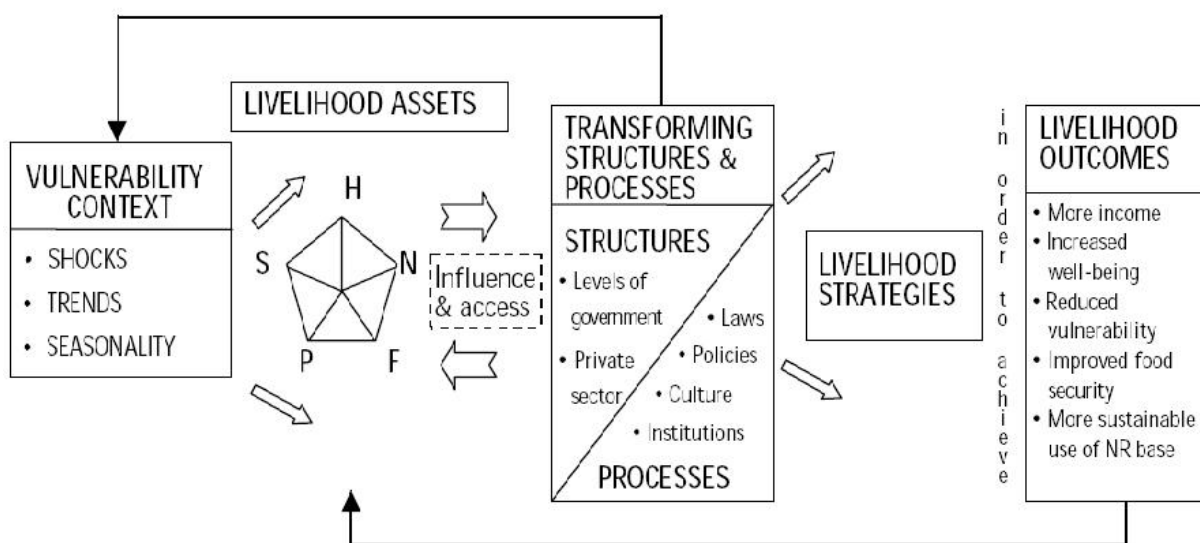
3.1 Vulnerability Context in the Framework

The vulnerability context in the framework comprises three main factors that are Shocks, Trends, and Seasonality. Shocks refer to the unforeseen occurrence which damage assets directly such as instance for natural disasters (floods, earthquakes, cyclones). economic shocks(changes in market prices). Trends, on the other hand, refers to predictable events that bring about changes over a period of time (such as a decline in fish stocks), technological trends or natural trends. Seasonality implies phenomemon in seasons such as food availability, fish catching seasons and price fluctuation. Additionally, Vulnerability does not always imply negative result on people's livelihood. However, it enables people to become resilient when supported by institutions and financial possibility.

Figure 3.1 Sustainable Livelihood Framework (SLF)

key:

- H- Human Capital
- S - Social Capital
- N - Natural Capital
- P - Physical Capital
- F - Financial Capital



Source: DFID (1999)

3.1.2 Livelihood Assets

The livelihood assets cover the resources people can take on to increase their chances of livelihood outcome due to their state of vulnerability. People join the capital endowments that are available to them and have access over to generate their livelihoods. The framework adopts five different types of assets that determine the livelihood outcomes of individuals and communities. These are;

a. Human Capital

According to the United Nations Development Program (UNDP, 2015), human capital refers to the experiences, abilities, skills in terms of work and health that, when combined can allow people to engage with diverse livelihood strategies in order to reach their own objectives. With regards to artisanal fishermen, their human capital comprises their skills used in the fishing work, their level of education to enable them read instructions on fishing instruments to boost their fish catch and also their ability to maintain good health to continue their fishing work. In other words, human capital is a factor at the household level, which determines the quality and quantity of the available workforce. Normally, this varies based on the size of the family unit, educational level, and health status. Within the sustainable livelihoods framework, the human capital serves as an asset that affects livelihoods in order to leverage all other forms of capital for the attainment of positive results in any proportion regarding livelihoods even though it is not sufficient as a stand-alone resource.

b. Natural capital

The term natural capital consists of a natural resource base (land, water, trees) that yields products utilised by the human population to improve their livelihoods and survival (Ellis, 2000). The correlation between natural capital and the vulnerability context in the sustainable livelihood framework exhibits a close relation. Mostly, fishing, processing and trading is the main livelihood activity for coastal communities in Ghana. A number of shocks in some way ruin the livelihood strategies of the vulnerable ones in society are themselves naturally occurring processes which also damage resources, such as droughts, floods, and so on (UNDP, 2015).

c. Financial capital

Financial capital refers to stocks of cash that can be accessed in order to purchase either consumption or production goods, and access to credits might be included in this category. Thus, the term 'financial capital' is somewhat ambiguously designated an asset within the context of livelihood, because financial stocks (for instance, savings) may be used for either investment or consumption; moreover, loans derived through credit can be used for a variety of purposes. However, the access status of a household or an individual in regards to loans, savings, or other forms of finance evidently makes a difference to the livelihood choices available, as financial capital plays a vital role in an individual's or family asset (Ellis, 2000).

d. Physical capital

Physical capital refers to assets brought into existence by economic production processes, for example, tools, machines, and land improvements like terraces or irrigation canals (Ellis, 2000). Physical capital enables fishermen to achieve their set goals regarding their livelihoods by having access to fishing gear, nets, and boats.

e. Social capital

Social capital in the context of the sustainable livelihood approach refers to the social resources individuals or households rely on in order to attain goals relating to their livelihoods. In this study, social capital will be used in accessing fishermen's access to social resources such as membership of a social network such as fishermen's association, access to training and extension services as well as connections to people in positions of power and authority (Scoones, 1998). Access to social networks is normally expected to boost individual's effort in achieving a better livelihood.

3.1.3 Transforming Structures and Processes

The sustainable livelihood guide sheet (DFID, 1999) refers to structures as organizations both private and the public that implement policies and laws; purchase and perform all manner of functions that affect livelihood as well as delivery services. The framework lays institutions at the center of livelihood analysis and demonstrates how people and individuals are constrained in their ability to construct sustainable livelihood by institutional dispositions. Mostly, access to capital resources is influenced by institutional rules and social norms. According to Kleiher et al., (2003), the existence or absence of important policies can have an effect on the livelihoods of the poor. Alterations or transformations in institutions or laws can be used to alleviate dissenting efforts of trends on asset status.

Connecting these concepts to the fisheries livelihoods in this study, policy formulation, management planning and institutions are relevant to the advancement of the fisheries sector. According to Ahmed et al., (2008), Allison & Ellis (2001), the approach has been applied widely in the management of small-scale fisheries in developing countries to assist small-scale fishers to improve their capacity in poverty reduction by maximizing their existing capitals (Allison & Ellis, 2001). Hence, the sustainable livelihood framework (SLF) has

exhibited avenues for poverty alleviation for the fisheries sector by making use of available assets other than pressurizing marine resources.

3.1.4 Livelihood Strategies

The livelihood strategies refer to how individuals and communities merge and use their resources to be productive and sustain their livelihoods. Abukari (2014) argues that, the collaboration of the vulnerability context, the livelihood assets, and the structures context within which communities and individuals live to influence the set of activities they can engage in to make a living. People may embrace several livelihood strategies depending on their resources available in order to enable them to generate more income, enhance their well-being and decrease their vulnerability (Scoones,2009; Udong & Inyang, 2013). Nonetheless, diversifying into several livelihood activities will not promptly lead to security (Yaro, 2004).

3.1.5 Livelihood Outcomes

According to DfID Sustainable Livelihood Framework (1999), livelihood outcomes are the possible outputs wisely utilized by individuals and communities in order to achieve a range of specific goals based on livelihood strategies acquired. People engage in livelihood activities such as fisheries or agriculture to attain a proper standard of living. The framework targets specific outcomes such as reduced vulnerability, improved food security, and increased well-being. Nevertheless, all livelihood outcomes cannot be attained at the same time; there can be blockage among them(Kleih et al.,2003). For instance, some fishermen in Ghana were reported to use chemicals for fishing in order to increase their fish catch at the expense of the natural resources base.

3.2 Livelihood Adaptation Approach

Livelihood has been used extensively in modern writings on poverty reduction and rural development , but its definition can frequently appear elusive, either due to ambiguity or different meaning (Ellis,2000). The concept "Adaptation" has had no standard definition which gives rise to different ranges of measure mostly depending on the objective of a study. However, researchers (Abercrombie et al., 1997) in ecology define adaptations as the changes in which organisms become fitted to their surroundings or environment whereas, in social sciences, adaptation can be defined as individuals' adjustments and the collective behavior of socioeconomic systems (Hardesty, 1983). Within the scope of this study, the concept of adaptation will be defined based on the International Union for Conservation of

Nature (IUCN, 2003) definition; which defines adaptation as the capacity to adjust and respond to real or prospective impacts of climate change conditions in ways that minimize damage caused by increased population exposure and land-use changes. Evidently, adaptation is closely linked to diversification yet the two are synonymous. Artisanal fishermen are controlled by variability in climate, with the negative impacts severely affecting the fisheries and agriculture sectors. Adaptation takes place in human, ecological and physical systems. Adaptation processes transpire through the concept of vulnerability risk reduction⁷ and improving resilience in dealing with climate-related issues (Smit & Pilifosova, 2001) to identify needs and suitable adaptation options available.

The concept of "resilience" perceives adaptation as the ability of people to cope with disturbances and the capacity to adjust to changes in the near future (Folke, 2006). The livelihood approach has historically demonstrated that livelihood can change in several ways since it is people centered (Ellis, 2000). Extant research (Ellis, 2000; Ellis & Allisson, 2004) shows that livelihood diversification interprets the formation of diversity as a continuing economic and social process, showing factors of both opportunity and pressure that cause households or individuals to adopt diverse livelihood strategies. Nonetheless, there are numerous local and universal contexts that contribute to livelihood disturbances (Zoomers & De Han, 2003). Besides that, economic factors produce conditions that influence shocks and stress on the livelihoods of people or communities. The wealth and income of fishermen depend on the quantity of fish stock, catch, and market availability in order to sell and make a profit to enable them to save for the future. The ability to save will increase fishermen's livelihood resilience (WRI, 2008). Consequently, the availability of the market and the quantity of fish catch are key issues in fishermen livelihood resilience.

⁷Risk reduction - the tactical measures engaged for predicting future disaster risk, vulnerability, and hazard.

CHAPTER FOUR

METHODOLOGY

4.0 Introduction

Methods employed to conduct any research process is key for its success. The focus of this chapter is to present the type of research approach, data collection strategy, and research design the researcher employed to collect data for the study. Also, the section shows the background of the study area (Tema fishing area), economic activities and population.

4.1 Research Approach

In this study, a qualitative research method is used to understand the impacts of sea-piracy on local fishermen in the Tema fishing area. According to Creswell (2009), qualitative description is functional in obtaining straight descriptive answers to questions of special relevance. However, Weiss (1998) notes the qualitative method adopts unstructured interviewing and observational techniques to investigate a phenomenon. In order to gain more insight into social problems, a qualitative approach provides the step-by-step guidelines through the means of exploration. Creswell (2014) argues that the approach consists of data collection from participants' perspectives by focusing on individual meanings and the significant complexity of a situation. In other words, the qualitative approach helps find roles played by social components, institutions, officials through interviews, observation, and previous studies. Nonetheless, this approach has received some criticisms. The approach has been criticized for the notion that it lacks reliability and often generalized as this makes it harder to replicate as well as being prone to confirmation and selection bias (Frödin, 2008). Another criticism is that the approach has the tendency to over-generalize conclusions from its findings (Taylor, 2005).

4.2 Profile of Study Site

Tema Metropolitan Assembly (TMA) is a coastal district located around 30 kilometers east of Accra, capital city of Ghana. The Metropolis covers an area of about 396km and shares frontiers on the North-East with Ningo-Prampram and Kpone Katamanso (TMA, 2018). As per the Population and Housing Census (2010), the Metropolis has a total population of 292,773 with 139,958 (47.8%) representing males and 152,815 (52.2%) representing females. In 2014, the Metropolitan predicted a population of 324,429 residing in the area (TMA, 2018)

and lies the savannah zone. The Greenwich Meridian move (0° longitude) runs through the area, which meets the equator (latitude 0 degrees) in the Ghanaian waters of the Gulf of Guinea (GSS, 2014). The Metropolis hosts the biggest harbor in the country, making it the "Eastern Gateway of Ghana". The topography of the area is commonly flat and barely rises above 35m above sea level. Historically "Torman", as it was originally called was founded by a migrating people called *Kpeshie's* who were *Gas*, a major tribe in the coastal belt of Ghana (TMA,2018).

The Metropolis serves as an industrial centre of the country with over 500 companies that produce electrical appliances, furniture, clothing, machinery, refined petroleum products, steel, and so on. Hence the area substantially contributes to the country's economy. Aside from industrial work, the most predominant occupation of the local inhabitants is fishing. Tema was generated out of groups of small fishing villages.

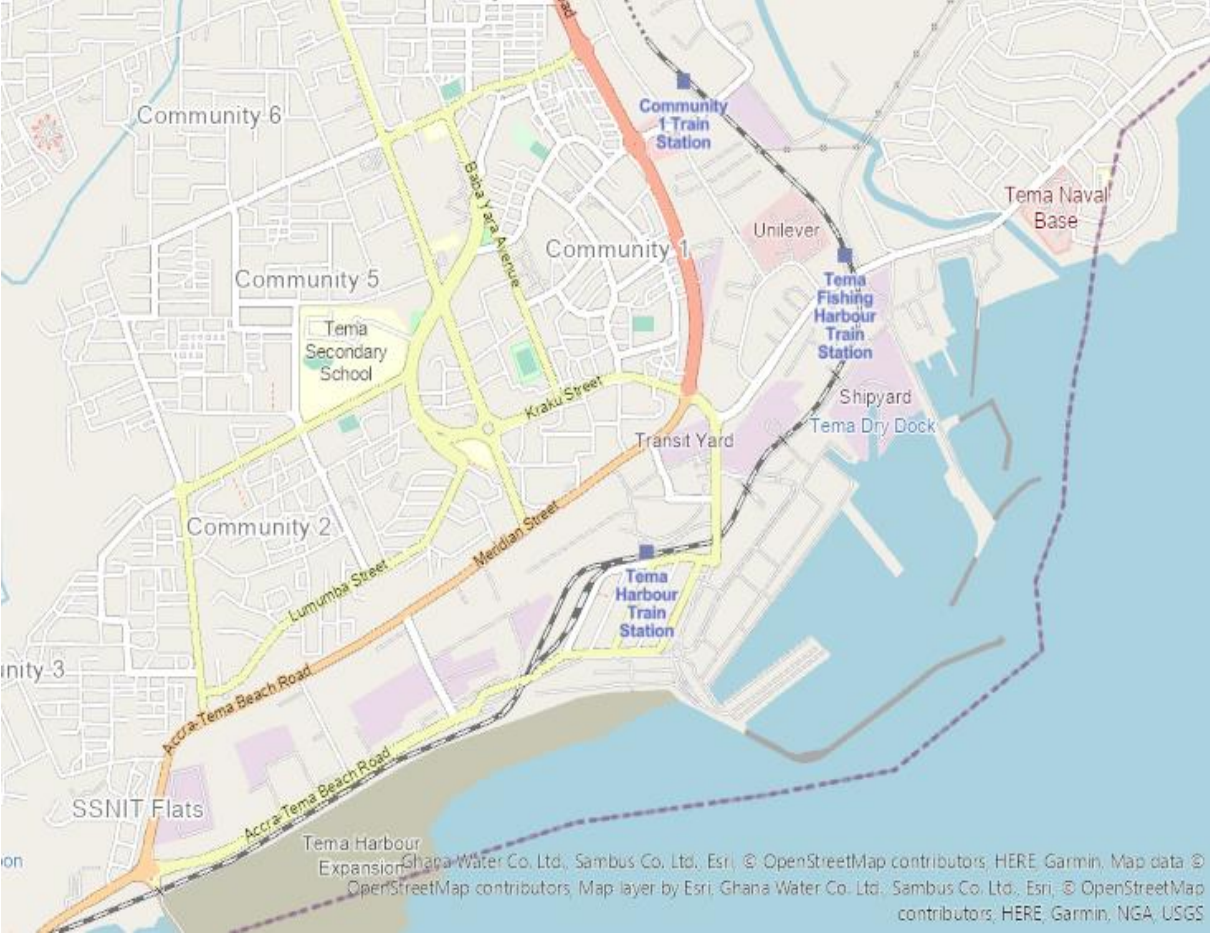


Figure 1: Map of Tema Metropolis
Source: Author,2020(constructed using GIS)

4.3 RESEARCH DESIGN

Sampling Techniques

In this study, the sampling technique employed is the snowball and purposive sampling approach which implies that participants were interviewed based on the characteristics they possess (Mujis,2010). The aim of this sampling technique is to select participants in a tactical way in order for the participants to be significant to the study (Becker, 1998). Fishermen who engage in artisanal fishing to feed their households as well as selling to make a profit will be eligible to participate in the study. Also, fishermen were recruited from a variety of settings offering different ways to adapt to the issue of sea piracy on Ghanaian territorial waters. In addition, agencies in charge of maritime security including the Ghana Navy, Maritime Authority, and Ministry of Fisheries also had the opportunity to partake in the study to create diversity and broaden the understanding of sea piracy in the region.

The target population of the study was the fisheries sector comprising local fishermen (whose day-to-day subsistence depends solely on the fisheries) and the fisheries Ministry, and the maritime sector. In total, the study targeted twenty (20) participants consisting of three (3) participants from the fisheries Ministry, two (2) participants from the maritime agency and fifteen (15) local fishermen. These participants were selected based on the purposive and snowball sampling technique. The decision of selecting who to talk to has a relevant impact on the data created and hence, the quality of the findings. In this study, artisanal fishermen are the primary source of data used for the study. The purposively and strategically selected fishermen enriched the study with their diverse experiences and unique positions with regards to fishing in the study area.

The selection of participants was done with the assistance of a research assistant as well as other informants while having in mind Atkinson (2007; 104) caution that the researcher " *must retain the leeway to choose candidates for interview. Otherwise, there is a danger that the data collected will be misleading and the researcher will be unable to engage in the strategic search for data that is essential to the study*".

Since the fishing sector is composed of more males than females, the males will play a dominant role in the study by being the focal point during the interview process. In spite of the male fishermen will be very relevant to the study, female fishmongers were not ignored in the interview process. The data collected was based on the study's specific research questions which required participants to express their opinions and understanding of sea piracy and its impacts on the fishing area in order to reach accurate and desired answers for the study.

4.3.1 Sources of Data Collection

Sources of data were both primary and secondary data. Primary data was collected through interviews and surveys of primarily fisher-folks but also other stakeholders in the sector such as officials of the maritime authorities and fisheries ministry. Additionally, secondary sources such as the internet, books, and journal articles also served as important sources for getting secondary data. The primary data for the study was obtained through in-depth interviews with fishermen and key informants. In order to gather more detailed information concerning the conditions of fisheries resources, artisanal fishermen, and how they are affected by piracy incidents on the sea, interviews with some key informants were conducted. An important data collection technique to help gain natural behavior in the field is observation. Through field observation, the researcher was able to evaluate the workloads of both women and men in the fishers' activities that is, what goes on, who is involved, how and when they occur (Bailey, 1994). The study's observation of the field will covered both the surroundings and the people involved (fishers and marines officials).

Focus Group Discussion (FGD) forms part of the participatory method of data collection, which has increasingly been used in qualitative research methods in social science (Burgess, 1996 & Goss, 1996). One of the key characteristics of the focus group discussion is the interaction between the researcher and the respondents. According to Goss (1996), stories shaped in FGDs better reflect the nature of social knowledge than an individual collection of interviews. One focus group discussion will be conducted with local fishermen to help identify the impacts of sea-piracy on their livelihood and households at large.

Key informant interviews were conducted in two ways. First, individuals inside the fishing area (for instance the local leaders) and community members (e.g. fishermen and fishmongers) who are knowledgeable about the issues for this study will be selected. Secondly, from outside government officials from fisheries and marines will be selected as

well. Secondary data was obtained from published documents articles, magazines, internet and journals to supplement primary data. Other secondary sources include newspaper publication and reports from maritime institutions and governmental agencies.

4.3.2 Data Collection and Analysis

The data collection techniques employed in the study was the assistance of a researcher assistant in order to interview local artisanal fisher folks. This method was used due to the Covid- 19 pandemic which denied the researcher from travelling to the field in order to have a face to face interviews with the key respondents. Somewhat, this process was accompanied by a structured interview guide.

As stated by O'Reilly (2008), an interview guide is a plan that allows the researcher to pursue a certain pattern to get precise information from respondents for the study. The guide consisted of open questions and a document on informed consent information. A request for permission will be sought from the management of selected maritime institutions as well as artisanal fishermen unions and the Ministry of fisheries to conduct the study. Within this study, the assistance of a research assistant will be used to get a preliminary survey where directions regarding access to the chief fisherman and the best time to conduct interviews with local fishermen. Given that since Tuesdays are forbidden days to go fishing on the sea, this was the best way to get access to the majority of the fisherfolk.

Data analysis includes the collection of both primary and secondary data. Since the study focuses on the impacts of sea-piracy on the fisheries sector, it is very significant to utilize documents available as well (Mujis,2010). The source of documents used in the study is public reports such as articles on sea piracy, reports from maritime agencies, journals on the Gulf of Guinea piracy, newspapers (both local and national), and books discussing maritime issues around the globe as this can be is vital and informative. Documents on fisheries were analyzed through the fieldwork session. The researcher to analyzed the data by transcribing and then coding the text to enable the researcher to establish the relationships between the concepts so as to make meaningful explanations from the data(Bryman,2016).

4.4 Ethical Considerations

In research, ethics guide researchers when undertaking a study. It is always vital to stick to ethical principles in order to protect the welfare and rights of research participants. Failure to

do so might end in serious consequences, not just for the researcher but also for research participants. In this study, the American Sociological Association (2018) ethical guidelines for good research practice was employed. This required a the balance between information acquisition and the urge to protect participants' integrity. In addition, to avoid any distress caused, this study takes into consideration the consent of all potential participants to ensure that respondents understood the study demands and also allowed these participants' to freely cancel without cause. Maritime agencies may consider any research on piracy too sensitive with the potential to put respondents at risk. In view of this, clear written and oral information about the research and its objective was provided to reduce specificity and encourage a broad-minded approach in the discourse. The research further strictly upheld ethical principles of confidentiality and anonymity by ensuring proper data storage, data use for academic purposes only, and the use of pseudonyms.

CHAPTER FIVE

PERCEPTIONS, LIVELIHOODS IMPLICATIONS, AND ADAPTATION TO EFFECTS OF SEA-PIRACY

5.0 Introduction

The analysis chapters (5&6) present the fieldwork findings, conceptualizing the results with the theoretical framework and discussions with respect to the literature. To do this, this section covers artisanal fishermen's perception of sea piracy, livelihoods adaptation strategies, and their livelihood assets.

As indicated earlier, the purpose of this study is to understand the impacts of sea-piracy on the fisheries sector in Ghana, specifically, using the Tema fishing area as a reference point.

To do this, the research questions were used to develop a questionnaire for the data collection process. I collected data from artisanal fishers, the Ghana Maritime Agency (GMA), and the Ministry of fisheries and Aquaculture Development.

5.1 Background on Demographic Information

All the artisanal fishermen interviewed have more than ten (10) years of fishing experience with low educational background and a large number of households members to cater for. From the result, most of the study participants were males ranging between the ages of 30 - 60 years.

Table 5.1: Summary description of interview respondents

Categories	Description	Frequency	Percentage
Sex	Male	12	95%
	Female	3	5%
Total		15	100%
Age range	30 – 45 years	8	60%
	46 – 55 years	4	35%
	56 – 60 years	3	5%
Total		15	100%

Source: Fieldwork,2020.

From table 5.1, the ages of fishermen were as follows; 30-45 years comprising a frequency of eight(8), 46-55 years comprising a frequency of four(4), and 56-60 years comprising a frequency of three(3). Also, out of fifteen (15) artisanal fishermen interviewed, seven(7) of them are engaged in other economic activities such as security guards & fishing agents whereas others spend several days at sea for successful catches in order to boost their income levels.

5.1.1 Level of Education and Number of years in the fishing

The table below indicates the educational level and the number of years in fishing of artisanal fishermen.

Table 5.2: Educational level of fishermen interviewed

Educational Status	Frequency	Percentage
No formal education	8	65%
Basic education	5	30%
Secondary education	2	5%
Total	15	100
Number of years in the fishing business	Frequency	Percentage
15 or more years	11	85%
Less than 15 years	4	15%
Total	15	100%

Source: Fieldwork,2020

As Table 5.2 above, a majority (65%) of the fishermen interviewed have no formal education with a small proportion (5%) having acquired secondary education. Also interesting was the finding that most of the fisher folks (85%) have been fishing for more than 15 years.

5.1.2 Level of Fishermen Assets

Artisanal fishermen had access to several types of capital such as physical, financial, social, and human capital. Some fishermen have all assets available whereas others had two of the assets.

The table below shows artisanal fisherfolks' various assets at their disposal during the interview process.

These were as follows; Nine (9) fishermen had their own fishing boats, nets, outboards motors and other fishing equipment while six(6) of the artisanal fishermen do not have their own fishing equipment but rather borrow from colleagues at a fee or rent from private owners. In terms of financial assets, ten(10) of the fishermen had access to personal credits and savings in order to boost the fishing activities whereas five(5) of the fisher folks had to borrow from other fishing colleagues or credit unions to finance the fishing business and eleven (11) of the fishermen had membership within the fishing unions while four (4) of the fisher folks do not have the original membership but can attach a colleague membership if that colleague will vouch.

Table 5.3: Showing fishermen level of Assets

Asset categories	Asset type	Owners	Borrowers	Total
Physical assets	Fishing boats	9	6	15
	Fishing nets	12	3	15
	Outboard motors	8	7	15
Financial assets	Credits	7	8	15
	Savings	10	5	15
	Properties	7	8	15
Social assets	Union membership	11	4	15

Source: Fieldwork, 2020

With regards to the social assets, some artisanal fishermen with more experience in the fishing business and have lived in the fishing community for long, have a legitimate membership card within the fishing unions to enable them to receive welfare benefits when they retire whereas others with fewer experiences and duration of stay in the community are unable to acquire legitimate membership. These groups of fishermen tends to borrow

membership cards under false identities to enable them to receive some subsidies from the government.

5.2 Perception of Sea-Piracy by Local Fishermen

As indicated earlier, this study focuses on two research questions mentioned in the introductory section; hence this part of the findings aims to provide results following the first research question (How do local Fishermen perceive sea piracy and what impacts? If Any).

Based on the analysis of narratives from the fieldwork, artisanal fishermen perceive sea-piracy as '*criminal activities*' on the sea whereby armed pirates attack fishing vessels to "steal", personal belongings or siphon fuel in some cases, kidnap crew members for ransom. Fishermen tend to migrate as part of their livelihood activities by following similar migratory patterns by the fish stocks. This process is termed '*Rotation Waters*' (Amarfio, 2010). With dependence on migration, that often transcends national territorial waters and maritime borders fishermen's livelihood is at risk and affected by the high incidence of piracy. Artisanal fishermen further explained that they have been motivated to ensure their survival and forced to seek their fish catch outside Ghana's territory because of the invasion of foreign and industrial vessels within the artisanal fishing perimeter.

A 48-year old fisherman who has been into artisanal fishing for 20 years narrated that: "*The Chinese trawlers who decide to fish in shallow waters. They deplete stocks meant for us artisanal fishermen. These are some of the reasons why we have no choice than travel further to other territorial waters for fish. The Chinese trawlers are a nuisance to us. For example, salmon dwell in shallow waters and propellers from these trawlers kill all these species before they are even caught. Leaving us with dead fishes before even casting our nets. Who will buy shredded fish*"? (Respondent 1, July 2020).

These industrial fishing vessels use illegal ways to fish as well as fishing nets that catch pelagic fish and are not within their requirements (FCWC, 2019). Fishermen described pirates as foreigners from other countries in Africa including Nigeria (from the Niger Delta region)⁸ and other parts of Eastern Africa.

⁸ Niger-Delta problem - The communities surrounding the Niger-delta have been polluted by the oil industry causing the destruction of the water and the depletion of fish resources people depend on for their livelihoods (Amnesty International, 2011).

Normally, most of these pirates around the Gulf of Guinea work at night to avoid being caught by navy patrol teams. Fishermen perceive that at the outset of piracy report in West African waters artisanal fishermen were not the primary targets of pirates. Pirates preferred to attack larger fishing vessels in international waters. Soon, pirates recognized the income-earning potential of attacking artisanal fishermen to their activities and buying bigger and faster speed boats as well as weapons to attack the larger vessels. Pirates often attack to steal artisanal fishermen's outboard motors, fuel, and sometimes their fish stocks. While some fishermen observed that pirates simply robbed and left them afloat without outboard motors on the open sea others noted that pirates shoot fishermen who try to resist. Some of the artisanal fishermen described these experiences as *scary* and *life-threatening*.

An elderly fisherman described how he survived piracy attacked. He narrated the following:

*"On the day borders were closed due to the Covid-19 pandemic, we arrived at our location to cast our fishing nets. It was at dawn, on a Sunday. I was alerted by my colleague of a boat approaching from behind. I inquired from him if he saw any boat earlier before we cast our nets? We were six (6) fishermen on board on a pursuit against pirates. My deputy and I were so alert to maneuver our escape from their pursuit as they tried to catch up with our boat. We successfully lost them through the fog as we could see them from a distance faraway but they could not see us. This escape lasted for hours. The tides were high now and so we found our way to the shores of a town around Cotonou called **Agoi** where we refueled our boat to begin our journey back to Ghanaian waters"*(Respondent 2, July 2020).

In a related case, another fisherman stated that;

"We once came in contact with pirates not far from shore. They took our outboard motor and left us stranded at sea for a long while. The only option we had was to drop our anchor and stay stationary on the sea until we were rescued by other fishermen who towed us back to shore with their canoe. One thing we can boldly testify is that you have to comply if you value your life"(Respondent 3, August 2020).

Furthermore, artisanal fishermen express their concerns on the sharp increase in attacks along the coast of Benin and, Togo and gradually extending into Ghana's territorial waters. This is causing panic amongst them and affecting their income possibilities immensely. Also, these fishermen believe that pirates are motivated by the persistent fishing activities of foreign vessels (trawlers) on and around Ghanaian territorial waters. Pirates see both local and foreign trawlers as attractive targets because sailors are taken away with the intention of demanding thousands of dollars from employers to have such crew members back. Pirates see jigh-

ranking officers such as captains and engineers as more valuable compared to local casual labour. Some fisher folks are of the opinion that pirates cannot confidently attack a vessel unless an insider alerts them.

In the context of Ghana, fisher folks argue that the perception of sea-piracy is thought to only affect large fishing vessels, crude oil vessels, and shipping carriers because the state considers those vessels as more valuable than small-scale fishers. The state neither recognizes the implication of piracy activities on artisanal fishermen nor places high premium on their concerns about piracy. An officer from the maritime agency narrated the following: "*The Ghana Maritime Authority does not recognize the impacts of piracy attacks on artisanal fishers because, we think the industrial fishers experience more pirates attacks than artisanal fishers*". With several complaints without action from the state, artisanal fishers have resorted to using established fishing associations or unions who are more receptive to their plight in trying to deal with the phenomenon rather than reporting to state institutions who often take no action. The capabilities of the fishermen unions are mostly limited to giving unenforceable advice rather than remedial actions, therefore artisanal fishermen still remain victims of piracy. This has led to risks to their survival, forcing them to re-adapt their livelihoods to suit current circumstances.

5.3 Livelihood Implications and Adaptation Strategies

The sustainable livelihood approach covers the assets and the approaches individuals and communities can adopt in order to survive. As noted, from the fieldwork, strategies for survival when livelihoods are threatened included adopting livelihood options that can enable one to cope with shocks. At this moment old ways of doing things need alteration. Based on some of the components indicated, it was evident that a new set of regulations need to be implemented to govern fishing activities. For example, some artisanal fishermen described their inability to have a concise plan of action within their fishing activities due to the lack of knowledge about the activities of industrial vessels and foreign trawlers. As noted, there are specific areas demarcated as oil drilling fields, small-scale fishers' area, and industrial vessels' domain but the reality as expressed by accounts from artisanal fishers is that, not all fishermen know or obey these exclusion zones. Artisanal fishermen simply keep following the migratory patterns of fish and have been forced to move to deeper waters that are the legal domain of larger vessels. This is because of the depletion of fish stock in the demarcated zones for artisanal fishermen by the same large fishing vessels. This has led to misunderstanding among

fishermen and the oil and gas companies as there is an increased risk of collision accidents from structures at sea, conflict over fishing areas as well as complaints about the loss of fishing gears. Apparently, these dynamics are building new forms of '*dominance fields*' leading to the unfair and contesting fields over the resources in the sea where fishing activities clash with oil exploration.

Furthermore, understanding the nature of fishermen's livelihood within these contexts will entail a cautious inspection of all the divergent claims of control, power, and entitlements. During the fieldwork, remarks such as '*Who has the rights over the seas?*' depict some of these fundamental arguments. Having the means and acquiring exclusive privilege to sea resources is difficult. As it was mentioned in the literature review, Vatn (2005) argues that any undefined property rights may produce losses and conflicts as seen in the case of large vessels and artisanal fishermen detailed above. Nonetheless, fishermen perceive that they hold a right to use the sea without limitations. This right emanates from custom and confirms Knight's (2010) conclusion that a right to property as a social construction may be conferred on groups of persons or individual by laws or norms. Ribot & Peluso (2003) on the other hand argues that, access is more akin to "*a bundle of powers*" than to property's notion of a "*bundle of rights*". This formulation shows that having the perception of rights to access resources openly does not necessarily give the mandate to claim possession of the sea. In the case of artisanal fishermen in Ghana, the notion of right as fishermen over the sea does not guarantee they are the only groups who have sole access.

The literature on sea-piracy and the linkage to fisheries is such that when artisanal fishers' livelihoods are at risk, there is a possibility that some of them might indulge in criminal activity. For instance, in the context of the Somali coast, it has been shown that a lot of these pirates used to be fishermen or come from fishing families and so they are not able to diversify their lives into any other activity than to still do something on the sea (Glimer,2016). Due to this, when there is any unexpected shocks in their livelihoods, they may resort to attacking vessels on the sea for economic reasons. The decision to engage in piracy is easier since the country experiences cycles of violence, poverty, insecurity, and governance lapses. In the case of Ghana, data from the fieldwork shows the influx of Chinese fishing trawlers on the Ghanaian waters, fishing as shallow as 12 nautical miles which is usual within the domains of artisanal fishers. The activities of these trawlers have depleted most fish stocks

within the area of artisanal fishing causing folks to go deeper into the sea with canoes before getting fish stocks back to the shores for selling. This usually results in a poor fish catch.

According to the fishermen interviewed, foreign trawlers have various methods in catching fish stocks such as over-fishing, illegal fishing and the use of lights on the sea leaving artisanal fishers stranded and incapable of fishing in order to assist their families. Respondents alleged that these trawlers throw dead pelagic fishes (which are illegal for them to catch) back into the sea after using non-allowed fishing nets to scoop up all fish sizes. This is called practice is LEG-GON⁹. Usually, when the dead fishes are thrown back into the sea, it drives away living fishes around, causing artisanal fisher folks have to fish deeper or sometimes go beyond Ghana's territorial waters to fish (Interview,2020). Some fishermen migrate towards Togo, Benin, and Senegal due to the depletion of fish stock in Ghana's waters but are confronted by piracy challenges when they fish beyond Ghana's territorial waters. For fishermen, survival is essential hence they prefer to risk fishing off the Ghanaian coast since they have some assurance of a good fish catch rather than staying in safe Ghana waters where they might not get any good catch. This reasoning was mentioned when a fisherman who was once attacked by pirates noted that: *"it was better to spend fuel on moving the boat towards the maritime waters of Togo and Benin where you are likely to get a good catch yet risk being attacked by pirates, rather than staying in Ghana where you are almost guaranteed a bad harvest"*. Upon further questioning, they noted that fishing is not a large part of the economies of Togo and Benin hence there is always a lot of fish ready to be harvested along their coast.

Meanwhile, women residing along the coastal communities in Ghana engage in a wide range of roles along the fisheries value chain, making relevant contributions to their livelihoods and the sector (Zhao et al.,2013). Women are essential players in the production, marketing, processing, and management of fish. In the context of Ghana, the men conduct the fishing activities, the women engage in the smoking and trading of fish hence if the fishermen are unable to catch enough fish stocks it affects the livelihoods of women as well. The fieldwork discovered that, the shortage in fish catch is compelling fishing women to find alternative livelihood opportunities such as selling of food crops or buying from the bigger vessels in order to increase their income diversification.

⁹ LEG-GON - This practice involves the use of under- sized nets to catch small fishes (a preserve of local fishermen) only to throw the dead or undesirable fishes back into the sea.

Decades ago in Ghana, artisanal fishers solely depended on fishing as their primary and essential source of livelihoods but now, these fisher folks have been forced to seek alternative sources of livelihood to support their households. This is partly because foreigners and pirates have invaded the waters of Ghana giving rise to damaged livelihoods. As noted in fishermen's demographic, out of fifteen (15) interviewed artisanal fishermen, seven(7) are engaged in other economic activities such as security guards & fishing agents whereas others spend several days at sea for successful catches in order to boost their income levels. As per these fishermen, it is safer to have a second job or adaptive measures than to depend and invest so much in fishing which has the tendency to generate unhealthy patterns in their lives.

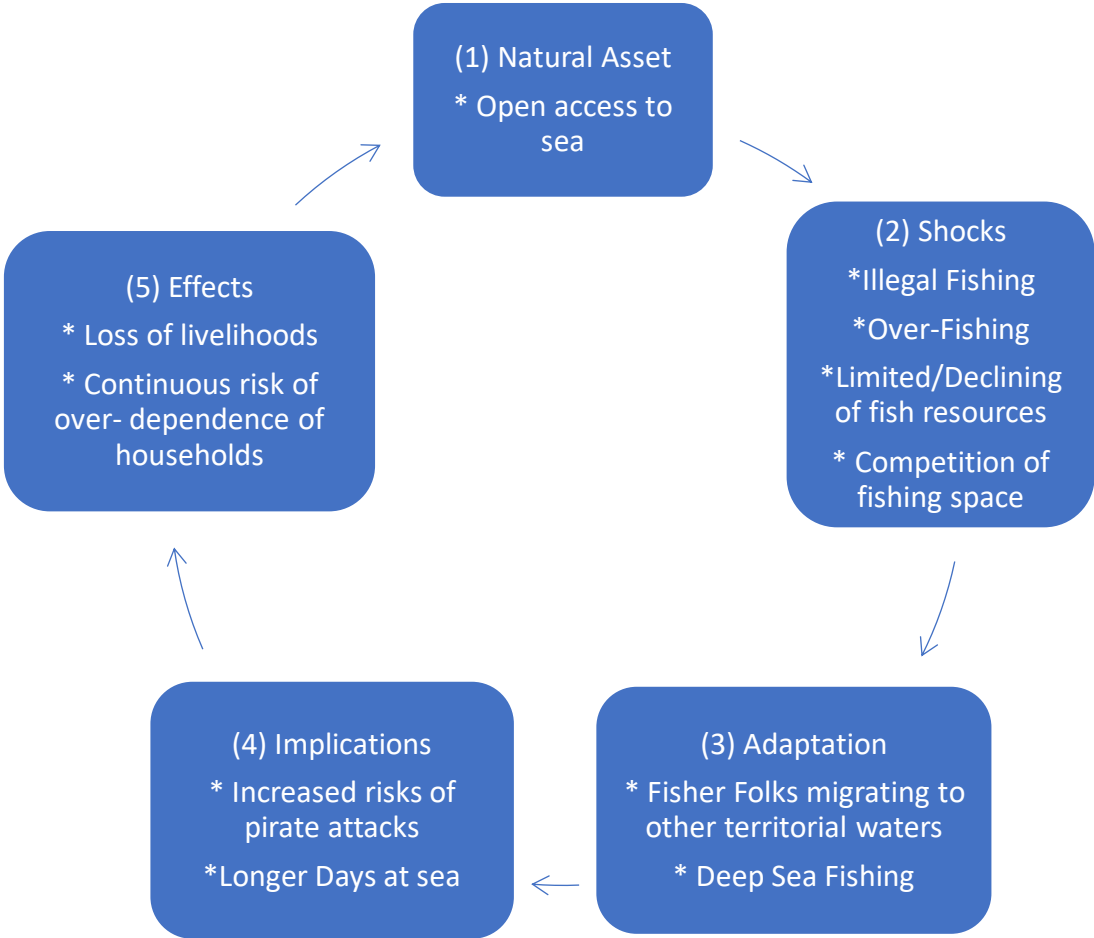


Figure 5.4: Chain diagram of fishing activities leading to livelihoods loss

Source: Author, 2020

The diagram above depicts the linkage between artisanal fishermen and sea-piracy showing how the loss of livelihoods are interdependent with one another. The cyclical link between open access to sea and the outcome of shocks associated with fishing triggers ways that

artisanal fishermen can cope in order to survive. These adaptation measures create a long-term implications for fisher folks such as spending several days at sea to enable good fish harvest which possibly results in pirates attacking fishing boats. The study objectives were connected to the framework used in order to understand artisanal fishermen vulnerability context by explaining fishermen's stress and shocks, the livelihoods asset, influence and access, strategies and livelihood outcomes. The concept of livelihood assets comes from the sustainable livelihood framework, which is centered on people and used to set as an analytical tool to assess the level of specific groups' livelihoods (Ellis, 2000). Extant research embraced or altered the livelihood assets to measure the level of adaptive dimensions in the construction of livelihood vulnerability.

According fishermen, the coastal communities in Ghana are facing existing issues on inappropriate ways of fishing by trawlers leading to depletion of fish stocks, economic instability and to some extent food insecurity. In order to derive success in fishing, fishermen need a wide range of livelihood assets available to sustain a constant economy goal for them and their households. These livelihoods assets comes in the form of human, capital, social and financial. Artisanal fisher folks explained that as long as there are effective and efficient transforming structures available to enforce full security and maintain good interest of local fishing communities, sea piracy would not negatively impact their livelihoods. These fishermen are pleading with the government, fisheries sectors and the international maritime organization to combat maritime piracy from every angle to lessen the fear in fishing folks.

In addition, artisanal fishermen express their worries on the number of fishing licenses given to some foreign vessels to fish in Ghana's territorial waters. Most of these fisherfolks express their frustrations by the lack of concern from the fisheries Ministry to address some of their challenges at sea. This has led to bitterness towards the fisheries Ministry revealing how the fishing regulations are weak and unenforceable. Presumably, some artisanal fishermen perceive that foreign trawlers generate more revenues to the government thus violating the rules on sea is becoming a norm. Additionally, Fishermen admit the significance of revenues in building an economy therefore all stakeholders within the fisheries sector must abide with regulations and respect each stakeholder's zone of fishing.

In Ghana, there are fishing unions that represent fishermen and their interest at the national level regarding decision-making for fishermen. Generally, these unions are the best

representatives for fishermen but in the context of artisanal fishermen these unions have been unable to help address fishermen's concerns. For instance, most of the fishermen reported how fishing unions have been politicized and not addressing the issues on sea. Rather representatives and leadership have been accused of focusing on personal benefits.

Furthermore, since the Gulf of Guinea is becoming a hotspot for pirates, fishermen and foreign fishing trawlers have adopted unsustainable fishing methods to sustain their income. Some fishermen explicitly mention certain strategies trawlers use while fishing. Such as illegal practices saiko, carbide, dynamite during fishing. Local fishermen stated that these unsustainable fishing methods are adopted mostly by foreign vessels causing conflicts between local fishers and foreign trawlers. According to fisher folks, persistent increase in the use of illegal ways of fishing might lead to the collapse of the sector causing high poverty rates, food insecurity and depletion of fish biodiversity.

CHAPTER SIX

EFFECTS OF SEA-PIRACY ON THE FISHERY SECTOR AND GHANA'S INSTITUTIONAL CAPACITY TO ADAPT

"Sea piracy has an impact and will continue to have an impact on Ghana and the Gulf of Guinea maritime domain."

- A Navy officer from the Ghana Navy Authority.

6.0 Introduction

This chapter of the study discusses the results with regards to the second research question stated - How sea-piracy affect the fisheries sector and what adaptive measures are available to deal with the challenge. Having discussed the trajectories of sea-piracy in relation to artisanal fisher folks' perception on the one hand, and that of linkage between fishermen livelihoods and sea-piracy as well as the adaptive strategies available to fishermen on a day-to-day basis, this chapter focuses on the effects of sea-piracy on fisheries sector and the institutional capacity to adapt.

6.1 Capacity Constraints and Linkages to Sea-Piracy

The significant dependence of African countries on the international market makes maritime transport a crucial factor in the continent's development (Mbekeni & Ncube, 2011). Ghana is largely an import-dependent country where almost every commodity is imported from other parts of the world. The presence of pirates in the Gulf of Guinea has affected insurance premiums and coverage (Mbekeni & Ncube, 2011). According to a report by the United Nations Conference on Trade and Development (2009) premiums for kidnap and ransom coverage have reportedly increased by 100% whereas, the additional costs due to piracy are passed on to consumers. Based on this, commodities (including fishing instruments) imported become pricey to purchase by fishers and other fishing stakeholders

The fieldwork findings show that, unexpected and seasonal increases in premix fuels and fishing equipment prices in Ghana impact negatively on the general productivity and performance of the fishermen and the industry at large. Unlike developed countries where avenues for bank loans are easily accessible with the required documents, in Ghana on the

other hand, bank loans are limited, and a comparatively large proportion of start-up capital for businesses are locally mobilize- mostly by individuals themselves. The regular increases in the prices of fishing instruments and inputs limit fisherfolk's capacity to gain extra income to enable fishers meet their productivity and operational cost. Due to this, affected fishers are unable to meet the necessary productivity cost of competing for fish located farther distances away. Exceptionally, the long-distance commute for fisher folks requires large quantities of premix fuels that are expensive for a trip in order to catch more fish to obtain high income for household and business growth. However, this farther distance creates the conditions for pirates to attack fishermen at sea.

An artisanal fisherman narrates his experience:

"Piracy has affected our fishing business in many ways. For instance, I do not get enough fish like I used to anymore so I can't sell and make a substantial income for my household. When you become a victim of piracy, you lose your outboard motors and fuels to pirates. The experience with pirates forces us to increase the prices of fish when selling at the market"(Respondent 4, August 2020).

Based on this notion, fisherfolks believe that the power of piracy in the region plays a role in the prices of seafood. Thus, not only does piracy affect operating cost of artisanal fishing, it also increases product of fishing for the final consumer.

Limited Collaboration on Sustainable Management of Fisheries Resources

In Ghana, the limited participation of local fishermen and the eroding role of community-based fishing unions and leaders limit the efficacy and collaboration on the sustainable management of fisheries resources. Artisanal fisherfolks express their grievances on the exclusion of the fishing unions in the decision-making process.

An older fisherman explained his predicament: *"A couple of years ago, fishing associations supported us through[welfare schemes]when we retired at 70+ by giving us a meaningful amount of assistance every month to enable us to survive and feed our households but no, we don't have any plan supporting us after retirement. However, we believe this is happening because our representatives are not involved in the decision-making process or during annual meetings"*(Respondent 5, August 2020).

The threat of piracy do not affect only industrial and semi-industrial fishing vessels as perceived by the government. Due to this, artisanal fishing unions are not invited to major decision-making meetings and trainings on the management of sustainable fisheries resources causing these fishers to use illegal ways and travel beyond its territorial waters to catch fish which creates the environment for pirates to attack fishermen. This apparent lack of participation and negotiating power between fisheries officials and local fishermen is borne out of two main factors. Firstly, being artisanal fishermen, their production levels often fall short of quantities since it is a subsistence means of fishing. Secondly, entry barriers into higher operation and production of fish stocks prohibit fisherfolks from gaining support, such as limited requirement to financial clout and fishing equipment prevent fisherfolks from competing with other fishing vessels. The government, on the one hand, earns much revenue from industrial and semi-industrial vessels than from artisanal fishing. The collapse of the Community-Base Fishing Management Committee (CBFMCs) after the end of the term of the World Bank sponsorship left fishing communities with limited avenues for channeling their difficulties and grievances to the government of Ghana and other stakeholders interested in developing the fisheries sector (Friends of the Nation, 2015). During the era of CBFMCs, there was commitment to addressing almost all the needs of fisherfolks and contributing to the sustainable management of the country's marine fish resources (Amarfio,2010). FAO (2016) notes that the government of Ghana needs to understand the competence and power of Chief fishermen, the traditional groups within the fishing communities, and the CBFMCs in achieving sustainable fisheries resources. As a result, the inclusion of artisanal fishers in managing fisheries resources will provide the necessary knowledge and legal support to effectively contribute to Ghana's fisheries sector and help reduce the risk of being attacked by pirates.

6.2 Institutional Capacity to Resolve Piracy Concerns

vessels The Gulf of Guinea piracy attacks in 2013 constituted a fifth of all recorded maritime incidents globally, representing only actual attacks in the region as ship managements and governments tend to under-report incidents to avoid the reputation of insecurity and high shipping cost(Osinowo,2015). Nevertheless, the consequences of piracy do not only impact ports and shipping commodities but also affect the fishing industry. The fisheries commission in collaboration with the Ghana Navy and maritime authority provides strong security along the coast of Ghana to prevent pirates from attacking shipping and fishing. Generally, every vessel which intends to work on Ghanaian waters needs to first register with the Ghana

Maritime Authority under the Ghana Flag to make sure it has all the basic equipment before getting a fishing license from the fisheries commission in order to operate freely at sea. An official from Ghana Maritime Authority (GMA) intimated that:

" The GMA is responsible for putting in measures to fight against maritime security threats such as robbery, piracy, smuggling and so on. Also, within the GMA, there is a specific division responsible for tackling piracy issues- Vessel Traffic Monitoring Information Unit - The unit can monitor up to 200 nautical miles and identify all vessels on the sea. However, in case of piracy it becomes a bit difficult to track pirates because most of the time pirates switch off their monitoring device on their smaller speed boats. On the other hand, the unit notifies the navy police about any lingering vessel/boat on the sea after a while at sea"(Respondent 6, August 2020)

The Ghana Navy on one hand intimated that artisanal fisherfolks in the country are not targets of the pirates but rather the shipping vessels, industrial fishing vessels and the semi-industrial vessels are pirates' targets (Navy respondent, 2020). This view holds that artisanal fisherfolks are only collateral damage for pirates. Quite the contrary, fishing respondents oppose the claim that only industrial and semi-industrial folks are affected immensely. According to artisanal folks the impact of piracy affects their households and livelihoods all together preventing fisher folks to provide essential needs for their families. Pirates attack them to steal their outboard motors, fuels, fish stocks, fishing gears and so on. This affects their financial and physical assets somewhat leaving fisherfolks jobless, poorer, and incapable of acquiring credits assistance as discussed in the sustainable livelihood framework. In line with this, Schindler and Giesbert (2012) argue that a household below the threshold is too poor to accumulate assets and that if such households lack the opportunity to borrow, the household remains trapped at a low well-being state. A direct outcome of the above is the reduction in both quantity and quality of their meal set. When artisanal folks do not have other resources or assets to liquidate to get them through lean seasons, they are bound to reduce consumption. On the other hand, lack of coordination and low attention paid to their concerns reduces artisanal fishermen's ability to negotiate better access to the sea, which reduces their natural and capital assets. However, an official from the Ghana Maritime Authority clearly explained how Ghana can combat maritime security threats in the region to prevent pirates from penetrating into Ghana's territorial waters as well as discouraging artisanal fisherfolks from

travelling outside Ghana's zone. According to the maritime authorities the country needs an advanced maritime special plan.

6.2.1 Advanced Maritime Special Plan

Building a special maritime plan can help reduce maritime security threats and piracy issues in the region as well as preserving the habitat of marine resources. A Ghanaian navy officer explains that: *"Over the years the Eastern countries have been combating the crime of pirates but it has not been successful. However, in the Gulf of Guinea, piracy attacks are increasing gradually due to unemployment, poverty and pollution of water bodies"*(Respondent 7, September,2020). In 2013, the Gulf of Guinea states were assisted by the United Nations Security Council (UNSC) to pass a resolution in 2018 to tackle the issue of piracy and other maritime crime in the region. According to the Ghana Navy (Interview, 2020), the code includes five zones, two regional centers and one interregional coordination centre that watch over 6,000 kilometers of coastline and 12 major ports. The Yaounde Code of Conduct (initiative) was passed for three(3) main objectives. These are a) A political declaration to join forces to fight maritime piracy which is spreading across the region; b) Agree to coordinate and share information in order to track the movement and activities of pirates; and c) Pledge to contribute resources (ships and human beings) to conduct joint patrols at sea.

At the regional level, Ghana is found among the ECOWAS states. Here all states are divided into zones from E to G in order to coordinate efficiently and effectively in handling maritime issues. Ghana is part of zone F with other states such as Liberia, Ivory Coast, Guinea, Burkina Faso and Sierra Leone. In addition, the Ghana navy argue that there has been an increase in piracy attacks recently between zone E and zone F. Pirates within these zones have mastered their ability to traverse between countries' territories.

As one maritime authority official succinctly puts it: *" Firstly, instructions need to come from the national level because Ghana does not have an advanced special plan. The artisanal fishers have an existing conflict with the oil and gas agency in Ghana. Most of the time, fisher folks are not allowed to fish around the oil drilling area (500 meters or safety zone) but artisanal fishermen tend to go there because they always complain that, the lights used by these oil & gas exploration zones attracts the fish stocks their area that's why they(artisanal fishermen) fish around that area. This creates conflicts between these two actors"*(Respondent 8, September 2020).

These conflicts escalated when locals expressed their grievances on how the government decided to award oil companies with exploration sites belonging to artisanal fisherfolks. According to fisherfolks, the government believes oil companies have more economic prospects in terms of revenue collection and national development than artisanal fishers. The maritime authority suggested a way the government can solve the issue of conflict between these actors by uttering that there should be a proper jurisdiction between fishing and oil exploration sites to prevent more conflicts and prosecution of offenders. The special plan will likely improve access to sea resources and reduce pelagic fishing, conflicts with bigger vessels and reduce piracy activities hence increasing fish catch and improving livelihoods.

6.2.2 Prosecution of Maritime Offenders

According to Eriksen(2019), the inability to determine actual fish catch by trawlers is mostly in connection with illegal fishing in the region. Sea crimes pose an immediate danger to people's lives and safety, they undermine human rights, hinder sustainable development and threaten international peace and security. In Ghana, the maritime authority is in charge of maritime threats and security. An official from the maritime authority explains that: "*Basically the GMA provides security of navigation, safety and prevents marine pollution whilst the Navy secure our territorial waters to make sure it is safe and secure*". In line with this, the Ghana Navy processes all sea offenders (including piracy, illegal fishing, smuggling and so on) and takes them to court for prosecution. When pirates or trawlers are caught violating fishing or maritime regulations, the case may either be taken to law court or the offenders may choose for a negotiation arrangement known as Alternative Dispute Resolution (ADR), which normally assigns lower punishments (Eriksen, 2019). Also, it is interesting to note that some officials within governmental institutions have shares in these businesses. Due to this, any attempt at enforcing stricter industrial fisheries regulation may face political backlash and reduce fisheries support. According to artisanal fisher folks, this political backlash in supporting the fisheries sector tends to increase the issues of illegal fishing activities on the sea.

6.3 Seasonal Fish Harvest Initiative to Reduce Fisheries Poverty

In 2019, the Ministry of Fisheries and Aquaculture Development announced the close season, and required that it must be observed by all fishing vessels and fishermen in the country's marine waters. The aim behind the close season initiative is to address the declining fish stocks in Ghanaian waters, in accordance with Section 76 (3) and 84 of the Fisheries Act 2002

(Act 625). The close fishing initiative is a period where fisherfolks are prohibited from fishing activities in order to enable fingerlings to maturely develop and ensure bumper catch upon resumption of fishing business. As per the Fisheries Commission, the initiative is aimed at attaining sustainable fishing as well as replenishing the depleted fish stocks in the marine sub-sector, as a result of over- exploitation, illegal, unregulated and unreported fishing and bad fishing practices. Also, in connection to the one-month closure for canoe and inshore fishers, industrial trawlers will also be prohibited from fishing activities from August 1 to September 30 every year. An official from the commission explained that: "*This initiative will go as far as preventing fishermen from traveling to other territorial waters in search of fish stocks to boost their livelihoods and households*". The Fisheries Ministry is collaborating with stakeholders to save the sector from collapsing due to over-exploitation, illegal fishing methods and conflicts between fishers as well as counter- adapting to future impacts of sea-piracy on the sector.

6.4 Potential Impacts of Sea-Piracy on the Fisheries Sector

The Fishery sector in Ghana plays a vital role as it contributes to the food industry. The artisanal sub-sector is the most significant when it comes to fish outputs in the marine sector. The fishing sector is one of the fastest growing industries in the country. About two million people rely on these fish for their food and income (VOA, 2019). A research conducted by the Fisheries Committee for the West Central Gulf of Guinea revealed that, Ghana lost between 40 million and 50million US dollars in 2017, involving 100,000 metric tons of fish due to trawlers run, almost exclusively, by Chinese operators to catch fishes and later sell it back to local communities at a lower price. This practice is popularly known as ‘*Saiko*¹⁰.’ Many of these trawlers have the required license to harvest fish in the territorial waters of the country causing artisanal fisher folks to fish outside Ghana's territorial waters due to depletion of fish resources. To understand the impacts of sea-piracy on the fisheries sector, a selected components labeled "*Transforming structures and processes*" of the sustainable livelihood framework is employed to analyze the various structures(private sector and government) and processes(policies, laws and institutions) available to reduce piracy threats in the region(See diagram 6.1). The sustainable livelihood framework acknowledges the need to move beyond narrow sectoral perspectives and emphasizes seeing the linkages between sectors. Also, the framework calls for investigation of the relationships between different activities that

¹⁰ Saiko - This is a form of illegal fishing where foreign trawlers target staple catch of Ghanaian canoe fishers.

constitute livelihoods and draws attention to social relations. However, some of the weakness of the framework is that, it underplays the fact that enhancing the livelihoods of one group can undermine those of another(Serrat,2017). Data gathered on the field shows that fishermen are mostly attacked by pirates while engaging in fishing activities. These attacks on fishers have outstretched a point that some local fishing boats fear to sail, and in a way, this destroys the livelihoods of the local fishermen. Artisanal fishermen fear that when issues are not addressed, it might affect the fishing industry and the number of fish catch at large increasing the need to import fish from overseas into the country.

Furthermore, an official from the Ghana Navy explained that: *Sea-piracy has an impact and will continue to have a very strong impact on Ghana's maritime domain and revenues*. Pirates keep changing and improving their techniques at sea thus, the maritime authority, navy and other stakeholders in the fisheries sector must continue to monitor and protect the maritime zone.

As mentioned above, Ghana is an import-driven country and thus, if there is persistent increase in pirates attack on ships and fishing vessels, it increases insurance on ships causing high prices on goods and services. Another implication of piracy incidence is the effect it has on food security issues(Anku & Moki, 2009). Due to the regular attacks on fishers and other food vessels, fisher folks might end up catching less matured and fresh fishes to enable them boost their income gains without considering human consumption. Also, sea-piracy has the tendency to contribute immensely to social unrest and political instability(Kraska, 2011). For instance, when the government is unable to gain more revenues from the state and its citizens it reduces the rate of rapid development, poor health policies and high cost of living. In spite of all the efforts from the Ghanaian navy, the maritime authority and the fisheries sector to collaborate efficiently in protecting the territorial waters of the country, pirates are constantly on the look-out to attack ships and vessels for ransom.

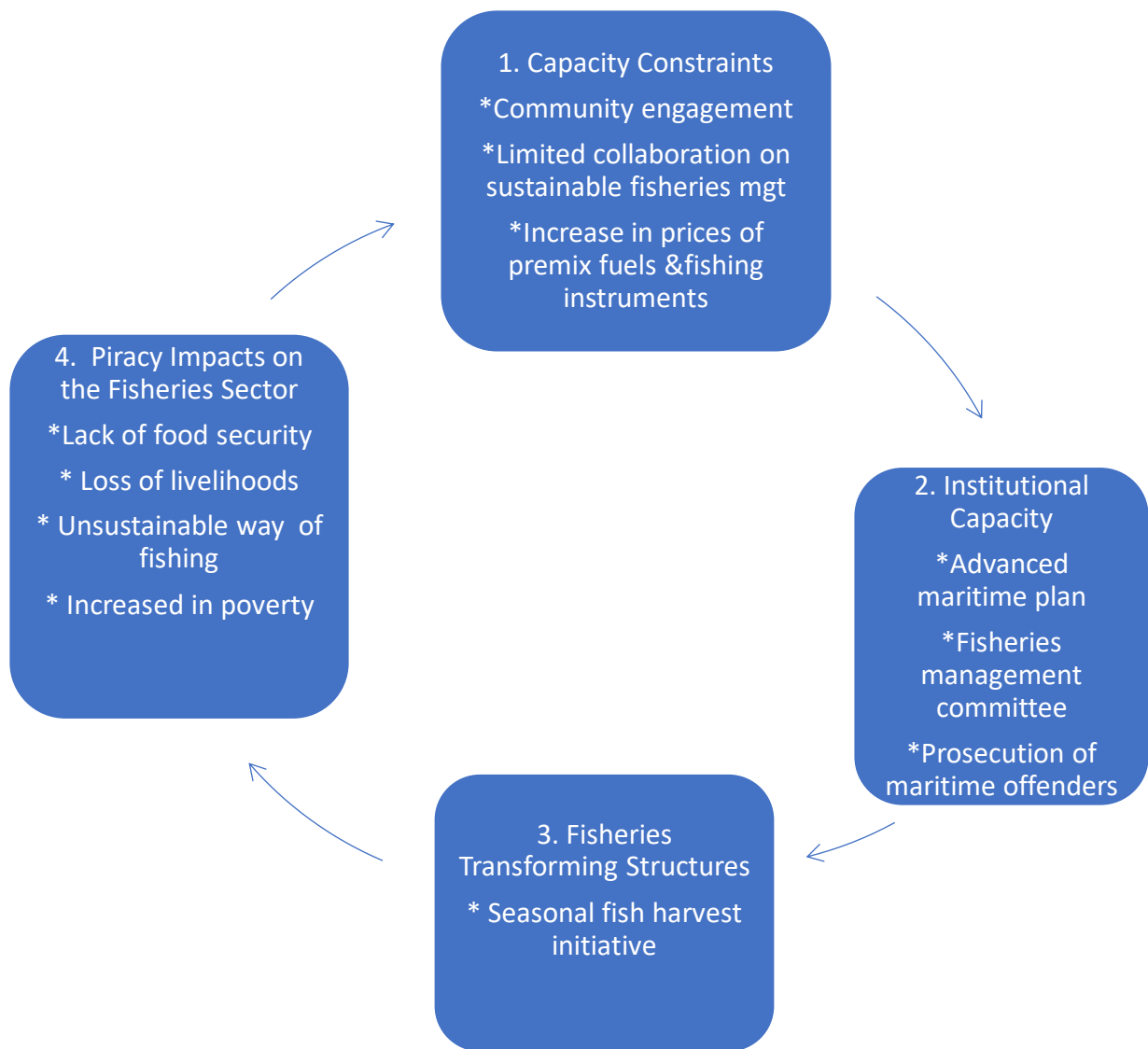


Figure 6.1: Chain diagram of the institutional capacity to combat sea piracy and save the fisheries sector.

Source: Author,2020

The above diagram shows a cyclical connection between capacity constraints and the institutional capacity available to adapt to piracy threats in the region. The constraints confronting the artisanal fisheries sector in Ghana allow them to come into contact with pirates when fishing beyond designated territorial waters. Due to this, the fisheries sector in collaboration of the maritime authority, and other Gulf of Guinea countries are coordinating on the strategies such as developing an advanced maritime special plan, providing sustainable way of fishing to reduce maritime insecurities and prosecuting maritime offenders to reduce the maritime violation cases.

In Ghana, the Ministry of Fisheries announced the seasonal fishing initiative in 2019 to allow fish stocks procreate more fishes and boost a positive livelihood outcome for fishers. However, the incidence of sea piracy have led some fishers to abandon their livelihoods (Whitman & Suarez, 2012). In some cases, this is due to the fear of being attacked and in other cases the cost of replacing stolen engines or boats is more than they can afford (FAO, 2011). Piracy issues in the region is resulting in the loss of livelihoods, food insecurity and most of all unsustainable ways of catching fish and engaging in other economic means to earn an income and a livelihood.

CHAPTER SEVEN

CONCLUDING REMARKS

7.0 Introduction

This final chapter will cater for the summary of this study. I will, therefore, briefly mention the major findings from the fieldwork with regards to the perceptions and implication of sea-piracy on artisanal fishermen as well as the institutional capacity to combat maritime threats in the Gulf of Guinea.

7.1 Summary of Findings

That fishing is an important and integral part of livelihoods at Tema fishing area is beyond doubt. In general, fishers and fishing community were vulnerable to poverty mainly because of: lack of fishing inputs, limited/lack access to credits, basic social services, and poorly functioning markets for fishery products. While many studies that have to do with fishermen and their livelihoods have generally dealt with the effects of oil and gas exploration sites on fishing activities (Owusu, 2018) or its livelihoods strategies and adaptation (Sene-Harper et al.,2019), this thesis has focused on an essential component of the impacts of sea-piracy on the artisanal fisheries sector and policies available to combat maritime insecurities. In order to answer the research questions: how do local fishermen perceive sea-piracy and what impacts does it have on their livelihoods? as well as how the sea-piracy affects the Ghanaian fisheries sector and what adaptive measures are available to deal with the challenges, I employed the qualitative research methodology of data collection in addition to the utilization of secondary sources of data. The analysis of the data created brings to the fore the following findings.

Firstly, based on the how fisherfolks perceive sea-piracy and how their livelihoods are affected, I find that fishers perceive piracy as criminal activities at sea where their fishing inputs are stolen and fuels are being siphon by pirates. Fishers believe that, piracy attacks happen because of the migration of fish stocks to other territorial waters due to the use of unapproved ways of fishing. However, artisanal fishermen have been negatively impacted because of the continuous and increasing nature of piracy incidents in the region causing socio-economic instability and forcing fishermen to adopt alternative livelihood strategies to sustain their households.

With regards to their adaptation strategies, I find that, generally, artisanal fisherfolks dislike the way foreign trawlers throw dead fish catch back into the sea. According to them, this practice usually requires them to migrate to wherever the fishes move to settle (Interview, 2020). Artisanal fisher folks believe fishing outside Ghana's territorial waters is largely imprudent, especially for those who fish using other people's canoes and outboard motors and share the output with the boat owners which affect their incomes. Some literature such as Ellis (2000), however, notes that unequal income distribution is often accompanied by high incidence of poverty. I also find that, as a way to boost their fishing livelihoods, some of the fishermen have resorted to staying longer on the sea rather than fishing for just two days. This further exposes them to the risk of piracy attacks. In a nutshell, the livelihood of artisanal fisherfolks at Tema is characterized by diminishing fishing incomes, inadequate fish catch and the growing need to find more sustainable sources of livelihood asset to make better ends meet. The issue of sea piracy, illegal, unreported and unregulated fishing activities has ultimately led to a general reduction in both incomes and fish catch hence, the quality of life is also affected.

Secondly, the problem of sea-piracy activity is a global phenomenon (see 2.1). The consequences of these incidents have affected shipping lines, semi-industrial and industrial fishing vessels as well as artisanal fishers. Developing policy measures that effectively address modern-day maritime piracy issue is a complex task. The fieldwork results suggest that the implementation of advanced maritime special plan, prosecution of maritime offenders and the closed season fishing initiative could constitute viable ways of smoothing fisherfolks livelihoods. In the meantime, the Fisheries Commission in collaboration with the Ghana Navy and Maritime Authority provides strong security along the coast of Ghana to prevent pirates from attacking ships and fishing vessels (Fieldwork,2020). Despite all the mechanisms put in place to combat, the authorities do not concur with the idea that the artisanal sector is massively affected by the activities of pirates. According to them (see 6.2), the government recognize the industrial and semi-industrial fishing vessels as high risk than the artisanal fishers. Based on the study findings, it is believed by the authorities that artisanal fishers only produce small quantities of fish stocks as compared to the other bigger vessels.

In addition, the present study has shown that the limited collaboration on sustainable management of fisheries resources and the economic conditions facing the fisheries sector have an impact on coastal communities. In the Gulf of Guinea, the prevalence of artisanal

fishermen, coupled with the depth of poverty rate, maritime insecurities and fishing regulations, there is the need for further research. A further issue not tackled in this study is the identification of cost inflicted by piracy activity and other factors such as climate change which influence the production of fish stocks.

APPENDIX

LUND UNIVERSITY GRADUATE SCHOOL INTERVIEW GUIDE FOR FIELDWORK

Thesis topic: Sea Piracy on the Gulf of Guinea: Impacts on the Artisanal Fisheries Sector of Tema Fishing Area (Sub-city in Accra)

Study Target: Fishermen in the Tema fishing area

Sampling technique: Snowball and Purposive Sampling

Data collection strategy: Semi-Structured Interview

Key Informants: Extension officers for the fisheries sector, artisanal fishermen and maritime officials in Ghana.

a. Interview Guide

Name of Interviewer (mandatory)

Name of respondent (Optional)

Date

Name of Community.....

1. Demographics

Sex

Age

Occupation

Number of years in fishers

Duration of stay in the Community

Level of education - very low, low, average and high

Level of assets (household)

Physical Assets - Eg- Land, Boat, Boat Size, Fishing net, Car, House , Outboard Motors/ Sail, Motorcycle etc

Financial Assets - Eg- Access to credits, Savings, Inherited Property, Alternative income

Social Assets- Eg- Status in the community, Membership to a union and so on.

Human Capital- Eg- Level of education, Size of family, Health Status etc.

On the Scale of 1 to 5 where you do see your household overall material resource

1. Poor 2. Average 3. High Average 4. Affluent 5. High Affluent

Target:

Fishing Households

Research Questions	Corresponding Questions and Prompts
Awareness of Sea Piracy in Ghana	<p>Has there been any issues in this community concerning sea-piracy?</p> <p>Have you heard of 'Sea-Piracy'? if yes how did you hear of it</p> <p>Explain how you understand the word "Sea Piracy"</p> <p>How do you think it started on Ghana's territorial waters?</p> <p>What do you think is the motivating factors leading to pirates attack at sea?</p> <p>When did it create a concern for fishers?</p> <p>Have you encountered any pirates on sea? if yes how did you handle that?</p>
Fishing Households Adapting to Piracy Risk	<p>How did you get to know about Sea Piracy?</p> <p>How does illegal fishing affect your livelihood as local fishermen?</p> <p>What other economic alternative do you engage in order to survive apart from fishing?</p> <p>Why do you think pirate attack affect fishermen?</p> <p>What strategies do you think the ministry of fisheries should take to reduce the incidence of piracy?</p>

<p>Households Income differentiation of local fishermen</p>	<p>Are you a fisherman? if yes, what category do you fall in?</p> <p>Have you noticed any changes in your income gains? If so, how does sea-piracy affects your income patterns?</p>
<p>Counter Initiatives Available to fishing sector</p>	<p>What initiatives are available counter piracy for the fishing sector?</p> <p>How does these initiatives support fishermen livelihoods?</p> <p>Are fishing unions active? if so, how often do they meet to discuss issues facing artisanal fishers?</p> <p>Does fishing unions address the issue of sea-piracy during meetings?</p>

Target:

Fisheries Ministries & Maritime

Agencies

Institutions Combating Sea Piracy	<p>Which institutions are in charge of piracy in the region?</p> <p>How are these institutions combating piracy in Ghana?</p> <p>What policies are currently available for all the regions in the Gulf of Guinea?</p> <p>What security mechanisms is been used to protect coastal communities?</p>
Effects of illegal fishing on the sector	<p>How does illegal fishing affect livelihoods as fishermen?</p> <p>What are some of the techniques used in fishing?</p> <p>Which actors are classified as illegal fishers?</p>
Potential Impacts of maritime piracy	<p>Does sea-piracy have the tendency to damage Ghana's maritime domain?</p> <p>How will/does sea-piracy negatively affect the fisheries sector if measures are not effectively utilized.</p>

<p>Maritime Agencies efforts in regards to sea-piracy</p>	<p>How much coordination exist between the navy, fisheries commission and maritime authority?</p> <p>What is the driving factors of Sea- Piracy?</p> <p>Who would you say are the major entities affected by pirates?</p> <p>Will you say there has been an increase in piracy recently?</p> <p>Are artisanal fishermen affected?</p> <p>Do you know of any instance of Ghanaians being pirates?</p> <p>If a piracy attack happens to a Ghanaian in Benin territorial waters, what happens and which country will be in charge?</p>
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b. Informed Consent Form

Introduction

Lamprey Sandra is my name, a graduate student at Lund University in Sweden pursuing MSc in Development Studies. I am undertaking a research in fulfillment of my degree programme on the topic : Understanding the past, present and potential impacts of sea-piracy in the fisheries sector in Ghana with specific focus on the Tema fishing area.

1. I volunteer to participate in Sandra's master's thesis research and understand that the study is designed to gather information for academic work. I will be one of approximately twenty (20) people being interviewed for this research.
2. I understand that most interviewees will find the interview session interesting and thought-provoking. However, if I feel uncomfortable in any way, I have the right to decline my answer or discontinue the interview session.
3. The research participation involves being interviewed by the researcher herself and will take approximately 30-45 minutes. Also, notes will be written during the interview process as well as audio tape will be recorded in order to grasp the desired information for the study.

Confidentiality

The study will maintain strict confidentiality hence the researcher will not identify the respondent by name in any reports using information obtained from this interview, and that the respondents confidentiality as a participant in the study will remain secure. Subsequent

uses of records and data will be subject to standard data use policies which protect the anonymity of institutions and individuals.

Who to contact

All participants involved in the study are welcomed to contact the researcher directly via email: sandlamp23@gmail.com

I have read and understand the explanation provided to me by the researcher. I have had all my questions answered to my satisfaction and the opportunity to ask any questions relating to the study. I voluntarily agree to participate in the study.

Participants Name

Signature

Date.....

Researcher's Name.....

Signature.....

LIST OF INTERVIEWS

All Respondents	Date
* Respondent 1(Fisherman)	July,2020
* Respondent 2(Fisherman)	July,2020
* Respondent 3(Fisherman)	August,2020
* Respondent 4(Fisherman)	August,2020
* Respondent 5(Fisherman)	August,2020
* Respondent 6(Maritime Authority official)	August,2020
* Respondent 7(Navy officer)	September,2020
* Respondent 8(Maritime official)	September,2020
* Respondent 9(Fisherman)	September,2020
* Respondent 10(Fisherman)	September,2020
* Respondent 11(Fisherman)	September,2020
* Respondent 12(Fisherman)	September,2020
* Respondent 13(Fisherman)	September,2020
* Respondent 14(Fisherman)	September,2020
* Respondent 15 (Fisherman)	September, 2020
* Respondent 16 (Fisherman)	Sepember,2020
* Respondent 17 (Fisheries Official)	September,2020
* Respondent 18 (Fisheries official)	September,2020
* Respondent 19 (Fisherman)	September,2020
* Respondent 20 (Fisherman)	September,2020

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Notes:

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