# GOVERNING THE OCEAN SPACE FOR THE COEXISTENCE OF FISHERY AND PETROLEUM INDUSTRY IN GHANA'S WESTERN REGION


**BY**

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# DEDICATION

*To my parents Kofi Adjei (late) and Rose Cudjoe. Thank you for the love and inspiration.*

*To my brother Adu Kwasi, his wife Auntie Cecilia and my sister Deborah Adjei for the care, love and financial support to my education. May God richly bless you*.

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# ABSTRACT

Ghana began commercial oil and gas production in the year 2010 in the country's Southwestern coast where fishing is an important economic activity. There have been growing concerns especially from the coastal fishing communities about the negative impacts of the petroleum extraction activities on their fish catch and general livelihoods. This study sought to understand how the fisheries governance institutions in Ghana (at the local, regional and national levels) are addressing the concerns and conflicts regarding the impacts of petroleum extraction activities on fishing in Ghana. Adopting a qualitative research approach, data were produced through interviews with thirty-seven informants in the fisheries and petroleum sectors as well as actors at the local (traditional), governmental and non-governmental fisheries governance organizations in Ghana through participant observation, group interviews and key informant's interviews. It emerged that, development programmes such as; the provision safe drinking water facilities, health and educational supports have been undertaken by the petroleum industry through their Corporate Social Responsibility (CSR) projects especially within communities in the oil companies demarcated zone of influence. Irrespective of these projects, several concerns were expressed by the fisher folks in Axim, which were differently viewed by the other stakeholder groups. From this study, two main discursive positions emerged. Whereas the fisher folks stressed the negative impacts of the petroleum extraction resulting in their declining fish catch, officials of petroleum companies argued that the impacts of their activities in causing declining fish catch was negligible but rather the bad fishing practices by the fishermen themselves led to the declining catch. Similar views were also expressed by officials of the government organizations interviewed. The government officials emphasized the need for strict fisheries rules to conserve Ghana's fish stock as well as the protection of the offshore petroleum installations which serve as an important source of revenue to the government. The various ways of addressing these conflicts and their implications for the various stakeholder groups are discussed in light of the common pool resource theory as well as the theories of institutions, power, discourse and stakeholder images used for this study.

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** Unless otherwise indicated, all photographs were taken by the author.*



## ABBREVIATIONS

| | | |
|---|---|---|
| AZ | : | Advisory Zone |
| EZ | : | Exclusive Zone |
| CBFMC: | | Community Based Fisheries Management Committees |
| CEMAGs: | | Community Environmental Monitoring and Advocacy Groups |
| CLO | : | Community Liaison Officer |
| CSR | : | Corporate Social Responsibility |
| DGN | : | Drift Gill Net |
| SFMP | : | Sustainable Fisheries Management Programme |
| URI | : | University of Rhode Island |
| SDGs | : | Sustainable Development Goals |
| IFC | : | International Finance Corporation |
| EDCs | : | Enterprise Development Centres |
| EEZ | : | Exclusive Economic Zone |
| EIA | : | Environmental Impact Assessment |
| EPA | : | Environmental Protection Agency |
| F2F | : | Fisherman to Fisherman |
| FAO | : | Food and Agriculture Organisation |
| FEU | : | Fisheries Enforcement Unit |

| | | |
|---|---|---|
| FIA | : | Fisheries Impact Assessment |
| FoN | : | Friends of the Nation |
| GNCFC: | | Ghana National Canoe Fishermen Council |
| GNPC: | | Ghana National Petroleum Corporation |
| GSS | : | Ghana Statistical Service |
| IUU | : | Illegal Unreported and Unregulated |
| JVC | : | Joint Venture Contracts |
| PSC | : | Production Sharing Contracts |
| LI | : | Legislative Instrument |
| MCSD | : | Monitoring Control and Surveillance Division |
| MFRD: | | Marine Fisheries Research Division |
| MoFAD: | | Ministry of Fisheries and Aquaculture Development |
| MRMD: | | Marine Fisheries Monitoring Division |
| NAFPTA: | | National Fish Processors and Traders Association |
| PIAC | : | Public Interest and Accountability Committee |
| PRMA | : | Petroleum Revenue Management Act |
| SEZ | : | Safety Exclusive Zone |
| PNDC | : | Provisional National Defence Council |
| TEN | : | Tweneboa Enyenra and Ntomme |
| UNESC: | | United Nations Economic and Social Council |
| UNCLOS: | | United Nations Convention on the Law of the Sea |
| VMS | : | Vessel Monitoring System |

# CHAPTER ONE
# INTRODUCTION TO STUDY

## 1.0 Introduction

Fish plays a vital role in human life sustenance. Fishing is an important economic activity in most coastal communities in developing countries (Andrew et al., 2007; Overa, 2001). According to the Food and Agriculture Organisation (FAO), fishing and its related activities such as fish mongering, processing and distribution employ more than 500 million people in developing countries (FAO, 2009). Fishing is very important to the socio-economic development of not only developing countries but in developed countries as well.

The Fishing industry plays a crucial role in Ghana's economy, with the industry employing about 10% of the country's working population, who engage in fishing and its related activities such as fish mongering, processing and transportation (Akyempon et al., 2013). Besides, fish is the cheapest, but an essential source of protein, accounting for over 60% of animal protein intake of the Ghanaian populace (Rurangwa et al., 2015). Fishing in Ghana is generally categorised into inland (fresh water) and marine sources. The marine source contributes over 70% of the total fish catch, whereas the inland sources such as lakes, rivers and ponds contribute less than 30% (Ayivi, 2012; Bank of Ghana, 2008). The marine fishing industry is grouped under three main fishing fleets. These are; the artisanal canoe fleet, the semi-industrial fleet and the industrial large scale boats (Coastal Resource Centre, 2013b). Dominant of these fleets in Ghana is the artisanal or small-scale canoe fishing fleet, which employs over 90% of the Ghanaian fisher folks and contributes over 75% of the country's total marine fish landings (Coastal Resource Centre, 2013b). The artisanal canoe fleet consists of dugout canoes most of which are fitted with outboard motors (ibid.). Due to the prominence of the marine artisanal fishing fleet in terms of its contribution to employment and total fish landings in Ghana, the artisanal fleets are the focus of this study.

In most Ghanaian coastal fishing communities, the fishing industry in addition to its economic, social, cultural and nutritional roles is regarded as the pillar around which the community's history is built (Overa, 2001). Thus, any factor including offshore petroleum extraction which affects the sustenance of the fishing activity in these areas is likely to not only affect the people's living standards but their 'entire way of life' (Ackah-Baidoo, 2013, p. 409).

Ghana began commercial oil and gas production in 2010, after its discovery in 2007 (Moss and Young, 2009). The two main offshore oil blocks initially discovered were West Cape Three Points and Deep Tano blocks which are together known as the Jubilee oil field (Ministry of Energy, 2013). The oil discovery in 2007 coincided with the country's 50th independence celebration hence the name Jubilee Field for the first oil field discovered. The Tweneboa, Enyenra and Ntomme (TEN) project is another oil field in the Southwestern coast of Ghana where commercial oil and gas extraction is currently undertaken (Tullow Oil, 2016). The petroleum companies involved in Ghana's oil and gas exploration include; Tullow Oil Ghana Limited, Kosmos Energy, Anardako Petroleum, Ghana National Petroleum Corporation (GNPC) and Sabre Oil and Gas which are collectively known as the Jubilee Partners (Ackah-Baidoo, 2013).

The establishment of a petroleum industry has both positive and negative implications for a host country and nearby communities. Such impacts may be economic, social and environmental (Gamu et al., 2015). The petroleum industry has the potential for economic growth and development as it can serve as a key source of revenue and energy for host countries (African Development Bank, 2009). Countries such as Norway are often recognised as key beneficiaries of the blessings from the petroleum resource (Larsen, 2006). Hence, countries with new oil finds tend to have high expectations of economic development (ibid.). There were high expectations of improved livelihoods and economic development after Ghana's first oil discovery in 2007. There were reports of 'popping of champagne bottles' at the Osu Castle (then seat of government) after the announcement of first commercial oil find in Ghana (BBC News, 2007). This was followed by a popular statement by the then President of Ghana, John Agyekum Kufuor who indicated that Ghana would become an 'African tiger' due to the benefits that the country would derive from its petroleum extraction industry (ibid.). Just like the president, the Ghanaian citizenry had high hopes of massive infrastructural development and employment especially, in communities in the South-Western part of Ghana where the offshore oil fields were relatively close.

However, O'Rourke and Connolly (2003, p. 594) argue that, petroleum extraction activities can potentially result in destruction of marine ecosystems chemical contamination, human health problems and 'safety risks for neighboring communities as well as (possible) displacement of indigenous communities'. These problems may result in tensions and disputes over resource ownership and user rights between indigenous communities, the petroleum industry and the

government (Wanvik, 2016). As such, there have been fears of possible resource curse problems in Ghana as seen in most petroleum producing countries especially in Africa such as Nigeria, Angola and Uganda (Shepherd, 2013; Watts, 2004; Ebeku, 2002). There are reports of civil wars, slow economic development, corruption, increased poverty and the collapse of other industries such as fisheries, which are usually traced to the black gold industry, in these countries (ibid.). Consequently, the government of Ghana instituted the Petroleum Revenue Management Act (PRMA, Act 815) in 2011 to ensure efficient mobilization, management and allocation of the oil revenue. The PRMA also led to the establishment of Public Interest and Accountability Committee (PIAC) to provide oversight responsibility in the utilization of Ghana's petroleum funds and ensure that concerns of the public regarding spending of the revenue from the industry are addressed (PIAC, 2016). Besides, in order to ensure local participation in the petroleum industry, the government of Ghana in collaboration with the Jubilee Partners established Enterprise Development Centres (EDCs) as part of a local content policy to enhance the capacity of Ghanaian businesses in the petroleum sector, although only a few local businesses have benefited so far (Ablo, 2015).

Despite the efforts to curb the potential resource curse problem in the country, there have been several concerns and conflicts about the negative impacts of the petroleum industry, especially in local coastal fishing communities. Currently, the main oil exploration sites in Ghana are located off the Western coast of the country (see Map 2) where fishing is the dominant occupation in the region's numerous fishing communities**.** One area of concern currently in the South-Western coast of Ghana, including in Axim where this study is conducted, are the conflicts regarding the negative impacts of the petroleum industry on the artisanal fishing industry.

The artisanal fisheries in Ghana like many developing countries are fraught with challenges such as low catches per trip and high cost of inputs **(**Marquette et al., 2002). In addition, the use of uninsured fishing equipment and unclear responsibility for compensation in case of damages exacerbates their poverty and generally low livelihood conditions (ibid.). The recent petroleum extraction activities have resulted in further restrictions on fishermen's access to the sea and related challenges, which negatively impact on fisher folk's livelihoods (Dowokpor, 2015; Ackah-Baidoo, 2013; Obeng-Odoom, 2014), Currently, there are several concerns by fisher folks as well as several contestations between the two (fishery and petroleum) industries about the impacts of the

petroleum industry on fishing. This study sought to understand how the fisheries governance institutions in Ghana (at the local, regional and national levels) are addressing the contestations and conflicts between the artisanal marine fisheries and offshore petroleum extraction companies in Axim, Ghana.

Fisheries governance or management, terms that are used here interchangeably, is defined as 'the integrated process of information gathering, analysis, planning, consultation, decision-making, allocation of resources...to ensure the continued productivity of fisheries resources' (FAO, 1997 in Cochrane et al., 2009). In governance, recognising diverse perspectives from the various stakeholder groups such as fisher folks, local traditional actors and petroleum extraction companies in the case of this study, rather than a one-sided command and control system is crucial for compliance to rules and the general oceanic resource sustainability (Cochrane et al., 2009).

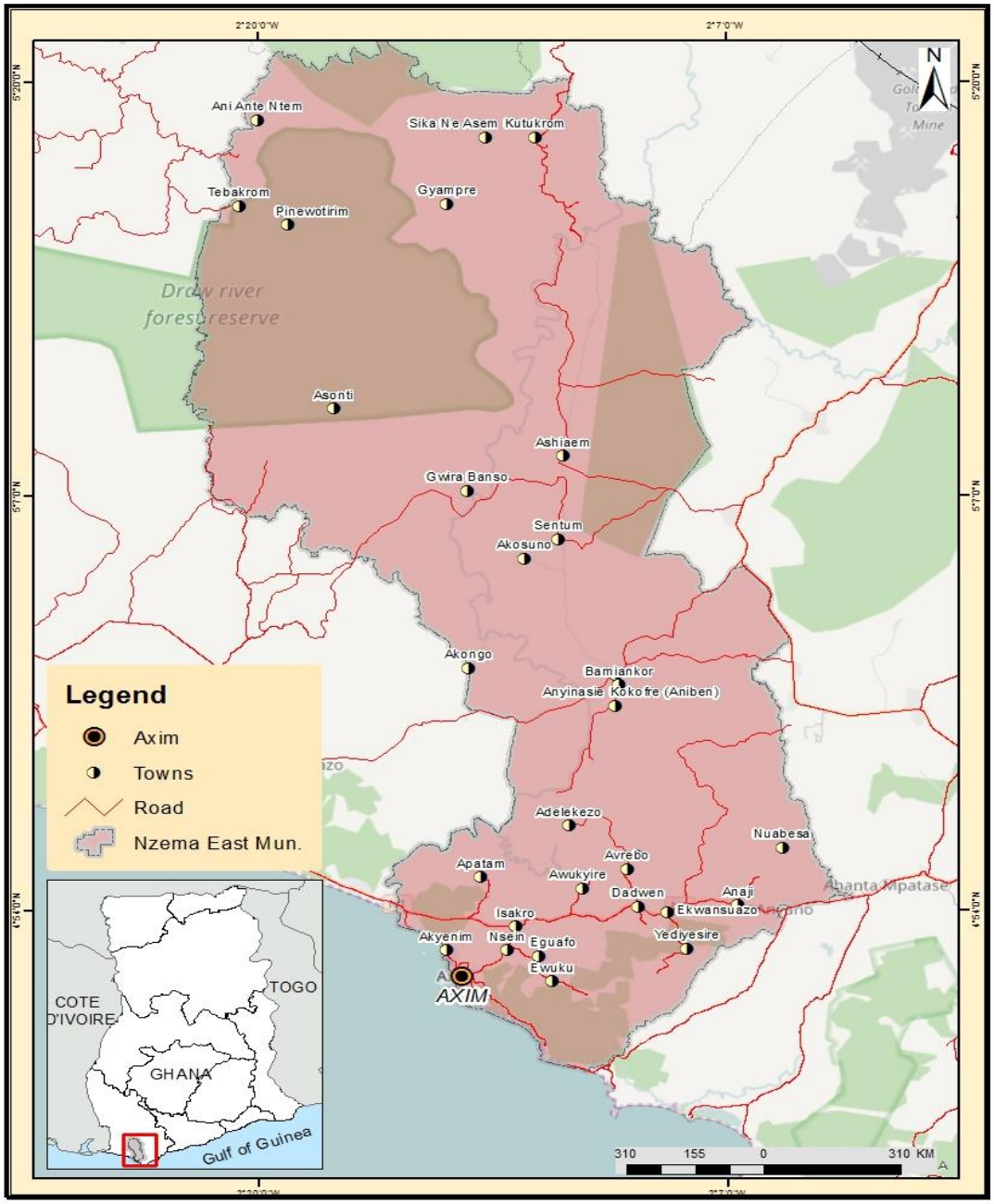
### 1.1 Study Area

Axim is a coastal town and the capital of Nzema East Municipality in the Southwestern coast of Ghana. The Nzema East Municipality shares boundaries with the Jomoro District to the West, Ahanta West District and Tarkwa-Nsuaem Municipality to the East, Wassa Amenfi Central to the North, and the Gulf of Guinea to the South (Nzema East Municipality, 2006). The Nzema East Municipality lies between longitude $2^0$ 05' and $2^0$ 35' West and latitude $4^0$ 40' and $5^0$ 20' of the equator (Ghana Statistical Service (GSS), 2015).

The Municipality falls within the semi-equatorial climatic zone of West Africa and has undulating topography with the highest point estimated at 450 ft. above sea level (GSS, 2015). It experiences rainfall all year around and double rainfall maxima, with May to July and September to November as the peak periods (ibid). The Municipality has an average annual rainfall between 1800 mm to 2000 mm. According to the Ghana Statistical Service (2015), Axim is the wettest part of Ghana with annual average rainfall of 2000 mm. The Municipality has mild temperature, with an average annual temperature of $29.4^0$C (Nzema East Municipality, 2006). The Municipality has rich forest resources composed of diverse timber and non-timber resources such as; Wawa, Mahogany, bamboo, game, wildlife among others (Nzema East Municipality, 2006). However, farming and other activities such as illegal mining and lumbering, pose several threats to the vegetation in the

area (ibid.). The Municipality has mainly perennial rivers such as Ankobra, which provides alternative sources of fish for the people (Coastal Resource Centre, 2013a).

Map 1: Map of Nzema East Municipality showing the study area, Axim.




Source: RS/GIS Lab., Dept. of Geography, University of Ghana, 2017.

According to the 2010 Population and Housing Census, the population of the Nzema East Municipality is estimated at 60,828 with women representing 50.8% and men 49.2% (GSS, 2015).

The Municipality has a high fertility rate, with a crude birth rate of 28.5 per 1000 persons as compared to crude death rate of 7.0 per 1000 persons (ibid.). This implies that natural increase would be a huge contributor to population increase in the area. It is estimated that almost 70% of the population in the Nzema East Municipality are within the economically active group of 15 years and above (GSS, 2015). Out of these, it is estimated that over 65% of the economically active population are into farming and fishing (Akyempon et al, 2013). The Municipality has a rich fishing history and considered a key fishing ground in the Western Region and Ghana at large. From the 100 fish landing beaches in the Western Region, 17 are located in the Nzema East Municipality (Akyempon et al., 2013). Fishing within the Municipality is seasonal with the main fishing season between July and September fishing (mainly sardinella and the tuna), followed by a minor season between November and January (Coastal Resource Centre, 2013a).

Axim is the most endowed town within the Municipality in terms of facilities such as roads, hospitals, schools and industries (Nzema East Municipality, 2006; Adusah-Kakari, 2014). It is made up of two main communities, which are Upper and Lower Axim, with each having its own traditional ruler or chief (Nzema East Municipality, 2006). The Municipality has one of the busiest fishing grounds in Ghana consisting both locals and migrants from other parts of the country. During the peak-fishing season, the Municipality experiences a high influx of fishermen and boats from other towns such as Shama, Sekondi and even other neighbouring countries (Coastal Resource Centre, 2013a).

Axim is located about 64 km West of Sekondi-Takoradi (the regional capital) and to the West of Cape three points (Nzema East Municipality, 2006). It is located relatively close to the Jubilee oil fields (see Map 2). According to Adusah-Kakari (2014, p. 27) the relative proximity of Axim to Ghana's oil field in the Western region has 'substantially affected' fishing activities in the area. She further states that there have been numerous concerns by fisher folks and other local inhabitants about the negative impacts of the petroleum exploration on fishing activities in Axim. Some of the noted concerns include; chasing and harassment of fishermen fishing around the prohibited zone[1] and, the destruction and seizure of fishing nets by the Naval officers offshore (Dowokpor, 2015; Adusah-Kakari, 2014). Axim was therefore a relevant place to understand how

[1] Prohibited zone also known as Safety Exclusive Zone (SEZ) is a 500 m demarcated zone around petroleum installations offshore where fishing and activities other than petroleum extraction are prohibited.

the various concerns regarding the impacts of the offshore petroleum extraction activities on artisanal fishing. This study aims to provide a deeper understanding of how the fishery governance institutions at the national, regional and local levels are addressing these concerns and how such contested opinions have been or could be reconciled.

## 1.2 Problem Statement

Fish landings in Ghana mainly consist of small pelagics such as; sardinella, anchovy and chub mackerel, which are characterized by fluctuations in terms of output based on the seasons (Ayivi, 2012). The seasonality in output is a natural cause resulting from periodic upwelling of the country's ocean current (Koranteng, 1991). However, there have been growing concerns by academics and some stakeholders about the declining trends of the Ghanaian fishing industry in terms of total catch, profitability and its general contribution to the country's economy (Ayivi, 2012; Atta-Mills et.al, 2004). A study by Ayivi (2012) shows a general decline in major fish catch species **(**e.g. sardinella, anchovy and chub mackerel**)** especially between 2005 and 2010. Another study by the Coastal Resource Centre (2013b), shows a decline in Ghana's fish landings for small palegics from 277,000 metric tonnes in 1996 to as low as 92,000 metric tonnes as at 2011.

Diverse explanations have been given for the causes of these declines. It is argued that the inception of the Exclusive Economic Zone (EEZ) in 1982 by the United Nations restricted fishermen including those in Ghana from fishing beyond Ghana's territorial waters (Kwadjosse, 2009; Atta-Mills et al., 2004). The Exclusive Economic Zone is the territorial boundaries prescribed under the United Nations Convention on the Law of the Sea (UNCLOS, 1982) which specifies the extent of the sea and its resources which each independent state reserves the exclusive right to explore and use (UNCLOS, 1982; retrieved; 27.10.2015). Obviously, the reduced fishing area could mean a decline in fish catch, as these 'international fishermen' who used to plough beyond the country's borders are restricted only to fish within the confines of Ghana's waters. However, studies have shown that these international fishermen continue to migrate to other neighbouring West African countries (Duffy-Tumasz, 2012, Overa, 2001). For instance, it is estimated that about 90% of artisanal marine fishermen in the Ivory Coast are Ghanaian migrant fishermen (FAO, 2008 in Duffy-Tumasz, 2012).

It is also argued that weak governmental institutions in the enforcement of Ghana's fishery laws and standards is a major cause of illegal and unregulated fishing (e.g. illegal trawlers from other countries) which in turn results in overexploitation of the fishery resource (Mills et.al, 2012; Atta-Mills et.al, 2004). A World Bank's report on Ghana's fisheries indicates that, 'the root cause of the declining profitability of Ghana's fisheries lies in the failure of the government to control access to the resources, so that there are too many vessels competing to catch too few fish' (World Bank, 2011, p. 2). In a report by Mills et al. (2012) on the second Ghana National Fisheries Governance Dialogue organised in 2012; light fishing, use of chemicals for fishing and the use of illegal nets (small mesh size) were noted as the key non-compliance issues observed in Ghana's fisheries. It is also argued that the absence of a canoe licensing system has resulted in unrestricted fishing in Ghana's waters by foreign industrial trawlers, which is a contributing factor to the declines in Ghana's total fish landings (Mills et al., 2012). Strong institutional capacities and collaboration with the people affected by the fishery regulations are considered key to ensuring an effective fishery governance system (ibid.). However, studies by Ackah-Baidoo (2013) and Obeng-Odoom (2014) show that the national fisheries governance institutions have been very passive in addressing general concerns of fisher folks including their concerns regarding the negative impacts of petroleum extraction on the fishing activities.

Recent studies and some stakeholders (mostly in coastal fishing communities) suggest that the country's oil and gas production, could be a major contributing factor to the fishing output decline (Ackah-Baidoo, 2013; Adusah-Karikari, 2014). The restriction of fishermen in what is widely known as the Safety Exclusion Zone (SEZ) has further restricted fishermen's access to the sea for fishing activities (African Development Bank, 2009). The Safety Exclusive Zone is a restricted area backed by law that prevents fishing within a 500 m radius around the offshore oil exploration sites in Ghana (ibid.). These spatial restrictions, together with the attraction of fish by the lights at the oil extraction sites, noise from the oil rig and disturbance in the sea by oil tanker vessels are among the most cited concerns currently raised by fishermen to account for the declines in Ghana's marine fishing output (Obeng-Odoom, 2013). Also, various headlines from the Ghanaian media such as; 'Oil production threatens fish catch' (Graphic Online; published, 14.05.2013), 'Ghana whale deaths blamed on offshore oil exploration' (The Guardian, published 05.09.2013) to mention a few, suggest that there are concerns from the fisher folks which would need to be

addressed. The term ‘fisher folks’ used here includes; fishermen, fish mongers and canoe or boat owners. The Map 2, below shows the proximate location of Axim in relation to the oil exploration fields in Ghana.

Map 2: Offshore petroleum extraction fields in Ghana.


Source: https://crossedcrocodiles.wordpress.com/2009/07/16/ghanas-jubilee-oil-field/#jp-carousel-2151

In response to the concerns raised by fisher folks with regards to the impacts of the operations of the petroleum extraction activities on fishing, studies have shown that the petroleum companies have done very little to address these concerns so far (Ackah-Baidoo, 2013; Obeng-Odoom, 2014). There are reports of counter arguments from the oil companies, which suggest that their impacts on fishing is minimal and does not affect the quantity of marine canoe fish catches (African Development Bank, 2009; Obeng-Odoom, 2014).

The above seems to suggest that there are several grievances, concerns and contestations, which require the attention of fisheries governance institutions in Ghana to address. Thus, understanding

how such concerns and contestations are addressed by the various fisheries governance institutions were crucial to this study.

### 1.3 Research Questions

How are fishery governance institutions in Ghana addressing the concerns raised by fisher folks in Axim with regards to the impacts on fishing of offshore petroleum extraction activities?

The sub-research questions include:

1. What kinds of fisheries versus petroleum industry related concerns and conflicts have been reported in Axim?
2. In which ways have fishery governance institutions at the national, regional and local levels been involved in resolving such conflicts?
3. What has been the participation of the various stakeholders in resolving such conflicts and how has stakeholder participation impacted on the outcome of such conflict resolution processes?

To tackle these research questions, the common pool resource theory and political ecology approaches were used to study the resource concerns and conflicts. From the political ecology approach, two main discursive positions emerged from the different stakeholder groups in the fisheries and petroleum industry. As the study will show, the fisher folks argue for the need to protect their fishery-based livelihoods from the detrimental effects of the petroleum extraction activities, while the governmental organisations and petroleum companies argue for the need to restrict fishing activities, both to conserve the fishery resources and to protect petroleum extraction activities offshore. The conflicting interests of free access to the ocean space to support local fish based livelihoods, on the one hand versus natural resource revenue generation for the purpose of national economic development, on the other hand, are therefore in essence at the centre of the discussion in this thesis. The implications for the governance of the ocean space from these discursive positions and the way they are invoked through different stakeholder images are discussed in detail in the chapters four and five.

## 1.4 Organisation of study

This study is organised into seven chapters. After the general introduction in chapter one, Chapter two explores the theoretical underpinnings of the study. The third chapter provides the research methodology. It elaborates the techniques and strategies deployed for data production. Chapter four and five provide empirical findings of the study. The sixth chapter provides a discussion of the empirical findings in light of the theories used for the study. Finally, chapter seven concludes the study by summarising the key findings and providing some recommendations.

# CHAPTER TWO
# THEORETICAL APPROACHES

## 2.0 Introduction

This chapter discusses the theories and concepts used in the study. I used the common-pool resource theory by Ostrom (1990) to analyze the governance of the ocean as fishing grounds and grounds for offshore petroleum exploration in the case of Axim, Ghana. Underpinned by the political ecology approach, the concepts of institutions, power, discourse and stakeholder images provided useful insights in understanding the various levels of contestations as well as the discursive positions of various stakeholder groups. The chapter concludes by understanding the directions of power and its implications for various stakeholders in addressing fisheries versus petroleum extraction activities in Axim.

## 2.1 Common-Pool Resource Theory

A 'common-pool resource' also called 'common property resource', according to Ostrom (1990, p. 30) refers to 'a natural or man-made resource system that is sufficiently large as to make it costly (but not impossible) to exclude potential beneficiaries from obtaining benefits from its use'. Thus, most common-pool resources are large such that different users can utilize it concurrently and any attempt to prevent a prospective beneficiary from utilizing the resource mostly result in negative consequences (Ostrom, 1990). Such resource systems include; grazing areas, oceans and fishing grounds, among others. A resource system contains the resource units that are utilized (ibid.). Examples of resource units include; fish, which has been harvested from the sea, lakes or other fishing grounds, and minerals mined from the mineral deposit sites in the soil or ocean, such as gold and crude oil (ibid.). Such resource units may be consumed directly (e.g. fish), used for producing other goods or sold to secondary users for profits (ibid.). Ostrom (1990, p. 30) refers to the process of harvesting the resource units from the resource system as 'appropriation' and the harvesters or beneficiaries as 'appropriators'. According to Ostrom (1990) access rights and the utilisation of a common pool resource could be in the hands of an individual or be distributed among group of individuals or firms. Hence the term 'appropriator' can be used as a collective term for fishers, miners, herders or anyone who utilises the resource (ibid.).

Ostrom (2002) further posits that in situations where the resource units are highly valued by its appropriators and characterised by open-access, individual utilization of the resource is likely to have negative consequences in what is popularly known as 'tragedy of the commons' by Gareth Hardin who argued that 'freedom (open access) in commons (resource utilization) brings ruin to all' (Hardin, 1968 in Song et al., 2013, p. 171). In such situations, an 'effective governance regime' – an external authority, is required to control the 'negative externalities' (ibid., p. 1317). Such governance regimes would help regulate; who should use a resource unit, at what location, of what quantity and at what time (Ostrom, 2002). The governance regime would also prescribe the technology to be used, the obligation of each appropriator as well as how conflicts over utilisation can be resolved and rules be changed (ibid.). To reduce that dilemmas in common-pool resource utilization and ensure conformity to such rules requires an effective monitoring system (Ostrom, 1990; Schlager, 2004). According to Schlager (2004, p. 151), 'monitoring discourages rule breaking and assures rule followers (resource users) that they are not being taken advantage of by rule breakers. Monitoring ensures credibility of rules (ibid.).

Thus, the common-pool resource theory serves as an important framework in exploring the various fishing and petroleum industry conflicts, the underlying relations and implications for the resource appropriators and institutions in the Ghanaian ocean governance system. In the case of Axim, the study focuses on the contestations and conflicts between fisher folks, and oil and gas extraction companies who have different resource interests, but their resource appropriation occurs within the same resource system or area (the ocean). Fishermen are interested in harvesting fish resources in the ocean, whereas the petroleum companies are interested in extracting the oil and gas resources at the bottom of the same ocean. Therefore, common-pool resource theory helps to explore the governance dilemmas of Ghana's ocean space, which serves as a fishing ground and grounds for petroleum extraction.

## 2.2 Critiques of Common-pool resource theory from political ecology approaches

Although Ostrom enhanced our understanding and conceptualisation of how we can understand governance of common-pool resources. There have been several critiques of her theoretical assumptions of which an important critique has come from the political ecology approach. She has been criticised for taking for granted the role of local institutions in governing such resources (Agrawal, 2003). There are established social systems and institutions (norms and values) that

shape local behaviour, including those of fisher folks (Berkes, 2009, Agrawal, 2003). Rules made at the local levels are usually well regulated and obeyed compared to those enforced by external authorities who regulate through command and control policies (Agrawal, 2003). Local rules are made by the natives of such localities who are often well-informed about local issues (due to their relative closeness) and share common interest with the local people (Leach et al., 1999). To reduce the dilemmas in the governance of common pool resource, it is important to consider whether there is equity in resource access and whether local resource appropriators consider such rules to be legitimate and tuned to the local social context (Poteete et al., 2010; Agrawal, 2003).

There are cases where incoming organisation(s) (new common pool resource users) may rely on such external regimes and actors to claim supremacy in the use of a common pool resource (Agrawal, 2003). Besides, state organisations may not only become regulators, but may be involved in the privatization of the common pool resource (ibid.). Thus, change in governance regime would occur 'only when relevant political actors perceive gains from such change' (Agrawal, 2003, p. 245). Agrawal posits that the efficiency of an external regimes or regulations for a given society depends on the extent to which the 'interests of groups attempting institutional change intersect or overlap' with the interests of the larger society (Agrawal, 2003, p. 245).

Political Ecology (PE) approach is one of the many theoretical approaches that have emerged to address some of the criticisms of Ostrom's common pool resource theory as above. Political ecology is a field that seeks to unravel the political forces at work on resource access and management (Robbins, 2012). It stresses the need to understand for instance, the influence of power relations on natural resource access and utilization (May, 2013). According to May (2013, p. 29), studies in political ecology aims at uncovering the 'winners, losers, hidden costs, and differential power involved in socio-environmental outcomes'. It again, 'seeks to expose flaws in dominant approaches to the environment' to reveal unintended consequences and contradictions 'from the point of view of local people, marginal groups, and vulnerable population' (Robbins, 2012, p. 20). Thus, studies in political ecology proceeds from questions such as 'what causes resource loss?' 'Who benefits from efforts to conserve resources and who losses?' among others (Robbins, 2012, p. 20.). Rather than a grand theory, PE provides conceptual tools for analyzing human–environment relations and the consequences for various stakeholders involved (Robbins, 2012; Schubert, 2005).

Thus, the concepts of institutions, power, discourse and stakeholder images, which are presented below, are very central in PE analysis. These concepts provided useful insights in understanding the conflicts that arise from utilizing the sea as a common pool resource for fisher folks and the petroleum extraction companies in Axim. It also helped to understand the various stakeholder discursive positions as well as the course of actions and implications for various stakeholder groups.

## 2.3 Concept of institutions

According to Agrawal and Gibson (1999), a focus on institutions that shape decision making processes is very crucial in natural resource conservation and governance. It enhances our understanding of the local level processes, interventions, designs as well as the relations of power and interactions around resources and groups (Agrawal and Gibson, 1999; Leach et al., 1999). Institutions are defined as formal or informal sets of rules and norms that mould human interactions and our interactions with nature (Agrawal and Gibson, 1999). To Hodgson (2006, p.2), institutions are durable because they help 'create stable expectations of human behaviour and generally enable ordered thought of expectation and action by imposing some level of consistency on human actions and interactions'. Although there are possibilities of deficiencies, institutions help to reduce uncertainty of human actions (North, 1990). To ensure stability and consistency of actions, institutions tend to restrict some practices and outcomes, and promote others (Agrawal and Gibson, 1999). Hodgson (2006) posits that such restrictions can open new possibilities. For instance, rule of law may increase personal security, just as traffic rules can help traffic flow more easily (ibid.).

The above presupposes that institutions are rules, but such rules are not static, they are 'constantly evolving and continually altering choices available to us' through our interactions (North, 1990, p. 6). That is, rather than a fixed system, these rules are continually made and remade through human interactions and actions (Leach et al., 1999). As Agrawal and Gibson (1999) point out, institutions are constantly changing due to variable human activities that they are made to influence. Hence, institutions or rules change because they exist for humans whose actions and interactions keeps changing. However, whiles there are constant efforts to ensure change in institutions, some individuals are better positioned to influence change in institutions than others do (Hersoug et al., 2004).

North (1990, p. 3) defines institutions as 'the rules of the game in society or, more formally, are the humanly devised constraints that shape human interaction'. It thus includes norms, codes of conduct, conventions as well as legal rules (Hodgson, 2006). Hence, there are formal and informal institutions which often coexist and reinforce each other to regulate human interactions (Hodgson, 2006; North, 1990). North (1990) however asserts that it is much easier to understand, enforce and be precise about formal rules than informal rules. Formal rules are those laws legally codified and enforced by legal external (governmental) authorities (Leach, et al., 1999). Such laws can be enacted over a very short period (e.g. governmental decrees, court injunctions, etc.) and are enforced by state organizations such as; the court, police and prisons (ibid.). Hodgson (2006) recognizes that some laws can be widely ignored by the people concerned. This could be because such laws have not acquired the 'customary dispositional status of a rule' (ibid., p. 5). For laws to become rules or institutions, they should be enforced to the extent that people's actions and inactions become customary and acquire normative statuses (ibid.).

It is generally known, that for centuries, societies have imposed informal rules and constraints to mold their activities and relations with others. Such constraints include codes of conducts, conventions and norms that emerge from and guides the daily actions and interactions among individuals and groups in society (Leach et al., 1999). They are often not codified and emerge from the daily interactions and expectations within a society (ibid.). Hodgson (2006) however recognizes that there are no strict distinctions between formal and informal institutions as they coexist and reinforce each other in a society, especially on issues of national concern. In Fisheries governance for instance, Hersoug et al. (2004) assert that the fishery industry is both a local, national and even an international concern. Hence, it requires fisher folks 'own initiative' as well as external (governmental) support (ibid. p. 206). Thus, for better fisheries governance, fisher folks should be made 'co-authors' instead of being mere recipients of externally formulated rules which often worsen their conditions (ibid.). Therefore, local participation is central to managing fisheries resource utilization disputes and in general fisheries governance (Jentoft, 2004). Jentoft and McCay (1995, p. 229) identify two main extremes of participation as, 'government power' and 'fishermen power'. Government power is where the government through its organizations becomes the sole determinant of fishery rules, as fisher folks adhere to the rules (ibid.). At the other extreme, 'fishermen power' is where fisher folks are in full control in the management of

their activities. Therefore, concepts such as interactive governance or co-management, which involves solving natural resource governance problems by through 'interactions among civil, public and private actors' are emphasized in fisheries governance (Kooiman et al., 2008, p. 2).

In the definition of institutions, North (1990, p. 5) stresses that there should be a distinction of the 'rules from the players'. He further asserts that 'if institutions are the rules of the game, organizations and their entrepreneurs are the players' (ibid.). According to North (1990), organizations are made up of groups of individuals bounded together by some common purpose to achieve certain objectives. In this sense, organizations would include groups such as political parties, firms and trade unions (Hodgson, 2006). Organizations are thus the kind of institutions with well-established boundaries, which distinguishes members from non-members, with well-established chains of command and power to decide who is in charge (Hodgson, 2006). Institution in this sense are not the rules themselves, but the 'rule enforcing mechanism' or organizations, which ensures conformity to the rules **(**Elster, 1989 in Hersoug et al., 2004, p. 207). Thus, in fisheries governance in Ghana, such rule enforcing institutions would include state organizations such as Ministry of Fisheries and Aquaculture Development (MOFAD), Environmental Protection Agency (EPA) and the law court. Thus, organizations are referred to as the structures or framework of rules and regulations enforcement (analogous to a building) within which individuals or stakeholders known as 'actors' act like 'inmates', often with different objectives (Commons, 1934, in Hodgson, 2006, p. 8). However, rules and rule enforcing organizations are inherently intertwined (Hersoug et al., 2004). According to Hayami (2001, p. 221), although it is theoretically meaningful, a distinction between institutions and organizations are practically inseparable. As 'organizations use rules to function, rule systems act by organizing people into functioning bodies' (Hersoug et al., 2004, p. 207). Thus, they reinforce each other.

Hersoug et al. (2004, p. 206), further state that institutions provide the 'values, preferences, rights, norms, guidance, warnings, standards…and meanings' to human activities. Thus, institutions help 'regulate the relations of individuals to each other' and helps to define 'what the relations of individuals ought to be' (Parsons, 1990 in Hersoug et al., 2004, p. 207). Institutions serve as the means for mediating conflicts among resource appropriators and a medium through which people make claims on environmental resources (Leach et al, 1999; Crook et al., 2007).

In fisheries governance, Hersoug et al., (2004) recognizes that there are various stakeholders or actors involved. These include; fisher folks, that is; fishermen and fish traders as well as families, kinship and the concerned community at large (ibid.). Such communities are often congested by 'newcomer activities' which may be commercial, recreational, among others which often results in the struggle for space, conflicts and contestations (Hersoug et al 2004, p. 12). In the case of this study, the 'new comer activity' would be the petroleum extraction activities offshore the Western region in Ghana, where the fishing town Axim is located. Studies by Ackah-Baidoo (2013) and Obeng-Odoom (2014) have shown that the recent establishment of the oil extraction industry especially near coastal fishing communities has resulted in competition for space on the sea among fisher folks within these fishing communities and the new comer petroleum industry. This has resulted in various levels of conflict resolution dilemmas among the concerned state and local institutions (ibid.). Understanding the role of both formal and informal institutions was crucial to analyzing the resolution of the conflicts and contestations among fisher folks and the commercial oil extraction companies in the case of Axim, Ghana.

## 2.4 Power relations in natural resource governance

According to Weber (1969 in Fishman, 1997, p. 416) power is the ability of an actor in a social relationship to impose his or her will on another. From the political ecology perspective, power is an important aspect of the relations between society and the environment as well as their governance (May, 2013). According to Fishman (1997, p. 416), power is not wielded by individuals or groups, but results from series of processes and relations - 'a product of human activities'. To Foucault, 'power is everywhere: 'not because it embraces everything, but because it comes from everywhere' (Foucault, 1980, p. 93). He further contends that, scholars should desist from seeing power as possessed, exclusionary and coercive, but as diffused and discursive, producing 'rituals of truth' (Foucault, 1977, p. 194). All societies have discourses they accept and consider as true. Power is the means through which what counts as knowledge, scientific and true in a society is founded (Foucault, 1977).

Notwithstanding, there exist unequal power relations among individuals and different resource user groups depending on their access and control over resources (Giddens, 1984 in May, 2013). These unequal power relations could result in different forms of confrontation and instability, which has its own risks of conflict and struggles (Foucault, 1980). Power is thus crucial in

understanding how various resource appropriators can negotiate their way in accessing and allocating resources. It is also a key factor for determining winners and losers when resource use conflicts arise (Larson and Soto, 2008).

May (2013) posits that newcomer industrial and recreational activities within coastal fishing communities tend to have more power in coastal resource policy processes and outcomes mainly resulting from fisher folks' lack of participation which reduces their power to influence policies regarding their activities. The results are stricter regulations of fishers' activities, which are often detrimental to fisher folk's development as well as the concerned communities (May, 2013). As such, the inability of local resource users to influence local fishery decisions could result in local sense of neglect and potential dispossession of local user rights (ibid.). From this study, the concerns of fisher folks regarding petroleum activities as discussed in chapter five, relates to the concept of 'blue grabbing' by Benjaminsen and Bryceson (2012, p. 336), underpinned by Harvey's concept of 'accumulation by dispossession' (Harvey, 2003 in Benjaminsen and Bryceson, 2012, p. 336). Blue grabbing refers to a situation where previous users of the sea (local people) are dispossessed their user rights by powerful actors who accumulate the benefits from the resource (Benjaminsen and Bryceson, 2012). It is a typical example of Marx's 'primitive accumulation' where 'local user rights to the commons' are suppressed for capital accumulation purposes (Marx, 1976 in Benjaminsen and Bryceson, 2012, p. 338). The concept of power was therefore crucial in understanding how fisher folks and petroleum companies negotiated their interests and how such negotiations influenced the institutional outcomes in the fishery versus petroleum industry conflict resolution processes.

## 2.5 The Concepts of Discourse and Stakeholder Images

One way of analyzing data of different stakeholders with different interests is through discourse analysis. The concept of discourse can be defined as a socially constructed meaning about a phenomenon, which results in 'sets of practices, involving speech, writing and action' (Cline-Cole, 2007, p. 123). It is a way of talking about or portraying a phenomenon. Discourses are expressed by means of narratives or storylines aimed at influencing institutional arrangements (Benjaminsen & Overå, 2011; Adger et al., 2001). According to Roe (1991), a narrative typifies a well-ordered story with a beginning, middle and an end. These stories intend to convince people that a given condition exist which requires policy interventions otherwise the worse would happen (ibid.).

Narratives are structured to involve a 'cast of actors', often with these three main types of characters; heroes, villains and victims (Adger et.al, 2001, p. 685). The power of a narrative tends to be enhanced under conditions such as; when donor bodies and their countries tend to be attached and/or the recipient countries with their governments heavily rely on foreign aid and expertise for advice (Hoben, 1996). With these expressions, an individual or group of people may argue for or against social policies and decisions regarding the phenomenon in question (Peet and Watts, 1993 in Cline-Cole, 2007).

According to Delaney et al. (2007, p. 805), discourse analysis focuses on the relationships between interests and beliefs about what is 'true'. In fisheries governance, several stakeholder groups with different interest are involved (Leach et al., 1999). In utilizing the ocean resources, it is therefore not surprising that several conflicts and contestations exist between the different user groups and even among fisher folks themselves (ibid.). As Delaney et al. (2007, p. 805) put it, fisher folks who are mainly interested in fishing to make profit would argue with facts which supports their activities, whereas fisheries governance institutions and agencies mainly interested in enforcing rules to control exploitation of the fisheries resource would argue against increased utilization of the resource. Fishery conservation groups and associations may also emphasize the seriousness of say, overfishing as a problem and the need to address it urgently (ibid.). To buttress this point, Wilson (2007), contends that people's interests and beliefs about nature have an interactive and mutually reinforcing relationship. Similar different interests seem to have emerged in Ghana among the various groups who benefit from the sea. Current among them is the differing interests between fisher folks and petroleum extraction companies in the coastal fishing communities in Ghana's Western Region as studies reveal (Dowokpor, 2015; Adusah Kakari, 2014; Ackah-Baidoo, 2013).

In Axim, oil and gas extraction companies are mostly cited by fisher folks in the area for being a major contributing factor to the declining profitability and increased restrictions in their fishery activities (Adusah-Kakari, 2014). In addition, in policy formulations, fisheries management institutions usually follow the major discourses of scientist to the neglect of the local management practices (Delaney et al., 2007; Jentoft, 2004). This in turn deteriorates the conditions of local fisher folks, who under such circumstance resort to other means of exploitation to meet their needs (Leach et al., 1999). Issues relating to questions such as 'what the problems are and whose problem

definition is taken into account' are crucial in discourse analysis (Jentoft et al., 2010, p. 1315). Unlike a typical discourse analysis undertaken through narratives, this study focuses on the analyses of the discursive positions and arguments used to support the opposing stakeholder discursive positions as well as the stakeholder images invoked from the opposing views.

Different forms of images or perceptions exist among different resource users and even between users within the same group as well as the resource governing actors about the resource in question (Song et al., 2013). Such differences usually have implications for relations of power among the various stakeholders as well as the general governability of a common pool resource system such as the ocean (ibid.). According to Morgan (1997 in Song et al., 2013, p. 168), the concept of stakeholder images refers to 'a way of thinking and a way of seeing, that pervade how we understand our world generally'. That is, people's perspectives and knowledge about a phenomenon that largely governs their behaviour towards it (Boulding, 1956 in Song et al., 2013). Song et al. (2013, p. 168) contend that the images that various fisheries (in this case the ocean space) stakeholders have about their activities and towards each other are crucial in determining the 'overall governance process by guiding, shaping and inspiring decisions and actions'. Such stakeholder images can be positive or negative and they influence the line of discourse of various stakeholder groups (ibid.). An example of such an image used in fisheries governance is the 'tragedy of the commons' by Gareth Hardin who argued that 'freedom (open access) in commons brings ruin to all' (Hardin, 1968 in Song et al., 2013, p. 171). Such an image influenced the establishment of the institution of the Exclusive Economic Zones (EEZ) and the consequent restrictions of fishermen fishing in the sea which was otherwise an open system (Song et al., 2013). Another example of a typical stakeholder image in fisheries is discussed by Bene (2003) in his article, *'When fishery rhymes with poverty…'*. In this article, Bene argues that the common image of small-scale fisher folks as the 'poorest of the poor' and, that 'they are poor because they are fishermen' influenced the fishery governance direction (ibid.). According to Bene (2003, p. 950) an image of fisher folks that poverty in fisheries is mainly linked to the overexploitation of the fishery resource has led to the concentration of ways to control small-scale fisher's activities, to the disregard of other possible factors influencing the economic and social standards of the fisher folks.

Therefore, simplified and even faulty pictures about realities in fisheries can mislead fisheries governance policies and have negative consequences on the various stakeholder, especially at the local level (Song et al., 2013). Foster argues that instead of looking at the actual problem occurring in fisheries, decision makers and other stakeholders based on their established images often resort to what they think should be the case or ought to prevail (Foster, 1956 in Song et al., 2013). This often has negative consequences for various resource users, especially at the local level, as real existing situations are usually ignored (ibid.). Similarly, a negative image from fisher folks about fisheries governance institutions could influence their level of compliance to these institutions.

The concept of stakeholder image is common in discourse analysis and likened to the caste of actors used in the analysis of narratives, which are expressions of these discourses (Song et al., 2013; Bene, 2003). Such stakeholder images emerge from the discursive positions and views expressed by the different stakeholder groups (Song et al., 2013). The concept of images, which is closely linked with the concept of discourse, played a crucial role in this study understanding how each of the stakeholders utilizing the sea viewed their activities and that of their counterparts and how these influenced their decisions and the policies governing them. Understanding images as expressions of contesting discourses was therefore relevant in this study.

# CHAPTER THREE
# RESEACH METHODOLOGY

## 3.0 Introduction

This chapter discusses the research tools and techniques used to produce the data based on the research questions. The various ways of gaining access to the study area and respondents as well as my positionalities in the field are laid out. The chapter also discusses the ethical considerations in the research processes and concludes by discussing issues of validity and reliability of field data produced and analyzed.

## 3.1 Qualitative research approach

The qualitative research methodology was the main methodological approach used for this study. This was done because of its suitability to the aims and objectives of the study. According to Kumar (2011, p.103), 'the main focus in qualitative research is to understand, explain, explore, discover, and clarify situations, feelings, perceptions...and experiences of a group of people'. Thus, qualitative research helps to understand the object under study deeper through people's own lenses, by asking them questions regarding the research objectives, based on their perceptions (Tewksbury; 2009). Qualitative methods are flexible by allowing the researcher to probe deeper into people's experiences and opinions about the issue under study (ibid.). The purpose of this study, as stated in chapter one, was to investigate the concerns and opinions of the fisher folks in Axim regarding the impacts of the petroleum industry on fishing. The processes by which these concerns are resolved by the various responsible institutions at the local and national levels were also investigated. In consequence, adopting a qualitative research approach was ideal.

Based on the approach used, specific data techniques such as observation, participant observation, group interviews as well as key informant's interviews were used. These methods were utilised to produce primary data for analysis. Analysis of documents of selected governmental and non-governmental organisations as well as petroleum extraction companies in Ghana were also undertaken during fieldwork. These served as secondary data sources.

## 3.2 Reconnaissance stage of fieldwork

My fieldwork in Ghana commenced from June 07, 2016. Prior to travelling from Norway to do fieldwork in Ghana, I already had two friends in Ghana who assisted me with accommodation arrangements and meeting some key informants in Axim. Two weeks before my departure, one of these friends had put me in touch with the paramount chief of lower Axim via a phone call. I declared my intention and the purpose of my study to him and made an appointment with him. My second friend, who was a mate at the University of Ghana and worked with a Non-Governmental Organisation (NGO) in Axim had also arranged for my accommodation.

## 3.3 Fieldwork

I made my first trip to Axim to meet the paramount chief for a proper introduction and seek his permission to conduct my research in his area. Upon my arrival in Axim, I went to the paramount chief's residence for a formal introduction. On my way to the chief's residence was a fish landing beach close to the Axim market known as Main Lane Beach (locally called '*Boat ase*' literally meaning 'under the boat'). As I passed by the beach, I observed that the landing beach was relatively quiet, with most fishermen mending their nets, some fish traders were also selling fish but no canoe had landed – it was the 'non-fishing day', by custom, no fisherman was supposed to fish or come to the shore with their catch on a Tuesday.

Upon arriving at the chief's residence, I greeted the chief with a bottle of schnapps as customs demands. I introduced myself to him once again as a student researcher from the University of Bergen, Norway, and provided the necessary documentation backing my claims. Fortunately, my thesis supervisor had also met with the paramount chief some years earlier and had taken some pictures with him. These pictures boosted the confidence he had in me. He granted me the permission to conduct my study and scheduled an interview date with me. Thus, he became my first gatekeeper. Gatekeepers are very crucial in qualitative research. According to Campbell et al. (2006, p. 98), gatekeepers are those who provide, directly or indirectly, access to key resources needed to do research; be it logistical, human, institutional or informational. The Paramount chief was not only my first gatekeeper, but also a key informant who provided me with useful information about Axim.

I contacted the chief fisherman of Lower Axim the same day through the paramount chief. This chief fisherman provided me information about Axim, the main occupation of the people (fishing), the various fishing practices and the challenges in the industry as well as the current issues with regards to oil and gas extraction activities. These discussions broadened my scope of knowledge about Axim, especially in fishing and helped me modify some of my research questions. After our conversation, the chief fisherman directed me to the zonal office of the Fisheries Commission in Axim. He also linked me with other relevant people such as the sub-chief fishermen who contributed to my study. Additionally, the fishermen and fish traders were more comfortable speaking to me when I mentioned the names of the chief fisherman and the paramount chief, making the chief fisherman my second gatekeeper.

Before I left Axim that day, I went to the Fisheries Commission zonal office to introduce myself, and book a date for an interview. Fortunately, after introducing myself, they invited me to an upcoming 'Hygienic Fish Handling Workshop'. The workshop was organised in collaboration with some local NGOs to sensitise mainly fish traders and fishermen on healthy fish handling practices such as storing fish in ice boxes, wearing of gloves, hair covers and aprons to make fish healthier for consumption. This was a great opportunity to meet key informants for my study.

The Hygienic Fish Handling awareness workshop took place at the premises of the Fisheries Commission zonal office in Axim. I went to one officer of the Fisheries Commission who became a friend because we had the same surname and age. He introduced me to the NGO officials who were present and informed the fish traders about my intention to sit in the workshop. The moderator of the programme introduced me to the fish traders as a student. My introduction made it easy to contact the fish traders and fishermen after the workshop. This workshop also highlighted the various means by which various organisations interacted with the local fisher folks. It was thus, an opportunity to meet fishermen and fish traders as well as their respective leaders who were relevant for my study.

After spending two weeks in Axim, I travelled to the regional offices in Takoradi of; Tullow Oil Ghana, the Petroleum Commission, the Ministry of Fisheries and Aquaculture Development (MOFAD), the Fisheries Commission, the Ghana National Canoe Fishermen Council (GNCFC), the Fisheries Enforcement Unit (FEU) as well as the NGO, Friends of the Nations, to seek their

approval and schedule interview dates. Through the officials contacted at the regional offices of the above organisations, I was put in touch with their counterparts at their head offices in Accra.

Before moving to Accra, I scheduled interview appointments with officials at the Ministry of Fisheries and Aquaculture Development, the Fisheries Commission and the Environmental Protection Agency (EPA). Since I had my national service[2] at the EPA head office, it was easy to contact the officer in charge of fisheries. Although my informant at EPA was initially reluctant, he later agreed when I disclosed to him that I used to work at the Agency. After spending two weeks in Accra and Takoradi, I returned to Axim to continue with my follow-ups.

### 3.4 Statuses and roles during fieldwork

In social research, establishing rapport and reflecting upon the relations of power in the field have become very crucial (Sherif, 2001; Mullings, 1999). Depending on their socio-cultural background and experiences, social science researchers tend to have deeply ingrained worldviews shaping their understanding of the phenomenon under study (Ablo, 2015). Such 'maps of consciousness' and positionalities shape the research process, their interpretations and the rigor of the research findings (Harraway, 1991 in Mullings, 1999, p. 337). To enhance the accuracy of field descriptions and analysis, researchers need to re-position themselves to understand issues from the perspective of their informants (Vannini, 2008). As such, different statuses or positionalities with accompanying expected roles are assigned to social researchers on the field (Mullings, 1999; Linton, 1936). According to Linton (1936, p. 113), defines status as ones 'position in a particular (social) pattern'. The researcher's positionalities are assigned through various 'signifiers of difference' such as; age, educational background, gender, race and language (Mullings, 1999, p. 339). Therefore, there is the need for a continuous reflection on the impacts of these positions on the researcher-informants power relations, which shape how interview is conducted, and the general research outcome (Ablo, 2015; Mullings, 1999).

During fieldwork, my positionality as a male Ghanaian from the Western region of Ghana and a Master's student from Norway influenced my access to and interactions with my informants. I occupied both insider and outsider positionalities at different times on the field. According to

[2] In Ghana, it is required of every student who completes tertiary education to serve the country for one year. This is known as national service. I had my national service at the EPA head office in Accra after my first degree.

McNess et al. (2015, p. 295), a researcher with an insider status is often regarded as 'culturally embedded and subjective'. It is argued that researchers with a clear insider positionality could use their knowledge about the population under study to establish rapport with the people (Hill-Collins, 1990 in Mullings, 1999, p. 340). On the other hand, a researcher with an outsider positionality is often viewed as 'detached and objective' (McNess et al., 2015, p. 295). Thus, Young (2004) concludes that researchers who are considered outsiders by their research participants find it challenging to gain their trust. According to Kusow (2003 in Ergun and Erdemir, 2010, p. 17), researchers' positionalities are not static but emerge 'from the interaction between the researcher and the participants as well as the social and political situation within which the interaction occurs'. Based on the circumstances under which the research is conducted, a researcher may be considered an insider at one moment and an outsider at another moment by the informants. These positions could have both positive and negative impacts on the researcher's fieldwork outcomes (Ergun and Erdemir, 2010; Sherif, 2001). Mullings (1999, p. 340) suggest that researchers should seek 'positional spaces' where both the researcher and the researched could negotiate their unequal power relations to a more balanced level to create a level of trust and co-operation.

I conducted fieldwork interviews with informants of different social standing, such as educated government officials, oil and gas officials and comparatively less educated fishermen and fish traders, and their leaders. This involved s constant re-positioning of my different identities to ensure some level of symmetrical relations of power with the different stakeholder groups. I emphasized certain aspects of my identity that I felt would be less threatening depending on the social standing of the informant interviewed.

In Ghana, I am a native of Agona Nkwanta, which is two hours' drive from Axim (study area). Being a 'Westerner' (person from Ghana's Western Region), and undertaking fieldwork in the same region, I was aware of my partial insider status. Therefore, outsider researchers' common problem of 'isolation and the search for social acceptance and ties with the society' (Sherif, 2001, p. 440), was minimal in my case. It was easy for me to gain access and establish rapport with the local traditional leaders, fishermen and fish traders in Axim. Besides, Axim and Agona Nkwanta have strong ethnic, cultural and linguistic affinities. Ahanta and Nzema are two main languages spoken by the people of these two towns. Despite the differences in language, people from these

towns are classified under the same ethnic group as '*Akans*[3]*'*. They celebrate same festival – '*Kundum'* and have same traditional food – '*Akyeke'*. I usually benefited from the shared identities with people in the two towns by emphasizing my cultural background, which the interviewed fisher folks in Axim found less threatening and they were comfortable in sharing their opinions. Therefore, I acquired a temporary insider position as I was repeatedly referred to as a 'brother' a 'son' and 'one of our own' during my conversations with the fishermen and fish traders**.**

More importantly, my involvement in the 'hygienic fish handling workshop' conferred a partial insider status on me not as a fisherman but as someone who shared in their interest. Although initially, I was thought to be a journalist and was expected to act as an observer during the program, my sudden involvement in the street marching, displaying placards and dancing, made the fishermen and fish traders feel I was indeed sympathetic towards them. However, my partial insider position conferred on me the expected role of believing in the popular opinions of the fishermen and fish traders. For instance, it was common for fishermen to state: '*You are from here* [Western region] *so you should know the problems of the oil*'. They expected that I would express similar arguments as theirs regarding the impacts of petroleum extraction on their fishing activities. This became a problem, as the fisher folks often did not see the point of sharing with me what they thought I already knew. I usually had to rephrase my questions or ask what their personal view was irrespective of what they thought I knew before they would answer.

Irrespective of my numerous social affiliations in Axim, I assumed an outsider position at certain points in time. As a researcher hailing from a non-fishing community, I exhibited some deficiencies when it came to understanding the various local fishing methods and mechanisms. Thus, some of the fishermen and fish traders interviewed felt the need to explain most of the local fishing terms and practices during our conversations. For instance, during our discussion on the various types of fishing gear, a fisherman explained the meaning of a fishing gear locally called '*Ahyekon*' (traps the neck), that this type of fishing gear is used to catch fish by trapping their neck. Since I had led the conversations in most of the interviews with the fishermen and fish traders, this was an opportunity for them to assume their role as local experts in fishing to share with me what

[3] The dominant Akan language spoken in both towns is Fante which is understood by people of Ahanta and Nzema. Thus, Fante was the main medium of communication with my informants in Axim.

I did not know. I used this opportunity to learn about the local fishing practices and challenges from the fisher folks' perspective.

Besides, my academic status assigned a somewhat outsider positionality on me. As a student researcher from a developed country like Norway, I was regarded as a rich man by some of my local informants. During an introduction to a group of informants for instance, I was asked by one of them: '*So what would you give me after spending my time with you, how much would you pay'*. '*You* [researchers] *always come here for information from us but we do not receive anything from you'*, another added. However, a third person quickly intervened and exclaimed: *'But he is a student!'*. The first person then said: '*Not just a student, he is* '*borga'* (local term for Ghanaians who travel to developed countries). In all these situations, I emphasized my position as a student and not a migrant worker in Norway. Due to this, I de-emphasized my country of study, as this was persistently happening, especially among certain group of informants in my effort to speak to them.

As a student from the Western region of Ghana, I was also assigned outsider positionality during my conversation with government officials and petroleum companies' officials. As a 'Westerner', I was expected to argue in line with the opinions the fishermen and fish traders. For instance, a government official in Accra when asked what she thought were the causes of declining fish catch, after listing some factors indicated: *'I know you expect me to mention the oil, but it is not part'*. In a conversation with another government official in Takoradi, he asked: '*What about the plight of the oil companies, are you looking at fishermen's concerns because you are from here* [Western Region]?*'*. He asked these questions, thinking that my research interest only aimed at dealing with the concerns of fishermen and fish traders without seeking the views of officials of the petroleum companies and government organisations. I explained the purpose of my study to him, and why his input was crucial. The demonstration of my quest for balanced opinions from different stakeholders and the respect for his opinion engendered some level of understanding during the interview.

My academic researcher status also conferred on me a partial insider position during my conversation. By asking questions that demonstrated my awareness of documented studies on the potential impacts of petroleum extraction on aquatic resources, provided me with a level of respect

and credibility from the government and petroleum officials (Mullings, 1999). For instance, an oil company official indicated '*I knew you* [researcher] *would not think like the way fishermen do'*. Irrespective of my social affiliations with the Western Region, asking such questions demonstrated to the officials that I was as neutral as possible in our conversations and respected their views as well. This led to the expressions of the candid opinions of these officials on the possible factors affecting the canoe fisheries in Ghana.

Although my varied positionalities denied me access to some relevant information at certain times, it was an opportunity to present myself as an impartial information seeker. It also made my informants less suspicious of my intentions for conducting the study and ensured a balanced view from the different stakeholder groups (Mullings, 1999).

### 3.5 Sampling methods

According to Barreiro and Albandoz (2001), due to the complexity of the world and the fact that it is often impossible to produce data from a whole population, sampling is used to select a part of the population relevant for the study. This provides 'information about a relatively small part of a larger group or population in order to make inferential generalization about the larger group' (Rice, 2010, p.230). Sampling therefore ensures that data is manageable and comparatively easily produced.

This study focused on depth of issues rather than ensuring statistically rigorous information. Two main non-probability sampling methods were used (see Rice, 2010). These were purposive sampling and snowball sampling techniques. According to Rice (2010), purposive sampling is a process where units or informants are selected based on their prior experience relating to the phenomenon under study. Based on the research objectives, people known to be knowledgeable in a subject of discussion by virtue of their position in communities, experiences or holding particular professional position and are willing to participate in the study are selected (Ball, 1990 in Cohen, 2007). Using purposive sampling, key informants in the artisanal fisheries in Axim, including their traditional leaders as well as officials of petroleum companies and relevant government officials who could provide answers to my research questions were selected. These were people I considered more knowledgeable about fishing and petroleum extraction related activities. This is because of their involvement in the fishery and petroleum industries and the conflict resolution

processes between the two industries. In order to limit 'investigator bias in subject selection' (Panacek and Thompson, 2007, p. 78), key informants were selected from all the relevant stakeholder groups to understand the topic from different perspectives to gain a balanced view of the issues discussed. The purposive sampling was first used to identify key informants after which the snowball sampling helped to identify other potential informants.

Snowball sampling technique is a 'process of sampling from a known network' (Dattalo, 2008, p. 6). In snowball sampling, other potential informants who might meet the researcher's criteria and interested to participate are contacted through recommendations of previously contacted informants (Panacek and Thompson, 2007). In this study, I relied on the recommendations by the chief fishermen and chief fish traders to identify other fishermen and fish traders relevant for my study. For instance, my initial conversation with the main chief fisherman revealed that not all fishermen could go near the offshore petroleum installations to encounter the direct impacts of the oil and gas extraction activities. He then put me in touch with two fishermen who had canoes with such capacity and thus could provide relevant information about the impacts of the petroleum activities on their work. These fishermen in turn provided contact details of other potential informants who met these criteria and could provide useful information. After contacting key informants of the petroleum companies and government organizations in Axim, contact details of other officials in Takoradi and Accra who could provide useful information were provided by my initial informants. Thus, it was easy to contact these officials for interviews.

Thirty-seven informants were sampled for this study. These included thirty key informants' interviews and nine informants who took part in two group interviews. Two of the participants in the group interviews were key informants hence the increased number when summed up. Table 1 below shows detailed description of total informants involved in the study.

Table 1: Key informant interviews.

| **Informants category** | **Institutional level/location** | **Number** |
|---|---|---|
| Government officials | National (headquarters) | 5 |
| Government officials | Regional | 5 |
| Lecturer (University of Ghana) | Regional | 1 |
| Government officials | District | 3 |
| Oil company official | Regional | 1 |
| Oil company official | District | 1 |
| Non-Governmental Organisation officials | Regional | 2 |
| Paramount Chief (*Omanhene*) | Community | 1 |
| Chief fishermen (*Apofohene*) | Community | 4 |
| Chief fish traders (*Konkohemaa*) | Community | 2 |
| Canoe owners | Community | 3 |
| Fishermen (Crew leader and crew members) | Community | 6 |
| Fish traders | Community | 3 |
| **TOTAL** | | **37** |

Source: Fieldwork, 2016.

### 3.6 Data production methods

Data production was undertaken mainly by using various qualitative methods as mentioned earlier. Through my stay in Axim, I engaged in several informal discussions and observations which were crucial for issues to be discussed with my informant. From these informal conversations, I gathered a lot of information in my fieldnote book which were crucial for analysis. I also had key informant interviews and group interviews with the various stakeholder groups in the fishery and petroleum sectors. My criteria for data production were mainly based on the preferences of my participants. Interviews with fisher folks were usually recorded using audio recorder, whereas government officials and officials of the petroleum companies were more comfortable with me writing their views in my field notebook instead of recording. All interviews and other forms of communication were done either in English or in Fante, without the use of an interpreter.

### *3.6.1 Informal discussions and observations*

I engaged in several informal conversations especially with the fishermen and fish traders at the fish landing beaches. We discussed general issues on their activities such as why different fishers had different canoes, the meanings of the names on their canoes as well as their current challenges. We also discussed the number of canoe crew members as well as the roles of each member onboard. I also observed the various processes on fish trading from the time a canoe lands at the beach until it is sold to the wholesalers as well as the fish bargaining processes.

Plate 1: Informal discussions with a fishing crew member.

The informal conversations and observations provided me with first-hand information about the local fishing practices. I also had the opportunity to establish rapport with the fishermen and fish traders and in some occasions, arranged dates for interviews. I could observe peoples' reactions and feelings about the issues we discussed.

### *3.6.2 Participant Observation*

The worldview of daily life activities 'constitutes reality for its inhabitants, natives, insiders, or members' (Lyman and Scott, 1975 in Jorgensen, 2003, p. 19). By undertaking participant observation, the researcher aims to uncover the meanings that people they would want to observe assign to their daily lives (Jorgensen, 2003). This is done through active engagement of the researcher with the members of the community under study (Fine, 2015). Within my three month

stay in Axim, I had the opportunity to participate in several local fisheries programmes and activities in Axim. Key among them was my participation in the 'healthy fish handling workshop' organized within the first week of fieldwork. This provided the opportunity to engage in informal conversations with especially the fishermen, fish traders and their leader as well as to make interview appointments with them.

Plate 2: Street march during the hygienic fish handling workshop, Axim.



I also participated in the activities of fishermen at the beach such as mending of fishing nets and pulling of landed canoes at the beach. I joined them in singing and shared in the funny moments as the landed canoes are pulled.

Plate 3: Helping fishermen pull their landed canoe.

Plate 4: Helping fishermen by holding their fishing nets while they were mended.

Thus, participant observation was used in this study for its advantage of giving me the opportunity to participate in various activities, especially among the fisher folks in their natural work state. It was an opportunity to take note of key issues regarding their participation in decision making and their day-to-day activities through 'personal witnessing' (Fine, 2015, p. 530). It was also an opportunity to establish rapport with the informants, as they became comfortable to share their lived experiences with me.

### *3.6.3 Key informants Interviews*

Talking and listening to people is an important information gathering process (Longhurst, 2010). Hammersley and Atkinson (1995 in Legard et al., 2003, p.138) add to this view by stating that 'the expressive power of language provides the most important resource for accounts'. Webb and Webb (1932 in Legard et al., 2003, p.138) define interview as 'a conversation with a purpose'. It provides the means through which people lived world is constructed through informant's answers to a set of research questions (Longhurst, 2010). The Interviews together with the informal conversations provided the platform through which my informants expressed their opinions, perceptions and narrated their stories relating to the issues discussed. Two main forms of interviews were conducted – key informant's interviews and group interviews, using interview guide.

Key informant interviews are in-depth interviews with people who are considered to have wide range of information about the community under study and can provide first-hand information about the research purpose (Tremblay, 1957 in Bernard, 2011). In-depth interview was an important means by which I attempted to obtain information through face-to-face conversation with key informants from the fisheries and petroleum industries as well as government organizations using interview guides (Longhurst, 2010). Similar questions were asked among individuals of different stakeholder groups (see appendix 1 to 7). The in-depth interviews gave me the opportunity to probe further into issues raised by informants in the group interviews who were contacted. It was also an opportunity for such informants to say what they could not have said during the group interviews. Through my in-depth interviews, I could identify the different discursive positions through which informants from the different stakeholder groups described their viewpoints (Creswell, 2009).

### *3.6.4 Group Interviews*

According to Morgan (1997), with group interviews, the researcher plays a central role by asking series of questions, which are responded to, by the participants in the group. This makes it quite different from focus group discussion. Although focus group discussions are often seen as a form of group interview (Frey and Fontana, 1991 in Morgan, 1997), it differs on the basis that in focus group discussion, the researcher is less involved in the discussion and focuses on the interactions between participants based on a topic raised by the researcher (Morgan, 1997). Two group interviews were held during my fieldwork in Ghana. Table 2 below gives a description of participants in the two group interview sessions**.**

Table 2: Group interviews with different stakeholder groups.

| **Stakeholder group** | **Participants** | **Number of participants** | **Location** |
|---|---|---|---|
| Fisher folks | 1 Canoe owner<br>1 Crew leader<br>2 crew members | 4 | Axim |
| Government officials and GNCFC official | 1 FC official*<br>1 Naval officer<br>2 Marine police officers<br>1 GNCFC official** | 5 | Takoradi |

* FC – Fisheries Commission.

** GNCFC – Ghana National Canoe Fishermen Council

Source: Fieldwork, 2016.

It must be emphasized that the group interview held with the fishermen in Axim was not planned for, at the initial stage. As I began an interview with one fisherman who was mending his net under a wooden structure, other fishermen who were around and heard him talk became interested in our conversation and occasionally added their voices. So, I invited them to join. Interestingly, my initial informant and those who joined all worked for the same canoe and they revealed that they had been intercepted offshore by the Fisheries Enforcement Unit (FEU) on several occasions.

As the moderator in both group interviews, I probed into issues concerning fisher folk's perceptions about the oil and gas activities, their challenges especially about the oil extraction offshore as well as their opinions on how the various institutions at the local, regional and national levels are addressing these concerns. In the group interview with the officials in Takoradi, two discursive positions emerged. Whilst the government officials (especially the Naval and Marine police) defended their position about questions concerning reports of harassment of fishermen offshore as their role to defend the fisheries laws, the officer for GNCFC stressed how brutal some of these enforcement officers could be to fishermen offshore. In both cases, the interviews were recorded with an audio recorder for later transcription and analysis.

The group interviews made it possible for participants to discuss issues which I may have misunderstood or skipped during participant observation or informal discussions (Morgan, 1997). It also made it possible for participants to clarify or add to issues raised by others in the group for better understanding (ibid.). The group interviews also provided an opportunity for me to select participants who seemed to have relevant information for more detailed individual interviews later.

### 3.7 Case studies

According to Yin (1984 in Zainal, 2007, p. 2) a case study is 'an empirical inquiry that investigates a contemporary phenomenon within its real-life context'. It is an in-depth study of a well-defined system (Merriam, 2009). Thus, case study is not about the choice of research methodology but a choice of the object to be studied (Stake, 2005). Stake (1995) identifies three types of case studies. These are intrinsic case studies, instrumental case studies and collective or multiple case studies (ibid.). An intrinsic case study is when the researcher studies a specific phenomenon with the interest of gaining knowledge about the phenomenon in question whereas in an instrumental case study, the researcher aims at gaining general knowledge about a phenomenon by studying a

specific case relating to the phenomenon (ibid.). A coordination of several related case studies is referred to as collective or multiple case studies (ibid.).

This study is an instrumental case study, which investigates the ways in which Ghanaian artisanal fisher folks' concerns regarding the petroleum industry are being addressed by the local traditional and governmental institutions. I investigated into the various reported concerns and the role of the various institutions in addressing the concerns as well as the impacts and implications of such resolutions on various stakeholder groups in Axim.

### 3.8 Data Analysis

The choice of qualitative data analysis techniques depends on the type of data to be analyzed and the research purpose (Dey, 2003). The analysis of my field data began with translation and transcription of all the in-depth and group interviews as well as field notes. All field note, group interviews and in-depth were coded after transcription. Coding was done by categorizing responses into themes based on the research objectives and the theories for the study. Field data was analyzed using thematic network analysis. According to Attride-Stirling (2001, p. 386-387), thematic network analysis is a 'web-like' depiction of data that 'summarizes the main themes constituting a piece of text' with the aim to uncover the salient themes which satisfy the research purpose. It involves putting together coded texts with similar focus into basic themes. The basic themes are the lowest-order themes derived from the textual data (ibid.). By putting together similar basic themes in turn forms the second ranked themes known as the organizing themes. Finally, the overarching idea known as the global theme emerges from putting together the organizing themes (Attride-Stirling, 2001). The Table 3 below gives a brief description of how the thematic network analysis was utilized in this study.

Table 3: Thematic network analysis of field data.

| Codes | Basic themes | Organizing themes | Global theme |
|---|---|---|---|
| …they do not allow us to fish where we know we would get fish.<br>…Our fish has been kidnaped by the oil rig.<br>…The security men sometimes beat us.<br>...Our canoes and nets are destroyed by the oil vessels, the security men.<br>…They have beaten us and forbidden us from crying.<br>…if we beg them and they do not give us, there is nothing to do.<br>…it is their illegal fishing practice that causes declines in catch. | Lack of access to fishing grounds.<br>Low catch resulting from oil rig attraction of fish.<br>Harassment at sea.<br>Poor action by government and oil companies | Local concerns with regards petroleum industry. | Governing the ocean space for the coexistence of fisheries and petroleum industry. |
| …The impacts of oil are negligible<br>…The petroleum industry came only few years ago<br>…The fishermen are illiterate and do not understand issues.<br>…the only time you should believe a fisherman is when he tells you another fisherman is lying<br>…We organize programmes to educate the fishermen | Poor fishing practices instead of oil causing fish catch declines.<br>Lack of understanding by local fishers.<br>Fishermen exaggerate the issue. | Governments organization's and petroleum company responds to concerns. | |
| …A grievance redress committee is set to address all our related issues.<br>…We have a CLO who reports all issues.<br>…We put up school dormitories, hospitals etc. to support locals.<br>…It is difficult to provide accident proofs offshore.<br>…There is no demarcation to know where not to fish.<br>…We must pay our chief fishermen to represent us at the committees.<br>…They do not pay us for the time we should stay home. | Education and sensitization programmes.<br>CLO supervise CSR programmes to address local issues.<br>Lack of proof inhibits local's ability to demand compensation.<br>Economic cost of redress mechanism to fisher folks | Addressing the concerns and implications. | |

Source: Fieldwork, 2016.

The different discursive positions and perceptions of the various stakeholder groups in the fisheries and petroleum industries as well as the governmental and traditional organizations were analyzed. In this way, textual analysis as well as the various metaphorical statements from different stakeholder groups with respect to my research questions were teased out (Aase and Fossåskaret, 2007). These helped to get into the stakeholder images of informants from the various stakeholder groups with respect to their lines of concerns and arguments regarding the research questions (ibid.).

### 3.9 Research ethical issues

Ethical issues are very crucial in social research (Behi and Nolan, 1995). It is ethically required that social researchers ensure informants' informed consent and confidentiality, and generally ensure that the research outcome is beneficial and not destructive to the participants and their communities (Drew et al., 2007). To ensure informants informed consent during my fieldwork, I informed all potential gatekeepers and community leaders about my research to seek their permission. I ensured that community leaders, heads of related government departments and Agencies as well as the oil and gas companies who participated were duly informed in detail about the purpose of my research for their approval. I also provided necessary documentations such as reference letters and student ID card that certified my academic affiliation with the University of Bergen. Copies of reference letters, which contained a description of my research purpose, were sent to the potential participants via either email or I had to deliver them in person.

Participants joined from their own will after I thoroughly explained details of my study to them. My thorough explanation of the research content was done to avoid any form of deception and the consequent lack of trust from my informants. Consent of informants were sought before photographs of them were taken. I also explained to them what these photographs. Whilst some informants agreed that I could use their photos in my study, others agreed that I could only use them as proofs of my fieldwork to my academic supervisors, but not to publish them in my thesis. I assured them to do, as they preferred. All informants were well informed in cases where audio recorder was used. In cases where I had to write our conversation based on informant's preference or conditions at the time of meetings, I showed what had been written to informants for clarification and confirmation. I repeated and rephrased some questions to ensure that all informants had a full understanding of my study. In sum, all informants who took part in my group interview as well as the individual in-depth interviews were well informed and had the free will to participate or refuse to participate.

Furthermore, all participants were assured the confidentiality of our discussion as well as their identities prior to our discussions. This was done to gain their trust, to ensure a more 'open' discussion with them. Therefore, real names of participants and key information that could lead to informants being traced have been changed. Besides, audio recordings, pictures as well as

transcribed written texts from fieldwork were all encrypted and could only be accessed by the researcher. Also, in situations where informants were not comfortable with discussing at their work places, we arranged to have our discussions in their private homes.

According to Drew et al. (2007), harm to participants in research may include; personal embarrassment, physical stress or various influences, which negatively affect research participants in diverse ways. Hence, efforts to reduce or avoid such impacts are very crucial in social research (ibid.). To avoid physical stress, I made my participants aware of the estimated total time each interview would likely take. Interviews were also undertaken at the participant's convenient time and place. Informants were free to decide which mode of data recording to use, whether audio recorder or writing in field notebook. To ensure that participants understood and participated fully and comfortably, participants who could not speak English were at free will to speak Fante. Fishing in Axim is dominated by Fante migrant fishermen and fish traders. With my Akan background, Fante became our main language of communication without the use of an interpreter. These were later transcribed into English for the analysis. Irrespective of the different viewpoints expressed by informants of various stakeholder groups and my personal opinions about issues discussed, I made a conscious effort to understand the issues from the informants' perspectives. This demonstrated to my informants that I respected their viewpoints and helped create a 'climate of trust' with them (Legard et al., 2003, p. 143).

### 3.10 Data validity and reliability

The concepts of validity and reliability in qualitative research emerged from the positivist's conception of reality, rooted in the idea of universality, objectivity and replicability of findings and conclusions (Elo et al., 2014; Golafshani, 2003). In qualitative enquiry, issues of validity and reliability have become very crucial in the research design and analysis (Patton, 2001). These terms are linked to the concept of trustworthiness proposed by Lincoln and Guba (1985 in Elo et al., 2014, p. 2). According to Lincoln and Guba, validity and reliability aims at proving that the findings in a qualitative enquiry are 'worth paying attention to' (Lincoln and Guba, 1985 in Golafshani, 2003, p. 601).

### *3.10.1 Data validity*

According to Sandelowski (1986 in Clonts, 1992, p. 995) a qualitative research is valid when it provides accurate description of individuals' experiences such that those having the experience would easily recognize those descriptions as their own. It is a way by which researchers ensure data credibility by attempting to provide adequate representation and a true picture of the phenomenon under study (Shenton, 2004). My presence in the field was an avenue to have a personal experience of some of the issues discussed, especially at the local level. This improved my understanding and explanation of events. In the data analysis, I repeatedly referred to my interview responses when developing the research themes for analysis to ensure that data analysis was consistent with participants' responses. I usually confirmed unclear responses from informants through phone calls to ensure that my descriptions of them and my understanding of local terms and events were in line with their opinions.

Besides, my use of different qualitative research methods such as observations, group interview, participant observation and key informant interviews were important tools for confirming interpretations in each method. According to Jakob (2001), method triangulation helps reduce research bias by ensuring that the different methods cover the weaknesses of each other. Thus, my use of different qualitative methods helped to ensure rigor and reduce the possible bias associated with the use of a single data production method (Denzin, 1970 in Merriam, 1995). However, there were several threats to the validity of data. During interviews with informants from the different stakeholder groups, I realized that each of the informants often tried to portray positive images of themselves. For instance, during an interview with a government official in Accra, when I asked; what the concerns of fisher folks regarding the petroleum industry were, his first response was: '*There are no concerns*'. He only began talking about the potential threats and the various allegations from fisher folks regarding the petroleum industry after I rephrased the question as: 'Do you think the petroleum industry could negatively affect fishing'?

### *3.10.2 Data Reliability*

Reliability of data refers to the extent to which study results can be replicated using same methods of enquiry (LeCompte and Goetz, 1982 in Clonts, 1992). It is aimed at ensuring that research data and results produced are dependable and consistent with other similar studies (Zhang and

Wildemuth, 2005). However, qualitative research deals with human characteristics, emotions and perceptions that are ever changing hence difficult to repeat or replicate under same conditions (ibid.). Hence, Guba and Lincoln (1981 in Clonts, 1992), suggest the need for researchers to consider whether other researchers getting same results would agree that such results make sense. In this way, even different results would not be seen to refute the earlier result but as being complementary (Merriam, 1988 in Clonts, 1992). To ensure data consistency and reliability, the various processes and conditions under which data were produced in my study have been explained in detail.

However, several threats to data reliability were encountered. For instance, upon realizing that not all fishermen had canoes with a capacity to fish around the oil rigs far offshore, I aimed at interviewing those fishermen with such fishing capacity using purposing sampling. This however meant that the opinions of other fishermen would not be considered. Having this in mind, I made a conscious effort to get the views of fishermen with other kinds of canoes as well. Another threat to data validity emerged because of the type of boots I wore during an interview with a fisherman. This boot is normally worn by security officers including the Ghana navy, which the fisherman thought I was one. A fisherman was initially reluctant to share his views and experience he had had with the fisheries enforcement officers. Realising the potential impacts of this on data validity, I made conscious effort to back my academic status claim with reference letters and my student ID cards before he started discussing a distressed encounter he had with the security officials offshore.

# CHAPTER FOUR
# FISHING, FISH TRADING AND FISHERIES GOVERNANCE IN AXIM

## 4.0 Introduction

This chapter is divided into three sections. The first section introduces the marine canoe fishery practices and techniques in Axim. It discusses the various landing beaches, the types of fishing gears, canoe types and fish sharing system in Axim. The second section discusses fish trading in Axim by shedding lights on processes of fish trading at the landing beaches, pricing and marketing destinations, as well as seasonality of fish and coping strategies adopted by the fisher folks. The third section discusses governance of fisheries at the traditional (local) and governmental levels. This is done by looking at the roles of local traditional institutions and governmental as well as non-governmental organisations in governing the fishery industry in Axim.

## 4.1 Fishing in Axim

Like other coastal fishing communities in Ghana, fishing is an important economic activity in Axim. As narrated by a fisherman: '*This is the only work my parents left me...I have eleven children of which eight are in school and this is what I do to take care of them...'*. It is also a key source of food (protein) for the people. The importance of fish as a source of food was reiterated during my participation in the heathy fish handling workshop when the fish traders began to sing this song in Fante: '*Osoye oo, wannso oo, yedze bi beye nkwan...*' meaning: 'Whether we get profit or not, we will prepare soup with some of our fish to be sold'. A fish trader who doubles as a canoe owner recounted how fish is an important source of protein for her family: '*I have sold fish since I was a teenager and by God's grace I now have a canoe...anytime the fishermen* [mainly family members] *arrive, I mostly prepare some of the catch for their meals...and use some for our supper'*.

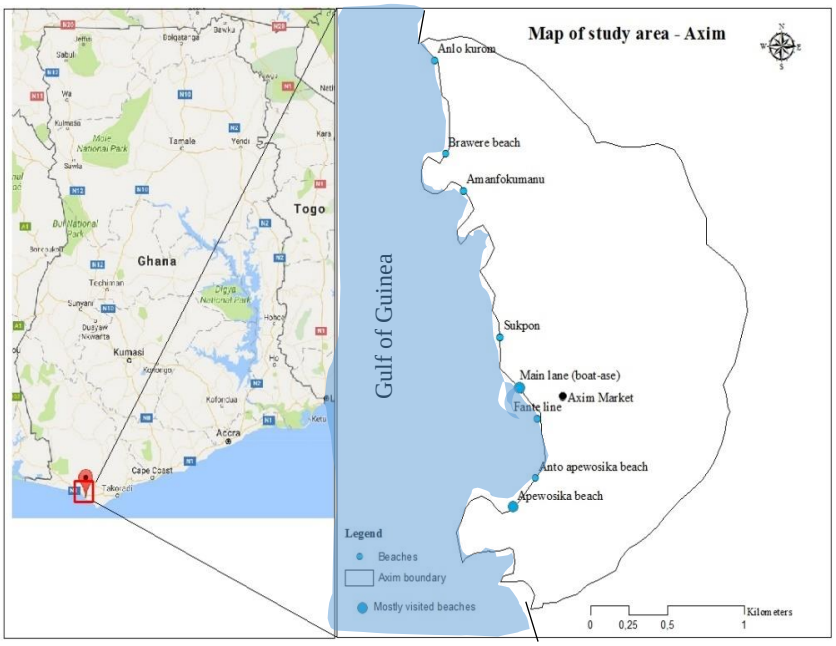
In Ghana and Axim in this case, fishing is an activity for men (Kraan, 2009; Overa, 2003). There are different categories of people in the artisanal fisheries who perform different roles. This comprises of a canoe owner (male or female), a clerk, crew leader (*Bozen*) and a crew of one to twenty members. They perform different roles before, during and after fishing. For instance, in Axim, the mending of torn nets and pulling of canoes to the shore are mainly done the crew members. The canoe owner and the clerk are not usually involved in fishing but are responsible for providing fishing equipment and inspecting the catch of their canoe at the landing beach

respectively. The canoe owner is also required to provide food for the crew members as well as premix fuel and ensure maintenance of the canoe. The canoe owner may also perform the role of a clerk. Thus, the canoe owners, the crew leaders and their crew members were key stakeholders who provided useful information in understanding the various fisheries versus petroleum industry conflicts in Axim.

## 4.2 Landing beaches in Axim

Axim has a 70 km stretch of sandy beaches, with eleven fish landing beaches (Akyempon et al., 2013). The landing beaches in Lower Axim are: Main Lane (also called *'Boat–Ase',* 'under boat'), '*Fante line' (*named after Fante fishing migrants*), 'Apewosika' ('*searching for money'*), 'Anto-Apewosika' ('*came after the search for money'*), 'Sukpom', 'sika santewase' ('*money ground'*), 'Nkekaem' ('*noisy ground'*).* The fish landing beaches in Upper Axim are: '*Brawere'*, '*Akyinim'*, '*Amanfokumanu' and 'Anlo kurom' ('Anlo-town')* – named after *Anlo-Ewe* fishing migrants. The landing beaches in Upper Axim stretch from Central Axim, westwards of the town, while those in Lower Axim stretch eastwards. Lower Axim is the main area for landing of canoes and fish catches in Axim. It consists of large stretch of sandy beaches, which can accommodate large number of canoes. The Main Lane beach is the landing beach closest to the Axim market, making it one of the busiest beaches of the town.

Map 3: Locations of selected fish landing beaches in Axim.




Source: Modified from Google, 2017.

Children in coastal fishing communities develop an interest in fishing at the early stage of their lives (Dowokpor, 2015; Overa, 2003). This situation was not different in Axim as I observed children at the landing beaches with some helping to carry fish from landed canoes. Another observation I made at most of the beaches in Axim was the sanitation conditions. These beaches serve as places where landed fish are grouped according to size on the bare ground (see plate 6). It is on this same ground where big sized fish such as dolphins and sword fish are sliced into pieces (see plate 5 below). In an interview with an NGO official during the healthy fish handling workshop, she indicated that this was one of the reasons for organising such a programme, to sensitise both fishermen and fish traders on better ways of storing and processing their catch.

Plate 5: Landed swordfish (‘*etsietsi’*) cut into pieces at the beach.

### 4.3 Fishing gears and types of canoes

The main type of canoes used in Axim as in Ghana generally, which is the dugout canoe made of wood, which is often propelled by outboard motors (Finegold et al., 2010). Common woody materials for making these canoes are *Triplochiton scleroxylon* and *Ceiba petandra* locally known as ‘*Wawa’* and ‘*Onyina’* respectively (Doyi, 1984 in Akyempon et al., 2013). In the Ghanaian artisanal fishery sector, canoes are mainly classified based on the type of fishing gear used (Akyempon, et al., 2013). The type of fishing gear used also depends on the targeted fish to be caught (ibid.). As one chief fisherman explains: ‘*You can see different kinds of canoes on the beaches because, every type of canoe has its own type of gear...’*. The type of gear determines

which kinds of fish to be caught and where fishing could be undertaken by fishermen offshore. The types of canoes and gears also tells how far out these canoes go fishing and which types are likely to face the most problems of collision with oil tanker vessels and fishing near the oil rigs.

Finegold et al. (2010, p. 8), identify small or one-man canoe, mid-sized canoes and large canoes as the three main categories of canoes in Ghana. One person using paddles or sails operates the one-man canoes also called '*Dokua*' in Axim. Paddles or sails are used because they are too small to be propelled by outboard motors (Akyempon et al., 2013; Finegold et al., 2010). As such, they are mostly used for inshore line fishing and less threatened by offshore petroleum activities (ibid.). The mid-sized canoes can carry between 2 to 11 crew members. It has a length ranging between 6 to 11 m, and Sail, paddles or outboard motors of capacities between 8 to 40 hp (Finegold et al., 2010). The mid-sized canoes can be used for bottom set nets, drift gill nets, beach seine nets and line fishing. With length ranging between 11 to 17 m, the large sized canoes can have a crew of 10 to 20 fishermen. The Ali/Poli/Watsa (APW) canoes are the largest within this category of canoes (ibid.). Outboard motors of 40 hp capacities mostly propel these types of canoes. Another type of canoe known as service or '*seiko*' canoes have also been identified (Akyempon et al., 2013). These canoes are mainly used for transporting by-catch from industrial trawlers (Nunoo et al., 2009; Overa, 2005).

Canoes ranging from small to large sizes can be found at the various landing beaches in Axim. However, majority of these canoes are within the mid-sized and large sized groups (Interview with Chief fisherman, 2016). This is confirmed by statistical data from the Ghana canoe frame survey report, from 2013, which indicates that out of a total 415 canoes recorded, 110 were within the one-man canoe group, the remaining are mid-size and large size canoes (Akyempon et al., 2013). Different kinds of fishing gears are used in Ghana: purse seines (*poli/watsa*), drift nets, beach seines, set nets and lines (ibid.). According to a fisheries commission official interviewed in Axim, the three most popular fishing gears used in Axim are the purse seines (*watsa*), drift nets, and set nets. This is because most of the fish caught in Axim are the pelagics such as the sardinellas, herrings and tunas mostly caught by these kinds of gears. She further indicated that although some canoes can use different kinds of gears simultaneously, the kind of gears used mainly depend on the season or the type of fish likely to be available.

The Purse seine (*watsa*) is the main gear used in Axim especially during the major fish season (interview with Fisheries Commission zonal officer, Axim). Purse seines are v-shaped gears used for catching middle and surface dwelling fish (Bjordal, 2002). The purse seines are dragged overboard to circle around the cluster or schools of fish (ibid.). The main difference between the purse seines and the beach seines is that purse seines are used in deep waters (offshore) where the nets are tied to canoe(s) whereas the beach seining is done close to the shores where nets are tied and drawn to the beach (Kraan, 2009; Bjordal, 2002).

According to a naval officer in Takoradi, light fishing and the use of dynamite for fishing is mostly associated with purse seining where fishermen attracts fish with the light, blast them using dynamite and traps them with the net. He added that such practices are punishable by law as fish of all kinds and sizes are caught, which destroys the fishery resource. In his reaction, he stated: '*They* [fishermen] *should remember that they are eating their chickens as they eat their eggs before they are hatched*'. The impacts of size selective fishing or catching fish before their spawning age on the fishery resource sustainability is highly debated (see Kolding and Zwieten, 2011).

Drifts gill net (DGN) is another common type of net used in Axim. The two main drift nets used in Axim are the DGN popularly called '*niffa-niffa'* and Ali nets (*Ahyekon).* They drift freely with the ocean current, often with the craft to which they are attached (Doyi, 1984). According to a chief fisherman in Axim: '*It is sometimes due to the free drifting of such gears by ocean currents, that some fishermen find themselves in the exclusive zone, through no fault of theirs'*. The DGN can be 100 m to 450 m long and 15 m to 20 m deep (Doyi, 1984). The main type of fish caught with this type of gear include: tunas, dolphins, sharks and swordfish (Nunoo et al., 2009). Fishing with the DGN is mostly done on daily basis throughout the year.

Set net is another type of net used in Axim. These are nets used to catch fish by gilling, entangling or enmeshing them (Doyi, 1984). According to a canoe crew leader (*Bozen*), such set nets are also used for catching sharks offshore Axim. Fishermen may also undertake hook and line fishing in addition to the gears used. In hook and line fishing small fish species such as anchovies are used as baits to catch bigger fish such as tunas and sharks. Canoes with DGN, '*Watsa',* set nets, and hook and lines usually have high (40 hp) capacity outboard motors and therefore used for fishing at far distances offshore, even to the offshore petroleum installations. These canoes are the most

affected in collision with oil transporting vessels and industrial trawlers, which mostly resulting in conflicts when such vessels are spotted (Interview with canoe crew leader, 2016).

Government officials interviewed indicated that until the commencement of petroleum installations offshore, which is approximately 60 km from the Western coast of Ghana, artisanal fishing was not undertaken in these areas. However, studies have shown that fishing at far distances by Ghanaian artisanal fishermen is not a recent phenomenon (Walker, 2002; Chauveau, 1991; Odotei, 1991). These fishermen are known to fishing along Ghana's continental shelf, which stretches 80 km from the coast of Ghana (Walker, 2002). According to Odotei (1991, p. 170-171), the introduction of outboard motors in the 1960s made it possible for fishermen to fish in waters which would have been considered far in the past when only sails and paddles were used.

### 4.4 Fish sharing system in Axim

The sharing of fish proceeds is an important livelihood income for crew members. The sharing system varies from one fishing town to the other (Akyempon et al., 2013). In the case of Axim, sharing of proceeds is done after each fishing trip as described by a canoe owner: '*When we sell our caught fish, we subtract the expenses made for the trip. After this, the amount left is shared fifty percent between the canoe owner and the crew members'*. He added, that the cost per trip for her *watsa* canoe is GHS 1,200 (US$307, at the currency rate at the time of the interview). There are times that the catch does not meet the total cost incurred. In such situations, the canoe owner upon agreement with crew members keeps fifty percent of fish proceeds and share the remaining fifty percent as above. In such cases, the crew members usually keep their share of daily sales with canoe owner for about 6 to 8 months before taking their monies. This is of mutual benefit to both the canoe owner and the crew members. The canoe owner could use this money to fund the next fishing trip while in addition to ensuring continuous work, the crew members benefit from the canoe owner's temporary role of a bank.

### 4.5 Gender roles in Ghana's canoe fishery

Ghana's fishery sector is divided along gender lines (Kraan, 2009; Overa, 2003). Men are responsible for fishing while women are in charge of the processing and trading of the landed fish (ibid.). As Overa (2003, p. 51), puts it: 'Men provide fish for women's pot…fishing at sea is a male domain, the market ashore is female'. However, in a group interview, a fisherman referred to a man who periodically bought his fish. He said, '*There is one man who normally buys tuna and*

*redfish from me and he claims that he has a contract with some hotels and restaurants in Axim and Takoradi to supply them fish...men buy fish* [ashore], *but only a few here* [in Axim]'. Women are also prominent in Ghana's canoe fishery beyond processing and trading, especially since the introduction of outboard motors from the 1960s (Overa, 2003). The introduction of the outboard motors increased the prominence of women in the canoe fishery industry as they provided credit support for fishermen in return for fish (ibid.). Some of the large-scale traders also provide fishing equipment, such as outboard motors, fishing gear and even canoes (ibid.). This ensures reliable source of fish supply for fish traders. A fish trader who doubles as a canoe owner narrated: *'...I give money to my husband's brother who also has two canoes. I sometimes give them money for fuel, food and other petty items...once I give them the money, I am assured that whatever fish they get, I would be the first to be given'*. Therefore, both men and women are key stakeholders in artisanal fisheries and conflicts.

### 4.6 Fish Trading in Axim

Once the caught fish is landed at the beach, the fish is grouped according to species and sizes. The grouping is done in the presence of the chief fish trader (*Konkohemaa*), canoe clerk, crew leader and potential fish buyers. After grouping the fish, the price for each heap is negotiated between the canoe clerk, crew leader (*Bozen*) and the chief fish trader (*Konkohemaa*). The chief fish trader negotiates the price for fish for the day and price changes during the day of fish landed by canoes within her area of jurisdiction.

Plate 6: Landed tuna grouped by sizes for pricing.

Upon agreement on the price, each fish trader is supposed to buy at the price agreed for the day. However, based on the differences in size and type of fish catch per canoe for the day, the price of fish could be renegotiated between the *Konkohemaa* and the clerk and/or crew leader of each canoe. The price of fish is not entirely determined by the *Konkohemaa*. A fish trader's ability to make instant payment could contribute to her bargaining power. A fish trader recounted: '*There are some of us who cannot pay 'ready cash'.... our challenge is that when we are not able to pay immediately, our power to bargain for price reduction is minimal. They* [fish wholesalers] *would tell you, you are not even paying so why ask for a reduction'.*

The credit relationship between fishermen and traders are both economic and social in nature (Overa, 2003, p. 53). A fish trader confirmed this when she indicated how their inability to make instant payment could affect their profit margins: '*unless they know you* [a relative or close friend] *and when we are given fish on credit, we are required to sell our fish immediately even when fish is in abundance, to be able to pay our debt... brother, now, our work is only for 'chop money'* [for subsistence]*'*. With regards to the instant payment, a canoe owner indicated that the reduction in catch has resulted in them (canoe owners) demanding instant payment and sometimes part payment if the trader is a 'customer' (regular client), to make it possible for another trip.

In Ghana, fish is processed mainly by smoking, frying and salting (Britwum, 2009). Processed fish is transported to various inland market locations across Ghana and beyond (Overa, 2003). In Axim, processed (mainly smoked) fish is transported to locations, such as Agona Nkwanta, Kumasi, Tekyiman, Tamale and Burkina Faso for sale. The fish trader having contacts with people in these locations influences the choice of a marketing location (Overa, 2003; Overa, 1998). As a chief fish trader narrated: '*I started this work about 12 years ago, initially, I used to transport smoked fish myself to locations such as Agona Nkwanta, Bogoso and Sefwi...now, I have people in some of these locations who place orders by calling me on phone and pay after it is received. They are people I have traded with for a long time, there is mutual trust between us. I also have a daughter in Tamale who make orders on regular basis'.*

### 4.7 Seasonality in fishing and coping strategies

The marine fishery industry in Ghana is characterized by seasonal variation (Overa, 2001; Koranteng, 2000). The seasonal variation mainly results from the periodic upwelling of the ocean

current, which occurs from June to October (major) and January to February (minor) (Koranteng, 2000; Roy, 1995). Thus, like other coastal fishing communities in Ghana, there are two main fishing seasons in Axim. The major fishing season: *'period which all fishermen prepare for'* (interview with chief fisherman, Axim, 2016), spans between July and September whereas the minor season spans between December to January (see also Marquette et al., 2002).

Fishermen and fish traders adopt various measures to minimise the impacts of low fish catches on their livelihoods during the lean season. Among such measures constitutes migration (Njock and Westlund, 2010; Overa, 2001). The sardinella canoe fishermen migrate (often short term) from coastal western Ghana to the east, following the movement of the fish stock (Overa, 2001). A canoe crew leader at *Apewosika* landing beach recounted how this has impacted his family life: '*I am a Fante from Apam. My first fishing trip to the shores of Axim was around 2001. It was within this same period that I met my wife who was then a hair dresser in Axim. I used to land in Half-Asini, Axim and Sekondi then back to Apam as the catch reduced. During those times, with one canoe I could catch a lot of fish. So, my wife left her job and began to process some of my catch for sales. Now her hair dressing kiosk is where we keep our fuel drums and gallons'*. He added that although he has settled with his family (wife and five children) in Axim, he still goes fishing in other coastal fishing towns when he hears of bumper catches there. Axim is historically known to be a popular destination for migrant fishermen (especially Fante fishermen) in Ghana (Overa, 2001). Two popular landing beaches in Axim; *Fante town* and *Apewosika* are named after Fante migrant fisher folks who first settled along these beaches, according to a member of the GNCFC in Axim.

However, Overa (2001, p. 2) posits that whereas Ghana's canoe fisheries seasonal migration is largely resource related, long-term migration 'tends to be less dependent on the resource than on economic and political conditions. During my fieldwork in Axim, a canoe crew leader discussed reasons for his long stay in the Ivory Coast: '*I stayed in Sassandra, Ivory Coast, for about 25 years. Before I went, I had an uncle who lived in the town. He informed me about the strength of the Ivorian currency and the fact that I could get equally more fish there...I returned to Axim during the election disputes in the Ivory Coast...'*. Thus, in addition to the fishery resource, other factors such as family relations, economic and political reasons could inform a fisherman's decision to

migrate. All fish traders and fishermen who participated in my research had migrated within Ghana or to another country for at least once.

Fishermen may also engage in other income generating activities during the lean season. A fisherman interviewed had other jobs apart from fishing. One of these had a cold store and a printing press to rely on during this period: '*I have my small cold store to sell mostly imported fish during the period of low catch...I recently put up a printing press to support me, now that we are not getting fish'.* Fish traders usually buy imported fish from the Takoradi fishing harbour for processing and sales during the lean season. Both fishermen and fish traders may go to local micro finance companies for loans to enable them undertake such alternative livelihood activities. A fish trader narrated how a local financial NGO (Daasgift Quality Foundation) has been supporting both fishermen and fish traders in Axim: 'A*ny fish trader or fisherman who comes under Daasgift is given a money box to keep the little money that can be saved. The higher the amount saved, the higher the financial support given'.* They also provide training on effective financial management to fisher folks in Axim.

### 4.8 Fisheries governance institutions in Ghana

The various fisheries governance institutions (formal and informal) are very important stakeholders in conflicts especially in the current fishery versus petroleum industry conflicts, which is the focus of this study. Traditionally, Ghana's canoe fishery has been governed by local traditional institutions namely; Paramount chief (*Omanhene*), chief fisherman (*Apofohene*) and chief fish trader (*Konkohemaa*) within their respective local communities and fish landings of jurisdiction (Kraan, 2009; Overa, 2003). These local traditional institutions have been responsible for regulating general fishing activities such as; types of fishing gears to be used and fishing days mainly at the community level (ibid.). From the colonial period, formal governmental organisations have also been established to formally regulate the different fishing fleets within the country (ibid.). The introduction of these institutions led to a decline in the powers of the local traditional institutions in regulating Ghana's artisanal fishery sector (Kwadjosse, 2009). For instance, there are records of colonial governments' challenge of local regulations, which aimed at preventing the use of Ali nets that was considered as 'potentially destructive' due to its catch capacity (Hen Mpoano, 2010, p. 32-33). Currently, such formal governmental bodies include; the Ministry of Fisheries and Aquaculture Development (MOFAD), the Fisheries Commission (FC)

and the Environmental Protection Agency (EPA). Irrespective of the declining roles of traditional fishery governance institutions, they continue to play active roles especially in canoe fisheries at the local level in Ghana (Overa, 2003). The roles of these traditional institutions in regulating fisheries activities are discussed below.

### *4.8.1 Paramount chief (Omanhene)*

The paramount chief (*Omanhene*) of the Lower Axim traditional area is the 'father' of the traditional area as referred to by a chief fisherman. He is selected based on matrilineal succession. He has the title '*Awulae'* which is used for Nzema traditional leaders and has the stool name (*egua dzin*) *Attribrukusu*. Under the paramount chief are the divisional chiefs within the Lower Axim traditional area who control their respective towns within the traditional area. Hence, as a paramount chief, he controls not only the local area (Lower Axim), but also all other communities which fall under his paramountcy. The chiefs in each of these communities are responsible for resolving all conflicts, including fisheries within their communities. Cases beyond the divisional chiefs may be brought to the paramount chief to be settled. He also serves as the main point of contact for any external activity (for instance; governmental dealings) concerning the traditional area. In fisheries, as said by an informant, the paramount chief of Lower Axim is not directly involved in dealings with fisheries issues. He usually acts through the main chief fisherman.

### *4.8.2 Chief Fisherman (Apofohene)*

The primary role of chief fishermen (*Apofohene*) is to manage fishermen, principally in the canoe sector (Hen Mpoano, 2010). Chief fishermen are elected by the fishermen within the community. They are selected for being technically competent (experienced fisherman), wise and respected. According to a canoe owner interviewed, a person's level of education has also become an important factor for one to be considered for the chief fisherman's' position. Each chief fisherman represents a specific fish landing site. There is a chief fisherman for each of the beaches in Axim. Interestingly, in Lower Axim, there is a main chief fisherman who mostly represents the paramount chief on issues regarding fishing and sub-chief fishermen who represent each of the landing beaches. The main chief fisherman relays all information concerning fishing from the fishermen to the paramount chief and vice versa. He is also responsible for dealing with external organisations such as governmental and non-governmental organisations on fishery related issues. The chief fishermen at each fish landing beach are responsible for dealing with all cases of fishermen at their

respective landing beaches. There are also migrants' chief fishermen who serve as first point of contacts for migrant fishermen who hail from their respective towns to land in Axim. They come from major fishing communities such as Shama, Moree Sekondi and Apam. They are named after the locations they represent. Hence, the chief fisherman for migrant fishermen from Shama, is called '*Nana Shama'*, and there is '*Nana Moree'* and so on

The main responsibilities of chief fishermen are to ensure that fishermen concerns are addressed to higher authorities, ensure compliance to fishery rules, settle disputes among fishermen, alert fishermen about new fishing techniques and participate in religious rituals by pouring libation to the sea God (*Bosompo*) for increased fish catch and to avoid bad omens at sea (Interview with chief fisherman, 2016). Each chief fisherman is financed through levying the catch of all fishermen and penalties paid by those who flout fishery norms within their areas of jurisdiction (Overa, 2001). This is also the case in Axim.

Walker (2002, p. 395) recounts that from the colonial period, local traditional institutions lost their relevance after the introduction of colonial court system, which was less expensive and less complicated. There has been a reduction chief fishermen's power to perform their roles especially with regards to ensuring compliance to fishery rules and punishing offenders have reduced (Tsamenyi, 2013). In an interview with a chief fisherman, he indicated: *'Some* [fishermen] *are now disobeying the custom of not fishing on Tuesdays, they do not respect our traditions as they used to'*. For example, efforts by some chief fishermen who tried to ban the use of Ali nets were side-lined by the colonial courts (Tsamenyi, 2013). A chief fisherman indicated: '*Despite that our powers have reduced, the self-compliance we have introduced is an example to show that we are still prominent in our fisheries...the fishermen council* [GNCFC] *has been working with government organisations such as the fisheries commission and Ghana Navy in performing some of these roles'*. Self-compliance is where chief fishermen set rules which all fishermen within his jurisdiction must comply. It is the responsibility of each fisherman to ensure that other fishermen comply with such local norms. An example is the 'fisherman to fisherman' (F2F) compliance currently undertaking my chief fishermen in the Western region, including Axim. Chief fishermen continue to play an important role in the canoe fisheries in Axim.

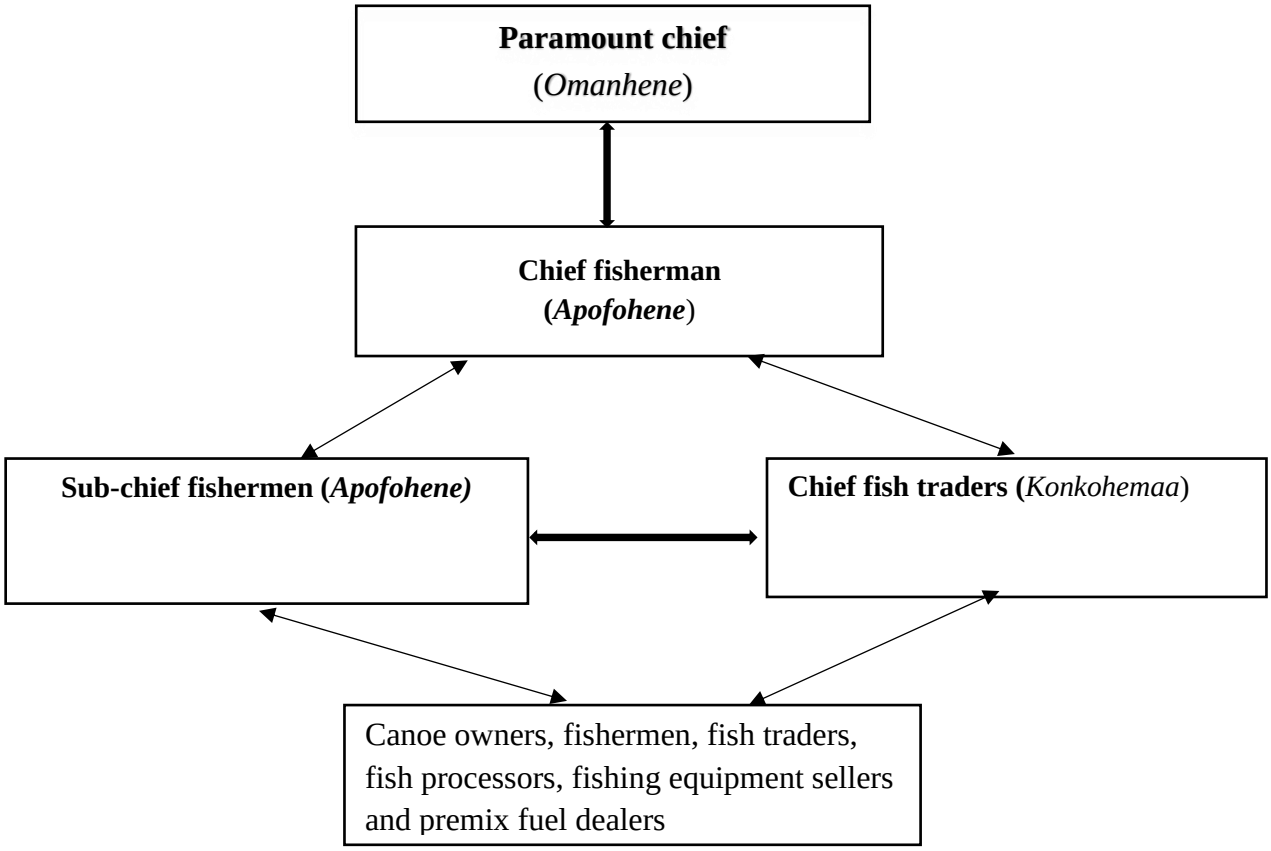
The GNCFC was formed in 1982 with the initial aim of acquiring inputs such as outboard motors and fishing gears for fishermen (Interview with GNCFC member in Takoradi, 2016). The Western Regional branch of the GNCFC is made up of all chief fishermen within the six coastal districts of the region. A key leader of the association stated, that some of the current concerns dealt with by the association include illegal fishing methods (light fishing, use of chemicals for fishing, etc.) and issues regarding the dwindling canoe fishery output. The Western Regional office of GNCFC, MOFAD and FC are located within the same premises in Takoradi.

### *4.8.3 Chief fish trader (konkohemaa)*

Comparable to the position of the chief fishermen is the leader of the fish traders known as *konkohemaa*. Like the *Apofohene*, the *konkohemaa* is responsible for the women involved in fish processing and marketing within the fish landing beaches (Hen Mpoano, 2010). She is also responsible for negotiating the market price for at her beach before they are sold. Although the *konkohemaa's* roles may be compared to that the chief fisherman, the chief fishermen's decisions relate to all fishery matters in the community, whereas that of the *konkohemaa* tend to have little influence beyond issues of the fish trading (Overa, 2001). However, in Axim women are key stakeholders in the community engagement programmes organized by the petroleum companies and government organizations. Although the chief fisherman is the main point of contact for cases to be sent to the paramount chief, the *konkohemaa* may directly relate with the paramount chief where necessary. Similar to the GNCFC as an association for all chief fishermen in Ghana, the Ghana fish processors and traders have formed the National Fish Processors and Traders Association (NAFPTA). A fish trader and key member of NAFPTA indicated that the association was formed mainly to enhance the role of women in decision making regarding the fishery industry. However, membership is not only for women but also for the few men who are involved in fish trading.

In Axim both the chief fishermen and chief fish traders have their council of elders who are involved in the adjudication of cases among their people. Such councils of elders usually consist of prominent canoe owners, fishermen, fish traders and fishing equipment sellers. The Fig. 1 below shows the hierarchical arrangement of the local traditional fishery management system in Axim.

Fig.1: Hierarchical arrangement of traditional fisheries governance institutions, Axim.




Source: Fieldwork, 2016.

### 4.9 Governmental fisheries institutions

Since the mid-1940s, the formal responsibility of governing Ghana's fisheries has been within the purview of state or governmental organizations (Tsamenyi, 2013). The first formal governmental organization established to manage Ghanaian fisheries sector was the Department of fisheries established in 1946 by the colonial government (ibid.). Kwadjosse (2009) generally classifies the creation of these fisheries organizations under; pre-UNCLOS and post-UNCLOS eras. UNCLOS is an acronym for United Nations Convention on the Law of the Sea. It is an international fisheries law adopted in 1982 aimed at ensuring effective conservation measures for marine resources including fisheries globally (Kwadjosse, 2009). The main regulations under the pre-UNCLOS in Ghana were; Fisheries Regulations LI 364 of 1964, NRCD 87 of 1972 (Fisheries Decree 1972), Fisheries (Amendment) Regulations 1977, and AFRD 30 of 1979 and the accompanying regulation, Fisheries Regulation 1979 LI 1235 (Ibid.).

According to Kwadjosse (2009, p. 19), between the late 1940s and early 1980, the above formal institutions focused mainly on 'maximizing' fish catch, with little or no attention to providing means for effective conservation of the fisheries resource. This type of governance system stemmed from the popular perception of unlimited fisheries resources held by early formal fisheries governance institutions in Ghana (ibid.). Hence, popular notions such as: 'S*ea never dry*' as is usually written on Ghanaian canoes (Hanson, 1988 in Verrips, 2002, p. 43), and '*The best net is the net that catches the most fish'* (Hen Mpoano, 2010, p. 33) were influential in the policy direction and the various regulations adopted. There were also attempts at modernizing the traditional canoe fishery through physical infrastructure provision (Overa, 2011). Such policy directions influenced introduction of outboard motors into Ghana's canoe fishery in the 1960s which increased local fishermen fishing capacity to fish at far distances (Odotei, 1991). Thus, Ghana became a hub of fishing in West Africa during this period (Kwadjosse, 2009; Marquette et al., 2002).

To meet international standards of fishery conservation, Ghana consented to the UNCLOS in 1983 (Hen Mpoano, 2010). Overfishing became a key issue in Ghana's fisheries for governmental fisheries governance organisations from the post-UNCLOS period (ibid.). Hence, the focus of the various fisheries regulations adopted in Ghana during the last decades have focused on marine resource conservation measures (ibid.). Such regulations include the PNDC Law 256 of 1991 and the Fisheries Commission Act of 1993 (Kwadjosse, 2009). Currently, Ghana's fisheries sector is being regulated by Fisheries Act 625 of 2002 which led to the creation of Fisheries Commission to regulate Ghana's fisheries sector (Kwadjosse, 2009).

### *4.9.1 Fisheries Commission*

Section 2 of the Fisheries Act 2002 states that the main duty of the commission is to 'regulate and manage the utilization of the fishery resources of Ghana and co-ordinate the policies in relation to them'. In 2004, a Ministry of Fisheries, which is currently called Ministry of Fisheries and Aquaculture Development (MOFAD), was established by the government to give more attention to fisheries resource management (Yamoah, 2012). The ministry is responsible for policy formulation on fisheries related issues (ibid.). The fisheries commission advices the minister in all matters pertaining to the fishery industry and implements all related policies (ibid.). It collaborates

with the various units under the ministry, such as the Marine Fisheries Management Division (MFMD), Marine Fisheries Research Division (MFRD), Monitoring, Control and Surveillance Division (MCSD). Since the inception of the Fisheries Commission, several policies have been enacted. Current among them is the National Fisheries and Aquaculture Policy (2008), which led to the creation of the four-year Fisheries Management Plan of Ghana (2015-2019), currently being implemented. These policies have focused on fisheries conservation measures together with decentralization efforts aimed at re-instating the Community Based Fisheries Management Committees (CBFMCs)[4] (Tsamenyi, 2013). Besides, section 42(3) of the Fisheries Act, 2002 requires the Fisheries Commission to collaborate with other state organizations relevant in the execution of its duties. Hence, state organizations such as the Ghana Maritime Authority, Ghana Navy and the EPA are required to collaborate with the Commission.

### *4.9.2 Environmental Protection Agency (EPA)*

Under the EPA Act 490, the EPA is charged with the responsibility of regulating the environment and ensuring the implementation of government policies on the environment. In this regard, all undertakings within the country with the potential of causing harm to the environment requires an Environmental Impact Assessment (EIA). Currently, the EPA has a natural resource department with the responsibility of '*developing solutions to natural resource* [including fisheries] *problems',* (Interview with EPA official, 2016). The EPA is also expected to collaborate with other state bodies such as the Fisheries Commission in the oceanic and inland water sources, which serve as habitat for fish.

However, both the EPA and the Fisheries Acts are not explicit on the extent to which such state organizations could collaborate (Tsamenyi, 2013). For instance, the fisheries Act 2002 had no list of the organisations that the commission should collaborate with (ibid.). The creation of organisations such as the EPA and the Fisheries Commission with somewhat overlapping roles and unclear extent of collaboration makes it difficult to question who does what and at what time. For instance, an official at the Fisheries Commission who was asked about reasons to why no Fisheries Impact Assessment (FIA) was conducted by the commission argued: '*We were supposed*

[4] CBFMCs was launched and founded by the World Bank in 1997 as a new approach in fisheries governance. The main aim was for individual fishing communities assume a responsibility in decision making regarding fisheries through community engagement policies. See Tsamenyi (2013) and Hen Mpoano (2010).

*to undertake a comprehensive Fisheries Impact Assessment, but unfortunately we have not done it yet. Besides, it is the EPA which sets standards for the water quality and they also have EIA reports from the oil and gas companies which captures the potential impact on fisheries'.* There were also instances during my interviews with officials from the EPA who indicated that such 'social issues' as fisheries were not within their purview and referred me to the Fisheries Commission.

### *4.9.3 Petroleum Commission*

The Petroleum Commission of Ghana was established under the Petroleum Commission Act 821, 2011, responsible for the regulation and management of the utilization of petroleum resource of the country. (Petroleum Commission Act (821), 2011). It is responsible for the issuance of permits to upstream[5] petroleum related activities, and monitoring these activities to ensure compliance to these petroleum rules (Interview with Petroleum Commission official, 2016). Despite its roles in the petroleum sector, the Petroleum Commission has become a key organization in dealing with the fishery versus petroleum industry conflicts. It is expected that the Petroleum Commission collaborates with the other government organizations and stakeholder groups, in community engagement programmes (Interview with petroleum commission official in Takoradi, 2016). However, according to an oil company official, there is unclear guidelines on which organization undertakes such community engagement programmes: '*Is it the Fisheries commission, the EPA, the community or the petroleum companies themselves*' (Interview with petroleum company official, 2016). The limited available resource to the Petroleum Commission means that they would usually rely on the equipment and/or assessments provided by the petroleum companies or private consultants in their monitoring roles. As discussed earlier, such conditions may lead to faulty assumptions and decisions.

## 4.10 Role of Non-Governmental Organizations (NGOs)

Non-governmental Organizations (NGOs) play an important role various aspects of modern society. In fisheries governance, their roles span from 'campaigning for problem identification to collaborating' to solve such problems' (Dunn, 2005, p. 209). In 2014, the Coastal Resources Center (CRC) at the University of Rhode Island (URI) had an agreement with USAID (Ghana) to implement the USAID (Ghana) Sustainable Fisheries Management Project (SFMP) in Ghana

[5] Activities involving petroleum exploration, extraction and the like. Hence, the offshore petroleum extraction activities in Ghana are within the purview of the Petroleum Commission.

(Torell et al., 2015). The SFMP is a continuation of the former Integrated Coastal and Fisheries Governance (ICFG) initiative which aimed at building the capacity of various fisheries stakeholder groups to ensure effective fisheries laws enforcement (ibid.).

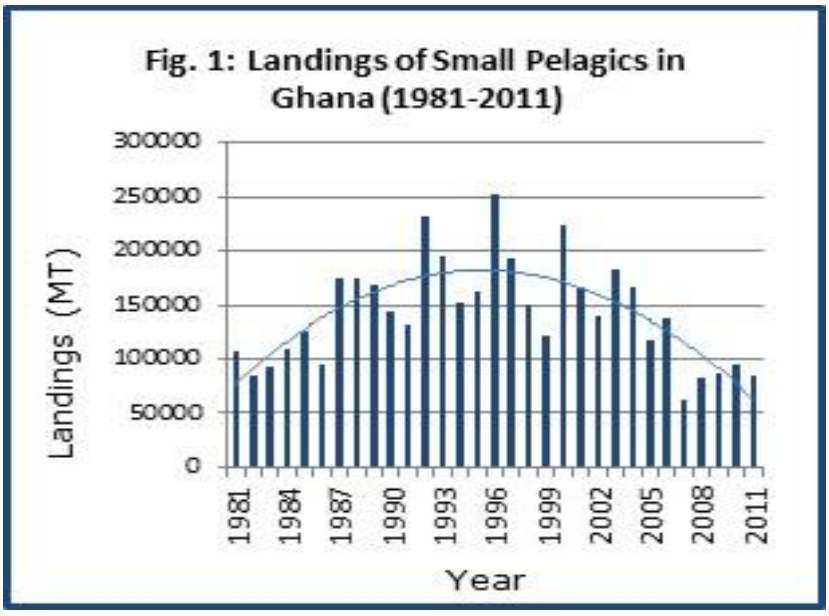
In Axim, NGOs such as Friends of the Nation (FoN) and Daasgift Quality Foundation are influential in educating local artisanal fisher folks on appropriate fishing practices, financial management and especially regarding the current fisheries and petroleum sector conflicts. In an interview, a fish trader recounted how Daasgift Quality Foundation (financial NGO) had supported her financially: '*They* [Daasgift Quality Foundation] *supported me with GHS 3,000 last year* [2015], *at very low interest, so within six months I had finished paying. They also gave me money box to make daily contributions...'.* Another influential NGO in Ghana's coastal and fisheries governance is Friends of the Nation (FoN). According to a key official at FoN official, his NGO in collaboration with other NGOs have held campaigns against bad fishing practices and provided additional capacity to local fisher groups through education and sensitization, and advocacy for local involvement in fisheries governance discussions with various stakeholders. Currently, two areas where FoN has been very influential according to the informant are in spearheading the Community Environmental Monitoring and Advocacy Groups (CEMAGs) in the 6 coastal districts of the Western region (Interview with FoN official, 2016). Currently, FoN is the lead NGO collaborating with the state organisations and local traditional leaders to educate local fisher folks on the Ghana's fisheries management plan (2015-2019) being implemented.

Interviews with fishermen and fish traders in Axim revealed that such NGOs appear more neutral and served as their mouthpiece especially with regards to the conflicts between the fisher folks and the current petroleum extraction industry. For instance, in a group interview with fishermen in Axim, all informants recounted the role played by NGOs such as FoN in educating fishermen on the possible impacts that the oil industry could have on their activities and how best to manage such problems when they arise. A fish trader also indicated that it was through their engagements with the FoN that they got to know that the Fisheries Commission should have conducted fisheries impact assessment. An NGO official speculated that it could be through the realisation of their good relationship with the local fisher folks that the government fisheries organisations have been collaborating more with them when it came to community engagement programmes.

### 4.11 Declining fish landings and causes

Despite the known seasonal variation in fish catch in Axim like other coastal fishing communities in Ghana, all participants indicated a general decline in their daily fish catch especially with regards to the artisanal fisheries sector. Recent studies also show a decline in total landings in Ghana's small pelagic fisheries which is the main catch of Ghana's artisanal fisheries sector in the bumper season (Coastal Resource Centre, 2013b; Ayivi, 2012).

Fig. 2: Statistics showing Ghana's declining pelagic fishing.




Source: Coastal Resource Centre (2013b).

However, from the informants interviewed, there were somewhat different causation factors for the declining fish catch in Axim**.** Indeed, different studies have shown several factors influencing the decline in Ghana's artisanal fisheries catch (Attah-Mills, 2004; Nunoo et al., 2016). For instance, Illegal, Unreported and Unregulated (IUU)[6] fishing is regarded as a major contributor to the 'declining' fish catch (Nunoo et al., 2016). According to Nunoo et al., (2016, p. 186), IUU is a major impediment to the achievement of long term sustainable fisheries as it results in depleted fish stocks. Fishermen and fish traders interviewed in Axim expressed how such bad fishing practices could affect their fish catch. However, a chief fisherman indicated that efforts to prevent

[6] IUU includes fishing without authorisation, unauthorised fishing practices such as use of chemicals, light fishing and unauthorised fishing nets, under reporting or failing to report fish catch (See Nunoo et al., 2016 and Hosch, 2009).

light and chemical fishing have proved futile since they could only control their members within their communities. He indicated: '*We* [fisher folks] *are all aware of how the use of chemicals like DDT for fishing can affect our catch. This was why all chief fishermen from Half Assini, Axim to Busua vowed not to allow our people to practice it and they initially agreed'*. He however added that after sometime, the fishermen in these communities lamented why other fishing communities such as Sekondi did not ban such practices whilst they used the same sea. As such they had to lift the ban. As long as other communities continued to engage in such activities, it was difficult to convince the fishermen in Axim to comply with such rules (interview with a chief fisherman, 2016). Another factor which fishermen and fish traders interviewed indicated as crucial to their supposed declining catch is the negative impacts of the petroleum extraction activities offshore. This would be discussed in the next chapter.

The issue of overfishing and declining total pelagic fish landings is a highly debated one (see Kolding and Zwieten, 2011; Cochrane et al., 2009). According to Cochrane et al. (2009, p. 57), our ability to predict a complex, unpredictable system such as the ocean's total available fish would be nothing more than a mere approximation of figures. It is known that the total number of fishermen and canoes in Ghana has increased over the years (Akyempon et al., 2013). One could assume that with an increasing fishing effort, the catch per unit trip per canoe would consequently decrease. However, data on actual total fish catch are based on daily catch estimates (Interview with Fisheries Commission zonal officer, 2016). As such, the daily catch data collection could affect the total landings data on which the Ghanaian fishery policies and actions are based. This could lead to faulty assumptions and misplaced priorities in fisheries (Kolding and Zwieten, 2011).

## 4.12 Conclusion

This chapter gives a description of the artisanal fisheries as an organized activity governed by institutions and shows how important fishing is, for coastal fishing communities such as Axim. From childhood, one is exposed to fishing and fish trade as not just an economic activity, but a way of life of the people. Therefore, when there are conflicts such as between the petroleum industry and the artisanal fishery industry, to the fisher folks, a lot is at stake as this could negatively affect their livelihood and way of life.

# CHAPTER FIVE
# IMPACTS OF THE PETROLEUM INDUSTRY IN AXIM

## 5.0 Introduction

This chapter focuses on the discursive positions and opposing views between the fishing industry and the petroleum industry on the negative impacts of petroleum extraction on fishing. Before this, I provide a brief analysis on the impacts of the petroleum industry, which are intended have positive impacts, but have attracted some engagements and differing views between the various stakeholder groups as below.

## 5.1 Petroleum industry projects in the community

The responsibility of developing any community lies within the purview of the government and its local authorities of a country. However, in natural resource extraction communities, there are mostly high expectations from these extractive industries for developmental projects within such communities (Edjekumhene et al., 2010). The existence of a petroleum industry has the potential for creating employment, infrastructure and other social amenities for host communities (Wanvik, 2016). The petroleum extraction companies (Jubilee Partners) in Ghana identify the provision of developmental facilities especially in host communities as one of their key areas of concern. For instance, Tullow Oil Ghana's corporate responsibility report (2015, p. 10) states, that 'S*hared prosperity is our* [Tullow's] *commitment to making a meaningful social and economic contribution in communities and countries where we operate*'. It also indicates that about 68% of Tullow's in-country workforce in Ghana are employed locally. In Ghana, the petroleum sector is legally required to fulfilling its tax and other fiscal obligations. The industry is also required to provide measures aimed at managing the potential impacts resulting from their activities through its Environmental Impacts Assessment (EIA). In addition, the petroleum industry is expected to undertake developmental projects which would benefit especially, the host communities, stemming from the industry's Social Performance (SP) programmes, in the case of the Jubilee Partners in Ghana.

## 5.2 Social Performance (SP) programmes

According to an oil company official, the focus of the Jubilee Partners has moved from a mere Corporate Social Responsibility (CSR) to a broader scope known as Social Performance (SP) programmes, which encapsulates CSR**.** As he indicated**, '***CSR is not directly linked to mitigating the social and environmental impacts of our operations**...**SP goes beyond CSR. It is something done which is directly linked to mitigating the impacts of our operations...'.* He added that SP has three main pillars; Corporate Social Responsibility (CSR) also called Social Investment, Impact Mitigation and Stakeholder Engagement. Thus, CSR and impact mitigation measures involves projects and programmes established within the country of operation and the zone of influence aimed at ensuring local acceptance and to directly address impacts of the petroleum activities. A zone of influence, also referred to as 'the community' (Ackah-Baidoo, 2013, p. 153) in this case refers to the six coastal districts of the Western Region demarcated by the Jubilee partners as areas likely to be impacted by oil spillages and collisions at sea (Interview with petroleum company official, 2016). He added that, the petroleum companies undertake two types of projects - partner projects (undertaken by the Jubilee Partners) and individual company projects. These projects are managed at the community level by the Community Liaison Officers (CLO's) of the petroleum companies. The CLO's are representatives of the oil companies at the community level.

### *5.2.1 Corporate Social Responsibility (CSR) or Social Investment programmes*

Social investment programmes, popularly known as CSR is based on the conception that when corporations engage in CSR activities, it gives such corporations the 'social license' within the country and communities in which they operate (Ackah-Baidoo, 2013, p. 153). In Ghana, one key area of Tullow Oil, the main Jubilee partner, is to establish cordial relationship with the government and local communities within its zone of influence through its social investment programmes (Tullow Oil, 2015). According to an oil company official, '*CSR is more philanthropic, we* [oil companies] *do it in trying to maintain a good neighbourhood'.* Maintaining good neighbourhood here expresses efforts to keep good relations with Ghana, especially the government and local fishery decision makers within the zone of influence to ensure sustainable operations in Ghana, and in this case, Axim. The social investment roles of the Jubilee Partners are categorised under four main pillars which are: education, environment, health and enterprise.

In terms of education, the social investment programmes span from building school dormitories, providing scholarships and textbooks as well as vocational training programmes to communities. In Axim for instance, Tullow Oil Ghana is sponsoring the construction of a dormitory (See plate 7) to house over 600 students, according to the company's official interviewed. Besides, an 18-unit classroom block is also under construction for the school.

Plate 7: Axim Girls Senior High School dormitory under construction.


Other jubilee partners such as; Hess Ghana in partnership with Ghana National Petroleum Corporation (GNPC) also provides scholarship for Ghanaian students at the primary and high school levels, targeted at brilliant but needy student within the six coastal districts in the Western Region which includes Axim. However, all fishermen and fish traders interviewed were critical about the unequal distribution of benefits such as; the scholarship scheme which is given at the basic education level. As fish trader alleged: '*...when the scholarship slots come, it does not get to our children. Some politicians, would give to people based on their own preferences, as popularly said, 'to whom you know'. So, the real fishermen and fish traders who are supposed to benefit from this, do not mostly get it'*. The scholarship slots were until 2015 given to the main chief fisherman who were expected to manage the distribution among fisher folks (interview with a chief fisherman, 2016). However, from the year 2015, the scholarship is managed by the oil companies who send forms to various schools in the districts for qualified candidates to fill.

The fisher folks interviewed expressed worry that it has been difficult for their children to obtain the scholarship and alleged that the scholarships are in most cases given to children of rich people

in Axim, who are in most cases not involved in any fishery related activity. An oil company official indicated that the companies took over the distribution of the scholarships due to reports that some of the chief fishermen gave the scholarship forms to their favourites within the community. He emphasised that the scholarship targeted at brilliant but needy students who might not necessarily be children of fishermen and fish traders, but are natives of Axim, so the forms are sent to the schools to ensure that every qualified candidate in the community is considered. Although the intension of such scholarship programmes might be good, it may create envying and tension within the local community. That is, in a situation where people feel disadvantaged in the distribution of scholarship may create a sense of resentment among the community members.

As depicted from plate 8 below, the jubilee partners engage in other projects aimed at securing social acceptance which include their improved water projects at Axim and other coastal communities in the Western Region of Ghana. There are other mitigation measures aimed at directly reducing the potential negative impacts of the oil and gas operations especially to nearby communities. These include; the provision of reflectors for fishermen to reduce accident at sea and free periodic health screening to arrest any possible health implications from the petroleum extraction activities on residents of nearby communities.

Plate 8: Tullow Oil Ghana's clean water project in Axim.


A government official in Accra attested that: *'The CSR roles of the oil and gas companies are interventions to help communities*'. This confirms the earlier statement that such projects are embarked on to win the government's support and in this case, the CSR of the Jubilee Partners is

serving as a point of reference for the government officials who argue for the petroleum companies. A chief fisherman argued that such expectations from the Ghana government has made the state relegate its role of ensuring that potential negative impacts from the petroleum industry are addressed. As he puts it: '*Since government knows that the oil companies will do it* [undertake CSR projects], *no major* [government] *project has been done in Axim to address the impacts of the petroleum extraction activities*'.

From the 2009 EIA report for the Jubilee oil field, 'each of the 6 coastal districts in the Western region are to have a Community Liaison Officer (CLO)' (NCEA, 2009, p. 6). Apart from facilitating projects of the oil companies in the communities under their jurisdiction, the CLOs are responsible for ensuring that community concerns regarding the oil activities are addressed and issues are forwarded to their regional offices. Fishermen and fish traders interviewed in Axim however expressed concerns about the seeming absence of the CLO in their district. As a fish trader, who was also a key member of the fish processors and trader's association, puts it: '*If you ask me to mention names of any of the oil officials here, I would not be able but I heard there is a liaison for Tullow here, which I should be able to tell you her name, but I do not know...this official should be close to us to be able to know our concerns and relay them to their company'*. During my conversation with an oil official, he indicated that the nature of the CLO's work is such that they cannot be stationed at one place, they go around to various communities within their areas of jurisdiction. He added that his company has not been visible in terms of physical structure although there are officers [CLO's] in all the 6 coastal districts of the western region. In Axim, there is a space at the District Assembly for the oil company's CLO.

### 5.3 Impacts of petroleum extraction on fishing activities

Despite the high hopes which followed Ghana's discovery of oil in commercial quantities and the subsequent social investment programs undertaken by the petroleum industry, several concerns have been expressed by local fishing about the oil industry's negative impacts on fishing. These concerns have created the impression that the petroleum industry has resulted in a decline in fish catch of Ghana's artisanal fisheries. In Axim, all the sixteen fisher folks, except two (out of four) chief fishermen interviewed stressed the negative impacts that the oil and gas extraction had had on their fishery activities and livelihoods. The various concerns expressed by the informants regarding the petroleum extraction activities were grouped into these categories: Loss of access to

fishing grounds, canoe incursions and destruction of fishing gear, attraction of fish by lights of oil rigs, harassment by officers of the Fishery Enforcement Unit (FEU) doing monitoring offshore and lack of information on petroleum extraction impacts by state institutions.

### *5.3.1 Loss of access to fishing grounds*

There are two main zones demarcated around the oil platforms in the Western region. That is, an Exclusive Zone (EZ), which is a 500 m radius around all oil rig installations within which fishermen are prohibited from fishing. An Advisory Zone (AZ) of 1000 m radius around the oil rigs are also demarcated, where the enforcement unit are located to intercept fishermen from going to the EZ. Even though not all fishermen have the capacity to fish at the distance of the EZ (African Development Bank, 2009), all fishermen including fish traders interviewed, apart from the two chief fishermen interviewed, associated their declining catch to an alleged loss of fishing ground on the sea as a result of oil rig installations. Even fishermen who did not have the capacity to fish at distances as far from the coast as where the petroleum installations are located that extent of offshore petroleum installations associated their low catch to the petroleum activities.

In expressing the frustrations which fishermen go through when intercepted, a crew leader recounted: '*They* [government institutions] *have ceased us from fishing within 500 m around the 'apollo'* [general local name for 'oil rig'] *…Sometimes we are intercepted and directed by the officers* [FEU] *to places where we know we would not get fish but they follow us until we cannot return…we mostly come back home because most of the time our fuel would not be enough for any further journey and due to this our fishing activity is going down…it is really frustrating'.* From the several informal conversations with fishermen and fish traders in Axim, I got the impression that the interception of fishermen by the FEU officers in Axim was a daily affair which could impact on fishermen's daily fish catch. '*Almost every day a fisherman is caught and policed from the no fishing zone*' (Interview with a member of GNCFC in Axim, 2016). An internal document from one of the Jubilee Partners on cases of interception by the FEU officers showed that in March 2016 alone, a total of 53 cases of interception in Ghana were recorded by the company, out of which 32 of the canoes came from Axim. See Table 3 below.

Table 4: Selected cases of offshore interception of canoes from Axim for March, 2016.

| Case | Fishing crew onboard | Action taken |
|---|---|---|
| 1 | 6 | Canoe was intercepted and brought alongside, warned and advised by the navy. Details taken on completion and directed out of the field. |
| 2 | 7 | Canoe was intercepted drifting into the fields with a broken engine. Canoe was brought alongside and taken on tow to a safe distance 3nm N of the oil rig to drift with current towards their intended destination Axim. Details were taken, warned and advised by the Navy. |
| 3 | 5 | Canoe was intercepted 2X and brought alongside. The Navy warned and advised. On completion details taken and directed out of the field. |
| 4 | 6 | Canoe was advised on safe conduct of fishing at a safe distance from vessels and installations in the field. The fishermen were persuaded to move away to a safe direction far from the oil rig. They willingly obeyed and departed the location. |
| 5 | 6 | Fishing canoe was reported in the EZ of the oil rig. Security officers approached the location and after a chase intercepted the canoe about 1.3nm NE of the oil rig. The crew of the canoe was briefed by the Navy personnel onboard and directed out of the area. |
| 6 | 4 | Canoe was sighted with net deployed 3Nm SE of oil rig. proceeded to location and after investigation, it was realized that the current was fast moving the net into the EZ of the oil rig. The crew of the canoe was briefed by the Navy personnel onboard and afterwards asked to haul the net. The Navy proceeded to the other end of the net which was close to the oil rig. The Navy personnel hauled in the net onto the Naval personnel vessel. The crew of the canoe were asked by the Navy to take possession of their net in the Sekondi Naval Base next month. |

Source: A Jubilee Partner report, 2016.

Fishermen and fish traders interviewed also expressed concerns about the increasing number of oil rigs being installed offshore which could further reduce their fishing grounds. A fish trader lamented: '*The discoveries are still ongoing, currently there is one called TEN and GNPC has also discovered oil and will install theirs…so imagine five rigs are installed with each having 500 m no fishing area. It means that with time our fishermen would not get a place to fish, but when we complain they* [oil companies and state organizations] *do not take us serious…they have beaten us and forbidden us from crying.'.* To be beaten and be forbidden from crying is a statement which expresses a situation where fisher folks feel they have been maltreated, shattered and not given the chance to express their opinions in dealing with regards to the negative impacts of petroleum extraction on fishing.

Interestingly, two out of four chief fishermen interviewed had somewhat conflicting opinions about these claims despite their common concerns about the declining fish catch. The different views expressed by the two chief fishermen could mean that they better understood the fishery and petroleum related issues from their different standpoints. As one indicated: '*I have a canoe and know what I am talking about. What would they* [oil companies] *say about the beatings and the seizure of our things* [fishing equipment] *...now we are not certain on where to fish*'. This view from the chief fisherman could be out of his interest in fishing stemming from his ownership of a canoe in Axim. On the contrary, another chief fisherman argued: '*I have never bought the idea since it started. The reduction in catch started long before the oil began…the oil started just six years ago so how can we say that it is the cause of our low catch...I do not say this to them* [fishermen] *because I am their head but this is my personal view'*. The chief fishermen serve as the representatives for fishermen in Axim at workshops organized by state organizations and oil companies. As such, their involvement with the government and oil company officials may have influenced his objection of the arguments regarding the impacts of oil on fish catch decline. As an oil company official hinted: '*When you become fraternized with people, they might lose their power of criticisms'*.

Similar opinions shared by the two chief fishermen were also expressed by the oil company officials as well as government officials at the local and national levels. An informant from a state organization at the national level argued: '*Even before the oil extraction, they* [fishermen] *were not fishing there. The rig is over 60 km away... the restricted area is just too small to attract all the fish in the sea. The impact is negligible and their concerns have no basis at all*'. Government officials interviewed at the local, regional and national levels shared the above line of thought and argued that fishermen's own engagement in illegal fishing practices such as light fishing and chemical fishing coupled with the increasing number of fishermen had led to declining fish catch. They further argued that it was rather fishermen who made petroleum extraction activities offshore challenging by encroaching upon the restricted zone. Hence, the need to protect the facilities as required by law (Interview with government official in Accra, 2016).

The EIA report by Tullow Oil in 2009, recognizes that 'fishing vessels (especially purse seines) will not be able to fish within the exclusion zones for safety reasons' (African Development Bank, 2009, p. 11). This would, in the view of the fisher folks mean a reduction in the available fishing

grounds, which could affect the fish catch by the fishermen. The oil company's report however contends that, 'given the area available to fish for the target species in this location, exclusion from a relatively small area around the project site is not likely to significantly affect catches' (ibid.). It was further argued by the oil company officials, that for safety reasons, fishing and any other kind of activity is prevented within the exclusive zone. Hence, the CSR and impact mitigation projects undertaken in Axim are meant to support the local community members who might be partly affected (Interview with oil company official, 2016).

### *5.3.2 Attraction of fish by lights on oil rigs*

Another concern of fisher folks about petroleum extraction activities is the attraction of fish by lights on the oilrig. From this concern, the two main discursive positions between the fisher folks and officials of the state organizations and oil companies also emerged. Although all informants agreed that the oil rigs attracted fish, there were differing views regarding their exploitation. As fisher folks except the two chief fishermen argued for the need to exploit the fish resource around the oilrigs, officials of state organizations and petroleum companies argued for the conservation of the fishery resource and for safety reasons respectively. For instance, a canoe owner argued: '*The attraction of fish by lights on the oil rig is similar to the light fishing which has been banned. Fish is attracted by light and due to this, there are a lot of fish around the oil rig …but the security men prevent us from going there without thinking about where we would get fish'.*

On the other hand, a government official in Axim argued*: 'If they* [fishermen] *will respect the SEZ, it will serve as a fish conservation area for the nation. We* [Ghana] *currently do not have marine reserve areas yet. It will serve as a refuge for the fish…most fish cannot even spawn once before they are caught'.* Similar views were shared among government officials interviewed in Takoradi and Accra. From the government officials' arguments, the fisher folks are viewed as ignorant about the cause of their declining fish catch due to their high illiteracy levels, and likened their (fisher folk's) attitude to '*illiterate drivers*' who do not respect the traffic rules but blame everybody except themselves in accidents (Interview with government official in Accra, 2016*).* This expression connotes a situation where the sea is the road, of which fishermen as illiterate drivers do not know the traffic rules on the sea. In other words, they are ignorant about and the best way to conserve the marine resources. Therefore, they need to be taught better ways of fishing or be punished for flouting fishery rules.

Officials of the oil companies interviewed shared similar views with the government officials regarding the role of lights on the oil rigs in reducing fishermen's fish catch. In addition, they argued for the need to protect the oil rigs on safety grounds. An oil company official explained why fishermen are not allowed to fish around certain distance to the rigs: '*The FPSO has a big propeller which can easily pull canoes and destroy them. Besides, there are a lot of seismic activities occurring within our areas of operation which could be dangerous to the life of fishermen'*. He added that the encroachment of fishermen around the restricted area had made their work rather difficult. The two (out of four) chief fishermen who argued against fishing close to the rig also argued based on the safety implications on fishing within restricted zones.

According to Yamoah (2012, p. 46), fisher folks decide whether to comply with rules or not by weighing four factors. That is; the amount of illegal gain or benefit that may result from violating the rules, the size and severity of the expected penalty, fairness in the application of rules and the rewards and punishments that a fisher's peers and community exert upon them. During a group interview, on my question of why fishermen went fishing around the banned fishing zone, a fisherman answered: '*What would you do as a fisherman upon realizing that the fish you used to catch have been kidnapped by a certain oil rig…before, we spent only a day offshore but since the oil began we spend between 3 to 5 days before we can get something, but they* [government organisations and oil companied] *do not take us serious...'*. The term, 'kidnapped' here connotes crime, taking something without seeking consent and the use of force. As government and petroleum company officials viewed the fisher folks as illiterates, the fisher folks on the other hand likened the oil companies' activities to crime and as a violation of their right to access the ocean to fish. Fishermen and canoe owners argued on the conviction that they were assured of getting more fish around the restricted zones than they would have gotten at other places. Hence, in Axim, fishermen and fish traders arguments referred to their need to get enough fish to make a living coupled with their perceived lack of interventions from the government organisations and petroleum companies, as their main reasons for non-compliance to fishery rules. Irrespective of the possibility of being arrested, they disregarded the rules by fishing in the banned zones.

Two other concerns raised by fishermen with regards to fishing in the SEZ was the lack of demarcation offshore to show the no entry area and drifting of canoes by the ocean currents into

the no entry zone. As a fisherman put it: '*Initially, I thought that there would be a line to show us where we are not supposed to fish, but there is nothing like that on the sea. We move until the naval officers surround us to tell us that we are entering or have entered the zone so we should leave…*'. It was further argued that the fishing nets are sometimes drifted by the ocean currents. Through no fault of theirs, their fishing nets are drifted into the restricted zones (Interview with crew leader, 2016). Although a state official in Accra affirmed the role of ocean currents in drifting fishing gears, she argued that this had been the excuse from fishermen for disobeying the fishery rules. She indicated '*…They* [fishermen] *sometimes turn a blind eye even when they realize they are within the exclusion zone. Some* [fishermen] *only use that to defend themselves when they are caught'*.

To add, a state official saw the disregard of fishermen about rules on the restricted zone as their (fisher folk's) way of expressing ownership of the sea. Hence, considered their arguments as lies and plots to claim what they considered theirs. As he argued: '*They think the sea is theirs so they can fish anywhere…you* c*an never convince someone who has falsely crafted an issue like this'*. However, my interviews with fishermen and fish traders in Axim indicated that they did not necessarily consider the sea as their property, but as a common property resource serving as their main source of livelihood. As indicated by a fisherman in an interview: '*We need to eat, our children need to go to school, so we will go fishing where we know we will get some'*. Thus, a restriction of their access to fish meant a threat to their livelihood. Besides, an oil company official indicated that the lack of clear demarcation of the EZ was a real challenge which could not be solved at their (oil company's) current level of technology. He stated: '*To demarcate an area of about 1.5 km depth in the sea to me is practically impossible. Maybe technology would allow for that in the future but I think it is a major challenge now*'.

### *5.3.3 Canoe incursions and destruction of fishing equipment*

Another concern raised by fisher folks was the collisions that some canoes had had with oil transporting vessels**.** Some of these collisions had resulted in the destruction of fishing equipment and even death of fishermen at sea. A fish trader narrated two such collisions in Axim**:** '*There was one canoe that was run over by a ship of the oil companies as the canoe crew members were asleep on the sea. They lost their fishing nets and other equipment even though they were rescued. In the other case, the canoe was totally broken, one part of the canoe came to the shores of Axim, and*

*the other part was found at Abuesi in Sekondi. Three out of the four canoe crew members on board had to lie on their empty fuel gallons to survive. The fourth man died and has since not been found...a lot of such issues have happened'.* An oil company official affirmed that such collisions occur sometimes especially during their exploration activities. He added that due to the increasing number of vessels offshore, the probability of collisions and interferences with fishing canoes had become high. However, there were cases where such collisions were not caused by oil transporting vessels but also by industrial trawlers and other transporting vessels (interview with oil company official in Takoradi, 2016).

### *5.3.4 Harassment by Fishery Enforcement Unit (FEU) officers*

In a group interview, all fishermen alleged the unpleasant treatments meted on them by some of the FEU officers. For instance, a fisherman narrated the harassment he had gone through when he was caught fishing in the exclusive zone. As he recounted; '*They whipped me until I got marks at my back, I could not go fishing for almost a month. ...brother, these oil people should not have come at all'*. He added that guns held by FEU patrol teams tend to scare fishermen offshore and had it not been for that, he would had fought back when he was harassed.

In a group interview with FEU officers in Takoradi, it was argued, that FEU only enforces fishery laws. So, there would not be punishment if fishermen comply with these rules (Marine police officer, 2016). A Naval officer in Takoradi also indicated that there were cases where they received threats from fishermen whom they had intercepted offshore. Hence, fishermen who disobeyed their orders, had to be chased offshore and arrested. He recounted*: 'My brother, can you imagine we arrested a canoe that was near the rig and the fishermen started shouting, we will come and attack you...one even tried to destroy the inflatable of our vessel. We needed to shake them a bit...sometimes we need to put the fear of God in them'.* A marine police officer indicated that while monitoring the petroleum installations offshore, fishermen who engaged in supposed illegal fishing practices are also caught and sent to court. Perhaps, the increased patrols on the sea as a result of the petroleum activities offshore, so that fishermen could no longer undertake their 'illegal fishing practices' as they used to, could be a reason for their numerous complains (Marine police officer, 2016).

A report by one of the oil companies operating in the Jubilee and the TEN oil fields (see Table 2) for the month of March, 2016 revealed that out of the 53 canoes intercepted, 49 occurred in the Advisory Zone (AZ) whilst 4 occurred within the Exclusive Zone (EZ). The table shows a list of selected cases of interception from canoes in Axim and the actions taken as per the report. From Table 2, there were cases where fishermen intercepted were only briefed and advised, which confirmed the officers of FEU claim that only the 'stubborn' fishermen were harassed. For instance, from case 4, upon the advice the FEU officers on the need not to fish close to the rigs, 'they (fishermen on-board) willingly obeyed and departed the location'. This could also mean, that with better education and negotiations, fishermen would also respect the non-fishing zone.

However, there were cases where fishermen got to the no fishing zone through no fault of theirs. For example, in case 2 from the table, fishermen were found with a 'broken engine'. In such a case, they could be drifted by the ocean current, over which the fishermen would have little or no control. A member of GNCFC in Takoradi stated, that it was due to such instances that GNCFC indicated to officers of FEU to be mild in handling fishermen intercepted offshore. Thus, the molestations such as throwing of hot water and beating of fishermen intercepted offshore had reduced in recent times. He however indicated that what is mostly reported currently included the seizure of fishing nets and frequent interception of fishermen by the FEU officers.

In a group interview, another concern expressed by fishermen was their lack of power to demand their fishing gears when they are seized or destroyed by the FEU security officials. As a canoe owner indicated: '*We plead with the officers... sometimes they give them to us, other times they don't even mind us. First the fisherman must accept that he has committed an offense, so your* [fishermen's] *position is to keep quiet and plead with them* [FEU]. *if the equipment is not given to you, there is nothing you can do'*. It was argued that in situations where FEU officers agreed to give back the seized equipment, it could take one to three months for the seized equipment to be returned to them. This was also evident in the report of the oil company as indicated in case 6 from Table 2. After the fishermen had been hauled from the restricted zone, they were asked to take possession of their net at the Sekondi Naval Base the following month (April).

### *5.3.5 Lack of information on oil and gas impacts by state institutions*

Lack of information on the potential impacts of the petroleum industry on fishing was another concern raised by fisher folks. Fishermen and fish traders interviewed believed that government organisations both at the local and national levels mostly relegated their roles in the hands of either the NGOs or oil companies. A fish trader argued: *'For EPA, all I know is that they exist, but I do not see what they do'.* In situations where these state organisations embarked on community engagement programmes, a chief fish trader indicated that fisher folks could hardly participate, due to the lack of understanding of the English language by most of them. Concerning the community engagement program in Axim for the TEN project by EPA, she indicated that they could hardly ask questions: '*They* [EPA] *just came here with huge books, kept reading big words.... After flipping through the pages, they asked for questions regarding what they had said... if you do not understand, how do you ask questions?'*

The Fisheries Act 2002 section 93(1) states that: 'A person or government department or other agency planning to conduct any activity other than fishing, which is likely to have a substantial impact on the fishery resources or other aquatic resources of Ghana' is required to conduct a Fisheries Impact Assessment (FIA). However, state officials interviewed in this regard were negative. A state official indicated that the excitement about the oil find led to government overlook of the FIA. He further argued that: '*The EIA report to the EPA captures impacts on fisheries...besides, it is the EPA which sets standards for water quality'.* In other words, even if the FIA could not be undertaken, the EIA report from the oil companies to the EPA could be used as a point of reference. The EPA is required to assess the impacts of the oil and gas on the environment, which means that they need to go offshore to verify the reports prepared by the oil companies. However, the EPA need a permission from the oil companies to be able to go near the rigs. This implies that probably, by the time the EPA inspection team gets to the rig, the companies might have '*put their house in order*' **(**Interview with lecturer at University of Ghana, 2016**)**. Hence, the EPA and other state organisations need to be well equipped and be given the power to conduct independent inspection offshore.

## 5.4 Addressing the concerns

### *5.4.1 Stakeholder engagement programs*

The Jubilee partners undertake community engagement programmes in collaboration with state organisations, Non-Governmental Organisations as well as local traditional institutions. According to a chief fisherman in Axim, since the commencement of the oil and gas extraction activities till date there have been series of meetings and workshops organized by the Jubilee partners. One such programme is the annual regatta program organised by the GNCFC in collaboration with the Jubilee partners, which serves as a platform to sensitise fisher folks on various fisheries regulations.

Plate 9: Jubilee Partner's stakeholder engagement, 2016.


Source: Picture taken by an informant in Axim, 2016.

To ensure that the local people have a voice when it comes to fishery related decision making, the fisheries regulations have been translated into five local languages, that is Ga, Fante, Ewe, Ga-Adangbe and Nzema by the government of Ghana (Interview with official at MOFAD in Accra, 2016). A naval officer indicated that, fishermen who are found around the SEZ are usually sensitised on the dangers of fishing within the region (see table 2). Thus, it was alleged that fishermen knew about the fisheries rules but pretended not to. A state official in Takoradi argued: '*I now believe the saying that the only time you should believe a fisherman is when he tells you a fellow fisherman is lying...what we* [state organisations] *have realised is that when these same fishermen go to other countries to fish, they obey their rules but when they come home they have*

*this perception, 'this is our sea''*. This statement labels fishermen as liars, who could not be always trusted for their claims.

Besides, there are times where the oil and gas companies, NGOs and government organisations embark on community engagement meetings to educate fisher folks and seek their views about issues in their communities. Such community engagement programmes usually involve educating and sensitizing fisher folks about the dangers of fishing around the oil rig. Usually, the meetings are organised for the fisher folks' representatives such as the chief fishermen and chief fish traders. During such meetings, the local leaders are expected to make known the local fisher folks' concerns and to educate their members on the outcome of such meetings after it is held. However, indications from my interactions with the fisher folks showed that their leaders only served as channels where government decisions were disseminated to them without their concerns being heard or addressed. In other words, these community engagement programmes are mainly top-down education programmes rather than real political participation to result in local influences in final decisions.

During a group interview with fishermen in Axim, informants expressed their displeasure regarding how their concerns have been handled by the state organisations and oil companies even in situations where the entire community is involved. The fishermen during the group interview exhibited signs of apathy towards such meetings which yielded little or no results to them. A fisherman indicated: '*They have been coming here periodically, but I have stopped attending their meetings because we do not get anything from it...let's say you call for a meeting for me to tell my problems, but you do nothing about it, but you continuously call for meetings. Do you think I will come?'.* It was also alleged that there were some black weeds which came to the shores of Axim periodically every year which were linked to the petroleum activities offshore but nothing had been done about it (Interview with a chief fish trader, 2016). However, an oil company official argued that the black weeds had nothing to do with their petroleum extraction activities. He indicated that studies had been conducted by a private consultant in collaboration with Kosmos Energy and government organisations which concluded, that the black weeds could come from climate change and not petroleum extraction offshore. He further argued: '*The sea weeds come seasonally (January to March), meanwhile our* [oil companies'] *activities occur throughout the year. So, the sea weeds issue should not be seasonal thing if it results from our operations'.*

### *5.4.2 Grievance Redressing Mechanism (GRM)*

In Axim, the general local principle is that in case a fisherman destroys the net or canoe of another, the cost of the item destroyed is divided into three parts. The victim pays one portion and the culprit pays the rest, said the main chief fisherman. However, as part of the International Finance Corporations (IFC) requirement under the Policy and Performance Standards on Social and Environmental Sustainability, it is required that corporate bodies such as the petroleum industry in Ghana establish a mechanism to address the affected communities' concerns and complaints (IFC, 2009).

As such, the Jubilee partners in Ghana in collaboration with relevant state and local institutions have set up a Grievance Redress Committee (GRC), which has developed a Grievance Redress Mechanism (GRM) to deal with petroleum related community concerns. The Community Liaison Officers (CLO) of the oil companies at the community level manages the GRM. In an interview, an oil company official narrated the steps followed in a typical case where, for instance, a fisherman is affected by the petroleum sector operations. For example, if a canoe or net is destroyed, the following procedures are followed to deal with the issue:

Table 5: Steps for grievance redress.

| **Steps** | **Action to be taken** | **People involved** |
|---|---|---|
| 1 | The victim (fisherman) should take a picture of the incident offshore as an evidence of the incident or write details of the vessel (supposed culprit) | -The victim (s) |
| 2 | The victim then goes to the palace of the chief fisherman of his landing beach to report the case. | -The victim (s).<br>-Chief fisherman. |
| 3 | The chief fisherman then invites the CLO of the area for the affected fisherman to narrate the incident | -The victim (s)<br>-Chief fisherman<br>-CLO of the alleged oil company |
| 4 | After the narration, the CLO would issue a grievance form to be filled and signed by both parties (that is, affected fisherman and the CLO | -The victim (s)<br>-CLO of the alleged oil company |
| 5 | Grievance form is then sent to the Stakeholder and Community Engagement Supervisor (SCES) of the petroleum company and Grievance redress committee for investigations within 7 days. | -Representative from the oil company<br>-Chief fisherman of the area or landing beach in question.<br>-A representative from the Ghana National Canoe Fishermen Council<br>-A representative from the Fisheries Commission |

Source: Interview with an oil company official in Takoradi, 2016.

According to the oil company official interviewed, each of the stakeholder groups on the investigative committee is expected to undertake their own investigations before the final day of decision making. In cases where the incident occurs within the advisory zone where the company has faltered, the issue may be resolved at the CLO level depending on the magnitude of accident. If the fisherman agrees to the terms of payment, a Satisfactory form is signed, then after the items destroyed are replaced, an Acceptance form is signed by the CLO and the fisherman (victim).

However, if the fisherman does not agree, for example; if the oil company decides not to pay anything because the victim went to the exclusive zone, the next line of action would be for the fisherman to go to court. If the fisherman accepts his fault for fishing in the exclusive zone and wish for negotiation, the oil company would negotiate but would determine what to give the fisherman as compensation. All informants indicated that no incident had yet been taken to court, although some fishermen usually involve their lawyers in resolving the issues.

A concern raised by fisher folks in Axim regarding the grievance redress mechanism is the submission of pictures as proof in case such incidents occur offshore. As a crew leader puts it: *'As fishermen who cannot write, how do they expect us to do that? Besides, not all mobile phones have cameras, so how do I use pictures as evidence? What if our mobile phones are off or through the accident we fall into the sea. How do they expect us to take those pictures?'.* A canoe owner who was also a key member of NAFPTA disclosed that when such cases emerge, fisher folks rely on the Vessel Monitoring System (VMS) of the Ghana maritime authority for such evidences. She however narrated a situation where the victim could not have access to the evidence because the officer in charge demanded money before such recordings are released: *'The issue had not been solved as at the time I stopped following. Their challenge was that the controller at the maritime authority in charge of given out the recordings was demanding money before the details of the oil vessel is released. For now, I cannot tell if they have released the tape or not'.* According to an oil company official, a normal case with evidence could take maximum of fourteen working days. However, the lack of evidence could result in delays in dealing with the issue.

Another concern regarding the use of the GRM is the additional cost incurred by the concerned fisherman or canoe owner (victim) who engage the services of their landing beach chief fishermen

when such issues occur. As a representative of the victim at the GRM committee, the responsible chief fisherman is required to attend all meetings regarding the issue until it is resolved. As a canoe owner indicated: *'We pay for all their* [chief fishermen's] *expenses, but even when they* [oil companies] *are at fault such additional costs incurred are not paid to us, this is not fair. We expect them* [oil companies] *to have at least come to us for negotiations when they destroy our things, but we rather go to them for compensation'*.

Similarly, there were concerns of unclear compensation procedure in fishery versus petroleum industry conflicts. An oil company official narrated: **'***If an accident occurs or oil vessels destroys any fishing inputs within the exclusive zone, we are not obliged to give them* [victims] *anything...However, if the incident occurs within the advisory zone where we are at fault, after investigations by the GRM committee, then we would have to compensate the victims***.** He added that, they check the market prices of the items destroyed and refund them in cash or any means as preferred by the victim. However, in a group interview, fishermen expressed worry about the long periods (at least a month) wasted in investigating such cases, coupled with the additional cost of transportation of the representatives which are not considered in the compensation payment process. As one fisherman puts it, '*Even when they* [oil companies] *should pay us, they do not care about the time we waste at home doing nothing*'. Hence, there seem to be asymmetric power relations between the oil companies and fisher folks in dealing with compensations. Such that, even in instances where the oil companies are at fault, the cost of transportation for meetings by the chief fisherman, coupled with the time wasted are all borne by the fisherman (victim).

## 5.5 Conclusion

This chapter discussed the impacts of petroleum extraction on the inhabitants in Axim. It is found that the petroleum extraction companies have embarked on several community programmes such as the provision of scholarship and health facilities, which are intended to have positive implications. However, there are several grumbles about how such benefits are distributed. There are also differing views about the impacts of petroleum extraction activities on fishing from the various fishery and petroleum industry stakeholder groups. As would be discussed in the next section, such different opinions have implications on how the ocean space which serve as the system for fishing and petroleum extraction is governed.

# CHAPTER SIX
# DISCUSSION OF FINDINGS

## 6.0 Introduction

In light of the theories used in this study, this chapter discusses the empirical findings on how fishery governance institutions in Ghana are addressing the concerns raised by fisher folks with regards to the impacts of petroleum extraction offshore on fishing. The chapter expands on the kinds of fishery versus petroleum industry related concerns and conflicts that have been reported in Axim. I draw on the concepts of institutions, power, discourses and stakeholder images to discuss the ways in which fishery governance institutions at the local and national levels have been involved in addressing such conflicts. The chapter concludes by discussing the participation and outcome of such conflicts and their resolution processes for the stakeholder groups involved.

## 6.1 Reported concerns in utilizing the sea as common-pool resource

Common-pool resource theory as provided by Ostrom (1990), serves as an important framework in exploring the challenges in the use of natural resources. A typical common pool resource as used in Ostrom's studies mainly focuses on a resource system (example, grazing ground) which served members in a community (ibid.). Such that an increase in the resource exploitation by one user affected the total available resource unit to be utilized, with a supposed problem of Hardin's 'tragedy of commons' (ibid.). In the case of this study, the resource system (ocean) served appropriators with different resource interests. That is, whilst fisher folks are interested in fish in the ocean, petroleum companies are interested in petroleum products in the same ocean. Increased fishing would not affect the quantity of petroleum products mined in the sea. The question about where should fishermen be allowed to fish to avoid disturbances in the petroleum installations' undertakings has become a contested issue.

Findings from the study indicates that significant contradictions emerged between the various stakeholder groups regarding the impacts of oil petroleum extraction on fishing. Two main discursive positions emerged. There were concerns about loss of access to fishing grounds from the perspective of fisher folks. The demarcation of a no-fishing zone coupled with attraction of fish by lights on the oil rigs results in limited fishing grounds and accumulation of fish within the restricted zone, which according to the fisher folks impacts negatively on their catch. It was also

argued that the incursion of fishing canoes with oil exploring and transporting vessels and the seizure and/or destruction of fishing gears by enforcement officers had increased the economic cost of fishing. Such incursions resulted in destruction of fishing equipment and sometimes deaths of fishermen offshore.

The study found that although there is consensus on the declining fish catch, the claims of fisher folks about the impacts of petroleum extraction on fish catch decline, which has not yet been proven were disregarded by oil company officials and interestingly officials of state organizations. Rather, bad fishing practices such as the use of chemicals for fishing and light fishing were claimed to be the main causes of fish catch decline. In addition, the study found that state organizations and petroleum company officials argued for the need to protect the petroleum installations offshore to ensure continuous oil and gas production, which is an important source of revenue to the Ghana government.

The position of state organizations regarding the issues raised by fisher folks is both interesting and concerning as such position of government in favor of petroleum industry could result in unequal opportunities in the use of the sea as a common pool resource for fisher folks and petroleum companies. One could argue in line with the common pool resource theory that the establishment of an external authority (government organization) would be an effective control mechanism of overexploitation and help resolve possible conflicts among appropriators (Ostrom, 1990). However, as Rosenstein (2005) points out, there tends to be a close relationship between petroleum extraction companies and governments (represented by state organizations) of host countries. A host country's government may engage in two main forms of agreement with International Oil Companies (IOCs). That is, Joint Venture Contracts (JVC) or Production-Sharing Contracts (PSC). In case of the latter, the host government protects the IOC, in its quest to generate revenue from the petroleum industry through taxation (Rosenstein, 2005). The IOCs could in turn rely on such state organizations and actors to claim supremacy in the use of a common pool resource (ibid.). In situations where the host government has a JVC with the IOC, the state would be directly involved in petroleum exploration activities (ibid.). Just as the fisher folks and petroleum companies, the state would also be interested in the ocean space for petroleum exploration activities. In this case, the state would act as both a regulator and a stakeholder in the

petroleum industry. This could result in conflicts of interest by the state as it acts as a regulator and a key stakeholder.

Currently, the Ghana National Petroleum Corporation (GNPC), which is a government organization, is actively involved in petroleum exploratory activities offshore Ghana (Asamoah, 2015). Hence, the government of Ghana acts as a regulator through organizations such as EPA and the Fisheries Commission whiles at the same time acts as key stakeholder in the petroleum industry through the GNPC. In such situations, one could expect that the state and oil companies would have a common interest to utilize the same resource unit (petroleum) at the expense of the fishery industry. Hence, rules aimed at regulating the use of the common pool resource (ocean space) by each of the stakeholders, that is fisher folks and petroleum companies, would invariable favor the later.

Findings from the study indicate that the government organizations, which are supposed to be neutral in analyzing such concerns, seem to argue in favor of the petroleum industry. For the petroleum companies, this is good news because they would have the support of the government in their activities. In addition to the fishery degradation and the conservationist viewpoint, the accumulation of revenue from the petroleum industry and governments' direct involvement in petroleum extraction could influence the state organizations' view of protecting the petroleum industry's activities rather than the interests of local fisher folks. The findings have added to the growing critiques of the common pool resource theory proposed by Ostrom (1990) about the role of external regimes of control in common pool resource utilization (Rosenstein, 2005; Agrawal, 2003; Leach et al., 1999). The position of government organizations can be explained to emanate from its interest of benefiting from petroleum industry where its revenue is expected to be high.

However, the above does not suggest that all fisher folks associated the declining fish catch to petroleum extraction activities offshore. Among the four chief fishermen interviewed, two discredited the view that petroleum extraction activities had negatively affected fish catch output. As argued by the officials of the oil companies and the government officials, these local leaders described fisher folks who disrespected the banned fishing areas as stubborn, deserving to be punished to prevent others from fishing in these areas. They also stressed the negative impacts of the bad fishing practices and the lack of nationwide enforcement of fishery rules as the main cause

of fish decline. Such opposing views by these two chief fishermen could mean that they understood the issue under discussion better than their fisher folks. However, with their involvement in major community engagement programmes with government organizations and petroleum companies, it is also possible that these local leaders served as agents or footholds through which the interests of the state and the petroleum organizations are maintained in the communities (Benjaminsen and Bryceson, 2012). The different discursive positions by the various stakeholders could be explained based on interest, experience and available information. The concepts of institution, power and discourse helped to further explain the different viewpoints of the various stakeholder groups and their implications.

## 6.2 Role of institutions in addressing the concerns

Institutions are very crucial in natural resource governance (Jentoft, 2004; Leach, 1999). They regulate resource utilization, access rights and are means to ensure that conflicts resulting from natural resource use are resolved (Jentoft, 2004). Until the establishment of formal fishery governance institutions, the artisanal fisheries in Ghana had been under the control of local traditional institutions such as traditional chiefs, chief fishermen and chief fish traders (Overa, 2001). These local institutions regulated fishing activities such as setting non-fishing days, setting standards for fishing gears, pricing of fish onshore and punishing offenders within their local communities (ibid.). Since the establishment of formal fisheries institutions, such local norms and values are expected to coexist with the formally established institutions to reinforce each other in a society, especially on issues of national concern such as fishery and petroleum industries. Findings from the study shows the existence of both formal and informal fisheries governance institutions. Despite their coexistence, the study reveals that the formulation of national fisheries rules, and the enforcement of rules are within the purview of formal governmental institutions.

Findings from the study indicate that there seem to be a decline in the roles of informal or traditional fishery institutions in regulating the artisanal fisheries especially with respect to local authority's power to punish offenders of fishery rules within their communities. Again, on an issue of national concern such as fishery and petroleum industry conflicts, the state is the legally constituted body vested with the power to regulate and resolve them. The *Konkohemaa* and *Apofohene* continue to play their roles in settling local disputes among their members, setting daily prices of fish onshore and their religious roles. However, in dealing with legal issues such as

punishing fishermen who flout local fisheries regulations, such as light fishing, chemical fishing and dealing with the recent fishery and petroleum conflicts, the local traditional institutions are virtually ineffective amidst their lack of legal backing. The formal fisheries institutions including, the Fisheries Commission, the Ghana navy and the marine Police determine such regulations. Besides, the court (a formal governmental organization) is the final adjudicator for fisher folks who might not be satisfied with informal institutional outcomes in dealing with their issues. However, the interpretations of the court are usually based on the interpretations of the fisheries regulations, which are determined by the government (Nielsen, 2003).

In analyzing institutions, Svein Jentoft argues that institutions do not act in a vacuum, they are influenced by larger social systems, hence should be analyzed as 'open systems which receive impulses from the outside' (Jentoft, 2004, p. 141**).** Whilst informal fisheries institutions are usually influenced by locally embedded social norms and values, formal fisheries institutions are influenced by national and international fisheries impulses and viewpoints (Jentoft, 2004). Just as firms act within the larger social system of the market, formal fisheries governance institutions are embedded within larger national and global fisheries governance regimes such as UNCLOS, and the Food and Agriculture Organization (FAO) (ibid.). Such institutions influence the discourses and actions pursued at the national and local levels (ibid.). Besides, managers usually look for new solutions in the proximity of old ones, regardless of the nature of the problem at hand (Cyert and March 1963 in Jentoft, 2004, p.142). Such high order institutions impose rules and regulations to be followed at the national and local levels. Similarly, certain positions and organizations have laid down rules and interest which are expected to defended by their actors (Jentoft, 2004). Hence, such agendas are pursued regardless of the nature of a situation at hand.

In the Ghanaian fisheries sector, this study observed that the international and national mainstream discourses on fisheries problems have been translated into the local fisheries governance regimes. One example of how the fish resource situation is viewed is that, 'the root cause of the declining profitability of Ghana's fisheries lies in the failure of the government to control access to the resources, so that there are too many vessels competing to catch too few fish' (World Bank, 2011, p. 2). Hence, fisheries conservation efforts through restricted access to the sea have been suggested in global efforts to reduce overfishing (World Bank, 2011). Developing countries such as Ghana usually depend on such international organizations for support to pursue various national policies.

Hence, government's policy directions are tailored in line with the objectives of such international organizations to attract their funding (Hoben, 1996).

From the Ghana's fisheries management plan (2015 - 2019) which is currently being implemented, 'excessive fishing capacity', that is, too many canoes chasing few fish is a commonly used slogan in the fisheries governance discourse of the country (MOFAD, 2015, p. 15). In this way, the first two key objectives of Ghana's fishery management plan (2015-2019), are geared towards efforts to reduce overfishing (ibid.), through restricted access, reduced fishing efforts, among others. It is therefore not surprising that government organizations take the position regarding the impacts of petroleum extraction on fishing as they tend to adhere global discourses on fisheries which stresses on the role of overfishing and fishery conservation measures rather than the impacts of petroleum extraction on fishing. Such government policies have been translated into the local traditional fisheries institutions such that local traditional leaders who are in constant interaction with the formal organizations seem divided in accounting for the impacts of the petroleum industry on fishing. Whilst some believe the petroleum industry impacts negatively on fishing others had an opposite view similar to the opinions of the petroleum and government officials. The concentration of the biological impacts of supposed overfishing blurs the potential social and economic impacts (Bene, 2003), of the oil industry on fisher folks' livelihood. As discussed in the next section, we understand how such global impulses and images of fisheries have been translated into the discourse on the utilization of the Ghanaian ocean space by artisanal fisher folks and petroleum extraction companies offshore.

### 6.3 Role of discourses and stakeholder images

According to Adger et al., (2001, p. 683), discourse is defined as the shared meaning of a phenomenon. Such shared meanings result in established 'sets of practices, involving speech, writing and action' (Cline-Cole, 2007, p. 123). Discourse is a collection of expressions, which are structured to involve a 'cast of actors', often with these three main types of characters; heroes, villains and victims (Adger et.al, 2001, p. 685). From the empirical findings in the chapters four and five, two opposing discursive positions regarding the utilization of the ocean space can be seen emerging. From these discursive positions, various stakeholder images are invoked (Song et al., 2013**)**. In a typical discourse analysis, such images are known as the caste of actors (Adger et.al, 2001, p. 685).

The first discursive position, which emerged from the fisher folks argued for the utilization of fisheries resources for their livelihood. From the empirical findings, artisanal marine fishing is the main economic activity of the inhabitants in Axim. It is their main source of employment, income and a reliable source of food. As indicated by a fisherman: '*This* [fishing] *is what puts food on my* [his] *table*'. For years, this is how they have lived, making the fishery industry more than an economic activity. It is their way of life. The fisher folks argued that they had expectations of improved livelihood after the discovery of petroleum offshore. However, the petroleum activities and the subsequent imposition of the safety exclusive zones have limited their access to the sea for their marine fisheries resources. The impression created is that petroleum extraction industry has instead resulted in a decline in fish catch. In addition to fisher folks' disappointments about the petroleum industry, the state institutions which are expected to support and protect fisher folks' livelihoods have also been passive and appear to favour the petroleum industry. Therefore, their (fishermen and fish traders) livelihoods are threatened. This discursive position portrays an image of fishermen as victims of the negative impacts of the petroleum companies, who are in this case portrayed as villains (as caste of actors used in narratives) in a typical discourse analysis (Song et al., 2013; Adger et al., 2001).

Therefore, the concerns of fisher folks regarding the negative impacts of the petroleum industry relate to the concept of 'blue grabbing' by Benjaminsen and Bryceson (2012, p. 336). The fisher folks who in this case are previous users of the sea argue against the dispossession of their user rights of the ocean by the petroleum companies, supported by government organizations (Benjaminsen and Bryceson, 2012). From the findings of this study, all fisher folks, except the two chief fishermen argued about the negative impacts of the petroleum extraction on fishing. Interestingly, even the one-man canoe fishermen who did not have the capacity to fish as far out at sea around the petroleum installations offshore and therefore could not be directly impacted, argued about their lack of access to fishing grounds. This confirms the assertion by Wilson (2007) that people's interests influence their beliefs and for that matter their discursive position about nature or in this case, their perception of other stakeholders. The implication is that, a concentration on such opinions without looking at other views from different perspectives of stakeholders could lead to exaggerated conclusions.

The second discursive position, which emerged from the petroleum companies and government organizations argued for the need to conserve the fishery resources and restrict fisher folks access to the same area which served as grounds for petroleum extraction. This discursive position is based on the premise that fisheries resources should be protected from human exploitation. It is argued that fisher folks generally do not follow fisheries regulations. They are ignorant, illiterate, cannot be trusted and all they care about is exploiting the fishery resources. For instance, as a government official argued: '*The only time you should believe a fisherman is when he tells you another fisherman is lying*', which connotes an idea of fabrications and lies from the fisher folks. Currently, the petroleum extraction activities are located in the same area (ocean) where fishing is undertaken. With this image about the fishermen, it is to be expected that they (fishermen) would not follow the regulations which protects petroleum installations offshore from other activities as well. Therefore, the petroleum industry needs to be helped to keep the fishermen away from the Safety Exclusive Zone (SEZ). This is a discursive positon portrays a win-win outcome, where fisheries conservation, petroleum industry and national economic development go hand in hand. In a typical discourse analysis, an image of fisher folks as victims and villains of fishery resource degradation are portrayed from this discursive position. On the other hand, government organizations and petroleum companies are portrayed as heroes who provide platforms such as community engagement programmes to teach fisher folks better fishing practices to help conserve the fisheries resources.

The fishery conservation discursive position by the government organizations is not surprising. Since colonization, Ghana has had several policy directives regarding its artisanal fishery sector. From earlier efforts to modernize the industry technologically such as the introduction of outboard motors to improve fishing capacity, to institutional modernization through rules aimed at reducing fishing efforts (Overa, 2011). From the institutional modernization perspective, small scale fishery industry has been viewed as overpopulated and 'guilty of overfishing' (Overa, 2011, p. 321). Thus, the focus of fishery policies has been tuned towards fishery conservation measures (Overa, 2011). In the fisheries governance debate, the artisanal fisher folks are blamed for overfishing by engaging in illegal fishing practices. The debate take for granted that there is overfishing, but the methods of calculating fish catch are based mainly on estimates, which makes it difficult to prove the overfishing claims (Kolding and Zwieten, 2011; Nunoo et al., 2014). However, the artisanal fisher

folks are easy targets in the overfishing discourse, whilst the role of industrial trawlers with their massive fishing capacity is overlooked (Nunoo et al., 2014). According to Nunoo et al. (2014, p. 277), 'the problem of illegal unreported and unregulated (IUU) fishing in Ghana lies mostly in the licensed trawlers operating in the artisanal fishing zone, or using illegal fishing gear and illegal trans-shipments'. Nunoo et al. (2014, p. 276) add that these industrial trawlers entirely used pelagic fish such as anchovies and sardinellas as bait for their tuna catch, which contributed to a 'sharp decline in (pelagic) catch' in Ghana in the 1970s. Such a biased image of the fisher folks as described above, is consistent with Bene's article: '*When fishery rhymes with poverty*…' where artisanal fisher folks are tagged as 'poorest of the poor', because they are fishing down the fishery resource that they depend on, without looking at other possible factors affecting them (Bene, 2003, p. 951). A concentration on such images of artisanal fisher folks as ignorant without looking at the impacts of other factors, such as the role of industrial trawlers and petroleum extraction activities, could lead to a misinterpretation of the impacts of artisanal fisheries in the overfishing discourse.

As earlier discussed in chapter two, reality can be viewed by different groups and individuals from different perspectives depending on their knowledge and shared meaning about the phenomenon (Cresswell, 2013). How each of the stakeholder group views the other, influenced by the deeply ingrained images or perceptions of the stakeholders about the phenomenon, influences the overall governance process by which the decisions and actions of each group is constructed (Song et al., 2013). Such images and perceptions are also influenced by the interests of the various stakeholders (ibid.). Therefore, one should not be surprised that the imposition of the restricted zone has encountered several local resistances and conflicts in different forms as earlier discussed. Governing the ocean space for the coexistence of the fisheries and petroleum industry requires that the above opposing discursive positions are reconciled. Ensuring this would also depend on the relations of power and the participation of the various stakeholder groups in decisions are discussed below.

## 6.4 Power and participation in decision-making

Collective action and participation is considered a key ingredient in natural resource governance (Jentoft and McCay, 1995). The extent to which user groups comply with rules are usually influenced by their participation in the rule making process (ibid.). To this end, Agrawal (2003) argues for the need to ensure a local level participation, as people tend to obey rules that they have

made themselves more than through command and control policies characterizing the top-down governance system. Although addressing fishery versus petroleum industry concerns is a more national issue, it is recommended that in such instances, governments should play a more monitoring and supervisory role than imposing rules on local people (Agrawal, 2003).

My study sought to understand the extent to which the various stakeholder groups (fisher folks, petroleum companies and government organizations) collaborate in addressing the fisheries versus petroleum industry concerns. From the study, it is found that the form of local fisher folks' participation in decision making was between the two main extremes of participation as described by Jentoft and McCay (1995, p. 229), 'government power', which involves little local participation and 'fishermen power' which is full local fisher folks' participation. It is found from this study that participation is more inclined towards a 'government power' form of participation. To improve the appeal of the fishery conservation narrative under the guise of addressing local concerns, the government and petroleum organizations undertake community engagement programmes to solicit local views on the various concerns usually through the chief fishermen and chief fish traders. Besides, the *Apofohene* serves as a representative for any aggrieved fisherman on the Grievance Redress Committee instituted by the petroleum companies through their EIA requirements and supported by the state to address various fisheries and petroleum industry concerns.

Although such programmes are intended to have good implications by involving local fisher folks, they are mainly educational rather than real local participation to have influence in decisions. The government of Ghana (through its organizations) may decide whether to take the views of the local people into consideration or not in the final decisions. There were several instances in the study where local fishermen complained about the lack of impacts of their concerns and opinions in resolving the fisheries versus petroleum industry conflicts. To this extent, fishermen exhibited apathy whilst others had given up on attending community engagement programmes organized by the formal fishery organizations and petroleum companies. Such organizations usually have to rely on or collaborate with local NGO's such as Friends of the Nation, who tend to have a good relationship with local people for such community engagement programmes.

It is argued that such local consultation programmes may be undertaken mainly to please the global discourse on participatory approaches of co-management, interactive governance or serve as a mere 'symbolic gesture aimed at releasing the frustration of user groups' (Jentoft and McCay, 1995, p. 229). Although locals may be involved in the decision-making process, their views would have little or no place in the final decisions or rules governing their activities. For instance, irrespective of local concerns of attraction of fish by lights on the petroleum rigs, it is argued by the state officials that such a small restricted area could not attract all the fish in the ocean, hence the local concerns had no basis. As such, local concerns of reduced fish landing owing from petroleum extraction are considered unscientific and untrustworthy. Even if efforts are made to address local fisher folks' problems, they are mainly geared towards reducing fishing efforts and practices which are considered more scientific as earlier discussed. Palsson reflects that formal institutions and organizations take for granted an 'objectivity that stakeholders find hard to challenge' (Palsson 1991 in Jentoft, 2004, p. 140). This reduces local users' experienced-based knowledge to nothing but 'an anecdotal information that should not be taken seriously' (Dyer et al., 1994 in Jentoft, 2004, p. 140). The lack of scientific proof of the claims by fisher folks tend to make their arguments irrelevant in the fishery versus petroleum extraction discourse. This could also stem from the reduced local power in the fisheries governance process. Thus, Jentoft (2004, p. 142) argues that:

> *'Although it is frequently claimed that 'knowledge is power', knowledge will not always do the trick…Sometimes it also works the other way round: power is knowledge, because those who are in a powerful position can define the knowledge that is valid and relevant in the decision-making process'.*

Findings from the study indicated unequal power relations among the various stakeholders in the fishery and petroleum sectors. The petroleum company's 'scientific' explanations for their actions and inactions coupled with their governmental backing tend to give them power over their fisher folk counterparts. The formal governmental organizations with their legislative backing have power to control the fishery industry and determine the direction of fishery rules even at the local levels, whereas traditional institutional powers even if they exist are not legally binding. Besides, the local leaders seemed divided in their roles and succumbed to the governmental fishery authorities. The power to control which of the local concerns counts as knowledge, what should be obeyed and disobeyed rest within the purview of the formal fisheries governance institutions.

In my interviews with government officials, there were instances where these officials referred to reports provided by the petroleum companies or the consultants employed by these petroleum companies such as the latter's EIA reports as evidence to prove their (government official's) arguments. It would be surprising to see an oil company destroy its own image by publishing documents to state organizations which could ban their activities. This makes the position of government institutions in addressing fishery versus petroleum industry conflicts very problematic as local fisher folks' opinions (regardless of their veracity) are suppressed.

Since the local fisher folks and their leaders have no scientific evidence to prove the veracity of their claims, their influence in such programs and general fisheries decisions are ineffective. Findings from this study indicate that although officials of state organizations emphasized their community engagement programs, local inputs had little place in the final decisions in addressing the local concerns. This has negatively affected fisher folks' negotiation power even in circumstances where it is concluded that the petroleum companies are at fault. For instance, fisher folks receive compensation only on items destroyed by oil vessels without taking into consideration the time wasted before the final decision on how much to pay is made. As said by an oil company official: '*We* [oil companies] *buy them the nets when it is destroyed or pay in cash as per the market price of the net, but this would be done only after our investigations confirm their claims*'. As discussed in the next section, the passive role of government organizations in dealing with fisher folks' concerns coupled with the latter's lack of impacts in the definition of fishery regulations have implications for local compliance to these regulations at the local and national levels.

### 6.5 Outcome of resolutions and Implications

Compliance to fisheries rules can be compared to that of a football game. As an embodiment of rules, the referee in a football game is expected to be fair to all players at both sides of the pitch. To this end, players of the teams interpret the actions and decisions of the referee with respect to the football rules. Any attempt by the referee to contravene the rules or favor one team, could result in protests, disregard for football rules or even boycott of the entire game. A similar case emerged in this study. State organizations, who were expected to be neutral (as 'referees') in dealing with the fishery versus petroleum industry concerns and conflicts were found to argue in favour of one of the 'teams', the petroleum companies. The state organizations and petroleum company officials

viewed fisher folks as ignorant about the need for fishery conservation measures and criticized them for their bad fishing practices. The fisher folks on the other hand viewed the petroleum companies as the main cause of the low fish catch and state organizations and local traditional institutions as ineffective for not dealing with the petroleum companies to address their concerns.

Findings from this study indicate that irrespective of the local restrictions and the associated punishments if fishing within the Safety Exclusive Zone (SEZ), fishermen continue fishing in the exclusive zone. Fishermen argue based on their strong attachment to the fisheries industry and the need to survive. Another crucial reason for fisher folks' disregard for the SEZ fishing prohibition is based on their view that the local and national institutions, which are expected to deal with their concerns, to provide compensation arrangements for them and protect their interests have been ineffective and tend to argue in favor of the oil companies. For instance, when I asked a fisherman why the continued fishing in the prohibited zone he answered: '*They* [oil companies and government bodies] *do not take us* [fisher folks] *serious, but this* [fish] *is what puts food on my table'*. According to Jentoft (2004), increased surveillance, enforcement and stricter penalties would not always be effective in ensuring compliance to rules. An effective compliance could be achieved 'when rules enjoy legitimacy, (such that) breaking them is considered unethical' (ibid., p. 143). This is when laws acquire what Hodgson refers to as 'customary dispositional status of a rule' (Hodgson, 2006, p. 5). People's actions and inactions then become customary and acquire normative statuses, and it becomes morally binding for people to obey the rules (Jentoft, 2004).

This study indicates that fishermen's fear of punishment coupled with the reported harassments and the destruction of fishing equipment have not been enough to deter them from fishing within the prohibited zones around the petroleum installations offshore. This confirms the assertion by Jentoft and McCay that 'institutions form incentives, motives, intentions, and actions of social actors…as they respond to management rules and regulations' (Jentoft and McCay, 1995, p. 228). The disrespect of local fisher folks to the SEZ prohibitions could be explained from their view about such laws as illegitimate since their inputs rarely have any impact the final decisions. Since fishery governance basically aims at ensuring continued production to sustain human livelihood, an inclusive decision making process both at government (national) and local levels is vital to ensuring effective management of the fishery sector (Kraan, 2009). Therefore, in addition to the scientific fisheries data and predictions in fisheries, local fisher folks should have a place in the

final fisheries governance decisions. This is key, looking at local fisher folk's strong attachment to the fishery resource, extensive fishery knowledge, and the fact the fisher folks would be the final observers of such regulations.

# CHAPTER SEVEN
# CONCLUSION OF STUDY

## 7.0 Introduction

This study sought to investigate how the various fisheries versus petroleum industry concerns and conflicts have been addressed at the local and national levels by the various fisheries governance institutions in Ghana. This chapter summarizes key findings from the study upon which conclusions and some recommendations are made. The common-pool resource theory helped to understand the concerns from perspectives of the various stakeholder groups involved and the roles of the various levels of institutions in addressing these concerns. Central to the Political Ecology approach, the concepts of institutions, discourse and stakeholder images as well as power were used to assess the positions, the perceptions and how these have subsequently influenced the actions and decisions of the various stakeholders involved. The first section of this chapter is a summary of the key findings, upon which conclusions and some recommendations based on the research key findings are made.

## 7.1 Summary of key findings

### *7.1.1 Reported fishery versus petroleum industry concerns*

The first research question sought to find what kinds of fishery versus petroleum industry concerns had been reported in Axim. The concerns of fisher folks regarding the impacts of petroleum extraction were categorized under, lack of access to fishing grounds, attraction of fish by lights on oil rigs, canoe incursions and destruction of fishing nets, harassment by Fishery Enforcement Unit Officers and lack of information on the impacts of petroleum extraction by state institutions. Findings from the study indicate that two main discursive positions emerged in the fishery versus petroleum industry with regards to these concerns. However, unlike the typical common pool resource theory as explained by Ostrom, the main fishery versus petroleum industry concerns mainly focused on the competition for ocean space for each of these activities to be undertaken. Whereas fishermen are interested in fish resources in the sea, petroleum companies are focused on extracting the oil and gas in the ocean. Whilst fishermen and fish traders laid emphasis on the negative impacts of the petroleum industry on their declining fish catch and livelihood as their concerns, the petroleum companies viewed their activities as too insignificant to result in any

fisheries output decline. They rather blamed declining catches on bad fishing practices. Whereas fisher folks likened the activities of petroleum companies to the 'kidnapping' of their fish, petroleum companies saw the encroachment of the SEZ as detrimental to their fuel extraction activities. Interestingly, governmental fisheries governance organizations at the local, regional and national levels argued in favour of the petroleum companies. Findings from the study indicate that the images of the two stakeholder groups (fisher folks and petroleum companies) held by the fisheries governance institutions influenced how such concerns are addressed as discussed in the next section.

### *7.1.2 Addressing the concerns by fisheries governance institutions*

The study sought to find out how fishery governance institutions at the local and national levels have been involved in resolving such conflicts. Findings from the study indicate that the local traditional leaders, oil companies, governmental organizations, and local NGOs undertake community engagement programmes to solicit local views and sensitize fisher folks on the need to respect the various fisheries regulations. Again, a Grievance Redress Committee made up of leaders from the different stakeholder groups has also been instituted to address emerging concerns and conflicts between the two sectors. Despite these programmes, the study indicates that at national, regional and local levels, the government organizations argued for the need to protect the petroleum industry which served as an important source of revenue to the country and stressed the role of bad fishing practices and the increased fishing efforts as key determinants of the declining fish catches. Fisher folks are tagged as generally stubborn, liars and ignorant about fisheries conservation measures. With this image about fisher folks in mind, strict regulations to inhibit their movement into the safety exclusive zone around petroleum installations offshore is required to keep the fishermen away. For instance, officers of the FEU interviewed justified their chasing of fishermen, seizure and destruction of fishing nets as means to put fear in fishermen who flout the rules to deter others. Similarly, current fisheries policies of Ghana have been geared towards reducing fishing efforts and restricting fishermen's access to the sea through strict regulations. Local fisheries leaders also seemed divided in their views regarding such concerns**.**

It is also found that the dual role of the government of Ghana (through its organizations) as a regulator and a stakeholder in the petroleum industry could explain governments' inclination towards the petroleum industry in the utilization of the ocean resource debate. I argue that the

position of the government in the fishery versus petroleum industry debate could result in unequal access in the utilization of the ocean resource, since the petroleum industry tends to be favored by the government. The different perceptions and arguments by the fisher folks and petroleum companies as well as the governmental and local traditional organizations were found to emanate from their differences in interest and the available information on how the ocean serving as a common pool resource system should be utilized and managed.

### *7.1.3 Participation and outcomes for various stakeholder groups*

Despite the local involvements in the community engagement programmes, the study found that fisher folks and their local traditional leaders had little or no influence in the final fisheries versus petroleum conflicts resolution decisions. The traditional leaders who supported the fisher folks' claims lacked the legal backing to deal with the various concerns at their local level. At best, these leaders participate in community engagement programmes of which their opinions are of little or no significance in the final determination of rules.

Unequal power relations played a key role in determining which viewpoint is considered appropriate. Apart from the government organizations' legal backing to determine which fisheries governance policies to be followed, fishermen could hardly provide 'scientific' evidences to back their various claims. Their concerns were based on local knowledge acquired through their long-term experiences in the fisheries sector. On the other hand, the petroleum companies provided scientific documents (example, EIA reports) to back their claims. Such documents also served as reference points for government organizations in their arguments. The consequence of this is unequal access and unequal rights to utilize and appropriate the sea as source of fish and petroleum products. The petroleum companies tend to have the support of formal governmental organizations and even a section of the traditional leadership. Hence, they tend to have more favourable conditions to operate than the local fisher folks whose actions are considered detrimental for their own survival. This could however worsen the living conditions of the local fisher folks if such views and policies about them are misdirected. The impacts of the seemingly lack of local fisher folks' influence in formal fisheries regulations is that fisher folks in turn disregard the various prohibitions, such as not fishing in the safety exclusive zone, to ensure that their main livelihood activity (fishing) is protected and preserved.

## 7.2 Conclusions and Recommendations

Studies have shown that bad fishing practices such as light fishing and the use of chemicals coupled with increased fishing efforts could impact negatively over time on total fish catches (Nunoo et al., 2014; Nunoo et al, 2009). However, a one-sided regulation focus on these fishing practices without looking the impacts of other factors such as industrial trawlers and the petroleum industry could blur policy makers' understanding on the roles of these factors in artisanal fisheries output. Besides, focusing on strict fisheries conservation without looking at the economic, social and cultural implications of such rules could exacerbate the poverty situation in local fishing communities such as Axim.

Hence, there is the need for a better assessment system of the social and economic impacts of the offshore petroleum industry experienced in fishing communities and a laid down compensation system which would cater for the loss of fishing time and other outlying costs to fishermen in case of accidents. All stakeholders in the fishery and petroleum industries should have an active say in the final decisions on conflicts and concerns pertaining to the two industries and not a mere charade to please international requirements in fisheries governance or to calm local pressure for participation. This would give the moral grounds for the fisher folks to respect fishery regulations and guidelines with little or no strict enforcement. It will also help engender some level of cooperation from the different stakeholder groups for the coexistence of the fishery and petroleum industry. Finally, there is the need to enhance local community education on the various ways of identifying offshore petroleum installations and the safety implications of fishing within such prohibited zones.

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# APPENDICES

## Appendix 1: Interview guide for Chief fishermen (*Apofohene*)

This interview is aimed at producing data on the topic: Governing the ocean space for the coexistence of fishery and petroleum industry in Ghana's western region**.** This is in partial fulfilment of the requirement for the award of Master of Philosophy (MPhil.) Degree in Development Geography at the University of Bergen, Norway. All information provided shall be treated confidentially.

1. Marital status……
2. Level of education……
3. Place of birth (migrant / indigene) ……...
4. If migrant, how long have you lived in Axim?.....
5. Do you engage in fishing elsewhere?.....
6. How long have you worked as a chief fisherman?.....
7. Do you have any other source of income?.....
8. What is the total number of canoes and fishermen currently working in Axim?.....
9. What are the major types of fish harvested in Axim?.....
10. What kinds of tools and methods of fishing do you apply currently in Axim?.....
11. What are your roles as a chief fisherman?.....
12. How are fisheries activities organized in Axim?.....
13. What was the state of fishing in terms of total catch (pans) in Axim before the oil extraction activities? ……..
14. Do you see any changes currently in this regard?.....
15. If yes, what do you think could be the reasons for these changes?.....
16. What has been your challenges and concerns;
    A. Before the oil and gas industry emerged?.....
    B. Since the oil extraction activities started?.....
17. To what extent do you relate with the oil and gas companies in terms of;
    a. Their development programs (employment, other corporate social responsibilities)?...

b. Issues regarding their activities?.....

18. Do you think the oil extraction activities have negatively affected your work as fishermen?.....
19. What have you done as a chief fisherman to address these conflicts?.....
20. Which institutions have been involved in resolving fisheries versus petroleum related concerns and conflicts in Axim?.....
21. What has been the outcome of such resolutions?.....
22. Did these resolutions meet your expectations?.....
23. How are winners and losers determined in such cases?.....
24. How are fishers compensated in cases where oil extraction related activities pose problems to fishermen?.....
25. What has been the impacts of such resolutions on your fisheries activities?.....
26. In your opinion, which institution is best to address the fishery versus petroleum industry conflicts?

**Appendix 2: Interview guide for chief fisher traders (*Konkohemaa*)**

1. Marital status……..
2. Level of education…….
3. Place of birth (migrant / indigene) …….
4. If migrant, how long have you lived in Axim?.....
5. Do you engage in fish trading elsewhere?.....
6. How long have you worked as a chief fish trader?.....
7. What are the major types of fish sold in Axim?.....
8. What are your roles as a chief fish trader?.....
9. How are fish trading activities organized in Axim in terms of;
    - ***a.*** Getting fish to sell…….....
    - ***b.*** Pricing……..
    - ***c.*** Marketing destinations…….
    - ***d.*** Regulating member's activities…….
    - ***e.*** Others……
10. Have there been changes in fish supply?.....

11. If yes, what do you think could account for such changes?.....
12. What are your relations with the oil and gas extraction companies?.....
13. Do you think the oil and gas extraction activities have impacted your fish trading activities in any way?.....
14. Have you been involved or witnessed any oil/fishery related problems or conflicts?.....
15. If yes, which institutions were such cases reported to?.....
16. How were they resolved?.....
17. What were the outcomes of such resolutions?.....
18. How are winners and losers determined in such cases?
19. How are people compensated in case one group emerge as a winner?.....
20. Have you ever participated in the resolutions of such conflicts?.....
21. What was your role in this regard?.....
22. In your opinion, how should fishery/oil related conflicts be resolved?.....
23. Anything to add?.....

**Appendix 3: Interview guide for Fishermen**

1. Marital status……..
2. Level of education…….
3. Place of birth (migrant / indigene) ……
4. If migrant, how long have you worked as a fisherman?.....
5. Do you engage in fishing elsewhere?.....
6. How long have you worked in Axim as a fisherman?.....
7. Do you have any other occupation apart from fishing?.....
8. What are the specifications of equipment used for fishing?
    *a.* Fishing net type…….
    *b.* Canoe type and size……
    *c.* Other……..
9. How many times per week do you go fishing?.....
10. How many fishermen are involved per your fishing trip?.....
11. Have there been changes in your fishing in terms of;
    ***a.*** Number of fishermen per trip……

***b.*** Frequency of fishing per week……..

***c.*** Other……..

12. What do you think could account for such changes?.....

13. Which times of the year do you experience shortage in fish supply?.....

14. What have been your coping strategies during these periods?.....

15. What has been the state of fishing in terms of output;
    ***a.*** Before the oil and gas extraction activities commenced?.....
    ***b.*** Since the oil and gas extraction activities commenced?.....

16. Have you witnessed or encountered any oil related problem or conflict in your fishing activities?.....

17. If yes, what was it about?.....

18. How was it resolved?.....

19. Do you think the oil extraction activities impacts the fishing in any way?.....

20. Which other concerns and challenges do you face in your fisheries related activities?.....

21. Which institutions have been involved in addressing these in Axim;
    a. Fisheries/oil related concerns……
    b. Other fishery related conflicts……

22. What has been the outcome of such resolutions?.....

23. How are winners and losers chosen in such cases?.....

24. Did these resolutions meet your expectation?.....

25. What has been the impacts of such resolutions on your fisheries activities?.....

26. How are people compensated in case one group emerge as a winner?.....

27. Which fisheries governance related policies do you know?.....

28. What kinds of fisheries related decision making process have you taken part before?.....

29. In your opinion, how should fisheries/oil related conflicts be resolved?.....

**Appendix 4: Interview guide for fish traders**

1. Marital status……..
2. Level of education…….
3. Place of birth (migrant / indigene)……
4. If migrant, how long have you worked as a fish trader?.....
5. Where else do you engage in fish trading?.....

6. How long have you worked in Axim as a fish trader?.....
7. Do you have any other occupation apart from fish trade?.....
8. How are your fish trading activities organized in Axim in terms of;
    a. Getting fish for sale……
    b. Pricing……..
    c. Marketing destinations…….
    d. Regulating your activities……
    e. Others……...
9. Have there been changes in fish supply since you worked as a fish trader?.....
10. If yes, what do you think could account for such changes?.....
11. Which times of the year do you experience shortage of fish supply?.....
12. What are the coping strategies adopted during these periods?.....
13. What are your relations with the oil and gas extraction companies?.....
14. What has been the state of fish trading;
    a. Before the oil and gas extraction activities?.....
    b. Since the commencement of the oil and gas activities?.....
15. Do you think the oil and gas extraction activities have impacted your fish trading activities in any way?.....
16. Have you been involved or witnessed any oil/fishery related problems or conflicts?.....
17. If yes, what was the issue?.....
18. Which institutions were such cases reported to?.....
19. How were they resolved?.....
20. What were the outcomes of such resolutions?.....
21. How are people compensated in case one group emerge as a winner?.....
22. Have you ever participated in the resolutions of such conflicts?.....
23. What was your role in this regard?.....
24. In your opinion, how should fishery/oil related conflicts be resolved?.....

**Appendix 5: Interview guide for petroleum extraction companies**

1. Name of oil company…….
2. Position of respondent……
3. Can you give a brief history about your operations in Ghana as a company?.....

4. What benefits has communities such as Axim received from your company since operations?.....
5. Have you had complaints from nearby communities regarding your activities?.....
6. If yes, what are they?.....
7. What have you done as a company about such complaints?.....
8. What is your relationship with fisher folks in Axim?.....
9. Do you think your petroleum activities impacts negatively on fishing in Axim?.....
10. How are people compensated in case your operations result negatively on fishing activities?
11. What challenges do you face in your operations from fishing activities?.....
12. Which institutions are involved in addressing issues related to your activities and fishing?
13. What has been the outcome of such conflict resolutions?.....
14. In your opinion, how do you think fishery/oil extraction related concerns should be resolved?.....

**Appendix 6: Interview guide for local traditional leaders (paramount chief)**

1. Can you give a brief history of marine fishing in Axim?.....
2. What is the state of marine canoe fishery in Axim currently?.....
3. What are your duties in the regulation of fisher folk's activities in Axim?.....
4. Which individuals/groups are involved when taking decisions relating to fishing in Axim?.....
5. How are such regulations disseminated and enforced?.....
6. What were the fishery related concerns before the start of the oil extraction activities?.....
7. How were such concerns resolved?.....
8. What have been the benefits and challenges from the oil extraction activities in Axim since its commencement?.....
9. What are the fishery/oil related concerns that have been reported in Axim?.....
10. How have such concerns been addressed?.....
11. How are winners and losers determined in such cases?.....
12. How are people compensated in case one group emerge as a winner is such cases?.....
13. Do you think the oil extraction activities pose threats to the canoe fishery in Axim?.....

14. If yes, what have been your role in addressing such threats?.....
15. Which governmental institutions have been involved in addressing such concerns?.....
16. Under what circumstances are issues from the local level transferred to governmental institutions for redress? ……..
17. Which other institutions, companies or organizations are involved in resolving such conflicts?.....
18. To what extent do you collaborate with these institutions?.....
19. Have there been institutional changes in the regulation of fisher folk's activities in Axim?.....
20. In your opinion, which institution is best to address the fishery versus petroleum companies conflicts?.....……

**Appendix 7: Interview guide for Governmental organizations (Fisheries Commission etc.)**

1. What are your roles as an organization in fisheries governance?.....
2. What is the state of marine canoe fishery in the country?.....
3. Which individuals/groups are involved when taking decisions relating to fishing?.....
4. How are such regulations disseminated and enforced?.....
5. What has been the challenges and concerns in Ghana's small scale marine fisheries?
   a. Before the commencement of oil and gas extraction activities?.....
   b. Since the oil and gas activities began?.....
6. What are the fishery/oil related concerns that have been reported to your outfit?.....
7. Do you think the oil extraction activities pose any threats to the marine canoe fisher folks?...
8. If yes, what has been the specific role of your outfit in resolving such concerns?.....
9. How are winners and losers determined in such cases?.....
10. How are victims compensated and offenders punished?.....
11. Which other organizations are involved in addressing such conflicts?.....
12. To what extent are local traditional institutions involved in addressing such conflicts?.....
13. Do you think some individuals or groups are able to influence the outcomes of such resolutions?.....
14. In your opinion, which institution (traditional or government) are best at handling fisheries/oil related disputes? …….....

**Appendix 8: Interview guide for Non-Governmental Organizations (NGOs)**

1. Name of NGO…….
2. Position of respondent……
3. Can you give a brief history about your operations in Ghana as an NGO?.....
4. What are your roles as an NGO with regards to fishermen, petroleum companies and government organisations?.....
5. Have you encountered any fishery versus petroleum industry conflict in Axim?.....
6. If yes, what were they?.....
7. How were they resolved?.....
8. What have been your role as an NGO in addressing these concerns?.....
9. What has been the outcome of such conflict resolutions?.....
10. Do you think your petroleum activities impacts negatively on fishing in Axim?.....
11. What is your relationship with fisher folks in Axim?.....
12. What is your relationship with petroleum companies and governmental organisations involved in addressing such concerns?.....
13. In your opinion, how do you think fishery and petroleum extraction related concerns should be resolved?.....